



COMPLIANCE COMMITTEE

**CC/ERT/2019/19
5 September 2019**

**Report of the technical review of the seventh national communication
of Malta**

Note by the secretariat

The report of the technical review of the seventh national communication of Malta was published on 8 November 2018. For purposes of rule 10, paragraph 2, of the rules of procedure of the Compliance Committee (annex to decision 4/CMP.2, as amended by decisions 4/CMP.4 and 8/CMP.9), the report is considered received by the secretariat on the same date. This report, FCCC/IDR.7/MLT, contained in the annex to this note, is being forwarded to the Compliance Committee in accordance with section VI, paragraph 3, of the annex to decision 27/CMP.1.



United Nations

FCCC/IDR.7/MLT



Framework Convention on
Climate Change

Distr.: General
8 November 2018

English only

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

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 Malta, 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”.

GE.18-18875(E)



* 1 8 1 8 8 7 5 *

Please recycle 



Contents

	<i>Paragraphs</i>	<i>Page</i>
Abbreviations and acronyms		3
I. Introduction and summary	1–8	4
A. Introduction	1–3	4
B. Summary.....	4–8	4
II. Technical review of the information reported in the seventh national communication, including the supplementary information under the Kyoto Protocol.....	9–160	6
A. Information on national circumstances and greenhouse gas emissions and removals.....	9–25	6
B. Information on policies and measures and institutional arrangements	26–74	12
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	75–106	21
D. Provision of financial and technological support to developing country Parties, including information under Articles 10 and 11 of the Kyoto Protocol.....	107–111	31
E. Vulnerability assessment, climate change impacts and adaptation measures .	112–118	31
F. Research and systematic observation.....	119–127	34
G. Education, training and public awareness.....	128–133	36
III. Conclusions and recommendations	134–144	38
IV. Questions of implementation	145	40
Annex		
Documents and information used during the review.....		41

Abbreviations and acronyms

AEA	annual emission allocation
Annex II Party	Party included in Annex II to the Convention
BR	biennial report
CH ₄	methane
CO ₂	carbon dioxide
CO ₂ eq	carbon dioxide equivalent
CTF	common tabular format
ERT	expert review team
ESD	effort-sharing decision
EU	European Union
EU ETS	European Union Emissions Trading System
F-gas	fluorinated gas
GCOS	Global Climate Observing System
GDP	gross domestic product
GHG	greenhouse gas
HFC	hydrofluorocarbon
ICAO	International Civil Aviation Organization
IE	included elsewhere
IMO	International Maritime Organization
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
LULUCF	land use, land-use change and forestry
NA	not applicable
NC	national communication
NE	not estimated
NF ₃	nitrogen trifluoride
NIR	national inventory report
non-Annex I Party	Party not included in Annex I to the Convention
non-ETS sectors	sectors not covered by the European Union Emissions Trading System
NO	not occurring
N ₂ O	nitrous oxide
PaMs	policies and measures
PFC	perfluorocarbon
RCP	representative concentration pathway
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”
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 Malta. 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.11).¹

2. In accordance with the same decisions, a draft version of this report was transmitted to the Government of Malta, 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 Malta 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 12 February 2018, after the deadline of 1 January 2018 mandated by decision 9/CP.16.

6. Malta did not inform the secretariat about its difficulties with making a timely submission in accordance with decision 13/CP.20 and decision 22/CMP.1. The ERT noted with concern the delay in the submission and recommended that Malta make its next submission on time.

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 Malta 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 Malta 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	Complete	Transparent	–	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	Mostly transparent	Issue 1 in table 17
PaMs	Mostly complete	Mostly transparent	Issues 1, 4 and 9 in table 10	PaMs in accordance with Article 2	Mostly complete	Transparent	Issue 11 in table 10
Projections and the total effect of PaMs	Mostly complete	Mostly transparent	Issues 4 and 8 in table 14; issue 1 in table 16	Domestic and regional programmes and/or arrangements and procedures	Mostly complete	Transparent	Issue 1 in table 8
Vulnerability assessment, climate change impacts and adaptation measures	Mostly complete	Transparent	Issue 1 in table 19	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 20	Minimization of adverse impacts in accordance with Article 3, paragraph 14	Mostly complete	Transparent	Issue 12 in table 10
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 Malta 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 Malta 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 Malta

<i>Supplementary information</i>	<i>Reference to the section of NC7</i>
National registry	Not reported
National system	3.2
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Not reported
PaMs in accordance with Article 2	4.4
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 Malta 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 Malta explain the relationship between its historical 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. Malta is an archipelago consisting of three main inhabited islands, namely, Malta, Gozo and Comino, with limited water resources in a semi-arid climate, so is exposed to the impacts of global warming in terms of increase in the average temperature, increase in the risk of heatwaves, exacerbation of drought and rise in sea level. Malta's economy is mainly based on services and has shown an impressive increase in efficiency in terms of GHG emissions per unit of GDP per unit of energy used, this way decoupling GHG emissions from economic growth. The potential for increasing the use of renewable energy sources may further boost this trend. Challenges that remain are the reduction of emissions from the waste sector, where the growth in emissions is directly proportional to the growth in the population (resident and tourists), and the

reduction of emissions of F-gases from refrigeration and air conditioning, which are also directly associated with the growth in the population (resident and tourists) as well as with the impacts of climate change. The main change in national circumstances since the NC6 is that Malta is now connected to the European grid, with the consequent increase in the efficiency of electricity production because of the greater buffer capacity.

10. The ERT noted that during the period 1990–2016 Malta's population and GDP increased by 23.5 and 172.9 per cent, respectively, while GHG emissions per GDP unit and GHG emissions per capita decreased by 66.7 and 26.4 per cent, respectively. Those gains in efficiency are not only associated with a decrease in the emission intensity of energy industries, but are also due to the boom in economic sectors with low emission intensity, such as finance and tourism. The ERT also noted that some of the information provided by Malta was out of date.

11. In particular, the ERT suggests that the Party report in table 2-3 (on electricity generation): (1) a complete time series from the year when Malta joined the EU up to the latest available year when the NC is compiled (currently the time series ends at 2013); and (2) information on production, import, export and consumption, as well as on the share of renewable sources (possibly divided by type (e.g. wind, solar)). Also, the information in figure 2-9 on fuel consumption presented by fuel type should possibly be converted to a table with the historical time series, using the same period as for table 2-3 and reporting fuel consumed for each generation method, in order to show the impact of policies (e.g. the phasing out of heavy oil, which has affected the fuel mix). Further, transparency would be improved by presenting such information split between fuel consumption for energy industries and fuel consumption for transport. Table 3 illustrates the national circumstances of Malta by providing some indicators relevant to GHG emissions and removals.

Table 3

Indicators relevant to greenhouse gas emissions and removals for Malta 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)	16.16	24.59	28.33	34.27	35.71	121.0	4.2
GHG emissions without LULUCF per capita (t CO ₂ eq)	5.94	7.20	7.16	5.15	4.37	–26.4	–15.3
GHG emissions without LULUCF per GDP unit (kg CO ₂ eq per 2011 USD using purchasing power parity)	0.37	0.29	0.25	0.15	0.12	–66.7	–18.7

Sources: (1) GHG emission data: Malta's 2018 GHG inventory submission, version 9; (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

12. The ERT assessed the information reported in the NC7 of Malta and identified an issue relating to transparency and adherence to the UNFCCC reporting guidelines on NCs. The finding is 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 Malta

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	<p>Although Malta provided a description of its national circumstances and this description has improved compared with the NC6, the information provided did not enable the ERT to understand how these national circumstances are relevant to factors affecting GHG emissions and removals, in particular as information on the climate profile and power generation was reported only to 2013.</p> <p>During the review, Malta provided additional information, such as energy statistics to 2016 showing the effects from the power interconnector, which started operations in 2015, and the increase in renewable electricity generation. This information further enhanced the transparency of reporting on national circumstances.</p> <p>The ERT encourages Malta to enhance the transparency of the information on its national circumstances with a focus on how these national circumstances are relevant to factors affecting GHG emissions and removals. The ERT noted the importance of providing up-to-date information.</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.

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

(a) Technical assessment of the reported information

13. Malta 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 for 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.

14. The difference in total GHG emissions including LULUCF between the 2018 annual submission and the NC7 (and the 2017 annual submission, which is the basis for the data presented in the NC7) for the year 2015 is only –0.1 per cent, which is mainly due to recalculations in the energy sector based on an update of activity data and changes in methodology.

15. Total GHG emissions² excluding emissions and removals from LULUCF decreased by 9.1 per cent between 1990 and 2016, and total GHG emissions including net emissions or removals from LULUCF also decreased by 9.1 per cent over the same period. Table 5 illustrates the emission trends by sector and by gas for Malta.

Table 5

Greenhouse gas emissions by sector and by gas for Malta for the period 1990–2016

	GHG emissions (kt CO ₂ eq)					Change (%)		Share (%)	
	1990	2000	2010	2015	2016	1990–2016	2015–2016	1990	2016
<i>Sector</i>									
1. Energy	1 949.12	2 579.94	2 598.06	1 765.44	1 426.85	–26.8	–19.2	92.7	74.7
A1. Energy industries	1 366.80	1 679.46	1 884.51	892.46	581.40	–57.5	–34.9	65.0	30.4

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 9.

	GHG emissions (kt CO ₂ eq)					Change (%)		Share (%)	
	1990	2000	2010	2015	2016	1990–2016	2015–2016	1990	2016
A2. Manufacturing industries and construction	52.83	62.64	19.84	30.22	33.39	–36.8	10.5	2.5	1.7
A3. Transport	330.62	580.13	556.35	661.07	632.71	91.4	–4.3	15.7	33.1
A4. and A5. Other	198.87	257.71	137.37	181.68	179.35	–9.8	–1.3	9.5	9.4
B. Fugitive emissions from fuels	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
C. CO ₂ transport and storage	NO	NO	NO	NO	NO	NO	NO	NO	NO
2. IPPU	7.93	15.20	152.17	247.77	259.04	3166.6	4.6	0.4	13.6
3. Agriculture	76.52	76.05	67.94	65.84	64.86	–15.2	–1.5	3.6	3.4
4. LULUCF	2.96	3.15	2.00	3.18	3.41	15.1	7.4	NA	NA
5. Waste	68.49	139.35	149.59	146.10	159.00	132.2	8.8	3.3	8.3
6. Other	NA	NA	NA	NA	NA	–	–	–	–
<i>Gas^a</i>									
CO ₂	1 943.32	2 570.87	2 590.22	1 757.75	1 420.28	–26.9	–19.2	92.4	74.4
CH ₄	105.92	173.53	179.72	178.36	191.06	80.4	7.1	5.0	10.0
N ₂ O	52.81	57.96	50.64	42.47	41.83	–20.8	–1.5	2.5	2.2
HFCs	IE, NA, NE, NO	6.70	145.49	246.37	256.55	NA	4.1	NA	13.4
PFCs	NA, NO	NA, NO	0.00	0.00	0.00	NA	0.0	NA	0.0
SF ₆	0.01	1.47	1.69	0.19	0.05	338.4	–75.4	0.0	0.0
NF ₃	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
Total GHG emissions without LULUCF	2 102.06	2 810.52	2 967.77	2 225.14	1 909.75	–9.1	–14.2	100.0	100.0
Total GHG emissions with LULUCF	2 105.03	2 813.68	2 969.77	2 228.32	1 913.16	–9.1	–14.1	NA	NA

Source: GHG emission data: Malta's 2018 annual submission, version 9.

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

16. The decrease in total emissions was driven mainly by factors such as the shift in electricity production from the use of heavy fuel oil, oil and coal to natural gas, and connection to the European electricity grid, which has facilitated better management of peaks in electricity demand and therefore more efficient production. The grid interconnection has also resulted in a reduction in the amount of electricity produced within the national borders (see NC7, figure 4-1) and the associated emissions.

17. Between 1990 and 2016, GHG emissions from the energy sector decreased by 26.8 per cent (522.27 kt CO₂ eq) owing mainly to import of electricity from the European grid, the shutdown of a heavy fuel oil/coal-fired plant and substitution with a gas-fired plant, and the conversion of another oil-fired plant to natural gas. Indeed, even though the trend in GHG emissions from fuel combustion showed notable increases in the transport sector (91.4 per cent or 302.09 kt CO₂ eq), in energy industries GHG emissions decreased dramatically (by 57.5 per cent or 785.4 kt CO₂ eq, mostly owing to a shift in generation from oil to gas and the connection to the European mainland electricity grid). Although under EU legislation Malta has a target of a 10 per cent share for renewable sources in energy production, the contribution of renewable sources to the current decrease in GHG emissions is marginal because the current share (i.e. in 2016) of renewable energy is 6 per cent of total energy production.

