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Report on the technical expert review of the first biennial transparency report of Ireland*

Addendum

Summary

This addendum to the report on the technical expert review of the first biennial transparency report of Ireland, conducted by a technical expert review team in accordance with the modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement, contains the results of the review of the consistency of the information submitted by the Party with those modalities, procedures and guidelines. The review took place from 28 April to 2 May 2025 in Dublin.

* In the symbol for this document, 2024 refers to the year in which the biennial transparency report was submitted, not to the year of publication.

Abbreviations and acronyms

2006 IPCC Guidelines	*2006 IPCC Guidelines for National Greenhouse Gas Inventories*
2019 Refinement to the 2006 IPCC Guidelines	*2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*
AD	activity data
BTR	biennial transparency report
CH_4	methane
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
CORINE	Coordination of Information on the Environment (programme)
CRF	common reporting format
CRT	common reporting table
CSO	Central Statistics Office
CTF	common tabular format
DAC	Development Assistance Committee
EF	emission factor
EPA	Environmental Protection Agency of Ireland
ETF	enhanced transparency framework under the Paris Agreement
EU	European Union
FAPRI	Food and Agricultural Policy Research Institute at the University of Missouri
F-gas	fluorinated gas
GDP	gross domestic product
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbon
IE	included elsewhere
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
LULUCF	land use, land-use change and forestry
MPGs	modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement
N	nitrogen
N_2O	nitrous oxide
NA	not applicable
NDC	nationally determined contribution
NE	not estimated
NID	national inventory document
NIR	national inventory report
NMVOC	non-methane volatile organic compound
NO	not occurring
OECD	Organisation for Economic Co-operation and Development
PaMs	policies and measures
PRODCOM	data on the production of manufactured goods in the European Union
QA/QC	quality assurance/quality control
SEAI	Sustainable Energy Authority of Ireland
Teagasc	Agriculture and Food Development Authority of Ireland
TERT	technical expert review team

Areas of improvement[1] identified during the technical expert review of the Party's first biennial transparency report

Tables 1–20 present the results of the review of the consistency with the MPGs[2] of the information submitted by Ireland in its BTR1. All recommendations and encouragements contained in the tables are for the next BTR or NIR, unless otherwise specified.

A. General reporting provisions

Table 1
Areas of improvement relating to general reporting provisions

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
NA	NA	No areas of improvement identified

B. Greenhouse gas emissions and removals

Table 2
Areas of improvement relating to general findings on greenhouse gas emissions and removals

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
2.G.1	Specified in paragraph 46 of the MPGs QA/QC and verification	Ireland did not report all category-specific QC procedures applied to key categories in its NID (see NID sections 3.2.7.4, 5.2.1.1.4, 6.5.6 and 7.2.2.4). The Party indicated in the aforementioned sections that details of its QA/QC process can be found in NID chapter 1. However, the TERT noted that the information provided in that chapter is limited to a description of general QA/QC activities and procedures and does not cover category-specific QC procedures applied for the key categories. During the review, the Party explained that several category-specific QC procedures were applied to the GHG inventory, including for categories identified as key. For example, AD for livestock subspecies across the time series were cross-checked against data used in previous inventory years, and, where differences were identified, recalculations were undertaken and discussed, with a documented rationale. However, these category-specific QC procedures were not reported in the NID. The TERT recommends that Ireland report the category-specific QC procedures implemented for its GHG inventory key categories in the relevant chapters and sections of its NID, in accordance with paragraph 46 of the MPGs.
2.G.2	Specified in paragraph 44 of the MPGs Uncertainty analysis	Ireland reported its uncertainty analysis in its NID (p.19) and its annex 2, including qualitative estimates and discussions of emissions and removals for all categories, as well as for inventory totals (with and without LULUCF), including the methods used, the starting year, the latest reporting year and emission trends. The analysis was conducted using approach 1 from the 2006 IPCC Guidelines. However, the TERT noted that for several categories (e.g. 1.A.3.c railways, 1.A.4 other sectors, 1.B.1.a coal mining and handling, 2.D.3 solvent use, 2.G.3 N_2O from product uses, 3.A enteric fermentation, 3.B manure management, 3.D agricultural soils, 5.A.2 unmanaged waste disposal sites and 5.B.1 composting) the underlying assumptions used in the uncertainty estimates were not reported. In these cases, the Party only indicated that the uncertainty values used for AD and EFs can be found in annex 2, without specifying a methodological basis or the data sources used to derive them. During the review, the Party clarified that several efforts are under way to increase the transparency of its uncertainty analysis by including in its reporting the underlying assumptions used for all categories. The Party further explained that it intends to report more comprehensive information on the uncertainty analysis in its next NID.

[1] As referred to in paras. 7, 8, 146(d) and 162(d) of the MPGs, contained in the annex to decision 18/CMA.1.

[2] Decision 18/CMA.1, annex.

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
		The TERT recommends that Ireland continue its efforts to enhance the reporting of the uncertainty analysis by clearly documenting, for each category, the methods used, all underlying assumptions and the data sources informing the uncertainty estimates in line with the 2006 IPCC Guidelines (vol. 1, chap. 3).
2.G.3	Specified in paragraph 52 of the MPGs Completeness – indirect CO_2	Ireland estimated and reported indirect CO_2 emissions from the atmospheric oxidation of NMVOCs under categories 2.D.3 other (non-energy products from fuels and solvent use), 2.G.4 other (other product manufacture and use) and 2.H.2 food and beverages industry in the IPPU sector. The Party reported in its NID (p.23) that the national total includes indirect CO_2 emissions from NMVOCs arising from solvent use and food and beverage production to maintain consistency with historical reporting. However, the TERT noted that the Party reported indirect CO_2 emissions from the IPPU sector as "IE" in CRT 6 and did not report the national totals excluding these indirect CO_2 emissions from the IPPU sector in CRT 10s6. During the review, the Party explained that indirect CO_2 emissions from NMVOCs under categories 2.D.3 and 2.H.2 were reported as direct CO_2 emissions and were therefore not presented separately in CRTs 6 or 10s6. The Party further clarified that it is considering revising its approach for the next submission to report these emissions as indirect CO_2 in CRT 6. Under this approach, the national total will be based on values including indirect emissions in future submissions. The TERT recommends that Ireland report national totals both with and without indirect CO_2 emissions from the atmospheric oxidation of NMVOCs from the IPPU sector and ensure consistent reporting of indirect CO_2 in CRTs 6 and 10s6.
2.G.4	Specified in paragraph 52 of the MPGs Completeness – indirect N_2O	Ireland did not estimate or report indirect N_2O emissions from sources other than those in the agriculture and LULUCF sectors in the NID (p.306); NID section 9 (p.306), which is dedicated to indirect CO_2 and N_2O emissions, does not provide any information on the estimation or reporting of indirect N_2O emissions for other sectors. In the CRTs, indirect N_2O emissions were reported as "NO" for the IPPU sector and "NE" for the energy, waste, agriculture and LULUCF sectors, although estimates were reported for the latter two. The TERT noted that the 2006 IPCC Guidelines (vol. 4, chap. 11) provide guidance on estimating indirect N_2O emissions from the atmospheric deposition of N compounds originating from all sources of nitrogen oxides and ammonia emissions, such as fuel combustion, industrial processes, and the burning of crop residues and agricultural waste. In addition, the 2006 IPCC Guidelines (vol. 5, chap. 1) indicate that emissions of nitrogen oxides and ammonia from the waste sector can also give rise to indirect N_2O emissions. During the review, the Party explained that, owing to limited resources, including availability of personnel, estimating direct GHG emissions was prioritized over estimating indirect N_2O emissions from sources other than those in the agriculture and LULUCF sectors. The TERT encourages Ireland to report indirect N_2O emissions from sources other than those in the agriculture and LULUCF sectors as a memo item, or to include in NID section 9 an explanation as to why such emissions have not been estimated.

