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Report on the individual review of the annual submission of Italy 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 Italy, 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 26 September to 1 October 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.

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I. Introduction¹

1. This report covers the review of the 2015 annual submission of Italy 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 26 September to 1 October 2016 in Bonn, Germany, and was coordinated by Mr. Simon Wear and Mr. Vitor Gois Ferreira (UNFCCC secretariat). Table 1 provides information on the composition of the expert review team (ERT) that conducted the review of Italy.

Table 1

Composition of the expert review team that conducted the review of Italy

<i>Area of expertise</i>	<i>Name</i>	<i>Party</i>
Generalist	Ms. Lea Kai Aboujaoude	Lebanon
	Mr. Lindsay Pratt	Canada
Energy	Mr. Sangay Dorji	Bhutan
	Ms. Inga Konstantinaviciute	Lithuania
	Ms. Laetitia Nicco	France
	Ms. Awassada Phongphiphat	Thailand
IPPU	Ms. Mausami Desai	United States of America
	Mr. David Kuntze	Germany
	Ms. Emilija Poposka	The former Yugoslav Republic of Macedonia
Agriculture	Ms. Agita Gancone	Latvia
	Ms. Sumaya Ahmed Zakieldean	Sudan
LULUCF	Ms. María Fernanda Alcobé	Argentina
	Mr. Nijavalli Ravindranath	India
	Ms. Yasna Rojas Ponce	Chile
Waste	Ms. Kaat Jaspers	Belgium

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

<i>Area of expertise</i>	<i>Name</i>	<i>Party</i>
	Ms. Hlobisile P. Sikhosana-Shongwe	Swaziland
Lead reviewers	Ms. Lea Kai Aboujaoude	
	Mr. David Kuntze	

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 encouragements to resolve them, are also included.

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

4. Annex I shows annual greenhouse gas emissions for Italy, including totals excluding and including the land use, land-use change and forestry sector, indirect carbon dioxide emissions 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 Italy.

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

6. The ERT notes that Italy’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 reports.

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.

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.

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

<i>Assessment</i>		<i>Issue or problem ID #(s) in tables 3 and/or 5^a</i>	
Date of submission	Original submission: 15 April 2016 (NIR), 15 April 2016, v3 (CRF tables), 14 April 2016 (SEF tables) Revised submission: 10 June 2016 (SEF tables) 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	No	
	2. Selection and use of methodologies and assumptions	Yes	W.1, KL.2
	3. Development and selection of emission factors	Yes	E.3, A.6
	4. Collection and selection of activity data	Yes	E.4, E.5, E.7, I.9, A.10
	5. Reporting of recalculations	Yes	E.2
	6. Reporting of a consistent time series	Yes	I.17, W.2
	7. Reporting of uncertainties, including methodologies	No	
	8. QA/QC	QA/QC procedures were assessed in the context of the national system (see below)	
	9. Missing categories/completeness ^b	No	
	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?	The Party did not report “NE” for any insignificant categories	
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		

Assessment	Issue or problem ID #(s) in tables 3 and/or 5 ^a
(b) Performance of the functions of the national registry and the technical standards for data exchange	No
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	Yes KL.2
(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.4
(c) The Party has reported information in accordance with decision 6/CMP.9	Yes KL.3
(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
(f) Country-specific information has been reported to support provisions for natural disturbances, in accordance with decision 2/CMP.7, annex, paragraphs 33 and 34	No
(g) 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	Yes

Assessment	Issue or problem ID #(s) in tables 3 and/or 5 ^a
Recommendation for an exceptional in-country review	<p>further guidance adopted by the Conference of the Parties?</p> <p>On the basis of the issues identified, does the ERT recommend that the next^c review be conducted as an in-country review?</p> <p>No</p>
Question of implementation	<p>Did the ERT list a question of implementation?</p> <p>No</p>

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, NE = not estimated, 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 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories: Wetlands*.

^a The ERT identified additional issues in all sectors 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 Intergovernmental Panel on Climate Change 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 3 March 2015. 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 Italy

ID#	Issue classification ^{a, b}	Recommendation made in previous review report	ERT assessment and rationale
General			
G.1	Uncertainty analysis (table 4, 13, 2014) Adherence to the UNFCCC Annex I inventory reporting guidelines	Include more information on the assumptions and references used to estimate uncertainties in the category-specific chapters or in an annex to the NIR	Resolved
Energy			
E.1	1.B.1.b Solid fuel transformation – CH ₄ (28, 2014) Transparency	Provide information in the NIR on the charcoal production process, including information on when in the time series the modern technology replaced conventional technology	Resolved. Information on the charcoal production process has been reported in the NIR, section 3.3.3 (1.A.1.c Manufacture of solid fuels) (see E.10, table 5)

<i>ID#</i>	<i>Issue classification^{a, b}</i>	<i>Recommendation made in previous review report</i>	<i>ERT assessment and rationale</i>
IPPU			
I.1	2. General (IPPU) – (31, 2014) Transparency	Include in the NIR information on the legal framework of the national European Pollutant Emission Register/European Pollutant Release and Transfer Register and the type and availability of data from this system to the inventory team	Resolved. Information regarding the legal framework and the types of data used to develop the emission estimates for IPPU for both the EU ETS and European Pollutant Release and Transfer Register data collections are included in the NIR in chapter 4
I.2	2.A.2 Lime production – CO ₂ (39, 2014) Transparency	Include in the NIR an explanation of the minor fluctuations in the CO ₂ IEF for lime production for the years 1990–1999	Resolved. Justification regarding the CO ₂ IEF fluctuations are included in the NIR in section 4.2.2
I.3	2.A.2 Lime production – CO ₂ (40, 2014) (39, 2013) Accuracy	Further investigate the impact of the assumptions made in relation to the data collected for 2000–2003 and provide information in the NIR showing that those assumptions have not led to an overestimation of emissions for 2000–2003 and hence also for 1990–1999	Resolved. The value of the emission factor from 1990 to 2000 has been officially supplied to the Italian Ministry of Environment, Land and Sea by the industrial association, in order to set the national circumstances for the implementation of the EU ETS. Relevant information was provided in the NIR (section 4.2.2)
I.4	2.A.4 Other process uses of carbonates – CO ₂ (41, 2014) Transparency	Clarify the text in the NIR regarding the use of dolomite	Resolved. Italy included a description of the use of dolomite in its NIR in section 4.2.2
I.5	2.A.4 Other process uses of carbonates – CO ₂ (42, 2014) Completeness	Include mineral (stone) wool production in the emission inventory	Resolved. Mineral wool production has been taken into account and the CO ₂ emissions have been estimated. However, these emissions are included under the energy sector together with the share of emissions related to the energy aspects
I.6	2.B.3 Adipic acid production – N ₂ O (32, 2014) Accuracy	Correct the error identified regarding the utilization factor for the abatement system in 2012 and include the additional justification for the abatement efficiency of the sole production facility in Italy in the NIR	Resolved. The description of the abatement technology is included in the NIR in section 4.3.1, page 129, and the utilization factor for 2012 was

