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## **Report on the technical review of the eighth national communication and the technical review of the fifth biennial report of Monaco**

Parties included in Annex I to the Convention were requested by decision 6/CP.25 to submit their eighth national communication to the secretariat by no later than 31 December 2022. 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 eighth national communication and relevant supplementary information under the Kyoto Protocol of Monaco, 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”.

Developed country Parties were requested by decision 6/CP.25 to submit their fifth biennial report to the secretariat by no later than 31 December 2022. This report presents the results of the technical review of the fifth biennial report of Monaco, 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”.

The review of these submissions took place in Bonn from 27 to 31 March 2023.



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## Abbreviations and acronyms

Annex II Party	Party included in Annex II to the Convention
AR	Assessment Report of the Intergovernmental Panel on Climate Change
BR	biennial report
CH <sub>4</sub>	methane
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> eq	carbon dioxide equivalent
COVID-19	coronavirus disease 2019
CTF	common tabular format
ERT	expert review team
EU	European Union
F-gas	fluorinated gas
GCOS	Global Climate Observing System
GDP	gross domestic product
GHG	greenhouse gas
GWP	global warming potential
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
N <sub>2</sub> O	nitrous oxide
NA	not applicable
NC	national communication
NE	not estimated
NF <sub>3</sub>	nitrogen trifluoride
NGO	non-governmental organization
NIR	national inventory report
NO	not occurring
PaMs	policies and measures
PFC	perfluorocarbon
QA/QC	quality assurance/quality control
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 <sub>6</sub>	sulfur hexafluoride
UNFCCC Annex I inventory reporting guidelines	“Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories”
UNFCCC reporting guidelines on BRs	“UNFCCC biennial reporting guidelines for developed country Parties”
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 NC8 and BR5 of Monaco. The review was organized 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 IV: UNFCCC guidelines for the technical review of biennial reports from Parties included in Annex I to the Convention” and “Part V: UNFCCC guidelines for the technical review of national communications from Parties included in Annex I to the Convention” (annex to decision 13/CP.20), and the “Guidelines for review under Article 8 of the Kyoto Protocol” (annex to decision 22/CMP.1 and annex I to decision 4/CMP.1).

2. In accordance with decision 13/CP.20, a draft version of this report was transmitted to the Government of Monaco, which did not provide any comments.

3. The review was conducted from 27 to 31 March 2023 in Bonn by the following team of nominated experts from the UNFCCC roster of experts: Irina Atamuradova (Turkmenistan), Bernadett Benkó (Hungary), Chama Bowa (Zambia), Nonhlanhla Fungura (Zimbabwe), Marco Orsini (Belgium), Duška Šaša (Croatia), Rania Seif (Egypt), Dominic Sheldon<sup>1</sup> (United Kingdom of Great Britain and Northern Ireland), Ngoc Tran Thi Bich (Viet Nam), Olivia Tuchten (South Africa), Martijn Verdonk (Kingdom of the Netherlands) and Rasha Yousif (Sudan). Irina Atamuradova, Marco Orsini and Duška Šaša were the lead reviewers. The review was coordinated by Alma Jean and Lornaliza Kogler (secretariat).

### B. Summary

4. The ERT conducted a technical review of the information reported in the NC8 of Monaco in accordance with the UNFCCC reporting guidelines on NCs,<sup>2</sup> 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<sup>3</sup> and of the information reported in the BR5 of Monaco in accordance with the UNFCCC reporting guidelines on BRs.<sup>4</sup>

#### 1. Timeliness

5. The NC8 was submitted on 16 December 2022, before the deadline of 31 December 2022 mandated by decision 6/CP.25.

6. The BR5 was submitted on 16 December 2022, before the deadline of 31 December 2022 mandated by decision 6/CP.25. The CTF tables were also submitted on 16 December 2022. The CTF tables were resubmitted on 31 March 2023 to address issues raised during the review. The resubmission included changes to CTF tables 2(d), 2(e), 3, 4, 4(a) and 6(a). Detailed information on improvements related to the resubmission is provided in paragraphs 8 and 11 below. Unless otherwise specified, the information and values from the latest submission are used in this report.

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

7. Issues and gaps identified by the ERT related to the information reported by Monaco in its NC8 are presented in tables 1–2. The information reported, including the supplementary

<sup>1</sup> Dominic Sheldon’s participation in the centralized review was funded by the EU under the research project Support to the Development of Monitoring, Reporting and Verification Modalities, Procedures and Guidelines under the UNFCCC and to the Participation by the EU in UNFCCC Technical Reviews.

<sup>2</sup> Decision 6/CP.25, annex.

<sup>3</sup> Decision 15/CMP.1, annex, and decision 3/CMP.11, annex III.

<sup>4</sup> Decision 2/CP.17, annex.

information under the Kyoto Protocol, mostly adheres to the UNFCCC reporting guidelines on NCs. The ERT concludes that the issues of a mandatory nature related to supplementary information under the Kyoto Protocol do not influence the Party's ability to fulfil its commitments for the second commitment period of the Kyoto Protocol.

8. Monaco made improvements to the reporting in its NC8 compared with that in its NC7, including by addressing recommendations and encouragements from the previous review report. The ERT noted that the Party has improved:

- (a) The timeliness of its reporting by submitting its NC8 on time;
- (b) The transparency of the information reported on national circumstances relevant to GHG emissions and removals by providing a thorough summary of its national circumstances, including information on institutions, international commitments, population dynamics, geography, climate, energy, economic developments, industrial waste, and the agriculture, forestry and other land use sector;
- (c) The completeness of the GHG inventory information reported by providing summary information on the national GHG inventory for 1990–2020, including emissions expressed in CO<sub>2</sub> eq in emission trend tables presented in the common reporting format of the UNFCCC Annex I inventory reporting guidelines;
- (d) The completeness of the information reported on projections and the total effects of PaMs by providing a sensitivity analysis of the reported projections and information on two assumptions, namely (1) the cessation of waste imports from France planned for 2025 and (2) the construction of new heating facilities planned for 2021, the delays to which necessitated a national exemption from the ban on domestic fuel oil in order to avoid a transition to other energy sources, such as natural gas;
- (e) The transparency of the information reported on vulnerability assessment, climate change impacts and adaptation measures by enhancing the information reported on the expected impacts of climate change, including an outline of the actions taken to implement Article 4, paragraph 1(b) and (e), of the Convention with regard to adaptation;
- (f) The transparency of the information reported on research and systematic observation by reporting on international activities (e.g. the activities of the IPCC in which Monaco is involved), including an outline of the specific actions taken;
- (g) The completeness of the information reported on research and systematic observation by improving the reporting on the national climate change research programmes that focus on sea level rise and biodiversity, and on climate modelling;
- (h) The transparency of the information reported on education, training and public awareness by including information on its support for developing countries in their education, training and public awareness efforts.

Table 1

**Assessment of completeness and transparency of mandatory information reported by Monaco in its eighth national communication**

<i>Section of NC</i>	<i>Completeness</i>	<i>Transparency</i>	<i>Reference to description of recommendations</i>
Executive summary	Complete	Transparent	–
National circumstances relevant to GHG emissions and removals	Complete	Transparent	–
GHG inventory	Complete	Transparent	–
PaMs	Partially complete	Transparent	Issues 4, 5 and 8 in table I.3
Projections and the total effect of PaMs	Mostly complete	Transparent	Issue 2 in table I.4

<i>Section of NC</i>	<i>Completeness</i>	<i>Transparency</i>	<i>Reference to description of recommendations</i>
Vulnerability assessment, climate change impacts and adaptation measures	Complete	Transparent	–
Financial resources and transfer of technology <sup>a</sup>	NA	NA	NA
Research and systematic observation	Mostly complete	Mostly transparent	Issues 1–2 in table I.6
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 annex I. The assessment of completeness and transparency by the ERT in this table is based only on the “shall” reporting requirements.

<sup>a</sup> Monaco is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paras. 3–5, of the Convention.

Table 2

**Assessment of completeness and transparency of mandatory supplementary information under the Kyoto Protocol reported by Monaco in its eighth national communication**

<i>Supplementary information under the Kyoto Protocol</i>	<i>Completeness</i>	<i>Transparency</i>	<i>Reference to description of finding(s)</i>
National system	Complete	Transparent	–
National registry	Complete	Transparent	–
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Mostly complete	Transparent	Issue 1 in table I.7
PaMs in accordance with Article 2	Mostly complete	Transparent	Issue 2 in table I.7
Domestic and regional programmes and/or arrangements and procedures	Complete	Transparent	–
Information under Article 10 <sup>a</sup>	NA	NA	NA
Financial resources <sup>b</sup>	NA	NA	NA
Minimization of adverse impacts in accordance with Article 3, paragraph 14	Complete	Transparent	–

*Note:* A list of findings pertaining to the completeness and transparency issues identified in this table is included in annex I. The assessment of completeness and transparency by the ERT in this table is based only on the “shall” reporting requirements.

<sup>a</sup> The assessment refers to information provided by the Party on the provisions contained in Article 4, paras. 3, 5 and 7, of the Convention, as reported under Article 10 of the Kyoto Protocol, which is relevant to Annex II Parties only. An assessment of the information 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.

<sup>b</sup> Monaco 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.

9. Issues and gaps identified by the ERT related to the reported information by Monaco in its BR5 are presented in table 3. The information reported mostly adheres to the UNFCCC reporting guidelines on BRs.

10. Monaco did not submit an English translation of its BR5. The ERT notes that, in paragraph 26 of the UNFCCC reporting guidelines on BRs, Parties are encouraged to submit an English translation of the BR to facilitate its use in the review process. During the review, the Party noted that its report was submitted in an official language of the United Nations (i.e. French) and thus complies with the UNFCCC reporting guidelines on BRs (para. 26). Monaco indicated that, given the high workload of relevant staff and the time needed to translate the texts and graphics in the reports, it would not be possible to submit the BRs on time if they were to be submitted in English. Therefore, the Party does not envisage, in the medium term, translating the BRs into English.

11. Monaco made improvements to the reporting in its BR5 compared with that in its BR4, including by addressing some recommendations and encouragements from the previous review report. In addition, the ERT noted that the Party has improved:

- (a) The timeliness of its reporting by submitting its BR5 on time;
- (b) The transparency of the information reported on its quantified economy-wide emission reduction target and related assumptions, conditions and methodologies by providing consistent information in the BR and CTF table 2(b) on the inclusion of LULUCF in the target and the base year for SF<sub>6</sub> and NF<sub>3</sub>;
- (c) The transparency of the information reported on progress in the achievement of the quantified economy-wide emission reduction target and related information by providing consistent information in CTF tables 4 and 4(b) and the BR5 and by reporting “0” for years in which it did not use units from market-based mechanisms in CTF table 4;
- (d) The completeness of the GHG inventory information reported by providing information on developments to relevant legislation and on how the QA/QC plan was strengthened within the national system;
- (e) The transparency of the information reported on PaMs by correctly labelling PaMs as “planned”, “implemented” or “adopted”.

Table 3

**Summary of completeness and transparency of mandatory information reported by Monaco in its fifth biennial report**

<i>Section of BR</i>	<i>Completeness</i>	<i>Transparency</i>	<i>Reference to description of finding(s)</i>
GHG emissions and removals	Complete	Transparent	–
Quantified economy-wide emission reduction target and related assumptions, conditions and methodologies	Complete	Transparent	–
Progress in achievement of targets	Complete	Mostly transparent	Issue 1 in table II.3 Issue 2 in table II.4
Provision of support to developing country Parties <sup>a</sup>	NA	NA	NA

*Note:* A list of findings pertaining to the completeness and transparency issues identified in this table is included in annex II. The assessment of completeness and transparency by the ERT in this table is based only on the “shall” reporting requirements.

<sup>a</sup> Monaco is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paras. 3–5, of the Convention.

## **II. Technical review of the information reported in the eighth national communication and fifth biennial report**

### **A. National circumstances relevant to greenhouse gas emissions and removals**

#### **1. Technical assessment of the reported information**

12. The NC8 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. Monaco reported information on institutions in the NC8 that has not changed since the NC7, but provided additional information on international commitments. Monaco reported that the national population has increased since the NC7, and during the review explained that the decreasing trend in the population noted in the NC8 has been reassessed since the submission of the NC8. The ERT noted that between 1990 and 2021 the population increased by 31 per cent. The Party attributes the increase in the population primarily to the growth in urban densification. The Party also reported that the life expectancy of the Monegasque population

has increased by 1.3 per cent since the NC7. GDP, which had been increasing constantly since 2011, declined sharply in 2020. During the review, the Party explained that this interruption to the GDP trend was due to the COVID-19 pandemic and the measures adopted to limit the spread of the coronavirus. Regarding the structure of the energy market, new heating networks are under construction to reduce energy sector emissions related to the heating of buildings.