Table 3
Areas of improvement of the reporting on greenhouse gas emissions and removals – energy sector

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
3.E.1	Specified in paragraph 40 of the MPGs 1.A.2.g Other (manufacturing industries and construction) – CO_2, CH_4 and N_2O	Ireland reported in its NID (section 3.2.5.6, p.75) that its national energy statistics do not provide an estimate of fuel used in mobile construction activities and that the inventory agency is continuing discussions with SEAI to improve AD estimates in the national energy balance. As a result, all emissions under subcategory 1.A.2.g (other) were reported under subcategory 1.A.2.g.viii (other), while emissions from mobile sources (subcategory 1.A.2.g.vii) were reported as "IE" under subcategory 1.A.2.g.viii. The Party explained that, because the national energy balance does not distinguish between stationary and mobile fuel use for this category, all fuel is assumed to be stationary. After reviewing CRT 1.A(a)s2 to assess how emissions were reported under subcategory 1.A.2.g, the TERT found that emissions were reported only at the aggregated level for the subcategory, with no disaggregation into subcategories 1.A.2.g.i–1.A.2.g.viii; therefore, subcategories 1.A.2.g.vii and 1.A.2.g.viii were not reported separately in CRT 1.A(a)s2.

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
		During the review, the Party clarified that efforts are ongoing with SEAI to improve the disaggregation of AD related to mobile combustion in the construction sector. The Party noted that a research project had been funded to quantify fuel use for this subcategory; however, data-collection activities were significantly constrained by the coronavirus disease 2019 pandemic, and the resulting findings were assessed as insufficient to meaningfully improve the accuracy of the current submission. The emissions statistics team further indicated that potential future data sources – such as the ETS2, the CSO Business Energy Use survey and SEAI national statistics – may support resolving the lack of disaggregated liquid fuel AD between stationary and mobile sources. The TERT recommends that Ireland provide transparent and consistent information on the reporting of stationary and mobile sources under subcategory 1.A.2.g in both the NID and the CRTs. In particular, the TERT recommends that Ireland report, at the most disaggregated level used in the CRTs, the methodologies applied, the gases covered, and the AD and EFs used to estimate emissions from stationary and mobile fuel use, and clearly explain the allocation of emissions between the relevant subcategories, including in cases where "IE" is used.
3.E.2	Specified in paragraph 40 of the MPGs 1.A.3.b Road transportation – liquid fuels – CO_2, CH_4 and N_2O	Ireland reported in its NID (figure 2.6, p.47) the amount of fuels (in ktoe) used in road transport from 1990 to 2022. The TERT noted that there was a progressive decline in petrol (gasoline) use from 2005 to 2021, alongside an increase in diesel use from 2010 to 2019. The TERT noted that the underlying reasons for these contrasting trends were not clearly explained in the report. During the review, the Party clarified that changes to the vehicle registration tax system between 2006 and 2007, which adjusted tax rates according to vehicle CO_2 emissions (g CO_2/km), incentivized the purchase of more fuel-efficient diesel vehicles owing to their lower vehicle registration tax band. The TERT recommends that Ireland include in its NID the relevant contextual information, such as policy and market drivers, influencing petrol (gasoline) and diesel use trends.

Table 4
Areas of improvement of the reporting on greenhouse gas emissions and removals – industrial processes and product use sector

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
4.I.1	Specified in paragraphs 20, 31, 32 and 39 of the MPGs 2.C.5 Lead production – CO_2	Ireland reported emissions from lead production as "NO" in CRT 2(I).A-H and stated in its NID (section 4.4.5, p.125) that no lead production activity occurred in the country from 1990 to 2022. However, the TERT noted that the United States Geological Survey (2019) reports approximately 17,000 t of secondary lead production in Ireland and that at least one operating secondary lead refining facility exists in the country, which processes recycled lead, including lead–acid batteries. According to the 2006 IPCC Guidelines (vol. 3, chap. 4, p.4.73, table 4.21), an EF of 0.2 t CO_2/t lead produced is applicable to secondary lead production. During the review, the Party clarified that the emissions statistics team is currently investigating the secondary lead refining facility to determine whether process-related CO_2 emissions occur. The Party explained that the facility primarily recycles lead–acid batteries and uses natural gas for thermal processes; these fuel combustion emissions are already included in the national energy balance under category 1.A.2 manufacturing industries and construction or 1.A.4 other sectors. Ireland further noted that the EF of 0.2 t CO_2/t secondary lead produced may only be applicable if a carbon-based reducing agent is used in the refining process, which remains uncertain. The Party also indicated that, if process emissions are confirmed, they will be reported under category 2.C.5 (lead production); if they are already fully covered under the energy sector, the activity will be reported as "IE". The Party also noted that the potential emissions, estimated at approximately 3.6 kt CO_2/year, are below the threshold of significance and committed to clarifying the reporting of lead production in a future submission. The TERT recommends that Ireland estimate emissions from secondary lead production in accordance with the 2006 IPCC Guidelines (vol. 3, chap. 4, p.73) and

