COMPLIANCE COMMITTEE

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24 April 2008

Report of the review of the initial report of Monaco

Note by the secretariat

The report of the review of the initial report of Monaco was published on 22 April 2008. For purposes of rule 10, paragraph 2, of the rules of procedure of the Compliance Committee (annex to decision 4/CMP.2), the report is considered received by the secretariat on the same date. This report, FCCC/IRR/2007/MCO, contained in the annex to this note, is being forwarded to the Compliance Committee in accordance with section VI, paragraph 3, of the annex to decision 27/CMP.1.

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Report of the review of the initial report of Monaco

According to decision 13/CMP.1, each Annex I Party with a commitment inscribed in Annex B to the Kyoto Protocol shall submit to the secretariat, prior to 1 January 2007 or one year after the entry into force of the Kyoto Protocol for that Party, whichever is later, a report (the 'initial report') to facilitate the calculation of the Party's assigned amount pursuant to Article 3, paragraphs 7 and 8, of the Kyoto Protocol, and to demonstrate its capacity to account for emissions and the assigned amount. This report reflects the results of the review of the initial report of Monaco conducted by an expert review team in accordance with Article 8 of the Kyoto Protocol.

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I. Introduction and summary

A. Introduction

1. This report covers the in-country review of the initial report of Monaco, coordinated by the United Nations Framework Convention on Climate Change (UNFCCC) secretariat, in accordance with Guidelines for review under Article 8 of the Kyoto Protocol (decision 22/CMP.1). The review took place from 15 to 19 October 2007 in Monaco, and was conducted by the following team of nominated experts from the roster of experts: Generalist and Industrial Processes – Mr. Newton Paciornik (Brazil); Energy and Waste – Ms. Erasmia Kitou (European Community); Land Use, Land-use Change and Forestry (LULUCF) – Mr. Walter Oyhantçabal (Uruguay). Mr. Newton Paciornik and Mr. Walter Oyhantçabal were the lead reviewers. In addition the expert review team (ERT) reviewed the national system, the national registry, and the calculations of the Party's assigned amount and commitment period reserve (CPR), and took note of the LULUCF parameters. The review was coordinated by Mr. Javier Hanna and Mr. Tomoyuki Aizawa (UNFCCC secretariat).

B. Summary

1. Timeliness

2. Decision 13/CMP.1 requests Parties to submit the initial report prior to 1 January 2007 or one year after the entry into force of the Kyoto Protocol for that Party, whichever is later. The initial report was submitted on 7 May 2007, which is in compliance with decision 13/CMP.1, as the Kyoto Protocol entered into force for Monaco on 28 May 2006. In its initial report Monaco refers to its 2006 greenhouse gas (GHG) inventory submission of 7 May 2007. The Party submitted an update to the initial report on 28 November 2007 in which there are revised emission estimates for the years 1990 and 2004 in response to questions raised by the ERT during the course of the in-country visit.

2. Completeness

3. Table 1 below provides information on the mandatory elements included in the initial report and revised values for the assigned amount, and CPR provided by the Party resulting from the review process. These revised values are based on revisions of emissions of CO_2 in the energy sector (see paragraphs 46 and 48), which resulted in revisions of the total GHG emissions, with total base year emissions changing from 107,556.0 tonnes of CO_2 eq. as reported originally by the Party to 107,657.7 tonnes of CO_2 eq.

4. The information in the initial report and in the update to the initial report covers all elements required by decision 13/CMP.1, section I of decision 15/CMP.1, and relevant decisions of the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol (CMP).

Table 1. Summary of the reporting on mandatory elements in the initial report

Item	Provided	Value/year/comment
Complete GHG inventory from the base year (1990) to the most recent year available (2004)	Yes	Base year: 1990
Base year for HFCs, PFCs and SF_6	Yes	1995
Agreement under Article 4	No	Not applicable
LULUCF parameters	Yes	Minimum tree crown cover: 10 per cent Minimum land area: 0.5 ha Minimum tree height: 5 m
Election of and accounting period for Article 3, paragraphs 3 and 4, activities	Yes	The accounting period for Article 3, paragraph 3, is annual. Article 3, paragraph 4, activities are not elected.
Calculation of the assigned amount in accordance with Article 3, paragraphs 7 and 8	Yes	494 776 tonnes CO_2 eq.
Calculation of the assigned amount in accordance with Article 3, paragraphs 7 and 8, revised value		495 221 tonnes CO_2 eq.
Calculation of the commitment period reserve	Yes	445 298 tonnes CO_2 eq.
Calculation of the commitment period reserve, revised value		445 699 tonnes CO_2 eq.
Description of national system in accordance with the guidelines for national systems under Article 5, paragraph 1	Partially	Missing parts completed in the update to the initial report
Description of national registry in accordance with the requirements contained in the annex to decision 13/CMP.1, the annex to decision 5/CMP.1 and the technical standards for data exchange between registry systems adopted by the CMP	Yes	

3. Transparency

5. The initial report is not fully transparent and rather brief. The update of the initial report submitted by Monaco after the in-country visit includes a more extensive description of the national system, of the national registry, and the results of the key category analysis and the uncertainty analysis.

4. Emission profile in the base year, trends and emission reduction target

6. In the base year (1990 for carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and 1995 for hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6)), the most important GHG in Monaco was CO_2, contributing 97.9 per cent to total[1] national GHG emissions expressed in CO_2 eq., followed by N_2O, 1.6 per cent and CH_4, 0.6 per cent, see figure 1. HFCs, PFCs, and SF_6 taken together contributed 0.02 per cent of the overall GHG emissions in the base year. The energy sector accounted for 99.4 per cent of the total GHG emissions in the base year, see figure 2. Total GHG emissions (excluding LULUCF) amounted to 107.7 Gg CO_2 eq. and decreased by 3.0 per cent from the base year to 2004.

[1] In this report, the term total emissions refers to the aggregated national GHG emissions expressed in terms of CO_2 equivalent excluding LULUCF, unless otherwise specified.

