United Nations FCCC/ARR/2015/GRC

Framework Convention on Climate Change

Distr.: General
30 August 2017

English only

Report on the individual review of the annual submission of Greece submitted in 2015*

Note by the expert review team

Summary

Each Party included in Annex I to the Convention must submit an annual greenhouse gas (GHG) inventory covering emissions and removals of GHG emissions for all years from the base year (or period) to two years before the inventory due date (decision 24/CP.19). Parties included in Annex I to the Convention that are Parties to the Kyoto Protocol are also required to report supplementary information required under Article 7, paragraph 1, of the Kyoto Protocol, with the inventory submission due under the Convention. This report presents the results of the individual inventory review of the 2015 annual submission of Greece, conducted by an expert review team in accordance with the "Guidelines for review under Article 8 of the Kyoto Protocol". The review took place from 29 August to 3 September 2016 in Bonn, Germany.

* In the symbol for this document, 2015 refers to the year in which the inventory was submitted, not to the year of publication.

GE.17-15077(E)

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Contents

I. Introduction[1]

1. This report covers the review of the 2015 annual submission of Greece organized by the UNFCCC secretariat, in accordance with the "Guidelines for review under Article 8 of the Kyoto Protocol" (decision 22/CMP.1, as revised by decision 4/CMP.11) (hereinafter referred to as the Article 8 review guidelines). As indicated in the Article 8 review guidelines, this review process also encompasses the review under the Convention, as described in 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" (hereinafter referred to as the UNFCCC review guidelines) and particularly part III, "UNFCCC guidelines for the technical review of greenhouse gas inventories from Parties included in Annex I to the Convention". The review took place from 29 August to 3 September 2016 in Bonn, Germany, and was coordinated by Mr. Tomoyuki Aizawa (UNFCCC secretariat). Table 1 provides information on the composition of the expert review team (ERT) that conducted the review of Greece.

Table 1
Composition of the expert review team that conducted the review of Greece

Area of expertise	*Name*	*Party*
Generalist	Mr. Christopher Dore	United Kingdom of Great Britain and Northern Ireland
	Ms. Kristina Saarinen	Finland
Energy	Ms. Tahira Munir	Pakistan
	Mr. Peter Seizov	Bulgaria
	Ms. Nina Uvarova	Russian Federation
IPPU	Ms. Pia Forsell	Finland
	Mr. Andrew Neal	New Zealand
Agriculture	Ms. Marci Baranski	United States of America
	Mr. Abdulkadir Bektas	Turkey
	Mr. Paulo Cornejo	Chile
	Mr. Pa Ousman Jarju	Gambia
LULUCF	Mr. Rizaldi Boer	Indonesia
	Mr. Johannes Brötz	Germany
	Ms. Oksana Butrym	Ukraine
	Ms. Naoko Tsukada	Japan
Waste	Mr. Seungdo Kim	Republic of Korea
	Ms. Mayra Rocha	Brazil
Lead reviewers	Ms. Mayra Rocha	

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

Area of expertise	*Name*	*Party*
	Ms. Kristina Saarinen	

Abbreviations: IPPU = industrial processes and product use, LULUCF = land use, land-use change and forestry.

2. This report contains findings based on the assessment by the ERT of the 2015 annual submission against the Article 8 review guidelines. The ERT has made recommendations to resolve those findings related to issues,[2] including issues related to problems.[3] Other findings, and if applicable, the ERT's encouragements to resolve them, are also included.

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

4. Annex I shows annual greenhouse gas (GHG) emissions for Greece, including totals excluding and including the land use, land-use change and forestry sector, and emissions by gas and by sector. Annex I also contains background data related to emissions and removals from activities under Article 3, paragraph 3, forest management under Article 3, paragraph 4, and additional activities under Article 3, paragraph 4, of the Kyoto Protocol, if elected, by gas, sector and activity for Greece.

5. Information to be included in the compilation and accounting database can be found in annex II.

6. The ERT notes that Greece's 2015 annual submission was delayed, consistent with decision 6/CMP.9, paragraph 4. As a result, the review of the 2015 annual submission is being held in conjunction with the review of the 2016 annual submission, in accordance with decision 10/CMP.11, paragraph 1. To the extent that identical information is presented in both annual submissions, the ERT has reviewed this information only once, and, as appropriate, has replicated the findings below in both the 2015 and the 2016 annual review report.

II. Summary and general assessment of the 2015 annual submission

7. Table 2 provides the ERT assessment of the annual submission with respect to the tasks undertaken during the review. Further information on the issues identified, as well as additional findings, may be found in tables 3 and 5 below.

Table 2
Summary of review results and general assessment of the inventory of Greece

Assessment		*Issue or problem ID #(s) in tables 3 and/or 5[a]*
Dates of submission	Original submission: 31 May 2016 (NIR), 23 May 2016, Version 4 (CRF tables), 15 April 2015 (SEF tables) Revised submissions: 14 October 2016, Version 6 (CRF tables), 20 April 2015 (SEF tables)	

[2] Issues are defined in decision 13/CP.20, annex, paragraph 81.

[3] Problems are defined in decision 22/CMP.1, annex, paragraphs 68 and 69, as revised by decision 4/CMP.11.

Assessment				*Issue or problem ID #(s) in tables 3 and/or 5[a]*
	The values from the latest submission are used in this report			
Review format	Centralized			
Application of the requirements of the UNFCCC Annex I inventory reporting guidelines and Wetlands Supplement (if applicable)	Have any issues been identified in the following areas:			
	1.	Identification of key categories	Yes	A.11
	2.	Selection and use of methodologies and assumptions	Yes	A.1, A.4
	3.	Development and selection of emission factors	Yes	E.13, E.14, L.9, W.10, W.14
	4.	Collection and selection of activity data	Yes	E.5, E.8, I.4, I.8, I.12
	5.	Reporting of recalculations	No	
	6.	Reporting of a consistent time series	Yes	E.16, E.24, I.4,
	7.	Reporting of uncertainties, including methodologies	Yes	E.1, L.4, W.11, W.13
	8.	QA/QC	QA/QC procedures were assessed in the context of the national system (see below)	
	9.	Missing categories/completeness[b]	Yes	G.1, E.23, L.3
	10.	Application of corrections to the inventory	No	
Significance threshold	For categories reported as insignificant, has the Party provided sufficient information showing that the likely level of emissions meets the criteria in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines?		No	E.22, E.23
Description of trends	Did the ERT conclude that the description in the NIR of the trends for the different gases and sectors is reasonable?		Yes	
Supplementary information under the Kyoto Protocol	Have any issues been identified in the following areas:			
	1.	National system:		
		(a) The overall organization of the national system, including the effectiveness and reliability of the institutional, procedural and legal arrangements	No	
		(b) Performance of the national system functions	No	
	2.	National registry:		
		(a) Overall functioning of the national registry	No	
		(b) Performance of the functions of the national registry and the technical standards for data exchange	No	

Assessment			*Issue or problem ID #(s) in tables 3 and/or 5[a]*
	3. ERUs, CERs, AAUs and RMUs and on information on discrepancies reported in accordance with decision 15/CMP.1, annex, chapter I.E, taking into consideration any findings or recommendations contained in the SIAR	No	
	4. Matters related to Article 3, paragraph 14, of the Kyoto Protocol, specifically problems related to the transparency, completeness or timeliness of reporting on the Party's activities related to the priority actions listed in decision 15/CMP.1, annex, paragraph 24, including any changes since the previous annual submission	No	
	5. LULUCF activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol:		
	(a) Reporting in accordance with the requirements of decision 2/CMP.8, annex II, paragraphs 1–5	No	
	(b) The Party has demonstrated methodological consistency between the reference level and reporting on forest management in accordance with decision 2/CMP.7, annex, paragraph 14	Yes	KL.1
	(c) The Party has reported information in accordance with decision 6/CMP.9	No	
	(d) The Party plans to apply the provisions for natural disturbances to afforestation and reforestation	No	
	(e) The Party plans to apply the provisions for natural disturbances to forest management	No	
	(d) Country-specific information has been reported to support provisions for natural disturbances, in accordance with decision 2/CMP.7, annex, paragraphs 33 and 34	Yes	KL.1
	(e) Other issues	No	
CPR	Was the CPR reported in accordance with the annex to decision 18/CP.7, the annex to decision 11/CMP.1 and decision 1/CMP.8, paragraph 18?	Yes	
Adjustments	Has the ERT applied an adjustment under Article 5, paragraph 2, of the Kyoto Protocol?	No	
Response from the Party during the review	Has the Party provided the ERT with responses to the questions raised, including the data and information necessary for the assessment of conformity with the UNFCCC Annex I inventory reporting guidelines and any further guidance adopted by the Conference of the Parties?	Yes	
Recommendation	On the basis of the issues identified, does the ERT	No	

Assessment			*Issue or problem ID #(s) in tables 3 and/or 5[a]*
for an exceptional in-country review	recommend that the next[c] review be conducted as an in-country review?		
Questions of implementation	Did the ERT list a question of implementation?	No	

Abbreviations: AAU = assigned amount unit, CER = certified emission reduction unit, CPR = commitment period reserve, CRF = common reporting format, ERT = expert review team, ERU = emission reduction unit, LULUCF = land use, land-use change and forestry, NIR = national inventory report, QA/QC = quality assurance/quality control, RMU = removal unit, SEF = standard electronic format, SIAR = standard independent assessment report, 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", Wetlands Supplement = *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*.

[a] The ERT identified additional issues in the general, energy, industrial processes and product use, agriculture, LULUCF and waste sectors, as well as for LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol that are not specifically listed in table 2 but are included in table 3 and/or 5.

[b] Missing categories, for which methods are provided in the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*, may affect completeness and are listed in annex III to this document.

[c] Owing to the timing of the review of the 2015 annual submission, "next" in this context refers to the review of the 2017 annual submission.

III. Status of implementation of issues and/or problems raised in the previous review report

8. Table 3 compiles all the recommendations made in the previous review report, published on 11 December 2014. For each issue and/or problem, the ERT specified whether it believes the issue and/or problem has been resolved by the conclusion of the review of the 2015 annual submission and provided the rationale for its determination, taking into consideration the publication date of the previous review report and national circumstances.