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
		report them under category 2.C.5. If the Party determines that emissions from this source are already accounted for under the energy sector, the TERT recommends that the Party improve the transparency of its reporting by using the correct notation key "IE" and by clearly describing in the NID the assumptions, methodologies, references and sources of information used for the AD and EFs applied. If the Party determines that emissions from lead production are insignificant, the TERT recommends that Ireland use "NE" for category 2.C.5 and include in the NID the assumptions and approximate AD and EFs used to estimate the likely level of emissions, ensuring that categories reported as insignificant do not exceed 0.1 per cent of national GHG emissions excluding LULUCF.
4.I.2	Specified in paragraphs 20 and 39 of the MPGs 2.F.1 Refrigeration and air conditioning – HFCs	Ireland reported emissions from mobile air conditioning using a tier 3b bottom-up approach, as described in its NID (sections 4.7.1.2 and 4.7.1.3, pp.135–136). The Party estimated emissions on the basis of national vehicle fleet data and key assumptions, including average vehicle lifetime (12 years), average refrigerant charge and the proportion of vehicles equipped with air-conditioning systems. The TERT noted that the NID does not explicitly state the assumed share of new vehicles equipped with air-conditioning systems, instead referencing a study (AEA, 2011) that assumes a constant 90 per cent penetration rate from 2010 onward. The current submission lacks updated national data on the actual prevalence of air-conditioning systems in the vehicle fleet across the time series. During the review, the Party clarified that vehicle registration data are used to estimate the number of new and existing vehicles, but these data do not indicate whether vehicles are equipped with air-conditioning systems. The Party provided the assumed penetration rates based on the AEA study, which indicate a rise from 5 per cent in 1993 to 50 per cent by 2000, 70 per cent by 2005 and 90 per cent by 2010, with the rate held constant thereafter. Ireland also noted that refrigerants with a lower GWP have been in use for mobile air conditioning since 2012 and that all new cars registered after 2020 are estimated to contain these gases. The Party indicated that the emissions statistics team will continue to review and update the penetration rate assumptions as more recent national data become available. The TERT recommends that Ireland review and update its penetration rate assumptions for mobile air-conditioning systems using the most recent national data available and revise the emission estimates if necessary. The TERT also recommends that the Party clearly document in the NID the penetration rate values applied across the time series, together with the underlying assumptions, data sources and methodological basis used in the estimation.
4.I.3	Specified in paragraphs 40 and 47 of the MPGs 2.F.1 Refrigeration and air conditioning – HFCs	Ireland reported aggregated emissions for refrigeration subcategories, excluding subcategory 2.F.1.e (mobile air conditioning), under subcategory 2.F.1.a (commercial refrigeration). According to the NID (section 4.7.1.2, pp.134–135), emissions for subcategories 2.F.1.b (domestic refrigeration), 2.F.1.c (industrial refrigeration), 2.F.1.d (transport refrigeration) and 2.F.1.f (stationary air conditioning) were not reported separately owing to lack of detailed subcategory-level AD. Instead, Ireland applied a top-down method based on bulk HFC sales reported in the national F-gas register, which were then allocated as aggregated data under subcategory 2.F.1.a. The TERT noted that, despite aggregated reporting in the CRTs, disaggregated assumptions and parameters for several equipment types, such as room air conditioners (product code 74151), rooftop air-conditioning units (product code 74155), and heat pumps, were documented in the NID (annex 3.2, p.135, table 4.5). For example, Ireland assumed that room air conditioners have an average charge of 1.5 kg throughout the time series (0.75 kg for portable systems) and have started to transition to HFC-32, with small systems using 100 per cent HFC-32, while only about 10 per cent of larger systems have adopted this refrigerant owing to flammability concerns. For rooftop air-conditioning units, an average charge of 12 kg was assumed for HFC blends R407C and R410A. These appliance-specific assumptions indicate that the Party was already applying implicit subsector-level methodologies under subcategory 2.F.1.f that were not reflected in the CRTs. The TERT also noted discrepancies in the use of notation keys; for example, in CRT 2(II).B-Hs2, AD for subcategory 2.F.1.b were reported as "NA", while emissions were marked as "IE".

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
		During the review, the Party explained that previous consultations with CSO did not yield suitable PRODCOM or industry-level data to support subcategory disaggregation for refrigeration and stationary air conditioning. Ireland receives annual CSO data on room air conditioners, rooftop air-conditioning systems and heat pumps, but these were reported collectively under subcategory 2.F.1.a owing to limitations in AD on equipment type, use and F-gas sales by subcategory. The Party further clarified that the emissions statistics team may consider disaggregating emissions from heat pumps and stationary air-conditioning systems into domestic and commercial uses in future submissions as more detailed data become available. The TERT recommends that Ireland estimate and report HFC emissions for category 2.F.1 refrigeration and air conditioning at the most disaggregated level in accordance with the 2006 IPCC Guidelines, including disaggregating AD for and emissions from heat pumps and other relevant products for stationary air conditioning, for which data are available. The TERT also recommends that the Party, when disaggregating and reporting HFC emissions, clearly document in the NID the methodologies, assumptions, AD and EFs used across the time series to improve transparency.
4.I.4	Specified in paragraphs 20–21 of the MPGs 2.F.3 Fire protection – HFCs	Ireland estimated emissions for category 2.F.3 (fire protection, HFC-227ea) using a tier 2 model based on assumed discharge rates from installed fire protection systems, an annual leakage rate of 1 per cent and assumed decommissioning of fire protection systems after 15 years, applied from 2010 onward. The TERT noted that the NID (pp.137–138) does not specify the recovery rate during decommissioning, and in the "recovery" column in CRT 2(II).B-Hs2 "NO" was reported. The assumed 1 per cent leakage rate is lower than the 2 per cent default rate provided in the 2006 IPCC Guidelines (vol. 3, chap. 7, p.7.63), with no national justification provided. In addition, the Party has continued to use constant assumptions for the number of new fire protection system installations, average room volume and flooding factors since 1996, despite significant growth in sectors with high demand for fire protection systems, in particular data centres and other large commercial and industrial facilities. During the review, the Party explained that the expert who originally developed the methodology for carrying out the tier 2 model is no longer part of the team, which limits its ability to explain the basis for the assumed 1 per cent leakage rate. Ireland confirmed that it applied a recovery factor of 91 per cent, derived from Schwartz et al. (2012), a German study. The 2006 IPCC Guidelines (vol. 3, chap. 7, p.7.63) allow the use of country-specific recovery rates when supported by national data, although the default assumption is zero recovery. Ireland acknowledged that the emission estimates may not reflect updated practices or national circumstances and noted that earlier IPCC good practice guidance allowed for recovery rates of up to 85 per cent. The TERT recommends that Ireland reassess the recovery rate for category 2.F.3 (fire protection, HFC 227ea) using national data where available or revert to the default value of zero recovery provided in the 2006 IPCC Guidelines (vol. 3, chap. 7, p.7.63). The TERT also recommends that the Party provide justification for the continued use of the 1 per cent leakage rate or revise it in line with the IPCC default of 2 per cent. In addition, the TERT recommends that Ireland review and update key assumptions, such as the number of fire protection system installations, average room volume and flooding factors to reflect recent developments in relevant sectors (e.g. data centres).
4.I.5	Specified in paragraphs 20 and 22 of the MPGs 2.F.4 Aerosols – HFCs	Ireland estimated emissions for subcategory 2.F.4.b other (aerosols) using a population-based proxy derived from data reported by the United Kingdom of Great Britain and Northern Ireland, as stated in the NID (section 4.7.4.2, pp.138–139). This method was applied owing to the absence of AD specific to Ireland, including lack of a national trade association and lack of centralized information on aerosol imports. The Party explained that the two HFCs used in aerosols are HFC-134a and HFC-152a, and that species ratios of 90 and 10 per cent respectively, based on Schwarz et al. (2012), had been used until the 2022 inventory submission. Those species ratios were revised for the current submission to reflect the ratios used in the United Kingdom, which serves as a proxy. The new ratios range from

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
		97.6 per cent (HFC-134a) and 2.4 per cent (HFC-152a) in 1993 to 25.1 per cent (HFC-134a) and 74.9 per cent (HFC-152a) in 2022. During the review, the Party explained that the methodology used to estimate emissions from aerosols was originally developed by the same consultants who compiled the United Kingdom's inventory and that the use of a population-based United Kingdom/Ireland proxy was recommended by the British Aerosol Manufacturers' Association owing to limited data availability in Ireland. The Party stated that similarities in economic structure and product usage patterns between Ireland and the United Kingdom support the use of a per capita proxy. It was also clarified that only lifetime emissions were reported, as there is no trade association for aerosol manufacturers or importers in Ireland. Although earlier efforts to obtain national data from CSO (e.g. PRODCOM) were unsuccessful, the Party indicated plans to revisit data collection for personal care, household and industrial aerosol products containing HFCs. The TERT recommends that Ireland collect country-specific AD for subcategory 2.F.4.b other (aerosols). If this is not possible, the TERT recommends that the Party provide a clear justification for the applicability of the proxy data used (e.g. by investigating the types and market shares of aerosols containing HFCs in the domestic market, validating the proxy through national surveys or industry consultations, or analysing import data).