18. Between 1990 and 2016, GHG emissions from IPPU increased by 3,166.6 per cent (251.11 kt CO₂ eq) owing mainly to the increasing use of F-gases as a consequence of their

increasing use in air conditioning and refrigeration. Between 1990 and 2016, GHG emissions from the agriculture sector decreased by 15.2 per cent (11.66 kt CO₂ eq), owing mainly to a decrease in the livestock population (by 42.3 per cent). The LULUCF sector was a net source of 3.41 kt CO₂ eq in Malta in 2016; net GHG emissions have increased by 0.45 kt CO₂ eq since 1990. The trend was mainly driven by an increase in the cropland area. Between 1990 and 2016, GHG emissions from the waste sector increased by 132.2 per cent (90.51 kt CO₂ eq) owing mainly to an increase in the amount of solid waste disposed.

19. Between 1990 and 2016, CO₂ emissions decreased by 26.9 per cent (523.04 kt CO₂ eq) owing mainly to a change in the fossil fuel mix used in energy industries (i.e. coal and oil were phased out). Between 1990 and 2016, CH₄ emissions increased by 80.4 per cent (85.14 kt CO₂ eq), owing mainly to an increase in the amount of waste produced. Between 1990 and 2016, N₂O emissions decreased by 20.8 per cent (10.98 kt CO₂ eq), owing mainly to a decrease in the amount of manure produced. There were no emissions of F-gases in 1990, but their emissions increased to 256.55 kt CO₂ eq in 2016 owing to their increasing use in air conditioning and refrigeration.

20. The summary information provided on GHG emissions and removals was consistent with the information reported in the 2017 annual submission. During the review, the ERT took note of the recently submitted 2018 annual submission in which the GHG emissions for 2016 were presented.

(b) Assessment of adherence to the reporting guidelines

21. The ERT assessed the information reported in the NC7 of Malta 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

22. Malta 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 ERT took note of the review of the changes to the national system reflected in the report on the individual review of the 2017 annual submission of Malta.

(b) Assessment of adherence to the reporting guidelines

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

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 Malta

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 30 Issue type: completeness Assessment: recommendation	<p>The ERT noted that Malta did not provide complete information, or a reference to sources of complete information, on the national inventory arrangements.</p> <p>During the review, Malta provided a reference to its 2018 annual submission; however, the ERT noted that the information in the 2018 NIR (table 1-3 on the roles and responsibilities of various agencies and entities in relation to data collection and data transfer for GHG inventory preparation) lacks a reference to what data of which GHG inventory category are collected by each agency, and lacks the contact details of these agencies.</p> <p>The ERT recommends that Malta provide summary information on its national system for the estimation of anthropogenic emissions by sources and removals by sinks, or a reference to complete information, and on any changes since the previous NC.</p>

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

24. In the NC7 Malta did not provide 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 of the review of the changes to the national registry reflected in the report on the individual review of the 2017 annual submission of Malta.

(b) Assessment of adherence to the reporting guidelines

25. The ERT assessed the information reported in the NC7 of Malta 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 Malta

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 32 Issue type: completeness Assessment: recommendation	<p>The ERT noted that Malta did not provide any information on, or a reference to sources of complete information for, its national registry.</p> <p>During the review, Malta provided a reference to its 2018 annual submission; however, the ERT noted that the NIR lacks: the name and contact information of the registry administrator; a description of the capacity of the national registry; a description of how the national registry conforms to the technical standards for data exchange; a description of the procedures employed to minimize discrepancies in data entries; an overview of security measures; a list of the publicly accessible information; the Internet address of the interface to the national registry; and a description of disaster recovery measures.</p> <p>The ERT recommends that Malta provide summary information on its national registry, or a reference to complete information, and on any changes since the previous NC.</p>

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

26. For the second commitment period of the Kyoto Protocol, from 2013 to 2020, Malta committed to contributing to the joint EU effort to reduce GHG emissions by 20 per cent below the base-year level. Malta expects to achieve its commitment through the support of EU flexible mechanisms (see para. 92 below). Malta is not planning to use market-based mechanisms to achieve its commitment; nevertheless, the ERT noted that in the absence of a fully functioning national registry Malta cannot directly access any flexibility mechanisms.

27. Implementation of the Kyoto Protocol by Malta is underpinned by the Climate Action Act, which requires the elaboration of a Low Carbon Development Strategy and a National Adaptation Strategy, and provides for regular review and updating of these strategies. It also establishes a Climate Action Board, which shall, among other things, supervise the implementation of the provisions of the Act and monitor the fulfilment by all relevant stakeholders of their respective duties under the Act. The Act further establishes a Climate Action Fund to support climate action in Malta. The overall responsibility for climate change policymaking lies with the Minister for the Environment, Sustainable Development and Climate Change, and a number of national institutions are involved in the implementation of policies according to the economic area impacted by a particular policy. The Malta Resources Authority is responsible for monitoring the implementation of PaMs, and is also responsible for monitoring national progress towards achieving the Kyoto Protocol target through the implementation of relevant EU legislation.

28. Malta does not have legislative arrangements and administrative procedures in place to make information publicly accessible, apart from the publication of information in relevant EU reports³ and in its NC. The ERT suggests that Malta use the Malta Resources Authority website to publish all information related to its Kyoto Protocol commitment and PaMs implemented for the attainment of that target, as well as progress achieved.

29. Although Malta is committed to reporting on mandatory activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, in practice such activities are not implemented, because neither deforestation nor afforestation occur, and the very limited forest coverage in Malta is managed for reasons other than the Kyoto Protocol (i.e. for ecological protection). Consequently, Malta did not report any information on the specific contribution of the Kyoto Protocol to the conservation of biodiversity and the sustainable use of natural resources.

(b) Assessment of adherence to the reporting guidelines

30. The ERT assessed the information reported in the NC7 of Malta and identified an issue relating to completeness. The finding is described in table 8.

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 Malta

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 37 Issue type:	The ERT noted that the NC7 does not contain information required by decision 15/CMP.1, paragraph 37(b), on provisions to make information on legislative arrangements and enforcement and administrative procedures (e.g. rules on enforcement and administrative procedures, action taken) publicly accessible.

³ See, for example, http://cdr.eionet.europa.eu/mt/eu/mmr/art04-13-14_lcds_pams_projections/colwkw8yg.

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
completeness	Assessment: recommendation	During the review, Malta clarified that all information is published in the Government Gazette and on the websites of relevant ministries, including the Ministry of Justice for all matters related to legislation. The ERT recommends that Malta report in the next NC information on provisions to make information on legislative arrangements and enforcement and administrative procedures to enforce the Kyoto Protocol publicly accessible.

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

31. Malta provided information on its package of PaMs implemented, adopted and planned, by sector, in order to fulfil its commitments under the Convention and its Kyoto Protocol.

32. Legal arrangements in Malta are derived from the implementation of commitments established at the EU level, via the EU Monitoring Mechanism (decision 280/2004/EC) and monitoring and reporting under the EU ETS. Malta also reported 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.

33. Since its last submission, Malta has enacted the Climate Action Act (2015), which provides the main framework for climate action in Malta. Under this framework, two ministerial committees have been established: an interministerial steering committee, which coordinates actions relating to climate change and is led by the Ministry for Sustainable Development, Environment and Climate Change; and the Steering Committee on Emissions Modelling and Projections, under the responsibility of the Malta Resources Authority.

34. Malta provided information on a set of PaMs similar to those previously reported. A total of 28 PaMs were included in CTF table 3. During the review, Malta indicated that it is exploring options for the establishment of a national system for PaMs, as mandated by the EU Monitoring Mechanism Regulation and the new EU regulation on the governance of the energy union. The Party also provided the additional information that, as required under the latter regulation, Malta is currently developing its National Energy and Climate Plan. One key aim of this plan is to develop approaches for assessing the impacts of policy actions and to further develop national capacity to enable their implementation.

35. Malta gave priority to implementing the PaMs that make the most significant contribution to its emission reduction efforts. The ERT noted the importance of key policies in the energy sector regarding the switching from oil to gas-fired electricity generation in Malta and the initiation of an interconnection that enables electricity to be imported directly from Italy. Clear and detailed information regarding the progress of these key policies is provided in the NC7. However, the ERT also noted that although full implementation of these policies had taken place in 2015, further significant emission reductions were expected in 2016. Historical GHG inventory data provided in the NC7 cover the years to 2015 and hence data for 2016 and the associated impact of PaMs are projected.

36. Malta reported the quantified mitigation impact for each policy or measure for 2025 and 2035. During the review, the Party pointed out that impacts for 2020 were also available in the CTF tables which accompanied the BR3 submission. However, the ERT considers that information on how Malta believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals consistent with the objective of the Convention is not provided explicitly in the NC7.

37. In the NC7 Malta provided comprehensive information on PaMs at the national level, but very little information was given on the role of government at the local level. During

the review, Malta provided further information outlining that, among other responsibilities, local councils are responsible for protecting the natural and urban environment of the locality and taking all the necessary measures to ensure the efficient use of energy and good waste management, and for implementing climate change initiatives.

38. 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.

39. 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).

40. 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 includes binding annual targets for each member State for 2013–2020, which are underpinned by national policies and actions of EU member States. The ESD target for Malta is to limit emission growth to 5 per cent above the 2005 level by 2020. As of 2014, EU member States have also agreed on a binding EU target of at least a 40 per cent reduction in GHG emissions below 1990 levels, by 2030. This target is the focus of the EU's 2030 Climate and Energy Framework.

41. Malta highlighted the EU-wide mitigation actions that are implemented, such as the EU ETS. Further to this, the overarching policies, regulations and requirements set out at the EU level and adopted at the individual EU member State level form the basis for many of Malta's mitigation actions.

42. Malta introduced national-level policies to achieve its targets under the ESD. The key policies reported include a suite of energy policies under the National Energy Policy for the Maltese Islands (2012) as well as the National Energy Efficiency Action Plan (2014) and the National Renewable Energy Action Plan (2011). Among the mitigation actions that are critical for Malta's contribution to attaining the EU-wide 2020 emission reduction target are those related to the energy sector, more specifically to energy supply. These include more efficient generation through the installation of a new and more efficient power station at Delimara and fuel switching (primarily from heavy fuel/gas oil to gas) at the main electricity generation plants. Both refer to thermal power generation and impact installations under the provision of the EU ETS.

43. These measures, implemented in 2015, are supplemented by the submarine connection with the EU unified electricity grid and have considerable potential to reduce emissions from 2016 onwards by replacing electricity from local older carbon-intensive power generation plants. In addition, other measures support the installation of further renewable energy capacity (e.g. incentives and grants for the installation of solar or wind power in businesses or households, and associated incentives via the introduction of feed-in tariffs) and energy efficiency (e.g. improving energy efficiency of buildings, and introducing energy-saving measures in state-owned industry and intelligent metering).

44. For the transport sector the key policy relates to the introduction of a biofuel substitution obligation. This obliges importers and wholesalers to ensure that the fuels they supply incorporate a mix of biofuels, with the aggregate percentage increasing by 1 per cent per year, reaching 10 per cent by 2020. Other policies that have delivered significant emission reductions are the implementation of CH₄ recovery and capture at several of

Malta's main landfill sites and the diversion of organic waste from landfills to mechanical and biological treatment plants with subsequent production of energy.

45. Malta did not highlight any further domestic mitigation actions that are under development.

46. Further information was provided in the NC7 regarding the national Transport Strategy 2050 and Transport Master Plan 2025. These cover all forms of transport and provide a strategic direction for transport for the longer term as well as an overview of key priorities for the next 10 years. Further information regarding the implementation of these overarching commitments, via the national Intelligent Transport Systems Action Plan and the MODUS project (improvements to public transport), is included in the BR3. Malta outlines future emissions savings from the roll-out of these plans in the BR3. Table 9 provides a summary of the reported information on the PaMs of Malta.

47. The ERT noted that information reported in the NC7 and BR3 indicates that, even with all existing measures implemented, Malta will not meet its 2020 target under the ESD. This is a change from information reported in the NC6 and BR2, in which Malta outlined that it would meet its 2020 ESD target. Thus, additional actions or the use of market-based mechanisms are likely required for Malta to meet its 2020 ESD target.

