United Nations

FCCC/ETF/TERR.1/2024/MYS

Framework Convention on Climate Change

Distr.: General
9 June 2026

English only

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

Summary

This report presents the results of the technical expert review of the first biennial transparency report of Malaysia, 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. The review took place from 1 to 5 December 2025 in Putrajaya, Malaysia.

* 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*
A6.4ER	emission reduction under Article 6, paragraph 4, of the Paris Agreement
AD	activity data
BTR	biennial transparency report
CER	certified emission reduction
CH_4	methane
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
CRT	common reporting table
CTF	common tabular format
EF	emission factor
ETF	enhanced transparency framework under the Paris Agreement
GDP	gross domestic product
GHG	greenhouse gas
HFC	hydrofluorocarbon
HWP	harvested wood products
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
ITMO	internationally transferred mitigation outcome
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
MYR	Malaysian ringgit
N_2O	nitrous oxide
NA	not applicable
NDC	nationally determined contribution
NE	not estimated
NF_3	nitrogen trifluoride
PaMs	policies and measures
PFC	perfluorocarbon
QA/QC	quality assurance/quality control
SF_6	sulfur hexafluoride
TERT	technical expert review team
WM	‘with measures’

I. Introduction and summary

A. Introduction

1. This report covers the technical expert review of the BTR1 of Malaysia. The review was organized by the secretariat and conducted by the TERT in accordance with the MPGs,[1] particularly chapter VII thereof.

2. A draft version of this report was transmitted to the Government of Malaysia, which provided comments that were taken into account, as appropriate, in this final version of the report.[2]

3. The review was conducted as an in-country review from 1 to 5 December 2025 in Putrajaya, Malaysia, by the following team of nominated experts from the UNFCCC roster of experts: Andrea Brandon (New Zealand), Siriluk Chiarakorn (Thailand), Naofumi Kosaka (Japan), Yu'e Li (China), Elisabeth Rigler (Austria), Igor Ristovski (North Macedonia) and Harry Vreuls (Kingdom of the Netherlands). Siriluk Chiarakorn and Harry Vreuls were the lead reviewers. The review was coordinated by Pedro Torres (secretariat).

B. Scope

4. The TERT conducted a technical expert review of the information reported in the BTR1 of Malaysia as per the scope of the review defined in paragraph 146 of the MPGs, consisting of:

(a) Review of the consistency of the information submitted by the Party under Article 13, paragraphs 7 and 9, of the Paris Agreement with the MPGs taking into account the flexibility accorded to the Party under Article 13, paragraph 2, of the Paris Agreement (see chap. II.A below);

(b) Consideration of the Party's implementation and achievement of its NDC under Article 4 of the Paris Agreement (see chap. II.B below);

(c) Identification of areas of improvement[3] for the Party related to implementation of Article 13 of the Paris Agreement (see chap. II.D below);

(d) Assistance in identifying capacity-building needs (see chap. II.E below).

C. Summary

5. Malaysia submitted its BTR1 on 31 December 2024, by the deadline of 31 December 2024 mandated in decision 18/CMA.1. Malaysia also submitted its CRTs on 31 December 2024, by the deadline of 31 December 2024, and CTF tables on 31 December 2024, by the deadline of 31 December 2024.

6. A list of the areas of improvement identified on the basis of the review of the consistency of the reported information with the MPGs can be found in the assessment tables.[4]

7. The Party applied flexibility as provided for those developing country Parties that need it in the light of their capacities pursuant to Article 13, paragraph 2, of the Paris Agreement in relation to the national inventory report of anthropogenic GHG emissions by sources and removals by sinks[5] and the information necessary to track progress in

[1] Decision 18/CMA.1, annex.
[2] As per para. 162(e) of the MPGs.
[3] As referred to in paras. 7, 8, 146(d) and 162(d) of the MPGs.
[4] Contained in document FCCC/ETF/TERR.1/2024/MYS/Add.1, available at https://unfccc.int/first-biennial-transparency-reports.
[5] The developing country Party applied flexibility in the light of its capacities with respect to the provision in para. 58 of the MPGs.

implementing and achieving its NDC.[6] Information on where the flexibility was applied is included in chapters II.A.1–II.A.2 below.