Figure 1. Shares of gases in total GHG emissions, base year

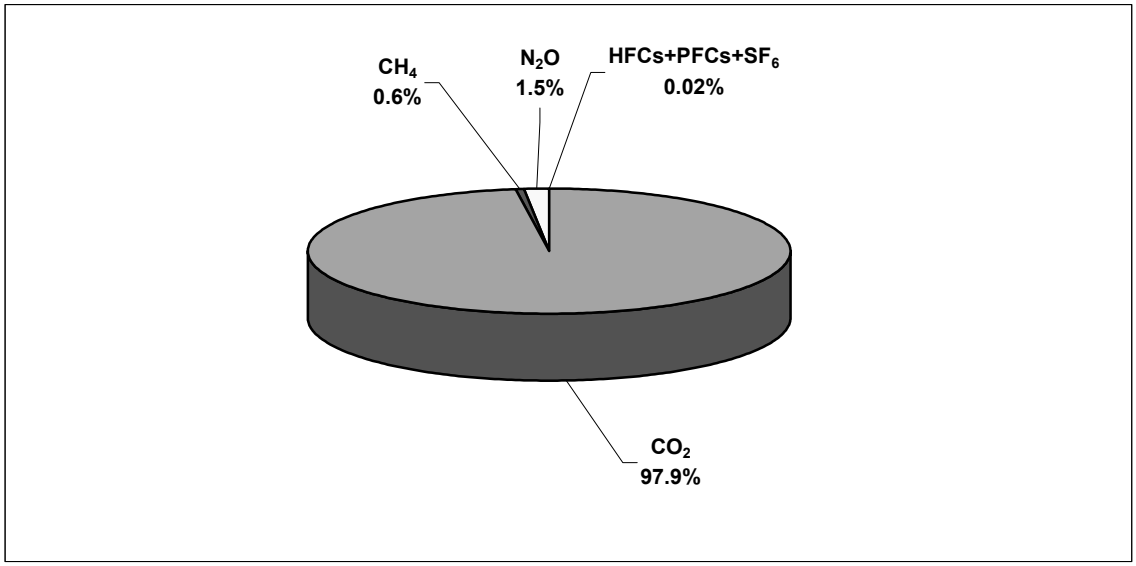
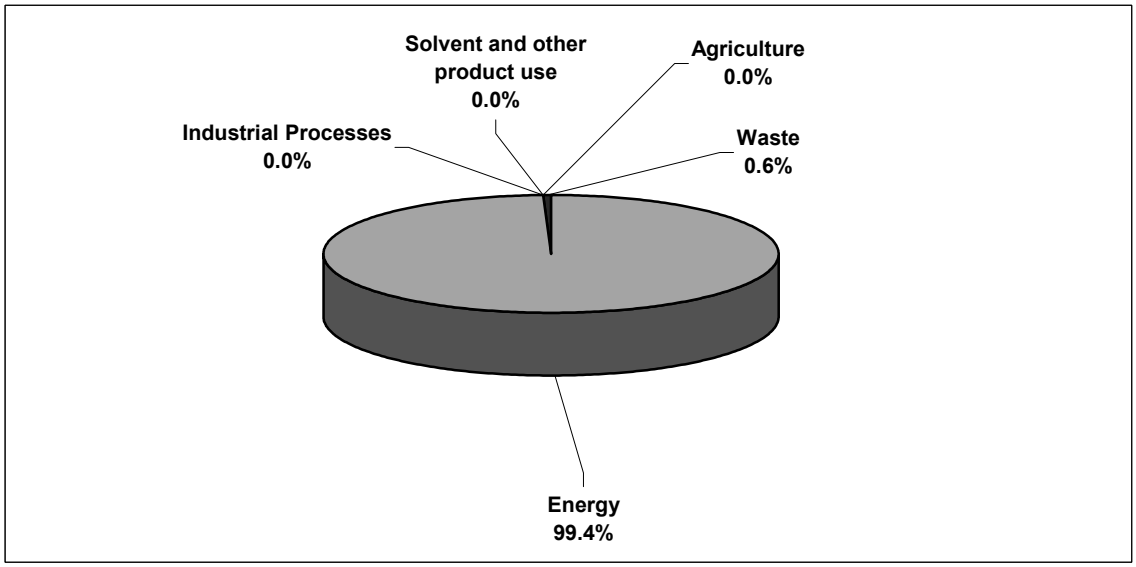


Figure 2. Shares of sectors in total GHG emissions, base year



7. Tables 2 and 3 show the GHG emissions by gas and by sector, respectively.

8. Monaco's quantified emission reduction is 92 per cent, as included in Annex B to the Kyoto Protocol.

Table 2. Greenhouse gas emissions by gas, 1990–2004

GHG emissions (without LULUCF)	Gg CO_2 equivalent								Change
	Base year[a]	1990	1995	2000	2001	2002	2003	2004[a]	BY–2004 (%)
CO_2	105.37	105.37	111.86	113.00	114.06	112.00	106.65	100.28	–4.8
CH_4	0.64	0.64	0.79	0.79	0.81	0.76	0.68	0.63	–1.2
N_2O	1.63	1.63	2.62	3.28	3.38	3.32	3.18	3.10	90.6
HFCs	0.02	0.00	0.02	0.04	0.31	0.84	0.60	0.30	1460.8
PFCs	0.00	0.00	0.00	0.00	0.07	0.06	0.03	0.04	NA
SF_6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA

Note: BY = Base year; LULUCF = Land use, land-use change and forestry; NA = Not applicable.

[a] Monaco submitted revised estimates for the base year and 2004 in the course of the initial review on 28 November 2007. These estimates differ from the Party's GHG inventory submitted in 2006.

Table 3. Greenhouse gas emissions by sector, 1990–2004

Sectors	Gg CO_2 equivalent								Change
	Base year[a]	1990	1995	2000	2001	2002	2003	2004[a]	BY–2004 (%)
Energy	107.00	107.00	114.26	116.02	117.20	115.05	109.45	102.91	–3.8
Industrial processes	0.02	0.00	0.02	0.04	0.39	0.89	0.63	0.34	1,640.3
Solvent and other product use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA
LULUCF	NA	–0.03	–0.04	–0.04	–0.04	–0.04	–0.04	–0.04	NA
Waste	0.64	0.64	1.00	1.05	1.04	1.03	1.07	1.10	71.9
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA
Total (with LULUCF)	NA	107.60	115.25	117.08	118.59	116.94	111.12	104.32	–3.1
Total (without LULUCF)	107.66	107.64	115.28	117.12	118.63	116.98	111.16	104.35	–3.1

Note: BY = Base year; LULUCF = Land use, land-use change and forestry; NA = Not applicable.

[a] Monaco submitted revised estimates for the base year and 2004 in the course of the initial review on 28 November 2007. These estimates differ from the Party's GHG inventory submitted in 2006.

II. Technical assessment of the elements reviewed

A. National system for the estimation of anthropogenic GHG emissions by sources and sinks

9. Monaco's national system has been established in accordance with the guidelines for national systems under Article 5, paragraph 1, of the Kyoto Protocol (decision 19/CMP.1). It meets the basic mandatory requirements for implementation of the general functions of the national system, but the description of some of the required functions has not been included in the initial report. These include:

(a) The official designation of the single entity responsible for the national GHG inventory;

(b) The description of the roles and responsibilities of various agencies and entities in relation to the inventory development process;

(c) The description of the processes for collecting activity data (AD), selecting emission factors (EFs) and methods and for the development of emissions estimates;

(d) The development of a quality assurance/quality control (QA/QC) plan;

(e) The development of a key category analysis;

(f) The development of an uncertainty analysis.

10. These elements were provided by Monaco after the in-country visit and included in an update to the initial report and in a revised national inventory report (NIR) submitted on 28 November 2007.

11. Table 4 shows which of the specific functions of the national system are included and described in the initial report.