Table 9

Summary of information on policies and measures reported by Malta

<i>Sector</i>	<i>Key PaMs</i>	<i>Estimate of mitigation impact by 2020^a (kt CO₂ eq)</i>	<i>Estimate of mitigation impact by 2035^b (kt CO₂ eq)</i>
Policy framework and crosssectoral measures	EU ETS	NE	NE
	ESD	NE	NE
Energy	Supply of natural gas to fuel existing and future generating plants	463.2	473.6
	Energy supply (comprising the submarine connection to the European electricity grid and efficiency improvements in energy generation and transformation)	65.3	259.8
Energy efficiency	Photovoltaics – competitive bidding	42.3	37.1
Waste	Operation of urban waste water treatment plant	46.0	45.6
	Aerial emissions works at Maghtab and Qortin landfills, and capping and extraction of gases from managed landfills	45.1	56.1

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

^a Estimates for 2020 from BR3 CTF table 3.

^b Estimates for 2035 from the NC7.

48. The ERT noted that, since the previous submission, developments have taken place in the policymaking process and Malta provided a clear, although high-level, overview of these in the NC7, describing, in particular, the establishment of a Climate Change Board to supervise the implementation of Malta's obligations under the Convention and the ongoing development of a multi-sectoral evaluation tool for tracking PaMs. Malta also indicated that it is exploring options for the establishment of a national system for PaMs, as mandated by the EU Monitoring Mechanism Regulation and the new EU regulation on the governance of the energy union. During the review, the Party provided the additional information that, as required under the latter regulation, it is currently developing its National Energy and Climate Plan.

(b) Policies and measures in the energy sector

49. The NC7 included 14 energy sector PaMs, all of which are described in table 4-1 of the NC7 by name, type of instrument, GHGs affected, status and estimates of mitigation impact by 2020 and 2030.

50. **Energy supply.** Electricity is generated in Malta by two oil-fired power stations, in Marsa and Delimara. In order to comply with the exemption under the EU directive on large combustion plants (directive 2001/80/EC), the plant loading of the heavy fuel oil-fired Marsa power station has been reduced since 2008. Consequently, production at the Delimara power station with newer and more efficient gasoil (2012) and new combined-cycle gas turbine (2017) plants has increased. By 2020, the oil-fired electricity generation plant in Marsa will be decommissioned. A connection to Sicily has also been installed and initiated, linking Malta to the European electricity grid, and is estimated to result in GHG emission reductions of 259.79 kt CO₂ eq by 2035.

51. Electricity generation at the Delimara power station is also planned to shift completely from oil to natural gas in the coming years. This shift is estimated to result in GHG emission reductions of 473.62 kt CO₂ eq by 2035.

52. The ERT noted the considerable progress that has been made in implementing the measures above since the previous NC and the detailed explanation of this progress provided in the NC7. The ERT also noted the importance of key policies in the energy sector regarding the switching from oil- to gas-fired electricity generation in Malta and the initiation of a connection that will enable electricity to be imported directly from Italy. The ERT further noted that, although full implementation of these policies took place in 2015, further significant emission reductions were expected in 2016. Historical GHG inventory data in the NC7 are, as required and expected, provided only to 2015, hence data for 2016 and the associated impact of PaMs is projected. To maintain transparency regarding these key policies, the ERT notes that Malta, in the next NC, should provide further detailed updates on them, in particular historical data, once available, illustrating their impact in 2016, and further details regarding the specific generation mix (oil to gas switch, interconnection) for each year.

53. **Renewable energy sources.** Under the EU directive on renewable energy (directive 2009/28/EC) Malta is committed to reaching a 10 per cent share of renewable energy sources in gross final energy consumption by 2020. The target is considered to be the main driver of the introduction of renewable energy into the Maltese energy system.

54. Given the biophysical and climatic conditions of Malta, wind (both onshore and offshore) and solar energy are considered to be the greatest potential renewable energy sources. Currently the most important is the biogas installation (WasteServ Malta Ltd, a government-owned company) in operation at the Sant'Antnin solid waste treatment plant, which has a capacity of 1.74 MW.

55. In terms of instruments to promote the use of renewable energy sources, the Government of Malta has provided grants for investments, introduced feed-in tariffs and granted licences for rooftop solar photovoltaic systems. Guidelines for small and medium-sized wind turbines have been published.

56. Solar energy, both for electricity generation and for water heating in households and businesses, has developed strongly, resulting in substantial capacity being in place in 2015, with annual production potential of 40.1 GWh for water heating. The ERT acknowledges the importance of this achievement.

57. The uptake of wind energy has lagged behind that of solar energy for a variety of reasons. For small and microscale turbines, the main barriers have been identified as uncertainty in energy yields, relatively high installation costs, and issues in planning and in obtaining permits. Three planned large-scale wind farms have stalled because of environmental concerns. While the ERT notes the potential importance of wind energy to Malta as a contributor to its original National Renewable Energy Plan (2010), which outlined how the Party would achieve its target of a 10 per cent share for renewable energy sources by 2020, it also notes the action taken to try to develop new wind generation capacity and the difficulties associated with its implementation. The Party reported in its

NC7 that its renewable energy target would now be met largely without contribution from wind energy.

58. **Energy efficiency.** As stipulated in the National Energy Efficiency Action Plan under the EU energy services directive (2006/32/EC), Malta is aiming to achieve energy savings of 27 per cent over the period 2014–2020. This saving is to be achieved in the residential, commercial and industrial sectors, mainly through financial assistance and regulation, and with the public sector leading by example. The ERT notes that a Near Zero Energy Plan for Malta has been developed and is awaiting final approval, and that the Party will likely provide information in the next NC as to how this plan could supplement Malta's existing efforts in energy efficiency.

59. **Residential and commercial sectors.** Several energy efficiency instruments have been implemented for buildings in the residential and commercial sectors. A building regulations office has been established, and grants and financial support are being offered for roof insulation, double glazing of windows and the purchase of energy-efficient household appliances. In addition, intelligent metering and solar water heaters have been promoted.

60. **Transport sector.** Malta reported that after some initial difficulties with the introduction of biofuels, a substitution obligation was adopted and a substitution target was set, which is foreseen to increase biofuel uptake incrementally from 1.5 per cent in 2011 to 10.0 per cent in 2020.

61. Malta considers electromobility an important measure for reducing GHG emissions from road transportation. The National Strategy for the Introduction of Electromobility in Malta and Gozo (2012) sets an indicative target of the uptake of 5,000 battery-powered electric vehicles by 2020. Financial incentives in the form of grant contributions towards individual purchases of electric vehicles have also been introduced, alongside the roll-out of public charging infrastructure and priority parking for these vehicles. The ERT notes Malta's ambition and achievements in this area, including the installation of 45 public vehicle charging points. A number of other measures in road transportation have also been identified, including the promotion of a modal shift in transport through public transport reform.

62. The NC7 does not include any information on how Malta promotes and implements the decisions of ICAO and IMO to limit emissions from aviation and marine bunker fuels. However, during the review the Party provided comprehensive information outlining that Malta's participates fully in the ICAO and IMO process and in the promotion of the relevant decisions.

63. **Industrial sector.** Malta reported several energy efficiency PaMs in industries, including a number of schemes that have been launched to encourage investments in energy efficiency, supplemented by subsidized energy auditing. In total, a GHG emission reduction of 13 kt CO₂ eq is expected from these measures by 2020.

(c) Policies and measures in other sectors

64. **Industrial processes.** Between 1990 and 2015, GHG emissions from the industrial processes sector increased by 3,128.3 per cent (from 7.94 kt CO₂ eq in 1990 to 248.39 kt CO₂ eq in 2015). Since 2000 (the first year with all F-gases reported), GHG emissions in the sector have increased 16-fold. In the NC7, Malta did not provide an explanation for the significant increase in emissions in the industrial processes sector, in particular the increase in emissions of HFCs. During the review, the Party clarified that the increase in emissions of HFCs is related to the increase in the installation of air-conditioning equipment in households.

65. Malta reported in the NC7 that implementation of the EU regulation on F-gases (regulation 2006/842/EC) will be the main driver of avoided emissions in the industrial processes sector. It is estimated that by 2025 measures in this sector will deliver GHG emission reductions of 18.93 kt CO₂ eq per year compared with the 2012 emission level. Malta estimates annual GHG emission reductions of 62.17 kt CO₂ eq by 2035. This constitutes a significant change in the estimated emission savings from this measure as

reported in the NC6 where, as noted in the previous review report, it was expected to deliver GHG emission reductions of 127.93 kt CO₂ eq per year by 2020 compared with 2011 and 233.68 kt CO₂ eq by 2030. As part of ongoing support relating to Malta's preparation of a National Energy and Climate Plan under the new EU regulation on the governance of the energy union, technical support is being provided to the Malta Resources Authority to develop further Malta's capacity to project emissions of F-gases and to understand the impact on the industrial processes sector of implementing the F-gas regulation.

66. **Agriculture.** Between 1990 and 2015, PaMs implemented have contributed to GHG emissions from the agriculture sector decreasing by 17.0 per cent (11.2 kt CO₂ eq). All subcategories showed a decreasing trend, and the majority of the reductions achieved relate to animal husbandry activities.

67. The NC7 briefly introduces the Rural Development Programme 2007–2013, which outlines the strategic plan for utilizing the financing opportunities provided by the European Agricultural Fund for Rural Development, but the ERT noted that the information provided on possible measures is given mainly at the EU level.

68. The Nitrates Action Programme, pursuant to the EU nitrates directive (91/676/EEC), is identified as the main GHG emission reduction measure for the agriculture sector in the NC7. However, the ERT noted that it is not included as a specific policy or measure, although it was included as such and quantified emission reductions were estimated for it in the NC6.

69. **LULUCF.** Malta reported in its NC7 that afforestation projects have been implemented in recent years; however, the ERT noted that potential emission removals have not been estimated. The ERT notes the very small influence of this sector, primarily due to the lack of available land for tree planting.

70. **Waste management.** Between 1990 and 2011, GHG emissions from the waste sector increased by 99.3 per cent (68.93 kt CO₂ eq). However, from 2005 to 2015, emissions decreased by 30.3 per cent (41.67 kt CO₂ eq) mainly owing to a reduction in CH₄ emissions from two open landfills that have since been closed, capped and gas extraction systems installed. These have been replaced by managed landfills.

71. Further significant PaMs implemented in this sector include a large mechanical and biological treatment plant at Sant'Antnin and installation of an anaerobic sludge digestion system at the Malta South Urban Waste Water Treatment Plant.

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

72. In the NC7 Malta did not report any 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.

73. Information on how Malta 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 that any legislation proposed at the EU level is subject to a formal process of impact assessment, including of the economic and social impacts of the proposed legislation, and that Malta also undertakes direct action with developing countries in the areas of capacity-building, transfer of technology and knowledge-sharing.