D. Information provided by the Party pursuant to paragraphs 143–145 of the modalities, procedures and guidelines

8. Malaysia reported information on support needed and received for implementing Article 13 of the Paris Agreement and transparency-related activities, including for transparency-related capacity-building. Malaysia needs support primarily for implementing mitigation actions (notably in the energy, transport, agriculture and LULUCF sectors), for improving the national GHG inventory and for developing systems for measurement, reporting and verification and reporting under the ETF, with identified financial needs of around USD 50 million, across a portfolio of activities with implementation periods ranging from one to seven years. The TERT noted that the above-mentioned information reported by the Party is not subject to review as per the scope of the review defined in paragraph 146 of the MPGs.

II. Technical expert review[7]

A. Review of the consistency of the submitted information with the modalities, procedures and guidelines[8]

1. National inventory report[9]

9. The TERT assessed the information reported in the BTR1 of Malaysia and identified areas of improvement relating to consistency with the MPGs, which are described in tables 2–7 of the assessment tables referred to in paragraph 6 above and summarized in table 1.

[6] The developing country Party applied flexibility in the light of its capacities with respect to the provisions in paras. 95 and 102 of the MPGs.

[7] As per para. 187 of the MPGs.

[8] As per para. 146(a) of the MPGs.

[9] As per para. 150(a) of the MPGs.

Table 1
Information reported in Malaysia's national inventory report and review of consistency with the modalities, procedures and guidelines

Element	*Elements of information to be reported*	*Response and its summary, as relevant*	*ID#(s) for the area(s) of improvement identified*[a]
Submission type (para. 12 of the MPGs)	Has the national inventory report been submitted as a stand-alone document?	No	No areas of improvement were identified
Time series (paras. 57–58 of the MPGs)	What years have been reported and is the time series in accordance with the MPGs?[b]	1990–2021, in accordance with the MPGs	No areas of improvement were identified
Metrics (para. 37 of the MPGs)	Has the Party used the 100-year global warming potential values from the IPCC Fifth Assessment Report?	Yes	No areas of improvement were identified
	Has the Party used other metrics?	No	No areas of improvement were identified
Gases (paras. 47–49 and 51 of the MPGs)	Which gases have been reported?	CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3	No areas of improvement were identified
Indirect emissions (para. 52 of the MPGs)	Has the Party reported indirect CO_2 emissions and national totals with and without indirect CO_2?	No	No areas of improvement were identified
	Has the Party reported indirect N_2O emissions from sources other than those in the agriculture and LULUCF sectors as a memo item?	No	No areas of improvement were identified
National circumstances and institutional arrangements (paras. 18–19 of the MPGs)	Has the Party reported information on the functions related to inventory planning, preparation and management?	Yes	No areas of improvement were identified
Methodologies, parameters and data (paras. 20–24 of the MPGs)	Has the Party used the 2006 IPCC Guidelines?	Yes	4.I.2, 4.I.3, 5.A.1, 6.L.1, 6.L.3, 6.L.4, 6.L.5, 7.W.1, 7.W.2
	Has the Party used other IPCC methodological guidance?	Yes, the *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*	No areas of improvement were identified
Key category analysis (paras. 25 and 41–42 of the MPGs)	Has the Party reported a key category analysis?	Yes, a key category analysis was performed using approach 1 and a 95 per cent threshold for level and trend assessment for 2005 and the latest	2.G.3