ID#	Issue classification ^{a, b}	Recommendation made in previous review report	ERT assessment and rationale
			corrected
I.7	2.F. Product uses as substitutes for ozone depleting substances – HFCs (33, 2014) Transparency	Include in the NIR information concerning air-conditioning devices mounted on vehicles and metered dose inhalers, clarifying that the estimation of emissions takes into account not only the information related to national manufacturing but also to imported products	Resolved. Additional information was included in the NIR in section 4.7.2, confirming that the estimation of emissions takes into account national manufacturing and imported products
I.8	2.F. Product uses as substitutes for ozone depleting substances – HFCs (35, 2014) Accuracy*	Provide information in the NIR to prove that a significant reduction in the leakage rates for F-gases occurred between 1999 and 2000	Not resolved. In the NIR (section 4.7.2), it is explained that the appropriate leakage rates have been suggested by a pool of experts from several relevant national refrigeration and air-conditioning associations, and these showed a decrease in the leakage rates after 2000. However, Italy did not provide a detailed explanation of the scientific reasons and assumptions behind this significant change (e.g. by providing supporting information on regulations implemented, changes in prices of F-gases or technological improvements, as identified by the previous ERT)
I.9	2.F.3 Fire protection – HFCs (36, 2014) Accuracy*	Implement the plans for collecting and updating AD for this category	Addressing. Italy reported that contacts with the relevant industrial associations are ongoing and that further investigation is still needed
I.10	2.F. Product uses as substitutes for ozone depleting substances – HFCs (37, 2014) Transparency	Estimate emissions and identify trends using methods that are in line with IPCC good practice guidance	Resolved. Italy has revised the methodology as recommended; however, these changes are not described in the NIR
I.11	2.G.1 Electrical equipment – HFCs, PFCs and SF ₆ (34, 2014) Transparency	Expand the description in the NIR regarding the disposal of electrical equipment and change the notation key used in the CRF tables to “NA” (not applicable)	Resolved. Additional information is provided in the NIRs regarding the treatment of F-gases in electrical equipment at disposal in NIR2015 (chapter 4, section.

ID#	Issue classification ^{a, b}	Recommendation made in previous review report	ERT assessment and rationale
			4.8.2, page 160) and NIR2016 (chapter 4, section 4.8.2, page 163). The Party indicated that the notation key “IE” (included elsewhere) is appropriate because the emissions from the disposal and recovery of electrical equipment are estimated and reported in the category but not appropriately segregated by when that emission occurred during the product lifetime. To improve the accuracy of allocating this emission, the Party is conducting a survey to verify the recovery rates and the decommissioning operations. The rationale of the Party for using the “IE” notation key is accepted by the ERT
I.12	2.G.1 Electrical equipment – HFCs, PFCs and SF ₆ (34, 2014) Accuracy*	Make contact with the treatment centres to verify that the recovery rate can be assumed to be 100%	Addressing. Italy is conducting a survey to verify the recovery rates and the decommissioning operations
Agriculture			
A.1	3.B Manure management – CH ₄ (50, 2014) Transparency	Include a description of and reference to the method used to estimate CH ₄ emissions from cattle and buffalo and explain how the country-specific parameters of 15.32 g CH ₄ /kg volatile solids (VS) for slurry and 4.80 g CH ₄ /kg VS for solid manure were derived	Resolved. Relevant information was provided in the NIR (annex 7.2, section 5.3.2)
A.2	3.B Manure management – CH ₄ (51, 2014) (43, 2013) Transparency	Include in the NIR information on the method used to estimate CH ₄ emissions from swine	Resolved. Relevant information was provided in the NIR (section 5.3.2)
A.3	3.G Liming – CO ₂ (61, 2014) Consistency	Report emissions from lime application consistently over the complete time series	Resolved. Emissions were reported for the complete time series
LULUCF			
L.1	4. General (LULUCF) (table 3, 2014) Completeness	Estimate and report emissions from the mandatory categories mineral soils on grassland remaining grassland in “other wooded lands” and living biomass and soils due to the conversion of grassland to flooded land	Resolved. Italy reported the correct notation key for grasslands remaining grasslands and the estimates requested for conversion from grasslands to wetlands (see

<i>ID#</i>	<i>Issue classification^{a, b}</i>	<i>Recommendation made in previous review report</i>	<i>ERT assessment and rationale</i>
			also L.2 and L.9 below)
L.2	4. General (LULUCF) (54, 2014) Transparency	Include additional information in the submission to describe the derivation of AD, methodologies and models, in particular related to methods and data sources used to construct the land-use matrices	Resolved. Italy included additional information in the NIR (pages 213 and 298) with definitions and methods applied to distinguish between forest land and other wooded land
L.3	4. General (LULUCF) (55, 2014) Comparability*	Review the use of notation keys so it is clearer which methods are used or if some pools are not estimated	Not resolved. Italy changed the notation keys in some categories as recommended by the ERT (see L.1) but other categories such as carbon stock change in living biomass in the grazing land subcategory under grassland remaining grassland (reported as “NO” (not occurring)) have not been changed
L.4	4.A.1 Forest land remaining forest land – CO ₂ (55, 2014) Comparability	Use the notation key “NA” (not applicable) when a tier 1 zero stock change method is used referring to soil organic carbon pools for forest land remaining forest land	Resolved
L.5	4.A Forest land – CO ₂ (56, 2014) Transparency*	Document the model validations in the NIR and use 2015 NFI data to initiate model estimates until such time as the new inventory data become available	Addressing. The information from the second phase of the 2015 NFI is not yet available
L.6	4.A Forest land – CO ₂ (57, 2014) Transparency*	Provide in the NIR documentation summarizing harvest removals from short rotation crops, coppices and high forest categories so that drivers influencing trends in biomass stock changes can be made more evident	Not resolved. The required information has not been reported
L.7	4.A Forest land – CO ₂ (58, 2014) Transparency*	Provide definitions and thresholds for carbon pools in a table in the NIR	Not resolved. Italy provided information on the dead wood definition in its NIR (page 218) but the information in tabular format on soil, litter and thresholds for carbon pools was not provided
L.8	4.E.2 Land converted to settlements – CO ₂ (59, 2014) Completeness	Develop methods to distinguish between shrubland and other grassland conversions to settlements and report the associated emissions from biomass and dead organic matter	Resolved. Italy reported emissions from biomass and dead organic matter distinguishing between shrubland and other grassland conversions to settlements in the CRF tables and information in its NIR

ID#	Issue classification ^{a, b}	Recommendation made in previous review report	ERT assessment and rationale
L.9	4.D.2 Land converted to wetlands – CO ₂ (60, 2014) Completeness	Estimate biomass stock changes associated with flooding of grassland and cropland	Resolved. Italy reported the estimates requested
L.10	4(I) Direct N ₂ O emissions from nitrogen inputs to managed soils– (62, 2014) Comparability*	Report direct N ₂ O emissions from nitrogen fertilization as “IE” (included elsewhere) and transparently explain that these emissions are reported under the agriculture sector (with a cross reference to the relevant section in the NIR)	Not resolved. Italy explained in the NIR that emissions from the fertilization of plantations are reported under the agriculture sector; however, the notation key “NO” (not occurring) is still used in CRF table 4(I)
Waste			
W.1	5.C.1 Waste incineration – CO ₂ (66, 2014) Accuracy*	Apply the time-series carbon content as well as fossil carbon fraction in line with the variation of the waste compositions, and report thereon	Not resolved. Italy has not reported in the NIR the progress made with regard to this issue and some improvements that it is still working on
KP-LULUCF			
There were no recommendations related to KP-LULUCF in the previous review report			

Abbreviations: AD = activity data, CRF = common reporting format, ERT = expert review team, EU ETS = European Union Emissions Trading System, F-gas = fluorinated gas, IEF = implied emission factor, IPCC good practice guidance = Intergovernmental Panel on Climate Change *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, NFI = national forest inventory, NIR = national inventory 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”.

^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, and as documented in table 4 below, the ERT has assessed that there are no issues to be included in a prominent paragraph.

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

<i>ID#</i>	<i>Previous recommendation for the issue identified</i>	<i>Number of successive reviews issue not addressed</i>
General	No such general issues were identified	
Energy	No such issues for the energy sector were identified	
IPPU	No such issues for the IPPU sector were identified	
Agriculture	No such issues for the agriculture sector were identified	
LULUCF	No such issues for the LULUCF sector were identified	
Waste	No such issues for the waste sector were identified	
KP-LULUCF	No such issues for KP-LULUCF activities were identified	

Abbreviations: 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.