(e) Assessment of adherence to the reporting guidelines

74. The ERT assessed the information reported in the NC7 of Malta 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 Malta

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement ^a specified in paragraph 25 Issue type: completeness Assessment: recommendation	<p>The ERT noted that although Malta provided quantified mitigation impacts for its PaMs to 2035, it did not provide explicit information on how it believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals consistent with the objective of the Convention.</p> <p>The ERT reiterates the recommendation made in the report on the technical review of the NC6 that Malta provide in its next NC information on how it believes its PaMs are modifying the longer-term trend in anthropogenic GHG emissions and removals in accordance with the objectives of the Convention.</p>
2	Reporting requirement ^a specified in paragraph 21 Issue type: transparency Assessment: encouragement	<p>The NC7 includes a general overview of the way in which the progress of PaMs is monitored and evaluated over time. However, Malta reported no information outlining how individual PaMs are monitored or how this information is assimilated to provide a robust overview tracking their implementation and effectiveness. The ERT finds this insufficiently clear in providing an overview for how PaMs are monitored and evaluated over time, as required by the UNFCCC reporting guidelines on NCs.</p> <p>During the review, Malta explained that it will be establishing a national system for PaMs and is developing a National Energy and Climate Plan. The Party indicated that monitoring and evaluation would be covered as part of the development and implementation of this system and plan.</p> <p>The ERT encourages Malta, in its next NC, to elaborate on how PaMs are monitored and evaluated over time by including an overview of approaches implemented as part of the forthcoming National Energy and Climate Plan.</p>
3	Reporting requirement ^a specified in paragraph 14 Issue type: completeness Assessment: encouragement	<p>The ERT noted that although the descriptions of most PaMs are clear and comprehensive, Malta did not indicate those which are innovative and/or effectively replicable by other Parties.</p> <p>The ERT encourages Malta to include in its next NC information indicating which PaMs are innovative and/or effectively replicable by other Parties.</p>
4	Reporting requirement ^a specified in paragraph 14 Issue type: transparency Assessment: recommendation	<p>It is not clear from the information reported by Malta in its NC and its BR which of the PaMs reported are implemented, adopted or planned. Different chapters and tables in the NC and the BR contain different information. For example, the executive summary of the NC7 indicates that both implemented and adopted PaMs are included in the information reported by Malta. However, the Near Zero Energy Plan, focused on energy efficiency, is nearing completion and awaiting final approval hence it is a planned measure. Further confusion arises in CTF table 3, which indicates all PaMs reported are implemented.</p> <p>The ERT recommends that Malta provide consistent information within its NC and between the NC and the BR, including CTF tables, with regard to the status of PaMs reported as implemented, adopted or planned.</p>
5	Reporting requirement ^a specified in paragraph 23 Issue type: transparency	<p>The ERT considers that there is a lack of transparency regarding how the mitigation impacts of PaMs are quantified. While some information regarding the quantification approach is provided in the NC7 (mainly by reference to chapter 5 in the BR3), there is no clear explanation for the steps taken to quantify each policy or measure.</p> <p>During the review, Malta provided a submission to the EU on its PaMs (Malta's <i>Report on Policies and Measures and Projections</i>) and also referred to information in</p>

No.	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation or encouragement</i>
	Assessment: encouragement	chapter 5 of its BR3. The ERT took note of this information but considers there is still a lack of clarity as to how individual PaMs have been quantified. The ERT encourages Malta to provide in the next NC information briefly outlining the estimation methods used to quantify the mitigation impact of its PaMs. The ERT notes that information on data used and assumptions applied for each policy or measure would also enhance the transparency of reporting.
6	Reporting requirement ^a specified in paragraph 20 Issue type: transparency Assessment: encouragement	The ERT noted that since the previous submission, developments have taken place in the policymaking process and a clear, although high-level, overview of these is included in the NC7. Further information, in particular specifying the decision-making and policy development processes, including brief explanations of the role of, where relevant, parliamentary committees, coordination committees at the ministerial level, public hearings and so on, would greatly enhance the transparency of Malta's reporting. During the review, Malta indicated that it is exploring options for the establishment of a national system for PaMs, as mandated by the EU Monitoring Mechanism Regulation and the new EU regulation on the governance of the energy union. Malta also stated that, as required under the latter regulation, it is currently developing its National Energy and Climate Plan. The ERT reiterates the encouragement made in the previous review report for Malta to elaborate further on relevant interministerial decision-making processes or bodies in its next NC. The ERT notes that a description of the framework and role of the National Energy and Climate Plan, once developed, will likely fulfil many of the reporting requirements on this matter.
7	Reporting requirement ^a specified in paragraph 24 Issue type: completeness Assessment: encouragement	The NC7 does not include information on the costs of individual PaMs. During the review, Malta explained that it has not been able to provide this information as yet, either in the NC7 or in its submissions under the EU Monitoring Mechanism Regulation. However, the ERT noted that this information was made available during the previous review in the form of Malta's report under Article 3, paragraph 2, of the EU Monitoring Mechanism Regulation. The ERT encourages Malta to provide in its next NC information on the costs of individual PaMs either directly in the submission or by referencing information submitted via reporting under the EU Monitoring Mechanism Regulation.
8	Reporting requirement ^a specified in paragraph 16 Issue type: transparency Assessment: encouragement	The ERT noted that Malta did not provide information on policies and practices that encourage activities that lead to greater levels of GHG emissions than would otherwise occur. For example, no information was provided regarding potential increases in energy or transport demand caused by policies and practices. The ERT reiterates the encouragement made in the previous review report for Malta to include in its next NC information on policies and practices that drive activities that lead to greater levels of GHG emissions than would otherwise occur.
9	Reporting requirement ^a specified in paragraph 22 Issue type: completeness Assessment: recommendation	The ERT noted that the information on PaMs in the agriculture sector is not complete. Although some information relating to emission reduction activities is provided in the NC7, the information reported on specific PaMs does not include the type of policy or measure, GHGs affected, and implementing entity or entities. The ERT recommends that in its next NC Malta provide a complete description of individual PaMs for the agriculture sector.
10	Reporting requirement ^a specified in paragraph 15	Malta provided comprehensive information on PaMs at the national level in the NC7, but very little information on PaMs at the local level.

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
	Issue type: transparency	During the review, Malta provided information outlining, among other things, that local councils are responsible for protecting the natural and urban environment of the locality and taking all the necessary measures to ensure the efficient use of energy and good waste management, and for implementing climate change initiatives.
	Assessment: encouragement	The ERT encourages Malta to provide further information on PaMs at the local level in its next NC.
11	Reporting requirement ^b specified in paragraph 35	The NC7 does not include any information on how Malta promotes and implements the decisions of ICAO and IMO to limit emissions from aviation and marine bunker fuels.
	Issue type: completeness	During the review, Malta provided comprehensive information outlining its participation in and promotion of ICAO and IMO decisions.
	Assessment: recommendation	The ERT recommends that Malta include in its next NC information outlining how it promotes and implements the decisions of ICAO and IMO to limit emissions from aviation and marine bunker fuels.
12	Reporting requirement ^b specified in paragraph 36	In the NC7, Malta did not report any 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.
	Issue type: completeness	During the review, Malta provided additional information outlining that such adverse effects are minimized primarily through its participation in the development and implementation of EU legislation. The Party also referred to capacity-building support it has provided to developing country Parties, including the provision of post-graduate scholarships in climate action.
	Assessment: recommendation	The ERT reiterates the recommendation made in the previous review that Malta provide 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, in its next NC.

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 supplementarity 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

75. Malta reported updated projections for 2020 and 2030 relative to actual inventory data for 2015 under the WEM scenario. The WEM scenario reported by Malta includes implemented and adopted PaMs until the end of 2015.

76. In addition to the WEM scenario, Malta reported the WOM scenario. The WOM scenario excludes all PaMs implemented, adopted or planned after 2015. Malta provided a definition of its scenarios, explaining that its WEM scenario includes PaMs (e.g. connection to the European electricity grid, a switch in the fuel mix for electricity

production and in transport, energy efficiency measures on both the supply and the demand side, utilization of renewable energy sources, uptake of electric cars, promotion of transport modal shifts, implementation of the F-gas regulation, waste management plans) that are being implemented or for which a firm decision to adopt has been taken (with the end of 2015 as the cut-off date). The definition indicates that the scenario was prepared according to the UNFCCC reporting guidelines on NCs.

77. The ERT noted that in the NC6 Malta reported emission projections under a WAM scenario until 2030. In the NC7, this scenario is not included. In the BR3 the Party reports that the WAM scenario was not included because the information submitted by the relevant responsible stakeholders indicated that all the measures submitted are either existing or implemented. Malta reported that efforts are being made to address the lack of information, particularly to translate current and planned strategies being drawn up in various sectors into PaMs with quantifiable emission reductions.

78. The projections are presented 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, PFCs, HFCs and SF₆ (treating PFCs and HFCs collectively in each case) for 1990–2030. 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.

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

80. Emission projections related to fuel sold to ships and aircraft engaged in international transport were not reported separately and were not included in the totals. Malta did report on factors and activities affecting emissions for each sector (see para. 89 below).

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

81. The methodology used for the preparation of the projections is identical to that used for the preparation of the emission projections for the BR2. The methodology used for the projections is based on a number of sector-specific models developed during 2015 covering emissions from the energy, transport, IPPU, agriculture, LULUCF and waste sectors.

82. A cost-optimization modelling approach was used for the estimation of emissions from the energy sector, which includes demand based on economic growth models, development in energy efficiency and energy-saving measures, and the choice of fuel depending on price, but superseded by policy decisions such as the mandatory use of renewable energy sources. For the transport sector, the model used includes the expected impact of existing and new measures on road transport, subdividing transport between transport modes and fuel types, and by the categories passenger vehicles and cargo transport. Both models calculated the emissions of CO₂, CH₄ and N₂O on the basis of the fuel used by sector.

83. For the IPPU sector, the model is built mainly on historical emissions. The major action envisaged in this sector is the implementation of the F-gas regulation, and Malta reported that a measure of this nature is not quantifiable with certainty but has a high probability of influencing in a positive manner the way these gases are used. For the agriculture sector, the model is built mainly on historical activity data. For the LULUCF sector, which is a relatively small sector in Malta, the model simply assumes that the sequestration rate will remain constant over time. Lastly, for the waste sector, the model is built on the current relationship between solid waste and GDP per capita and industrial waste per GDP unit, with an expected reduction in such relationships over time (i.e. a percentage change in GDP per capita will cause a rise of 1.4 per cent in municipal solid waste per capita but municipal solid waste is expected to decline over time to 0.04 per cent per capita, while the industrial waste per unit of GDP is expected to decrease by 0.116 t).

84. In the NC7 Malta described the models used for emission projections for each of the sectors, but information on which gases are covered was provided only for the energy and transport sectors. The NC7 also does not include a summary of the strengths and

weaknesses of the models used and the Party did not explain how the models used account for any overlap or synergies that may exist among different PaMs. During the review, Malta specified that the IPPU model focuses on F-gases, the agriculture model relates to projections of both CH₄ and N₂O emissions, and the waste sector model is primarily related to the projection of CH₄.

85. Malta also explained that all three models are subject to further development in the context of support being received by Malta for the preparation of its National Energy and Climate Plan under the EU regulation on the governance of the energy union. In addition, the Party clarified that its present capacity to assess the impacts of its PaMs is particularly focused on individual PaMs and is very limited in the extent to which interactions can be assessed and quantified. The capability of modelling the interactions among different PaMs (and possibly among sectors), is yet to be developed. The Party also informed the ERT of ongoing efforts to improve its capacity to model GHG emission projections and, in some instances, this may result in new models replacing existing models, while in others, existing models should be improved.

86. To prepare its projections, Malta used GDP and population projections. The assumptions were updated on the basis of the most recent economic developments known at the time of the preparation of the projections. For GDP, a moderate growth of 1.9 per cent is assumed with small variations between years. Population growth is expected to decrease from 0.5 per cent in 2015 to 0.3 per cent in 2030. In the sectoral models, Malta also reported other assumptions more specific to the sector, such as energy prices (for energy industries) and passenger-kilometres, vehicle efficiency and modal shifts (for transport).

87. In the NC7 Malta did not provide information on the key variables and assumptions used in the preparation of the projection scenarios. During the review, Malta explained that this information is provided in CTF table 5, but no reference was made in the NC7 to this CTF table.

88. Malta did not report on a quantitative sensitivity analysis, but qualitatively discussed the sensitivity of the projections for some of the most important underlying assumptions. During the review, Malta explained that this reporting will be improved as a part of the ongoing development of its capacity to model projections of GHG emissions through the technical support being provided for the preparation of its National Energy and Climate Plan under the EU regulation on the governance of the energy union.

89. Malta reported on factors and activities affecting future emissions for each sector. During the review, Malta clarified that the projections of future emission trends are dependent on the methodology used for deriving such projections. Furthermore, in a small country such as Malta, relatively large single policy measures or projects can have a considerable impact. Thus, as the Party described, a single major residential, commercial or institutional development could represent a substantive increase in energy demand. In contrast, a major development in energy generation could enhance the emissions-related efficiency of energy generation at the national level in a substantive and rapid manner (as has been the case in recent years with regard to the reduction in emissions from local electricity generation due to the EU interconnection and investment in new generation plants). Malta explained that this will remain applicable in the future and any new PaMs, such as investment in a waste-to-energy plant or the substitution of HFCs with alternative gases will have a direct and potentially important impact in relevant sectors, albeit their consideration remains subject to official policy decisions being taken.

(c) Results of projections

90. 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. The WOM scenario projections were updated during the review to correct an error in the original submission.