13. The number of daily journeys has increased since the NC7. Monaco upgraded its Integrated Mobility Management Centre in order to apply a multimodal approach to travel. During the review, the Party explained that while the number of employers in the transport sector has remained much the same for 10 years, larger companies are now gradually being replaced by smaller companies with fewer employees. Over the past 10 years, revenue from the industrial sector has fallen by more than one third. Energy recovery from waste has decreased since the NC7. During the review, the Party explained that the lower amount of waste incinerated in 2020 is due to a decrease in activity owing to the COVID-19 restrictions. Over the past few years the average quantity of waste, including sewage sludge, incinerated was 60,000 t per year. Regarding building stock and urban infrastructure, the total land area made available for construction for hotels has decreased since the NC7. Monaco reported in both the NC7 and the NC8 that there is no agricultural activity in the Principality and that green spaces (representing more than 20 per cent of the national territory) are accounted for under the forestry and other land use sector.

## 2. Assessment of adherence to the reporting guidelines

14. The ERT assessed the information reported in the NC8 of Monaco and identified issues relating to transparency and thus adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table I.1.

## B. Greenhouse gas inventory information<sup>5</sup>

### 1. Technical assessment of the reported information

15. Monaco reported information in its BR5 and NC8 on its historical GHG emissions and inventory arrangements. Total GHG emissions<sup>6</sup> excluding emissions and removals from LULUCF decreased by 31.8 per cent between 1990 and 2020, while total GHG emissions including net emissions or removals from LULUCF decreased by 31.8 per cent over the same period. Emissions peaked in 1996 and decreased thereafter, reaching the lowest level in 2020. The changes in total emissions were driven mainly by factors such as the population increase and, in 2020, restrictions arising from the COVID-19 pandemic.

16. Table 4 illustrates the emission trends by sector and by gas for Monaco. The emissions reported in the 2022 annual submission are the same as those reported in CTF table 1.

Table 4

**Greenhouse gas emissions by sector and by gas for Monaco for 1990–2020**

	GHG emissions (kt CO <sub>2</sub> eq)					Change (%)		Share (%)	
	1990	2000	2010	2019	2020	1990–2020	2019–2020	1990	2020
<i>Sector</i>									
1. Energy	101.65	103.37	80.11	73.92	63.18	–37.8	–14.5	98.9	90.2
A1. Energy industries	17.78	27.13	18.06	22.83	18.61	4.6	–18.5	17.3	26.6
A2. Manufacturing industries and construction	3.88	3.97	4.03	5.52	7.07	82.1	28.1	3.8	10.1
A3. Transport	35.21	38.09	27.57	22.87	18.90	–46.3	–17.4	34.3	27.0
A4. and A5. Other	43.01	33.52	29.86	22.16	18.08	–58.0	–18.4	41.9	25.8

<sup>5</sup> GHG emission data in this section are based on Monaco's 2022 annual submission, version 1. All emission data in subsequent chapters are based on Monaco's BR5 CTF tables unless otherwise noted.

<sup>6</sup> In this report, the term "total GHG emissions" refers to the aggregated national GHG emissions expressed in terms of CO<sub>2</sub> eq excluding LULUCF, unless otherwise specified.



	GHG emissions (kt CO <sub>2</sub> eq)					Change (%)		Share (%)	
	1990	2000	2010	2019	2020	1990– 2020	2019– 2020	1990	2020
B. Fugitive emissions from fuels	1.78	0.66	0.59	0.54	0.53	–70.3	–2.9	1.7	0.8
C. CO <sub>2</sub> transport and storage	NO	NO	NO	NO	NO	NA	NA	NA	NA
2. IPPU	0.38	2.13	7.75	8.47	6.29	1 551.9	–25.7	0.4	9.0
3. Agriculture	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NA	NA	NA	NA
4. LULUCF	–0.11	–0.10	–0.09	0.06	–0.07	–35.8	–221.9	NA	NA
5. Waste	0.71	1.06	1.01	0.90	0.56	–20.6	–37.3	0.7	0.8
6. Other <sup>a</sup>	NO	NO	NO	NO	NO	NA	NA	NA	NA
<i>Gas<sup>b</sup></i>									
CO <sub>2</sub>	98.23	100.29	77.72	71.37	60.79	–38.1	–14.8	95.6	86.8
CH <sub>4</sub>	2.20	1.43	1.25	1.08	0.72	–67.3	–33.2	2.1	1.0
N <sub>2</sub> O	2.23	3.16	4.13	2.92	2.75	23.5	–5.5	2.2	3.9
HFCs	NO, IE	1.59	5.66	7.80	5.65	NA	–27.6	NA	8.1
PFCs	NO, IE	NO, IE	0.03	0.00	NO, IE	NA	NA	NA	NA
SF <sub>6</sub>	0.08	0.09	0.09	0.12	0.12	50.8	0.1	0.1	0.2
NF <sub>3</sub>	NO	NO	NO	NO	NO	NA	NA	NA	NA
<b>Total GHG emissions excluding LULUCF</b>	<b>102.74</b>	<b>106.56</b>	<b>88.88</b>	<b>83.29</b>	<b>70.04</b>	<b>–31.8</b>	<b>–15.9</b>	<b>100.0</b>	<b>100.0</b>
<b>Total GHG emissions including LULUCF</b>	<b>102.63</b>	<b>106.46</b>	<b>88.79</b>	<b>83.35</b>	<b>69.96</b>	<b>–31.8</b>	<b>–16.1</b>	<b>–</b>	<b>–</b>

Source: GHG emission data: Monaco's 2022 annual submission, version 1.

<sup>a</sup> Emissions and removals reported under the sector other (sector 6) are not included in total GHG emissions.

<sup>b</sup> Emissions by gas without LULUCF. The Party did not report indirect CO<sub>2</sub> emissions.

17. The NC8 and BR5 provide information on the national legal, institutional and administrative systems (e.g. QA/QC system) established to address aspects of domestic compliance; measurement, reporting and verification; and the evaluation of progress relating to GHG emission reduction.

18. In brief, Monaco's national inventory arrangements were established in accordance with law 1.308 of 28 December 2005 on ratification of the Kyoto Protocol (this law is mentioned in the NC8, p.105). There have been some changes in Monaco's national inventory arrangements since the BR4, including the adoption of two regulatory texts: ministerial order 2020-916 of 24 December 2020 and sovereign ordinance 8.449 of 24 December 2020. The ordinance sets out the national GHG emission reduction targets for 2030 and 2050. The Energy, Climate and Urban Activities Division of the Department of the Environment oversees the planning, preparation and management of Monaco's GHG inventories.

## 2. Assessment of adherence to the reporting guidelines

19. The ERT assessed the information reported in the NC8 and BR5 of Monaco and identified issues relating to transparency and thus adherence to the UNFCCC reporting guidelines on NCs and the UNFCCC reporting guidelines on BRs. The findings are described in tables I.2 and II.1.

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

### (a) Technical assessment of the reported information

20. Monaco provided in the NC8 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 in conjunction with decisions 3/CMP.11 and 4/CMP.11.

The description includes all the elements mandated by paragraph 30 of the annex to decision 15/CMP.1. The NC8 also contains a reference to the description of the national system provided in the report mandated by decision 2/CMP.8, submitted in the NIR of the 2021 annual submission. The ERT took note of the review of the changes to the national system reflected in the report on the individual review of the 2021 annual submission of Monaco.

**(b) Assessment of adherence to the reporting guidelines**

21. The ERT assessed the information reported in the NC8 of Monaco and recognized that the reporting is complete and transparent, and thus adheres to the reporting guidelines for supplementary information. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

**4. National registry**

**(a) Technical assessment of the reported information**

22. In its NC8 Monaco provided information on how its national registry performs the functions in accordance with the annex to decision 13/CMP.1 in conjunction with decision 3/CMP.11 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 2021 annual submission of Monaco.

**(b) Assessment of adherence to the reporting guidelines**

23. The ERT assessed the information reported in the NC8 of Monaco and recognized that the reporting is complete and transparent, and thus adheres to the reporting guidelines for supplementary information. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

**C. Quantified economy-wide emission reduction target and related assumptions, conditions and methodologies**

**1. Technical assessment of the reported information**

24. Monaco reported information on its economy-wide emission reduction target in its BR5. For Monaco the Convention entered into force on 21 March 1994. Under the Convention Monaco committed to reducing its GHG emissions by 30 per cent below the 1990 level by 2020. The target includes all GHGs included in the “Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories”, namely CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub> and NF<sub>3</sub>. It also includes all IPCC sources and sectors included in the annual GHG inventory. The GWP values used are from the AR4. Emissions and removals from the LULUCF sector are not included in the target. Monaco reported that it plans to make use of market-based mechanisms for achieving its target (see para. 51 below). In absolute terms this means that, under the Convention, Monaco has to reduce its emissions from 102.74 kt CO<sub>2</sub> eq in 1990<sup>7</sup> to 71.92 kt CO<sub>2</sub> eq by 2020.

25. In addition to its 2020 target, Monaco also has a longer-term target of reducing its GHG emissions by 80 per cent compared with the 1990 level by 2050 with a view to achieving carbon neutrality. Under the Paris Agreement, Monaco’s commitment is to reduce its GHG emissions by 55 per cent below the 1990 level by 2030.

**2. Assessment of adherence to the reporting guidelines**

26. The ERT assessed the information reported in the BR5 of Monaco and recognized that the reporting is complete and transparent, and thus adheres to the UNFCCC reporting

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<sup>7</sup> The emission level in 1990 was calculated on the basis of Monaco’s 2022 annual submission, version 1.0.

guidelines on BRs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

## **D. Information on policies and measures**

### **1. Technical assessment of the reported information**

27. Monaco provided in its NC8 and BR5 information on its PaMs<sup>8</sup> implemented, adopted and planned to fulfil its commitments under the Convention. Monaco's set of PaMs is similar to that previously reported, with a few exceptions. The Party reported that the PaMs that were discontinued include an ordinance on thermal insulation and adjustment of heating installations in residential buildings (which has been superseded) and laws, decrees and ministerial orders relating to energy saving, limits on heating of buildings and the use of electricity. Other PaMs that have been suspended or cancelled relate to ceasing the importation of waste from France, the use of electric aircraft for short distances and power supply for cruise ships.

28. Some PaMs mentioned in the BR4 have been consolidated and some have come to an end. Other policies that were reported in the BR4 but not in the BR5 were integrating a sustainable development clause into the energy distribution contract; improving knowledge on energy consumption in public buildings; dismantling and reconstructing high-emitting stationary installations; promoting the use of photovoltaic panels; incorporating biomethane into the natural gas grid; optimizing wastewater treatment; the eco-responsibility of the Government; and reducing emissions from dry cleaners. The new policies include introducing a subsidy for energy renovations, photovoltaic installations in public buildings, introducing a subsidy for the purchase of electric and hybrid vehicles, replacing buses running on fossil fuels with electric buses and closing fuel distribution points.

29. Monaco reported on its policy context and legal and institutional arrangements in place for implementing its commitments and monitoring and evaluating the effectiveness of its PaMs. Monaco neither provided information on changes to its institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of progress towards its target, nor reported that no changes had taken place. The ERT noted that the institutional arrangements described in the NC8 and BR5 are the same as those described in previous reports. Briefly, the Department of the Environment manages the preparation of national GHG inventories, NCs and BRs while also overseeing energy and climate planning and evaluating progress towards Monaco's objectives in that regard. The Department of the Environment informs the Government of emissions and projections, assists the Government in understanding them and suggests PaMs. The Party described the practical application of the processes and systems in place for monitoring PaMs; how the Government has implemented economic measures and initiated the transition from thermal buses to electric buses; and how market mechanisms will be used if national PaMs do not achieve the 2020 targets.

30. Monaco did not report an assessment of the economic and social consequences of its response measures as it deems national energy consumption to be negligible relative to global consumption. However, during the review the Party provided information on the scale of domestic energy consumption relative to international consumption and the implications of assessing the economic and social consequences of its response measures. It clarified that the most important response measures are in the energy sector.

31. The Party also provided during the review some insight into the local consequences that it has analysed. The Party found no negative impacts of response measures at the local level and that the response measures generally have positive local impacts. One specific national consequence identified is that, by developing its own energy production capacity, Monaco will reduce its reliance on foreign electricity imports. Other positive consequences of response measures identified include improvements to the quality of the environment and

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<sup>8</sup> The UNFCCC reporting guidelines on BRs use the term "mitigation actions", whereas the UNFCCC reporting guidelines on NCs use the term "policies and measures". The terms are used interchangeably in this report to refer to the relevant information in either the NC or BR.

public spaces, the resilience of housing, climate change adaptation, air quality and urban noise levels.