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 Italy 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 Italy^a

<i>ID#</i>	<i>Finding classification</i>	<i>Description of the finding with recommendation or encouragement</i>	<i>Is finding an issue^b and/or a problem^c? If yes, classify by type</i>
General			
G.2	QA/QC and verification	<p>Italy has elaborated a QA/QC plan, and has ensured its capacity for the timely performance of QA/QC procedures. However, the ERT identified several inconsistencies between the CRF tables and the NIR that indicate potential problems with the QA/QC process. For example, there are discrepancies between NIR table 2.2 and 2.3 and CRF table 10s1 for some years, including the period 2010–2014. During the review, the Party explained that some errors in the preparation of the NIR caused these inconsistencies</p> <p>In order to improve consistency between the CRF tables and the NIR, the ERT recommends that the Party ensure consistency between NIR tables 2.2 and 2.3 and CRF table 10s1</p>	Yes. Adherence to UNFCCC Annex I inventory reporting guidelines
G.3	Key category analysis	<p>The key category analysis was performed using the IPCC tier 1 and tier 2 IPCC approach (as described in the 2006 IPCC guidelines), undertaking a level and trend assessment. Italy has included the LULUCF sector in its assessment of the key categories. However, the ERT identified differences in the key categories reported in the NIR that may lead to inconsistencies. During the review, the Party explained that different data reported for the key categories (NIR tables 1.3, 1.4, 1.5 and 1.6.) may refer to different approaches, rather than inconsistencies, and stated that a legend will be added in the next submission</p> <p>The ERT encourages the Party to provide more details on the disaggregated results of both approaches used in the key category analysis and include a legend to clarify the values included in the reported tables</p>	Not an issue
G.4	Recalculations	<p>The Party submitted its original 2015 NIR on 3 November 2015. On 15 April 2016, the Party resubmitted its 2016 submission indicating that its official inventory submission of 2016 constitutes a submission under the UNFCCC for the year 2016, a resubmission under the UNFCCC for the year 2015 and a submission under the Kyoto Protocol for the years 2015 and 2016. The ERT noted that the 2016 submission contains only information on recalculations between the original 2015 submission and the 2016 submission, and that information on the full extent of recalculations between the 2014 submission and the final 2015 submission is not included</p> <p>The ERT concludes that the reporting is not transparent but noted that this situation was related to the unique circumstances referred to in paragraph 6 above</p>	Not an issue

<i>ID#</i>	<i>Finding classification</i>	<i>Description of the finding with recommendation or encouragement</i>	<i>Is finding an issue^b and/or a problem^c? If yes, classify by type</i>
Energy			
E.2	1.A.2 Manufacturing industries and construction – other fossil fuels – CO ₂ , CH ₄ , N ₂ O	<p>Italy has included in its NIR explanatory information and justification for recalculations in CO₂ emissions from other fossil fuels consumed in manufacturing industries and construction. Italy explained in the NIR that recalculations in the 1.A.2 category have occurred since 2005 because of the evaluation of emissions from industrial waste with energy recovery and the subtraction of coal used in the electric arc furnace process. It was explained in the NIR that in 2013 such a recalculation resulted in an increase of 2.7% in CO₂ but no information was provided on the impact of the recalculations since 2005 at the category level. During the review, Italy provided information on the impact of the recalculations on the trend in CO₂ emissions at the category level</p> <p>No issues related to inconsistencies in the time series have been identified but the ERT recommends that Italy include a discussion in its NIR on the impact of any recalculations on the trend in CO₂, CH₄ and N₂O emissions at the category, sector and national total levels, as appropriate</p>	Yes. Transparency*
E.3	1.A.2.d Pulp, paper and print – biomass – CO ₂	<p>The ERT noted that in the pulp, paper and print industries biomass fuel consumption includes black liquor, industrial sludge and biogas from industrial organic wastes. In response to a question raised by the ERT regarding a country-specific EF for biomass (112.57 t/TJ), the Party explained that the EF is derived from EU ETS data reported by pulp and paper operators for 2008, and applied to the whole time series, where the specific CO₂ EF results from the average mix of biomass fuel used in the 2008</p> <p>The ERT recommends that Italy further analyse the EU ETS data for the time series available, taking into consideration biomass fuel mix in the relevant year, and document the relevant information in the NIR</p>	Yes. Accuracy*
E.4	1.A.2.e Food processing, beverages and tobacco – biomass – CH ₄	<p>The ERT noted that the Party applied the CORINAIR Guidebook (EMEP/CORINAIR, 2007) for CH₄ emissions, which is equal to 152.39 kg/TJ for biogas. The applied EF is significantly higher than the default value in the 2006 IPCC guidelines (volume 2, table 2.3), which is 1.0 kg/TJ with a range of 0.3–3.0 kg/TJ. In response to a question raised by the ERT, the Party explained that CH₄ emissions from biogas fuel combustion take into account the technology used to produce energy and heat from biogas combustion (usually stationary engines), which are not fully efficient and result in higher emissions of VOC, CO and PM</p> <p>The ERT recommends that Italy further analyse and collect information at the plant level in order to verify, and if appropriate update the CH₄ EF</p>	Yes. Accuracy*

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E.5	1.A.3 Transport — CO ₂ , CH ₄ , N ₂ O	<p>The ERT noted that there was no clear explanation regarding the allocation of emissions from lubricant used in railways. Use of lubricants, except in two-stroke engines and mixed with motor gasoline is to be reported under the IPPU sector. During the review, Italy explained that all lubricants used for engines had been included under road transportation (1.A.3.b) and estimated by the COPERT model. This is because it is not possible to separate the amount of lubricant used in railways from the total amount used in engines in transport. The ERT noted that this means that the Party included non-combustible use of lubricant in 1.A.3.b road transportation. The ERT also noted that the amount of lubricant used in railways did not affect the CH₄ and N₂O emissions in the national inventory because these emissions were estimated by the COPERT model using a technology-specific approach. The ERT concluded that this resulted in an overestimation of CO₂ in 1.A.3.b and a misallocation of CO₂ emissions that should be reported under the IPPU sector</p> <p>The ERT recommends that the Party exclude the amount of non-combustible use of lubricants in railways from 1.A.3 Transport and include it in the IPPU sector, category 2.D (lubricant use)</p>	Yes. Comparability*
E.6	1.A.3.a Domestic aviation – liquid fuels – CH ₄ N ₂ O	<p>During the review, the ERT requested an additional explanation from Italy regarding the rationale for the applied N₂O and CH₄ EFs. The N₂O IEF has been held constant at 1.98 kg/TJ for the entire time series. The CH₄ EF has varied across the time series (1990–2014) for 1.A.3.a domestic aviation (ranging from 5.5 kg/TJ in the early part of the time series to 15.50 kt/tTJ in 2005 to 9.30 kt/TJ since 2007). Italy replied by giving a detailed description of assumptions used as well as providing a data comparison table. For N₂O, there was a lack of detailed EF at the engine/aeroplane level and the 2006 IPCC guidelines default value has been used for the whole time series. However, as part of verification/estimation activities, Italy will consider including in its 2017 submission additional information and/or EFs provided at the member State level by Eurocontrol in the framework of European modelling activities to estimate aviation emissions. For the other gases, including CH₄, EFs depend on the technologies and variances in the time series according to two surveys carried out in Italy and quoted in the NIR. The EFs were constant between the two periods (1990–1999 and 2007–2014). EFs for the years 2005, 2006 and 2007 have been provided by the second survey study. During 2000–2004, CH₄ EFs were assessed on the basis of linear interpolation between 1999 and 2005 data</p> <p>The ERT encourages the Party to include information in the NIR to describe the choice of N₂O and CH₄ EFs for aviation fuels, particularly to describe the use of survey data to estimate the CH₄ EF and how the Party ensures times series consistency</p>	Not an issue
E.7	1.A.3.d Domestic navigation — CO ₂ ,	<p>The ERT requested additional information from the Party regarding the amount of lubricant used in the country, as reported in four groups – maritime bunkers, industrial use, engines in the</p>	Yes. Comparability*