Element	*Elements of information to be reported*	*Response and its summary, as relevant*	*ID#(s) for the area(s) of improvement identified*[a]
		reporting year (2021) and with and without LULUCF	
Time-series consistency and recalculations (paras. 26–28, 43 and 57 of the MPGs)	Has the Party reported a consistent time series?	Partly	3.E.4, 3.E.5, 3.E.8, 5.A.3
	Has the Party provided justification and explanatory information for recalculations?	Yes	No areas of improvement were identified
Uncertainty assessment (paras. 29 and 44 of the MPGs)	Has the Party reported the results of the uncertainty analysis and the methods used, underlying assumptions and trends?	Yes, including level and trend uncertainty, reported using approach 1 for 2005 and the latest reporting year (2021)	2.G.6
QA/QC plan and procedures (paras. 34–36 and 46 of the MPGs)	Has the Party elaborated information on an inventory QA/QC plan, including information on the inventory agency responsible for implementing QA/QC, and current and future QA/QC procedures?	Yes, including information on the inventory agency responsible for implementing QA/QC, an inventory QA/QC plan and general QC procedures	No areas of improvement were identified
Assessment of completeness (paras. 30–33, 45, 47 and 50 of the MPGs)	Have any areas of improvement for lack of completeness been identified for the following sectors?	Yes	2.G.1, 2.G.4
	Energy	No	No areas of improvement were identified
	IPPU	Yes	4.I.4
	Agriculture	Yes	5.A.2
	LULUCF	Yes	6.L.2, 6.L.8
	Waste	No	No areas of improvement were identified
Threshold for reporting significant categories (para. 32 of the MPGs)	For categories reported as “NE” owing to insignificance, has information been reported showing that the likely level of emissions is below the threshold of significance?	No	NA
Methodologies, EFs, parameters and AD (paras. 39–40 and 53–56 of the MPGs)	Has information been reported on categories, gases, methodologies (including the rationale for selecting		

Element	*Elements of information to be reported*	*Response and its summary, as relevant*	*ID#(s) for the area(s) of improvement identified*[a]
	them), EFs and AD at a disaggregated level for the following sectors?		
	Energy	Partly	3.E.3, 3.E.6, 3.E.7
	Has information been reported on international aviation and marine bunker fuel emissions as two separate entries and such emissions distinctly reported from national totals?	No	NA
	Has information been reported indicating how feedstocks and non-energy use of fuels have been accounted for in the inventory, under the energy or IPPU sector?	Yes	No areas of improvement were identified
	IPPU	Partly	4.I.1, 4.I.5
	Agriculture	Yes	No areas of improvement were identified
	LULUCF	Partly	6.L.6, 6.L.7, 6.L.8
	Did the Party provide information on the approach taken to address emissions and subsequent removals from natural disturbances on managed land in a manner consistent with IPCC guidance, and indicate whether the estimates are included in national totals?	Yes	No areas of improvement were identified
	Did the Party provide supplementary information on the approach to reporting emissions and removals from HWP in accordance with IPCC guidance other than the production approach, and provide supplementary information on emissions and removals from HWP estimated using the production approach?	No	6.L.8

Element	*Elements of information to be reported*	*Response and its summary, as relevant*	*ID#(s) for the area(s) of improvement identified*[a]
	Waste	Yes	No areas of improvement were identified

[a] See document FCCC/ETF/TERR.1/2024/MYS/Add.1. The areas of improvement referred to in this table comprise only those relating to recommendations in that document.
[b] The developing country Party applied flexibility in the light of its capacities with respect to this provision.

2. Information necessary to track progress in implementing and achieving the nationally determined contribution[10]

10. The TERT assessed the information reported in the BTR1 of Malaysia and identified areas of improvement relating to consistency with the MPGs, which are described in tables 8, 10, 11 and 13 of the assessment tables referred to in paragraph 6 above and summarized in table 2.