32. In its reporting on PaMs, Monaco provided the estimated emission reduction impacts for most of its PaMs. Where estimated impacts were not provided, the Party did not provide an explanation applicable to those PaMs. The Party explained during the review that estimated impacts were not provided for some PaMs for various reasons, including the Party being unable to assess the effects (in particular the effects of awareness-raising measures) or the measures not being included under the WEM scenario. Monaco estimated the impacts of some of its PaMs in groups; however, the rationale for grouping PaMs for the purpose of estimating impacts was not provided.

33. In the chapters of the NC8 and BR5 on GHG emission projections, the Party briefly described the methodology used to generate projections of emissions by sector, stating that the effects of PaMs were included in the WEM scenario, but did not describe how. The Party did not provide a description of estimation methods for individual mitigation actions in the chapters on mitigation actions and their effects.

34. The key overarching cross-sectoral policy reported by Monaco is the Environmental Code established under law 1.456, which was adopted on 12 December 2017. The Environmental Code provides the framework for future environmental regulations; climate commitments were added in 2021. The three measures with the most significant mitigation effect are (1) requalifying the waste-to-energy plant, which involves constructing a new incineration plant with advanced processes for minimizing emissions and high-yield energy recovery systems; (2) improving energy efficiency in the buildings sector by imposing stricter energy performance standards in new and renovated buildings and conducting energy audits; and (3) reducing F-gas emissions by implementing stricter regulations, prohibiting equipment using high-emission F-gases and adopting measures to minimize fugitive emissions in various sectors. During the review, Monaco highlighted a series of PaMs of particular interest that are replicable by other Parties; for example, a ban on fossil fuel use in buildings, a reduction in the use of F-gases with high GWPs and a reduction in taxes on home energy renovations.

35. The Party also described PaMs that it felt are innovative; for example, (1) heating and cooling networks for buildings that use seawater heat pumps and (2) a waste recovery and sorting centre that responds to the problems of waste treatment and disposal of sewage sludge while maximizing energy production and reducing GHG emissions (through pre-sorting of plastic materials before energy recovery).

36. Monaco highlighted the mitigation actions that are under development, such as the Climate Air Energy Plan 2030, currently being finalized, which will outline new goals and corresponding actions (combined mitigation and adaptation actions) to meet the Principality's climate change commitments. Development of a low-carbon strategy for 2050 will be initiated in 2023–2024 using the results of a preliminary study of the Principality's potential to meet its international commitments for GHG emission reductions and energy objectives. Table 5 provides a summary of the reported information on the PaMs of Monaco.

Table 5

**Summary of information on policies and measures reported by Monaco**

<i>Sector</i>	<i>Key PaMs</i>	<i>Estimated mitigation impact in 2020 (kt CO<sub>2</sub> eq)</i>	<i>Estimated mitigation impact in 2030 (kt CO<sub>2</sub> eq)</i>	<i>Estimated mitigation impact in 2035 (kt CO<sub>2</sub> eq)</i>
Policy framework and cross-sectoral measures	National Pact for Energy Transition	NA	NE	NE
	Climate Air Energy Plan 2030	NA	NA	NA
Energy				
Energy efficiency	Measures aimed at improving energy efficiency and reducing GHG emissions in the buildings sector. The measures with quantified impacts include: (a) Introduction of a subsidy for energy renovations	NA	10.54	12.01

<i>Sector</i>	<i>Key PaMs</i>	<i>Estimated mitigation impact in 2020 (kt CO<sub>2</sub> eq)</i>	<i>Estimated mitigation impact in 2030 (kt CO<sub>2</sub> eq)</i>	<i>Estimated mitigation impact in 2035 (kt CO<sub>2</sub> eq)</i>
	(b) Development of urban heating/cooling networks and temperate water loops			
	(c) Incorporation of biomethane in the natural gas grid			
Energy supply and renewable energy	Increasing the share of renewable energy	NA	0.00	0.00
Transport	Measures aimed at reducing emissions from passenger cars and light commercial vehicles. The measures with quantified impacts include:	NA	2.10	3.40
	(a) Promotion of bicycle and electric bicycle use (i.e. soft mobility)			
	(b) Promotion of the sharing of electric vehicles (i.e. clean travel)			
	(c) Improvement of the urban distribution centre for goods			
	(d) Incorporation of biofuels in gasoline and diesel fuels			
	(e) Introduction of a subsidy for the purchase of electric and hybrid vehicles			
	(f) Replacement of thermal buses with electric buses			
IPPU	Reducing F-gas emissions	NA	4.90	7.20
Waste	Requalification of the waste-to-energy plant	NA	4.60	18.80
	The measures with quantified impacts include:			
	(a) Waste management plan for 2030			
	(b) Zero single-use plastic policy			

*Note:* The estimated mitigation impacts are estimates of emissions of CO<sub>2</sub> eq avoided in a given year as a result of the implementation of mitigation actions.

37. As noted in paragraph 32 above, Monaco did not provide a quantified estimate of the impact of some of the PaMs reported. Measures that are implemented but for which an impact could not be calculated were reported as “NE”. Measures that are planned and have no quantified estimate of the impact as yet (e.g. the Climate Air Energy Plan 2030) were reported as “NA”.

38. Regarding the measure for increasing the share of renewable energy, for which an impact of 0.00 kt CO<sub>2</sub> eq was reported, the Party clarified that most of the electricity used in Monaco is imported from France, and this electricity is certified as being generated from renewables; therefore, there is no GHG emission effect in Monaco. All the electricity produced in Monaco is from renewable sources.

39. In the NC8 and BR5 the Party described the systems and institutional arrangements in place to periodically assess and monitor progress in the implementation of mitigation actions and their impacts. These systems and institutional arrangements include the annual inventory of direct emissions, prepared by the Department of the Environment in accordance with the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. The Party also described the challenges experienced in calculating the effects of its PaMs. For key emission categories, such as incineration and domestic combustion, the calculation is straightforward but for other categories (e.g. those involving other countries), it is more difficult to assess the effects. Further, Monaco described policy-specific monitoring systems and processes, namely the Government’s involvement in the European Energy Award certification process through which it has integrated the Principality’s Climate Energy Plan into a European-approved management approach. This approach includes provisions for monitoring progress in achieving GHG emission reduction commitments.

## **2. Assessment of adherence to the reporting guidelines**

40. The ERT assessed the information reported in the NC8 and BR5 of Monaco and identified issues relating to completeness and transparency, and thus adherence to the UNFCCC reporting guidelines on NCs and the UNFCCC reporting guidelines on BRs. The findings are described in tables I.3 and II.2.

## **3. Domestic and regional programmes and legislative arrangements and procedures related to the Kyoto Protocol**

### **(a) Technical assessment of the reported information**

41. In its NC8 Monaco reported that the implementation of the Kyoto Protocol is underpinned by the Climate Energy Plan, adopted in 2013, and its low-carbon strategy. The Climate Energy Plan, under which Monaco aims to meet its emission reduction target for 2020, established a framework for future climate policy development. The overall responsibility for climate change policymaking lies with the Ministry of Public Works, the Environment and Urban Development, and a number of national institutions are involved in policy implementation. The International Atomic Energy Agency's Environment Laboratory in Monaco is responsible for monitoring policy implementation as well as coordinating implementation among different ministries and other implementing agencies, which include international organizations and intergovernmental organizations (IMO, the Intergovernmental Oceanographic Commission, the United Nations Educational, Scientific and Cultural Organization, and the United Nations Development Programme) within the framework of the World Summit on Sustainable Development.

42. For the second commitment period of the Kyoto Protocol, from 2013 to 2020, Monaco committed to reducing its GHG emissions by 22 per cent below the base-year level.

43. The Party has arrangements and enforcement procedures in place for use by the Deputy Director of the Environment to meet its commitments under the Kyoto Protocol, including procedures for addressing non-compliance. These include verifying GHG emissions inventories and implementing planned improvements. Following verification, when compliance is identified, the inventory is proposed to the responsible ministry for approval.

44. Monaco has provisions in place to make information on legislative arrangements and administrative procedures related to compliance and enforcement publicly accessible. The Department of the Environment oversees the preparation of NCs and BRs, the implementation of the national inventory register, compliance with reporting obligations, response to audits, and participation in international evaluation processes, such as the international assessment and review process.

45. Monaco has national legislative arrangements and administrative procedures in place that seek to ensure that the implementation of activities under Article 3, paragraph 3, and any elected activities under Article 3, paragraph 4, of the Kyoto Protocol also contributes to the conservation of biodiversity and the sustainable use of natural resources. The preservation of biodiversity in Monaco is covered by the Government's sustainable development policy. In 2017, the Department of the Environment initiated the development of the National Strategy for Biodiversity, which was published in 2021. It incorporates the commitments Monaco has made under the Convention on Biological Diversity. As part of the strategy, the Government is rethinking its spatial planning policy in order to prepare the resilient city of tomorrow, in particular to reduce the Principality's vulnerability to natural hazards and to increase efforts for adaptation. The Department of the Environment also provides grants for projects related to biodiversity and supports services in the Principality that contribute to the protection of biodiversity, especially in the context of climate change.

### **(b) Assessment of adherence to the reporting guidelines**

46. The ERT assessed the information reported in the NC8 of Monaco and recognized that the reporting is complete and transparent, and thus adheres to the reporting guidelines for supplementary information. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

#### **4. Policies and measures in accordance with Article 2 and minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol**

##### **(a) Technical assessment of the reported information**

47. In the NC8 Monaco reported 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. Monaco fights climate change and supports the least developed countries by funding projects and programmes that minimize the adverse effects of climate change.

48. The NC8 does not include information on how Monaco promotes and implements the decisions of ICAO and IMO to limit emissions from aviation and marine bunker fuels. The Party reported information on international bunkers for the international aviation and shipping sectors. GHG emissions from international bunkers were projected to be 14.47 kt CO<sub>2</sub> eq in 2030 and 15.41 kt CO<sub>2</sub> eq in 2035, which corresponds to 100 and 129 per cent respectively of the 1990 level. During the review, the Party explained that it will support the introduction of new fuels incorporating biofuels and new technologies in the aviation and maritime transport sectors, particularly hydrogen fuel for yachting. Regarding mitigation measures not related to the GHG inventory, the use of heavy fuel oil has been banned in Monaco's territorial waters. To date, no measures for international shipping have been adopted and taken into account in the calculation of the emission projections. As indicated in the NC8, the supply of electricity from Port Hercules to power cruise ships at the quay could not be completed owing to technical reasons. The Party noted that the two ports in Monaco are mainly used for leisure and recreational activities; there is no international transport of goods to or from them.

49. Further information on how Monaco 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 2022 annual submission.

##### **(b) Assessment of adherence to the reporting guidelines**

50. The ERT assessed the information reported in the NC8 of Monaco and identified an issue relating to completeness and thus adherence to the reporting guidelines for supplementary information. The finding is described in table I.7.

#### **E. Estimates of emission reductions and removals and the use of units from market-based mechanisms and land use, land-use change and forestry and progress in achieving the quantified economy-wide emission reduction target**

##### **1. Technical assessment of the reported information**

51. Monaco reported in its BR5 that it intends to use units from market-based mechanisms under the Kyoto Protocol and other market-based mechanisms under the Convention. It reported in CTF tables 4 and 4(b) that it used units from market-based mechanisms in 2019 and 2020 towards achieving its 2020 target equivalent to 15.00 and 10.70 kt CO<sub>2</sub> eq respectively. On its use of units from LULUCF activities, Monaco reported in CTF tables 4 and 4(a) that in 2019 and 2020 it did not use any units from LULUCF activities. Table 6 illustrates Monaco's total GHG emissions and use of units from market-based mechanisms towards achieving its target.

Table 6

**Summary of information on greenhouse gas emissions, use of units from market-based mechanisms and land use, land-use change and forestry by Monaco**(kt CO<sub>2</sub> eq)

<i>Year</i>	<i>Emissions excluding LULUCF</i>	<i>Contribution of LULUCF<sup>a</sup></i>	<i>Use of units from market-based mechanisms</i>	<i>Net emissions including LULUCF and market-based mechanisms</i>
1990 (base year)	102.74	NA	NA	102.74
2010	88.88	NA	0	88.88
2011	86.54	NA	0	86.54
2012	89.17	NA	0	89.17
2013	91.29	NA	0	91.29
2014	85.52	NA	0	85.52
2015	88.43	NA	0	88.43
2016	86.68	NA	0	86.68
2017	83.61	NA	0	83.61
2018	86.97	NA	25.00	61.97
2019	83.29	NA	15.00	68.29
2020	70.03	NA	10.70	59.33
2020 target <sup>b</sup>				71.92

*Sources:* Monaco's BR5 and BR5 CTF tables 1, 2(a), 4, 4(a)I, 4(a)II, 4(b) and 6(a), information provided by the Party during the review and Monaco's 2022 annual submission, version 1.0.