Table 5
Areas of improvement of the reporting on greenhouse gas emissions and removals – agriculture sector

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
5.A.1	Specified in paragraphs 21 and 23 of the MPGs 3.A.2 Sheep – CH_4	Ireland estimated CH_4 emissions from enteric fermentation of sheep using the tier 1 method from the 2019 Refinement to the 2006 IPCC Guidelines (vol. 4, chap. 10, table 10.10, p.10.38); however, this source was identified in the NID as a key category (p.149). During the review, the Party explained that efforts are under way to engage with national bodies to improve relevant data collection, with the aim of developing country-specific EFs for CH_4 emissions from enteric fermentation of sheep. The TERT recommends that Ireland estimate CH_4 emissions from enteric fermentation of sheep, using an appropriate method for key categories in accordance with the 2006 IPCC Guidelines. While this is not possible, the TERT recommends that the Party document in the NID the reasons for not following the relevant decision tree from the 2006 IPCC Guidelines.
5.A.2	Specified in paragraphs 20 and 40 of the MPGs 3.A.2 Sheep – CH_4	Ireland reported in its NID (p.159) the methods and assumptions used to estimate tier 1 CH_4 emissions for enteric fermentation for sheep in accordance with the 2019 Refinement to the 2006 IPCC Guidelines. According to the Party, the default EFs from the 2019 Refinement to the 2006 IPCC Guidelines (vol. 4, chap. 10, table 10.10, p.10.38) were adjusted to better reflect Irish national statistics and the detailed breakdown of sheep data provided by CSO, as shown in table 3.3.B in annex 3.3 to the NID (p.346). In addition, the Party reported that it used liveweights from Ireland's sheep CH_4 models to derive approximate EFs. The TERT noted that CRT 3.A includes the liveweights used for each sheep subcategory; however, no additional information was provided to clearly explain whether high- or low-productivity systems were applied and how those liveweights were used to adjust the EFs applied in the estimation. During the review, the Party provided a spreadsheet with the calculations used to adjust the EFs, indicating the use of a default EF of 9 kg/head/year and a default liveweight of 40 kg for sheep in high-productivity systems, based on the 2019 Refinement to the 2006 IPCC Guidelines (vol. 4, chap. 10, table 10.10, p.10.38). The TERT noted, however, that the default liveweight for sheep in high-productivity systems reported in table 10.10 is 65 kg. The Party acknowledged this discrepancy and clarified that the default liveweight of 40 kg had been applied prior to the adoption of the fourth corrigendum to the 2019 Refinement to the 2006 IPCC Guidelines, published in July 2023. Subsequently, the Party provided the TERT with updated CH_4 emissions from enteric fermentation of sheep,

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
		incorporating the corrected default liveweight of 65 kg for high-productivity systems. The TERT recommends that Ireland correct the default liveweight applied for sheep in high-productivity systems (from 40 to 65 kg), in line with the 2019 Refinement to the 2006 IPCC Guidelines (vol. 4, chap. 10, table 10.10, p.10.38) and recalculate the time series of CH_4 emissions from enteric fermentation of sheep accordingly. The TERT also recommends that the Party clearly document in the NID the methodology used to adjust tier 1 EFs for CH_4 emissions from enteric fermentation of sheep, including a transparent explanation of how liveweights are applied, whether high- or low-productivity systems are assumed for each sheep subcategory and how these assumptions affect the derivation of the EFs.
5.A.3	Specified in paragraph 39 of the MPGs 3.D.1.a Inorganic N fertilizers – N_2O	Ireland reported in its NID (p.168) that emissions from inorganic fertilizers were estimated using country-specific EFs for the three types of N fertilizer used in Ireland: calcium ammonium nitrate, urea and urea with inhibitor. However, the TERT noted that Ireland reported only the total AD for synthetic N fertilizer in CRT 3.D (343,193 t N in 2022) and in NID annex 3.3 (p.346, spreadsheet 3.3.F, N_2O input data), without providing disaggregated AD for the three fertilizer types or information on the national inorganic fertilizer market (e.g. on production, importation, exportation and other non-agricultural uses). During the review, the Party provided additional information, including disaggregated data for the three types of N fertilizers, in a spreadsheet (259,088 t N for calcium ammonium nitrate, 52,823 t N for urea and 31,282 t N for urea with inhibitor). Furthermore, the Party informed the TERT that there has been no fertilizer manufacturing in Ireland since 2002, which is consistent with reporting under categories 2.B.1 ammonia production and 2.B.2 nitric acid production in CRT 2(I).A-H. Instead, fertilizer ingredients are imported into Ireland and blended according to individual product types. The Party also clarified that fertilizers are not exported and that all fertilizer use is captured in national statistics provided to the inventory agency by the Department of Agriculture, Food and the Marine and reported under the agriculture sector. The TERT recommends that Ireland include, in its next NID, information on the individual amounts of N applied to soils from each of the three types of N fertilizers (calcium ammonium nitrate, urea and urea with inhibitor), as well as general information on the national inorganic fertilizer market, in order to enhance the transparency of the NID.
5.A.4	Specified in paragraphs 21 and 23 of the MPGs 3.G Liming – CO_2	Ireland estimated CO_2 emissions from liming using the tier 1 method from the 2006 IPCC Guidelines; however, this source was identified by the Party as a key category in the NID (p.149). During the review, the Party explained that a research study was initiated in 2022 with the objective of developing country-specific EFs for this category. The Party indicated that the results of that study will be incorporated into the emission estimates as they become available. The TERT recommends that Ireland estimate CO_2 emissions from liming, using an appropriate method for key categories in accordance with the 2006 IPCC Guidelines. While this is not possible, the TERT recommends that the Party document in the NID the reasons for not following the relevant decision tree from the 2006 IPCC Guidelines.
5.A.5	Specified in paragraph 39 of the MPGs 3.H Urea application – CO_2	Ireland reported in CRT 3.G-J the total amount of urea applied to soils (172,931 t urea in 2022). However, the Party did not report in its NID any additional information on the disaggregated amounts of urea by urea-based fertilizer type or on the assumptions applied for these different products. During the review, the Party provided additional information, including data on urea-based fertilizer types, in a spreadsheet detailing the CO_2 emission calculation procedures for urea. The Party also informed the TERT that several urea and inhibited urea products are available on the Irish market, with N content ranging from 20 to the more commonly used 46 per cent. The TERT recommends that Ireland include, in its next NID, information on the individual amounts of urea-based fertilizer types applied, as well as general

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
		information on the Irish urea market and the assumptions used (e.g. N content), in order to enhance the transparency of its reporting.