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	CH ₄ , N ₂ O	<p>transport sector, and in the petrochemical industry – and of how it estimated and reported GHG emissions. Italy explained that it has allocated 33,696 tonnes of lubricant to maritime bunkers. It stated that this amount was included and estimated in the energy sector under the category 1.A.3.d. The ERT noted that Italy reported all 33,696 tonnes of lubricant or 1,354.58 TJ under international bunkers in CRF table 1A(b), which could result in underestimation for the national inventory for all years. The non-combustible use of lubricant in domestic navigation, if any, should be estimated in IPPU</p> <p>The ERT recommends that Italy estimate the amount of non-combustible use of lubricant in domestic navigation, and include its CO₂ emission estimation in category 2.D.3 in order to improve the completeness and comparability of its reporting</p>	
E.8	International navigation – other liquid fuels – CO ₂ , CH ₄ , N ₂ O	<p>In CRF table 1.D, Italy did not specify what was reported under other liquid fuels</p> <p>The ERT recommends that Italy specify in CRF table 1.D, the specific type(s) of liquid fuel consumed to improve transparency</p>	Yes. Transparency*
E.9	1.A.4.a Commercial/Institutional – other fossil fuels – General	<p>The ERT noted that Italy has reported emissions due to the non-renewable part of wastes used in electricity generation and the amount of fossil waste burned in incinerators with energy recovery under the category commercial/institutional. During the review, the Party explained that emissions from these plants are allocated in the commercial/institutional category because of the final use of heat and electricity production; in fact until the early 2000s, electricity and heat produced by incinerators was used prevalently to satisfy the energy demand from connected activities: the heating of buildings, and the provision of domestic hot water or electricity for offices. This is still true for industrial and hospital incinerators; meanwhile, the amount of energy provided to the grid from municipal solid waste incinerators has been increasing since the early 2000s</p> <p>Given that the share of municipal solid waste incineration connected to the grid and used for electricity production is increasing, the ERT encourages Italy revise the allocation of these emissions under category 1.A.1.a Public electricity and heat production in order to ensure comparability</p>	Not an issue
E.10	1.B.1.b Solid fuel transformation – CO ₂ and CH ₄	<p>In the 2014 review, Italy was recommended to provide additional information on the charcoal production process, including information on when modern technology replaced the conventional technology in the time series. In this submission, Italy had reported the additional information in NIR section 3.3.3 (1.A.1.c Manufacture of solid fuels) (see E.1, above). The ERT commends Italy for providing this information but notes that the information should also be</p>	Not an issue

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		<p>provided in section 3.9.1 of the NIR (1.B.1.b Solid fuel transformation) as recommended in the 2014 review report. During the review, Italy explained that it will implement the change in its next submission (2017)</p> <p>The ERT encourages Italy to provide the information on the charcoal production process, specifically when modern technology replaced the conventional technology in the time series or insert a cross reference in 1.B.1.b Solid fuel transformation in order to improve the overall transparency of the report</p>	
IPPU			
I.13	2.A Mineral industry – CO ₂	<p>The NIR (page 121) states that CO₂ emissions from road paving and asphalt roofing are included in mineral products. The ERT noted that emissions from these two categories are not reported in the CRF tables or in the further NIR text for this industry. Moreover, the ERT noted that in accordance with the 2006 IPCC guidelines, emissions from these categories should be reported under non-energy products from fuels and solvent use. In response to a question raised by the ERT, Italy confirmed that there was an error in the NIR due to the differing location of these categories in the Revised 1996 IPCC guidelines and the 2006 IPCC Guidelines</p> <p>The ERT recommends Italy to correct the error in the NIR in its next annual submission</p>	Yes. Adherence to UNFCCC Annex I inventory reporting guidelines
I.14	2.B.6 Titanium dioxide production – CO ₂	<p>In the NIR, Italy states that the AD and CO₂ emission estimates for titanium dioxide production have been provided by the only operator in the country for the entire time series. However, it is not clear from the NIR what methodology was used to provide these estimates. During the review, Italy explained that this facility is in the scope of the EPER/EPRTTR legislation; therefore, since 2002 it has been reporting relevant information to the national EPER/EPRTTR according to the reporting rules. Furthermore, the plant operator supplies the amount of titanium dioxide produced and the emissions levels, so the average EF can be calculated and used for the inventory purposes</p> <p>The ERT recommends that Italy include a detailed description of the methodology used to estimate emissions from titanium dioxide in the annual submission. The ERT also recommends that Italy include a description of how EPER/EPRTTR and EU ETS methodologies correlate with the 2006 IPCC Guidelines for GHG emission estimation</p>	Yes. Transparency*
I.15	2.D.2 Paraffin wax use – CO ₂	<p>The ERT noted that there was no information in the NIR on the source of AD for paraffin wax use and no rationale for calculating the fraction of entire paraffin consumption that should be included in this category. During the review, Italy provided information on the current data sources and a rationale for extracting 65% of the total paraffin consumption under the assumption that it is used for candle production as the sole known example of paraffin wax</p>	Yes. Transparency*

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I.16	2.E.1 Integrated circuit or semiconductor – HFCs, PFCs, SF ₆	<p>combustion during use. The ERT agrees with the assumptions used by the Party and notes that a reference is provided in the NIR for application of the 65% parameter</p> <p>The ERT recommends that the Party include a description of the AD source for this category in the NIR</p> <p>Italy estimates the F-gas emissions from semiconductor manufacturing in accordance with the tier 2a methodology on the basis of an equation accepted by the World Semiconductor Council. During the review, the ERT noted that this equation is different from the proposed equation in the 2006 IPCC Guidelines and that it is not clear from the NIR how the different methods correlate. In response to a question raised by the ERT, Italy provided the explanation that the formula reported in the NIR combines equations 6.2, 6.3, 6.4, 6.5 and 6.6 of the 2006 IPCC Guidelines. The ERT investigated the comparability of the formulas and agreed on the appropriateness of the approach taken by Italy</p> <p>The ERT recommends that Italy provide information in the NIR to present the correlation of the formula that is used to calculate the F-gas emissions from semiconductor manufacturing and the proposed tier 2a method in the 2006 IPCC Guidelines</p>	Yes. Transparency*
I.17	2.E.1 Integrated circuit or semiconductor – HFCs, SF ₆	<p>The ERT noted that the inter-annual change between 1998 and 1999 in the HFC-23 IEF (781.8%) and SF₆ IEF (845.5%) has been identified as large in the time series for the emissions from the category integrated circuit or semiconductor. In the NIR, Italy explains that the first three years of the time series (1998–2000) are calculated on the basis of consumption data and the following years are calculated on the basis of plant-specific parameters in accordance with the 2006 IPCC Guidelines. The ERT noted that this approach might imply time-series consistency issues and asked the Party to provide an explanation regarding the choice of this approach for data collection and emission estimation for the period 1998–2000. Italy explained that for this period, owing to confidentiality problems and consequent lack of specific information, it was impossible for the inventory team to implement a different estimation approach without losing the information already available and thus the use of alternative recalculation techniques would not be representative of the actual situation, potentially affecting the estimates accuracy. Italy also outlined plans to implement different estimation approaches in the next inventory submission and provide a comparison of the resulting time series in the NIR</p> <p>The ERT recommends that Italy conduct an extrapolation of the estimates after 2001 in order to obtain the emissions for the period 1998–2000 and to include these estimates in the next inventory submission. The ERT welcomes the plans for Italy to include a paragraph in its NIR where a comparison of different estimation approaches will be outlined</p>	Yes. Consistency*