Table 4. Summary of reporting on the specific functions of the national system

Reporting element	Provided	Comments
Inventory planning		
Designated single national entity*	No**	See section II.A.1
Defined/allocated specific responsibilities for inventory development process*	No**	See section II.A.1
Established process for approving the inventory*	Yes	See section II.A.1
Quality assurance/quality control plan*	No**	See section II.A.2
Ways to improve inventory quality	No	See section II.B.3
Inventory preparation		
Key category analysis*	No**	See section II.B.1
Estimates prepared in line with IPCC guidelines and IPCC good practice guidance*	Yes	See section II.B.2
Sufficient activity data and emission factors collected to support methodology*	No**	See section II.B
Quantitative uncertainty analysis*	No**	See section II.B.2
Recalculations*	Yes	See section II.B.2
General QC (tier 1) procedures implemented*	Yes	See section II.A.2
Source/sink category-specific QC (tier 2) procedures implemented	No	See section II.A.2
Basic review by experts not involved in inventory	Partially	See section II.A.2
Extensive review for key categories	No	See section II.A.2
Periodic internal review of inventory preparation	No	See section II.A.2
Inventory management		
Archive inventory information*	Yes	See section II.A.3
Archive at single location	Yes	See section II.A.3
Provide ERT with access to archived information*	Yes	See section II.A.3
Respond to requests for clarifying inventory information during review process*	Yes	See section II.A.1

* Mandatory elements of the national system

** These elements were provided in Monaco's submissions of the update to the initial report and the NIR.

1. Institutional, legal and procedural arrangements

12. During the in-country visit, Monaco explained the institutional arrangements, as part of the national system, for preparation of the inventory. The Direction de l'Environnement, de l'Urbanisme et de la Construction is the designated single national entity and is responsible for the inventory planning, preparation and management, and the archiving of information. Other organizations are also involved in the preparation of the inventory mainly through provision of the required data. These include the Societé Monégasque d'Assainissement, the Société Monégasque de l'Electricité et du Gaz and the Division de statistiques de la Direction de l'Expansion Economique. The Direction de l'Environnement, de l'Urbanisme et de la Construction has the necessary expertise to perform its functions but the human resources are limited and the experts have many other responsibilities besides the development of the GHG inventory. The national system would benefit from an increase in manpower capacity as well as the full implementation of the QA/QC plan.

13. In Monaco there is an established process for the official consideration and approval of the inventory, including recalculations, and for responding to any issues raised by the NIR prior to its submission. The responsible organizations are the Département de l'Equipement, de l'Environnement et de l'Urbanisme and the Département des Relations Extérieures.

2. Quality assurance/quality control

14. Monaco has QC procedures in place but they were not clearly described in the NIR as part of its 2006 submission. In addition, Monaco processed an external assessment of the inventory in 2005, conducted by the Centre Interprofessionnel Technique d'Etudes de la Pollution Atmosphérique in France. As part of its revised submission, after the in-country visit, Monaco provided a QA/QC plan in accordance with the International Panel on Climate Change (IPCC) *Good practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* (hereinafter referred to as the IPCC good practice guidance), including actions to be taken to ensure that the methods used, calculations made and the archiving of information is properly conducted. The ERT recommends that Monaco gain experience with the implementation of the QA/QC plan and further elaborate the specific checks for each category in line with its national circumstances, and implement the procedures for periodic external reviews.

3. Inventory management

15. Monaco has an archiving system which includes the archiving at a single location of disaggregated EFs, AD, and documentation on how these factors and data have been generated and aggregated for the preparation of the inventory. However most of the information is kept with the person responsible for the development of the inventory for a specific sector. The ERT recommends that Monaco develop the archiving procedures of the inventory to allow for fully centralized access to the inventory data and related information, which could facilitate the storage and recovery of information. During the review, the ERT was provided with the requested additional archived information.

B. Greenhouse gas inventory

16. In conjunction with its initial report, Monaco submitted a complete set of common reporting format (CRF) tables for the years 1990–2004 and an NIR. The Party resubmitted its CRF tables for the years 1990 and 2004 on 28 November 2007 in response to questions raised by the ERT during the course of the in-country visit, together with a update to the initial report and a revised NIR.

17. During the review Monaco provided the ERT with additional information sources. The full list of materials used during the review is provided in the annex to this report.

1. Key categories

18. Monaco did not report a key category analysis as part of its 2006 submission. However it included key category tier 1 analysis results, both level (base year and most recent year) and trend assessment as part of its revised NIR submitted in November 2007. The key category analysis performed by the Party and the secretariat[2] produced similar results. The ERT recommends that Monaco include the full key category calculation tables in its next submission and perform a tier 2 key category analysis.

2. Cross-cutting topics

19. The inventory is in line with the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* (hereinafter referred to as the Revised 1996 IPCC Guidelines), the IPCC good practice guidance and the *IPCC Good Practice Guidance for Land Use, Land-use Change and Forestry* (hereinafter referred to as the IPCC good practice guidance for LULUCF).

20. The inventory is compiled in accordance with Article 7, paragraph 1, and decision 15/CMP.1.

Completeness

21. The inventory submitted is almost complete in terms of years, sectors, source and sink categories and gases. Some small categories are still missing (e.g. fugitive emissions in fuel distribution, asphalt paving, HFC emissions from aerosols, N_2O emissions from fertilizer use, etc.), the main reason being the lack of AD.

22. The CRF tables are fairly complete, but some tables are still missing (e.g. 3.A–D (solvents), 9 (completeness) and many LULUCF tables). Many notation keys are missing or wrongly and inconsistently applied. The ERT recommends that Monaco correctly apply the notation keys in its future submissions, also making appropriate use of the documentation boxes in the tables.

Transparency

23. The NIR is not fully transparent in the sense that it does not provide sufficient information for the full assessment of the inventory. The ERT recommends the revision of the NIR structure to fully agree with the UNFCCC reporting guidelines, also providing the necessary information on methods applied, assumptions and parameters used.

Consistency

24. The emissions time series are consistent overall, but some inconsistencies have been identified, particularly in the industrial processes sector, where AD is estimated through questionnaires. This procedure may lead to fluctuations in information. The ERT recommends that Monaco improve the data collection procedure and put in place gap-filling procedures, as appropriate, to ensure time series consistency.

Comparability

25. Monaco's inventory is comparable with those of other Parties. However, due to its particular national circumstances (uncontrolled borders) the ERT recommends that cooperation with its neighbouring country, France, be implemented in order to ensure methodological consistency that would

[2] The secretariat identified, for each Party, those source categories that are key categories in terms of their absolute level of emissions, applying the tier 1 level assessment as described in the IPCC good practice guidance for LULUCF. Key categories according to the tier 1 trend assessment were also identified for those Parties that provided a full set of CRF tables for the base year. Where the Party performed a key category analysis, the key categories presented in this report follow the Party's analysis. However, they are presented at the level of aggregation corresponding to a tier 1 key category assessment conducted by the secretariat.

prevent gaps and duplications in the inventories. The allocation of the source/sink categories follows the Revised 1996 IPCC Guidelines and the IPCC good practice guidance.

Accuracy

26. Monaco's inventory is generally accurate in the sense that emissions and removals are neither underestimated or overestimated, as far as can be judged.

Recalculations

27. The national system ensures that recalculations of previously submitted estimates of GHG emissions by sources and removals by sinks are prepared in accordance with the IPCC good practice guidance. However, recalculations were not systematically reported in the NIR.

28. The ERT noted that recalculations of the time series 1990 to 2003 had been undertaken to take into account methodological changes in fuel combustion in the residential and transportation sector. The major changes include: an increase of 53.6 per cent in fuel combustion in the residential sector in the year 1990; a reduction of 16.7 per cent in fuel combustion in the residential sector in the year 2003, a reduction of 11.6 per cent in fuel combustion in the transport sector in the year 1990 and a reduction of 28.4 per cent in fuel combustion in the transport sector in the year 2003. The methodological changes are described in the NIR but the results of the recalculations are not fully reported in the NIR, which includes a short description of the changes for the year 2003 only. The effect of the recalculations for the base year was an increase of 11.6 per cent for total emissions. For the year 2003 the effect was a decrease of 16.9 per cent. As a result of the recalculations the change in total national emissions from 1990 to 2003 decreased from 38.1 per cent to 3.1 per cent.