Table 6
Areas of improvement of the reporting on greenhouse gas emissions and removals – land use, land-use change and forestry sector

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
6.L.1	Specified in paragraphs 29 and 44 of the MPGs 4.A Forest land – CO_2	Ireland reported its uncertainty analysis, including LULUCF, in NID table 1.13 (p.32). The TERT noted that two LULUCF categories, 4.A.1 (forest land remaining forest land) and 4.A.2 (land converted to forest land) contributed significantly to the combined uncertainty for total CO_2 emissions, both reported at 124.89 per cent, owing to the high uncertainty in both AD (51.00 per cent) and EFs (114.00 per cent). According to the NID (pp.208 and 218), the uncertainty analysis for categories 4.A.1 and 4.A.2 considers that individual activity and area information were obtained directly or derived from published studies or by conducting cross-comparisons of emission models with national forest inventory data, and that expert judgment was applied when no estimates were available. The TERT also noted that the combined uncertainty values reported in the sectoral LULUCF tables in the NID differ from those presented in NID table 1.13: for 2022, category 4.A.1 shows a combined uncertainty of 45.6 per cent (table 6.12, p.210) and category 4.A.2 shows 14.2 per cent (table 6.16, p.218), which are substantially different from the values reported in NID table 1.13. During the review, the Party explained that the national uncertainty analysis presented in NID table 1.13 is not fully aligned with the more detailed sectoral uncertainty estimates provided in the LULUCF chapter, particularly NID table 6.12 (p.210), which presents uncertainty estimates for category 4.A.1 since 1990. For example, NID table 6.12 indicates that uncertainty for category 4.A.1 ranges from 20 to 40 per cent, and that the largest source of uncertainty in this category is associated with CH_4 and N_2O EFs for drained organic soils, as shown in NID table 6.11 (p.209). The Party also explained that a new National Council for Forest Research and Development research project, running from 2025 to 2029, has been created to, among other things, improve the estimation of EFs for organic soils across all land-use categories, which will support a more robust uncertainty analysis in future submissions. The TERT recommends that Ireland update its uncertainty analysis for the LULUCF sector and its reporting to ensure consistency between the cross-cutting uncertainty table in the NID (e.g. table 1.13) and the sectoral LULUCF uncertainty tables, in particular for categories 4.A.1 and 4.A.2, and to transparently document the basis for the AD and EF uncertainty estimates.
6.L.2	Specified in paragraph 20 of the MPGs 4.E Settlements – CO_2	Ireland reported carbon stock changes in settlements in its NID (p.270). The Party explained that, for biomass, no estimates have been made of potential increases in carbon stocks in urban areas, such as in parks or roadside plantings, even though these may represent a significant carbon sink, particularly under policies that actively promote urban tree planting along new roads and within new housing developments. However, the TERT noted that the 2006 IPCC Guidelines (vol. 4, chap. 8, pp.8.9–8.10, tables 8.1–8.2) provide two types of default values for urban tree biomass carbon accumulation in settlements remaining settlements. During the review, the Party explained that the area of settlements was estimated using CORINE, which has a minimum mapping unit of 25 ha and therefore does not allow for the identification of urban biomass. However, the Party also noted that the inventory agency is engaged in developing a national land-use map in order to develop a robust approach to support reporting under the LULUCF sector. The TERT recommends that Ireland include emissions and removals associated with biomass in urban areas, such as in parks or roadside plantings, in its next inventory submission using the default EFs provided by the 2006 IPCC Guidelines (vol. 4, chap. 8, pp. 8.9–8.10, tables 8.1–8.2).

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
6.L.3	Specified in paragraph 35 of the MPGs 4.F Other land – CO_2	Ireland reported a total area of 18,143 ha for category 4.F (other land) in CRT 4.F, while NID table 6.3 (p.183) reported an area of 6,310 ha for the same category. During the review, the Party explained that the discrepancy resulted from difficulties in developing a stable database within the new GHG inventory reporting tool, which led to the incorrect value being reported for the total area in CRT 4.F; however, emissions reported in the CRT are correct and consistent with the value of 6,310 ha, which was used and reported in previous submissions generated with the CRF Reporter software. Ireland also indicated that it will work with the secretariat to develop a revised CRT database for the LULUCF sector to ensure accurate reporting in future submissions. The TERT encourages Ireland to strengthen its QA/QC procedures to ensure the correct reporting of AD for the total area of other land in CRT 4.F.
6.L.4	Specified in paragraph 35 of the MPGs 4(II) Emissions/removals from drainage and rewetting and other management of organic/mineral soils – CO_2, CH_4 and N_2O	Ireland reported an area of 285.07 kha for total organic soils under category 4(II).A.2 (land converted to forest land) in CRT 4(II). However, the TERT noted that the corresponding area of organic soils reported for the same category (4.A.2) in CRT 4.A was 134.93 kha. In addition, CRT 4.A reported an area of mineral soils of 150.15 kha for category 4.A.2, while CRT 4(II) reported mineral soils for this category as "NO". A similar inconsistency was observed for category 4(II).D.1 (wetlands remaining wetlands): in CRT 4(II), the area of organic soils was reported as 1,059.45 kha, whereas CRT 4.D reported 1,220.78 kha for the same category (4.D.1); for this category, mineral soils were reported as "NO" in both CRTs. The TERT also noted additional inconsistencies in CRT 4(II), where the total areas of mineral soils were reported as "NO" for categories under which mineral soil areas are clearly reported in CRTs 4.B and 4.C. The NID does not provide any explanation for these discrepancies, indicating inconsistencies in the application of notation keys and the reporting of soil area data across the CRTs. During the review, the Party explained that the area of organic soils reported in CRT 4(II) for category 4(II).A.2 was incorrect. The Party further clarified that the discrepancies resulted from a transcription error in the area data and do not affect the emission calculations, which are based on correct underlying inputs. The TERT encourages Ireland to strengthen its QA/QC procedures to ensure the correct and consistent reporting of the total areas of organic and mineral soils between CRT 4(II) and all relevant categories under CRTs 4.A–4.D, including the correct application of notation keys across all relevant CRTs.

Table 7
Areas of improvement of the reporting on greenhouse gas emissions and removals – waste sector

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
7.W.1	Specified in paragraphs 39–40 of the MPGs 5.C.2 Open burning of waste – CO_2, CH_4 and N_2O	Ireland reported in its NID (p.297) that open burning of waste comprises household waste and farm plastics. While statistics on open burning of household waste are not available, estimates were derived from data on uncollected household waste sourced from EPA national waste statistics. The TERT noted, however, that the NID does not explain the methodology or assumptions used to determine what proportion of uncollected waste is assumed to be openly burned. During the review, the Party explained that the original estimate for household waste burned was developed for use in air pollutant emission inventories, particularly for persistent organic pollutants. Open burning of waste was a significant source of persistent organic pollutants in the 1990s, and a study conducted in 2000 estimated the quantities of dioxin and furan emissions released to the atmosphere from this activity. The Party clarified that the same methodological approach is still applied; however, the amount of waste considered burned has decreased to less than 500 t/year in recent years. The Party also provided further clarification on how the AD for open burning of waste were derived. The TERT recommends that Ireland enhance the transparency of its reporting by clearly describing, in its next NID, the methodology and assumptions used to determine the proportion of uncollected waste assumed to be openly burned.