Table 11
Summary of greenhouse gas emission projections for Malta

	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	1 974.64	NA	NA
Quantified emission limitation or reduction commitment under the Kyoto Protocol (2013– 2020) ^c	1 162.47	–41.1	–41.1
Quantified economy-wide emission reduction target under the Convention ^d	NA	NA	NA
Inventory data 1990 ^e	2 382.04	20.6	NA
Inventory data 2015 ^e	2 226.87	12.8	–6.5
WOM projections for 2020 ^f	1 828.89	–7.4	–23.2
WEM projections for 2020 ^f	1 606.42	–18.6	–32.6
WAM projections for 2020 ^f	NA	NA	NA
WOM projections for 2030 ^f	2 083.93	5.5	–12.5
WEM projections for 2030 ^f	1 683.48	–14.7	–29.3
WAM projections for 2030 ^f	NA	NA	NA

Note: Updated projections were provided by the Party during the review; the projections are for GHG emissions without LULUCF.

^a “Base year” in this column refers to the base year used for the target 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/MLT.

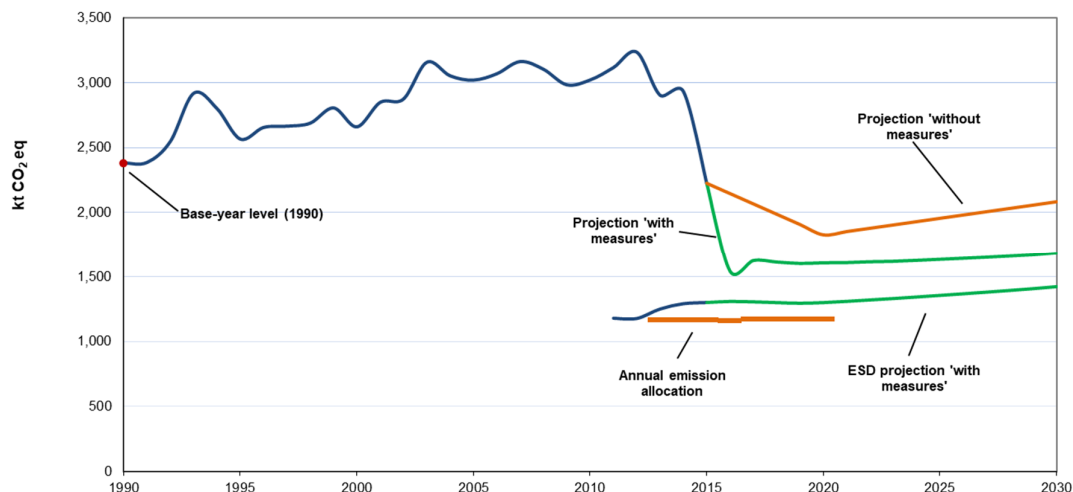
^c The Kyoto Protocol target for the second commitment period (2013–2020) is a joint target of the EU and its 28 member States and Iceland. The target is to reduce emissions by 20 per cent compared with the base-year (1990) level by 2020. The target for non-ETS sectors is 5 per cent above the 2005 level for Malta 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 Malta’s BR3 CTF table 1.

^f From Malta’s BR3 CTF table 6.

Greenhouse gas emission projections reported by Malta



Sources: (1) data for the years 1990–2015: provided by Malta during the review; total GHG emissions excluding LULUCF; (2) data for the years 2015–2030: WEM scenario: data on an annual basis provided by Malta during the review; WOM scenario: Malta's updated CTF table 6(b) provided during the review; total GHG emissions excluding LULUCF; ESD projections provided by the Party during the review; (3) ESD review data from the European Environment Agency (2005–2015); (4) EU transaction log (AEA).

91. Malta's total GHG emissions excluding LULUCF are projected to be 1,606.42 and 1,683.48 kt CO₂ eq, in 2020 and 2030 respectively, under the WEM scenario, which represents a decrease of 32.6 and 29.3 per cent, respectively, below the 1990 level. No WAM scenario was reported. The 2020 projections suggest that Malta should strive to contribute to the achievement of the EU target under the Convention (see para. 42 above).

92. Malta's target for non-ETS sectors is to limit the growth of emissions to 5 per cent above the 2005 level by 2020 (see para. 42 above). Malta's AEAs, which correspond to its national emission target for non-ETS sectors, change linearly from 1,168.51 kt CO₂ eq in 2013 to 1,171.95 kt CO₂ eq for 2020. According to the projections under the WEM scenario, emissions from non-ETS sectors are estimated to reach 1,299.86 kt CO₂ eq by 2020. The projected level of emissions under the WEM scenario is 127.91 kt CO₂ eq above the AEAs for 2020. The ERT noted that this suggests that Malta may face challenges in meeting its target under the WEM scenario. Malta confirmed during the review that it is using and intends to continue using flexible mechanisms via the trading of AEAs available to it under the EU Monitoring Mechanism.

93. Malta presented the WEM scenario by sector for 2020 and 2030, as summarized in table 12.

Table 12

Summary of greenhouse gas emission projections for Malta presented by sector

Sector	GHG emissions and removals (kt CO ₂ eq)			Change (%)	
	1990	2020	2030	1990–2020	1990–2030
		WEM	WEM	WEM	WEM
Energy (not including transport)	1 908.42	676.36	753.24	–64.6	–60.5
Transport	319.54	471.52	408.83	47.6	27.9
Industry/industrial processes	7.94	240.18	281.23	2 924.9	3 441.9
Agriculture	77.13	61.41	62.62	–20.4	–18.8
LULUCF	2.96	2.84	2.81	–4.1	–5.1
Waste	69.02	156.94	177.57	127.4	157.3
Other (specify)					
Total GHG emissions without LULUCF	2 382.03	1 606.42	1 683.48	–32.6	–29.3

Source: Malta's BR3 CTF table 6.

94. According to the projections reported for 2020 under the WEM scenario, the most significant emission reductions are expected to occur in the energy sector (not including transport), amounting to projected reductions of 1,232.06 kt CO₂ eq (64.6 per cent) between 1990 and 2020. The pattern of projected emissions reported for 2030 under the same scenario slightly changes owing to an increase in electricity demand. The energy sector remains the sector with the largest emission reductions, amounting to 1,155.18 kt CO₂ eq (or 60.5 per cent) between 1990 and 2030. During the review, Malta explained that two particularly important events in the energy industries category have influenced the trend in emissions from 2015 onwards, namely the investment in a more efficient plant, with the older plants at Marsa and Delimara being replaced by a new plant at Delimara, and the completion of the connection to the European grid.

95. The emission projections under WEM scenario for the other sectors show an increasing trend, with the highest increase in the IPPU sector, amounting to 232.29 kt CO₂ eq (or 2,924.9 per cent) by 2020 compared with the 1990 level, followed by the transport

sector with an increase of 151.98 kt CO₂ eq (or 47.6 per cent) and the waste sector with 8.92 kt CO₂ eq (or 127.4 per cent), while the projections of emissions from the agriculture sector slightly decrease, by 15.72 kt CO₂ eq (or 20.4 per cent) in 2020 relative to 1990.

96. Malta presented the WEM scenario by gas for 2020 and 2030, as summarized in table 13 below.

Table 13

Summary of greenhouse gas emission projections for Malta presented by gas

Gas	GHG emissions and removals (kt CO ₂ eq)			Change (%)	
	1990	2020	2030	1990–2020	1990–2030
		WEM	WEM	WEM	WEM
CO ₂	2 170.72	1 069.39	1 095.57	–50.7	–49.5
CH ₄	154.96	199.50	219.82	28.7	41.9
N ₂ O	56.34	101.72	91.24	80.5	61.9
HFCs	0.00	234.57	275.57	NA	NA
PFCs	0.00	0.00	0.00	NA	NA
SF ₆	0.01	1.24	1.28	12 300.0	12 700.0
NF ₃	0.00	0.00	0.00	NA	NA
Total GHG emissions without LULUCF	2 382.03	1 606.42	1 683.48	–32.6	–29.3

Source: Malta's BR3 CTF table 6.

97. For 2020 the most significant reductions are projected for CO₂ emissions: 1,101.33 kt CO₂ eq (50.7 per cent) between 1990 and 2020.

98. Projections for 2030 follow a similar trend, with CO₂ emissions projected to decrease by 1,075.15 kt CO₂ eq (49.5 per cent) between 1990 and 2030.

(d) Assessment of adherence to the reporting guidelines

99. The ERT assessed the information reported in the NC7 of Malta 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 Malta

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement ^a specified in paragraph 28 Issue type: completeness Assessment: encouragement	Malta reported a WEM and a WOM scenario but not a WAM scenario. During the review, Malta reiterated that the WAM scenario has not been included but indicated that efforts are being made to address this issue. The ERT encourages Malta to include a WAM scenario in its next NC.
2	Reporting requirement ^a specified in paragraph 30 Issue type: completeness Assessment: encouragement	Malta did not report a sensitivity analysis for any of the projections. During the review, Malta confirmed that a sensitivity analysis should form part of the ongoing development of the Party's capacity to model projections of GHG emissions. The ERT encourages Malta to report a sensitivity analysis for all of the projections in the next NC, but it should aim to limit the number of scenarios presented.
3	Reporting requirement ^a	Malta did not provide projections for the indirect GHGs carbon monoxide, nitrogen

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
	<p>specified in paragraph 35</p> <p>Issue type: completeness</p> <p>Assessment: encouragement</p>	<p>oxides, non-methane volatile organic compounds or sulfur oxides.</p> <p>The ERT encourages Malta to provide projections for indirect GHGs in the next NC.</p>
4	<p>Reporting requirement^a specified in paragraph 36</p> <p>Issue type: completeness</p> <p>Assessment: recommendation</p>	<p>In the NC7, emission projections related to fuel sold to ships and aircraft engaged in international transport were not reported, neither separately nor included in the totals.</p> <p>The ERT reiterates the recommendation made in the previous review report that Malta ensure consistency with inventory reporting by providing emission projections related to fuel sold to ships and aircraft engaged in international transport and, to the extent possible, report these separately and not included in the totals, in the next NC.</p>
5	<p>Reporting requirement^a specified in paragraph 43</p> <p>Issue type: transparency</p> <p>Assessment: encouragement</p>	<p>Malta described the models used for emission projections for each of the sectors, but information on gases covered was provided only for the energy and transport sectors. The NC7 also does not include a summary of the strengths and weaknesses of the models used and Malta did not explain how the models used account for any overlap or synergies that may exist among different PaMs.</p> <p>During the review, Malta provided the required information for the other sectors, specifying that the IPPU model focuses on F-gases, the agriculture model relates to projections of both CH₄ and N₂O emissions, and the waste sector model is primarily related to the projection of CH₄. The Party also explained that its present capacity to address the other requirements is very limited and it informed the ERT of ongoing efforts to improve its capacity to model GHG emission projections. As a result, the existing models should be improved and, in some cases, new models could replace the existing models.</p> <p>The ERT encourages Malta to explain in its next NC for which gases and/or sectors the model or approach was used, to summarize the strengths and weaknesses of the model or approach used, and to briefly explain how the model or approach used accounts for any overlap or synergies that may exist among different PaMs.</p>
6	<p>Reporting requirement^a specified in paragraph 46</p> <p>Issue type: transparency</p> <p>Assessment: encouragement</p>	<p>Malta did not report on quantitative sensitivity analyses, but qualitatively discussed the sensitivity of the projections for some of the most important underlying assumptions.</p> <p>During the review, Malta confirmed that the sensitivity analysis of assumptions used in the modelling reported in the NC7 was very limited and explained that the analysis will be improved with the development of its capacity to model GHG emission projections through the technical support being provided under the EU regulation on the governance of the energy union.</p> <p>The ERT, welcoming the ongoing efforts made by Malta, reiterates the encouragement made in the previous review report for Malta to provide, where possible, a quantitative discussion on the sensitivity of the projections to underlying assumptions in the next NC.</p>
7	<p>Reporting requirement^a specified in paragraph 47</p> <p>Issue type: completeness</p> <p>Assessment: encouragement</p>	<p>Malta did not provide information in its NC7 about key underlying assumptions and values of variables used for the projection of emissions. This information was provided in CTF table 5 but no reference was made in the NC7 to this CTF table.</p> <p>The ERT reiterates the encouragement made in the previous review report for Malta to include information on key underlying assumptions and values of variables used for the projection of emissions (using table 2 from and in accordance with para. 47 of the UNFCCC reporting guidelines on NCs) in its next NC.</p>
8	<p>Reporting requirement^a specified in</p>	<p>In the NC7 Malta provided information on the underlying factors and activities for emission trends only for the energy sector (e.g. a combination of technological</p>

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
	paragraph 48	changes in local generation capacity, changes in fuel mix and changes in demand).
	Issue type: transparency	During the review, Malta explained that the historical emission trends in the other sectors depend on relevant changes in activities contributing to such emissions. Emissions from transport primarily reflect an increase in the use of vehicles coupled with changes to the overall vehicle fleet composition and performance. For industrial processes, the dominant GHGs are F-gases, reflecting (in the early 2000s) the substitution of ozone-depleting substances with HFCs and the increase in the use of air-conditioning and refrigeration equipment over time.
	Assessment: recommendation	<p>Agriculture and waste emission trends again primarily reflect developments over the years in the nature of activities taking place in the two sectors, such as changes in waste management approaches, from unmanaged to managed landfilling, and a decrease in the area of agricultural land. Regarding the projections of future emission trends to 2020, the Party explained that these are dependent on the methodology used for deriving such projections, superimposing the effect of measures, in terms of emission savings of individual measures, onto a WOM scenario, with projected activity data also reflecting projected future trends of parameters such as GDP and population growth, where relevant.</p> <p>The ERT considers that this information is useful for enhancing the transparency of reporting, especially in the case of a small country such as Malta, where a single emission source or the non-implementation of a particular measure can have a significant impact on the Party's emissions.</p> <p>The ERT recommends that Malta include in its next NC information on factors and activities for each sector for the years 1990–2020. The information may be presented in tabular format. The ERT notes that it would be useful to provide this information to 2030 or the end year of projections.</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.