Uncertainties

29. Monaco provided an uncertainty analysis for the level as part of its 2006 submission. However it did not comply with the IPCC good practice guidance and did not cover all categories of the inventory. Following the in-country visit, Monaco included in its revised NIR submitted in November 2007 an updated uncertainty analysis for both level and trend. This analysis is in accordance with the IPCC good practice guidance but relies mostly on default values for the EFs and does not include the LULUCF sector. The ERT recommends that Monaco assess and update this data, if possible, in accordance with its national circumstances.

3. Areas for further improvement identified by the Party

30. Many improvements have been undertaken as result of the previous reviews, although this is not highlighted in the NIR. The NIR does not identify areas for further improvement.

4. Areas for further improvement identified by the ERT

31. The ERT identifies the following cross-cutting issues for improvement:

(a) Revise the NIR structure to fully reflect the requirement of the UNFCCC reporting guidelines;

(b) Improve transparency including more information on the methods, parameters, assumptions and data collection procedures in the NIR;

(c) Fully implement and improve its QA/QC plan;

(d) Develop the inventory archiving procedures to allow for fully centralized access to inventory data and related information.

32. Recommended improvements relating to specific source categories are presented in the relevant sector sections of this report.

5. Energy

Sector overview

33. Since the Kyoto Protocol base year (1990), energy-related emissions from Monaco have declined by 3.8 per cent. In 1990, Monaco's total GHG emissions from the energy sector were 107 thousand tonnes constituting 99.4 per cent of total GHG emissions. Most of the GHG energy-related emissions in the base year were from "other sectors", which constituted 42.5 per cent of the sectoral emissions, while transport contributed 31.1 per cent, and energy industries 26.4 per cent. Monaco imports all the fuel that it consumes. Fugitive emissions are "not estimated" (NE) by Monaco for the whole time series.

34. The NIR does not fully address the issue of completeness in the fuel combustion and fugitive emissions categories in the energy sector. The ERT recommends that Monaco provide a more detailed discussion on the completeness of its estimates of fuel combustion and fugitive emissions.

35. The ERT welcomes the efforts made by Monaco to provide methodological information and information on EFs in the NIR, but recommends that Monaco also provide a detailed overview of the assumptions made and the underlying AD used. The ERT believes that the transparency of the NIR could be further improved if Monaco would, in addition, provide information on the steps followed to ensure time series consistency as well as explanations on the trends observed.

36. Monaco provided no specific discussion of its QA/QC and verification procedures for the energy sector. During the review, the ERT noted that some QA/QC checks are performed on an informal basis. However, these are not documented in the relevant energy part of the NIR. The ERT recommends that existing checks be formalized and complemented with additional checks to ensure that no mistakes are introduced into the NIR or the CRF tables, and that the checks be thoroughly documented.

37. The ERT noted that the methodological descriptions provided in the main part of the NIR for road transportation do not properly reflect the information presented in the annex. The ERT recommends that Monaco improve the consistency of the information presented in the NIR by performing the appropriate quality checks. The ERT was pleased to see that Monaco had provided estimates of the uncertainties associated with the energy sector. These estimates are based on the information and default factors provided in the IPCC good practice guidance. The ERT recommends that Monaco provide for its next submission detailed information on why the particular uncertainty values showed in the annex were chosen, especially in the case where the IPCC good practice guidance provides ranges and not just one specific value. The ERT also encourages Monaco to obtain, through contact with local authorities, country-specific uncertainty estimates, for example for stationary combustion, for its next submission.

Reference and sectoral approaches

38. Monaco provided estimates for the reference approach for the years 1990–2004. The reference approach and the sectoral approach for the base year correspond (–0.25 per cent in CO_2 emission estimates and a 0.74 per cent difference in energy consumption). The CRF tables provide an explanation of the difference between the reference and the sectoral approach, which is due to the difference in EFs and net calorific values (NCVs) used in the two methods. In estimating emissions based on the reference approach Monaco aggregated under "gas/diesel oil" both heating oil and diesel used for transport without, however, using the corresponding NCVs. The ERT recommends that Monaco report heating oil separately from diesel oil, preferably under other oil, and update the NCVs accordingly.

39. Under imports in the reference approach, Monaco has not included residual fuel oil, which was included in its other submissions. Monaco agreed that the value of residual fuel oil was omitted by mistake and included the values in the CRF tables resubmitted for the years 1990 and 2004.

40. Comparison with international data was not possible for Monaco, as Monaco-related data are included in France's submission to the International Energy Agency.

International bunker fuels

41. The ERT was pleased to see that Monaco had followed the recommendations of previous review reports and had revised its estimates of aviation- and marine-related emissions to properly account for bunker fuels. Monaco conducted a survey in 2005 to determine the ratio of international navigation versus national navigation, based on the methods specified in the IPCC guidelines. Based on the results of this survey Monaco estimated that about 91 per cent of navigation related emissions are international.

42. The NCVs (43.56 GJ/t for gasoline and 42.4 GJ/t for diesel) used by Monaco to estimate GHG emissions from navigation do not correspond to those found in the IPCC guidelines. Monaco was not able to provide sufficient explanations as to why these particular NCVs were used. The ERT recommends that Monaco use default NCVs (43.5 GJ/t for gasoline and 42.4 GJ/t for diesel) to calculate emissions from navigation. Monaco, in the revised submission of its inventory, recalculated the emissions from navigation based on the new default values for NCVs proposed by the ERT. As regards aviation, all flights are considered to be international. Monaco did not, however, report any emissions under this source category as it was assumed that the fuel used for these flights was bought in France. However, Monaco discovered recently that part of the fuel used for aviation, namely jet kerosene, is also bought in Monaco. The ERT encourages Monaco to estimate the associated emissions and report these as a memo item under international aviation in its next inventory submission.

Feedstocks and non-energy use of fuels

43. Monaco did not report any emissions under feedstocks and non-energy use of fuels. The ERT believes that bitumen and lubricants are used in Monaco; for example, bitumen is used for road-paving and lubricants are used in road transportation. The ERT recommends that Monaco investigate the possibility of reporting emissions from feedstocks and non-energy use of fuels for the whole time series, especially from the use of bitumen and lubricants using the suggested IPCC default methodologies presented in chapters 1.4, and 1.5 of the reference manual.

Key categories

Stationary combustion: gaseous fuels – CO_2

44. This source includes the emissions from natural gas used for both residential heating/cooling and as a back-up fuel for the incinerator plant and district heating boilers in Monaco. The natural gas boilers were installed in 2001. These emissions are estimated based on the AD and country-specific EFs reported by the gas provider (SMEG). The ERT encourages Monaco to contact the relevant authorities and to obtain information on the carbon content of the natural gas, and revise its emission estimates for this source based on this plant-specific data.

Road transportation: liquid fuels – CO_2

45. The high share of overall road transportation emissions in Monaco is due to "fuel tourism" (the purchase and consumption of fuels in different countries, that is, fuel in tanks that are crossing a border). Thousands of people come daily to Monaco from neighbouring France and Italy to work and then return to their home countries. As a result, the quantities of fuel sold are disproportionately high compared with the actual population of Monaco. Independent of this fact and in line with the IPCC guidelines, Monaco is required to use the quantities of fuel sold to calculate emissions from this source category.