Table 2
Information reported in Malaysia's submission

Topic	*ID#(s) for the area(s) of improvement identified*[a]
National circumstances and institutional arrangements (paras. 59–63 of the MPGs)	8.1
Description of the NDC under Article 4 of the Paris Agreement, including updates (para. 64 of the MPGs)	No areas of improvement were identified
Information necessary to track progress in implementing and achieving the NDC under Article 4 of the Paris Agreement (paras. 65–79 of the MPGs)	10.1, 10.2
Mitigation PaMs, actions and plans related to implementing and achieving the NDC under Article 4 of the Paris Agreement (paras. 80–90 of the MPGs)	11.1
Summary of GHG emissions and removals (para. 91 of the MPGs)	No areas of improvement were identified
Projections of GHG emissions and removals[b] (paras. 92–102 of the MPGs)	13.1

[a] See document FCCC/ETF/TERR.1/2024/MYS/Add.1. The areas of improvement referred to in this table comprise only those relating to recommendations in that document.
[b] The developing country Party applied flexibility in the light of its capacities with respect to this provision.

3. Financial, technology development and transfer, and capacity-building support provided[11]

11. According to paragraph 118 of the MPGs, developed country Parties shall provide information pursuant to Article 13, paragraph 9, of the Paris Agreement in accordance with chapter V of the MPGs. Other Parties that provide support should also provide such information and, in doing so, are encouraged to use the same MPGs contained in that chapter.

12. Pursuant to Article 13, paragraph 9, of the Paris Agreement, developed country Parties shall and other Parties that provide support should provide information on financial, technology development and transfer, and capacity-building support provided to developing country Parties under Articles 9–11 of the Paris Agreement.

13. Malaysia did not consider itself subject to the reporting obligations applicable to developed country Parties pursuant to Article 13, paragraph 9, of the Paris Agreement. Accordingly, the Party did not provide information on financial, technology development and transfer, or capacity-building support provided to developing country Parties under Articles 9–11 of the Paris Agreement in its BTR1.

[10] As per para. 150(b) of the MPGs.
[11] As per para. 150(c) of the MPGs.

B. Consideration of the Party's implementation and achievement of its nationally determined contribution[12]

14. In considering Malaysia's progress in implementing and achieving its NDC, the TERT noted that the NDC[13] is defined as an economy-wide target to reduce carbon intensity (against GDP) by 45 per cent by 2030 compared with the 2005 level. This includes emissions and removals from the energy, IPPU, agriculture, LULUCF and waste sectors, and the following GHGs: CO_2, CH_4, N_2O, HFCs, PFCs, SF_6 and NF_3.

15. The indicator that Malaysia selected to track progress in implementing and achieving its NDC is described in table 3.

Table 3
Description of the indicator(s) selected by Malaysia to track progress in implementing and achieving its nationally determined contribution

NDC target	*Indicator*	*Description*
Economy-wide reduction of carbon intensity (against GDP) of 45 per cent by 2030 compared with the 2005 level (which is 0.3501 kg CO_2 eq/MYR)	Carbon intensity (in kg CO_2 eq/MYR)	Carbon intensity is the ratio of total economy-wide GHG emissions and removals including LULUCF, calculated using a net-net accounting approach, to GDP at constant 2015 price for the same year of the inventory

Sources: Malaysia's BTR1 and CTF tables 1–3.

16. The TERT noted that the contribution of LULUCF to achieving the NDC is included in the Party's base-year level and target-year level. Malaysia used the sectoral emissions for 2005 and applied a net-net accounting approach to calculate the LULUCF sector's contribution. In 2005, economy-wide GHG emissions and removals including LULUCF, calculated using a net-net accounting approach, totalled 255.51 Mt CO_2 eq and GDP in that year at constant 2015 price was MYR 729,851 million, resulting in a carbon intensity of 0.3501 kg CO_2 eq/MYR. Emissions from natural disturbances that exceed the average emissions between 2001 and 2020 caused by natural disturbances will not be accounted for in calculating the contribution of the LULUCF sector to achieving the NDC. Malaysia is studying the most suitable approach to accounting for emissions and removals from HWP. The implementation of future improvements to the GHG inventory may affect its historical estimates, including of the emission level and carbon intensity in 2005.