2. Assessment of the total effect of policies and measures

(a) Technical assessment of the reported information

100. In the NC7 Malta presented the estimated and expected total effect of implemented PaMs, in accordance with the WEM scenario. The total effect of its PaMs, compared with a situation without such PaMs in terms of GHG emissions avoided or sequestered, by gas (on a CO₂ eq basis) was not presented in the report.

101. Malta reported that the total estimated effect of its implemented PaMs (without LULUCF) is 1,606.42 kt CO₂ eq and 1,683.48 kt CO₂ eq in 2020 and 2030, respectively. As suggested by Malta during the review, if a calculation is made on the basis of data presented in CTF table 6, the total emissions avoided are projected to be 222.48 kt CO₂ eq and 400.44 kt CO₂ eq in 2020 and 2030, respectively. According to the information reported in the NC7, PaMs implemented in the energy sector (in particular, the improvement in electricity generation efficiency of turbines, the switching to natural gas from heavy fuel oil and connection to the EU electricity grid) will deliver the largest emission reductions, followed by PaMs implemented in the transport sector (in particular the biofuel substitution obligation and the promotion of transport modal shifts), and by PaMs in the industrial processes and waste sectors (in particular the implementation of the F-gas regulation and the management of landfills). Table 15 provides an overview of the total effect of PaMs based on data reported by Malta in CTF table 6.

Table 15

Projected effects of Malta's planned, implemented and adopted policies and measures by 2020 and 2030

2020

2030

<i>Sector</i>	<i>Effect of implemented and adopted measures (kt CO₂ eq)</i>	<i>Effect of implemented and adopted measures (kt CO₂ eq)</i>
Energy (without transport)	133.59	259.85
Transport	73.48	84.08
Industrial processes	8.13	27.04
Agriculture	1.80	1.79
Land-use change and forestry	0.00	0.00
Waste management	5.48	27.68
Total	222.48	400.44

Source: Malta's CTF table 6(a) and 6(b).

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

(b) Assessment of adherence to the reporting guidelines

102. The ERT assessed the information reported in the NC7 of Malta and identified an issue relating to completeness and adherence to the UNFCCC reporting guidelines on NCs. The finding is described in table 16.

Table 16

Findings on the assessment of the total effect of policies and measures from the review of the seventh national communication of Malta

<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 40	The total effect of PaMs, compared with a situation without such PaMs in terms of GHG emissions avoided or sequestered, by gas (on a CO ₂ eq basis), was not presented in the NC7.
	Issue type: completeness	During the review, Malta clarified that additional information may be found in its BR3 and CTF tables. The ERT notes that this information was helpful, but given the CTF tables are not an integral part of the NC, the Party should calculate the avoided or sequestered emissions and provide this information, or a reference to this information if it is available elsewhere.
	Assessment: recommendation	The ERT reiterates the recommendation made in the previous review report that Malta provide an estimate of the total effect of PaMs by gas (on a CO ₂ eq basis), in accordance with the WEM definition, compared with a situation without such PaMs (the WOM scenario) in the next NC. This information may be presented in tabular format.

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.

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

(a) Technical assessment of the reported information

103. In the NC7 Malta 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 Malta 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 of the Maltese national registry to the international transaction log, Malta would not be in a position to use any of the flexibility mechanisms to achieve its target under the Kyoto Protocol.

104. According to EU legislation, supplementarity refers to the use by a Party of flexible mechanisms in meeting its Kyoto Protocol target. A Party may take into account 50 per

cent of the difference between the total emissions from Annex A categories and the Kyoto Protocol target which, according to projections reported in the NC7, for Malta equals 149.60 kt CO₂ eq.

105. Regarding the use of carbon credits from mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol, for the EU ETS component of its Kyoto Protocol target Malta reported that such use is occurring, although it did not report information on the magnitude of such use. According to EU legislation, installations included in the EU ETS are allowed to use international units up to an amount established through an entitlement process. Information on the entitlement process is publicly accessible,⁴ although this information is not reported in the NC7.

(b) Assessment of adherence to the reporting guidelines

106. The ERT assessed the information reported in the NC7 of Malta and identified an issue relating to transparency. The finding is described in table 17.

Table 17

Findings on complementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol from the review of the seventh national communication of Malta

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation
1	Reporting requirement specified in paragraph 33 Issue type: transparency Assessment: recommendation	Information reported by Malta on the use of carbon credits from mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol for the EU ETS component of its Kyoto Protocol target is not clear in terms of the magnitude of the use of carbon credits (purchases of certified emission reductions and emission reduction units). According to EU legislation, installations included in the EU ETS are allowed to use international units up to an amount established through an entitlement process. Information on the entitlement process is publicly accessible at the website of the Environment Directorate of the European Commission. During the review, Malta confirmed that to the extent that any excess emissions can be covered by AEAs, it would not use certified emission reductions or emission reduction units and that amounts provided in CTF table 2(e) represent the total amount of international credits (certified emission reductions and emission reduction units) that could potentially be used by Malta. The ERT recommends that Malta report information on the magnitude of use of carbon credits in its next NC in order to establish the potential use of carbon credits from mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol for the EU ETS component of its Kyoto Protocol target and to elaborate on how its use of the mechanisms is supplemental to domestic action and how its domestic action thus constitutes a significant element of the effort made to meet its quantified limitation commitment under Article 3, paragraph 1, in accordance with the provisions of decision 5/CP.6.

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.

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

107. Malta 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, Malta provided information in the NC7 on its provision of support to developing country

⁴ See the website of the Environment Directorate of the European Commission <http://ec.europa.eu/environment/ets/ice.do?languageCode=en®istryCode=MT&accountFullTypeCde=-1&iceInstallationId=&search=Search¤tSortSettings=&resultList.currentPageNumber=2>.

Parties. The ERT commends Malta for reporting this information and suggests that it continue to do so in future NCs.

108. Malta reported information on the provision of financial support under the Convention and its Kyoto Protocol, including on financial support provided, committed and pledged, allocation channels and annual contributions.

109. Malta described how its resources address the adaptation and mitigation needs of non-Annex I Parties. It also described how those resources assist non-Annex I Parties to mitigate and adapt to the adverse effects of climate change, facilitate economic and social response measures, and contribute to technology development and transfer and capacity-building related to mitigation and adaptation.

110. During the period 2013–2016 Malta provided financial and technical support to, for example, projects for the installation of a solar power backup system in Pakistan (USD 8,312) and for clean burning wood stoves in Guatemala (USD 7,017), and it provided grants for specific projects and scholarships in climate action for students from developing countries to undertake postgraduate studies at the University of Malta (USD 64,178).

111. With regard to the most recent financial contributions aimed at enhancing the implementation of the Convention by developing countries, Malta reported that its climate finance has been allocated on the basis of projects identified by the development unit of the Directorate General Global Issues, International Development and Economic Affairs.

E. Vulnerability assessment, climate change impacts and adaptation measures

1. Technical assessment of the reported information

112. In the NC7 Malta provided most of 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. Malta provided a description of climate change vulnerability and impacts and highlighted the adaptation response actions taken and planned at different levels of government.

113. In 2015 Malta passed a Climate Action Act, which established the Climate Action Board and the Climate Action Fund. The Climate Action Act lays down a legal framework for climate action which, together with the strengthening of the institutional set up, is designed to ensure an efficient administrative, policy and legal approach to mitigation, adaptation and governance measures. The aim of the Act is to mainstream climate change across all sectors and to facilitate cooperation accordingly. It supplements the existing administrative interdepartmental and interministerial committees with a legal framework and it gives the regulatory role to the minister responsible for climate change.

114. The National Adaptation Strategy is a legal obligation under the Climate Action Act. It covers sectoral and cross-sectoral issues and provides guidance on how to address the vulnerabilities that emerge from climate change. The committee of experts working on the strategy focused on sectors that were already very vulnerable rather than aiming to cover all possible aspects of adaptation. The National Adaptation Strategy is reviewed and updated periodically, at least every four years – the latest strategy was published in 2012. The minister responsible for climate change makes the strategy and its updates publicly available, and reports to the House of Representatives every year on the progress in meeting the targets set by the National Adaptation Strategy as well as the Low Carbon Development Strategy, which is also an obligation under the Climate Action Act. Information in the NC7 first identifies the state of play and then the measures that are being taken or proposed to address adaptation.

115. Regarding the models used for the vulnerability assessment, Malta reported in the NC7 that the main model results were generated using MAGICC/SCENGEN⁵ (version 5.3), applied to the Maltese islands for the years 2025, 2050, 2075 and 2100. The results are based on the “no climate policy” emission scenario (A1T-MES) and were generated using 14 selected atmosphere–ocean general circulation models. These were used in vulnerability and adaptation studies for the Maltese islands, though there is a problem with the results associated with the horizontal resolution.

116. The ERT noted that some modelling challenges associated with the Central Mediterranean are unresolved because the regional climate model used for the region, RegCM4, is an atmosphere-only model and thus cannot be used for sea level rise projections. A summary of the findings from the projections of near-surface air temperature using RegCM4 compared with the global model data (from HadGEM2) was extracted for Malta for the emission scenarios of the IPCC RCP 2.6, 4.5 and 8.5, with respect to 2005. The NC7 provides the percentage change in precipitation from HadGEM2 and from RegCM4 for the emission scenarios RCP 2.6, 4.5 and 8.5. The data using RegCM4 indicate changes that are an order of magnitude higher than the data using HadGEM2. The ERT notes that this is not unexpected, although more work is required to increase the reliability of the projection.

117. Table 18 summarizes the information on vulnerability and adaptation to climate change presented in the NC7 of Malta.

Table 18

Summary of information on vulnerability and adaptation to climate change reported by Malta

<i>Vulnerable area</i>	<i>Examples/comments/adaptation measures reported</i>
Agriculture and food security	<p><i>Vulnerability:</i> Moderate to strong impacts are expected in agriculture due to decreasing water resources and increasing sensitivity to climate change, as deterioration of water quality in Malta’s aquifers as a direct result of sea level rise causes reductions in overall crop yield. The vulnerability is further compounded by the fragmentation of land holdings, of which 73 per cent are less than 1 ha in size, an ageing farming community and insufficient capital investment. The NC7 includes details on the impacts on soils, potato crops, vineyards and livestock.</p> <p><i>Adaptation:</i> The NC7 identifies the need to revise existing agriculture-related laws and policies, such as those targeting soil conservation and plant health, including for the import of vegetative propagating and planting material.</p>
Biodiversity and natural ecosystems	<p><i>Vulnerability:</i> Changes in temperature, precipitation and sea level will affect ecosystem boundaries and eventually impact habitats. All terrestrial flora and fauna will be affected by distributional shifts that, given the limited area and magnitude of species populations in Malta, are expected to result in extinction. In the Mediterranean region, the extinction risk beyond 2050 is projected at 30–40 per cent as a result of climate change.</p> <p><i>Adaptation:</i> Adaptation measures addressing natural ecosystems are very challenging to devise. Species may be unable to adapt to change as quickly as it occurs, so adaptation measures focus on the conservation of species and their habitat in order to ensure their resilience; for example, protecting natural habitats from further development of urban areas.</p>
Coastal zones	<p><i>Vulnerability:</i> Increasing impacts from inundation, coastal erosion (including loss or movement of beaches), storms and high winds are expected in coastal areas, exacerbated by the fragile blue clay composition of the coast of Malta. Given Malta is an island whose economy is predominantly based on activities carried out in coastal areas (e.g. settlements, tourism, shipping, aquaculture, fisheries), as reported in the 2002 Coastal Strategy Topic Paper prepared by the Malta Environment and Planning Authority, climate change is an increasing threat for the entire country.</p> <p><i>Adaptation:</i> Mapping the areas that are prone to flooding and determining assets and populations at risk in these areas; taking adequate and coordinated measures to reduce flood risk; establishing flood risk management plans focused on prevention, protection and preparedness; and synergizing public participation procedures in the preparation of flood risk management plans, making them available to the public.</p>
Infrastructure and	<p><i>Vulnerability:</i> Malta is densely populated, and land resources are scarce, with land used for urban</p>

⁵ Model for the Assessment of Greenhouse-gas Induced Climate Change/Regional Climate Scenario Generator.