46. Monaco used a detailed methodology to estimate GHG emissions from gasoline and diesel oil based on information on the composition of the vehicle fleet and information on the existence of catalyst technologies within the fleet. The ERT believes that this method may overestimate CO_2 emissions from this category when not properly adjusted for the amount of fuel sold as recommended in the IPCC good practice guidance. The ERT recommends that Monaco apply the Tier 1 IPCC methodology using the total fuel sold in the country, the relevant default EFs (73 t CO_2/TJ for gasoline, 74 t CO_2/TJ for diesel oil) and NCVs (43.5 GJ/t for gasoline and 42.4 GJ/t for diesel oil) to estimate the corresponding CO_2

emissions for the complete time series. Monaco, in its revised submission of the inventory, recalculated the emissions from road transport based on the recommendations of the ERT as presented above.

Navigation: gasoline and diesel – CO_2

47. Based on the results of the survey mentioned in paragraph 41 above, Monaco estimated that about 9 per cent of navigation-related emissions should be considered as domestic.

48. The NCVs (43.56 GJ/t for gasoline and 42.43 GJ/t for diesel oil) used by Monaco to estimate GHG emissions from navigation do not correspond to those provided in the Revised 1996 IPCC guidelines. Monaco was not able to provide sufficient explanations as to why these particular NCVs were used. The ERT recommends that Monaco use the IPCC default NCVs (43.5 GJ/t for gasoline and 42.4 GJ/t for diesel oil) to calculate emissions from navigation for the complete time series. Monaco, in its revised submission of the inventory, recalculated the emissions from navigation based on the new default values for NCVs proposed by the ERT. During the review, it was confirmed that there are no fishing vessels in Monaco, so there is no need to further split marine-related emissions.

Non-key categories

Stationary combustion: other fuels – CH_4, N_2O

49. The waste incineration plant in Monaco produces district heating and cooling using municipal waste originating from both Monaco and France with the quantities varying from one year to the other depending on the agreements made with France. Monaco estimated emissions from this sector based on the IPCC Tier 1 methodology together with IPCC default values for the fuel's total carbon content and fossil fraction. Monaco explained that it has not been possible to obtain plant-specific data, as the plant has undergone significant improvements over the last few years. Since the new systems are now in place, the ERT recommends that Monaco determine the carbon content/fossil fraction of the waste incinerated and that it use country-specific EFs to estimate the corresponding emissions in the CRF tables. The ERT recommends that organic waste be reported under "biomass" and non-organic waste under "other fuels" in 1.A.1.a.

50. Monaco does not include, in the quantities of the waste incinerated with energy recovery, organic waste resulting from the maintenance of parks and public gardens and, as a result, the corresponding CH_4 and N_2O emissions are "NE". The ERT recommends that Monaco include the emissions from organic waste from parks and gardens under "biomass" in 1.A.1.a for the complete time series.

Fugitive emissions: oil refining/ storage, and natural gas distribution and other leakage: – CH_4

51. Monaco did not report any fugitive emissions resulting from its natural gas network or from fuel storage tanks in Monaco. From a preliminary enquiry to the national gas company, emissions from the distribution network were estimated to represent less than 0.02 per cent of the overall quantity of gas distributed. The ERT recommends that Monaco further investigate these issues with the relevant authorities and provide a more detailed discussion and the corresponding fugitive emission estimates from the distribution and storage of fuel for the whole time series, as appropriate, using the IPCC default methodologies or plant/country specific data, if available.

6. Industrial processes and solvent and other product use

Sector overview

52. In 2004, emissions from the industrial processes sector accounted for 0.3 per cent of total national GHG emissions in Monaco. Monaco has not estimated GHG emissions from the solvent and other product use sector. Actual emissions from the consumption of fluorinated gases (F-gases) accounted for the total emissions from the industrial processes sector. In the period 1995–2004, GHG emissions from the industrial processes sector increased by 1,740.3 per cent, because of the increase in F-gas emissions from refrigeration and air-conditioning equipment.

53. Monaco's inventory for this sector covers only emissions from the consumption of halocarbons and SF_6, as most of the industrial categories do not occur in Monaco. A few categories are still missing, although highlighted in previous reviews as road paving with asphalt. The ERT recommends that Monaco investigate the occurrence, and possibly estimate emissions from some categories of the consumption of halocarbons and SF_6 (e.g. fire extinguishers and aerosols) not yet estimated. Monaco has provided estimates for F-gas emissions only for the period 1995–2004. Emissions for the period 1990–1994 are missing and estimates should be provided for time series completeness even if the choice of base year for F-gases is 1995. The ERT noted with appreciation that Monaco has reported actual emissions from the use of HFCs, PFCs and SF_6, as recommended in the previous review. However, the party has not reported potential emissions of HFCs. The ERT recommends that Monaco report potential emissions of F-gases in addition to actual emissions, as the latter are an important tool for QA/QC. Use of the notation keys should be improved together with the explanations. The "NO" (not occurring) and "NE" keys are sometimes wrongly used.

54. Monaco has included some methodological information in the NIR but this information is limited, and does not provide details of the methods used. The ERT recommends that Monaco include more information on the methods, parameters, assumptions and data collection procedures in the NIR in its next submission.

55. High fluctuations in time have been identified for some categories. A possible reason for these fluctuations is missing data, as basic data is obtained from questionnaires. The ERT recommends that Monaco investigate the reasons for the fluctuations and, as appropriate, put in place gap-filling procedures in accordance with the IPCC good practice guidance to ensure time series consistency.

56. Some QC procedures are in place for each category. The ERT recommends that further QC procedures be implemented to ensure accuracy and time series consistency. The ERT suggests that some of the existing questionnaires could be redesigned to prevent misunderstanding and facilitate filling in and processing of the forms. The ERT recommends that cooperation with neighbouring countries be explored, with the objective of providing methodological consistency that could prevent overall gaps or duplications in sectors related to product consumption.

Non-key categories

Consumption of halocarbons

57. The ERT acknowledges the effort made for estimating the emissions in this sector, in view of the national circumstances that imply difficulties in the acquisition of data due to the flow of products across the border with France. The ERT recommends that the possible use of other methods described in the IPCC good practice guidance should be investigated, which could reduce the need for questionnaires (e.g. in the mobile refrigeration category).

SF_6 emissions from electrical equipment

58. Emissions are reported to be equal to 0, based on the information that no refill of equipment has occurred in Monaco. However, the background information provided to the ERT shows that the utility company has reported acquisition of SF_6 for all years in the inventory period. The ERT recommends that this disparity be investigated and corrected if necessary. The ERT also recommends that the possible use of other methods described in the IPCC good practice guidance be investigated.

7. Agriculture

Sector overview

59. Monaco does not dedicate any part of its territory to agricultural activities. The whole area is urbanized, occupied by buildings, communication ways and parks. As a consequence, there are no emissions or removals of GHG attributable to this sector.

8. Land use, land-use change and forestry

Sector overview

60. In 1990 the LULUCF sector represented, according to the NIR, a net sink of 0.0333 Gg CO_2 eq., corresponding to 0.031 per cent of reported national emissions (107.60 Gg CO_2 eq.). In Monaco the only land use category that can adequately represent the LULUCF sector is settlements. According to the NIR, 38.91 hectares (ha) of the territory of Monaco were occupied by public and private gardens. The total number of urban trees in parks and streets was 5,496 in 1990. Most of the trees (85 per cent) are mature and more than 20 years old, so gains and losses are similar, and close to zero.