17. Malaysia does not plan to use ITMOs from cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement or the mechanism established by Article 6, paragraph 4, of the Paris Agreement towards the achievement of its NDC.

18. Table 4 summarizes information on progress in implementing the NDC based on the indicator carbon intensity taking into account the type of Malaysia's NDC target, including quantitative values for the base year, target year and implementation period, including the most recent year available, and information on the contribution of LULUCF towards the implementation and achievement of the NDC.

Table 4
Summary of information on Malaysia's progress in implementing and achieving its nationally determined contribution
(kg CO_2 eq/MYR)

	Carbon intensity	*Contribution of LULUCF, as applicable*	*ITMOs, A6.4ERs and/or CERs used towards NDC, as applicable*	*Indicator adjusted for contribution of LULUCF and ITMOs, A6.4ERs and/or CERs used towards NDC, as applicable*
Base year (2005)	0.3501			
2021	0.2201	NA	NA	0.2201

[12] As per para. 146(b) of the MPGs.

[13] The consideration of the Party's implementation and achievement of its NDC is in the context of the NDC submitted by Malaysia on 30 July 2021.

	Carbon intensity	*Contribution of LULUCF, as applicable*	*ITMOs, A6.4ERs and/or CERs used towards NDC, as applicable*	*Indicator adjusted for contribution of LULUCF and ITMOs, A6.4ERs and/or CERs used towards NDC, as applicable*
Target level (2030)[a]				0.1925

Sources: Malaysia's BTR1 and CTF table 4.
[a] Target level corresponds to an unconditional NDC target.

19. According to the most recent information on carbon intensity provided in CTF table 4, in 2021 Malaysia's carbon intensity was 0.2201 kg CO_2 eq/MYR, including LULUCF using a net-net accounting approach, which is 14.3 per cent above the 2030 target level of 0.1925 kg CO_2 eq/MYR.

20. Malaysia reported information on the actions and PaMs that support the implementation and achievement of its NDC. Table 5 provides a summary of the reported information on the key PaMs of Malaysia.

Table 5
Summary of information on key policies and measures reported by Malaysia

Sector	*Key PaMs[a]*	*Estimate of expected GHG emission reductions in 2030 (kt CO_2 eq)*	*Estimate of achieved GHG emission reductions in 2021 (kt CO_2 eq)*
Energy			
Energy efficiency	National Energy Efficiency Action Plan 2016–2025	–	15 501.95
	National Energy Policy 2022–2040	–	–
Energy supply and renewables	Generation of electricity by hydropower stations	–	5 437.77
	Reduction of venting and flaring	–	3 937.00
	Renewable energy implementation through feed-in-tariff mechanism	–	1 618.44
	Large-scale solar programme	–	1 206.80
	Promotion of the use of renewable energy by public and private licensees	–	98.08
Transport	Promotion of the use of energy-efficient vehicles	–	19.31
	Use of biodiesel in the industrial sector and in transportation	3 540.00	2 573.49
	Urban rail-based public transport	–	98.08
	National Transport Policy	–	–
IPPU	Material substitution in cement production	–	1 542.12
	New Industrial Master Plan 2030	–	–
Agriculture	MyOrganic certification programme	–	7.35
	National Agrofood Policy 2021–2023	–	–
	National Agricommodity Policy 2030	–	–
LULUCF	Sustainable forest management	–	21 872.00
	Malaysia Policy on Forestry	–	–
Waste	Biogas recovery from palm oil mill effluent	5 000.00	3 702.12
	National Cleanliness Policy	–	–
	Recycling of paper waste	–	–

Sources: Malaysia's BTR1 and CTF table 5, and information provided by the Party during the review.
[a] Names of PaMs reproduced as reported in Malaysia's BTR1; PaMs included in the WM scenario projections.

