

Final Review Report

2017 annual review of national greenhouse gas inventory data

pursuant to Article 19(2) of Regulation (EU) No 525/2013

Malta

30 June 2017

European Environment Agency



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Contents

Conclusions from the 2017 annual ESD review	3
Step 1 conclusions	3
Step 2 conclusions	3
National totals	5
Greenhouse gas emissions covered by Decision 406/2009/EC.....	6
Statement from Malta on the conclusions presented by the TERT	7
Revised estimates provided by the MS and accepted by TERT	8
Recommendations from the TERT, considering revised estimates and technical corrections deemed necessary by the TERT	10
Annex I: Legal background and procedures of the 2017 annual ESD review	13
Annex II: Checks carried out during the 2017 annual ESD review in line with Art.29 and 32 of the Commission Implementing Regulation (EU) No 749/2014	15

List of tables

Table 1: Issues raised with Malta during the first and the second step.....	4
Table 2: National totals	5
Table 3: Greenhouse gas emissions covered by Decision 406/2009/EC.....	6
Table 4: Recommendations from the TERT	10

Conclusions from the 2017 annual ESD review

This Final Review Report presents the findings from the 2017 annual review of the GHG emission inventory of Malta, pursuant to Article 19(2) of Regulation (EU) No 525/2013, with a view to monitoring Malta's achievement of its greenhouse gas emission reduction or limitation target pursuant to Article 3 of Decision No 406/2009/EC (the 'Effort Sharing Decision', ESD) in 2015.

The reviewers carried out checks to verify the transparency, accuracy, consistency, comparability and completeness of the national greenhouse gas inventory for the year 2015 submitted in 2017 by Malta pursuant to Article 7(3) of Regulation (EU) No 525/2013.

The review consisted in two steps:

1. The EU inventory team (European Environment Agency (EEA), European Topic Centre on Air Pollution and Climate Change Mitigation (ETC/ACM), Joint Research Centre (JRC) and Eurostat) performed the initial checks under Step 1.
2. A Technical Expert Review Team (TERT) performed Step 2 of the 2017 annual ESD review.

More information on the Effort Sharing Decision and the procedures for the 2017 annual ESD review is presented in the annexes to this review report.

Step 1 conclusions

The EU inventory team could not fully perform the Step 1 checks because Malta provided the inventory on 22 February 2017, which is later than the date set out in Annex XVI of the Commission Implementing Regulation (EU) 749/2014. Therefore Malta was subject to the second step of the 2017 annual ESD review.

Step 2 conclusions

1. The reviewers raised 40 issues with Malta during the first and the second step of the review 2017 (see Table 1). The TERT provided recommendations for eight of these issues. Other issues raised during the annual review were clarified and are considered resolved.
2. The TERT identified cases where inventory data were prepared in a manner which is inconsistent with UNFCCC guidance documentation or Union rules. In particular, the TERT identified a number of underestimates or overestimates exceeding the threshold of significance pursuant to Article 31 of Commission Implementing Regulation (EU) No 749/2014.
3. Malta provided two revised estimates. The TERT agreed to both. Table 2 below summarises the revised estimates and further information is provided at the end of this report.
4. On that basis, the TERT did not deem necessary any technical corrections in the meaning of Article 19(3)(c) of Regulation (EU) No 525/2013 in consultation with Malta.
5. The TERT identified non-binding recommendations in order to improve the national inventory data of Malta (see Table 4).
6. The TERT considers that it received a response from Malta that was sufficient in order to undertake the annual review appropriately although the review was significantly hampered by the lack of the NIR.

Table 1: Issues raised with Malta during the first and the second step

	Issues raised	Recommendations	Revised estimates ¹	Technical corrections ²
Total	40	8	2	-
Energy	13	3	1	-
IPPU	7	2	-	-
Agriculture	16	2	1	-
Waste	3	-	-	-
Cross-cutting	1	1	-	-

¹ Revised estimates: changes in inventory estimates triggered by the review and provided by the Member State.