<sup>a</sup> Monaco's emission reduction target does not include emissions or removals from LULUCF.

<sup>b</sup> The emission level that corresponds to the 2020 target is calculated on the basis of the GHG emissions excluding LULUCF in the base year and the Party's target (i.e. reduction in emissions compared with the base year).

## 2. Assessment of adherence to the reporting guidelines

52. The ERT assessed the information reported in the BR5 of Monaco and identified an issue relating to transparency and thus adherence to the UNFCCC reporting guidelines on BRs. The finding is described in table II.3.

## 3. Assessment of achievement of the quantified economy-wide emission reduction target

53. In assessing the Party's achievement of its 2020 target on the basis of the information reported in its BR5, the ERT noted that Monaco committed to reducing its emissions to 30 per cent below the 1990 level by 2020 (see para. 24 above). In 2020 Monaco's annual total GHG emissions excluding LULUCF were 70.03 kt CO<sub>2</sub> eq. The ERT noted that the contribution of LULUCF is not included in the Party's base or target year and that Monaco used units from market-based mechanisms. Taking this into account, emissions in 2020 were 59.33 kt CO<sub>2</sub> eq (42.3 per cent) below the emission level corresponding to the 2020 target (see table 6). The ERT concluded that, on the basis of the information reported in the BR5 and provided during the review, the total 2020 GHG emissions excluding LULUCF of Monaco do not exceed the emission level corresponding to the 2020 target, and thus that the target has been achieved.

## F. Projections

### 1. Projections overview, methodology and results

#### (a) Technical assessment of the reported information

54. Monaco reported in its BR5 and NC8 updated projections for 2030–2035 relative to actual inventory data for 2020 under the WEM scenario. The WEM scenario reported by Monaco includes PaMs implemented and adopted until 2031.

55. 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 CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, PFCs, HFCs and SF<sub>6</sub> (treating PFCs and HFCs collectively in each case) for



2030–2035. The projections are also provided in an aggregated format for each sector and for a Party total using GWP values from the AR4. Monaco reported on factors and activities affecting emissions for each sector.

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

56. The methodology used for the preparation of the projections is different from that used for the preparation of the emission projections for the NC7. Monaco did not provide information on changes since the submission of its NC7 in the assumptions, methodologies, models and approaches used for the projection scenarios.

57. To prepare its projections, Monaco relied on key underlying assumptions relating to population, the vehicle fleet and fuel sales, and extrapolated (extended) the trends reported in the national inventory of the 2022 annual submission. In CTF table 5, however, Monaco provided a summary of and assumptions for only the population. Information on other underlying assumptions and drivers, such as GDP growth, taxes and fuel prices, was not given as such information was not known at the time of preparation of the projections. In its NC8 the Party included a profile of its economic development, highlighting the strong economic growth Monaco has registered over the past 10 years (with a decrease in this growth attributable to the COVID-19 pandemic being noted). During the review, the Party clarified that projected economic data for key economic development variables were not available for use in preparing GHG emission projections.

58. Sensitivity analyses were conducted for two assumptions. The first is the cessation of waste imports from France planned for 2025. The Party reported that, owing to constraints related to waste disposal in France, Monaco has decided to impose offsetting of the emissions generated from waste disposal and accounted for in the national inventory, which amount to approximately 6 kt CO<sub>2</sub> eq per year. The other assumption relates to new heating facilities planned for 2021, the delays to which necessitated an exemption from the ban on domestic fuel oil in order to avoid a transition to other energy sources, such as natural gas.

**(c) Results of projections**

59. The projected emission levels under the WEM scenario and information on the quantified economy-wide emission reduction target are presented in table 7 and figure 1.

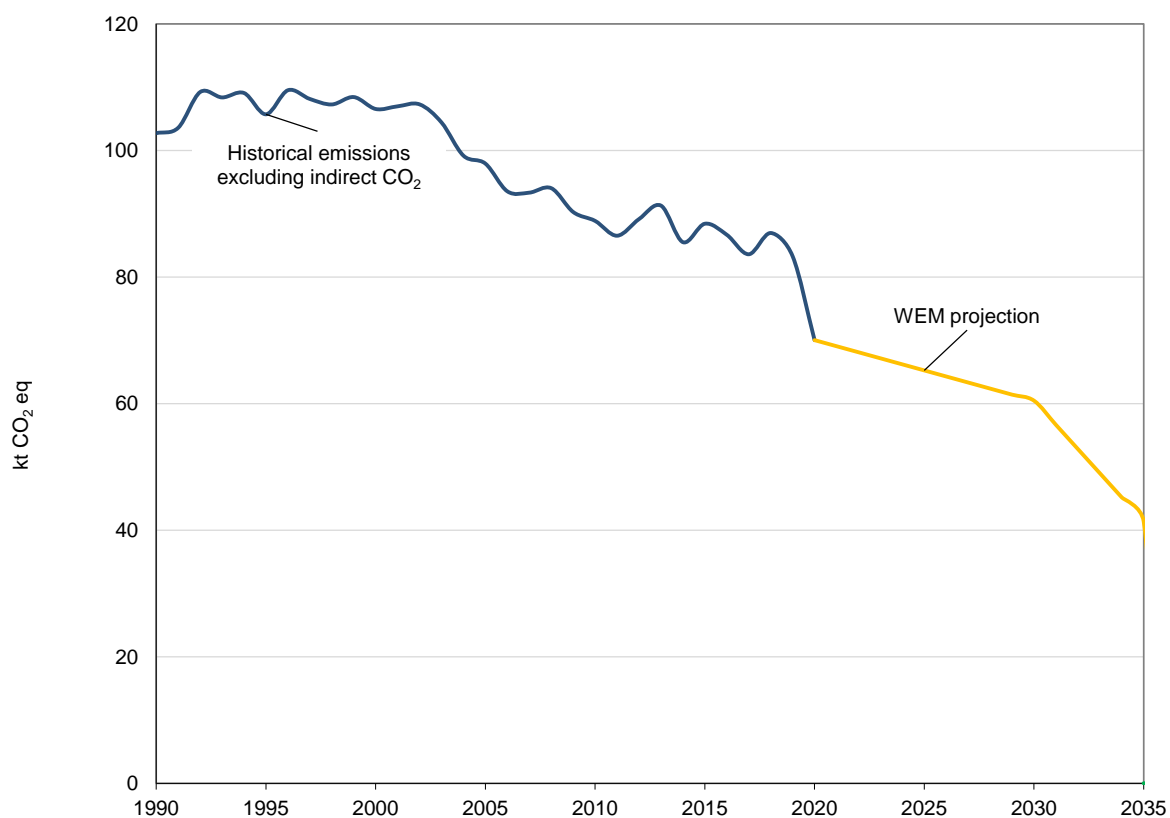
Table 7  
**Summary of greenhouse gas emission projections for Monaco**

	<i>GHG emissions (kt CO<sub>2</sub> eq/year)</i>	<i>Change in relation to 1990 level (%)</i>	<i>Change in relation to 2020 level (%)</i>
Inventory data 1990	102.74	NA	NA
Inventory data 2020	70.04	–31.8	NA
WEM projections for 2030	60.47	–41.1	–13.7
WEM projections for 2035	41.37	–59.7	–40.9

*Sources:* Monaco's BR5 and BR5 CTF table 6.

*Note:* The projections are of GHG emissions excluding LULUCF and excluding indirect CO<sub>2</sub>.

Figure 1  
Greenhouse gas emission projections reported by Monaco

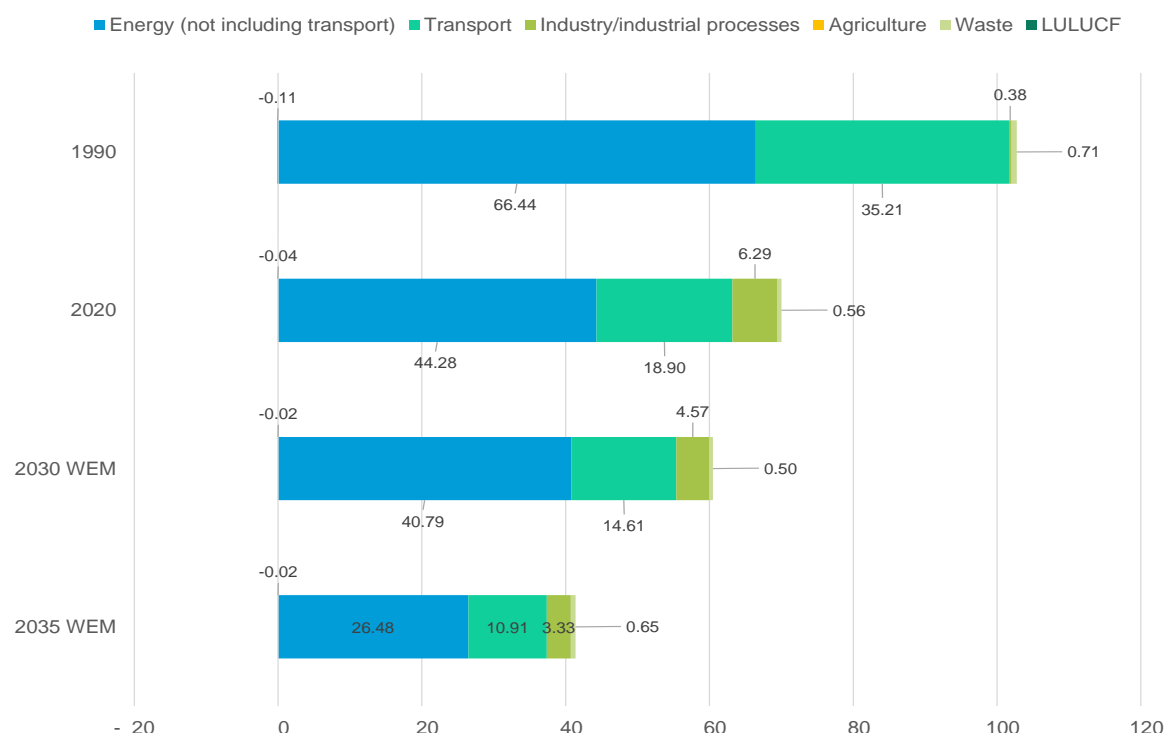


Sources: Monaco's BR5 and BR5 CTF tables 1 and 6 (total GHG emissions excluding LULUCF).

60. Monaco's total GHG emissions excluding LULUCF are projected under the WEM scenario to decrease by 41.1 and 59.7 per cent respectively below the 1990 level in 2030 and 2035. When including LULUCF, total GHG emissions are projected under the WEM scenario to decrease by 41.3 and 59.7 per cent respectively below the 1990 level in 2030 and 2035.

61. Monaco presented the WEM scenario by sector for 2030 and 2035, as summarized in figure 2 and table 8.

Figure 2

**Greenhouse gas emission projections for Monaco presented by sector**(kt CO<sub>2</sub> eq)

Sources: Monaco's BR5 and BR5 CTF table 6.

Table 8

**Summary of greenhouse gas emission projections for Monaco presented by sector**

Sector	GHG emissions and removals (kt CO <sub>2</sub> eq)			Change (%)	
	1990	2030 WEM	2035 WEM	1990–2030 WEM	1990–2035 WEM
Energy (not including transport)	66.44	40.79	26.48	–38.6	–60.1
Transport	35.21	14.61	10.91	–58.5	–69.0
Industry/industrial processes	0.38	4.57	3.33	1 102.6	776.3
Agriculture	NO	NO	NO	–	–
LULUCF	–0.11	–0.02	–0.02	–81.8	–81.8
Waste	0.71	0.50	0.65	–29.6	–8.5
Other	NO	NO	NO	–	–
<b>Total GHG emissions excluding LULUCF</b>	<b>102.74</b>	<b>60.47</b>	<b>41.37</b>	<b>–41.1</b>	<b>–59.7</b>

Sources: Monaco's BR5 and BR5 CTF table 6.

62. According to the projections reported for 2030 under the WEM scenario, the most significant absolute emission reductions are expected to occur in the energy and transport sectors, amounting to projected reductions of 38.6 and 58.5 per cent respectively between 1990 and 2030. The pattern of projected emissions reported for 2035 under the same scenario remains the same, with the projected reductions for the energy and transport sectors amounting to 60.1 and 69.0 per cent respectively between 1990 and 2035.

