

Report on the determination of Italy's assigned amount under Article 7, paragraph 4, of the Kyoto Protocol

Draft Report to the European Commission (15 January 2015)

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Introduction

This report explains the modalities for the accounting of the Italian assigned amount under Article 7, paragraph 4, of the Kyoto Protocol and pursuant to Decision 2/CMP.8 in FCCC/KP/CMP/2012/13/Add.1 taking into account also **Decision No. of the European Parliament and of the Council** concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol.

To facilitate the calculation of the assigned amount for the commitment period and demonstrate its capacity to account for its emissions and assigned amount, the complete time series of the national inventories of anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol for all years from 1990 to 2013 is included. This information has been submitted to the European Union in the framework of the Monitoring Mechanism of greenhouse gas emissions and will be submitted to the UN Secretariat of Climate Change for implementing the Kyoto Protocol by the due date of 15 April 2015.

1. Greenhouse gas inventory for 1990 – 2013

The methodologies used in the preparation of Italy's greenhouse gas inventory are consistent with the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, and the 2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol. The greenhouse gas emissions time series for the period 1990 to 2013 is shown in Table 1.

to be included

Table 1. Italian greenhouse gas emissions and removals from 1990 to 2013 (Gg CO₂ equivalent)

Total greenhouse gas emissions exclude all emissions and removals from land use, land use change and forestry (LULUCF) in accordance with the Art 7.4 modalities for the accounting of assigned amount.

2. Identification of selected base year for NF₃

Italy has chosen the year 1995 as the base year for the emissions of nitrogen trifluoride (NF₃) in accordance with Article 3 paragraph 8bis of the Kyoto Protocol.

3. Agreement under Article 4

to be included

4. Calculation of Italy's assigned amount pursuant to Article 3(7bis), (8) and (8bis) of the Kyoto Protocol

The proposal for Italy's emission level in terms of tonnes of carbon dioxide equivalent pursuant to Article 3(7bis), (8) and (8bis) of the Kyoto Protocol, taking into account the methodologies for estimating anthropogenic emissions by sources and removals by sinks referred to in Article 5(2) of the Kyoto Protocol and the modalities of assigned amount pursuant to Article 3(7bis), (8) and (8bis) of the Kyoto Protocol, as well as the agreement under Article 4 that implement the joint fulfilment of commitments of the European Union, as stated in the Doha Amendment to the Kyoto Protocol to the United Nations Framework Convention on Climate Change, is 2,427,083,466 tonnes of CO₂ equivalent.

Land-use change and forestry does not constitute a net source of greenhouse gas emissions in 1990.

5. Calculation of Italy's commitment period reserve

The national commitment period reserve is calculated in accordance with paragraph 6 of the Annex to decision 11/CMP.1 as 90% of the proposed assigned amount or 100% of five times its most recently reviewed inventory, whichever is the lowest.

The Italian commitment period reserve is calculated either as:

$$2,427,083,466 \text{ t CO}_2 \text{ equivalent} * 0.9 = 2,184,375,120 \text{ t CO}_2 \text{ equivalent}$$

or:

$$\text{to be included t CO}_2 \text{ equivalent (emission level 2013)} * 8 = \text{to be included t CO}_2 \text{ equivalent}$$

Italy has interpreted the 'most recently reviewed inventory' as the year 2013, which will be reviewed by December 2015.

The Italian commitment period reserve is therefore **2,184,375,120** t CO₂ equivalent.

Table 2 summarises the emission level and the commitment period reserve for Italy.

Emissions in base year (t CO ₂ eq)	Target burden sharing agreement (%)	Emission level (t CO ₂ eq)	Commitment period reserve (t CO ₂ eq)	Article 3.7
???	???	2,427,083,466	2,184,375,120	Does not apply

Table 2. Italy's emission level and commitment period reserve

6. Forest definition and thresholds parameters to be used for reporting under Article 3, paragraphs 3 and 4 of Kyoto Protocol

The forest definition to be used in the second commitment period is the same definition adopted for the first commitment period.

The forest definition adopted by Italy is in line with the definitions of the Food and Agriculture Organization of the United Nations, therefore the following threshold values for tree crown cover, land area and tree height are applied:

- a minimum area of land of 0.5 hectares;
- tree crown cover of 10 per cent;
- minimum tree height of 5 meters.

7. Selection of activities under Article 3, paragraph 4, for accounting in the second commitment period

Cropland Management and Grazing Land management:

Italy will not elect Cropland management and Grazing Land management as an activity under Article 3.4.