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I.18	2.F.1 Refrigeration and air conditioning – HFCs	<p>In NIR table 4.17, page 160, Italy reported emissions from 2.F.1.a commercial refrigeration twice. in response to a question raised by the ERT, Italy confirmed that there was an error in the table and that second estimates were for the category 2.F.1.b. domestic refrigeration</p> <p>The ERT recommends that Italy correct the error in table 4.17 to distinguish clearly between commercial refrigeration and domestic refrigeration</p>	Yes. Adherence to UNFCCC Annex I inventory reporting guidelines
I.19	2.F.1 Refrigeration and air conditioning – HFCs	<p>The ERT in the review of the 2013 annual submission of Italy,^d advised Italy to perform a cross-check of the GHG estimations from the top-down and the bottom-up approaches for the GHG emission estimation from refrigeration in order to ensure the accuracy of the estimates and improve transparency. In response to a question raised by the ERT on whether Italy had implemented this recommendation, the Party stated that in accordance with a national decree (Decree of the President of the Republic of 27 January 2012, no. 43) as a result of the transposition of European Union regulations on F-gases, every year, by 31 May, the operators of refrigeration, air-conditioning and heat pump equipment, as well as fire protection systems, which contain more than 3 kg of F-gases, must submit to the Institute for Environmental Protection and Research (ISPRA) data on emissions referred to in those applications. Furthermore, ISPRA has developed a specific website, where each operator compiles an online declaration. However, 2012 was the first year of the data collection and the data are undergoing improvements in completeness and accuracy, and consequently it is not comparable with the inventory data. As the revision of this decree is ongoing, Italy is working with the Ministry of the Environment in order to collect these data in a way that would be more useful for the inventory compiling team and that will permit comparison between the bottom-up and the top-down approaches in a more consistent way</p> <p>The ERT welcomes the efforts that Italy undertakes to improve the accuracy and the transparency of the inventory and encourages the Party report on future improvements related to the use of these two data sets in its next annual submission</p>	Not an issue
I.20	2.F.3 Fire protection – HFCs	<p>Italy reported that HFC-227ea consumption for fire extinguishers has been provided by a private company, Consorzio Clean Gas; consumption levels have been supplied for the years 1990–2000 together with projections of constant consumption for the years 2005 and 2010. After 2010 there are no detailed consumption data, but Italy states in the NIR that according to projections the amount of gas was expected to decrease. The ERT noted that Italy did not include a description on how these projections were made and what assumptions were taken into consideration. During the review, Italy explained that owing to a lack of additional data on HFC consumption for the years 2010–2014, it was assumed that emissions are constant at 2010 levels although a reduction in the trend was expected. The ERT noted that there is a discrepancy</p>	Yes. Transparency*

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		between the NIR description and the actual manner of emission estimation for the period 2010–2014	
		The ERT recommends that Italy correct the description in the expected trend of HFC emission estimates for the years 2010–2014 and explains that for these years the emissions are assumed to be constant and not decreasing	
I.21	2.F.4 Aerosols – HFCs	In the 2014 review, the ERT recommended that Italy update its methodology for the calculation of the HFC emissions from metered dose inhalers to be in accordance with IPCC good practice guidance. The ERT noted that Italy changed the methodology and the revised estimates are included in the inventory submission. However, the Party did not provide an explanation of the emission estimation approach in the NIR	Yes. Transparency*
		The ERT recommends that the Party include a description in the NIR of the methodology used to calculate the emission estimates for this category	
Agriculture			
A.4	3.A.1 Cattle – CH ₄	Italy uses a methane conversion factor (Y _m) of 4–6 % for non-dairy cattle (aged 1 year and over), which is one of the lowest compared with other European countries. During the review, Italy explained that the data are based on the Nitrogen Balance Inter-regional Project (CRPA, 2006a). The project was conducted in collaboration with the Italian regions with the highest concentration of livestock and project data were compared with data on breeding performance, food consumption and the characteristics and composition of rations. The Y _m values were calculated as a function of food digestibility, considered more digestible in the case of animals for fattening and richer in fibre in the case of animals for replacement	Yes. Transparency*
		The ERT recommends Italy to provide more information on the Nitrogen Balance Inter-regional Project research results (including breeding performance, food consumption and composition of rations and digestibility) in the NIR to confirm country-specific Y _m values for non-dairy cattle	
A.5	3.B Manure management – CH ₄	Italy uses a methane conversion factor of 1.14% for animal manure digested in anaerobic digesters in the inventory. The 2006 IPCC Guidelines provide a range of 0 to 100% for the methane conversion factor (volume 4, table 10.17, page 10.46). According to the 2006 IPCC Guidelines, CH ₄ emissions should be calculated as a fraction of the CH ₄ produced in the digester and in emissions from digestate. Italy reported that losses from digesters are equal to 1% of biogas produced (NIR, page 450). Since no complete data are available for biogas flared at digesters, CH ₄ flared has been assumed to be equal to 0 (NIR, page 451). In response to a request by the ERT to provide more information on this assumption, the amount of CH ₄ produced in digesters and the amount of CH ₄ used for energy to verify the transparency of	Yes. Transparency*

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A.6	3.B Manure management – CH ₄	<p>calculations, the Party informed it that the data and explanations are provided by the Italian electricity transmission grid operator Terna. The amount of biogas produced was estimated on the basis of the biogas used and information on the average losses of biogas from the safety relief valves of the digesters, reported to be about 1% of the total biogas produced. The Party also explained that it is still investigating the biogas flared together with CRPA, which is completing a new survey on the digesters</p> <p>The ERT commends Italy for its efforts on conducting a new survey on the digesters and recommends that the Party include the results of the survey in its next submission</p> <p>For 1990, N₂O emissions from manure management from digesters have been reported as “NO” (not occurring) or “NA” (not applicable) (CRF table 3.B(b)). However, in table 3.B(a)s2, Italy has reported the percentage allocated by digesters for dairy cattle, non-dairy cattle and swine as 0 but the methane conversion factor is 1.14. During the review, Italy explained that there is an error in table 3.B(a)s2 and that it will be corrected</p> <p>The ERT recommends that Italy correct the error in the reporting of a methane conversion factor in table 3.B(a)s2 for 1990 and fill the cells with the correct notation keys</p>	Yes. Adherence to UNFCCC Annex I inventory reporting guidelines
A.7	3.B.5 Indirect N ₂ O emissions – N ₂ O	<p>In CRF table 3(b), Italy reported indirect N₂O emissions from nitrogen leaching and run-off using the notation key “IE” (included elsewhere), indicating in the cell comment that indirect N₂O emissions from manure management due to leaching and run-off are included in the indirect N₂O emissions reported under agricultural soils. During the review, Italy explained that it reports indirect N₂O emissions from manure management under agricultural soils because it has a country-specific factor only for nitrogen losses from livestock, due to run-off and leaching, which confirms the use of the 2006 IPCC Guidelines default factor of 0.30 kg N/kg N of manure, and the country-specific factor refers to the phase of the spreading of manure. Additionally, the Party explained that $Frac_{LEACH}(H)$ is comparable with the IPCC default, and therefore it has been decided to apply the IPCC default factor in the overall estimation process, taking into account the total nitrogen excreted, without subdividing the estimates by storage and spreading. In addition, a verification activity has been carried out to calculate the average value of the fraction used for the losses of nitrogen due to leaching and run-off from storage of manure. The verification results in an average value of $Frac_{LEACH}MS$, equal to 11%, which is within the range provided by the 2006 IPCC Guidelines. The Party explained that a focus on the nitrogen losses from leaching and run-off in the storage of manure is currently ongoing, involving the main national experts. Italy noted that it plans to provide separate estimates and improve the methodological description in the NIR in the next submission</p>	Yes. Transparency*