² Technical corrections: changes in inventory estimates triggered by the review and provided by the TERT.

National totals

Table 2: National totals

Data / Source category	Reference	Emission estimates (kt CO ₂ equivalent) ¹
		2015
Total greenhouse gas emissions, including indirect CO ₂ , without land use, land-use change and forestry as reported by Malta pursuant to Article 7(3) of Regulation (EU) No 525/2013.	MLT_2017_17032017	2 261.566
Difference between original estimates and revised estimates provided by Malta and accepted by the TERT²		
1.A.3.b Road transportation, CO ₂	MT-1A3b-2017-0001	- 32.722
3.B Manure management, CH ₄ , N ₂ O	MT-3B-2017-0006	- 34.702
Total greenhouse gas emissions including any accepted revised estimates provided by Malta		2 194.143
CO ₂ emissions from 1.A.3.a Domestic aviation	MLT_2017_17032017	3.788
NF ₃ emissions	MLT_2017_17032017	-

¹ The tables presented in this report show numbers rounded to three decimal places, although most numbers are available with greater precision. For all calculations (in particular of total GHG emissions and total ESD emissions), all available decimal places were used. Therefore, the totals shown may slightly differ from calculation results where only three decimals would be taken into account.

² A positive difference indicates an increase compared to reported emissions. A negative difference indicates a decrease compared to reported emissions.

Greenhouse gas emissions covered by Decision 406/2009/EC

Table 3: Greenhouse gas emissions covered by Decision 406/2009/EC

Data	Reference	Emissions (kt CO ₂ equivalent) ¹
		2015
Total greenhouse gas emissions including accepted revised estimates provided by Malta	<i>See Table 2 above</i>	2 194.143
Total verified emissions from stationary installations under Directive 2003/87/EC	Extracted by the European Commission from EUTL on 8 March 2017 (as agreed at the Working Group I of the Climate Change Committee on 18 May 2015) ²	889.614
CO ₂ emissions from 1.A.3.a Domestic aviation	<i>See Table 2 above</i>	3.788
NF ₃ emissions	<i>See Table 2 above</i>	-
Total ESD emissions		1 300.741

¹ The tables presented in this report show numbers rounded to three decimal places, although most numbers are available with greater precision. For all calculations (in particular of total GHG emissions and total ESD emissions), all available decimal places were used. Therefore, the totals shown may slightly differ from calculation results where only three decimals would be taken into account.

² The emissions of ETS stationary installations were independently verified and recorded in the EU Transaction Log (EUTL). These emissions do not derive from the national greenhouse gas emission inventory data and therefore the TERT was not tasked to review them.

Statement from Malta on the conclusions presented by the TERT

Malta agrees with the aggregated GHG emission inventory estimates presented in Table 2.

1	ESD Review Tool ID:	MT-3B-2017-0006
	ESD Review Tool URL:	https://emrt.eea.europa.eu/2017/MT-3B-2017-0006#tab-ga
	Member State:	Malta
	Sector:	3 Agriculture
	Gases:	CH ₄
	Fuel:	n/a
	Completed by (SE):	Rocio Condor
	Reviewed by (Counterpart):	Chris Dore
	Reviewed by (LR):	Klaus Radunsky
	The underlying problem:	Malta has double counted the emissions for methane and nitrous oxide from cattle in the submitted CRF Table 3.As1, Table 3.B(a)s1, Table 3.B(b). This also results in an overestimate of the nitrous oxide emissions reported in Table 3.D.
	The rationale for the corrected estimate:	This double counting of methane and nitrous oxide emissions from cattle results in an overestimation above the threshold of significance.
	Summarise the methodology used:	Malta provided a revised estimate which removes the emissions from Option B (cattle), but retains emissions from Option C (cattle included) for 3A Enteric Fermentation, and 3B Manure Management. Calculations were made using Tier 2 methodologies as provided in the Guidelines, with some default and some county specific emission factors and parameters all listed in the calculation sheets included in this file. The calculations affect categories 3A, 3B and 3D.
	References to other workbooks:	n/a