63. The projected trend in emissions for the energy sector is based on the production of thermal energy for heating and energy recovery from urban and industrial waste (solid waste and sewage sludge). The projected trend for the transport sector is based on a gradual evolution of the vehicle fleet from vehicles with internal combustion engines to those with more energy-efficient hybrid or electric motors. This evolution assumes that financial incentives for the purchase of the latter vehicles as well as a future EU regulation on

performance standards for vehicles, envisaged to halt production of internal combustion engines from 2035, will be introduced.

64. Monaco presented the WEM scenario by gas for 2030 and 2035, as summarized in table 9.

Table 9

**Summary of greenhouse gas emission projections for Monaco presented by gas**

<i>Gas<sup>a</sup></i>	<i>GHG emissions and removals (kt CO<sub>2</sub> eq)</i>			<i>Change (%)</i>	
	<i>1990</i>	<i>2030 WEM</i>	<i>2035 WEM</i>	<i>1990–2030 WEM</i>	<i>1990–2035 WEM</i>
CO <sub>2</sub>	98.23	52.99	35.04	–46.1	–64.3
CH <sub>4</sub>	2.20	0.66	0.74	–70.0	–66.4
N <sub>2</sub> O	2.23	2.86	2.85	28.3	27.8
HFCs	0.00	3.81	2.56	–	–
PFCs	0.00	0.00	0.00	–	–
SF <sub>6</sub>	0.08	0.14	0.18	75.0	125.0
NF <sub>3</sub>	NO	NO	NO	–	–
<b>Total GHG emissions without LULUCF</b>	<b>102.74</b>	<b>60.46</b>	<b>41.37</b>	<b>–41.2</b>	<b>–59.7</b>

Sources: Monaco's BR5 and BR5 CTF table 6.

<sup>a</sup> Monaco did not include indirect CO<sub>2</sub> emissions in its projections.

**(d) Assessment of adherence to the reporting guidelines**

65. The ERT assessed the information reported in the NC8 and BR5 of Monaco and identified issues relating to completeness and transparency, and thus adherence to the UNFCCC reporting guidelines on NCs and the UNFCCC reporting guidelines on BRs. The findings are described in tables I.4 and II.4.

**2. Assessment of the total effect of policies and measures**

**(a) Technical assessment of the reported information**

66. Monaco did not report the total estimated effect of its PaMs in terms of GHG emissions avoided or sequestered by gas and by year. During the review, the Party committed to providing this information in the next report while noting that the total effect of PaMs will, by necessity, be limited to the PaMs that Monaco is able to evaluate.

**(b) Assessment of adherence to the reporting guidelines**

67. The ERT assessed the information reported in the NC8 of Monaco and identified issues relating to completeness and transparency, and thus adherence to the UNFCCC reporting guidelines on NCs. The findings are described in tables I.4 and II.4.

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

**(a) Technical assessment of the reported information**

68. In the NC8 Monaco provided information on how its 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. During the review, Monaco explained that its carbon offsetting policy strictly complies with its international climate change commitments and, while it leaves open the possibility of using all means available under the Convention and its Kyoto Protocol, favours national action over the use of carbon credits. However, the Party noted that Monaco is constrained by and subject to the influence of the political and economic choices of the EU. Furthermore, a delay in a single infrastructure project (e.g. the heating network) or the postponement of one measure can have significant consequences on GHG emissions at the national level. Regarding the 2020 target, the Party considers that domestic actions were responsible for 70 per cent of the reduction and the effects of the

COVID-19 pandemic were responsible for 30 per cent. That 30 per cent would otherwise have been offset by the purchase of carbon credits. For the second commitment period, 80 per cent of the target was achieved by domestic actions.

**(b) Assessment of adherence to the reporting guidelines**

69. The ERT assessed the information reported in the NC8 of Monaco and identified an issue relating to completeness and thus adherence to the reporting guidelines for supplementary information. The finding is described in table I.7.

**G. Provision of financial, technological and capacity-building support to developing country Parties**

70. Monaco is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3–5, of the Convention. However, Monaco provided information in its NC8 and BR5 on its provision of support to developing country Parties. The ERT commends Monaco for reporting this information and suggests that it continue to do so in future NCs.

71. Monaco reported information on the assistance it has provided to developing country Parties, in particular the least developed countries (mainly those in Africa) and small island developing States, which are particularly vulnerable to the adverse effects of climate change, to help them to meet the costs of adaptation to these adverse effects. Furthermore, Monaco reported information on its provision of financial support related to implementation of the Convention provided through bilateral, regional and multilateral channels. The majority of climate finance, more than EUR 1.3 million in 2022, was provided through multilateral channels, such as the Green Climate Fund and the Global Environment Facility. Climate finance provided through bilateral channels has increased substantially over recent years and amounted to more than EUR 0.5 million in 2022. The funded projects focus on food and nutrition security, health, access to decent work, education and child protection. These projects are being carried out in 11 priority cooperation countries located in three geographical regions: North Africa and the Mediterranean (Lebanon, Morocco, Mauritania, Tunisia), Southern Africa and East Africa (Burundi, Madagascar, South Africa) and West Africa (Burkina Faso, Mali, Niger, Senegal).

**H. Vulnerability assessment, climate change impacts and adaptation measures**

**1. Technical assessment of the reported information**

72. In its NC8 Monaco provided information on the expected impacts of climate change in the Principality; 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) and (e), of the Convention with regard to adaptation. Monaco provided a description of climate change vulnerability and impacts on water, biodiversity, the occurrence of natural hazards, development and the built environment, energy and health. Monaco also highlighted the adaptation response actions taken and planned at different levels of government. During the review, Monaco provided additional information covering adaptation measures for urban transport services and economic activities.

73. Monaco did not provide information on the progress of the first phase of implementation of its adaptation plan, which was planned for 2018–2022. During the review, the Party explained that the monitoring of adaptation policy actions is carried out within the framework of the European Energy Award and is not subject to specific reporting. The ERT suggests that Monaco report on the progress of implementation of its adaptation plan in the next NC, which would improve transparency. The Party made significant progress in meeting the requirements of the UNFCCC reporting guidelines on NCs by enhancing its reporting of information on the expected impacts of climate change and response measures in Monaco and reporting an outline of the actions taken to implement Article 4, paragraph 1(b) and (e), of the Convention with regard to adaptation.

74. Monaco is a coastal city state with a high population density and has unique vulnerabilities, including pronounced climate-related risks for the population and key infrastructure. The Principality is exposed to combinations of climatic phenomena – heatwaves, extreme precipitation, storms and droughts – that are reinforced by the urban heat island phenomenon. The Party reported an assessment of expected impacts and vulnerabilities based on projected changes in mean surface air temperature, precipitation and extreme weather events in the Mediterranean Basin in 2050, in 2080 and at the end of the twenty-first century. The climate scenarios of the AR6 indicate that future annual and summer warming rates in the Mediterranean Basin are projected to be between 20 and 50 per cent above the global annual average.

75. Monaco has addressed adaptation matters by carrying out the 2015 framework study under the National Climate Change Adaptation Strategy and consequently designing its Adaptation Action Plan, which outlines more than 50 actions across 12 strategic objectives and 31 operational goals. The study assessed vulnerabilities and analysed impacts, and the results provide the basis for designing adaptation actions and setting objectives for the 2030 climate and biodiversity policy. These are reflected in the Climate Air Energy Plan 2030 (expected to be adopted in 2023) and the National Strategy for Biodiversity. The Climate Air Energy Plan 2030 sets targets for 2030 in accordance with the commitments of Monaco's updated nationally determined contribution and identifies three priority adaptation areas for action. Biodiversity is at the heart of Monaco's adaptation measures aimed at integrating current and future climate change impacts into urban planning and the management of public and natural areas. Examples of these measures include the urban park project implemented in 2020, which aims to introduce nature-based solutions in the Monegasque urban environment, and the surveillance and warning system integrated into the smart city system in response to extreme meteorological and climatic phenomena, which aims to enable the dissemination of improved information. Table 10 summarizes the information on vulnerability and adaptation to climate change presented in the NC8 of Monaco.

Table 10

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

<i>Vulnerable area</i>	<i>Examples/comments/adaptation measures reported</i>
Biodiversity	<p>Vulnerability: Strong risk to marine biodiversity. The Natural Heritage Division has recorded abnormal sea temperatures, which has led to the mass death of sponges, cnidarians (gorgonian corals) and bryozoans and a significant decrease in red coral in Monaco's waters. In addition, alien species, for example filamentous algae, have been observed spreading on the Monegasque coastline.</p> <p>Medium risk to terrestrial biodiversity: Competition between imported exotic plants and endemic species has already been observed.</p> <p>Adaptation: Monaco carries out regular land inventories to assess biodiversity. When new species are introduced, phytosanitary checks (root exposure) are made to prevent the introduction of invasive species.</p>
Development of the built environment	<p>Vulnerability: Strong risk to the thermal comfort of inhabitants of the territory. Rising temperatures and more frequent periods of high temperatures will intensify the urban heat island phenomenon (by which heat absorbed by the city during the day is released at night, preventing air cooling). This will have a strong impact on thermal comfort, leading to deterioration in quality of life and the attractiveness of Monaco as a place to live.</p> <p>Adaptation: Monaco considers the problem of thermal discomfort at two levels: buildings (internal thermal discomfort), which is not predominant in Monaco, and neighbourhoods (urban heat islands). In 2020, Monaco purchased a satellite map and used it to conduct a study on heat islands. The study identified several neighbourhood types as urban heat islands, while all city parks, sports facilities in natural areas, the coastline and several rooftops were identified as cool islands. The Party plans to take summer comfort into account during building construction, renovation and maintenance, and during land development works.</p>
Energy	<p>Vulnerability: Strong risk to the energy supply. Monaco imports 79 per cent of its energy and 99.5 per cent of its electricity (with construction having the highest energy consumption). Therefore, supplying the Principality with energy is a great strategic task. Because energy distribution infrastructure in Monaco is mostly underground (and,</p>

Vulnerable area	Examples/comments/adaptation measures reported
Human health	<p>therefore, not affected by climatic events), the main risk to energy supply is linked to extreme events occurring outside its territory that cause degradation of distribution infrastructure and/or production capacity. The other energy-related risk is excessive local energy consumption during peak times, particularly in the summer (i.e. increased demand for cooling).</p> <p>Adaptation: In the context of increasing demand for electricity, Monaco is considering response measures related to the transition to carbon-free energy sources and electric mobility.</p> <p>Vulnerability: Medium risk to sanitation. The main risks for human health identified for Monaco are associated with more frequent periods of high temperatures, air degradation and new infectious diseases (in particular diseases carried by mosquitoes). Monaco is highly exposed to the <i>Aedes albopictus</i> mosquito (tiger mosquito), which lays eggs on water surfaces. At the same time, a decrease in the presence of <i>Culex</i> mosquitoes, which compete with tiger mosquitoes, is expected to be observed. Owing to increases in temperature and the intensity of the sunlight, ozone peaks might occur more frequently and for longer periods (from spring to autumn). Allergic risk associated with pollen is expected to increase.</p> <p>Adaptation: Monaco has significant resources for social actions, particularly in the area of health. In the summer of 2003, Monaco implemented its heatwave plan for the first time, a part of which involves monitoring vulnerable people. Monaco carries out preventive actions against mosquitoes (detecting and eliminating larvae) in gardens. This measure is not carried out in a systematic manner because it can cause damage to other species.</p>
Natural hazards	<p>Vulnerability: Strong risk of floods. Owing to the increasing intensity of precipitation and the combined collection of sewage and rainwater, a large part of Monaco's territory is at risk of flooding due to urban run-off. This risk has increased because of an increase in underground infrastructure, especially car parks.</p> <p>Strong risk to coastal areas. The Monegasque coastline is highly exposed to coastal risks attributable to marine flooding, which can take two forms: occasional surges (sea waves) or permanent surges (sea level rise). Sea level rise brings about increases in the flooding of land, coastal erosion, the salinization of freshwater aquifers and freshwater penetration in the sewage system. These events have strong effects on the economy, incurring both direct and indirect costs.</p> <p>Adaptation: The Department of the Environment, in implementing monitoring systems, has taken steps to provide forecasts of climatic and meteorological events (including marine floods), air quality and pollen concentration, all of which pose a risk to people and/or property. Specific impacts on coastal infrastructure are monitored by wave surveillance. A study on coastal risks and an associated proposal for protection carried out by the Government in 2020 identified the submersion risk of the coastline using models and developed a map of the risk – both current and for the 2100 horizon – for the entire Monegasque coastline.</p>
Water resources	<p>Vulnerability: Strong risk to water resources. According to the climate change scenario of the Institute for Water Resources (a combination of the representative concentration pathway 8.5 and shared socioeconomic pathway 2 scenarios), Monaco is among the countries to be most affected by decreasing freshwater resources by 2040. Monaco has two sources of water: local and imported. The risk of degradation of local resources is mostly associated with a decrease in the number of sources as a result of decreased precipitation and snowfall, increased evaporation, high soil sealing and decreased replenishment of groundwater. The risk to water imports is associated with water supply infrastructure, including water intake and transport facilities, being damaged owing to extreme climatic events.</p> <p>Adaptation: To reduce impacts on water resources, Monaco aims to maintain local supply while reducing consumption. It has made significant investments over the years in maintaining distribution networks in order to conserve water resources. To meet freshwater needs for watering certain green spaces and cleaning roads, Monaco is considering collecting water from surrounding valleys. The Party has already implemented a 600 m<sup>3</sup> rainwater recovery area in the new Marreterra district for watering green spaces.</p>

76. Monaco provided a detailed description of international adaptation activities, including international climate finance, noting that the majority of international actions for which it provides funding focus on helping vulnerable communities in developing countries to strengthen their adaptation to climate change and build their resilience.