C. Information necessary to track progress in implementing and achieving the nationally determined contribution under Article 4 of the Paris Agreement

Table 8
Areas of improvement of the reporting on national circumstances and institutional arrangements

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
8.1	Specified in paragraph 61 of the MPGs	Ireland provided information on the EU institutional arrangements in place to track progress in implementing and achieving the EU NDC, including those used for tracking internationally transferred mitigation outcomes. However, the TERT noted that Ireland did not provide national level information on the institutional arrangements established to track progress on implementing and achieving its NDC, such as the relevant climate policies, national institutions or ministries involved, their responsibilities and the national governance system. During the review, the Party explained that Ireland submits a joint NDC with the EU under Article 4, paragraph 16, of the Paris Agreement and therefore does not report national PaMs in the NDC, as the NDC reflects EU-wide policies that jointly deliver the target. Ireland clarified that its national policies must nonetheless align with and implement the obligations underpinning the EU NDC. The TERT noted, however, that information on Ireland's national institutional arrangements for tracking progress, as well as the frameworks guiding domestic climate policy and NDC implementation, should still be reported. The TERT recommends that Ireland include in its reporting specific information on the national institutional arrangements established to track progress in implementing and achieving its NDC, including the roles and responsibilities of the institutions involved and the governance arrangements in place.
8.2	Specified in paragraph 62 of the MPGs	The TERT noted that, while Ireland provided information on the EU legal, institutional, administrative and procedural arrangements for domestic implementation, monitoring, reporting and archiving of information related to the implementation and achievement of the EU NDC, it did not provide corresponding national level information on legal, institutional, administrative and procedural arrangements for domestic implementation, monitoring, reporting, archiving of information and stakeholder engagement related to the implementation and achievement of its NDC. During the review, the Party explained that, as a member of the EU, Ireland submits a joint NDC in accordance with Article 4, paragraph 16, of the Paris Agreement. This NDC is comprised of EU-wide policies that collectively result in the emission reductions set out in the NDC. While the national PaMs of EU member States are not included in the NDC communication itself, each member State is required to align with and implement the EU obligations that underpin the joint NDC. The TERT noted, however, that national level information should still be reported. The TERT recommends that Ireland provide, in its BTR, national level information on its legal, institutional, administrative and procedural arrangements for domestic implementation, monitoring, reporting, archiving of information and stakeholder engagement related to the implementation and achievement of its NDC, including a narrative explanation describing the national context and how these arrangements interact with EU frameworks.

Table 9
Areas of improvement of the description of the nationally determined contribution under Article 4 of the Paris Agreement, including updates

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
NA	NA	No areas of improvement identified

Table 10
Areas of improvement of the reporting of the information necessary to track progress in implementing and achieving the nationally determined contribution under Article 4 of the Paris Agreement

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
NA	NA	No areas of improvement identified

Table 11
Areas of improvement of the reporting on mitigation policies and measures, actions and plans, including those with mitigation co-benefits resulting from adaptation actions and economic diversification plans, related to implementing and achieving the nationally determined contribution under Article 4 of the Paris Agreement

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
11.1	Specified in paragraph 83 of the MPGs	The TERT noted that Ireland did not report information on the costs of individual mitigation PaMs or non-GHG mitigation benefits, or on how the mitigation actions identified in paragraph 80 of the MPGs interact with each other, as appropriate. During the review, the Party explained that, at present, the information collected by EPA does not include data on costs or non-GHG mitigation benefits. However, Ireland indicated that it will consider whether additional information, such as that outlined in paragraph 83 of the MPGs, could be included in future BTR submissions. The TERT encourages Ireland to report, to the extent possible, information on the costs of individual mitigation PaMs and non-GHG mitigation benefits, as well as how mitigation actions interact with each other, as appropriate, to enhance transparency and support a clearer understanding of the economic and broader impacts of its mitigation efforts.
11.2	Specified in paragraph 88 of the MPGs	The TERT noted that Ireland did not identify its actions and PaMs that influence GHG emissions from international transport. During the review, the Party explained that it is committed to addressing emissions from international transport in line with global and EU targets. In the aviation sector, Ireland supports the long-term aspirational goal of the International Civil Aviation Organization for net zero carbon emissions by 2050 and the EU Fit for 55 package. Nationally, key initiatives include the development of the Sustainable Aviation Fuel Policy Roadmap through the dedicated Sustainable Aviation Fuel task force, the creation of the Sustainable Aviation Policy Division in 2025 and financial support to help regional airports reduce their carbon footprints. In the maritime sector, Ireland actively engages with the International Maritime Organization and the EU, supporting the International Maritime Organization's GHG Strategy and the adoption of a legally binding framework to reduce global shipping emissions. At the national level, Ireland is supporting a new emission control area in the North-East Atlantic and reviewing its National Ports Policy to integrate climate measures, and has established a maritime emissions policy division. Several government-funded research studies are also under way to support evidence-based policy development in both sectors. The TERT encourages Ireland to report in its BTR information on its identified actions and PaMs that influence GHG emissions from international transport.
11.3	Specified in paragraph 90 of the MPGs	The TERT noted that Ireland did not provide detailed information on the assessment of the economic and social impacts of response measures. During the review, the Party explained that, at present, the information collected by EPA does not include data on social impacts. Ireland indicated that it will consider whether additional information, such as that outlined in paragraph 90 of the MPGs, could be included in future BTR submissions. The TERT encourages Ireland to provide in its BTR, to the extent possible, detailed information on the assessment of the economic and social impacts of its response measures.

Table 12
Areas of improvement of the summary of greenhouse gas emissions and removals

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
12.1	Specified in paragraph 91 of the MPGs	The TERT noted that Ireland submitted a stand-alone national GHG inventory and described the related trends of its national emissions and removals in its BTR1 (p.10). However, the Party did not provide a summary of its GHG emissions and removals by gas and by sector in the BTR1, nor did it report this information in CTF table 6, which should be used to present a tabular summary of GHG emissions and removals in accordance with CRT 10s6; CTF table 6 was submitted blank. During the review, the Party explained that the completed CTF tables were ready for submission and were uploaded to the ETF reporting tool in December 2024; however, the system was unable to accept submissions at that time, requiring the CTF tables to be submitted to the secretariat by email instead. As a result, when the CTF tables were downloaded from the ETF reporting tool, the data were not retrieved correctly, and CTF table 6 was displayed as blank. The Party provided an updated CTF table 6 containing the correct figures for the summary of its GHG emissions and removals in accordance with CRT 10s6. The TERT recommends that Ireland ensure that its reporting in tabular format (in the BTR or CTF table 6) related to the summary of GHG emissions and removals by gas and sector is complete.