Details of the corrected estimate								
2			Original estimate (Gg CO₂eq)					Notes
		Year	CO₂	CH₄	N₂O	HFCs	PFCs	
	MT-3B-2017-0006 -OE	2015		63.678	36.922			
	Was a Revised Estimate received from the MS?		yes					
			Revised Estimate received from MS (Gg CO₂eq)					Notes
		Year	CO₂	CH₄	N₂O	HFCs	PFCs	
	MT-3B-2017-0006 -RE	2015		34.984	30.914			
	Was the Revised Estimate accepted by the TERT?		yes					
			Technical Correction calculated by TERT (Gg CO₂eq)					Notes
		Year	CO₂	CH₄	N₂O	HFCs	PFCs	
	MT-3B-2017-0006 -TC	2015						
	Was the Technical Correction accepted by the MS?		-					

Recommendations from the TERT, considering revised estimates and technical corrections deemed necessary by the TERT

Table 4: Recommendations from the TERT

EMRT - ID	Key category	Category, gas, year	Conclusion step 2 note	Revised estimate	Technical correction
MT-0-2017-0001	No	0 Cross cutting, CH ₄ , CO ₂ , HFCs, N ₂ O, PFCs, SF ₆ , 2015	During the review the TERT raised several issues including potential over- or underestimates potentially exceeding the threshold of significance for various categories in 2015. As no NIR was available to the team these issues had to be clarified via the question and answer loop in the EEA review tool. Several of these issues would not have been raised if the NIR had been available to the TERT. Therefore the TERT strongly recommends Malta to provide the NIR next year in time.	No	No
MT-1A3b-2017-0001	No	1.A.3.b Road transportation, CO ₂ , 2011-2015	<p>The TERT noted that the implied CO₂ emission factor for diesel oil in CRF 1.A.3.b (road transportation) features an increasing trend for the years 2011-2015 and also noted that for this time period, the IEF value is outside the range of the default IPCC values (72.6 t/TJ - 74.8 t/TJ) and that for the years 2014 and 2015, the reported values are the highest values among all EU member states. The TERT concluded that this may constitute an overestimation of emissions and may trigger a technical correction.</p> <p>In response to a question raised by the TERT Malta explained that the IEF values for 2005-2015 reflect the data on fuel use and emissions as estimated using COPERT 5, which in turn, uses a bottom-up approach based on the vehicle fleet characteristics and other parameters. The observed figures in the IEF may be the result of unknowns in the data pertaining to the number and/or characteristics of certain vehicle categories, for example, the number and age of diesel vehicles by euro legislation. Malta furthermore explained that the IEF is particularly affected by the heavy duty vehicles category and the assumptions taken therein in COPERT. Malta stated that efforts are ongoing to reduce these unknowns and that studies are envisaged to obtain national data on COPERT parameters.</p> <p>In a further follow-up question, the TERT considered that the increase of the IEF indicates that either emissions are too high or fuel consumption is too low and asked for an explanation in what way Malta ensures that for the road transport sector as a whole, the emissions reported correspond only to the diesel consumption actually taking place in the country. If this was not the case, there could be an overestimation of emissions.</p> <p>In response, Malta explained that the high IEF for diesel is being investigated within the context of the use of COPERT 5 and the option to calibrate the calculated fuel consumption with the characteristics of the vehicle fleet (and other parameters). Until the number of unknowns in the vehicle fleet are reduced and further studies are undertaken to obtain national information on these other parameters, such as the average mileage and average speed, Malta decided to (temporarily) revert to a tier 1 approach and to thus use the default emission factor as per 2006 IPCC Guidelines. Therefore, Malta provided a revised estimate based on this approach.</p> <p>The TERT reviewed the calculation sheet for the revised estimate for the years 2005-2015 of CO₂</p>	Yes	No