## **2. Assessment of adherence to the reporting guidelines**

77. The ERT assessed the information reported in the NC8 of Monaco and identified an issue relating to transparency and thus adherence to the UNFCCC reporting guidelines on NCs. The finding is described in table I.5.

## **I. Research and systematic observation**

### **1. Technical assessment of the reported information**

78. In its NC8 Monaco provided information on its general policy and funding relating to research and systematic observation and both domestic and international activities, including contributions to the IPCC.

79. Monaco has implemented and planned 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. Monaco carries out research activities at both the national and the international (i.e. in cooperation with international organizations) level. National research organizations include the Oceanographic Institute–Albert I Foundation, the Scientific Centre of Monaco, the Museum of Prehistoric Anthropology of Monaco, the Prince Albert II of Monaco Foundation and Monaco Explorations, all of which focus on research into environmental issues, environmental monitoring, climate change observation and the protection of biodiversity, with a particular emphasis on the protection of the ocean in the context of climate change.

80. The international organizations based in Monaco that conduct climate change related research include the Mediterranean Science Commission, which specializes in marine research for better monitoring and protection of the Mediterranean; the International Hydrographic Organization, which conducts research in the field of navigation safety and protection of the marine environment; and the International Atomic Energy Agency's Environment Laboratory in Monaco, which is primarily concerned with the protection of the marine environment from radioactive and non-radioactive pollution and with research on ocean processes, including marine ecosystems. Monaco also reported on its participation in regional and international activities related to climate change adaptation, such as the preparation of the IPCC Special Report on the Ocean and Cryosphere<sup>9</sup> and research on the protection of coral reefs and related ecosystems with the International Coral Reef Initiative

81. In terms of activities related to systematic observation, Monaco reported on national plans, programmes and support for ground-based climate observing systems, including satellite and non-satellite climate observation. However, Monaco did not report on challenges related to the maintenance of a consistent and comprehensive observation system. Monaco reported on (1) its participation in climate-related monitoring at the national level and on the development of its national climate observation system, including the development of digital tools for data management, in particular data from physical monitoring networks (e.g. for weather, sea level and air quality); (2) the compilation of historical data; and (3) the integration of new monitoring technologies. Monaco contributes to regional and international monitoring activities – mainly those related to sea level monitoring by the Sea Level Observation Network. In its NC8 the Party stated that Monaco is a full member of the World Meteorological Organization, but it did not provide information on its participation in GCOS

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<sup>9</sup> IPCC. 2019. *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate*. H-O Pörtner, DC Roberts, V Masson-Delmotte, et al. (eds.). Cambridge and New York: Cambridge University Press. Available at [https://www.ipcc.ch/site/assets/uploads/sites/3/2022/03/SROCC\\_FullReport\\_FINAL.pdf](https://www.ipcc.ch/site/assets/uploads/sites/3/2022/03/SROCC_FullReport_FINAL.pdf).



activities. In line with its Adaptation Action Plan, Monaco plans to establish a climate change observatory.

82. In the NC8 chapter on financial support and technology transfer, Monaco provided a description of one activity: the Pacific Regional Environment Programme's support for the implementation of an integrated approach to monitoring ocean acidification in Pacific island States.

## **2. Assessment of adherence to the reporting guidelines**

83. The ERT assessed the information reported in the NC8 of Monaco and identified issues relating to completeness and transparency, and thus adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table I.6.

## **J. Education, training and public awareness**

### **1. Technical assessment of the reported information**

84. In its NC8 Monaco 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 NGOs; and its participation in international activities.

85. Sustainable development principles are integrated into education, training and public awareness activities, which are implemented by government agencies, NGOs and the private sector. The Department of Education, Youth and Sport manages an environmental education and sustainable development programme that has the aim of addressing the concepts of environmental responsibility and 'eco-citizenship' at all levels of education. NGOs can contribute to national environmental education programmes either directly or in cooperation with government agencies. For example, the Jeun'Elec programme on sustainable mobility is undertaken at the higher-education level by the Department of the Environment in collaboration with the Monegasque Association of Friends of Electric Vehicles. In the NC8 Monaco reported that environmental and climate change information is mainly communicated by the Department of the Environment and the Mission for Energy Transition through channels such as local news broadcasts and websites, periodical publications, training events, national and international events, and information campaigns conducted with neighbouring territories. The NC8 also provides a description of initiatives and policies related to awareness-raising in the field of the environment and climate change, such as the National Energy Transition Pact, the European Week for Waste Reduction and the Waste Reduction Policy.

86. In the NC8 chapter on financial support and technology transfer, Monaco provided examples of projects funded by it that are related to strengthening capacity-building in developing countries. Among the examples are the Terre & Humanism project, which focuses on agroecology for food sovereignty and adaptation to climate change in Burkina Faso; a Food and Agriculture Organization of the United Nations project that focuses on supporting the economic empowerment of rural women in the context of food insecurity and climate change in Mali; and a project on cooperation in the field of civil protection that aims to strengthen the skills of civil protection forces to reduce occurrence of emergencies, particularly those related to climate change, in Mauritania. During the review, the Party noted that most of the projects it funds through international climate finance have an education, training and public awareness component, and it provided additional information on other projects it has funded to strengthen capacity-building relating to education, training and public awareness in developing countries in the climate change context.

## **2. Assessment of adherence to the reporting guidelines**

87. The ERT assessed the information reported in the NC8 of Monaco and recognized that the reporting is complete and transparent, and thus adheres 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.

### III. Conclusions and recommendations

88. The ERT conducted a technical review of the information reported in the NC8 of Monaco in accordance with the UNFCCC reporting guidelines on NCs. The ERT concluded that the reported information mostly adheres to the UNFCCC reporting guidelines on NCs and that the NC8 provides an overview of the national climate policy of Monaco.

89. The information provided in the NC8 includes most of the elements of the supplementary information under Article 7, paragraph 2, of the Kyoto Protocol. Monaco reported on the national system, the national registry, supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol, PaMs in accordance with Article 2 of the Kyoto Protocol, domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures, information under Article 10 of the Kyoto Protocol, and financial resources provided to developing country Parties. Monaco 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, or information under Article 10. 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 Monaco in its 2022 annual submission.

90. The ERT conducted a technical review of the information reported in the BR5 and BR5 CTF tables of Monaco in accordance with the UNFCCC reporting guidelines on BRs. The ERT concluded that the reported information mostly adheres to the UNFCCC reporting guidelines on BRs and that the BR5 and its CTF tables provide an overview of emissions and removals related to the Party’s quantified economy-wide emission reduction target; assumptions, conditions and methodologies related to the attainment of the target; and the progress of Monaco towards achieving its target.

91. In its NC8 Monaco reported on its key national circumstances related to GHG emissions and removals, including on institutions, international commitments, population dynamics, geography, climate, energy, economic developments, and the transport, industry, waste, and agriculture, forestry and other land use sectors.

92. Monaco’s total GHG emissions excluding LULUCF covered by its quantified economy-wide emission reduction target were estimated to be 31.8 per cent below its 1990 level. Emissions peaked in 1996 and decreased thereafter, showing a rapid decrease between 2000 and 2011. The changes in total emissions were driven mainly by factors such as the population trend and, in 2020, restrictions arising from the COVID-19 pandemic.

93. In assessing the Party’s achievement of its 2020 target on the basis of the information reported in its BR5, the ERT noted that Monaco committed to reducing its emissions to 30 per cent below the 1990 level by 2020 (see para. 53 above). In 2020 Monaco’s annual total GHG emissions excluding LULUCF were 70.03 kt CO<sub>2</sub> eq. The ERT noted that the contribution of LULUCF is not included in the Party’s base or target year and that Monaco used units from market-based mechanisms. Taking this into account, emissions in 2020 were 59.33 kt CO<sub>2</sub> eq (42.3 per cent) below the emission level corresponding to the 2020 target (see table 6). The ERT concluded that, on the basis of the information reported in the BR5 and provided during the review, the total 2020 GHG emissions excluding LULUCF of Monaco do not exceed the emission level corresponding to the 2020 target, and thus that the target has been achieved.

94. In addition to its 2020 target, Monaco also reported on its longer-term target of reducing its GHG emissions by 80 per cent compared with the 1990 level by 2050 with a view to achieving carbon neutrality. Under the Paris Agreement, Monaco’s commitment is to reduce its GHG emissions by 55 per cent below the 1990 level by 2030.

95. The GHG emission projections provided by Monaco in its NC8 and BR5 correspond to the WEM scenario. Under the WEM scenario, emissions in 2030 and 2035 are projected to be 41.1 and 59.7 per cent respectively below the 1990 level.

96. Monaco's main policy framework relating to energy and climate change is the Environmental Code. The Party described the mitigation actions that it has implemented to help it achieve its 2020 and longer-term targets, which include requalifying the waste-to-energy plant; improving energy efficiency in the buildings sector; and reducing F-gas emissions by implementing stricter regulations, prohibiting equipment using high-emission F-gases and adopting measures to minimize fugitive emissions in various sectors. Other key measures implemented to achieve the Party's targets include measures to reduce emissions from vehicles.

97. Monaco is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3–5, of the Convention. However, it provided information in its BR5 and NC8 on its provision of support to developing country Parties. Monaco provided more than EUR 1.3 million in climate finance through multilateral channels in 2022. Finance provided through bilateral channels has increased over recent years, reaching more than EUR 0.5 million in 2022.

98. In its NC8 Monaco provided information on the expected impacts of climate change in the Principality; 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) and (e), of the Convention with regard to adaptation. Monaco described its climate change vulnerability and expected impacts on water, biodiversity, the occurrence of natural hazards, development and the built environment, energy and health.

99. In its NC8 Monaco provided information on its activities relating to research and systematic observation. Monaco carries out research activities at both the national and the international (i.e. in cooperation with international organizations) level. With regard to systematic observation, Monaco reported on its participation in climate-related monitoring at the national level. During the review, the Party explained that the data recorded by its sea level observatory are available for input into GCOS. Monaco also reported information on the steps it has taken to make its observation data available to GCOS.

100. In its NC8 Monaco provided information on its actions relating to education, training and public awareness. Sustainable development principles are integrated into education, training and public awareness activities, which are implemented by government agencies, NGOs and the private sector. Monaco provided examples of nationally funded projects that are related to strengthening capacity-building in developing countries. During the review, Monaco provided additional information covering other projects funded by the Party to strengthen capacity-building relating to education, training and public awareness in developing countries in the context of climate change.

101. In the course of the review, the ERT formulated the following recommendations for Monaco to improve its adherence to the UNFCCC reporting guidelines on NCs in its next NC:

- (a) To improve the completeness of its reporting by:
  - (i) Presenting information on each policy and measure under the subject headings indicated in the UNFCCC reporting guidelines on NCs, one of which pertains to GHGs affected (see issue 4 in table I.3);
  - (ii) Providing, in textual or tabular format, a quantitative estimate of the impacts of individual PaMs or collections of PaMs, together with a brief description of the estimation methods used (see issue 5 in table I.3);
  - (iii) Providing detailed information on how its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals consistent with the objective of the Convention (see issue 8 in table I.3);
  - (iv) Reporting the total effect of PaMs in terms of GHG emissions avoided or sequestered by gas and by year (see issue 2 in table I.4);

(v) Providing information on its sea level observation data to GCOS and the steps taken to make its observation data available to a global observing system (see issue 2 in table I.6);

(b) To improve the transparency of its reporting by:

(i) Providing information on any bilateral cooperation with developing countries on adaptation (see issue 1 in table I.5);

(ii) Providing information on support provided to developing countries related to research and systematic observation (see issue 1 in table I.6).