21. The TERT noted that, although Malaysia has implemented PaMs, economic drivers such as the increased demand for energy in the domestic and commercial sectors, including for manufacturing and construction and due to population growth, with a related demand for more housing, have counteracted the effects of PaMs on GHG emissions.

22. In the energy sector, GHG emissions increased by 26.4 per cent between 2005 and 2021 (from 203,391.67 to 259,657.70 kt CO_2 eq). The increase was driven primarily by growing electricity demand, reflecting national energy security and affordability objectives, which resulted in an increased reliance on coal in the primary energy mix. Notably, CO_2 emissions from coal used for electricity production increased by 289.4 per cent over the same period. National final energy consumption increased from 38,284 ktoe in 2005 to 57,610 ktoe in 2021, with energy consumption increasing across all sectors of the economy. Between 2019 and 2020, at the beginning of the coronavirus disease 2019 pandemic, emissions from the transport sector showed a decline. Renewable energy production doubled between 2015 and 2021, reaching 1,354 GWh; however, its contribution to the primary energy supply remained modest, increasing from only about 2 per cent in 2015 to around 4 per cent in 2021.

23. In the IPPU sector, GHG emissions increased by 138.9 per cent between 2005 and 2021, owing primarily to increased iron and steel production. The most impactful measure in the sector in reducing GHG emissions is material substitution in cement production. The TERT noted that emissions from refrigeration and air conditioning, which is a potential key category in Malaysia, were not estimated, except for those from mobile air conditioning.

24. Emissions from the agriculture sector decreased by 15.4 per cent between 2005 and 2021, showing a decreasing trend, particularly since 2008, which is consistent with the decreasing livestock population, in particular non-dairy cattle, and decreasing use of inorganic nitrogen fertilizers. The mitigation impact of PaMs in the sector was not estimated, except for the MyOrganic certification programme, with an estimated achieved emission reduction of 7.35 kt CO_2 eq in 2030.

25. The LULUCF sector remained a net sink between 2005 and 2021, with fluctuations in net CO_2 emissions and removals over those years but showing a slight downward trend in CO_2 emissions owing to the decline in forest harvests following the introduction of a maximum harvest cap for natural forest in 2006. CO_2 removals increased from 199,547.78 to 222,432.49 kt CO_2 eq in 2005–2021.

26. Emissions from the waste sector decreased by 3.5 per cent between 2005 and 2021. Wastewater treatment and discharge accounted for about 70.8 per cent of the sectoral emissions in 2021. The increase in CH_4 capture facilities for industrial wastewater treatment is the main driver for the emission reductions in the sector.

27. The overall increase in emissions is occurring in tandem with population growth and progress being made in the country's development. The TERT noted that the population increased by 6.5 million between 2005 and 2021, reaching 32.6 million. Malaysia is an emerging and developing upper-middle-income country and its economy is diverse and rapidly growing, characterized by a mix of agriculture, manufacturing and services. The economic growth experienced in Malaysia (by 156 per cent between 2005 and 2021 in terms of GDP) has increased the creation of jobs and improved the quality of life. Trade is a crucial component of Malaysia's economy; gross exports increased from being worth MYR 536 billion in 2005 to MYR 1,241 billion in 2021. In 2021, manufactured goods formed the backbone of Malaysia's export economy.

28. Malaysia reported projections for 2022–2030 under the WM scenario.[14] The WM scenario reported by the Party includes PaMs implemented and adopted until 2021. The projected emission levels are presented in table 6. The TERT noted that information on GHG

[14] Note that, as per para. 93 of the MPGs, projections shall not be used to assess progress towards the implementation and achievement of an NDC under Article 4 of the Paris Agreement unless the Party has identified a reported projection as its baseline.

emission projections was not used in considering Malaysia's progress in implementing its NDC.