Table 3
Status of implementation of issues and/or problems raised in the previous review report of Greece

ID#	*Issue and/or problem classification[a,b]*	*Recommendation made in previous review report*	*ERT assessment and rationale*
General			
G.1	Completeness (table 3, 2014) Completeness*	Estimate and report emissions from all mandatory categories	Not resolved. See L.3 below
G.2	Transparency (12, 2014) Transparency	Undertake additional efforts to fully address those recommendations that have not yet been fulfilled	Resolved. The ERT considers that Greece has made good progress in addressing recommendations raised in previous reviews
G.3	Transparency (13, 2014) (34, 2013) Transparency*	Enhance the use of notation keys in the CRF tables	Resolved. The ERT observed only one inconsistency in the use of notation keys (see E.23 in table 5), and concluded that the use of notation keys in CRF tables has been

ID#	*Issue and/or problem classification*[a,b]	*Recommendation made in previous review report*	*ERT assessment and rationale*
			improved
G.4	QA/QC and verification (14, 2014) (34, 75 and 81, 2013) (34, 38 and 116, 2012) Adherence to UNFCCC Annex I inventory reporting guidelines	Enhance its QA/QC checks to identify and correct errors with a view to improving the consistency between the NIR and the CRF tables	Resolved. The ERT considers that Greece has significantly improved the consistency of the data presented in the NIR and the CRF tables
G.5	QA/QC and verification (14, 2014) (15(e), 2013) Transparency	Enhance its QA/QC checks to identify and correct errors with a view to improving the consistency between the NIR and the CRF tables	Resolved. The ERT considers consistency has improved between the NIR and the CRF tables though the QA/QC activities described in the NIR
G.6	QA/QC and verification (15, 2014) Transparency	Include the QA/QC plan in the next inventory submission and provide the timeline for the implementation of the sector-specific and general QA/QC procedures	Resolved. The QA/QC plan is included in the NIR (chapter 1.6). The ERT considers that Greece has significantly improved the reporting of information on the QA/QC plan, and recognizes that it has also made good progress in improving its reporting of sector-specific QA/QC procedures
G.7	Transparency (table 3, 2014) (table 3, 2013) Transparency	Provide information on the AD and EFs actually used in the calculations of GHG emissions	Resolved. The ERT considers that the reporting of EFs, AD and parameters has significantly improved to the point where the ERT did not consider this as a general issue across inventory sectors
G.8	Transparency (16, 2014) Transparency	Enhance the transparency of its reporting by providing additional information on AD and parameters used in the inventory	Resolved. The ERT considers that the reporting of AD and parameters has significantly improved to the point where the ERT did not consider this as a general issue across inventory sectors. However, see G.12 in table 5
G.9	Transparency (16, 2014) Transparency	Justify the use of default EFs under tier 2 methods for energy industries and for manufacturing industries and construction	Resolved. The Party now uses the methodologies and EFs in accordance with the 2006

ID#	*Issue and/or problem classification*[a,b]	*Recommendation made in previous review report*	*ERT assessment and rationale*
			IPCC Guidelines
Energy			
E.1	1. General (energy sector) (26, 2014) Transparency	Transparently describe in the NIR how the quantification of uncertainty estimates associated with AD and CO_2 EFs for stationary combustion is derived from EU ETS data	Resolved. The Party provided an explanation on uncertainty estimates in the NIR
E.2	Fuel combustion-reference approach – liquid fuels – general (29, 2014) Accuracy	Harmonize all data sets used for international reporting (under the UNFCCC and to the International Energy Agency)	Resolved. The error on crude oil production was corrected in the 2016 submission
E.3	Feedstocks, reductants and other non-energy uses of fuels – liquid fuels – CO_2 (31, 2014) (24, 2013) (58, 2012) Comparability*	Implement the reallocation of emissions (liquid fuels that were used as feedstock in ammonia production from the energy sector to the industrial processes sector) and transparently document the impact of this reallocation in the relevant categories as well as in the comparison between the reference and sectoral approaches	Not resolved. The NIR states that liquid fuels used as feedstock in ammonia production for the years 1990–1993 and 1995–1998 are included under the energy sector instead of the IPPU sector. This reporting is not in line with the 2006 IPCC Guidelines In the comments to the draft review report, Greece provided information to the ERT, stating that: (1) a small amount of liquid fuels have been used in the past; (2) this amount of liquid fuels is reported by aggregation in the energy balance; and (3) it is difficult to obtain the historical data because of the closure of the relevant plant. The ERT recommends that Greece provide this information in the NIR in order to resolve this recommendation
E.4	1.A.1.c Manufacture of solid fuels and other energy industries – biomass fuels – CH_4 (37, 2014) Transparency*	Transparently document in the NIR the methods used to estimate and report CH_4 emissions from charcoal production	Not resolved. In response to a question raised by the ERT during the review, the Party stated that it calculates CH_4 emissions from charcoal production using the methodology provided in

ID#	*Issue and/or problem classification*[a,b]	*Recommendation made in previous review report*	*ERT assessment and rationale*
			2006 IPCC Guidelines. However, the ERT noted that the methodology used is still not described transparently in the NIR
E.5	1.A.3.b Road transportation – liquid fuels – CO_2 (33, 2014) Accuracy*	Put measures in place to reduce statistical errors in the fuel data and improve the accuracy of LPG consumption in the energy balance	Addressing. According to the Party, actions are under way to address the statistical errors and to improve the accuracy of the LPG consumption data provided by the Hellenic Statistical Authority. The ERT recommends that the Party provide, in the NIR, a plan and schedule regarding measures to reduce statistical errors and improve the accuracy of data on LPG consumption
E.6	1.A.3.b Road transportation – liquid fuels – CO_2 (33, 2014) Transparency*	Present in tabular format a comparison of the results of fuel consumption calculations showing those results estimated using the COPERT model and the energy balance in its submission	Addressing. The description in the NIR states: "It should be noted here that COPERT IV is a simulation model for road transport sector and not an optimization one. The solution algorithm is based on the minimization of differences between energy consumption as reported in the national energy balance account and the estimated (by the model) energy consumption. There are two pools of data." The ERT notes that the comparison between the data sets is not provided in the NIR
E.7	1.A.3.b Road transportation – liquid fuels – CO_2 (34, 2014) Transparency*	Reallocate emissions from ground activities at airports from road transportation to other transportation	Not resolved. The Party informed the ERT during the review that it will report these emissions separately under "Other transportation" in the next submission
E.8	1.A.3.d Domestic navigation – liquid fuels – CO_2 (35, 2014) (28, 2013)	Introduce plans and measures aimed at improving CO_2 emission estimates from navigation by gathering information on the number of arrivals and departures, destination and fleet composition and, if necessary, take into consideration the	Resolved. The ERT noted that Greece's NIR states that the method applied to CO_2 estimates is a tier 2 one with country-specific EFs, which is

ID#	*Issue and/or problem classification*[a,b]	*Recommendation made in previous review report*	*ERT assessment and rationale*
	(66, 2012) Accuracy*	experiences of other Parties in gathering such data	in line with the 2006 IPCC Guidelines
E.9	1.A.4 Other sectors – biomass fuels – CH_4 and N_2O (39, 2014) Transparency*	Transparently document in the NIR the methods used to estimate CH_4 and N_2O emissions from charcoal use	Not resolved. The methodology used is still not described transparently in the NIR. During the review, in response to a question raised by the ERT, the Party explained that CH_4 and N_2O emissions from charcoal use are calculated using the methodology provided in 2006 IPCC Guidelines
E.10	1.B.2 Oil and natural gas and other – liquid fuels – CO_2 and CH_4 (40, 2014) Transparency*	Document in the NIR the justification for its use and selection of EFs (the mid-range of CH_4 and CO_2 EFs from the Revised 1996 IPCC Guidelines) for this category	Resolved. It is stated in the NIR that the EF values are taken from the middle of the range provided in the 2006 IPCC Guidelines. In response to the draft review report, Greece explained that it selected the average of the EFs because the 2006 IPPC Guidelines provide a range but no further guidance
E.11	1.B.2.c Venting and flaring – gaseous and liquid fuels – CO_2 and CH_4 (27, 2014) Not an issue	Report CO_2 and CH_4 emissions from oil transport, which have been allocated under venting, separately under oil transport	No longer relevant. The methodology used by the Party for estimating fugitive emissions from natural gas pipeline transport has been changed from the tier 1 method (as given in the IPCC good practice guidance) to the tier 1 method from the 2006 IPCC Guidelines
IPPU			
I.1	2.B.1 Ammonia production – CO_2 (50, 2014) Accuracy	Correct an identified error (in the calculation sheet for ammonia production) and assess whether improvements should be made to the QC checks for this sector	Resolved. The correct figure has been provided
I.2	2.B.10 Other (chemical industry) – CO_2 (51, 2014) Comparability*	Continue the work to estimate the amount of liquid fuels used as feedstocks for hydrogen production and report associated CO_2 emissions in other (chemical industry)	Not resolved. The ERT recommends that the Party provide, in the NIR, a workplan and a schedule for the finalization of this improvement

ID#	*Issue and/or problem classification*[a,b]	*Recommendation made in previous review report*	*ERT assessment and rationale*
I.3	2.C.1 Iron and steel production – CO_2 (52, 2014) Transparency	Expand on the discussion of the IEF trend in the NIR, including the information provided to the ERT during the review (data on the quantity and average carbon content of the different inputs and outputs)	Resolved. The Party has satisfactorily described the IEF differences within the NIR
I.4	2.F. Product uses as substitutes for ozone-depleting substances – HFCs (46, 2014) (36, 2013) Consistency*	Implement the results of the new survey (to be published in 2015) in the annual submission	Addressing. Results from the survey are not included in the 2016 submission. However, Greece indicated that it expects to include them in the next submission
I.5	2.F. Product uses as substitutes for ozone-depleting substances – HFCs (47, 2014) Transparency	Report data for transport refrigeration units for both new registrations and the total units in operation in the NIR	Resolved. The 2016 NIR includes a reference to both new and total transport refrigeration units
I.6	2.F. Product uses as substitutes for ozone-depleting substances – HFCs (48, 2014) Transparency*	Improve the transparency of the NIR by including information similar to that provided to the ERT during the review on assumptions used in calculating emissions from refrigeration and air-conditioning equipment, including a plan for periodically verifying the expert judgments, because production and operating standards change over the years	Not resolved. The ERT noted that the description of this subcategory in the NIR appears to be largely identical (or has less information) to that in the 2014 NIR
I.7	2.F.1 Refrigeration and air conditioning – HFCs (45, 2014) Adherence to UNFCCC Annex I inventory reporting guidelines	Correct an identified error in the values for residential refrigeration (values for 2003 had been reported in the NIR for 2012)	Resolved. The values are now correct
I.8	2.F.2 Foam blowing agents (44, 2014) Accuracy*	Continue the dialogue with the industry association, the Pan-Hellenic Association of Insulating Companies, in order to increase the percentage of respondents to the survey on imported foam products	Addressing. Greece has continued the dialogue and seen additional responses. The 2016 submission did not include the results of this survey, as they were not yet available. During the 2016 review, Greece confirmed that the survey results are now published and would be used in the next submission. The ERT encourages the Party to continue attempting to