102. In the course of the review of Monaco's NC8, the ERT noted the following findings relating to adherence to the reporting guidelines for supplementary information: issues with the completeness of its reporting relating to:

(a) Providing information on how its use of market-based mechanisms is supplemental to domestic action and how its domestic action constitutes a significant part of the efforts made to meet its quantified limitation and reduction commitments under Article 3, paragraph 1, of the Kyoto Protocol (see issue 1 in table I.7);

(b) Providing information on how it promotes and implements the decisions of ICAO and IMO to limit or reduce the emissions from aviation and marine bunker fuels (see issue 2 in table I.7).

103. In the course of the review of Monaco's BR5, the ERT noted the following finding relating to adherence to the UNFCCC reporting guidelines on BRs: issues with the transparency of its reporting relating to excluding values for the contribution of LULUCF in CTF table 4 (see issue 1 in table II.3).

## Annex I

### Assessment of adherence to the reporting guidelines for the eighth national communication of Monaco

Tables I.1–I.7 summarize the ERT assessment of adherence to the UNFCCC reporting guidelines on NCs for Monaco's NC8.

Table I.1

#### Findings on national circumstances relevant to greenhouse gas emissions and removals from the review of the eighth national communication of Monaco

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 3  Issue type: transparency  Assessment: encouragement	<p>The Party provided in its NC8 a description of its national circumstances that included indicators different from those reported in the NC7.</p> <p>During the review, Monaco explained the reasons for the following changes: the decreasing population trend has been reassessed and was changed to an increasing trend; the decrease in GDP in 2020 was due to the COVID-19 pandemic and the measures adopted to limit the spread of the virus; the decrease in GDP contributed by the industry sector was due to large companies being gradually replaced by smaller companies with fewer employees, which resulted in industry revenue falling by more than one third over the past 10 years; and the amount of waste incinerated in 2020 relates to a decrease in activity attributable to COVID-19 restrictions while the average quantity of waste, including sewage sludge, incinerated was 60,000 t per year over the past few years.</p> <p>The ERT encourages Monaco to provide in its next NC information on the drivers of the changes in its national circumstances.</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 and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs.

Table I.2

#### Findings on greenhouse gas inventory information from the review of the eighth national communication of Monaco

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 7  Issue type: transparency  Assessment: encouragement	<p>The Party did not provide transparent information on the factors underlying emission trends in the waste sector. The Party reported in its NC8 that the level of emissions for the sector fluctuates with variations in the population and is proportional to the pollutant load of the wastewater to be treated.</p> <p>During the review, Monaco explained that, as mentioned in the 2021 NIR, the changes in biochemical oxygen demand and chemical oxygen demand in treated wastewater correlate with and could be caused by changes in the population. The population trend is used to estimate the volume of water treated per inhabitant in projections. In the reporting period, emissions were calculated using daily activity data (volume and load of wastewater) from the treatment plant, as mentioned in the NC8. Monaco clarified that 2020 saw the double effect of a decrease in the pollutant load of wastewater and a decrease in inflows, which arose owing to the sanitary measures put in place during the COVID-19 pandemic and the improvement of the treatment plant (completed in early 2020).</p> <p>The ERT reiterates the encouragement from the previous review report for Monaco to provide in the waste sector chapter of its next NC a description of the factors underlying emission trends for the sector, which could be achieved by cross-referencing relevant information located in other chapters of the NC.</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 and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs.

Table I.3

## Findings on policies and measures from the review of the eighth national communication of Monaco

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 10 Issue type: completeness Assessment: encouragement	<p>The Party did not indicate in its NC8 which of its PaMs are innovative and/or effectively replicable by other Parties.</p> <p>During the review, Monaco provided the following examples of PaMs that are effectively replicable, all of which can help reduce GHG emissions: a ban on fossil fuel use in buildings, reductions in the use of F-gases, tax breaks for home energy renovations, using seawater for heat pumps, building waste recovery centres and certifying buildings as sustainable.</p> <p>The ERT encourages Monaco to indicate in its next NC which of its PaMs are innovative and/or effectively replicable by other Parties.</p>
2	Reporting requirement specified in paragraph 12 Issue type: transparency Assessment: encouragement	<p>The Party did not report on policies and practices that encourage activities that lead to greater levels of anthropogenic GHG emissions than would otherwise occur, as is required in relation to the Party's commitments under Article 4, paragraph 2(e)(ii), of the Convention.</p> <p>During the review, Monaco provided relevant information and described Monaco's goal of reducing GHG emissions. Only the burning of waste from France in Monaco increases emissions, and the Government of Monaco has decided to impose carbon offsetting on the emissions generated by this practice.</p> <p>The ERT encourages Monaco to report in its next NC on policies and practices that encourage activities that lead to greater levels of anthropogenic GHG emissions than would otherwise occur, as is required in relation to the Party's commitments under Article 4, paragraph 2(e)(ii), of the Convention.</p>
3	Reporting requirement specified in paragraph 13 Issue type: transparency Assessment: encouragement	<p>The Party did not report in its NC8 an assessment of the economic and social consequences of its response measures.</p> <p>During the review, Monaco provided relevant information and indicated that the most important measures concern the energy sector. The Party also provided information on the impacts of response measures at the local level, which are mostly positive.</p> <p>The ERT encourages Monaco to provide in its next NC a detailed assessment of the economic and social consequences of its response measures, which could include information on the costs and benefits of the measures and on the impact of the measures on different sectors of the economy and on society.</p>
4	Reporting requirement specified in paragraph 19 Issue type: completeness Assessment: recommendation	<p>The Party did not report in its NC8 the GHGs affected by three measures related to supporting and raising awareness of photovoltaic panels, increasing the share of renewable energy and developing public photovoltaic installations.</p> <p>During the review, Monaco informed the ERT of where in the NC8 additional information on these measures could be found, but the indicated sections of the document do not include information on the GHGs affected.</p> <p>The ERT recommends that Monaco present in its next NC information on each policy and measure under the subject headings indicated in the UNFCCC reporting guidelines on NCs, one of which pertains to GHGs affected.</p>
5	Reporting requirement specified in paragraph 20 Issue type: completeness Assessment: recommendation	<p>The Party did not provide in its NC8 a quantitative estimate of the impact of several individual PaMs or collections of PaMs and did not explain why these estimates were not provided. The Party also did not provide a brief description of estimation methods for the PaMs reported.</p> <p>During the review, Monaco clarified that, where information is lacking, either it was unable to assess the effect of the PaMs or the PaMs are not included under the WEM scenario.</p> <p>The ERT reiterates the recommendation from the previous review report for Monaco to provide in its next NC (in textual or tabular format) a quantitative estimate of the impacts of individual PaMs or collections of PaMs, together with a brief description of the estimation methods used. Further, the ERT recommends that Monaco provide a relevant explanation in its next NC if it is not able to report the quantitative estimates for the mitigation impacts of all PaMs owing to its national circumstances.</p>

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
6	Reporting requirement specified in paragraph 21 Issue type: completeness Assessment: encouragement	The Party did not provide in its NC8 information on the costs of its PaMs.  During the review, Monaco indicated that analytical accounting will be used for the 2023 Government budget and that the costs of some measures should then be available, but noted that there may be challenges in collecting information from the relevant departments.  The ERT reiterates the encouragement from the previous review report for Monaco to provide in its next NC a detailed description of the costs of its PaMs, including how the costs were calculated.
7	Reporting requirement specified in paragraph 21 Issue type: completeness Assessment: encouragement	The Party did not report in its NC8 the specific non-GHG mitigation benefits of its PaMs.  During the review, Monaco explained that air quality and the quality of life of its inhabitants would improve as a result of the transition from fossil fuels to electric vehicles and ‘soft’ mobility.  The ERT reiterates the encouragement from the previous review report for Monaco to provide in its next NC specific information on the non-GHG mitigation benefits of its PaMs.
8	Reporting requirement specified in paragraph 22 Issue type: completeness Assessment: recommendation	The Party did not provide in its NC8 information on how its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals consistent with the objective of the Convention.  During the review, Monaco provided information regarding its strong political commitment to reducing GHG emissions and achieving carbon neutrality. It has a number of measures in place to reduce emissions, including developing renewable energy, improving energy efficiency and promoting sustainable transport. Monaco is also working to reduce waste and to integrate its climate policies with those of France.  The ERT reiterates the recommendation from the previous review report for Monaco to provide in its next NC detailed information on how its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals consistent with the objective of the Convention.

*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 and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs.

Table I.4

**Findings on projections including aggregate effects of policies and measures reported in the eighth national communication of Monaco**

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 25 Issue type: completeness Assessment: encouragement	The Party reported planned PaMs but did not provide projections for the WOM and WAM scenarios in its NC8.  During the review, Monaco explained that it prioritized the WEM scenario and could not develop projections for the WOM and WAM scenarios owing to time constraints.  The ERT encourages Monaco to report in its next NC projections for the WOM and WAM scenarios to the extent possible, or, if the scenarios are not reported, to provide an explanation as to why.
2	Reporting requirement specified in paragraph 36 Issue type: completeness Assessment: recommendation	The Party did not report in its NC8 the total effect of PaMs in terms of GHG emissions avoided or sequestered by gas and by year.  During the review, Monaco committed to providing this information in the next report while noting that the total effect of PaMs will, by necessity, be limited to the PaMs that Monaco is able to evaluate.  The ERT recommends that Monaco report in its next NC the total effect of PaMs in terms of GHG emissions avoided or sequestered by gas and by year.

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
3	Reporting requirement specified in paragraph 40 Issue type: completeness Assessment: encouragement	The Party did not report in its NC8 the characteristics and original purpose of the models or approaches used. The Party also did not clarify whether any modifications have taken place and how the said models or approaches account for any overlap or synergies that may exist between PaMs.  During the review, Monaco explained that information on models and approaches used is available in the BR5 (chap. 4.5).  The ERT, taking into account that the BR5 is the last BR, encourages Monaco to include in its next NC information that was provided in the BR5 on the characteristics and original purpose of the models or approaches used, including any changes and updates.
4	Reporting requirement specified in paragraph 44 Issue type: completeness Assessment: encouragement	The Party provided in its NC8 an assumption on population growth, but other assumptions, as well as factors (variables, parameters) underlying the projections, the rationale behind the projections and associated values used to generate the projections, were not included.  During the review, Monaco, pointing to chapter 4.4 of the BR5, explained that the only indicator trend established by Monaco Statistics is for the population. Other indicators, such as GDP, are not evaluated. Monaco therefore does not use macroeconomic or energy indicators in its projections.  The ERT reiterates the encouragement from the previous review report for Monaco to include in its next NC key assumptions and values for all the factors affecting the projections, such as GDP, international fuel prices and tax levels.

*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 and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs.

Table I.5

#### Findings on vulnerability assessment, climate change impacts and adaptation measures from the review of the eighth national communication of Monaco

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 46 Issue type: transparency Assessment: recommendation	In the NC8 chapter on financial support and technology transfer, the Party outlined the framework for its provision of international climate finance and provided examples of projects funded through bilateral and multilateral channels, noting that the majority of these projects focus on helping vulnerable communities in developing countries strengthen their adaptation to climate change and build their resilience. Monaco did not distinguish between projects supported through bilateral cooperation and those supported through multilateral channels.  During the review, Monaco provided a list of adaptation projects addressing the needs of developing countries that included, for each project, the project area, a description, the period of implementation, the actual funding, and the developing countries and organizations receiving the funding.  The ERT reiterates the recommendation from the previous review report for Monaco to provide in its next NC information on any bilateral cooperation with developing countries on adaptation and include this information in the chapter on vulnerability and 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 and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs.