<i>Vulnerable area</i>	<i>Examples/comments/adaptation measures reported</i>
economy	<p>development, agriculture, industrial and commercial activity, and quarrying. A significant percentage of Malta's urban development and infrastructure also lies on the coast, covering 35 per cent of the coastal zone of Malta and 19 per cent of Gozo island. Some of the major link roads in the network have been constructed in low lying areas (valleys) that are naturally prone to flooding and will be impacted by sea level rise (i.e. 10 per cent of arterial roads, 6 per cent of distributor roads and 7 per cent of rural roads). The increase in the area covered by buildings and in the number of surfaced roads (and therefore run-off following rain) compound the flooding problem by removing any absorption ability of the ground during rain events. Msida, Birkirkara, Balzan and Qormi are examples of areas that will require considerable investment to alleviate the threat of flooding. Malta's coastline has two main harbours, Ċirkewwa and Mġarr, and is also dotted with small harbours and landing infrastructure for fishing vessels, pleasure craft and large yachts that play an important role in the development of the island. The entire infrastructure and economy is expected to be stressed by climate change due to flooding of coastal areas and extreme weather events (including flooding and drought) leading to impacts on structures and infrastructure, secondary impacts on property values and insurance, and impacts on plants, vegetation and human health.</p> <p><i>Adaptation:</i> Carrying out a preliminary assessment to identify the areas within the Malta River Basin District that are prone to flooding; assessing the significance of the flood risk in valleys; mapping the areas that are prone to flooding and determining the assets and humans at risk in these areas; taking adequate and coordinated measures to reduce the flood risk; reinforcing the rights of the public to access information related to flood risk and to have a say in the planning process; and establishing flood risk management plans focused on prevention, protection and preparedness, notably by coordinating the implementation of flood risk management plans and the river basin management plan.</p>
Human health	<p><i>Vulnerability:</i> Malta has very high health standards. Possible stress factors associated with climate change are extremely high summer temperatures, drought and heavy rainfall. All of these impact air, water and food quality, and may result in the increase of vector-borne diseases that may impact human, plant and animal health, food hygiene and mortality rates, increasing them especially in the elderly (whose share in the total population is projected to increase over time). In particular, water quality and quantity may become a critical issue for health. Food safety could be impacted by high temperatures; for example, 25 per cent of cases of salmonellosis are associated with increased temperatures. Seasonal changes may also affect pollination, impacting allergenic disease incidence and respiratory conditions. There could be health and safety concerns for workers in sectors such as agriculture and fisheries due to their exposure to extreme weather.</p> <p><i>Adaptation:</i> Research collaboration involving the Maltese health authorities and the World Health Organization has been ongoing for some time, including on the strengthening of surveillance of infectious diseases and their vectors and, in case of an outbreak, on the need for a plan to contain the outbreak. Regarding food safety, health authorities continue to maintain and, where appropriate, strengthen programmes directed at reducing the potential risk to food safety, given that the projected climatic scenario for the Maltese islands is likely to have an adverse effect on food safety. Public education campaigns on adaptation, particularly among vulnerable groups, continue to focus on health issues.</p>
Water resources	<p><i>Vulnerability:</i> Malta is among the world's top ten water scarce countries, with only about 70 m³ of naturally occurring freshwater available per capita, including groundwater. The limited water resources makes the country dependent on the production of desalinated water for about 60 per cent of its potable water. The Maltese islands are expected to experience a decrease in water resources, mainly owing to increased evapotranspiration rates, increased variability in occurrence and intensity of rainfall, alteration of subsurface water movements and sea level rise, while water consumption is projected to increase, mainly because of tourism and population growth.</p> <p><i>Adaptation:</i> A comprehensive national Water Catchment Management Plan has been established, which mainstreams climate change adaptation obligations through an integrated water resources management approach, including using wastewater to provide an alternative supply of water for industry and agriculture, recovering rainwater run-off and investing in desalination technology to optimize the energy efficiency of the process. In 2012, the Government of Malta embarked on a EUR 56 million flood relief project partly funded by the EU to intercept rainwater through a series of underground tunnels and to replace and reorganize culverts and bridges. The project is aimed at replenishing the national water reserve with a further 700,000 m³ of water per year.</p>

2. Assessment of adherence to the reporting guidelines

118. The ERT assessed the information reported in the NC7 of Malta and identified an issue relating to completeness and adherence to the UNFCCC reporting guidelines on NCs. The finding is described in table 19.

Table 19

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

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 49 Issue type: completeness Assessment: recommendation	The NC7 does not include information on the expected impacts of climate change and an outline of the action taken to implement Article 4, paragraph 1(e), of the Convention: “cooperate in preparing for adaptation to the impacts of climate change; develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas, particularly in Africa, affected by drought and desertification, as well as floods”. The ERT recommends that in the next NC Malta include information on the expected impacts of climate change and an outline of the action taken to implement Article 4, paragraph 1(e), of the Convention with regard to adaptation.

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

119. Malta provided information on its general policy and funding relating to research and systematic observation and both domestic and international activities, including contribution at the EU level to the Copernicus programme aimed at developing European information services based on satellite observation and in situ data. Malta also contributes to the Global Atmosphere Watch programme of the World Meteorological Organization and to the Italia-Malta 2007–2013 Cross-Border Cooperation Programme. The ERT noted that the NC7 does not contain any information on the identification of opportunities for and barriers to free and open international exchange of data and information and on action taken to overcome such barriers. During the review, the Party explained to the ERT that Malta, like other EU member States, participates in the European Research and Innovation Area Committee Standing Working Group on Open Science and Innovation, which, among other things, follows and discusses informally the European agenda in the area of open access, including the European Open Science Cloud, Open Science and the FAIR initiative. Malta also participates in the national points of reference on open access.

120. Malta has implemented international and domestic policies and programmes on climate change research, systematic observation and climate modelling that aim to advance capabilities to predict and observe the physical, chemical, biological and human components of the Earth’s system over space and time. The NC7 of Malta states that research policy falls primarily under the responsibility of the Malta Council for Science and Technology and the Ministry of Education, which are responsible for national research funding and scholarships, respectively. In recent years, the Ministry for Environment, Sustainable Development and Climate Change has established scholarship grants for climate change research undertaken by developing country nationals studying at the University of Malta.

121. The National Research and Innovation Strategy 2020, which was approved by the Cabinet in 2014, looks at building critical mass and capacity in select areas and is aimed at giving the country a competitive edge. The three identified goals are: establishing a comprehensive research and innovation support ecosystem, investing in a stronger knowledge base and promoting smart, flexible specialization. The Malta Council for Science and Technology implements the strategy through an internal document (the Research and Innovation Action Plan 2020) that identifies actions, measures and budgets to achieve the goals of the strategy. The following national priorities have been identified in the National Research and Innovation Strategy 2020 through the smart specialization process: tourism product development, maritime services, aviation and aerospace, health

(with a focus on healthy living, active ageing and ‘e-health’), resource-efficient buildings, high value-added manufacturing and aquaculture.

122. The University of Malta is the primary institution that develops and supports research in the area of climate change. The establishment of the University Climate Change Platform in 2012 and the Institute for Climate Change and Sustainable Development in 2013 have led to better coordination of research activities within various faculties, institutes and centres of the University. The aims of the platform are to facilitate collaboration between University of Malta entities and individual academics interested in climate change issues and to promote research and teaching initiatives relating to climate change. The Party explained to the ERT during the review that the planned establishment of a Centre of Excellence in Research at the University of Malta, as mentioned in the NC6, did not occur because that was conditional on the University of Malta being awarded a European Research Area Chair under EU research funding and this did not happen. The activities of a large number of entities working under the auspices of the University of Malta on climate change are listed in the NC7. In addition, the NC7 identifies the Applied Environmental Sciences Research Group and the Energy Research Group of the Malta College of Arts, Science and Technology as being involved in climate-related research.

123. During the review, Malta informed the ERT that it does not provide capacity-building support to developing countries relating to the establishment and maintenance of observation systems and related data and monitoring systems. However, the Ministry for Environment, Sustainable Development and Climate Change is responsible for the provision of nine postgraduate (Masters and PhD) scholarship grants under the Endeavour Scholarship Scheme (from 2014 to date) for climate change research by developing country students (as part of Malta’s commitment under the Climate Finance Package) studying at the University of Malta. This scheme has replaced the Malta Government Scholarship Schemes. These scholarships cover research on mitigating climate change, developing a low-carbon economy, identifying risks and vulnerabilities in adapting to climate change, and enhancing resilience and good governance of climate change.

124. In terms of activities related to systematic observation, Malta reported on national plans, programmes and support for ground- and space-based climate observing systems, including satellite and non-satellite climate observation. Malta did not report in the NC7 or during the review on challenges related to the maintenance of a consistent and comprehensive observation system. Malta provided some information on the current status of national and international programmes and projects for climate observing systems. The Atmospheric Pollution Research Group, which is now part of the Geosciences Department at the University of Malta, was launched in October 1996. Moreover, further instruments were added through the VAMOS SEGURO project as part of the Italia-Malta 2007–2013 Cross-Border Cooperation Programme. Currently, trace gases, aerosols, volcanic ash and aerosol optical depth are measured together with meteorological parameters. During the review, the Party explained to the ERT that, since 1945, the Meteorological Office for the Maltese Islands (which is part of the World Meteorological Organization global observing system) has been compiling and monitoring temperature, precipitation and wind. More recently, solar radiance and other parameters have been included.

125. The studies conducted by researchers of the Atmospheric Pollution Research Group show the increasing temperature trend being experienced in the Maltese islands. The Physical Oceanography Research Group (previously the Physical Oceanography Unit) within the Department of Geosciences undertakes oceanographic research in a holistic manner. The group also acts as a national oceanographic data centre and promotes the Committee on International Oceanographic Data and Information Exchange products and activities in Malta.

126. The Marine Ecology Research Group has carried out research for the Mediterranean Science Commission’s Tropical Signals project as part of a systematic research observation programme carried out by 21 research teams from 15 Mediterranean countries to detect, monitor and study the effects of climate warming on Mediterranean marine biodiversity using representative biological indicators of change.

2. Assessment of adherence to the reporting guidelines

127. The ERT assessed the information reported in the NC7 of Malta and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 20.

Table 20

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

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 5 Issue type: transparency Assessment: recommendation	The information on research and systematic observation was not presented in accordance with the structure outline provided in the UNFCCC reporting guidelines on NCs, which have the following headings: “A. General policy on research and systematic observation”, “B. Research” and “C. Systematic observation”. This issue was also raised in the previous review report. The ERT reiterates the recommendation made in the previous review report that Malta adhere to the structure suggested in the UNFCCC reporting guidelines on NCs to enhance the transparency of reporting.
2	Reporting requirement specified in paragraph 59 Issue type: completeness Assessment: recommendation	Malta did not provide summary information on GCOS activities in the NC7 or during the review. The ERT recommends that Malta report in its next NC summary information on its GCOS activities.
3	Reporting requirement specified in paragraph 62 Issue type: completeness Assessment: encouragement	The NC7 does not include information on the opportunities for and barriers to free and open international exchange of data and information, or on action to overcome barriers. During the review, Malta clarified that it participates in the European Research and Innovation Area Committee Standing Working Group on Open Science and Innovation, which, among other things, follows and discusses informally the European agenda in the area of open access, including the European Open Science Cloud, Open Science and the FAIR initiative. Malta also participates in the national points of reference on open access. The ERT encourages Malta to include in the next NC information on the opportunities for and barriers to free and open international exchange of data and information, and on action to overcome barriers.