Revegetation:

Italy will not elect Revegetation as an activity under Article 3.4.

Wetland drainage and rewetting:

Italy will not elect Wetland drainage and rewetting as an activity under Article 3.4.

The land accounted for activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol in the first commitment period continues to be accounted for in subsequent commitment periods, in accordance with decisions 16/CMP.1 and 2/CMP.7. The national system under Article 5, paragraph 1, of the Kyoto Protocol will identify land areas subject to Article 3, paragraphs 3 and 4 activities; in particular the *National Registry for Carbon sinks*, part of the Italian National System¹, includes information on units of lands subject of activities under Article 3.3 and activities elected under Article 3.4 and related carbon stock changes. The National Registry for Carbon sinks is the instrument to estimate, in accordance with the COP/MOP decisions, the relevant IPCC guidelines, the greenhouse gas emissions by sources and removals by sinks in forest land and related land-use changes and to account for the net removals in order to allow the Italian Registry to issue the relevant amount of RMUs.

8. Identification of the accounting period for each activity

Italy intends to account for each activity under Article 3, paragraphs 3 and 4 of the Kyoto Protocol for the entire commitment period.

9. Forest management reference level

The forest management reference level (FMRL²) for Italy, inscribed in the appendix to the annex to decision 2/CMP.7, is equal to -21.182 Mt CO₂ eq. per year assuming instantaneous oxidation of HWP, and -22.166 Mt CO₂ eq applying a first-order decay function for HWP.

Italy is one of the member States of the EU for which the JRC of the European Commission developed projections in collaboration with two EU modeling groups. The FMRL³ is the averages

¹ National Inventory system: http://www.sinanet.isprambiente.it/it/sia-ispra/serie-storiche-emissioni/national-greenhouse-gas-inventory-system-in-italy.-year-2012/at_download/file

² Submission of information on forest management reference levels by Italy: http://unfccc.int/files/meetings/ad_hoc_working_groups/kp/application/pdf/awgkp_italy_2011.pdf

Communication of 11 May 2011 regarding harvested wood products value by Italy: http://unfccc.int/files/meetings/ad_hoc_working_groups/kp/application/pdf/awgkp_italy_corr.pdf

Technical assessment report of the FMRL by Italy: http://unfccc.int/documentation/documents/advanced_search/items/3594.php?rec=j&preref=600006501#beg

of the projected forest management (FM) data series for the period 2013-2020, taking account of policies implemented before mid-2009, with emissions/removals from harvested wood product (HWP) using the first order decay functions, and assuming instant oxidation. Aboveground and belowground biomass, dead organic matter and HWP are included in the FMRL. Non-CO₂ GHGs from forest wildfires are also included in the submission.

The need for a Technical Correction (TC) to be applied to the FMRL has been detected, due to the availability of new forest inventory data and consequent recalculations of the reported data on FM and *Forest Land Remaining Forest Land used* to establish the reference level. Therefore to ensure methodological consistency between the FMRL and reporting for Forest Management during the second commitment period, Italy is going to apply a technical correction. Qualitative information on TC and methodological consistency will be included in the 2015 national inventory report submission; a quantitative assessment will be reported in the next national inventory report inventory submissions, consistently with the requirements of decision 2/CMP.7, annex, paragraph 14.

10. Information on harvested wood products emissions calculation

The estimated annual accumulation of -0.984 Mt CO₂ eq. per year in HWP pools included in Italy's FMRL is estimated using C-HWP-Model, which estimates delayed emissions on the basis of the annual stock change of semi-finished wood products as outlined in the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*, with annual production data, specific half-lives for product types, application of the first-order decay function using equation 12.1 from the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* with default half-lives of two years for paper, 25 years for wood panels and 35 years for sawn wood and instantaneous oxidation assumed for wood in solid waste disposal sites. Historical data since 1900 are taken into account. The estimates exclude exports. The activity data (production and trade of sawnwood, wood based panels and paper and paperboard) is derived from the TIMBER⁴ database (time series 1964-2009).

11. Provisions whether to exclude natural disturbances for 3.3 and 3.4 activities

Italy intends to apply the provisions to exclude emissions from natural disturbances for the accounting for afforestation and reforestation (AR) under Article 3, paragraph 3 and forest management (FM) under Article 3, paragraph 4, of the Kyoto Protocol during the second commitment period in accordance with decision 2/CMP.7, annex, paragraph 33.