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A.8	3.D.a.2 Organic N fertilizers – N ₂ O	<p>The ERT recommends that Italy make efforts to obtain information on the nitrogen losses due to leaching and run-off during manure storage and improve the accuracy of reporting indirect N₂O emissions from manure management in accordance with the 2006 IPCC Guidelines for manure management and the methodological description in the NIR</p> <p>Estimates of emissions from animal manure applied to soils in Italy use a default N_{bedding} from the 2006 IPCC Guidelines (NIR, page 194); however, the country-specific nitrogen amounts in straw for calculating emissions from crop residues are used (according to table A 7.7, page 454). During the review, Italy was asked whether the verification of crop residues information with the calculations of animal manure applied to soils had been completed. Italy confirmed that it has been completed. The nitrogen amount of organic bedding materials calculated on the basis of the 2006 IPCC Guidelines default values is greater than the nitrogen amount in straw made from wheat and barley, produced annually. The Party noted that it is necessary to take into account that the organic bedding materials also include other materials, such as wood chips, sawdust and manure dried and recycled, and therefore it is still conducting further research to determine whether the 2006 IPCC Guidelines defaults are appropriate for Italy</p> <p>The ERT commends Italy for its verification of nitrogen in crop residues with the calculations of animal manure applied to soils. It encourages Italy to continue its investigation on the nitrogen amount in bedding materials</p>	Not an issue
A.9	3.D.b Indirect N ₂ O emissions from managed soils – N ₂ O	<p>Italy uses the 2006 IPCC Guidelines default EF for Fra_{CLEACH}-(H) of 0.30. During the review, Italy confirmed that the soils meet the criteria indicated in table 11.3 of the 2006 IPCC Guidelines to use this default value as it has a country-specific factor of nitrogen losses from livestock due to run-off and leaching. Additionally, the Party noted that it is investigating the fulfilment of the criteria set out in the guidelines</p> <p>The ERT recommends that Italy include information on the value used for Fra_{CLEACH}-(H) in the NIR and encourages the Party to continue to investigate the Fra_{CLEACH}-(H) – fulfilment of the criteria set out in the 2006 IPCC Guidelines</p>	Yes. Transparency*
A.10	3.G Liming – CO ₂	<p>In CRF table 3.G-I, Italy reported CO₂ emissions from dolomite using the notation key “IE” (included elsewhere), indicating in the NIR that there are no national statistics to disaggregate statistics of liming material. However, the tier 1 default value from the 2006 IPCC Guidelines for limestone is 0.12 t CO₂-C/t and for dolomite it is 0.13 t CO₂-C/t. During the review, Italy explained that the largest lime producer in the country provided data on the disaggregation between limestone and dolomite used in agriculture showing a share of 55% for limestone and 45% for dolomite; these data will be used in the next submission. Although the ERT accepted</p>	Yes. Accuracy*

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		<p>the Party's reporting, it believes that this issue should be considered further in future reviews to confirm there is not an underestimate of emissions</p> <p>The ERT recommends that Italy estimate emissions from limestone and dolomite application separately to improve the accuracy of reporting liming emissions in accordance with the 2006 IPCC Guidelines and confirm the amount of lime and dolomite for liming</p>	
LULUCF			
L.11	4. General (LULUCF)	<p>The organization of the NIR, in general, follows the structure outlined in the updated "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". However, the suggested chapter "Indirect CO₂ and nitrous oxide emissions" is missing and those emissions are reported in another chapter. During the review, the Party stated that this chapter will be included in its next submission</p> <p>The ERT encourages the Party to follow the outline and general structure in the next annual report</p>	Not an issue
L.12	4.C Grassland – CO ₂	<p>The Party classified shrublands in the grassland category because they do not fulfil the national forest definition but in the NIR description of the forest inventory typologies, the Party included shrublands in the definition of protective forests. During the review, the Party confirmed that shrublands are not classified as forest according to the national forest definition and that it will be corrected in its next submission</p> <p>The ERT encourages the Party to correct the information in the NIR to clarify that shrublands are classified under grassland</p>	Not an issue
L.13	4.C.1 Grassland remaining grassland – CO ₂	<p>Italy has reported carbon stock change in mineral soils in grazing land management under the Kyoto Protocol but has not reported the same pool in grassland remaining grassland under the Convention (emissions are reported as "NO" (not occurring)). During the review, Italy explained that improved grazing reported under grazing land management land is a subset of the grassland area and that the Party has a planned data collection and model implementation for the soils pool for the grassland area</p> <p>The ERT welcomes these planned improvements and recommends that the Party include this subset in the CRF tables and the NIR under the Convention while the new information is becoming available</p>	Yes. Accuracy*
L.14	4.C Grassland –	Total removals of the category presented a very high variability in the 1990–2014 period, particularly for grassland for the years 1990 and 1991 and between the years 1994 and 1995,	Not an issue

<i>ID#</i>	<i>Finding classification</i>	<i>Description of the finding with recommendation or encouragement</i>	<i>Is finding an issue^b and/or a problem^c? If yes, classify by type</i>
	CO ₂ , CH ₄ , N ₂ O	<p>when the category changed from a source to a sink, which also happened between 2006 and 2007. During the review, Italy explained that this variability is influenced by the occurrence of fires and provided a graph showing the burned areas and their correlation with the emissions for the complete time series, which shows the annual impact of wildfires in the overall emissions and removals</p> <p>The ERT encourages the Party to include in its NIR the graph presented during the review week in order to better explain the large variability in emissions</p>	
L.15	4 (V) Biomass burning – CO ₂ , CH ₄ , N ₂ O, NO _x , CO, NMVOC	<p>The biomass burning for the wetlands category was indicated as “NO” (not occurring) in CRF table 4 (V) but in CRF table 4 sectoral report for LULUCF the notation key “NE” (not estimated) is used for NO_x, CO and NMVOC in wetland remaining wetlands with a comment from the Party saying that no information is available to date to enable the estimation of emissions from wetlands. During the review, Italy confirmed that fires do not occur in wetlands</p> <p>The ERT encourages the Party to also report “NO” in CRF table 4 as fires do not occur in wetlands in order to improve consistency in the reporting tables</p>	Not an issue
L.16	4 (IV).2 Nitrogen leaching and run-off – N ₂ O	<p>In the annual submission, Italy reported N₂O emissions from nitrogen leaching and run-off as “NE” (not estimated), as they have been considered insignificant, being below 0.05% of the national total GHG emissions, and less than 500 kt CO₂ eq</p> <p>The ERT encourages Italy to report information in the NIR on how it derives the likely level of emissions for this category</p>	Not an issue
Waste			
W.2	5.A.1 Managed waste disposal sites – CH ₄	<p>The Party reported a step function variation for the methane generation constant k (0.463 for the period from 1971 to 1990, 0.362 for the period from 1991 to 2005 and 0.363 for the period from 2006 onwards), as explained in the previous review report (para. 65). This introduces an abrupt change in the time series, especially between 1990 and 1991 where the k values were quite different</p> <p>The ERT recommends that the Party develop a continuous time series of the methane generation constant instead of using the step function variation over the relevant periods</p>	Yes. Consistency*
W.3	5.A.1 Managed waste disposal sites – CH ₄	<p>The ERT noted that the Party reported having used the default degradable organic carbon value of 0.5 on page 265 of the NIR. However, the value is different from the value reported in CRF table 5.A of 9.44%. During the review, the Party provided further information on the NIR reported degradable organic carbon value and the value provided in CRF table 5A</p>	Yes. Transparency*