			emissions from diesel consumption in road transport and agreed with the revised estimate. The TERT also confirmed that the issue is above the threshold of significance. Malta also provided revised estimates for CH ₄ and N ₂ O emissions using default values. However, since no issue was identified for these gases and the use of default values may lead to less accurate estimates, the revised estimate for CO ₂ emissions only is considered as part of this revised estimate. The TERT recommends Malta to report on ongoing investigations regarding the implied emission factor for diesel and to provide a calculation of CO ₂ emissions based on overall diesel consumption in its next submission of the inventory.		
MT-1A3d-2017-0001	No	1.A.3.d Domestic navigation, CO ₂ , N ₂ O, 1990-2014	<p>The TERT noted that for the category 1.A.3.d, for liquid fuels and for the years 1990-2014, a downward recalculation was carried out with no information available. Since the recalculation in 2014 was above the threshold of significance and since it may affect 2015 emissions, too, the TERT considered that this could trigger a technical correction.</p> <p>In response to a question raised, Malta explained that the recalculation was due to a change in methodology used to apportion the fuel used for marine purposes between international and national navigation, which was carried out after consultation with the entities involved in the sector. According to the data, in 2014 and 2015, no fuel oil was used for national navigation purposes. The methodology for estimating national and international fuel use was therefore changed to reflect these findings, resulting in higher fuel use allocated to international navigation. Malta furthermore explained that there are ongoing efforts to reduce differences between top-down data (based on the regulator) and bottom-up data (based on end users).</p> <p>The TERT accepted the explanation provided by the member state. Malta is recommended to explain the change of methodology and to report on progress regarding data reconciliation in its next inventory submission.</p>	No	No
MT-1AB-2017-0001	No	1.AB Reference approach, CO ₂ , 2015	<p>In following up on an issue raised in the ESD Review 2016 (MT-1AB-2016-0003), the TERT noted that Malta had not implemented all recommendations. While the reference approach was now reported for the years 2005 and 2008, for 2015, the TERT noted that there was a mistake in Table 1.A(c), column 'Apparent energy consumption (excluding non-energy use, reductants and feedstocks)', because the value was higher than in the previous column where non-energy fuel use is not excluded. Also, lubricant use was reported in the CRF Table 1.A(b), while in Table 1.A(d) it was reported as IE. In a follow-up question, the TERT noted that CO₂ emissions from lubricant use in 2015 are reported for category CRF 2.D.3. The TERT considered that the mentioned inconsistencies may indicate to an over- or underestimation of emissions and may in case of being above the threshold trigger a technical correction. In responding to the queries, Malta explained that the difference between the reference approach and apparent consumption excluding NEU is being investigated in order to correct for this error. In addition, Malta explained that according to information from the Customs Department and the National Statistics Office, all lubricants and bitumen imported in Malta are not used for fuel combustion. For this reason, lubricant use for fuel combustion will be removed from CRF Tables 1.A(b) and be included in Table 1.A(d) and under CRF 2.D in future submissions. The TERT acknowledged the information provided and recommends Malta to correct its reference approach as well as the allocation of emissions from lubricant use in its next submission.</p>	No	No