Table 13
Areas of improvement of the projections of greenhouse gas emissions and removals

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
13.1	Specified in paragraph 95 of the MPGs	The TERT noted that CTF tables 7 and 8 were reported as blank for the most recent year (2022) covered in Ireland's NIR. During the review, the Party explained that the completed CTF tables were uploaded to the ETF reporting tool in December 2024. However, owing to a system issue that prevented electronic submissions at that time, the data had to be submitted to the secretariat by email. As a result, when the CTF tables were downloaded from the ETF reporting tool, the data were not retrieved correctly and CTF tables 7 and 8 were displayed as blank in the columns for the most recent year (2022). The Party provided updated versions of CTF tables 7 and 8, with inventory values entered in column C (kt CO_2 eq), disaggregated by gas and by sector. However, the TERT identified discrepancies between the values in these updated CTF tables and those reported in CRT 10s6 for 2022. Specifically, the reported emissions for energy and transport (33,340.95 kt CO_2 eq), IPPU (2,287.99 kt CO_2 eq) and agriculture (23,356.81 kt CO_2 eq) differ from the corresponding CRT values of 34,261.00, 3,029.26 and 22,436.76 kt CO_2 eq respectively. In addition, the emission data presented in BTR tables 3.6–3.7 (p.82) do not align with those in CRT 10s6 for the same year. The TERT also reviewed the projections in EPA (2024) and noted they are based on the BTR submitted values, which include the inventory period 1990–2024, with 2022 as the latest inventory year. The TERT recommends that Ireland ensure that its reporting in tabular format, including BTR tables and CTF tables 7–8, is complete and consistent with the emission values reported in CRT 10s6. This should include the most recent inventory data used in national projections.
13.2	Specified in paragraph 96(a) of the MPGs	The TERT noted that Ireland provided in its BTR1 information on underlying assumptions but did not include complete information on the models used across all sectors. Information on modelling approaches was only provided for the energy sector (p.80). During the review, the Party explained that projections for the agriculture sector were based on updated data from Teagasc and aligned with the medium-term market projections provided in a 2024 report by FAPRI. The projections incorporate measures from Ag Climatise, the Nitrates Action Programme, the Teagasc Marginal Abatement Cost Curve and the Climate Action Plans of 2021, 2023 and 2024. The FAPRI–Ireland model is a partial equilibrium model that simulates the main agriculture sectors and includes a detailed representation of

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
		GHG sources, particularly CH_4 and N_2O. Projections were generated by comparing policy scenarios against a 10-year baseline. For the LULUCF sector, emissions and removals were projected using a land-use matrix consistent with the national GHG inventory, with forest, wetland and settlements being the most developed categories. Cropland and grassland projections were informed by Teagasc and aligned with agriculture data, while settlement expansion was linked to GDP growth. For the IPPU (including F-gases) and waste sectors, projections were not model-based but were derived from simple growth estimates using assumptions provided by industry. The TERT encourages Ireland to provide in its next BTR submission comprehensive information on the models and methodologies used to develop projections for all sectors (e.g. agriculture, LULUCF, IPPU (including F-gases) and waste). This should include a clear description of the modelling frameworks, key assumptions, data sources and treatment of sectoral interactions and policy impacts.
13.3	Specified in paragraph 96(d) of the MPGs	The TERT noted that Ireland only provided a sensitivity analysis for the agriculture sector in its BTR1 (p.85). During the review, the Party acknowledged that the sectoral sensitivity analysis included in the BTR1 was limited to agriculture. The TERT considers that the sensitivity analysis should be conducted for at least the key emitting sectors or applied to the overall 'with measures' scenario. The Party may consider exploring variations in key parameters, such as changes in economic growth rates (e.g. doubled or halved) or assumptions regarding technology development, to assess the robustness of its projections. The TERT encourages Ireland to provide a more comprehensive sensitivity analysis in its next BTR submission, covering key emitting sectors or the overall projection scenario, and to include a brief explanation of the methodologies and parameters used.
13.4	Specified in paragraph 97 of the MPGs	The TERT noted that Ireland did not report projections for its selected key indicator necessary to assess progress towards its NDC in CTF table 10. During the review, the Party clarified that its selected key indicator is total annual net GHG emissions, including LULUCF, under the 'with additional measures' scenario, as reported in CTF table 8. The Party further explained that CTF table 10 should reflect this information and provided an updated version of CTF table 10 with the correct values. The TERT recommends that Ireland include projections of its selected key indicator (total annual net GHG emissions, including LULUCF, under the 'with additional measures' scenario) in CTF table 10 in its next BTR to facilitate assessment of progress towards its NDC.

Table 14
Areas of improvement of other information relevant to tracking progress in implementing and achieving the nationally determined contribution under Article 4 of the Paris Agreement

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
NA	NA	No areas of improvement identified

D. Financial, technology development and transfer, and capacity-building support provided under Articles 9–11 of the Paris Agreement

Table 15
Areas of improvement of the reporting on national circumstances and institutional arrangements

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
15.1	Specified in paragraph 119(a) of the MPGs	The TERT noted that Ireland did not provide clear information in its BTR regarding the systems and processes used to identify, track and report support provided and mobilized through public interventions. Specifically, the Party did not describe the institutional arrangements in place, including the organizational

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
		structure responsible for coordinating climate finance data compilation or the specific roles of government agencies involved in preparing and reporting climate finance support. During the review, the Party explained that the Inter-Departmental Committee on Development Contributions provides guidance and ensures interdepartmental coordination in climate finance reporting. The Department of Foreign Affairs and Trade leads Ireland's reporting process under the OECD DAC Creditor Reporting System, as well as the preparation of Ireland's annual national climate finance reports. The Department of the Environment, Climate and Communications is responsible for reporting climate finance information to the EU and to the UNFCCC secretariat. The TERT recommends that Ireland include in its BTR a clear description of the systems and processes used to identify, track and report support provided and mobilized through public interventions, including on the institutional arrangements, specifying the roles of government entities in preparing and reporting climate finance data.
15.2	Specified in paragraph 120 of the MPGs	The TERT noted that Ireland did not provide information on national circumstances and institutional arrangements for the provision of technology development and transfer and capacity-building support. In its BTR1 (p.129), the Party reported that technology development or transfer has not been a strong feature of Ireland's support. The Party also explained that, although Parties are requested to report on technology development and transfer, there is currently no agreed methodology for doing so, and that OECD DAC is considering this as an area for future development. As such, entries were assessed on a case-by-case basis to determine whether payments supported technology development and transfer and/or capacity-building. However, the TERT noted that, under the BTR section for capacity-building, the Party mentioned that it supports several programmes that provided technology support to developing country partners under the UNFCCC process, and referred to the Green Climate Fund, the Global Shield against Climate Risks and the Systematic Observations Financing Facility. During the review, the Party acknowledged the information provided in its BTR1. The TERT noted that, while the Party did not report on technology development and transfer, it confirmed the provision of capacity-building support. Therefore, the TERT considers that reporting information on national circumstances and institutional arrangements for capacity-building should be included, if available. The TERT recommends that Ireland include clearer information, if available, on national circumstances and institutional arrangements for the provision of technology development and transfer and capacity-building support.