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue ^b and/or a problem ^c ? If yes, classify by type
		The ERT recommends that the Party make the necessary changes to the degradable organic carbon fraction in CRF table 5A to improve the consistency between the NIR and the CRF tables	
W.4	5.A.2 Unmanaged waste disposal sites – CH ₄ , N ₂ O	<p>The Party reported in the NIR that from the year 2000, waste deposited in unmanaged landfills fell to zero as a result of legal reforms without providing justification for the assumption. During the review, the Party provided more information, including action taken by the police to halt the disposal of waste in unmanaged sites</p> <p>The ERT recommends that the Party provide information supporting implementation of legal reforms to reduce to zero, the amount of waste deposited in unmanaged landfills, together with an illustration of the trend in the decrease of waste deposited in unmanaged landfills</p>	Yes. Transparency*
KP-LULUCF			
KL 1.	Deforestation – CO ₂	<p>In Italy, land-use changes due to wildfires are forbidden by national legislation for 15 years after the disturbance (Law Decree of 21 November 2000, n. 353). When asked how the Party recorded the burned areas after the 15-year period in order to ensure that those areas are not deforested, Italy commented that requests for land-use changes and the consequent licences are recorded at NUT2 (National Institute of Statistics) administrative level and that deforestation data are detected on the basis of the NFIs, which are also on the administrative records at the NUT2 level</p> <p>The ERT encourages the Party to report information in the NIR documenting how it records the status of burned areas after the 15-year period required by law, in order to ensure that those areas are not deforested</p>	Not a problem
KL 2.	Article 3.4 activities – CO ₂	<p>Under the Kyoto Protocol, the Party reported “NA” (not applicable) for the litter pool and “NO” (not occurring) for dead wood pools for cropland management and also reported “NO” for above-ground biomass, below-ground biomass, litter, dead wood for grassland management. During the review, the Party explained that for cropland management a tier 1 value was applied assuming that the dead wood and litter stocks are not present in cropland or are at equilibrium, as in agroforestry systems and orchards, and that a tier 1 value was also applied for the pools in lands under grazing land management for above-ground and below-ground biomass, litter and dead wood pools, assuming that they are at equilibrium</p> <p>The ERT recommends that the Party include transparent and verifiable information that demonstrates that these pools are not a source, as stated in the annex to decision 2/CMP.7, and to change the notation key from “NO” to “NE” (not estimated)</p>	Yes. Accuracy*

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue ^b and/or a problem ^c ? If yes, classify by type
KL 3.	Forest management – CO ₂	<p>The ERT notes that Italy has not reported its FMRL in its CRF tables; the NIR correctly references the values presented in the appendix to the annex to decision 2/CMP.7 (–21.182 Mt CO₂ eq assuming instantaneous oxidation and –22.166 Mt CO₂ eq applying a first order decay function for HWP)</p> <p>The ERT recommends that Italy complete CRF table 4(KP-I)B.1.1 to include the FMRL as included in the appendix to the annex to decision 2/CMP.7</p>	Yes. Transparency*
KL 4.	Forest management – CO ₂	<p>Italy described qualitatively in the NIR (page 311) the methodological elements that trigger a methodological inconsistency between the FMRL and FM reporting. It is noted in the NIR that a recommendation was made in the technical assessment of the FMRL in 2011^e to make a technical adjustment. However, the Party has not yet presented the technical correction. According to the NIR, qualitative information on the technical correction and methodological consistency along with a quantitative assessment will be reported in the next inventory submission</p> <p>The ERT encourages the Party to apply a technical correction well before the end of the commitment period</p>	Not a problem

Abbreviations: AD = activity data, C = carbon, COPERT = Computer Programme to Calculate Emissions from Road Transport, CORINAIR = core inventory of air emissions, CRF = common reporting format, EMEP = European Monitoring and Evaluation Programme, EPER = European Pollutant Emission Register, EPRTR = European Pollutant Release and Transfer Register, ERT = expert review team, EU ETS = European Union Emissions Trading System, Eurocontrol = European Organisation for the Safety of Air Navigation, F-gas = fluorinated gas, FM = forest management, FMRL = forest management reference level, Fra_{LEACH}-(H) = Fra_{LEACH}-(H) fraction of nitrogen leached, GHG = greenhouse gas, HWP = harvested wood products, IEF = implied emissions factor, IPCC = Intergovernmental Panel on Climate Change, IPPU = industrial processes and product use, IPCC good practice guidance = *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*, 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, N = nitrogen, N_{bedding} = nitrogen in bedding, NIR = national inventory report, NMVOC = non-methane volatile organic compounds, PM = particulate material, QA/QA = quality assurance/quality control, Revised 1996 IPCC Guidelines = *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, 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”, VOC = volatile organic compounds, Y_m = methane conversion factor, 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.

^d FCCC/ARR/2013/ITA, para. 35. Report of the individual review of the annual submission of Italy submitted in 2013. Available at <<http://unfccc.int/resource/docs/2014/arr/ita.pdf>>.

^e UNFCCC, 2011. Italy. Report of the technical assessment of the forest management reference level submission of Italy submitted in 2011. <<http://unfccc.int/resource/docs/2011/tar/ita01.pdf>>.

VI. Application of adjustments

11. The ERT has not identified the need to apply any adjustments to the 2015 annual submission of Italy.

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

12. Italy 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. Question of implementation

13. No question of implementation was identified by the ERT during the review.

Annex I

Overview of greenhouse gas emissions and removals for Italy 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 Italy.

Table 6

Total greenhouse gas emissions for Italy, base year^a–2013^b

(kt CO₂ eq)

	Total GHG emissions excluding indirect CO ₂ emissions		Total GHG emissions including indirect CO ₂ emissions ^c		Land-use change (Article 3.7bis 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.	FM
							WDR ^e	
FMRL								–21 182.00
Base year	515 850.78	521 920.60	515 850.78	521 920.60	NA		–122.93	
1990	515 850.78	521 920.60	515 850.78	521 920.60				
1995	508 720.06	533 449.77	508 720.06	533 449.77				
2000	535 489.03	554 479.29	535 489.03	554 479.29				
2010	474 065.45	508 424.10	474 065.45	508 424.10				
2011	469 425.45	494 789.58	469 425.45	494 789.58				
2012	450 870.29	468 717.92	450 870.29	468 717.92				
2013	408 062.56	438 887.37	408 062.56	438 887.37		–6 049.08	769.31	–29 013.78

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 all gases except NF₃, for which the base year is 1995. The base year for cropland management, grazing land management and revegetation under Article 3, paragraph 4, of the Kyoto Protocol is 1990. 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 not indirect carbon dioxide 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 Italy, excluding land use, land-use change and forestry 1990–2013^a(kt CO₂ eq)

	<i>CO₂^b</i>	<i>CH₄</i>	<i>N₂O</i>	<i>HFCs</i>	<i>PFCs</i>	<i>Unspecified mix of HFCs and PFCs</i>	<i>SF₆</i>	<i>NF₃</i>
1990	436 204.25	54 530.77	27 427.12	444.00	2 906.86	NA, NO	407.61	NA, NO
1995	447 201.17	54 531.96	28 789.09	813.44	1 450.33	NA, NO	663.78	NA, NO
2000	465 175.07	55 514.81	29 716.61	2 098.16	1 388.29	NA, NO	560.73	25.63
2010	428 879.68	47 942.26	19 945.78	9 725.27	1 520.39	NA, NO	390.55	20.17
2011	416 499.53	46 314.01	19 522.54	10 326.38	1 661.28	NA, NO	438.06	27.78
2012	389 340.76	46 521.33	20 045.13	10 844.35	1 499.21	NA, NO	442.20	24.93
2013	362 063.65	44 074.41	19 099.73	11 501.96	1 705.41	NA, NO	416.51	25.70
Per cent change 1990–2013	–17.0	–19.2	–30.4	2 490.5	–41.2	NA	2.2	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 Italy did not report indirect carbon dioxide emissions in common reporting format table 6.