Table 6
Summary of greenhouse gas emission projections for Malaysia

	GHG emissions (kt CO_2 eq/year)	*Change in relation to 2020 level (%)*	*Change in relation to 2021 level (%)*
Inventory data 2020	94 201.01	NA	NA
Inventory data 2021	115 383.03	35.2	NA
WM projections for 2030	144 706.35	69.5	25.4

Sources: Malaysia's BTR1, CRTs and CTF table 7, and information provided by the Party during the review.
Note: The projections are for GHG emissions with LULUCF and excluding indirect CO_2 emissions.

29. The TERT noted that carbon intensity, as presented in CTF table 10, is projected to decrease by 28.5 per cent to 0.16 kg CO_2 eq/MYR in 2030 compared with the 2021 level and by 55.1 per cent in 2030 compared with the 2005 level.

30. The TERT notes that the Party reduced carbon intensity by 37.1 per cent between 2005 and 2021, but further reduction is required to reach the target level in 2030. The TERT also notes that, on the basis of GHG emission trends, GDP increases, and recalculations that may occur to the estimates of GHG emissions and carbon intensity for 2005, there are not yet enough data to sufficiently assess the Party's progress in implementing the NDC, as data only cover early years in the implementation period. The TERT further notes that regular monitoring of emissions and carbon intensity and the results of mitigation actions allows adjustments to be made as needed towards achieving the 45 per cent reduction in carbon intensity compared with the 2005 level by 2030.

C. Consideration of the Party's support provided[15]

31. Malaysia did not consider itself subject to the reporting obligations applicable to developed country Parties pursuant to Article 13, paragraph 9, of the Paris Agreement and did not report information in its BTR1 on support provided (see para. 13 above).

D. Identification of areas of improvement[16]

32. During the technical expert review, the TERT identified areas of improvement in relation to Malaysia's implementation of Article 13 of the Paris Agreement, which are summarized in chapter II.A above and included in the assessment tables referred to in paragraph 6 above.

E. Assistance in identifying capacity-building needs[17]

33. The TERT, in consultation with Malaysia, identified the following prioritized needs for capacity-building to facilitate the Party's reporting in its BTR relating to the flexibilities applied by it as per the MPGs:[18]

(a) Enhancing institutional and technical capacity related to reporting accurate, complete and consistent GHG inventories covering the entire time series, including the year two years prior to the year of submission;

[15] As per para. 146(c) of the MPGs.
[16] As per para. 146(d) of the MPGs.
[17] As per para. 146(e) of the MPGs.
[18] For a complete list of the capacity-building needs identified by the TERT in consultation with the Party, see table 15 in document FCCC/ETF/TERR.1/2024/MYS/Add.1.

(b) Expanding the collection of AD to increase the number of PaMs with estimated GHG emission reductions and developing methods for estimating expected GHG emission reductions for the most impactful PaMs;

(c) Developing projections starting from the latest reporting year in the Party's national inventory report and extending at least 15 years beyond the next year ending in zero or five;

(d) Enhancing the information reported on projections in accordance with paragraphs 93–101 of the MPGs.

34. Furthermore, in order to facilitate continuous improvement in reporting, the following additional capacity-building needs were identified during the review:

(a) Using the IPCC inventory software and the ETF GHG inventory reporting tool;

(b) Developing country-specific EFs to enable the application of higher-tier methods for estimating emissions for key categories in the energy sector, such as CO_2 emissions from energy industries (category 1.A.1), manufacturing industries and construction (category 1.A.2) and road transportation (subcategory 1.A.3.b);

(c) Applying a higher-tier method for estimating CO_2 emissions for the key categories petrochemical and carbon black production (category 2.B.8), iron and steel production (category 2.C.1), ferroalloys production (category 2.C.2) and aluminium production (category 2.C.3);

(d) Estimating emissions of fluorinated gases from refrigeration and air conditioning (category 2.F.1);

(e) Collecting disaggregated AD and developing EFs for using higher-tier methods for estimating emissions for key categories for which tier 1 methods are currently being used, such as CH_4 emissions from rice cultivation (category 3.C), direct N_2O emissions from managed soils (category 3.D.1) and CH_4 emissions from enteric fermentation (category 3.A);