61. Data in the NIR and CRF show that in the period 1990–2004 removals by the sector increased by 9.5 per cent. The table on page 24 of the NIR presents data on the evolution of the removals, but these data are misleading, because they do not use enough decimals to describe the real changes between years. (For example in the NIR an increase of 33 per cent can be deducted –0.03 to 0.04 − and in the CRF LULUCF table a wrong value of 100 percent is reported in Table 10). The drivers of the increase throughout the time series are the increases in the area of parks and gardens and in the number of trees; however, this increase is not clearly explained in the NIR. The ERT recommends that Monaco present more accurate data and describe the trend in a more precise manner in its next submission.

62. The information on the LULUCF sector is not complete. The CRF LULUCF tables other than tables 5, 5(E) and 5(I), are empty. The ERT also verified during the in-country visit that nitrogen (N) fertilizers are used in parks, and that the amount used is known in detail. Thus, N_2O emissions can be calculated and reported, and they will affect the present calculation of net removals in some way. The ERT recommends that Monaco solve these completeness problems in the future.

63. In general, the information reported under the LULUCF sector is not fully transparent. In particular, the method used to calculate removals is not clearly described. The ERT recommends that the Party include all necessary data and methodological procedures to explain how calculations were done, so that an external reader can reconstruct the same outcomes.

64. The LULUCF sector was reported as a net source in Monaco's 2005 submission, and as a net sink in its 2006 submission. The reason for this is a change in the methodology of calculation after the inventory review in 2005. The time series for settlement areas has been recalculated for 2004 (table 7.2.1 of the NIR). The ERT recommends that the Party report all recalculations in the future.

65. The ERT encourages Monaco to prepare some simple category-specific procedures for QA/QC in this sector and to continue working on the implementation of a QA/QC plan following the recommendations of the IPCC. Also, the ERT recommends that the Party improve the QC of the data reported in the CRF to ensure that all data and notation keys are correctly and consistently reported, avoiding missing data.

66. Even if the volume of removals is small, the uncertainties of the estimates might be important due to the uncertainty of the AD and the use of default EF for crown cover area-based growth (CRW). According to the IPCC the default value provided has an uncertainty mean of +/-50 per cent.

67. One major improvement compared to Monaco's 2005 inventory submission is the use of the CRF tables for LULUCF, as required by decision 13/CP.9.

Non-key categories

Settlements – CO_2

68. Following the recommendation of the previous review, Monaco allocated areas of parks and gardens to the settlements category. As a result, one of the two methodologies provided by the IPCC good practice guidance for LULUCF was selected: "T1a", which estimates removals from growing trees using as AD the area of land covered by tree crown (Equation 3a.4.3A). These specific methodologies

are provided by the IPCC good practice guidance for LULUCF in Appendix 3a.4 "Settlements", page 3.296. Countries may use country-specific parameters for CRW or the default value of 2.9 tonnes C (ha crown cover)$^{-1}$ yr^{-1}. Monaco does not have a country-specific value for CRW, and its parks contain many different species, which makes developing them difficult and costly. Given the circumstances and the small size of the LULUCF sector with regard to the national GHG emissions in the inventory, the use of a default value is considered an appropriate choice.

69. Monaco does not explain clearly how it applies this "tier 1a" method, but application is not fully in line with the recommendations of the IPCC good practice guidance for LULUCF. Crown areas were not estimated using aerial photography, but using the number of trees and the average surface of a hemisphere simulating the shape of a tree. This method of estimation does not strictly reflect the area covered by crowns in a vertical projection, due to the overlapping of crowns. During the in-country review, the ERT verified that Monaco has good resolution aerial photography which permits the estimation of the vertical projection of the area covered by trees. The ERT recommends that the Party estimate this AD using aerial photographs and to recalculate the time series of removals by settlements.

70. The maintenance of parks produces a certain amount of biomass every year (mainly grass). In 2004 this amount is reported as 767 tonnes. No figures are provided for the base year and the time series. Once removed, this waste is carried to the incineration plant. CO_2 emissions from this biomass burning should not be accounted, but associated emissions of CH_4 and N_2O should be accounted in the energy sector in Table 1.A(a). However, Monaco has instead reported "NO".

Settlements – N_2O

71. N fertilizer is used in settlements. The ERT recommends that Monaco include the calculation of N_2O emissions from N fertilizer use in its next submission.

9. Waste

Sector overview

72. Since the Kyoto Protocol base year (1990), waste-related emissions from Monaco have increased by 71.9 per cent. In 1990, Monaco's total GHG emissions from the waste sector constituted 0.6 per cent of total GHG emissions, while emissions from waste-water handling accounted for 100 per cent. N_2O is the only GHG reported in this sector. In Monaco, all GHG emissions from the incineration of municipal solid waste are reported in the energy sector. Emissions from the incineration of sewage sludge are reported in the waste sector starting in 1991. Prior to 1991, sewage sludge was processed in France.

73. The ERT notes that Monaco has provided limited information on methodologies used, assumptions made and underlying AD and EFs in the NIR for the waste sector. The ERT recommends that Monaco provide more detailed information on the above issues in its next submission so as to increase the completeness and transparency of its inventory. The ERT believes that the transparency of the NIR could be further improved if Monaco provided, in addition, information on the steps taken to ensure time series consistency as well as explanations on the trends observed.

74. Monaco has provided no specific discussion of its QA/QC and verification procedures for the waste sector. The ERT recommends that Monaco put in place and document specific QA/QC procedures for the waste sector to ensure that no mistakes are introduced in the NIR or the CRF tables. The uncertainty estimates provided by Monaco for the waste sector are based on the information and default factors provided in the IPCC good practice guidance. The ERT recommends that Monaco provide in its next submission detailed information on why the particular uncertainty values showed in the annex were chosen, especially in the case where the IPCC good practice guidance provides ranges as opposed to one specific value. The ERT also encourages Monaco to obtain, through contact with local authorities, country-specific uncertainty estimates for waste incineration and wastewater treatment for its next submission.

Non-key categories

Wastewater handling – N_2O

75. Monaco has used the default IPCC methodology as presented in chapter 6.5 for the estimation of N_2O emissions from wastewater handling. Monaco reports emissions from industrial wastewater together with those from domestic and commercial wastewater, as all wastewater is collected in the one main sewer in the city. Monaco reports in the NIR that more than 90 per cent of wastewater is treated aerobically and the remaining wastewater is not treated at all. Monaco informed the ERT that electric energy is used for the aerobic treatment of wastewater.

Waste incineration – CO_2, CH_4, N_2O

76. Emissions from waste incineration are included in the energy sector, as the waste incineration plant is used to produce district heating and cooling.

C. Calculation of the assigned amount

77. The assigned amount pursuant to Article 3, paragraphs 7 and 8, is calculated in accordance with the annex to decision 13/CMP.1.

78. Monaco's base year is 1990 and the Party has chosen 1995 as base year for HFCs, PFCs and SF_6. Monaco's quantified emission limitation is 92 per cent, as included in Annex B to the Kyoto Protocol.

79. Based on Monaco's base year emissions, 107.556 Gg CO_2 eq., and its Kyoto Protocol target 92 per cent, the Party calculates its assigned amount to be 494,776 tonnes CO_2 eq.

80. In response to inventory issues identified during the review the Party submitted revised estimates of its base year inventory (107.657 Gg CO_2 eq.), which resulted in a recalculation of the assigned amount. Based on the revised estimates, the Party calculates its assigned amount to be 495,221 tonnes CO_2 eq. The ERT agrees with this figure.

D. Calculation of the commitment period reserve

81. The calculation of the required level of the CPR is in accordance with paragraph 6 of the annex to decision 11/CMP.1.