MT-2D-2017-0001	No	2.D Non-energy products from fuels and solvent use, CO ₂ , 2015	For category 2.D.3 and gas CO ₂ for years 1990-2015 the TERT noted that Malta does not report CO ₂ emissions from urea used as catalyst in vehicles. The TERT noted that no response to a question raised during the review was received from Malta. The TERT noted that the issue is below the threshold of significance for a technical correction. The TERT recommends that Malta provide CO ₂ emission estimates in its next year's submission.	No	No
MT-2D-2017-0002	No	2.D Non-energy products from fuels and solvent use, CO ₂ , 2014, 2015	For category 2.D Non-energy products from fuels and solvent use and gas CO ₂ for the years 2014-2015 the TERT noted a decrease by 85 % in CO ₂ emissions between 2014 and 2015. The same decrease is noted also for activity data. The TERT understands that it is caused mainly by 2.D.1, however since the NIR is not available, no explanation of the trend is available to the TERT. The TERT noted that no response to a question raised during the review was received from Malta. The TERT noted that the issue is below the threshold of significance for a technical correction. The TERT recommends that Malta provide detailed explanation of the trend in 2.D in its next year's submission.	No	No
MT-3B-2017-0004	No	3.B Manure management, N ₂ O, 1991-2015	For category 3.B.1 and N ₂ O for 2015 the TERT noted that there is missing information from the CRF on N excretion rate for Option C and this means that the reported nitrous oxide emission figures cannot be verified properly. The TERT recommends that Malta provide all information in the NIR and CRF in its next submission. The missing information would not change the emission figures but facilitate verification done by the TERT.	No	No
MT-3B-2017-0006	No	3.B Manure management, CH ₄ , 2015	For the agriculture sector and gases CH ₄ and N ₂ O, for 2015 the TERT noted that in the CRF Tables 3.As1, 3.B(a)s1 and 3.B(b) the country included figures for Option B as well as Option C for cattle. As both options are included in the total this results in double counting of emissions. The TERT provided Malta with a technical correction which included only Option C. After the review week, Malta provided revised estimates for the year 2015 (which were very similar to the technical correction). The TERT agreed with the revised estimates provided by Malta and attached them to the annex of the review report. The TERT recommends that Malta include the revised estimates in its next submission.	Yes	No

Annex I: Legal background and procedures of the 2017 annual ESD review

The Effort Sharing Decision No 406/2009/EC (ESD) sets national emission limits for greenhouse gas (GHG) emissions in the sectors outside the EU's Emission Trading System (ETS) for the period 2013-2020. The ESD and the Monitoring Mechanism Regulation (EU) 525/2013 (MMR) lay down annual reporting obligations, compliance checks and a Union review process to ensure that the compliance with annual GHG emission limits is assessed in a credible, consistent, transparent and timely manner. The requirements for the Union review of the national inventory data submitted by Member States are set out in Article 19 of the MMR.

The details concerning the review process, such as the timing and steps of conducting the annual and comprehensive reviews are set out in Chapter III and Annex XVI of the Commission Implementing regulations (EU) No 749/2014.

The objectives of the 2017 annual ESD review of Member States' GHG emission inventories are:

- a) to support the European Commission by ensuring it has accurate, reliable and verified information on annual GHG emissions for determining compliance with ESD targets for the year 2015 in a credible, consistent, transparent and timely manner, according to Article 19 (2) of the MMR;
- b) to assist Member States in improving the quality of their GHG inventories.

The 2017 annual ESD review of national greenhouse gas (GHG) inventory data was carried out for the compliance year 2015 pursuant to Article 19 of the MMR. The EEA review secretariat (consisting of Melanie Sporer, John van Aardenne and Emma Salisbury) coordinated the 2017 annual ESD review as foreseen in Article 28 of the Commission Implementing Regulation (EU) No 749/2014.

The scope of the 2017 annual ESD review is presented in Table A.1.1. The checks carried out during the 2017 annual ESD review are presented in Annex II.

The review consisted of 2 steps. Step 1 was combined with the 'EU QA/QC procedures' (i.e. initial checks) and was carried out by the EU inventory team (ETC/ACM, JRC, Eurostat). All findings from the initial checks that were relevant for the ESD and that were not resolved within the initial check phase were followed up in the second step of the annual review.