Table 8
Greenhouse gas emissions by sector for Italy, 1990–2013^{a, b}
 (kt CO₂ eq)

	<i>Energy</i>	<i>IPPU</i>	<i>Agriculture</i>	<i>LULUCF</i>	<i>Waste</i>	<i>Other</i>
1990	422 147.82	40 313.03	36 200.35	–6 069.82	23 259.39	NO
1995	435 464.67	37 957.44	36 213.23	–24 729.71	23 814.43	NO
2000	454 266.73	38 459.13	35 627.78	–18 990.26	26 125.65	NO
2010	421 299.25	34 763.20	30 962.58	–34 358.64	21 399.07	NO
2011	407 806.09	34 787.27	31 486.21	–25 364.14	20 710.02	NO
2012	384 450.06	31 829.63	31 917.52	–17 847.62	20 520.71	NO
2013	358 706.77	30 869.81	30 792.11	–30 824.81	18 518.68	NO
Per cent change 1990–2013	–15.0	–23.4	–14.9	407.8	–20.4	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 Italy did not report indirect carbon dioxide 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 Italy
(kt CO₂ eq)

	<i>Article 3.3 of the Kyoto Protocol</i>			<i>Forest management and elected activities under Article 3.4 of the Kyoto Protocol</i>				
	<i>Land-use change</i>	<i>Afforestation and reforestation</i>	<i>Deforestation</i>	<i>Forest management</i>	<i>Cropland management</i>	<i>Grazing land management</i>	<i>Revegetation</i>	<i>Wetland drainage and rewetting</i>
FMRL				-21 182.00				
Technical correction				NE				
Base year	NA				-119.52	-3.41	NA	NA
2013		-8 079.38	2 030.30	-29 013.78	1 406.24	-636.93	NA	NA
Per cent change Base year–2013					-1 276.5	18 586.3	NA	NA

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

^a Base year refers to the base year under the Kyoto Protocol, which is 1990 for all gases except NF₃, for which the base year is 1995. The base year for cropland management and grazing land management under Article 3, paragraph 4, of the Kyoto Protocol is 1990 for Italy. 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 Italy's reporting under Article 3, paragraphs 3 and 4, of the Kyoto Protocol.

Table 10

Key relevant data for Italy under Article 3, paragraphs 3 and 4, of the Kyoto Protocol

<i>Key parameters</i>	<i>Values</i>
Periodicity of accounting	(a) Afforestation/reforestation: commitment period accounting (b) Deforestation: commitment period accounting (c) Forest management: commitment period accounting (d) Cropland management: commitment period accounting (e) Grazing land management: commitment period accounting (f) Revegetation: not elected (g) Wetland drainage and rewetting: not elected
Election of activities under Article 3, paragraph 4	Cropland management, grazing land management
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 and including indirect CO ₂ emissions	18 267.221 kt CO ₂ eq (146 137.768 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 Italy. 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, for Italy

(t CO₂ eq)

	<i>Original submission</i>	<i>Revised estimates</i>	<i>Adjustment^a</i>	<i>Final^b</i>
Annex A emissions for 2013				
CO ₂	362 063 649			362 063 649
CH ₄	44 074 406			44 074 406
N ₂ O	19 099 732			19 099 732
HFCs	11 501 961			11 501 961
PFCs	1 705 414			1 705 414
Unspecified mix of HFCs and PFCs	NA, NO			NA, NO
SF ₆	416 511			416 511
NF ₃	25 696			25 696
Total Annex A sources	438 887 370			438 887 370
Activities under Article 3, paragraph 3, of the Kyoto Protocol for 2013				
3.3 Afforestation and reforestation	-8 079 377			-8 079 377
3.3 Deforestation	2 030 295			2 030 295
Forest management and elected activities under Article 3, paragraph 4, of the Kyoto Protocol for 2013				
3.4 Forest management for 2013	-29 013 781			-29 013 781
3.4 Cropland management for 2013	1 406 240			1 406 240
3.4 Cropland management for the base year	-119 523			-119 523
3.4 Grazing land management for 2013	-636 929			-636 929
3.4 Grazing land management for the base year	-3 409			-3 409

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

No mandatory categories of the *2006 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories* were identified as missing.

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 Italy for 2015. Available at <<http://unfccc.int/resource/docs/2015/asr/ita.pdf>>.

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

FCCC/ARR/2013/ITA Report of the individual review of the annual submission of Party submitted in 2013. Available at <<http://unfccc.int/resource/docs/2014/arr/ita.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. 1996. *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*. Available at <<http://www.ipcc-nggip.iges.or.jp/public/gl/invs1.htm>>.

Intergovernmental Panel on Climate Change. 2000. *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*. Available at <<http://www.ipcc-nggip.iges.or.jp/public/gp/english/index.html>>.

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 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 Italy for 2015. Available at <http://unfccc.int/files/kyoto_protocol/registry_systems/independent_assessment_reports/application/pdf/siar_2015_ita_1_2.pdf>.

Standard independent assessment report, part 2, for Italy for 2015. Available at <http://unfccc.int/files/kyoto_protocol/registry_systems/independent_assessment_reports/application/pdf/siar_2015_ita_2_2.pdf>.

B. Additional information provided by the Party

Responses to questions during the review were received from Mr. De Lauretis (Institute for Environmental Protection and Research), including additional material on the methodology and assumptions used. The following documents¹ were also provided by Italy:

COPERT 4 (v.11.3). EMISIA SA, 2015. COPERT (COmputer Programme to Calculate Emissions from Road Transport) prepared for the European Environment Agency. Available at <http://www.emisia.com/copert>.

EMEP/CORINAIR Emission Inventory Guidebook – 2007. Technical report No 16/2007. Prepared by the UNECE/EMEP Task Force on Emission Inventories and Projections. European Environment Agency (EEA). Available at <<http://www.eea.europa.eu/publications/EMEPCORINAIR5/#parent-fieldname-title>>.

Explanation provided to ERT regarding CH₄ conversion factor based on Nitrogen Balance Inter-regional Project (CRPA, 2006a).

¹ Reproduced as received from the Party.

Annex V

Acronyms and abbreviations

AAU	assigned amount unit
AD	activity data
Annex A sources	sources included in Annex A to the Kyoto Protocol
C	carbon
CER	certified emission reduction unit
CH ₄	methane
CM	cropland management
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ eq	carbon dioxide equivalent
COPERT	Computer Programme to Calculate Emissions from Road Transport
CORINAIR	core inventory of air emissions
CPR	commitment period reserve
CRF	common reporting format
EF	emission factor
EMEP	European Monitoring and Evaluation Programme
EPER	European Pollutant Emission Register
EPRT	European Pollutant Release and Transfer Register
ERT	expert review team
ERU	emission reduction unit
EU ETS	European Union Emissions Trading System
Eurocontrol	European Organisation for the Safety of Air Navigation
F-gas	fluorinated gas
FM	forest management
FMRL	forest management reference level
Frac _{LEACH} -(H)	fraction of nitrogen leached
GHG	greenhouse gas
GM	grazing land management
HWP	harvested wood products
IE	included elsewhere
IEF	implied emissions factor
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
ISPRA	Institute for Environmental Protection and Research
KP-LULUCF	LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol
kt	kilotonne
LULUCF	land use, land-use change and forestry
N	nitrogen
N _{bedding}	nitrogen in bedding
NA	not applicable
NE	not estimated
NFI	national forest inventory
NIR	national inventory report
NMVO	non-methane volatile organic compounds
NO	not occurring
NO _x	nitrous oxides
NUT2	National Institute of Statistics

PM	particulate material
QA/QC	quality assurance/quality control
RMU	removal unit
RV	revegetation
SEF	standard electronic format
SIAR	standard independent assessment report
UNFCCC	United Nations Framework Convention on Climate Change
VOC	volatile organic compounds
VS	volatile solids
WDR	wetland drainage and rewetting
Y _m	methane conversion factor