Table I.6

#### Findings on research and systematic observation from the review of the eighth national communication of Monaco

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 61	In the NC8 chapter on financial support and technology transfer, the Party provided a description of one activity: the Pacific Regional Environment Programme's support for the implementation of an integrated approach to monitoring ocean acidification in small



No.	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation or encouragement</i>
	Issue type: transparency  Assessment: recommendation	<p>Pacific island States. Despite this information, the ERT considers that the NC8 does not clearly reflect actions taken to support capacity-building and the establishment and maintenance of observation systems and related data and monitoring systems in developing countries.</p> <p>During the review, Monaco provided additional information on other examples of projects that contribute to research and systematic observation in developing countries, which it funds through its international climate finance, as well as information on the funding of scientists from developing countries working on global climate change research.</p> <p>The ERT reiterates the recommendation from the previous review report for Monaco to provide in its next NC information on support provided to developing countries related to research and systematic observation and include this information in the chapter on research and systematic observation.</p>
2	Reporting requirement specified in paragraph 62  Issue type: completeness  Assessment: recommendation	<p>In its NC8 Monaco stated that it is a full member of the World Meteorological Organization, but it did not provide information on its participation in GCOS activities.</p> <p>During the review, Monaco explained that the observation data recorded in the Principality are not relevant to a global observing system. However, the data recorded by its sea level observatory are available for GCOS and the Party provided information on the steps it has taken to make its observation data available to GCOS.</p> <p>The ERT recommends that Monaco provide in its next NC information on its sea level observation data available for GCOS and the steps it has taken to make its observation data available to a global observing system.</p>
3	Reporting requirement specified in paragraph 65  Issue type: completeness  Assessment: encouragement	<p>The Party did not report in its NC8 on identified barriers to free and open international exchange of data and information or on actions taken to overcome such barriers.</p> <p>During the review, Monaco explained that the observation data recorded in the Principality are not relevant to a global observing system. However, Monaco has taken steps to facilitate access to and improve the availability of its climate observation data, namely by developing a regulatory text on the provision of environmental data obtained under the Environmental Code (planned for implementation in 2023 or 2024), introducing relevant technology (a centralized server for monitoring systems) and creating a data platform (planned for 2024).</p> <p>The ERT encourages Monaco to provide in its next NC information on the identified barriers to free and open international exchange of data and information and on actions taken to overcome those barriers.</p>
4	Reporting requirement specified in paragraph 66  Issue type: completeness  Assessment: encouragement	<p>The Party did not report in the NC8 information regarding a socioeconomic analysis of the impacts of climate change and response options.</p> <p>During the review, Monaco explained that no specific analyses of the impacts of climate change and response measures have been made.</p> <p>The ERT encourages Monaco to report in its next NC information on any socioeconomic analysis made of the impacts of climate change and response options.</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 and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs.

Table I.7

**Findings on minimization of adverse impacts and supplementary information related to the Kyoto Protocol reported in the eighth national communication of Monaco**

No.	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation</i>
1	Reporting requirement specified in paragraph 33  Issue type: completeness  Assessment: recommendation	<p>The Party did not explain in its NC8 how its domestic actions constitute a significant part of the efforts made to fulfil its quantified emission limitation and reduction commitments under the second commitment period of the Kyoto Protocol.</p> <p>During the review, Monaco explained that its carbon offsetting policy strictly complies with its international climate change commitments and, while it leaves open the possibility of using all means available under the Convention and its Kyoto Protocol, favours national action over the use of carbon credits. However, the Party noted that Monaco is constrained by and subject to the influence of the political and economic choices of the EU. Furthermore, a delay in a single infrastructure project (e.g. the heating network) or the postponement of one measure can have significant consequences on GHG emissions at the national level. Regarding the 2020 target, the Party considers that domestic actions were responsible for 70 per cent of the reduction and the effects of the COVID-19 pandemic were responsible for 30 per cent. That 30 per cent would otherwise have been offset by the purchase of carbon credits. For the second commitment period, 80 per cent of the target was achieved by domestic actions.</p> <p>The ERT recommends that Monaco provide in its next NC information on how its use of market-based mechanisms is supplemental to domestic action and how its domestic action constitutes a significant part of the efforts made to meet its quantified limitation and reduction commitments under Article 3, paragraph 1, of the Kyoto Protocol.</p> <p>The ERT concludes that this potential problem of a mandatory nature does not influence the Party's ability to fulfil its commitments for the second commitment period of the Kyoto Protocol.</p>
2	Reporting requirement specified in paragraph 35  Issue type: completeness  Assessment: recommendation	<p>The Party did not report in its NC8 information on how it promotes and implements the decisions of ICAO and IMO to limit emissions from aviation and marine bunker fuels.</p> <p>During the review, Monaco explained that it will support the introduction of new fuels incorporating biofuels and new technologies in the aviation and maritime transport sectors. Regarding non-GHG mitigation measures, the use of heavy fuel oil has been banned in Monaco's territorial waters. To date, no measures for international shipping have been adopted and taken into account in the calculation of the emission projections. There is no activity in Monaco linked to the international transport of goods.</p> <p>The ERT recommends that Monaco provide in its next NC information on how it promotes and implements the decisions of ICAO and IMO to limit or reduce emissions from aviation and marine bunker fuels.</p> <p>The ERT concludes that this potential problem of a mandatory nature does not influence the Party's ability to fulfil its commitments for the second commitment period of the Kyoto Protocol.</p>

*Note:* Item 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, and thus adheres to the reporting guidelines for supplementary information.

## Annex II

### Assessment of adherence to the reporting guidelines for the fifth biennial report of Monaco

The BR5 of Monaco is the final BR under the measurement, reporting and verification system established under the Convention.<sup>1</sup> Nevertheless, ERTs continue to provide recommendations and encouragements to Parties on completeness, transparency and adherence to the UNFCCC reporting guidelines on BRs. Parties may find these recommendations and encouragements relevant, as appropriate, when preparing their initial biennial transparency report under the enhanced transparency framework of the Paris Agreement. Tables II.1–II.4 summarize the ERT assessment of adherence to the UNFCCC reporting guidelines on BRs for Monaco's BR5.

Table II.1

#### Findings on greenhouse gas emissions and trends from the review of the fifth biennial report of Monaco

No.	Reporting requirement and issue type	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 2 Issue type: transparency Assessment: encouragement	<p>The Party did not provide transparent information on the factors underlying emission trends in the waste sector.</p> <p>During the review, Monaco explained that, as mentioned in the 2021 NIR, the changes in biochemical oxygen demand and chemical oxygen demand in treated wastewater correlate with and could be caused by changes in the population. The population trend is used to estimate the volume of water treated per inhabitant in projections. In the reporting period, emissions were calculated using daily activity data (volume and load of wastewater) from the treatment plant, as mentioned in the NC8. Monaco clarified that 2020 saw the double effect of a decrease in the pollutant load of wastewater and a decrease in inflows, which arose owing to the sanitary measures put in place during the COVID-19 pandemic and the improvement of the treatment plant (completed in early 2020).</p> <p>The ERT reiterates the encouragement from the previous review report for Monaco to provide a description of the factors underlying emission trends for all sectors, which could be achieved by cross-referencing relevant information located in other chapters of the NC.</p>

*Note:* Item listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on BRs. The reporting on the requirements not included in this table is considered to be complete and transparent, and thus adheres to the UNFCCC reporting guidelines on BRs.

<sup>1</sup> The Conference of the Parties, by decision 1/CP.24, decided that the final BRs shall be those submitted to the secretariat no later than 31 December 2022 and reaffirmed that, for Parties to the Paris Agreement, following the submission of the final BR, the modalities, procedures and guidelines contained in the annex to decision 18/CMA.1 will supersede the measurement, reporting and verification system established under decision 1/CP.16, paras. 40–47 and 60–64, and decision 2/CP.17, paras. 12–62.

Table II.2

**Findings on mitigation actions and their effects from the review of the fifth biennial report of Monaco**

No.	Reporting requirement and issue type	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 24 Issue type: transparency Assessment: encouragement	<p>The Party did not report in its BR5 on the domestic arrangements established for the process of self-assessment of compliance with emission reductions in comparison with the emission reduction commitments or the level of emission reduction that is required by science.</p> <p>During the review, Monaco provided information on its domestic arrangements associated with GHG inventories, describing the role of the Department of the Environment, which oversees the preparation of the inventory and projections and monitors the implementation of the Climate Energy Plan. Monaco explained that the Department of the Environment reports annually to the Ministry of Public Works, the Environment and Urban Development on GHG emission estimates and compliance indicators. In addition, the Party indicated that, owing to its small size, there is no need for a more elaborate procedure for self-assessment, and confirmed that achieving climate objectives is central to the Government's political action.</p> <p>The ERT encourages Monaco to report on the domestic arrangements established for the process of self-assessment of compliance with emission reductions in comparison with the emission reduction commitments or the level of emission reduction that is required by science.</p>
2	Reporting requirement specified in paragraph 24 Issue type: transparency Assessment: encouragement	<p>The Party did not report in its BR5 on the progress made in establishing national rules for taking local action against domestic non-compliance with emission reduction targets.</p> <p>During the review, the Party explained that this requirement is not applicable to Monaco owing to its size and administrative structure. Monaco comprises only one municipality, and its entire territory is essentially managed by the Government of Monaco.</p> <p>The ERT encourages Monaco to include information on the inapplicability of the requirement relating to local action against domestic non-compliance, for example by including the explanation concerning the size and administrative structure of Monaco that was provided during the review.</p>

*Note:* Item listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on BRs. The reporting on the requirements not included in this table is considered to be complete and transparent, and thus adheres to the UNFCCC reporting guidelines on BRs.

Table II.3

**Findings on estimates of emission reductions and removals and on the use of units from market-based mechanisms and land use, land-use change and forestry from the review of the fifth biennial report of Monaco**

No.	Reporting requirement and issue type	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 9 Issue type: transparency Assessment: recommendation	<p>The Party continued to include values for the contribution of LULUCF in CTF table 4, while the relevant recommendation from the previous review report was to exclude the LULUCF contribution from this table.</p> <p>During the review, Monaco explained that including the values was due to an error in reporting.</p> <p>The ERT reiterates the recommendation from the previous review report for Monaco to enhance transparency by excluding values for the contribution of LULUCF in CTF table 4.</p>

*Note:* Item listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on BRs. The reporting on the requirements not included in this table is considered to be complete and transparent, and thus adheres to the UNFCCC reporting guidelines on BRs.

Table II.4

**Findings on projections reported in the fifth biennial report of Monaco**

<i>No.</i>	<i>Reporting requirement and issue type</i>	<i>Description of the finding with recommendation or encouragement</i>
1	Reporting requirement specified in paragraph 28 Issue type: completeness Assessment: encouragement	The Party reported planned PaMs but did not provide projections for the WOM and WAM scenarios in its BR5.  During the review, Monaco explained that it prioritized the WEM scenario and could not develop projections for the WOM and WAM scenarios owing to time constraints.  The ERT encourages Monaco to report projections for the WOM and WAM scenarios to the extent possible, or, if the scenarios are not reported, to provide an explanation as to why.
2	Reporting requirement specified in paragraph 44 Issue type: completeness Assessment: encouragement	The Party provided in its NC8 an assumption on population growth, but other assumptions, as well as factors (variables, parameters) underlying the projections, the rationale behind the projections and associated values used to generate the projections, were not included. The Party also did not provide an explanation in the custom footnote to BR5 CTF table 5.  During the review, Monaco, pointing to chapter 4.4 of the BR5, explained that the only indicator trend established by Monaco Statistics is for the population. Other indicators, such as GDP, are not evaluated. Monaco therefore does not use macroeconomic or energy indicators in its projections.  The ERT reiterates the encouragement from the previous review report for Monaco to include in its next NC key assumptions and values for all the factors affecting the projections, such as GDP, international fuel prices and tax levels.

*Note:* Item listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs, as per para. 11 of the UNFCCC reporting guidelines on BRs. The reporting on the requirements not included in this table is considered to be complete and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs and on BRs.

## Annex III

### Documents and information used during the review

#### A. Reference documents

2022 GHG inventory submission of Monaco.

Available at <https://unfccc.int/ghg-inventories-annex-i-parties/2022>.

BR5 CTF tables of Monaco. Available at <https://unfccc.int/BR5>.

BR5 of Monaco. Available at <https://unfccc.int/BR5>.

“Common tabular format for ‘UNFCCC biennial reporting guidelines for developed country Parties’”. Annex to decision 19/CP.18. Available at <https://unfccc.int/resource/docs/2012/cop18/eng/08a03.pdf>.

“Compilation of economy-wide emission reduction targets to be implemented by Parties included in Annex I to the Convention”. FCCC/SBSTA/2014/INF.6. Available at <http://unfccc.int/resource/docs/2014/sbsta/eng/inf06.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/2019/13/Add.1. Available at <https://unfccc.int/documents/210471>.

“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>.

NC8 of Monaco. Available at <https://unfccc.int/NC8>.

Report on the individual review of the annual submission of Monaco submitted in 2021. FCCC/ARR/2021/MCO. Available at <https://unfccc.int/documents/613844>.

Report on the technical review of the BR4 of Monaco. FCCC/TRR.4/MCO. Available at <https://unfccc.int/documents/273784>.

“UNFCCC biennial reporting guidelines for developed country Parties”. Annex I to decision 2/CP.17. Available at <https://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf>.

#### B. Additional information provided by the Party

Responses to questions during the review were received from Jérémie Carles (Department of the Environment of Monaco).

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