The FM and AR background levels of emissions associated with annual natural disturbances have developed, on the basis of country-specific information, in accordance with the paragraphs 33(a) and (b) of Annex to Decision 2/CMP.7 and related guidance provided by the *IPCC 2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol* (2013 KP Supplement).

³ When constructing the FMRL, the following elements were taken into account: (a) removals or emissions from forest management as shown in GHG inventories and relevant historical data, (b) age-class structure, (c) forest management activities already undertaken, (d) projected forest management activities under business as usual, (e) continuity with the treatment of forest management in the first commitment period.

⁴ UNECE, TIMBER database: http://www.unece.org/forests/fpm/online_data.html

Total and area specific emissions from disturbances for the calibration period for FM																							
Disturbance type	Inventory year during the calibration period																						
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
	Total annual emission [Gg CO ₂ eq.]																						
Wildfires	7,767	2,334	3,350	8,165	3,270	1,569	1,424	4,623	5,232	2,938	4,010	2,579	1,461	3,016	1,402	1,463	1,110	7,283	1,376	1,617	838	1,507	4,386
Insect attacks and disease infestations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
extreme weather events	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
geological disturbances	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SUM	7,767	2,334	3,350	8,165	3,270	1,569	1,424	4,623	5,232	2,938	4,010	2,579	1,461	3,016	1,402	1,463	1,110	7,283	1,376	1,617	838	1,507	4,386
For all land under FM	Total area [kha]																						
	7511	7510	7510	7509	7508	7508	7507	7506	7505	7505	7504	7503	7502	7502	7501	7497	7494	7490	7486	7483	7479	7475	7471
	Area-specific emissions (Emissions per unit of land area under FM, Mg CO ₂ eq. ha ⁻¹)**																						
	1.03	0.31	0.45	1.09	0.44	0.21	0.19	0.62	0.70	0.39	0.53	0.34	0.19	0.40	0.19	0.20	0.15	0.97	0.18	0.22	0.11	0.20	0.59

** In any year, emissions per unit of land area are calculated as the Sum divided by the total area under FM

Table 3. Total and area specific emissions from disturbances for the calibration period for FM

Total and area specific emissions from disturbances for the calibration period for AR																							
Disturbance type	Inventory year during the calibration period																						
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
	Total annual emission [Gg CO ₂ eq.]																						
Wildfires	775	248	376	968	408	205	199	689	827	491	706	476	282	609	295	321	238	1525	282	323	164	287	816
Insect attacks and disease infestations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
extreme weather events	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
geological disturbances	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SUM	775	248	376	968	408	205	199	689	827	491	706	476	282	609	295	321	238	1,525	282	323	164	287	816
For all land under AR	Total area [kha]																						
	72	145	217	289	362	434	506	579	651	723	796	868	940	1012	1085	1154	1207	1379	1437	1495	1553	1612	1670
	Area-specific emissions (Emissions per unit of land area under AR, Mg CO ₂ eq. ha ⁻¹)**																						
	10.71	1.71	1.74	3.35	1.13	0.47	0.39	1.19	1.27	0.68	0.89	0.55	0.30	0.60	0.27	0.28	0.20	1.11	0.20	0.22	0.11	0.18	0.49

** In any year, emissions per unit of land area are calculated as the Sum divided by the total area under AR

Table 4. Total and area specific emissions from disturbances for the calibration period for AR

The background levels, both for FM and AR, have been developed following the default method outlined in the 2013 KP Supplement, applying the following steps:

- (1) Calculation of the arithmetic mean of the annual emissions for FM (and area-specific for AR) summed over disturbance types using all years in the calibration period.
- (2) Calculation of the corresponding standard deviation (SD) of the annual emissions;
- (3) Checking whether any emission estimate is greater than the arithmetic mean plus twice the SD. In this case, such estimate(s) has(ve) been removed from the dataset and go back to step (1) above using the reduced dataset.

When no further outliers can be identified, the arithmetic mean and twice the SD, as calculated in the last step of the iterative process, define the background level and the margin, respectively.

The expectation of net credits has been avoided comparing the emissions resulting by the application of step (3) above with the mean minus twice the SD (in this case the emissions should not be removed from the dataset).

The background level and margin for FM have resulted equal to: 2,330 Gg CO₂ eq. and 2,343 Gg CO₂ eq., respectively.

The background level and margin for AR have resulted equal to: 0.55 Gg CO₂ eq. and 0.77 Gg CO₂ eq., respectively.