

Final report of the 2012 technical
review of the greenhouse gas emission
inventory of Malta
to support the determination of annual emission
allocations under Decision 406/2009/EC

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Introduction

Pursuant to Article 3.2 of Decision 406/2009/EC⁽¹⁾ (the 'Effort Sharing Decision' – ESD), the European Commission shall determine the annual emission allocations (maximum allowed greenhouse gas emissions) of Member States for the period from 2013 to 2020 in tonnes of carbon dioxide equivalent (CO₂ eq.), using reviewed and verified emission data.

Complete sets of greenhouse gas (GHG) emission estimates for the reference years (2005, 2008, 2009 and 2010) were submitted by each Member State by the 15th of May, 2012 as part of the 2012 national inventory submission under Decision 280/2004/EC (the 'Monitoring Mechanism Decision' – MMD). These estimates must have been reviewed to allow the determination in 2012 of the annual emission allocations for the period from 2013 to 2020.

The 'Guidelines for the 2012 technical review of greenhouse gas emission inventories to support the determination of Member States' annual emission allocations under Decision 406/2009/EC' were endorsed by the Climate Change Committee on 19 May 2011 and published as a European Commission Staff Working Document on 26 April 2012⁽²⁾. The 2012 greenhouse gas emission inventory of Malta was reviewed in accordance with these guidelines.

This report presents the findings of the 2012 technical review of the greenhouse gas emission inventory of Malta to support the determination of annual emission allocations under Decision 406/2009/EC.

Review Objectives

The purpose of the technical review of Member States' GHG inventories is to support the determination of the annual emission allocations by:

- a) ensuring that the European Commission has accurate, reliable and verified information on annual GHG emissions for the years 2005, 2008, 2009 and 2010 to determine the annual emission allocations under Decision 280/2004/EC;
- b) providing the European Commission and its Member States with a consistent, transparent, thorough and comprehensive technical assessment of GHG emissions, with a focus on data for the years 2005, 2008, 2009 and 2010 reported in 2012;
- c) examining, in a facilitative and open manner, the reported inventory information for consistency with the 'Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories', with the 2000 'Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories', and with the requirements of Decision 280/2004/EC (the 'Greenhouse Gas Monitoring Mechanism' Decision)⁽³⁾;

⁽¹⁾ Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020. OJ L 140, 5.06.2009, p. 136.

⁽²⁾ Commission Staff Working Document of 26 April 2012: Guidelines for the 2012 technical review of greenhouse gas emission inventories to support the determination of Member States' annual emission allocations under Decision 406/2009/EC. SWD(2012) 107 final.

⁽³⁾ Decision No 280/2004/EC of the European Parliament and of the Council of 11 February 2004 concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto protocol. OJ L 140, 5.06.2009, p. 136.

- d) assisting Member States in improving the quality of their GHG inventories.

Review approach and scope

The technical review of the 2012 GHG inventory estimates of Malta for the years 2005, 2008, 2009 and 2010 was performed by a Technical Expert Review Team (TERT) under service contract 2011/S 234-378130 to the Directorate General for Climate Action of the European Commission.

The review was conducted by the following experts: Kristien Aernouts & Tomas Gustafson for Stationary combustion (CRF categories 1.A.1, 1.A.2, 1.A.4, 1.A.5) + Reference approach; Maria Liden & Tinus Pulles for CRF categories 1.A.3 Transport + 1.C International bunkers; Ralph Harthan & John Watterson for CRF category 1.B Fugitive; Anke Herold & Ils Moorkens for CRF categories 2.A Mineral products + 2.B Chemical industry + CRF sector 3 Solvents; Kristina Saarinen & Dusan Vacha for CRF categories 2.C Metal production + 2.D Other production + 2.G Other; Maria Jose Lopez & Karin Kindbom for CRF categories 2.E Production of Halocarbons and SF₆ + 2.F Consumption of Halocarbons and SF₆; Michael Anderl & Steen Gyldenkaerne for CRF categories 4.A Enteric fermentation + 4.B Manure management; Sorin Deaconu & Etienne Mathias for CRF categories 4.C Rice cultivation + 4.D Agricultural soils, 4.E Prescribed burning of savannas, 4.F Field burning of agricultural residues; Juraj Farkas & Celine Gueguen for CRF sector 6 Waste. Ole-Kenneth Nielsen, Suvi Monni, Klaus Radunsky and Tatiana Tugui acted as lead reviewers. The review was coordinated by Bernd Gugele and Justin Goodwin. The TERT acknowledges the support of the EEA review secretariat Martin Adams, Francois Dejean and Melanie Sporer.