82. Based on its calculated assigned amount, 494,776 tonnes CO_2 eq. and the most recently reviewed inventory, 104.23 Gg CO_2 eq., Monaco calculates its CPR to be 445,298 tonnes CO_2 eq.

83. In response to inventory issues identified during the review the Party submitted revised estimates of its base year inventory and most recently reviewed inventory, which resulted in a recalculation of the CPR. Based on the revised estimates, the Party calculates its CPR to be 445,699 tonnes CO_2 eq. The ERT agrees with this figure.

E. National registry

84. Monaco has provided most of the information on the national registry system as required by the reporting guidelines under Article 7, paragraphs 1 and 2, of the Kyoto Protocol (decision 15/CMP.1). The information provided is broadly transparent and broadly follows these reporting guideline requirements. However, the ERT noted that the initial report covered the issues required by paragraph 32 of decision 15/CMP.1 in a rather brief and general way and some issues were not covered. The principal examples of issues covered in insufficient detail are: (a) database structure and capacity, (b) procedures for minimizing and handling discrepancies, and (c) prevention of unauthorized manipulation. One reason for this lack of detail seems to be that Monaco uses the services of a supplier (Caisse des Dépôts et Consignations (CDC)) in France and references are made to the fact that the supplier performs the

necessary procedures to ensure quality. The ERT thinks that this is not enough and that in future submissions Monaco should make explicit the detailed procedures and steps involved in the management of its data. The main example of information which is missing from the report is the list of information publicly accessible by means of the user interface to the national registry. The ERT recommends that Monaco provides more complete and detailed information in its next submission under the Kyoto Protocol.

85. During the initial review, the ERT was provided with additional and updated information on the national registry of Monaco. This information contributed to a more clear understanding of relevant issues related to: (a) software (checks for consistency and errors before sending a transaction and after receiving a transaction from the International Transaction Log (ITL)); (b) reconciliation procedures; (c) staff; and (d) system (graphical interfaces, field validation). Additional information explains that: (a) CDC, the software developer and provider, commits to provide a software that is fully compliant with UNFCCC and EU requirements; (b) the software incorporates reconciliation procedures; (c) technical responsibilities are covered by the staff in Switzerland, and administrative responsibilities are covered at present by one member of staff in Monaco; and (d) there is field validation using a password before entering data. The ERT recommends that the Party provide this additional information in its next submission under the Kyoto Protocol.

86. During the in-country visit, the ERT was informed that the internal operational test of the registry for network connection was completed on 3 September 2007. The initialization process was expected to be completed by 19 March 2008 and the registry to be fully operational by end of June 2008. After the in-country visit, Monaco notified the ERT that the initialization test was completed on 9 April 2008. Information on the registry is not yet publicly available through the Internet URL of the national registry: <http://www.registre-monaco.mc>. The Party is aware of this requirement and there are plans to implement it.

87. The ERT recommended that Monaco expedite, as far as practical, the implementation schedule for the national registry in order to comply with the relevant requirements of the Kyoto Protocol. The updated initial report submitted to the ERT after the in-country visit, provides information confirming that Monaco already had a schedule to launch the system no later than January 2008.

88. The ERT was also informed of the procedures and security measures to minimize discrepancies, terminate transactions and correct problems, and minimize operator error. Monaco explained during the in-country visit that at that point only the registry administrator would have access to the registry. In future, legal entities will be authorized to open accounts under the responsibility of the registry administrator. The ERT visited the offices of the registry administrator in Monaco and concluded that the necessary infrastructure is in place for the functioning of a registry, as required under the Kyoto Protocol.

89. The ERT acknowledges the effort made by Monaco to put in place these procedures and security measures, which it judges to be adequate. The ERT gained the overall impression that Monaco attached adequate importance to the registry but allocated few resources, including human resources, to the development, operation and maintenance of the registry.

90. During the in-country review, the ERT found human resources for administrative support for the Monaco national registry system to be limited (one staff member). Additional human resources are required to ensure that the national registry will be functional and will accurately account for the Kyoto Protocol transactions, including tasks such as internal documentation, website administration and rapid reaction to external requests. The ERT recommends that Monaco increase the human resources available for administrative support, including a helpdesk function. To this end the ERT requests Monaco to provide a summary of the proposed actions to be taken in this direction in its next submission under the Kyoto Protocol.

91. Table 5 summarizes the information on the mandatory reporting elements of the national registry system, as stipulated by decisions 15/CMP.1, which describes how its national registry performs functions defined in the annex to decision 13/CMP.1 and the annex to decision 15/CMP.1.

92. The ERT took note of the results of the technical assessment of the national registry, including the results of standardized testing, as reported in the independent assessment report (IAR) which was forwarded to the ERT by the administrator of the ITL, pursuant to decision 16/CP.10 on 9 April 2008.

93. The ERT reiterated the main findings of this report, including that the registry has fulfilled sufficient obligations regarding conformity with the Data Exchange Standard. These obligations include having adequate transaction procedures; adequate security measures to prevent and resolve unauthorized manipulations; and adequate measures for data storage and registry recovery.

Table 5. Summary of information on the national registry system

Reporting element	Provided in the initial report	Comments
Registry administrator		
Name and contact information	Yes	Direction de la Coopération Internationale, Département des Relations Extérieures
Cooperation with other Parties in a consolidated system		
Names of other Parties with which Monaco cooperates, or clarification that no such cooperation exists.	Yes	Monaco cooperates with Switzerland and Liechtenstein to use the same software (SERINGAS™). Elements of the register are in the servers in Bern (Switzerland), and Monaco connects via the Internet
Database structure and capacity of the national registry		
Description of the database structure	Yes	Database server: MS SQL
Description of the capacity of the national registry	No	Description is partial. Total reserved disk capacity for the registry is not provided
Conformity with data exchange standards (DES)		
Description of how the national registry conforms to the technical DES between registry systems	Yes	The results are covered in the independent assessment report (IAR)[a]
Procedures for minimizing and handling of discrepancies		
Description of the procedures employed in the national registry to minimize discrepancies in the transaction of Kyoto Protocol units	Yes	A general description is provided
Description of the steps taken to terminate transactions where a discrepancy is notified and to correct problems in the event of a failure to terminate the transaction	No	No such detailed description has yet been provided by Monaco. Procedures are mainly referenced
Prevention of unauthorized manipulations and operator error		
An overview of security measures employed in the national registry to prevent unauthorized manipulations and to prevent operator error	Yes	Security measures are put in place by the supplier in Bern (Switzerland) Covered in the IAR
An overview of how these measures are kept up to date	Yes	Measures are referenced to the service supplier in Bern (Switzerland). No detailed description has been provided by Monaco.
User interface of the national registry		
A list of the information publicly accessible by means of the user interface to the national registry	No	The results are covered in the IAR
The Internet address of the interface to Monaco´s national registry	Yes	<http://www.cooperation-monaco.gouv.mc>
Integrity of data storage and recovery		
A description of measures taken to safeguard, maintain and recover data in order to ensure the integrity of data storage and the recovery of registry services in the event of a disaster	Yes	Integrity of data storage and recovery is referenced by Monaco as guaranteed by the supplier in Switzerland. The results are covered in the IAR

Table 5 (continued)

Test results		
The results of any test procedures that might be available or developed with the aim of testing the performance, procedures and security measures of the national registry undertaken pursuant to the provisions of decision 19/CP.7 relating to the technical standards for data exchange between registry systems.	Yes	The results are covered in the IAR

[a] Pursuant to decision 16/CP.10, the administrator of the international transaction log (ITL), once registry systems become operational, is requested to facilitate an interactive exercise, including with experts from Parties to the Kyoto Protocol not included in Annex I to the convention, demonstrating the functioning of the ITL with other registry systems. The results of this exercise will be included in an independent assessment report (IAR). They will also be included in the annual report to the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol.