ID#	*Issue and/or problem classification*[a,b]	*Recommendation made in previous review report*	*ERT assessment and rationale*
			increase response rates
I.9	2.F.2 Foam blowing agents (44, 2014) Transparency*	Provide more information on the representativeness of the respondents to the survey	Not resolved. The ERT notes that the description in the 2016 NIR is almost identical to that in the 2014 NIR
Agriculture			
A.1	3. General (agriculture) (17, 2014) Accuracy*	Derive country-specific parameters and use higher tier methods for key categories (enteric fermentation from goats and N_2O from manure management) in the agriculture sector	No longer relevant. Direct and indirect N_2O emissions from agricultural soils are still estimated using tier 1 methods, although Greece reported in its NIR (table I.1) that direct N_2O emissions are the most relevant source of emissions from the agriculture sector. However, the ERT noted that figure 11.2 of the 2006 IPCC Guidelines allows tier 1 default EF and country-specific AD if there are no rigorously documented country-specific EFs for EF_1, EF_2 and/or $EF_{3\ PRP}$
A.2	3. General (agriculture) (55, 2014) Transparency	Provide sufficient information for those categories to improve the transparency of its reporting	Resolved. Greece has included more detailed information in its NIR about the methodologies and parameters used and the assumption made, for which the ERT commends Greece
A.3	3.A Enteric fermentation – CH_4 (57, 2014) Transparency*	Provide an explanation of how the equation using country-specific values for the methane conversion rate (Ym) and digestibility was developed	Not resolved. Although Greece has included more information in the NIR and provided additional information during the review week, for which the ERT commends Greece, the key parameters that facilitate the replication of the estimation by the ERT were not provided in the NIR
A.4	3.A.4 Other livestock – CH_4 (58, 2014) Accuracy*	Provide an update in its annual submission on this improvement (plan to develop a tier 2 methodology to estimate CH_4 emissions from goats)	No longer relevant. During the review week, in response to a question raised by the ERT, Greece clarified that there is no proposed tier 2 methodology from the 2006

ID#	*Issue and/or problem classification*[a,b]	*Recommendation made in previous review report*	*ERT assessment and rationale*
			IPCC Guidelines for the estimation of CH_4 emissions from goats and stated that it will improve the methodology only when fully justified parameters and equations have been collected from the literature
A.5	3.A.4 Other livestock – CH_4 (59, 2014) Transparency*	Show all EFs in tabular format, and also provide detailed information to explain the reasons for using the Swiss EF for poultry	Addressing. Although Greece has included some EFs in the NIR, the rationale for the use of the Swiss EF for poultry has not been included. During the review, Greece explained that the Swiss approach was used because no default methodology is provided in the 2006 IPCC Guidelines. The ERT recommends that Greece include in the NIR the explanation it provided to the ERT during the review, in addition to all EFs, to improve the transparency of the inventory
A.6	3.B Manure management – N_2O (60, 2014) (51, 52 and 54, 2013) Transparency	Include detailed explanations on the estimation method for the allocation of manure management systems for other cattle and buffalo	Resolved. Greece has improved the information on this matter considerably, and the ERT commends Greece for this improvement
A.7	3.B Manure management – N_2O (61, 2014) Transparency*	Provide all the N_2O EFs and parameters used for calculating N_2O emissions, for example in tabular format	Addressing. Greece has improved some of the information on this matter, for which the ERT commends Greece. During the review week, Greece provided additional information in tabular format
A.8	3.D.a Direct N_2O emissions from managed soils – N_2O (62, 2014) Transparency*	Improve the transparency of its reporting by including in its annual submission all equations, all factors and the N values of all AD applied to soils that are used to estimate N_2O emissions	Not resolved. The ERT considers the explanation included by Greece in its NIR to be insufficient. Greece has not included all the AD and EFs used, and a detailed explanation on how the methodology has been applied has also not been included

ID#	*Issue and/or problem classification*[a,b]	*Recommendation made in previous review report*	*ERT assessment and rationale*
A.9	3.B Manure management – CH_4 (64, 2014) Transparency*	Include additional information on the CH_4 EFs and parameters used for cattle and sheep in tabular format	Not resolved. The ERT found the explanation included in the NIR to be insufficient. Greece has not included all the CH_4 EF and parameters used
LULUCF			
L.1	4. General (LULUCF) (67, 2014) (57, 2013) (98, 2012) Transparency*	Provide transparent information on how the annual land-use change matrices have been developed and report a complete set of annual land-use change matrices in its next annual submission	Addressing. Land use and land-use change matrices have been developed for 1990–2014; however, no clear information is provided on how the data from the previous sources are synchronized in the matrices. The ERT considers information on the method and approach used when developing the matrices is missing. See also L.8 in table 5 In response to the draft review report, Greece stated that complete information on land-use definitions, classification systems and their correspondence to the LULUCF categories, on approaches used for representing land areas, and on land-use databases used is included in the 2016 NIR (sections 6.2, 6.3; further information is also provided in the corresponding sectoral sections). The data sources used in the preparation of the land-use matrices, information on how they have been used for the various land use and land-use changes categories, and the methods and approaches for the development of the land-use change matrices are detailed in the NIR. However, this does not change the view of the ERT that no clear information is provided on how the data from the

ID#	*Issue and/or problem classification*[a,b]	*Recommendation made in previous review report*	*ERT assessment and rationale*
			previous sources are synchronized in the matrices
L.2	4. General (LULUCF) (68, 2014) Consistency	Include an explanation of the differences in area data reported in the CRF tables when compared with corresponding data reported by the Party to FAO for forest land, land remaining forest land and lands converted to forest land, and provide the rationale for the selection of area data used for the development of annual land-use change matrices, including assessment of areas of natural forest expansion	Resolved. The Party provided an explanation on the inconsistency during the review: the data reported by the Party to FAO are not from the Party but from the desk study conducted by the Global Forest Resources Assessments
L.3	4. General (LULUCF) (70, 2014) (59, 2013) Completeness*	Make efforts to collect the necessary information and report the AD and emission/removal estimates for the carbon stock changes in the living biomass and dead organic matter pools in grassland converted to forest land; and carbon stock changes in living biomass in cropland converted to settlements in future annual submissions	Addressing. The Party has made efforts to improve the completeness of its submission by estimating the missing mandatory categories and carbon pools which were previously reported as "NE". Some of the data come from neighbouring countries with similar climate conditions and also from expert judgment. The ERT commends Greece for its efforts and encourages the Party to develop its own data
L.4	4. General (LULUCF) (72, 2014) (60, 2013) Transparency*	Provide detailed and transparent information on the uncertainty assessment for the LULUCF sector	Addressing. The Party has provided detailed information on the uncertainty assessment; however, it is still not clear how the uncertainty values for AD and EFs were developed. The Party should provide information on the methods and approach used for deriving uncertainty values for EFs, and the ERT encourages Greece to implement a higher tier uncertainty assessment, particularly for key categories (forest land remaining forest land, cropland remaining cropland, land conversion to grassland and harvested wood products)
Waste			
W.1	5. General (waste)	Enhance QC procedures to prevent incorrect or	Not resolved. The ERT noted

ID#	*Issue and/or problem classification*[a,b]	*Recommendation made in previous review report*	*ERT assessment and rationale*
	(78, 2014) (75, 2013) Adherence to UNFCCC Annex I inventory reporting guidelines	inconsistent numbers in figures and tables in the NIR (e.g. in table 8.18 the column "Total" contains incorrect values) in future annual submissions	that Greece deleted the column "Total"; however, the ERT considers that the column should be kept, with corrected values, rather than being deleted, in line with the title of the table
W.2	5.A Solid waste disposal on land – CH_4 (79, 2014) (78 and 79, 2013) Adherence to UNFCCC Annex I inventory reporting guidelines	Enhance QC procedures to prevent inconsistencies (e.g. the waste amounts presented in the flow chart do not correspond with the waste amounts in CRF table 6.A, and there are similar discrepancies for other waste types (industrial, construction and demolition)) in its future annual submissions	Not resolved. The ERT observed that there are still inconsistencies in the reporting of values between the NIR and the CRF tables
W.3	5.D Wastewater treatment and discharge – CH_4 (80, 2014) (80, 2013) Transparency*	Include all important parameters (especially MCF) for all types of treatment in the NIR to further increase the transparency of its reporting	Not resolved. The ERT observed that all important parameters for all types of treatment are still not shown transparently in the NIR
W.4	5.D Wastewater treatment and discharge – CH_4 (81, 2014) Transparency*	Change its reporting on CH_4 recovery either by providing an estimate of the amount of recovered CH_4, or by replacing the currently used notation key with "NE" for the case where no numerical estimate is available	Not resolved. The Party has used the notation key "NO" in the 2016 CRF tables continuously
W.5	5.D Wastewater treatment and discharge – CH_4 (82, 2014) Adherence to UNFCCC Annex I inventory reporting guidelines	Increase the consistency of information between the NIR and the CRF tables, preferably by also reporting the total organic waste from the relevant industries in the CRF tables	Not resolved. The ERT observed that there is still inconsistency between the NIR and the CRF tables (e.g. for 2014 total organic product, the sum of COD values is 249.34 kt in table 7.19 of the NIR and 162.55 kt in CRF table 5.D)
KP-LULUCF			
		No recommendations were included in the 2014 annual review report	

Abbreviations: AD = activity data, COD = chemical oxygen demand, CRF = common reporting format, EF = emission factor, ERT = expert review team, EU ETS = European Union Emissions Trading System, FAO = Food and Agriculture Organization of the United Nations, GHG = greenhouse gas, IEF = implied emission factor, IPCC = Intergovernmental Panel on Climate Change, IPCC good practice guidance = *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*, IPPU = industrial processes and product use, KP-LULUCF = LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, LPG = liquefied petroleum gas, LULUCF = land use, land-use change and forestry, MCF = methane correction factor, N = nitrogen, NE = not estimated, NIR = national inventory report, QA/QC = quality assurance/quality control, Revised 1996 IPCC Guidelines = *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, 2006 IPCC Guidelines = *2006 IPCC Guidelines for National Greenhouse Gas Inventories*.

[a] References in parentheses are to the paragraph(s) and the year(s) of the previous review report(s) where the issue was raised. Issues are further classified as defined in decision 13/CP.20, annex, paragraph 81. In the review of the supplementary information reported in accordance with Article 7, paragraph 1, of the Kyoto Protocol, the ERT has applied the classification in decision 22/CMP.1, annex, paragraph 69, in conjunction with decision 4/CMP.11.

[b] An asterisk is included next to each issue type for all issues that are also problems, as defined in decision 22/CMP.1, annex, paragraphs 68 and 69, including those that lead to an adjustment or a question of implementation.

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

9. In accordance with paragraph 83 of the UNFCCC review guidelines, the ERT noted that the issues included in table 4 have been identified in three successive reviews, including the review of the 2015 annual submission of Greece, and have not been addressed by the Party.