Table 16

Areas of improvement of the reporting on underlying assumptions, definitions and methodologies relating to financial, technology development and transfer, and capacity-building support provided under Articles 9–11 of the Paris Agreement

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
NA	NA	No areas of improvement identified

Table 17

Areas of improvement of the information on financial support provided under Article 9 of the Paris Agreement – bilateral, regional and other channels

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
17.1	Specified in paragraph 123(d), (h), (j) and (l) of the MPGs	Ireland reported financial support provided under Article 9 of the Paris Agreement in CTF table III.1; however, for 2021 and 2022, the "status" column was left empty and subsectors were reported using numerical codes. In addition, some types of support for 2021 were classified as "mitigadaptation", which is inconsistent with paragraph 123(h) of the MPGs, according to which types of support should be categorized as adaptation, mitigation or cross-cutting, as applicable. Furthermore, for contributions to capacity-building and technology development and transfer, the tables include entries such as "N/A", "C", "T" and "both", or empty cells,

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
		instead of the expected "Yes/No" entries. In addition, the Party did not provide the corresponding information in its BTR in a format comparable to CTF table III.1. During the review, the Party explained that these issues resulted from a procedural error and committed to correcting CTF table III.1 in its next submission. The TERT recommends that Ireland report complete and transparent information on financial support provided in accordance with paragraph 123 of the MPGs in CTF table III.1, including clear and consistent reporting of the status (e.g. disbursed or committed), type of support, subsectors and contributions to capacity-building and technology development and transfer, where applicable. If the Party considers certain information to be not applicable or unavailable, the TERT recommends that this be clearly specified in the BTR.

Table 18
Areas of improvement of the information on financial support provided under Article 9 of the Paris Agreement – multilateral channels

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
18.1	Specified in paragraph 124(e), (g), (l), (m) and (n) of the MPGs	Ireland reported financial support under Article 9 of the Paris Agreement in CTF table III.2; however, the Party did not specify the status, sectors and subsectors in accordance with the MPGs. For example, in CTF table III.2, the subsector column for 2021 contained only numerical codes, and, for 2022, the sector and subsector information appeared to be misaligned, with entries shifted to the right. Furthermore, for 2021 and 2022, approximately 57 per cent of the reported support was classified as cross-cutting, which limited the ability to assess the specific sectors or areas targeted and their relevance to climate change actions. The TERT also noted that, for contributions to capacity-building and technology development and transfer, the tables include entries such as "N/A", "C", "T" and "both", or empty cells, instead of the expected "Yes/No" entries. In addition, the Party did not report the corresponding information in its BTR in a format comparable to CTF table III.2. During the review, the Party clarified that these issues resulted from procedural errors and committed to correcting CTF table III.2 in its next submission. The TERT recommends that Ireland report complete and transparent information on financial support provided in accordance with paragraph 124 of the MPGs, as available, in CTF table III.2. If the Party considers certain information to be not applicable or unavailable, the TERT recommends that this be clearly specified in the BTR.

Table 19
Areas of improvement of the information on technology development and transfer provided under Article 10 of the Paris Agreement

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
19.1	Specified in paragraphs 126(b–f) and 127(a–h) of the MPGs	Ireland did not report information on support for technology development and transfer under Article 10 of the Paris Agreement in its BTR1 or CTF table III.4. In its BTR1, the Party stated that technology development and transfer has not been a strong feature of Ireland's support and explained that, although it was requested to report on technology development and transfer, there is currently no agreed methodology for doing so, with the OECD DAC considering this to be an area for future development. As a result, entries were assessed on a case-by-case basis to determine whether payments supported technology development and transfer. The TERT noted, however, that the Party reported that it actively contributes to capacity-building in support of the technology transfer process and remains engaged in efforts to enhance support for technology implementation. The TERT also noted that, in the BTR section on capacity-building, the Party mentioned that it supports several programmes that provide technology support to developing country partners under the UNFCCC process, and referred to the Green Climate Fund, the Global Shield against Climate Risks and the Systematic Observations Financing Facility. In addition, the TERT noted that CTF tables III.1–III.2 include entries for some projects, which indicates a technology transfer component;

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
		however, no corresponding information on these or other projects was reported in CTF table III.4. During the review, the Party explained that it plans to include information on technology development and transfer in CTF table III.4 in future BTR submissions. The TERT recommends that Ireland report textual information on support for technology development and transfer, in accordance with paragraph 126(b–f) of the MPGs. The TERT also recommends that the Party provide quantitative and/or qualitative information on measures or activities related to support for technology development and transfer, in accordance with paragraph 127(a–h) of the MPGs.

Table 20
Areas of improvement of the information on capacity-building support provided under Article 11 of the Paris Agreement

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
20.1	Specified in paragraph 128(a–e) of the MPGs	Ireland reported limited textual information on capacity-building support provided under Article 11 of the Paris Agreement. While the Party noted in its BTR1 that capacity-building is a major feature of all activities it supports and that it supports several programmes providing technology assistance to developing country partners under the UNFCCC process, it did not include, as relevant, information corresponding to paragraph 128 in its BTR1. During the review, the Party acknowledged the limited information provided in its BTR1 and explained that it intends to report this information in future BTR submissions. The TERT recommends that Ireland enhance its BTR by providing textual information on capacity-building support provided, including, to the extent possible, quantitative and/or qualitative information, in accordance with paragraph 128 of the MPGs.
20.2	Specified in paragraph 129(a–d) of the MPGs	Ireland did not report information on capacity-building support provided under Article 11 of the Paris Agreement in CTF table III.5. In addition, the Party's BTR does not include information on capacity-building support in a format comparable with CTF table III.5. During the review, the Party explained that it intends to report this information in future BTR submissions. The TERT recommends that Ireland provide quantitative and/or qualitative information on measures or activities related to capacity-building support in CTF table III.5, in accordance with paragraph 129(a–d) of the MPGs.

Annex

Documents and information used during the review

A. Reference documents

BTR1 of Ireland. Available at https://unfccc.int/first-biennial-transparency-reports.

BTR1 CTF tables of Ireland. Available at https://unfccc.int/first-biennial-transparency-reports.

BTR1 of the EU. Available at https://unfccc.int/first-biennial-transparency-reports.

CRTs of Ireland. Available at https://unfccc.int/first-biennial-transparency-reports.

"Guidance for operationalizing the modalities, procedures and guidelines for the enhanced transparency framework referred to in Article 13 of the Paris Agreement". Decision 5/CMA.3. FCCC/PA/CMA/2021/10/Add.2. Available at https://unfccc.int/documents/460951.

IPCC. 2006. *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. S Eggleston, L Buendia, K Miwa, et al. (eds.). Hayama, Japan: Institute for Global Environmental Strategies. Available at http://www.ipcc-nggip.iges.or.jp/public/2006gl.

IPCC. 2019. *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*. E Buendia, K Tanabe, et al. (eds.). Geneva: IPCC. Available at https://www.ipcc-nggip.iges.or.jp/public/2019rf/.

"Modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement". Annex to decision 18/CMA.1. FCCC/PA/CMA/2018/3/Add.2. Available at https://unfccc.int/documents/193408.

NDC of the EU. Available at https://unfccc.int/NDCREG.

NID of Ireland. Available at https://unfccc.int/first-biennial-transparency-reports.

Report on the technical expert review of the BTR1 of the EU. FCCC/ETF/TERR.1/2024/EU and Add.1. Available at https://unfccc.int/first-biennial-transparency-reports.

B. Additional information provided by the Party

Responses to questions during the review were received from Molly Garry Murphy (Department of the Environment, Climate and Communications of Ireland), including additional material. The following references were provided by Ireland and may not conform to UNFCCC editorial style as some have been reproduced as received:

AEA (2011). HFC consumption and emissions forecasting. Containing an update to the June 2008 HFC projections. Report to Defra.

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