This technical review was performed on the basis of GHG emission data and the national inventory report (NIR) officially reported by Member States by the 15th of April, 2012 under the MMD. Resubmissions reported by Member States were taken into account until the 15th of May, consistent with the reporting practice for resubmissions under Decision 280/2004/EC. Emissions from international transport and land use, land-use change and forestry (LULUCF) were not reviewed. The review was performed with a focus on data for the years 2005, 2008, 2009 and 2010, reported in 2012.

The technical review process for GHG inventories comprised three stages, each of which considered different aspects of the inventories in such a way that the purposes described above were achieved by the end of the process. The three stages were:

- Stage 1, completed by 15 April 2012 – initial completeness checks of each Member State GHG inventory (submitted by 15 January and by 15 March);
- Stage 2, completed by 15 April 2012 – initial consistency and comparability checks of each Member State GHG inventory (submitted by 15 January and by 15 March);
- Stage 3, to be completed by the end of August 2012 – detailed *technical review* of each Member State GHG inventory (submitted by 15 May).

The detailed timeline of the review, including a summary of the correspondence with Malta, is presented in Annex 4.

ESD 2012 technical review conclusions

Table 1. Main conclusions from the TERT

Findings
1. The TERT considers that the GHG emission inventory estimates of Malta for the years 2005, 2008, 2009 and 2010 submitted in 2012 under the MMD do not include emission overestimates .
2. The TERT did not identify inconsistency issues between the reported GHG emission inventory estimates and verified emission data under the EU ETS.
3. During the course of the technical review, the TERT did not receive any revised GHG emission inventory estimate from Malta in response to its initial findings.
4. The TERT suggests that it is not necessary to implement any technical correction to the GHG emission inventory estimates and to amend the reported GHG total.
5. As stated beneath Table 1, Malta accepts the aggregated GHG emission inventory estimates presented in Table 2.
6. The TERT identified non-binding recommendations for improvements of Malta's GHG inventory (see Table 3 in Annex 1).
7. The TERT considers that it received a response from Malta that was sufficient in order to undertake the review appropriately.

Statement from Malta on the conclusions of the TERT

Malta agrees with the aggregated GHG emission inventory estimates presented in Table 2. Malta also agrees with the recommendations presented in Annex 1.

Table 2. Summary of national totals, including any revised estimates or technical corrections identified during the review

Data / Category	Reference	Status of GHG emission revision or correction	2005 Gg CO ₂ eq.	2008 Gg CO ₂ eq.	2009 Gg CO ₂ eq.	2010 Gg CO ₂ eq.
Total GHG emissions as reported in the 2012 submission under the MMD	15 May 2012, MLT-2012-v1.11		3 026.933	3 094.015	3 016.177	3 035.079
Revised estimates provided by Malta ⁽⁴⁾						
1.A.4. Other sectors CH ₄ 2005, 2008–2010	17-08-2012 from Malta: ESD review Proposed correction MLT 17_08_2012.xls	Accepted by TERT	0.263	0.312	0.389	0.390
Total GHG emissions including any accepted revised estimate received from Malta and/or technical correction as proposed by the TERT			3027.196	3094.327	3016.565	3035.469
CO₂ emissions from 1.A.3.a Civil aviation	15 May 2012, MLT-2012-v1.11		0.678	0.720	0.617	0.783

Note: National totals exclude emissions from LULUCF and emissions reported under memo items (e.g. international aviation and maritime transport).

⁴ Difference: revised estimates – original estimates. A positive difference indicates an increase compared to reported emissions. A negative difference indicates a decrease compared to reported emissions. For more information on revised estimates, see Annex 1.

Annex 1 – Recommendations, revised estimates and technical corrections

Table 3. Recommendations of the TERT

Key category	Gas, fuel, activity	Observation	Recommendation	Revised estimate ⁽⁵⁾	Technical correction ⁽⁶⁾
No	Energy: Comparison RA vs. SA CO ₂ 2005, 2008–2010	<p>In 2005, the data in CRF tables for liquid fuels are lower than in EUROSTAT, whereas the contrary occurs in 2008–2010. In the NIR, page 46, Malta states that the difference is due to the fact that the reference approach (RA) is based on data from fuel importers and the sectoral approach (SA) is based on other sources.</p> <p>In response to a question from the TERT, Malta stated that the inventory team will investigate the issue with the National Statistics Office (NSO), which is the focal point to EUROSTAT in Malta. Malta further explained that information passed to Eurostat by the NSO is based on imports, which is different from the data used for the sectoral approach. Malta also indicated that the NCV used in RA and SA could be different and that for the RA, Revised 1996 IPCC Guidelines default</p>	The TERT recommends that Malta further investigate the differences between RA and SA (including the use of NVC values and the difference between import and actual use) and revise the estimates if necessary.	No	No

⁵ The GHG emission estimate for this category was revised by Malta during the technical review.