Table 4
Issues identified in three successive reviews and not addressed by Greece

ID#[a]	*Previous recommendation for the issue identified*	*Number of successive reviews issue not addressed*
General		
	No such general issues were identified	
Energy		
E.3	Implement the reallocation of emissions (liquid fuels that were used as feedstock in ammonia production from the energy sector to the industrial processes sector) and transparently document the impact of this reallocation in the relevant categories as well as in the comparison between the reference and sectoral approaches	4 (2012–2015/2016)
IPPU		
I.4	Implement the results of the new survey (to be published in 2015) in the annual submission	3 (2013–2015/2016)
Agriculture		
	No such issues for the agriculture sector were identified	
LULUCF		
L.1	Provide transparent information on how the annual land-use change matrices have been developed and report a complete set of annual land-use change matrices in its next annual submission	4 (2012–2015/2016)
L.3*	Make efforts to collect the necessary information and report the AD and emission/removal estimates for the carbon stock changes in the living biomass and dead organic matter pools in grassland converted to forest land; and carbon stock changes in living biomass in cropland converted to settlements in future annual submissions	3 (2013–2015/2016)
L.4	Provide detailed and transparent information on the	3 (2013–2015/2016)

ID#[a]	*Previous recommendation for the issue identified*	*Number of successive reviews issue not addressed*
	uncertainty assessment for the LULUCF sector	
Waste		
W.1	Enhance QC procedures to prevent incorrect or inconsistent numbers in figures and tables in the NIR (e.g. in table 8.18 the column "Total" contains incorrect values) in future annual submissions	3 (2013–2015/2016)
W.2	Enhance QC procedures to prevent inconsistencies (e.g. the waste amounts presented in the flow chart do not correspond with the waste amounts in CRF table 6.A, and there are similar discrepancies for other waste types (industrial, construction and demolition)) in its future annual submissions	3 (2013–2015/2016)
W.3	Include all important parameters (especially MCF) for all types of treatment in the NIR to further increase the transparency of its reporting	3 (2013–2015/2016)
KP-LULUCF		
	No such issues for KP-LULUCF activities were identified	

Abbreviations: AD = activity data, CRF = common reporting format, IPPU = industrial processes and product use, KP-LULUCF = LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, LULUCF = land use, land-use change and forestry, MCF = methane correction factor, NIR = national inventory report, QC = quality control.

[a] An asterisk is included after any issue ID# where the underlying issue is related to accuracy or completeness of a key category, a missing category or a potential key category, as indicated in decision 13/CP.20, annex, paragraph 83.

V. Additional findings made during the 2015 technical review

10. Table 5 contains findings made by the ERT during the technical review of the 2015 annual submission of Greece that are additional to those identified in table 3 above.

Table 5
Additional findings made during the 2015 technical review of the annual submission of Greece[a]

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is the finding an issue[b] and/or a problem[c]? If yes, classify by type*
General			
G.10	Transparency	The ERT noted that in the whole of the NIR, nitrogen trifluoride (NF_3) is only mentioned in sections ES1 and 1.1.2, which refer to the pollutant coverage. The ERT recognizes that emissions of NF_3 are reported in the CRF tables using the notation keys "NA" and "NO". The ERT also noted that there is no text in the NIR explaining the use of the notation keys "NA" and "NO" for NF_3	Yes. Transparency *
		The ERT recommends that the Party add text to all relevant sections of the NIR to explain the reporting of NF_3 emissions	
G.11	Inventory management	Although the NIR does include some explanations regarding inventory improvements (e.g. in sections 1 and 8 of the NIR), the ERT considers that the NIR does not contain sufficient explanation of the management of the improvement process within the national system. During the review week, in response to a question raised by the ERT, the Party provided information on how inventory improvements are managed within the national system	Not an issue
		The ERT encourages the Party to include in future NIRs the information on how inventory improvements are managed within the national system, and more information to demonstrate effective management of the emissions inventory improvement process	
G.12	QA/QC and verification	The text in section 1.6 of the NIR refers to the existence of independent QA audits, and several sections refer to a recent bilateral project with Spain. However, the ERT considers that there is currently insufficient information on the extent to which independent QA activities are, and have been, undertaken. During the review week, in response to a question raised by the ERT, the Party provided information outlining regular QA activities and on recent independent reviews of the national emissions inventory	Not an issue
		The ERT encourages the Party to include in future NIRs the information outlining regular QA activities and on recent independent reviews of the national emissions inventory to demonstrate that the QA/QC activities within the national system are being undertaken to a good standard	
G.13	Transparency	The text accompanying figure 2.3 in the NIR indicates that, for CH_4, across the time series "emissions present an abrupt decrease in 2001 mainly due to waste sector". The ERT notes that this is clearly evident from figure 2.3, but the text does not provide the reason(s) for the abrupt decrease. This is also the case for figure 7.1. The ERT requested that the Party provide information on the reasons for this decrease, and the Party provided this information during the review week	Not an issue

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is the finding an issue[b] and/or a problem[c]? If yes, classify by type*
		The ERT encourages the Party to include this explanatory information in the NIR to support the information presented in figures 2.3 and 7.1	
G.14	Kyoto Protocol units	The ERT noted from the SIAR that Greece did not provide full referencing to publicly available account information in accordance with decision 13/CMP.1, annex, paragraph 45. Information is included on page 414 of the NIR; however, the ERT notes that up-to-date information is available (e.g. at <https://etsregistry.webgate.ec.europa.eu/euregistry/GR/public/reports/publicReports.xhtml>)	Yes. Transparency*
		The ERT reiterates the recommendation in the SIAR that Greece include, in its next submission, an updated reference to the location of the required information	
G.15	Kyoto Protocol units	The ERT noted from the SIAR that Greece did not provide full referencing to publicly available holding and transaction information in accordance with decision 13/CMP.1, annex, paragraph 47. Information is included on page 414 of the NIR; however, up-to-date information is available (e.g. at <https://etsregistry.webgate.ec.europa.eu/euregistry/GR/public/reports/publicReports.xhtml>. Holding and transaction information is available from the annual SEF reports for the first commitment period, because some information is classified as confidential. However, the ERT noted that the SEF reports for the second commitment period relating to the reported period have not been made available	Yes. Transparency*
		The ERT reiterates the recommendation in the SIAR that Greece update the publicly available information and provide SEF reports for 2014 and 2015 for the second commitment period	
Energy			
E.12	1. General (energy sector) – gaseous fuels – CO_2	Indirect CO_2 emissions are reported as "NE" from 1990 to 2013, and for 2014 the cell in CRF table 6 is blank. The Party has provided an explanation that the missing notation keys are due to problems with the CRF Reporter software	Yes. Comparability*
		The ERT recommends that Greece continue to try to fill the empty cells of the CRF tables or, if necessary, provide information on the problem in its NIR in the next submission	
E.13	1.A Fuel combustion – sectoral approach – gaseous fuels – CO_2	The ERT noted that a range of carbon contents (15.95–16.22 t C/TJ) for domestic natural gas is indicated in the NIR (table 3.13), while the only EF value used (56.95 t CO_2/TJ) is derived from the range. The Party explained that this is a misprint and provided detailed and satisfactory explanations on country-specific EF development to the ERT during the review. The ERT commends the Party for its efforts to develop country-specific EFs	Yes. Transparency*

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is the finding an issue[b] and/or a problem[c]? If yes, classify by type*
		The ERT recommends that the Party correct the misprint by replacing the data on the carbon content of natural gas, currently a range of values ("15.95–16.22"), with the values "15.95, 16.22"	
E.14	1.A.1.a.i Electricity generation – solid fuel– CO_2	The methodology on stationary combustion provided in the 2006 IPCC Guidelines assumes that the carbon oxidation factor equals 1. The ERT noted that the Party has applied an oxidation factor value of 98% for lignite (table 3.13 of the NIR), but did not provide in the NIR an explanation for its use of this oxidation factor. During the review, in response to a question raised by the ERT, the Party provided a satisfactory explanation of the use of the value 98%, which is based on a study from the Public Power Company (PPC) in 1994, "Estimation of the CO_2 emission factors for the lignite used by the PPC", and in the study the oxidation factor was based on measurements carried out in all lignite plants in Greece	Yes. Transparency*
		The ERT recommends that the Party include in the NIR: the rationale for using plant-specific data (oxidation factor value of 98% for lignite); a link to the study conducted by the Public Power Corporation (PPC, 1994); and a general description of the development of the oxidation factor	
E.15	1.A.1.b Petroleum refining – liquid fuels – CH_4	The NIR (p. 115, section "Petroleum refining") states: "It is noted that only CO_2 and N_2O emissions from catalytic cracking are included in this sub-source category, while CH_4 emissions are supposed to be included in fugitive emissions from fuels". During the review, in response to a question raised by the ERT, the Party provided an explanation of the allocation of these emissions, especially for CH_4	Yes. Transparency*
		In order to improve the transparency of the NIR, the ERT recommends that the Party include, in the NIR of the next submission, a transparent explanation of the reallocation of these emissions	
E.16	1.A.1.b Petroleum refining – gaseous fuels – CO_2	There are large inter-annual changes in the CO_2 IEF between 2012 (66.75 t/TJ) and 2013 (69.55 t/TJ). Specifically, the 2013 value is 4.5% higher than the 2012 value	Yes. Consistency*
		The ERT recommends that the Party identify the reasons for the inter-annual changes in the CO_2 IEF, ensure that the time series is consistent, if necessary, and include in the NIR an explanation for the changes	
E.17	1.A.2.b Non-ferrous metals – gaseous fuels – N_2O	The ERT noted that the N_2O IEF in 2014 (1.0 kg/TJ) is higher than the IPCC default value (range, 0.03–0.3 kg/TJ). Greece informed the ERT that this is the result of an error, which was identified during the internal review	Yes. Accuracy*
		The ERT recommends that the Party correct the identified error in the N_2O IEF in the next submission, as well as include information on the internal review in the QA/QC section of the	