(f) Applying tier 1 methods for estimating carbon stock changes in the mineral soil organic carbon pool for land-use conversions and the dead organic matter pool for land conversions to forest land;

(g) Applying higher-tier methods for estimating carbon stock changes in the main carbon pools for the key categories forest land remaining forest land (category 4.A.1), land converted to forest land (category 4.A.2), cropland remaining cropland (category 4.B.1) and land converted to settlements (category 4.E.2);

(h) Collecting detailed AD and conducting research on CH_4 EFs for using higher-tier methods for estimating CH_4 emissions for the key categories managed waste disposal sites (category 5.A.1) and industrial wastewater (category 5.D.2), which are currently being estimated using tier 1 methods.

III. Conclusions and recommendations

35. The TERT conducted a technical expert review of the information reported in the BTR1, CRTs and CTF tables of Malaysia in accordance with the MPGs.

36. The areas of improvement identified by the TERT on the basis of the review of the consistency of the information reported by Malaysia with the MPGs are summarized in chapter II.A above and included in the assessment tables referred to in paragraph 6 above.

37. The TERT considers that, on the basis of a comparison of information on carbon intensity for the most recent reported year (i.e. 2021) with the base-year level and target level, and taking into account information on mitigation actions, projections and national circumstances and relevant underlying drivers, there are not yet enough data to sufficiently assess the Party's progress in implementing the NDC, as data only cover early years in the implementation period (2021–2030).

38. The TERT notes that, although PaMs have been implemented in all sectors, emissions have increased in the energy and IPPU sectors, which indicates that economic drivers such as increased demand for energy and housing and population growth have outpaced the effect of PaMs in reducing GHG emissions in the short term.

39. Malaysia did not consider itself subject to the reporting obligations applicable to developed country Parties pursuant to Article 13, paragraph 9, of the Paris Agreement and, in accordance with the MPGs, did not report information on financial, technology development and transfer, or capacity-building support provided under Articles 9–11 of the Paris Agreement in its BTR1.[19]

40. Regarding the implementation of Article 13 of the Paris Agreement and transparency-related activities, Malaysia requires support for using higher-tier methods from the 2006 IPCC Guidelines for estimating emissions, providing training on using the ETF GHG inventory reporting tool and IPCC inventory software, and tracking progress towards its NDC target.

41. In consultation with Malaysia, the TERT identified reporting-related needs for capacity-building support relating to the flexibilities applied by the Party as per the MPGs that could facilitate the Party's preparation of subsequent BTRs. For Malaysia, the main reporting-related needs for capacity-building support are enhancing institutional and technical capacity related to reporting accurate, complete and consistent GHG inventories covering the entire time series, including the year two years prior to the year of submission, estimating emission reduction impacts of PaMs and further developing its emission projections.

[19] As per para. 118 of the MPGs.

Annex

Documents and information used during the review

A. Reference documents

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

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

CRTs of Malaysia. 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. 2014. *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*. T Hiraishi, T Krug, K Tanabe, et al. (eds.). Geneva: IPCC. Available at https://www.ipcc.ch/publication/2013-supplement-to-the-2006-ipcc-guidelines-for-national-greenhouse-gas-inventories-wetlands/.

"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 Malaysia. Available at https://unfccc.int/NDCREG.

B. Additional information provided by the Party

Responses to questions during the review were received from officers from the Ministry of Natural Resources and Environmental Sustainability of Malaysia, the GHG inventory compilers and officers from other Malaysian authorities, including additional material. The following references were provided by Malaysia and may not conform to UNFCCC editorial style as some have been reproduced as received:

Roland Kueh Jui Heng, Nik Muhamad Ab. Majid, Seca Gandaseca and Osumanu Haruna Ahmed. (2012). *Estimation of total above ground biomass at selected age stands of a rehabilitated forest*. Journal of Tropical Biology and Conservation 9(2): 164 – 175.