⁶ The GHG emission estimate for this category is subject to a technical correction proposal by the TERT.

Key category	Gas, fuel, activity	Observation	Recommendation	Revised estimate ⁽⁵⁾	Technical correction ⁽⁶⁾
		values were used.			
Yes	1.A.3.b. Road transportation CO ₂ All years	CO ₂ from road transportation is a key category. However, Malta uses the 2006 IPCC Guidelines default EF to estimate CO ₂ emissions from gasoline. The 2000 IPCC Good Practice Guidance (GPG) states in this respect: 'For traded fuels in common circulation, it is good practice to obtain the carbon content of the fuel and net calorific values from fuel suppliers, and use local values wherever possible. If these data are not available, default values can be used.' The TERT considers that local or country-specific data should be available on Malta and that therefore the use of the default value is not in line with good practice.	The TERT recommends that Malta obtain the carbon content and net calorific values of gasoline from fuel suppliers and develop a country-specific emission factor for CO ₂ from gasoline. If this is not possible, Malta could consult other countries with similar circumstances.	No	No
No	1.A.4. Other sectors CH ₄ biomass 2005, 2008–2010	Malta states in the NIR that a default 2006 IPCC Guidelines' emission factor is used for CH ₄ emissions from biomass. However, the emission factor used is 30 kg/TJ instead of the default value 300 kg/TJ. In response to the draft review report, Malta noted that the 2006 IPCC guidelines have been updated and the CH ₄ value has changed from Malta's purchased 2006 IPCC guidelines. Malta submitted a revised estimate on 17/8/2012 (combined with the revised estimate in response to 1.A.4. Other Sectors CH ₄ below) correcting the errors highlighted by the TERT, which was accepted by the TERT.	The TERT recommends that Malta use the correct CH ₄ emission factor for biomass to avoid underestimation of emissions.	No	No
No	1.A.4. Other	Malta states in the NIR that default 2006 IPCC	The TERT recommends that Malta correct its CH ₄	No	No

Key category	Gas, fuel, activity	Observation	Recommendation	Revised estimate ⁽⁵⁾	Technical correction ⁽⁶⁾
	sectors CH ₄ 2005, 2008–2010	Guidelines emission factors are used. However, emission factors presented in Table 3-19 of the NIR correspond with 2006 IPCC Guidelines' emission factors for energy industries, and not for the residential and agriculture/forestry/fisheries sectors. The use of those emission factors leads to underestimation of emissions. Malta submitted a revised estimate on 17/8/2012 (combined with the revised estimate in response to 1.A.4. Other Sectors CH ₄ biomass below) correcting the errors highlighted by the TERT, which was accepted by the TERT.	emission factors for residential and agriculture/forestry/fisheries sectors in order not to underestimate emissions.		
No	2.F(a).2. Foam blowing HFC 2005, 2010	Malta reports the emissions from foam blowing as 'not occurring' (NO) for 2010 and 1990–2005. As the TERT considers it likely that foams containing HFCs are imported and used in the country this may lead to underestimation of emissions.	The TERT recommends that Malta verify whether foams containing HFCs are imported and used in the country and prepare emission estimates if appropriate. If foam blowing is occurring in some years and not in others, the TERT recommends that Malta improve on transparency of the NIR to explain that emissions are not underestimated.	No	No
No	2.F(a).3. Fire extinguishers HFC 2005	Malta reports the emissions from fire extinguishers as NO for 2005. As the TERT considers it likely that fire extinguishers containing HFC agents were used in the country in 2005 this may lead to underestimation of emissions.	The TERT recommends that Malta verify whether fire extinguishers containing HFC agents were used in the country in 2005 and prepare emission estimates if appropriate. If emissions from fire extinguishers are occurring in some years and not in others, the TERT recommends that Malta improves on transparency of the NIR to explain that emissions are not underestimated.	No	No
Yes	4.D. Agricultural	Malta assigns 'not estimated' (NE) notation key to N ₂ O	The TERT recommends that Malta improve on the	No	No