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is the finding an issue[b] and/or a problem[c]? If yes, classify by type*
		NIR	
E.18	1.A.2.f Non-metallic minerals – liquid fuels – CO_2	The inter-annual change of the CO_2 IEF between 2012 (82.00 t/TJ) and 2013 (87.09 t/TJ) has been identified as an outlier. The 2013 value is 6.3% higher than the 2012 value. In addition, the following inter-annual change has also been identified as an outlier: 2003/2004 (+4.3%). In response to a question raised by the ERT during the review, the Party provided an explanation on these inter-annual changes of the CO_2 IEF	Yes. Transparency*
		The ERT recommends that the Party include the explanation on the inter-annual change of the CO_2 IEF in the next submission	
E.19	1.B.1.a.2 Surface mines – gaseous fuels – CH_4	According to the NIR, the IPCC default CH_4 EF (1.2 m^3/t) has been used to estimate emissions from surface mining activities as well as post-mining activities. The ERT noted that, according to the 2006 IPCC Guidelines (vol. 2, p. 4.18), the CH_4 EF (1.2 m^3/t) is applicable to surface mining activities and does not cover post-mining activities, and the CH_4 EFs for post-mining activities under the category surface mining are provided in the 2006 IPCC Guidelines (0.1 m^3/t) (vol. 2, equation 4.18). During the review, in response to a question raised by the ERT, the Party confirmed that the default EF for post-mining activities under surface mining has been applied and that, in order to improve transparency, the Party will include a description of the methodology used for the 1.B.1.a.2 category in the next submission	Yes. Transparency*
		The ERT recommends that Greece include in its next submission a transparent description of the methodology used for this category	
E.20	1.B.1.b Solid fuel transformation – solid fuels – CH_4	The Party has excluded CH_4 emissions from charcoal consumption from category 1.B.1.b in its submissions from 2015 onwards. According to the Revised 1996 IPCC Guidelines (which was the basis for the Party's 2014 submission), CH_4 from charcoal activities consists of CH_4 emissions from wood combustion during charcoal production and CH_4 emissions from charcoal combustion during charcoal use, and was previously reported under the category 1.B.1. As a result of the application of the 2006 IPCC Guidelines, Greece has reallocated CH_4 emissions from charcoal production to 1.A.1.c (Manufacture of solid fuels and other energy industries), while CH_4 emissions from charcoal use have been reallocated under 1.A.4.b (Other sectors – residential). During the review, in response to a question raised by the ERT, the Party explained that emissions associated with all charcoal activities are now reported under 1.A.4.b (Other sectors – residential). The ERT accepts the explanation	Not an issue
E.21	1.B.2 Oil and natural gas and other –	The ERT noted that the Party has used average EF values from the range from the 2006 IPCC Guidelines to calculate fugitive emissions from oil and natural gas. However, the rationale on the	Not an issue

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is the finding an issue[b] and/or a problem[c]? If yes, classify by type*
	liquid and gaseous fuels – CO_2, CH_4 and N_2O	choice of EFs was not described in the NIR During the review, Greece informed the ERT that it: (1) applied a tier 1 method with the default EFs; (2) selected the average of the default EFs, as seemed to be logical given that the 2006 IPPC Guidelines provide a range of EFs without further guidance; and (3) reported the situation in the NIR	
E.22	1.B.2 Oil and natural gas and other – liquid and gaseous fuels – CO_2, CH_4 and N_2O	The ERT noted that the Party has used the notation key "NO" for emissions from 1.B.2.a.1 (Oil exploration) and 1.B.2.b.1 (Natural gas exploration), although oil and gas production processes are occurring in the country. According to the 2006 IPCC Guidelines, exploration activities comprise well drilling, well testing and well servicing. During the review, in response to a question raised by the ERT, the Party explained that there are only very small amounts of production of natural gas and oil, and the Party provided estimates which indicate that the expected emissions from these categories are under the significance threshold. In addition, the Party agreed to replace the incorrect notation key, "NO", with the correct one ("NE") The ERT recommends that the Party report these emissions as "NE" and provide explanations in its NIR that show these emissions are below the significance thresholds indicated in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines	Yes. Transparency*
E.23	1.B.2.a.3 Transport – liquid fuels – CO_2	The Party has used a combination of "NA" and "NO" notation keys for CO_2 emissions from 1.B.2.a.3 (Oil transport), while CH_4 emissions from the same category are reported in the CRF tables. The Party reported that the methodology used to estimate CO_2 from 1.B.2.a.3, as well as the EF range, are provided in the 2006 IPCC Guidelines. However, the ERT noted that the description of the use of the notation keys mentioned above is not provided in the NIR. During the review, in response to a question raised by the ERT, the Party explained that the expected emissions from this category are under the significance threshold. In addition, the Party agreed to replace the incorrect notation keys, "NO" and "NA", with the correct one ("NE") The ERT recommends that the Party replace the "NA" and "NO" notation keys with the "NE" notation key for CO_2 from the category 1.B.2.a.3 (Oil transport) and provide explanations in its NIR that show these emissions are below the significance thresholds indicated in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines	Yes. Completeness*
E.24	International aviation	The ERT noted that in order to improve the reliability of the allocation of landings and take-offs between domestic and international aviation, the Party shifted from using data from the Civil Aviation Organization to EUROCONTROL data from 2012 onwards. The ERT commends the Party for its efforts to improve the reliability of the AD used in the calculations and to produce a preliminary comparison between two data sets. During the review, in response to a question	Yes. Consistency*

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is the finding an issue[b] and/or a problem[c]? If yes, classify by type
		raised by the ERT, the Party stated that the data from EUROCONTROL are available for 2005–2015 The ERT recommends that the Party ensure the consistency of the time-series in accordance with the 2006 IPCC Guidelines by applying the EUROCONTROL data for the years 2005–2015, and transparently describe these changes in the NIR	
IPPU			
I.10	2.F. Product uses as substitutes for ozone-depleting substances – F-gases	The Party includes recovery emissions as part of its reporting for substitutes for ozone-depleting substances (ODS) (CRF table 2.B-H). However, the explanation related to recovery of HFCs in the NIR is insufficient. Page 162 of the 2016 NIR states: "For the recycling amount of F-gases in refrigeration and air-conditioning, the data are provided by the Appliances Recycling SA" The ERT recommends that the Party increase the transparency of its inventory by providing information about recovery of HFCs, including how gases are recovered at end of life and what is done to the recovered gas	Yes. Transparency*
I.11	2.F. Product uses as substitutes for ozone-depleting substances – F-gases	In response to a question raised by the ERT, the Party confirmed that there was a "copy and paste" error in the Party's Excel file that had been used to import the values into the CRF Reporter software. Specifically, one line of data for 2.F.1.f Stationary air conditioning (HFC-134a) contained incorrect data for the amount "Remaining in products at decommissioning" The ERT recommends that the Party correct the AD and emissions for category 2.F.1.f	Yes. Accuracy*
I.12	2.F.1 Refrigeration and air conditioning – F-gases	During the 2014 review, Greece had stated that they expected a new survey on refrigeration to be completed in time for the 2015 submission. The current submission did not include results of this survey, as they were not yet available. During the review, Greece confirmed that the survey results are now published and will be used in the next submission The ERT recommends that the Party use the results of the newly published survey on refrigeration in the next annual submission	Yes. Accuracy*
I.13	2.F.2 Foam blowing agents – F-gases	In response to a question raised by the ERT during the review, Greece confirmed that the implementation of the 2006 IPCC Guidelines had a considerable effect on the time series of emissions for foam blowing agents. The new default EFs are applied for the year of manufacture and for annual losses in the following years. The trend of the recalculated time series has a different trend than that reported previously. Greece confirmed that the calculations are correct. However, the ERT noted that the description of foam blowing in the 2016 NIR has not been	Yes. Transparency*

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is the finding an issue[b] and/or a problem[c]? If yes, classify by type*
		changed from that in the 2014 submission	
		The ERT recommends that Greece provide an updated discussion on the time series of emissions for foam blowing agents in the next submission	
Agriculture			
A.10	3. General (agriculture)	The ERT identified minor inconsistencies between the NIR and CRF tables. For example, Greece has included table 5.4 in its 2016 NIR presenting the method applied for rice cultivation and field burning of agricultural residues as "D" (default) whereas this has been marked as tier 1 in the CRF tables. In the same table in the NIR, Greece has presented the method applied for N_2O emissions from agricultural soils as tier 1a and tier 1b, whereas in the CRF tables it has been marked as T1. The values of CH_4 emissions from rice cultivation in table 5.15 of the NIR are different by an order of magnitude than those in CRF table 10.s1, even though both values have been reported using the same unit (kilotonnes, kt)	Yes. Adherence to UNFCCC Annex I inventory reporting guidelines*
		During the review week, in response to a question raised by the ERT, Greece indicated that the tier 1 method has been used and that the values in table 5.15 are reported in megatonnes (Mt) whereas in CRF table 10.s1 emissions are reported in kt. Greece indicated that this information will be corrected in the next submission	
		The ERT recommends that Greece enhance the QA/QC system and correct all the identified reporting inconsistencies between the NIR and the CRF tables in its next submission	
A.11	3. General (agriculture)	In table 5.3 of its 2016 NIR, Greece has presented key categories from the agriculture sector (excluding LULUCF), with N_2O emissions from manure management marked as a key category for level assessment. However, the ERT noted that Greece has included in table I.1 of the NIR that manure management is currently a key category for CH_4 emissions	Yes. Adherence to UNFCCC Annex I inventory reporting guidelines
		The ERT recommends that Greece correct NIR table 5.3 by including CH_4 emissions from manure management because this is a key category in level assessment	
A.12	3. General (agriculture)	Greece mentioned several times its NIR that the IPCC good practice guidance has been used to estimate emissions from the agriculture sector (pp. 252, 254, 258, 259, 262, 269, 272, 276, 277, 279, 280, 281 and 282). The ERT noted that this is not in line with paragraph 9 of the UNFCCC Annex I inventory reporting guidelines, according to which: "Annex I Parties shall use the methodologies provided in the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*"	Yes. Adherence to UNFCCC Annex I inventory reporting guidelines*
		During the review week, Greece indicated that there was a typing error in the reference of the guidelines and confirmed that the 2006 IPCC Guidelines have been used. Greece indicated that this information will be included in the next submission	

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is the finding an issue[b] and/or a problem[c]? If yes, classify by type
		The ERT recommends that Greece correct this error	
A.13	3. General (agriculture)	Greece mentioned in its NIR (pp. 255, 256, 257, 260, 261 and 262) that a three-year average number of animals has been used to estimate the animal populations for the period 1990–2014. The ERT noted that this is not in line with equation 10.1 in the 2006 IPCC Guidelines, where the annual average population is estimated using the number of animals produced annually	Yes. Adherence to UNFCCC Annex I inventory reporting guidelines*
		During the review week, Greece indicated that there is a typing error in the NIR and confirmed that actual data instead of a three-year average have been used for the whole of the period 1990–2014. Greece indicated that this information will be included in the next submission	
		The ERT recommends that Greece correct this error	
A.14	3. General (agriculture)	In its CRF tables Greece has reported the following categories as "not occurring" (using the notation key "NO"): 3.E. Prescribed burning of savannas; 3.D.a.5. Mineralization/immobilization associated with loss/gain of soil organic matter; and 3.G. Liming. However, the ERT noted that Greece has not provided an explanation of this in its NIR	Yes. Transparency*
		During the review week, Greece provided the ERT with a logical explanation justifying the use of the notation key "NO"	
		The ERT recommends that Greece improve the transparency of its reporting by including in the NIR an explanation for each category marked as "NO"	
A.15	3.A Enteric fermentation – CH_4	Greece has estimated CH_4 emissions from cattle and sheep using a tier 2 method and applying a country-specific EF	Yes. Transparency*
		The ERT notes that, in response to recommendations made in previous reviews, Greece has improved the transparency of its NIR. The ERT commends the Party for this effort. However, the ERT noted that some key parameters to estimate country-specific EFs, such as gross energy and milk production, have not been included in the NIR, and the NIR does not include a methodology description	
		During the review week, Greece provided the ERT with the parameters mentioned above	
		The ERT recommends that Greece improve the transparency of the inventory by reporting in the NIR all parameters used to estimate its country-specific EFs, for example in a tabular format, and by providing an in-depth explanation of the method used	
A.16	3.B Manure management – CH_4	Greece explains in the NIR that a tier 2 approach has been used to estimate CH_4 emissions for cattle and sheep. The ERT commends the Party for this improvement. However, the ERT noted that Greece has not included the following information in its NIR, which would enable the ERT	Yes. Transparency*