94. Based on the results of the technical assessment, as reported in the IAR, the ERT concluded that Monaco's national registry is sufficiently compliant with the registry requirements, as defined by decisions 13/CMP.1 and 15/CMP.1, noting that registries do not have obligations regarding operational performance or public availability of information prior to the operational phase. While the documentation evaluation, as reported in addendum 1 of the IAR, identified some minor limitations in the state of registry readiness, these limitations are to be rectified prior to the registry commencing live operations.

95. The list of the information available to the public over the internet through the national registry interface was not provided in the initial report. The ERT requests that Monaco provide the list of information that will be available to the public through the web-based national registry interface.

F. Land use, land-use change and forestry parameters and election of activities

96. Table 7 shows the Party's choice of parameters for forest definition as well as elections for Article 3, paragraphs 3 and 4, activities in accordance with decision 16/CMP.1.

Table 6. Selection of LULUCF parameters

Parameters for forest definition		
Minimum tree cover	10 per cent	
Minimum land area	0.5 hectare	
Minimum tree height	5 metres	
Elections for Article 3, paragraphs 3 and 4, activities		
Article 3.3 activities	**Election**	**Accounting period**
Afforestation and reforestation	Mandatory	Annual
Deforestation	Mandatory	Annual
Article 3.4 activities		
Forest land management	Not elected	Not applicable
Cropland management	Not elected	Not applicable
Grazing land management	Not elected	Not applicable
Revegetation	Not elected	Not applicable

97. Monaco has provide the choice of parameters for forest definition as well as its elections for Article 3, paragraph 4, activities in accordance with decision 16/CMP.1. All parameter values are within the corresponding range of values for defining a forest established by decision 16/CP.1. Monaco has not elected any activity under Article 3, paragraph 4, of the Kyoto Protocol.

III. Conclusions and recommendations

A. Conclusions

98. The ERT concludes that the information provided by Monaco in its initial report and in the update to the initial report is complete and was submitted in accordance with the provisions of paragraphs 5, 6, 7 and 8 of the annex to decision 13/CMP.1, section I of the annex to decision 15/CMP.1 and other relevant decisions of the CMP.

99. Monaco's national system meets the mandatory requirements for implementation of the general and specific functions included in the national systems guidelines.

100. The GHG inventory is in line with the Revised 1996 IPCC Guidelines and the IPCC good practice guidance. However, the NIR is not fully transparent and its structure does not fully conform with the UNFCCC reporting guidelines. During the review processes the Party and the ERT agreed on some changes to be made for some categories in the energy sector. The ERT did not recommend adjustments.

101. Based on Monaco's base year emissions – 107,657 tonnes CO_2 eq., including the revised estimates provided in the energy sectors – and its Kyoto Protocol target – 92 per cent – the Party calculates its assigned amount to be 495,221 tonnes CO_2 eq. Monaco calculates its CPR to be 445,699 tonnes CO_2 eq. The ERT agrees with these figures.

102. Monaco has provided information on the national registry system as required by decisions 13/CMP.1 and 15/CMP.1. The information was not fully transparent and was updated during the in-country visit and in the update to the initial report.

103. Based on the results of the technical assessment, as reported in the IAR, the ERT concluded that Monaco's national registry is sufficiently compliant with the registry requirements, as defined by decisions 13/CMP.1 and 15/CMP.1.

104. Monaco has provide the choice of parameters for forest definition as well as its elections for Article 3, paragraphs 3 and 4, activities in accordance with decision 16/CMP.1. All parameter values are within the corresponding range of values for defining a forest established by decision 16/CP.1. Monaco has not elected any activity under Article 3, paragraph 4, of the Kyoto Protocol.

B. Recommendations

105. In the course of the review, the ERT formulated a number of recommendations relating to the completeness and transparency of Monaco's information presented in the initial report. The key recommendations[3] are that Monaco:

(a) Improve the transparency of the inventory by revising the report structure and increasing the amount of information included in the NIR;

(b) Improve and fully implement its QA/QC plan;

(c) Develop the archiving procedures of the inventory to allow for fully centralized access to the inventory data and related information;

(d) Review the level of resources provided for the national inventories and consider their Implement cooperation with its neighbouring country (France) in order to improve comparability and methodological consistency, and prevent gaps and duplications in the estimates;

[3] For a complete list of recommendations, the relevant sections of this report should be consulted.

(e) Rectify the identified minor limitations in the state of readiness of the registry prior to the registry commencing live operations, and provide more complete and detailed information in its next submission under the Kyoto Protocol.

106. The Party responded to the ERT's requests and clarified potential problems in a timely and very professional manner.

107. The recommendations in this report should be followed up in its future reviews under the Kyoto Protocol. In particular, Monaco should improve the transparency of the NIR and fully implement and improve its QA/QC plan.

C. Questions of implementation

108. No questions of implementation were identified by the ERT during the initial review.

Annex I

Documents and information used during the review

A. Reference documents

IPCC. Good practice guidance and uncertainty management in national greenhouse gas inventories, 2000. Available at <http://www.ipcc-nggip.iges.or.jp/public/gp/english/>.

IPCC. Good practice guidance for land use, land-use change and forestry, 2003. Available at <http://www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf.htm>.

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UNFCCC secretariat. Monaco: Independent assessment report of the national registry of Monaco. Reg_IAR_MC_2008_1 will be available at <http://unfccc.int/kyoto_protocol/registry_systems/independent_assessment_reports/>.

B. Additional information provided by the Party

Responses to questions during the review were received from Mr. A. Veglia (Division/Compilateur National d'Inventaire) including additional material on the methodology and assumptions used.

Annex II

Acronyms and abbreviations

AD	activity data
CH_4	methane
CO_2	carbon dioxide
CO_2 eq.	carbon dioxide equivalent
CRF	common reporting format
EC	European Community
EIT	economy in transition
EF	emission factor
ERT	expert review team
EU	European Union
F-gas	fluorinated gas
GHG	greenhouse gas; unless indicated otherwise, GHG emissions are the sum of CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 without GHG emissions and removals from LULUCF
GJ	gigajoule (1 GJ = 10^9 joule)
GWP	global warming potential
HFCs	hydrofluorocarbons
IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Change
kg	kilogram (1 kg = 1 thousand grams)
kgoe	kilograms of oil equivalent
LULUCF	land use, land-use change and forestry
m^3	cubic metre
Mg	megagram (1 Mg = 1 tonne)
Mt	million tonnes
Mtoe	millions of tonnes of oil equivalent
NA	not applicable
N_2O	nitrous oxide
NIR	national inventory report
PFCs	perfluorocarbons
PJ	petajoule (1 PJ = 10^{15} joule)
QA/QC	quality assurance/quality control
SF_6	sulphur hexafluoride
SO_2	sulphur dioxide
Tg	teragram (1 Tg = 1 million tonnes)
TJ	terajoule (1 TJ = 10^{12} joule
UNFCCC	United Nations Framework Convention on Climate Change

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