Key category	Gas, fuel, activity	Observation	Recommendation	Technical correction (6)	
				Revised estimate (5)	
	soils N ₂ O 1990–2010	emissions from nitrogen-fixing crops and Crop residue categories, explaining in page 88 of the NIR that the availability of data is under consideration. This leads to underestimation of emissions.	completeness and accuracy of the inventory by including emissions estimates associated with the N-fixing crops and Crop residues categories; in the case that national data are lacking, it is possible to estimate the emissions using data available from the Food and Agriculture Organization (FAO) (for example, data on crop productions and harvested areas) and default values for parameters and estimation methods from Revised 1996 IPCC Guidelines, 2000 IPCC GPG, 2006 IPCC Guidelines or a combination of these.		
No	6.B.3.b. N ₂ O from human sewage AD used	Malta uses a constant value for protein consumption to estimate N ₂ O emissions from human sewage.	The TERT recommends that Malta consider using annual FAO data on protein consumption to avoid potential underestimation of emissions.	No	No

Annex 2 – Detailed technical corrections

There are no technical corrections applied to Malta's estimates of emissions.

Annex 3 – Checks and tests completed

The initial checks (stage 1 and 2 checks), which cover the national inventory submissions, informed the stage 3 technical review with a view to:

- a) assess whether all emission source categories and gases are reported as required under Decision 280/2004/EC;
- b) assess whether sub-category sums are consistent with sectoral and national totals;
- c) assess whether emission data time series are consistent;
- d) assess whether implied emission factors across Member States are comparable;
- e) assess the use of 'Not Estimated' notation keys where IPCC Tier 1 methodologies exist;
- f) compare with the previous year's inventory submission of the Member State;
- g) limited sector-specific checks performed by ETC/ACM sector experts.

The EU initial checks were extended in 2012 to address additional elements needed for the 2012 technical review. The extended checks included:

- a) a detailed analysis of recalculations performed for the 2012 inventory submissions, in particular if recalculations are based on methodological changes.
- b) a comparison of the verified emissions reported under the EU ETS with the greenhouse gas emissions reported in GHG inventories. The verified emissions under the EU ETS are not fully comparable with the emissions reported in the GHG inventories. This comparison may only highlight areas where some Member States' data and trends deviate considerably from those of other Member States.
- c) a comparison of the results from Eurostat's reference and sectoral approach, based on energy data reported under Regulation (EC) No 1099/2008, with the Member States' reference and sectoral approach.

The specific activities of the 2012 technical review included:

- a) an analysis of the Member States' implementation of recommendations related to improving inventory estimates in accordance with the Revised 1996 IPCC Guidelines and the 2000 IPCC good practice guidance (GPG) as listed in the UNFCCC Annual Review Reports from the 2010 and 2011 UNFCCC review processes. Where UNFCCC recommendations have not been implemented, the analysis included an assessment as to whether the Member State provided adequate justification for this;
- b) an assessment of the time series consistency of the greenhouse gas emissions estimates, with a particular focus on the 2005 and 2008-2010 estimates;
- c) checking whether problems identified for one Member State in UNFCCC reviews might also have been a problem for other Member States (whether identified by the UNFCCC expert review team or not);
- d) an assessment of any recalculations made by a Member State in its inventory since the previous submission, and an assessment as to whether these were transparently reported and were in accordance with IPCC good practice guidance;
- e) a follow-up on any outstanding findings from existing and extended stage 1 and 2 checks;
- f) the inclusion of revised estimates as provided by Member States in response to the review, and as accepted by the TERT during the review;
- g) the provision of an estimate for any 'technical correction' to emission estimates reported by a Member State where it is believed that emissions reported by the Member State are

overestimated, and a statement of the significance of these 'technical corrections' in comparison to the overall reported inventory estimates;

- h) the provision of recommendations where problems have been identified that do not require technical corrections.

Material from previous UNFCCC inventory reviews was used to inform the technical review, including the previous years' Annual Review Reports, which provide an indication of the overall quality of the inventory.

The TERT used additional technical information in the review process, such as EU ETS data, information from Eurostat, and F-gas data from the 'Preparatory study for a review of Regulation (EC) No 842/2006 on certain fluorinated greenhouse gases (⁷), as well as data from other international organisations.

⁷ Service contract 070307/2009/548866/SER/C4 to the European Commission

Annex 4 – Correspondence references

Date	Reference
15 May 2012	Final CRF and NIR submission under the MMD, version MLT-2012-v1.11
21, 23 May, 1 June 2012	Initial questions raised by the TERT during the desk review
7 June 2012	Additional questions raised by the TERT during the centralised review
5, 8 June 2012	Responses from Malta to TERT questions
13 July 2012	Draft review report from TERT to Malta
3 August 2012	Response from Malta to draft review report
13 August 2012	Draft final review report from TERT to Malta
16, 17 August 2012	Response and additional information from Malta to final review report
17 August 2012	Final review report to European Commission