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is the finding an issue[b] and/or a problem[c]? If yes, classify by type*
		to understand the tier 2 approach applied: daily volatile solid of manure excreted by cattle and sheep; maximum methane-producing capacity (Bo) for manure produced by cattle and sheep; and MCF for each manure management system During the review week, Greece explained that these parameters have been reported in the CRF tables The ERT recommends that Greece improve the transparency of the reporting by including in its NIR all parameters used to estimate its country-specific EFs, for example in a tabular format, and provide an in-depth explanation of the methodology used	
A.17	3.B.4 Other livestock – CH_4	Greece explains in its NIR (p. 267) that a tier 1 approach has been used to estimate CH_4 emissions for the category other livestock. The ERT noted that the IEF reported in CRF table 3.B(a)s1 for goats (1.03 kg CH_4/head/year) is higher than the default EF (0.20 kg CH_4/head/year) presented in table 10.15 of the 2006 IPCC Guidelines for temperate developed countries During the review week, Greece explained that the EF developed for sheep has been used for goats following the recommendation made in the previous review report that, for goats, the Party could use similar EFs to those used for sheep because of the similar animal weight and habits. The same conclusion is reached by the 2006 IPCC Guidelines, where similar values are proposed (0.20 kg CH_4/head/year for goats and 0.28 kg CH_4/head per year for sheep). The ERT notes that the default EF for goats is 28.6% lower than the default EF for sheep. In addition, the typical animal mass of goats for developed countries (38.5 kg) used by Greece, obtained from the 2006 IPCC Guidelines, is 15.2% lower than the average typical animal mass of sheep (45.4 kg) estimated by Greece. Also, the ERT could not ensure the reliability of similar habits in sheep and goats because the default feed intake value for developed countries for goats (0.75 kg/day) from the 2006 IPCC Guidelines is 29.6% lower than value for sheep (1.08 kg/day). The ERT considers that the use of this country-specific EF for sheep might lead to an overestimation of CH_4 emissions from manure management of goats. This issue was included in the list of the potential problems and further questions raised by the ERT during the review In response to the list of the potential problems, Greece followed the ERT's recommendation and provided a revised estimate of CH_4 emissions from manure management of goats for the entire time series using the default EF (0.20 kg CH_4/head/year) from the 2006 IPCC Guidelines in order to avoid an overestimation. See also A.4 in table 3 The ERT recommends that Greece explain the estimates for CH_4 emissions from manure management of goats in its NIR	Yes. Transparency*
A.18	3.B Manure	Greece explains in the NIR that both the tier 2 and tier 1 approaches have been used to estimate N_2O emissions from manure management. The ERT noted that insufficient information has been	Yes. Transparency*

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is the finding an issue[b] and/or a problem[c]? If yes, classify by type
	management – N_2O	presented to enable it to understand the estimations for some key parameters such as total annual Nex and Nex per livestock category	
		During the review week, Greece provided the ERT with information related to total Nex and rate of Nex. Also, Greece explained that, in the specific case of dairy cattle, the proposed correlation provided for European countries by the International Institute for Applied Systems Analysis in *Modelling of Emissions of Air Pollutants and Greenhouse Gases from Agricultural Sources in Europe* was used for estimating Nex, and is a more accurate methodology, given the fact that this equation is developed for Greece	
		The ERT recommends that Greece improve the transparency of its inventory by including this explanation in its NIR as well as including all the parameters used to estimate its country-specific EFs, for example in a tabular format	
A.19	3.D.a Direct N_2O emissions from managed soils – N_2O	The ERT noted that Greece has not provided sufficient information in the NIR to enable the ERT to understand the estimation of the amount of N from animal manure applied to soils and N in crop residues returned to soils	Yes. Transparency*
		During the review week, Greece provide a brief explanation on the equations and parameters used	
		The ERT recommends that Greece continue to improve its NIR by including a detailed explanation on the method used to estimate the amount of N applied to soils from each source. The ERT also recommends that the Party include the equations used to estimate direct N_2O emissions from managed soils	
A.20	3.D.a.2.b Sewage sludge applied to soils – N_2O	Greece estimated N input from sewage sludge applied to soils for the first time. The ERT noted that Greece has not provided an explanation on the source of the AD. Also, in a cross-check between the agriculture and waste sectors, the ERT did not find AD in the waste sector of the NIR	Yes. Transparency*
		During the review, Greece provided detailed information about the application of sewage sludge in agriculture as fertilizer based on studies conducted in the period 2004–2009. Greece stated that the N content of sludge is 3% (% w/w dry) and stated that emissions from sludge in the waste sector are estimated on the basis of disposed amounts of sludge, data gathered from the Ministry of Environment, Energy and Climate Change, excluding any other application such as exporting or application in agriculture	
		The ERT recommends that Greece include this explanation in the NIR to improve the transparency of the inventory	

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is the finding an issue[b] and/or a problem[c]? If yes, classify by type*
A.21	3.F Field burning of agricultural residues – CH_4 and N_2O	Greece does not provide in the NIR information on crop production for rice, rye, oats, peas, dry bean, potatoes or sugar beet in order to understand the estimation of total biomass burned, as reported in CRF table 3.F During the review week, Greece explained that a country-specific methodology was used, which is similar to the default methodology suggested in the 2006 IPCC Guidelines, using default factors proposed by the IPCC good practice guidance and the Revised 1996 IPCC Guidelines instead of the methodology given in the 2006 IPCC Guidelines, because there are no accurate data regarding the annual area burned The ERT recommends that Greece include in the NIR the explanation provided to the ERT to improve the transparency of the inventory, especially regarding the use of the IPCC good practice guidance and the Revised 1996 IPCC Guidelines	Yes. Transparency*
LULUCF			
L.5	4. General (LULUCF)	The Party has made efforts to improve the completeness of its submission by estimating the missing mandatory categories and carbon pools which were previously reported as "NE". Some of the data come from neighbouring countries with similar climate conditions and also from expert judgment. The ERT commends the Party for its efforts and encourages the Party to develop its own data and to prepare an improvement plan, particularly for the key and the mandatory categories	Not an issue
L.6	4. General (LULUCF)	The Party mostly uses IPCC defaults and expert judgment for the estimation of the uncertainty values. The Party reported that a complete revision of the uncertainty analysis will be included in the 2017 submission	Not an issue
L.7	Forest land – General	There are a number of inconsistencies in the CRF tables and also between the NIR and the CRF tables. For example, in the CRF tables, total carbon removal from forest management does not match with the sum of the carbon removal from its pools. The Party explained to the ERT that these errors occurred because of the deficiencies of the CRF Reporter software. The notation keys "NE" or "NO" occur as errors in the CRF tables, whereas the correct emission values are reported in the NIR The ERT recommends that the Party ensure the consistency between CRF tables and NIR	Yes. Adherence to UNFCCC Annex I inventory reporting guidelines
L.8	Forest land – CO_2	For the first time Greece included data on grassland converted to forest land following a recommendation made in the previous review report, but no estimation of emissions and removals is reported because it is considered as a natural forest expansion. The previous review report recommended that the Party classify the grassland as "managed" and "unmanaged"	Yes. Transparency*

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is the finding an issue[b] and/or a problem[c]? If yes, classify by type
		subcategories, because classifying these by reporting the area would enable the Party to transparently justify the consistency of the data. Emissions or removals of unmanaged grasslands do not need to be reported	
		The ERT recommends that the Party classify grassland, wetlands and other land as "managed" and "unmanaged" subcategories as suggested in paragraph 67(b) of the 2014 review report (FCCC/ARR/2014/GRC)	
L.9	Forest land – CO_2	The Party reported emissions/removals from cropland converted to forest land. The Party used IEFs from a neighbouring country (Italy) for the estimation of the emissions/removals. The ERT considers that the use of an IEF from another country may not reflect the real conditions of the country. Nevertheless, in response to a question raised by the ERT, the Party provided additional information during the review on time-series data of disturbance area from Italy and Greece and explained that Italy has a similar pattern in this land-use change, justifying the use of the IEF of Italy. However, the ERT considers that the use of the above-mentioned IEF may lead to overestimation or underestimation of the emissions	Yes. Accuracy*
		The ERT recommends that the Party use EFs instead of IEFs and apply the method provided in the 2006 IPCC Guidelines to improve accuracy	
L.10	Forest land – CO_2, CH_4 and N_2O	The Party reported emissions from wild fires by including all pools and applied a conservative methodological approach. Because improved estimates for the combustion fraction of fires are not available, the IPCC default method has been used irrespective of the fire intensity. The ERT considers that, in larger fires, the combustion fraction may increase	Not an issue
		The ERT encourages the Party to refine the estimation when an improved combustion fraction is available in order to avoid underestimation or overestimation of emissions from wild fires	
Waste			
W.6	5.A Solid waste disposal on land – CH_4	The CH_4 generation from industrial and construction waste disposal is not reported transparently in the NIR and in the CRF tables. During the review week, in response to a question raised by the ERT, Greece provided CH_4 emissions from industrial and construction waste disposal but without a proper explanation of how these were derived	Yes. Transparency*
		The ERT recommends that Greece enhance the transparency of the inventory and explain how CH_4 emissions from industrial and construction waste disposal are derived	
W.7	5.A Solid waste disposal on land –	Greece reports waste generation rates in the NIR, but did not provide information on the landfilled amount. However, CRF table 5.A provides the landfilled amount as AD. It is not clear	Yes. Transparency*