Step 2 of the 2017 annual ESD review was performed by a Technical Expert Review Team (TERT) under service contract 34.0201/2016/743206/SER/CLIMA.C2 of the Directorate General for Climate Action of the European Commission. The TERT consisted of the following experts:

- Lead Reviewers: Anke Herold, Suvi Monni, Klaus Radunsky
- Energy: Julien Vincent, Ralph Harthan, Graham Anderson
- IPPU F-gases: Barbara Gschrey, Domenico Gaudioso
- IPPU excluding F-gases: Daniela Romano, Eva Krtkova
- Agriculture: Steen Gyldenkaerne, Rocio Condor, Chris Dore, Katalin Lovas
- Waste: Hans Oonk, Kaat Jespers, Juraj Farkas
- Quality controller: Justin Goodwin
- Co-ordinator: Bernd Guegle

The lead reviewers and sector review experts did not review emission inventories of Member States where these individuals have themselves contributed to the compilation of that inventory, or presently are or have been any part of the decision-making process related to the compilation of that inventory. Reviewers who are nationals of the Member State whose inventory is concerned, did not take part in the review of that inventory.

Step 2 of the review was performed on the basis of GHG emission data and the national inventory report (NIR) officially reported by Member States by 15 March 2017 under the MMR. Where relevant, the TERT calculated technical corrections for over- or underestimates identified in a mandatory category in the Member States' GHG inventories that exceed the threshold of significance. Technical corrections were calculated for the year 2015.

Table A.1.1: Scope of the 2017 annual ESD review

Element	Scope	Further information
Member States	EU geographical coverage of the Member States	
Years	2015	
Gases	CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆	NF ₃ is not covered by the ESD
Sectors	All emission source sectors excluding LULUCF	National totals exclude emissions from LULUCF and emissions reported under memo items
Indirect CO ₂ emissions	Included in national total	
Inventory Submission	Submissions received by 15 March, 2017	

Annex II: Checks carried out during the 2017 annual ESD review in line with Art.29 and 32 of the Commission Implementing Regulation (EU) No 749/2014

As part of the EU's effort to assist Member States in improving the quality of the GHG inventories, the checks to verify the transparency, accuracy, consistency, comparability and completeness of the greenhouse gas inventory included:

First step review checks:

1. Assessment whether all emission source categories and gases required under Regulation (EU) No 525/2013 are reported;
2. Assessment whether emissions data time series are consistent;
3. Assessment whether implied emission factors across Member States are comparable taking the IPCC default emission factors for different national circumstances into account;
4. Assessment of the use of 'Not Estimated' notation keys where IPCC tier 1 methodologies exist and where the use of the notation key is not justified in accordance with paragraph 37 of the UNFCCC reporting guidelines on annual greenhouse gas inventories as included in Annex I to Decision 24/CP.19;
5. Analysis of recalculations performed for the inventory submission, in particular if the recalculations are based on methodological changes;
6. Comparison of the verified emissions reported under the Union's Emissions Trading System with the greenhouse gas emissions reported pursuant to Article 7 of Regulation (EU) No 525/2013 with a view of identifying areas where the emission data and trends as submitted by the Member State under review deviate considerably from those of other Member States;
7. Comparison of the results of Eurostat's reference approach with the Member States' reference approach;
8. Comparison of the results of Eurostat's sectoral approach with the Member States' sectoral approach;
9. Assessment whether recommendations from earlier Union or UNFCCC reviews, not implemented by the Member State could lead to a technical correction;
10. Assessment whether there are potential overestimations or underestimations relating to a key category in a Member State's inventory.

Second step review checks:

1. Detailed examination of the inventory estimates including methodologies used by the Member State in the preparation of inventories;
2. Detailed analysis of the Member State's implementation of recommendations related to improving inventory estimates as listed in its most recent UNFCCC annual review report made available to that Member State before the submission under review or in the final review report pursuant to Article 35(2) of this Regulation; where recommendations have not been implemented a detailed analysis of the justification provided by the Member State for not implementing them;
3. Detailed assessment of the time series consistency of the greenhouse gas emissions estimates;
4. Detailed assessment whether the recalculations made by a Member State in the given inventory submission as compared to the previous one are transparently reported and made in accordance with the 2006 IPCC Guidelines for National Greenhouse Gas Inventories;
5. Follow-up on the results of the checks referred to in Article 29 of the Commission Implementing Regulation (EU) No 749/2014 and on any additional information submitted by the Member State under review in response to questions from the technical experts review team and other relevant checks.