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

128. In the NC7 Malta provided information on its actions relating to education, training and public awareness at the domestic and international level. The Party provided information on the general policy on education, training and public awareness, primary, secondary and higher education, public information campaigns, training programmes, education materials, resource or information centres, the involvement of the public and non-governmental organizations and its participation in international activities.

129. During the review, Malta informed the ERT that currently there is no official policy addressing education, training and public awareness pertaining to climate change, nor is there a strategy. However, climate change is increasingly featured in syllabuses and educational programmes for the years of compulsory education. In 2012, Education for

Sustainable Development was introduced as a cross-curricular theme in the National Curriculum Framework, ensuring that issues such as climate change could be explored. The NC7 refers to the development of a consultation document in 2016 that identified the rationale and principles of a National Strategy for Education on Sustainable Development, which was revised following public consultation.

130. Malta expects that an action plan for this strategy will follow, and will identify specific targets and actions to be taken, set deadlines and list the agencies responsible for implementation. The NC7 mentions the likely inclusion of guidelines for periodic monitoring, evaluation and review of the strategy. However, specific guidelines for the integration of Education for Sustainable Development within all curriculum areas have not yet been developed. In the meantime, the Matriculation and Secondary Education Certificate Secondary Examination Board has initiated the revision of subject syllabuses for secondary school level and a number of syllabus panels are integrating Education for Sustainable Development issues into the new syllabuses.

131. The ERT noted that the Eco-Schools Programme (known as EkoSkola in Malta) has become the largest Education for Sustainable Development network in Malta, with more than 82 per cent of the total student population (kindergarten to post-secondary) participating in the programme. EkoSkola forms part of a larger network comprising more than 16 million students from 67 countries and is acknowledged as the largest global Education for Sustainable Development network. Climate change activities within EkoSkola include community information meetings, tree planting, energy audits at the school and household level and the organization of 'walking buses'.⁶

132. Initiatives outside the formal education system have been limited to occasional actions taken by non-governmental organizations and companies (as part of their corporate social responsibility activities) such as cleanups or tree planting. The Maltese Interdiocesan Environment Commission issues periodic opinion papers about sustainability issues, conducts training sessions in the community, and provides consultancy and support to parishes wanting to reduce their carbon footprint. In addition, the Malta-EU Steering and Action Committee, the European Commission Representation in Malta and the Ministry for Sustainable Development, Environment and Climate Change organized a series of meetings targeting various sections of Maltese society on the theme "From climate change to climate action".

2. Assessment of adherence to the reporting guidelines

133. The ERT assessed the information reported in the NC7 of Malta and identified an issue relating to completeness and adherence to the UNFCCC reporting guidelines on NCs. The finding is described in table 21.

Table 21

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

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	No information was included in the NC7 regarding the extent of public participation in the preparation or domestic review of the NC. During the review, the Party explained that no information on this matter is available. The ERT encourages Malta to report in its next NC the extent of public participation in the preparation or domestic review of the 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.

⁶ An alternative to traditional transport, whereby schoolchildren, chaperoned by adults, walk to school along a set route, in much the same way as a bus would drive them to school.

III. Conclusions and recommendations

134. The ERT conducted a technical review of the information reported in the NC7 of Malta 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 Malta.

135. 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 Malta in its 2018 annual submission.

136. Malta's total GHG emissions excluding LULUCF covered by its quantified economy-wide emission reduction target were estimated to be 9.1 per cent below its 1990 level, whereas total GHG emissions including LULUCF were also 9.1 per cent below its 1990 level in 2016. Emission decreases were driven by a significant reduction in electricity production due to the connection to the European mainland, improvements in the efficiency of energy supply thanks to older plants at Marsa and Delimara being replaced by a new plant at Delimara, and improvements in the efficiency of energy use. However, such factors have been almost outweighed by strong economic growth, mainly in tourism, population growth and the continued reliance on fossil fuels for primary energy supply.

137. Malta's main policy framework relating to energy and climate change is the EU 2020 climate and energy package, which will be superseded by the 2030 Climate and Energy Framework once the specific commitments for individual member States are finalized. Key legislation supporting Malta's climate change goals include the Climate Action Act (2015), which specifies the requirement for the development of a Low Carbon Development Strategy. The mitigation actions with the most significant mitigation impacts are linked to fuel switching, the installation of new and efficient generating capacity and the submarine connection to the European electricity grid, all of which target energy supply. These are supplemented by comprehensive measures in the transport and waste sectors.

138. The GHG emission projections provided by Malta include those under the WOM and WEM scenarios. In the two scenarios, emissions are projected to be 23.2 and 32.6 per cent below the 1990 level in 2020, respectively. On the basis of the reported information, the ERT concludes that Malta may face challenges in achieving its 2020 target for non-ETS sectors. During the review, Malta clarified that it intends to meet its 2020 target by continuing to purchase AEAs, as permitted under the ESD.

139. 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, although it did not elaborate on supplementarity as such. Malta is not planning to make use of the Kyoto Protocol mechanisms to meet its Kyoto Protocol target.

140. Malta 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, Malta provided information in the NC7 on its provision of support to developing country Parties. Support was mainly provided in the form of grants for projects on promoting access to water, renewable energy and capacity-building. Also, Malta provided climate change related scholarships for students from developing countries.

141. Impetus has been given to addressing adaptation matters with the adoption of the National Adaptation Strategy in 2012, which is now a legal obligation under the Climate Action Act. The committee of experts working on the strategy focused on sectors that were already very vulnerable rather than aiming to cover all possible aspects of adaptation. The vulnerable areas include water resources, infrastructure and economy, human health, agriculture and coastal zones. Information in the NC7 first identifies the state of play and then the measures that are being taken or proposed to address adaptation.

142. Malta provided information on its general policy and funding relating to research and systematic observation and both domestic and international activities, including contribution at the EU level to the Copernicus programme, an EU programme aimed at

developing European information services based on satellite observation and in situ data. Research policy is primarily under the responsibility of the Malta Council for Science and Technology and the Ministry of Education, which are responsible for national research funding and scholarships, respectively. The activities of a large number of entities working under the auspices of the University of Malta on climate change are included in the NC7.

143. During the review, Malta informed the ERT that currently there is no official policy addressing education, training and public awareness pertaining to climate change, nor is there a strategy. However, in 2012, Education for Sustainable Development was introduced as a cross-curricular theme in the National Curriculum Framework, ensuring that issues such as climate change could be explored. The Eco-Schools Programme carries out climate change activities, including community information meetings, tree planting and energy audits at the school and household level.

144. In the course of the review, the ERT formulated the following recommendations for Malta to improve its adherence to the UNFCCC reporting guidelines on NCs and its reporting of supplementary information under the Kyoto Protocol:⁷

- (a) To improve the completeness of its reporting by:
 - (i) Providing summary information on its national system for the estimation of anthropogenic emissions by sources and removals by sinks, or a reference to complete information, and on any changes since the previous NC (see issue 1, table 6);
 - (ii) Providing summary information on its national registry, or a reference to complete information, and on any changes since the previous NC (see issue 1, table 7);
 - (iii) Providing information on 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 information on how it believes its PaMs are modifying the longer-term trend in anthropogenic GHG emissions and removals in accordance with the objectives of the Convention (see issue 1, table 10);
 - (v) Providing a complete description of individual PaMs for the agriculture sector (see issue 9, table 10);
 - (vi) Providing information outlining how it promotes and implements the decisions of ICAO and IMO to limit emissions from aviation and marine bunker fuels (see issue 11, table 10);
 - (vii) 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, 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 in its next NC (see issue 12, table 10);
 - (viii) Providing emission projections related to fuel sold to ships and aircraft engaged in international transport and, to the extent possible, reporting these separately and not included in the totals in the next NC (see issue 4, table 14);
 - (ix) Providing an estimate of the total effect of PaMs by gas (on a CO₂ eq basis), in accordance with the WEM definition, compared with a situation without such PaMs (the WOM scenario) in the next NC (see issue 1, table 16);
 - (x) Providing information on the expected impacts of climate change and an outline of the action taken to implement Article 4, paragraph 1(e), of the Convention with regard to adaptation (see issue 1, table 19);

⁷ The recommendations are given in full in the relevant sections of this report.

- (xi) Providing information on summary information on its GCOS activities (see issue 2, table 20);
- (b) To improve the transparency of its reporting by:
 - (i) Providing consistent information within its NC and between the NC and the BR, including CTF tables, with regard to the status of PaMs reported as implemented, adopted or planned (see issue 4, table 10);
 - (ii) Providing information on factors and activities for each sector for the years 1990–2020 (see issue 8, table 14);
 - (iii) Providing information on the magnitude of use of carbon credits in its next NC in order to establish the potential use of carbon credits from mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol for the EU ETS component of its Kyoto Protocol target and to elaborate on how its use of the mechanisms is supplemental to domestic action and how its domestic action thus constitutes a significant element of the effort made to meet its quantified limitation commitment under Article 3, paragraph 1, in accordance with the provisions of decision 5/CP.6 (see issue 1, table 17);
 - (iv) Following the structure suggested in the UNFCCC reporting guidelines on NCs to enhance the transparency of reporting (see issue 1, table 20);
- (c) To improve the timeliness of its reporting by submitting its next NC on time (see para. 6 above).

IV. Questions of implementation

145. 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. No questions of implementation were raised by the ERT during the review.

Annex

Documents and information used during the review

A. Reference documents

2017 GHG inventory submission of Malta. 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>.

2018 GHG inventory submission of Malta. Available at <https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/national-inventory-submissions-2018>.

BR3 of Malta. 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>.

BR3 CTF tables of Malta. 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>.

NC7 of Malta. 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/seventh-national-communications-annex-i>.

Report on the individual review of the annual submission of Malta submitted in 2016. FCCC/ARR/2016/MLT. Available at <https://unfccc.int/resource/docs/2017/arr/mlt.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 Malta. FCCC/IRR/2016/MLT. Available at <https://unfccc.int/resource/docs/2017/irr/mlt.pdf>.

Report on the technical review of the sixth national communication of Malta. FCCC/IDR.6/MLT. 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 Mr. Saviour Vassallo (Malta Resources Authority), including additional material. The following documents⁸ were provided by Malta:

Climate Change Unit. 2018. *Operations & Quality Manual*. Marsa: Malta Resource Authority.

European Environment Agency. 2018. *EEA database on climate change mitigation policies and measures in Europe – Malta*. Available at <http://pam.apps.eea.europa.eu>.

European Environment Agency. 2017. *Trends and projections in Europe 2017. Tracking progress towards Europe's climate and energy targets*. Luxembourg Publications Office of the European Union, 2017. ISBN 978-92-9213-923-0. Available at <https://www.eea.europa.eu/publications/trends-and-projections-in-europe-2017>.

¹ Reproduced as received from the Party.

European Environment Agency. 2016. *Trends and projections in Europe 2016 - Tracking progress towards Europe's climate and energy targets. Chapter 3 Progress towards Member States' greenhouse gas emission targets*. Luxembourg Publications Office of the European Union, 2016. ISBN 978-92-9213-827-1. Available at <https://www.eea.europa.eu/publications/trends-and-projections-in-europe>.

Government Gazette. Available at <https://gov.mt/en/Government/Government%20Gazette/Pages/Government%20Gazette.aspx>.

Minimisation of Adverse Impacts in Accordance with Article 3, Paragraph 14 of the Kyoto Protocol.

National Statistics Office. 2017. *Electricity statistics for the years 2013 to 2016*. News Release 163/2017: Electricity Generation: 2007-2016.

Public access site to all Maltese legislation. Available at: <http://www.justiceservices.gov.mt>.

Qoul, C., Caruana, P. 2017. *Malta's Report on Policies and Measures and Projections, Report 2/2017. Report submitted to the EU according to Articles 13.1 and 14.1 of Regulation (EU) No 525/2013 on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change and repealing Decision No 280/2004/EC*. Available at http://cdr.eionet.europa.eu/mt/eu/mmr/art04-13-14_lcds_pams_projections/colwkw8yg/envwkq0hw/MMR_Article_13_1_PAMs_report_MT_2017_Final_3_.pdf/manage_document.

Trend in total CO₂ emissions from local electricity generation plants compared to indigenous electricity generation.