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is the finding an issue[b] and/or a problem[c]? If yes, classify by type*
	CH_4	to the ERT, from the NIR, what methodology was used for determining the landfilled amounts from the waste generation quantities	
		The ERT recommends that Greece provide information on how to determine the landfilled amounts in its NIR	
W.8	5.A Solid waste disposal on land – CH_4	The ERT noted that Greece uses several assumptions to estimate the waste generation rates without providing detailed justifications	Yes. Transparency*
		The ERT recommends that Greece provide more detailed justifications for the following cases: (1) the daily per capita waste generation by tourists, which has been assumed to be 2.1 kg/person/day since 1990; and (2) the municipal solid waste generation rate, which is assumed to change annually by 0.028 kg/person/day	
W.9	5.A Solid waste disposal on land – CH_4	The ERT noted that Greece uses several assumptions to determine waste composition, but does not provide justifications for these in the NIR	Yes. Transparency*
		The ERT recommends that Greece improve the documentation of the justifications for: (1) the share of putrescibles, which is assumed to decrease by 0.3% annually; (2) the share of paper and plastics, which is assumed to increase by 0.2% annually; and (3) the share of garden waste, park waste and other non-food organic putrescibles, wood and textiles, which is assumed to be constant	
W.10	5.A Solid waste disposal on land – CH_4	Greece uses 0.6 for the F value for sewage sludge without proper justification	Yes. Accuracy*
		The ERT recommends that Greece justify in its next NIR why a higher F value than the default is adopted for sewage sludge	
W.11	5.A Solid waste disposal on land – CH_4	The uncertainties (0.015 ± 1.0%) for CH_4 emissions from solid waste disposal sites are quite low compared with the values in table 1.8 of the NIR	Yes. Accuracy*
		The ERT recommends that Greece correct the uncertainty values for CH_4 emissions, if necessary, or justify the low values reported	
W.12	5.A Solid waste disposal on land – CH_4	During the review, in response to a question raised by the ERT, Greece informed the ERT that the recovery rate of CH_4 is calculated by using data from the national energy balance, without other supporting data and information	Yes. Transparency*
		The ERT recommends that Greece provide in the NIR supporting information on how the CH_4 recovery data are obtained	

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is the finding an issue[b] and/or a problem[c]? If yes, classify by type*
W.13	5.C.1 Waste incineration – CO_2, CH_4 and N_2O	Extremely low uncertainties are reported for CO_2, CH_4, and N_2O emissions from waste incineration (0.003%, 0.000003% and 0.01%, respectively). However, the uncertainties are inconsistent with those in table 1.8 of the NIR, where uncertainties of 64.0% for CO_2 and 111.8% for both CH_4 and N_2O are reported	Yes. Adherence to UNFCCC Annex I inventory reporting guidelines
		The ERT recommends that Greece review the uncertainties and correct them if necessary, or justify the reported values	
W.14	5.D Wastewater treatment and discharge – CH_4	In its NIR, Greece mentions that MCF is taken to be zero for aerobic treatment systems. However, the ERT notes that the 2006 IPCC Guidelines recommend determining the MCF, even for aerobic systems	Yes. Accuracy*
		The ERT recommends that the Party estimate MCF values for aerobic systems in Greece	
KP-LULUCF			
KL.1	Forest management – CO_2	Greece reported that the FMRL inscribed in the appendix to decision 2/CMP.7 is based on the average emissions/removals for the period 1990–2009. However, the Party used a different period for calibrating emissions from natural disturbances for accounting for afforestation, deforestation and forest management in accordance with decision 2/CMP.7, annex, paragraph 33. For forest management the calibration period is 1990–2014. The ERT considers that Greece needs to provide a reason and justification for using a different period	Yes. Transparency*
		During the review, in response to the question raised by the ERT, Greece provided an explanation for the calibration period in order to ensure methodological consistency in emissions from natural disturbances, the FMRL and reporting for forest management (e.g. inclusion of new pools in comparison with FMRL submission, change in the forest management area, etc.)	
		The ERT recommends that Greece report in its NIR information on the reason and justification for using a different period for calibrating emissions from natural disturbances for accounting for afforestation, deforestation and forest management in accordance with decision 2/CMP.7, annex, paragraph 33	
		In response to the draft review report, Greece provided the following comment: "Following footnote 7 of the Annex to Decision 2/CMP.7 the calibrating period from ND shall contain 1990–2009 emissions associated with ND. In the same footnote is stated 'Parties may apply a transparent and comparable country-specific approach using a consistent and initially complete time series of data including for the period containing 1990–2009'. In accordance with paragraph 33, Annex to Decision 2/CMP.7 Greece provided the country-specific information on the background level and the margin, using the 1990–2014 calibration period for forest management which contains 1990–2009 emissions. Also, Greece, with 2016 submission, for the first time has	

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is the finding an issue[b] and/or a problem[c]? If yes, classify by type*
		performed and provided the relevant information on its 1st technical correction of the FMRL ensuring methodological consistency between the NDs, the FMRL and reporting for FM. Similarly, for AR, the same methodology has been followed for ND provision. Detailed information on the methodology applied is provided in NIR2016/sections 9.4.4, 9.5.2.1, and footnote 8 page 402." The ERT, after taking into account the comment provided, considers the recommendation is still valid	
KL.2	Forest management – CO_2	Greece provided uncertainty values for KP-LULUCF activities (afforestation, reforestation, deforestation and forest management). These values are similar to the uncertainty of EFs of land converted to forest land, land converted to crop lands and forest land remaining forest land. It is not clear whether the uncertainty values for the KP-LULUCF activities refer to the uncertainty of the emission/removal estimates or the uncertainty of the EFs The ERT recommends that Greece provide information on the uncertainty assessment for KP-LULUCF activities in its NIR	Yes. Transparency*

Abbreviations: AD = activity data, AR = afforestation and reforestation, CRF = common reporting format, EF = emission factor, ERT = expert review team, F-gas = fluorinated gas, FMRL = forest management reference level, IEF = implied emission factor, IPCC = Intergovernmental Panel on Climate Change, IPPC good practice guidance = *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*, IPPU = industrial processes and product use, KP-LULUCF = LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, LULUCF = land use, land-use change and forestry, MCF = methane correction factor, N = nitrogen, NA = not applicable, ND = natural disturbances, NE = not estimated, Nex = nitrogen excretion, NIR = national inventory report, NO = not occurring, QA/QA = quality assurance/quality control, Revised 1996 IPCC Guidelines = *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, SEF = standard electronic format, SIAR = standard independent assessment report, 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", 2006 IPCC Guidelines = *2006 IPCC Guidelines for National Greenhouse Gas Inventories*.

[a] The review of the 2015 GHG annual submission is being held in conjunction with the review of the 2016 annual submission, in accordance with decision 10/CMP.11, paragraph 1. The ERT has reviewed both the 2015 and the 2016 inventory submission, and in accordance with the conclusions from the 13th meeting of greenhouse gas inventory lead reviewers (para. 9) has started with the review of the 2016 submission. This table includes all findings that are relevant for both the 2015 and the 2016 annual submission (i.e. this table excludes findings that, although they may have been relevant for the 2015 annual submission, had already been resolved in the 2016 annual submission).

[b] Recommendations are related to issues as defined in decision 13/CP.20, annex, paragraph 81, or problems as identified in decision 22/CMP.1, annex, paragraph 69, identified by the ERT during the review. Encouragements are made to the Party to address all findings not related to such issues.

[c] An asterisk is included next to each issue type that is also a problem, as defined in decision 22/CMP.1, annex, paragraphs 68 and 69, including those that lead to an adjustment or a question of implementation.

VI. Application of adjustments

11. The ERT has not identified the need to apply any adjustments to the 2016 annual submission of Greece.

VII. Accounting quantities for activities under Article 3, paragraph 3, and, if any, activities under Article 3, paragraph 4, of the Kyoto Protocol

12. Greece has elected commitment period accounting and therefore the issuance and cancellation of units for activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol are not applicable for the 2015 review.

VIII. Questions of implementation

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

Annex I

Overview of greenhouse gas emissions and removals for Greece for submission year 2015 and data and information on activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol

1. Tables 6–9 provide an overview of total greenhouse gas emissions and removals, as submitted by Greece.

Table 6
Total greenhouse gas emissions for Greece, Base year[a]–2013[b]
(kt CO_2 eq)

	Total GHG emissions excluding indirect CO_2 emissions		*Total GHG emissions including indirect CO_2 emissions[c]*		*Land-use change (Article 3.7 bis as contained in the Doha Amendment)[d]*	*KP-LULUCF activities (Article 3.3 of the Kyoto Protocol)[e]*	*KP-LULUCF activities (Article 3.4 of the Kyoto Protocol)*	
	Total including LULUCF	*Total excluding LULUCF*	*Total including LULUCF*	*Total excluding LULUCF*			*CM, GM, RV, WDR*	*FM*
FMRL								1 830.00
Base year	105 285.35	107 564.14	105 285.35	107 564.14	NA		NA	
1990	102 437.71	104 716.49	102 437.71	104 716.49				
1995	107 808.98	110 704.11	107 808.98	110 704.11				
2000	125 685.75	127 570.61	125 685.75	127 570.61				
2010	115 365.81	118 626.52	115 365.81	118 626.52				
2011	112 274.83	115 576.78	112 274.83	115 576.78				
2012	108 839.61	112 086.44	108 839.61	112 086.44				
2013	101 415.58	104 564.03	101 415.58	104 564.03		–92.41	NA	–2 470.16

Abbreviations: CM = cropland management, FM = forest management, FMRL = forest management reference level, GHG = greenhouse gas, GM = grazing land management, KP-LULUCF = LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, LULUCF = land use, land-use change and forestry, NA = not applicable, RV = revegetation, WDR = wetland drainage and rewetting.

[a] Base year refers to the base year under the Kyoto Protocol, which is 1990 for CO_2, CH_4 and N_2O, 1995 for HFCs, PFCs and SF_6, and 2000 for NF_3. Greece has not elected any activities under Article 3, paragraph 4, of the Kyoto Protocol. For activities under Article 3, paragraph 3, of the Kyoto Protocol and forest management under Article 3, paragraph 4, only the inventory years of the commitment period must be reported.

[b] Emissions/removals reported in the sector other (sector 6) are not included in total GHG emissions.

[c] The Party has not reported indirect CO_2 emissions in common reporting format table 6.

[d] The value reported in this column refers to 1990.

[e] Activities under Article 3, paragraph 3, of the Kyoto Protocol, namely afforestation and reforestation, and deforestation.

Table 7
Greenhouse gas emissions by gas for Greece, excluding land use, land-use change and forestry, 1990–2013[a]
(kt CO_2 eq)

	CO_2[b]	*CH_4*	*N_2O*	*HFCs*	*PFCs*	*Unspecified mix of HFCs and PFCs*	*SF_6*	*NF_3*
1990	83 403.72	12 534.12	7 402.64	1 182.82	190.26	NA, NO	2.93	NA, NO
1995	86 980.65	12 830.01	6 669.81	4 157.38	62.85	NA, NO	3.42	NA, NO
2000	103 019.66	12 816.99	6 346.05	5 261.83	122.26	NA, NO	3.81	NA, NO
2010	97 035.08	11 540.64	5 526.83	4 388.67	129.44	NA, NO	5.86	NA, NO
2011	94 102.94	11 378.91	5 317.62	4 661.66	110.53	NA, NO	5.13	NA, NO
2012	90 710.57	11 249.21	4 912.06	5 061.78	147.77	NA, NO	5.05	NA, NO
2013	82 910.63	11 155.03	4 670.44	5 650.22	172.56	NA, NO	5.15	NA, NO
Per cent change 1990 –2013	**–0.6**	**–11.0**	**–36.9**	**377.7**	**–9.3**	**NA**	**75.9**	**NA**

Abbreviations: NA = not applicable, NO = not occurring.
[a] Emissions/removals reported in the sector other (sector 6) are not included in total greenhouse gas emissions.
[b] Greece did not report indirect CO_2 emissions in common reporting format table 6.

Table 8
Greenhouse gas emissions by sector for Greece, 1990–2013[a, b]
(kt CO_2 eq)

	Energy	*IPPU*	*Agriculture*	*LULUCF*	*Waste*	*Other*
1990	76 914.70	11 226.96	10 075.32	–2 278.78	6 499.52	NO
1995	81 003.18	13 569.65	9 450.77	–2 895.13	6 680.50	NO
2000	96 742.40	15 176.38	9 112.24	–1 884.85	6 539.59	NO
2010	92 765.39	11 661.84	8 838.40	–3 260.71	5 360.89	NO
2011	91 467.72	10 320.16	8 632.63	–3 301.96	5 156.27	NO
2012	87 394.22	11 140.31	8 590.28	–3 246.83	4 961.62	NO
2013	78 867.41	11 974.28	8 679.90	–3 148.45	5 042.45	NO
Per cent change 1990–2013	**2.5**	**6.7**	**–13.8**	**38.2**	**–22.4**	**NA**

Abbreviations: IPPU = industrial processes and product use, LULUCF = land use, land-use change and forestry, NA = not applicable, NO = not occurring.

[a] Emissions/removals reported in the sector other (sector 6) are not included in total greenhouse gas emissions.

[b] Greece did not report indirect CO_2 emissions in common reporting format table 6.

Table 9

Greenhouse gas emissions/removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol by activity, base year[a,b]–2013, for Greece

(kt CO_2 eq)

	Article 3.7 bis as contained in the Doha Amendment[c]	*Article 3.3 of the Kyoto Protocol*		*Forest management and elected Article 3.4 activities of the Kyoto Protocol*				
	Land-use change	*Afforestation and reforestation*	*Deforestation*	*Forest management*	*Cropland management*	*Grazing land management*	*Revegetation*	*Wetland drainage and rewetting*
FMRL				1 830.00				
Technical correction				168.47				
Base year	NA				NA	NA	NA	NA
2013		–136.22	43.81	–2 470.16	NA	NA	NA	NA
Per cent change base year–2013					NA	NA	NA	NA

Abbreviations: FMRL = forest management reference level, NA = not applicable.

[a] Base year refers to the base year under the Kyoto Protocol, which is 1990 for CO_2, CH_4 and N_2O, 1995 for HFCs, PFCs and SF_6, and 2000 for NF_3. Greece has not elected any activities under Article 3, paragraph 4, of the Kyoto Protocol. For activities under Article 3, paragraph 3, of the Kyoto Protocol, and forest management under Article 3, paragraph 4, only the inventory years of the commitment period must be reported.

[b] Values in this table include emissions on lands subject to natural disturbances, if applicable.

[c] The value reported in this column refers to 1990.

2. Table 10 provides an overview of relevant key data for Greece's reporting under Article 3, paragraphs 3 and 4, of the Kyoto Protocol.

Table 10
Key relevant data for Greece under Article 3, paragraphs 3 and 4, of the Kyoto Protocol

Key parameters	*Values*
Periodicity of accounting	(a) Afforestation/reforestation: commitment period accounting
	(b) Deforestation: commitment period accounting
	(c) Forest management: commitment period accounting
	(d) Cropland management: not elected
	(e) Grazing land management: not elected
	(f) Revegetation: not elected
	(g) Wetland drainage and rewetting: not elected
Election of activities under Article 3, paragraph 4	None
Election of application of provisions for natural disturbances	Yes, for afforestation and reforestation and forest management
3.5 % of total base year GHG emissions, excluding LULUCF	3 764.744 kt CO_2 eq (30 117.958 kt CO_2 eq for the duration of the commitment period)
Cancellation of AAUs, ERUs, CERs and/or issuance of RMUs in the national registry for:	
1. Afforestation and reforestation in 2013	NA
2. Deforestation in 2013	NA
3. Forest management in 2013	NA
4. Cropland management in 2013	NA
5. Grazing land management in 2013	NA
6. Revegetation in 2013	NA
7. Wetland drainage and rewetting in 2013	NA

Abbreviations: AAU = assigned amount unit, CER = certified emission reduction unit, ERU = emission reduction unit, GHG = greenhouse gas, LULUCF = land use, land-use change and forestry, NA = not applicable, RMU = removal unit.

Annex II

Information to be included in the compilation and accounting database

Table 11 includes the information to be included in the compilation and accounting database for Greece. Data shown are from the original annual submission of the Party, including the latest revised estimates submitted, adjustments (if applicable), as well as the final data to be included in the compilation and accounting database.

Table 11
Information to be included in the compilation and accounting database for 2013, including the commitment period reserve, for Greece
($t\ CO_2\ eq$)

	Original submission	*Revised estimates*	*Adjustment*[a]	*Final*[b]
Commitment period reserve	432 712 049			432 712 049
Annex A emissions for 2013				
CO_2	82 910 626			82 910 626
CH_4	11 260 270	11 155 033		11 155 033
N_2O	4 670 441			4 670 441
HFCs	5 650 219			5 650 219
PFCs	172 562			172 562
Unspecified mix of HFCs and PFCs	NA, NO			NA, NO
SF_6	5 151			5 151
NF_3	NA, NO			NA, NO
Total Annex A sources	**104 669 269**	**104 564 031**		**104 564 031**
Activities under Article 3, paragraph 3, of the Kyoto Protocol for 2013				
3.3 Afforestation and reforestation	–136 216			–136 216
3.3 Deforestation	43 810			43 810
Forest management and elected activities under Article 3, paragraph 4, of the Kyoto Protocol for 2013				
3.4 Forest management	–2 470 162			–2 470 162

Abbreviations: Annex A sources = sources included in Annex A to the Kyoto Protocol, NA = not applicable, NO = not occurring.

[a] "Adjustment" is relevant only for Parties for which the expert review team has calculated one or more adjustment(s).

[b] "Final" includes revised estimates, if any, and/or adjustments, if any.

Annex III

Additional information to support findings in table 2

Missing categories that may affect completeness

The categories for which methods are included in the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* were reported as "NE" (not estimated) or for which the expert review team otherwise determined that there may be an issue with the completeness of reporting in the Party's inventory are the following:

(a) Carbon dioxide emissions from 1.B.2.a.3 (oil transport) (see ID# E.23 in table 5);

(b) Carbon dioxide emissions from carbon stock changes in the living biomass and dead organic matter pools in grassland converted to forest land; and carbon stock changes in living biomass in cropland converted to settlements (see ID# L.3 in table 3).

Annex IV

Documents and information used during the review

A. Reference documents

Aggregate information on greenhouse gas emissions by sources and removals by sinks for Parties included in Annex I to the Convention. Note by the secretariat. Available at <http://unfccc.int/resource/webdocs/agi/2015.pdf>.

Annual status report for Greece for 2015. Available at <http://unfccc.int/resource/docs/2015/asr/grc.pdf>.

FCCC/ARR/2014/GRC. Report on the individual review of the annual submission of Greece submitted in 2014. Available at <http://unfccc.int/resource/docs/2015/arr/grc.pdf>.

FCCC/ARR/2013/GRC. Report of the individual review of the annual submission of Greece submitted in 2013. Available at <http://unfccc.int/resource/docs/2014/arr/grc.pdf>.

"Guidelines for national systems for the estimation of anthropogenic greenhouse gas emissions by sources and removals by sinks under Article 5, paragraph 1, of the Kyoto Protocol". Decision 19/CMP.1. Available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf#page=14>.

"Guidelines for review under Article 8 of the Kyoto Protocol". Decision 22/CMP.1. Available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf#page=51>.

"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories". Annex to decision 24/CP.19. Available at <http://unfccc.int/resource/docs/2013/cop19/eng/10a03.pdf#page=4>.

"Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol". Decision 15/CMP.1. Available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf#page=54>.

"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#page=6>.

"Implications of the implementation of decisions 2/CMP.7 to 4/CMP.7 and 1/CMP.8 on the previous decisions on methodological issues related to the Kyoto Protocol, including those relating to Articles 5, 7 and 8 of the Kyoto Protocol, part I: implications related to accounting and reporting and other related issues". Decision 3/CMP.11. Available at <http://unfccc.int/resource/docs/2015/cmp11/eng/08a01.pdf#page=5>.

"Implications of the implementation of decisions 2/CMP.7 to 4/CMP.7 and 1/CMP.8 on the previous decisions on methodological issues related to the Kyoto Protocol, including those relating to Articles 5, 7 and 8 of the Kyoto Protocol, part II: implications related to review and adjustments and other related issues". Decision 4/CMP.11. Available at <http://unfccc.int/resource/docs/2015/cmp11/eng/08a01.pdf#page=30>.

Intergovernmental Panel on Climate Change. 2006. *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. Available at <http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html>.

Intergovernmental Panel on Climate Change. 2014. *2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol*. Available at <http://www.ipcc-nggip.iges.or.jp/public/kpsg>.

Intergovernmental Panel on Climate Change. 2014. *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*. Available at <http://www.ipcc-nggip.iges.or.jp/public/wetlands/index.html>.

Standard independent assessment report, part 1, for Greece for 2015. Available at <http://unfccc.int/files/kyoto_protocol/registry_systems/independent_assessment_reports/application/pdf/siar_part_1_assessment_report_grc_2014v2.0.pdf>

Standard independent assessment report, part 2, for Greece for 2015. Available at <http://unfccc.int/files/kyoto_protocol/registry_systems/independent_assessment_reports/application/pdf/siar_part_2_assessment_report_grc_2014_v2.0.pdf>

B. Additional information provided by the Party

Responses to questions during the review were received from Mr. Dimitris Niavis (Ministry of Environment and Energy), including additional material on the methodology and assumptions used.

Annex V

Acronyms and abbreviations

AD	activity data
AAU	assigned amount unit
Bo	maximum methane-producing capacity
CER	certified emission reduction unit
CH_4	methane
CMP	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
CPR	commitment period reserve
CRF	common reporting format
EF	emission factor
ERT	expert review team
ERU	emission reduction unit
EU ETS	European Union Emissions Trading System
FAO	Food and Agriculture Organization of the United Nations
FMRL	forest management reference level
GHG	greenhouse gas
HFC	hydrofluorocarbon
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
KP-LULUCF	LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol
kt	kilotonne
LPG	liquefied petroleum gas
LULUCF	land use land-use change and forestry
MCF	methane correction factor
N	nitrogen
N_2O	nitrous oxide
NA	not applicable
NE	not estimated
Nex	nitrogen excretion
NF_3	nitrogen trifluoride
NIR	national inventory report
NO	not occurring
PFC	perfluorocarbon
QA/QC	quality assurance/quality control
RMU	removal unit
SEF	standard electronic format
SF_6	sulphur hexafluoride
SIAR	standard independent assessment report
UNFCCC	United Nations Framework Convention on Climate Change