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Report on the technical review of the eighth national communication and the technical review of the fifth biennial report of New Zealand

Parties included in Annex I to the Convention were requested by decision 6/CP.25 to submit their eighth national communication to the secretariat by no later than 31 December 2022. According to decision 15/CMP.1, Parties included in Annex I to the Convention that are also Parties to the Kyoto Protocol are required to include in their national communications supplementary information under Article 7, paragraph 2, of the Kyoto Protocol. This report presents the results of the technical review of the eighth national communication and relevant supplementary information under the Kyoto Protocol of New Zealand, conducted by an expert review team in accordance with the "Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention" and the "Guidelines for review under Article 8 of the Kyoto Protocol".

Developed country Parties were requested by decision 6/CP.25 to submit their fifth biennial report to the secretariat by no later than 31 December 2022. This report presents the results of the technical review of the fifth biennial report of New Zealand, conducted by an expert review team in accordance with the "Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention".

The review of these submissions took place in Wellington, New Zealand, from 30 October to 3 November 2023.

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Abbreviations and acronyms

AR	Assessment Report of the Intergovernmental Panel on Climate Change
BR	biennial report
CH_4	methane
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
COVID-19	coronavirus disease 2019
CTF	common tabular format
ERT	expert review team
GDP	gross domestic product
GEF	Global Environment Facility
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbon
IMO	International Maritime Organization
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
LULUCF	land use, land-use change and forestry
N_2O	nitrous oxide
NA	not applicable
NAP	national adaptation plan
NC	national communication
NDC	nationally determined contribution
NE	not estimated
NF_3	nitrogen trifluoride
NO	not occurring
non-Annex I Party	Party not included in Annex I to the Convention
NZD	New Zealand dollar(s)
PaMs	policies and measures
PFC	perfluorocarbon
reporting guidelines for supplementary information	“Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol. Part II: Reporting of supplementary information under Article 7, paragraph 2”
SADEM	Supply and Demand Energy Model
SF_6	sulfur hexafluoride
TPES	total primary energy supply
UNFCCC reporting guidelines on BRs	“UNFCCC biennial reporting guidelines for developed country Parties”
UNFCCC reporting guidelines on NCs	“Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications”
WAM	‘with additional measures’
WEM	‘with measures’
WOM	‘without measures’

I. Introduction and summary

A. Introduction

1. This is a report on the in-country technical review of the NC8 and BR5 of New Zealand. The review was organized by the secretariat in accordance with the "Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention", particularly "Part IV: UNFCCC guidelines for the technical review of biennial reports from Parties included in Annex I to the Convention" and "Part V: UNFCCC guidelines for the technical review of national communications from Parties included in Annex I to the Convention" (annex to decision 13/CP.20), and the "Guidelines for review under Article 8 of the Kyoto Protocol" (annex to decision 22/CMP.1 and annex I to decision 4/CMP.1).

2. In accordance with decision 13/CP.20, a draft version of this report was transmitted to the Government of New Zealand, which provided comments that were considered and incorporated with revisions into this final version of the report.

3. The review was conducted from 30 October to 3 November 2023 in Wellington, New Zealand, by the following team of nominated experts from the UNFCCC roster of experts: Lesley Maree Andrew (Australia), Sajid Ali Khan Bangash (Pakistan), Dovilé Karlonienė (Lithuania), Asger Strange Olesen (Denmark) and Marina Shvangiradze (Georgia). Asger Strange Olesen and Marina Shvangiradze were the lead reviewers. The review was coordinated by Jamie Howland and Claudia do Valle (secretariat).

B. Summary

4. The ERT conducted a technical review of the information reported in the NC8 of New Zealand in accordance with the UNFCCC reporting guidelines on NCs,[1] the reporting guidelines for supplementary information, in particular the supplementary information required under Article 7, paragraph 2, and on the minimization of adverse impacts under Article 3, paragraph 14, of the Kyoto Protocol[2] and of the information reported in the BR5 of New Zealand in accordance with the UNFCCC reporting guidelines on BRs.[3]

1. Timeliness

5. The NC8 was submitted on 22 December 2022, before the deadline of 31 December 2022 mandated by decision 6/CP.25.

6. The BR5 was submitted on 22 December 2022, before the deadline of 31 December 2022 mandated by decision 6/CP.25. The CTF tables were also submitted on 22 December 2022. The CTF tables were resubmitted on 14 November 2023 to address issues raised during the review. The resubmission included changes to CTF tables 4 and 7. Detailed information on improvements related to the resubmission is provided in paragraph 11 below. Unless otherwise specified, the information and values from the latest submission are used in this report.

2. Completeness, transparency of reporting and adherence to the reporting guidelines

7. Issues and gaps identified by the ERT related to the information reported by New Zealand in its NC8 are presented in tables 1–2. The information reported, including the supplementary information under the Kyoto Protocol, mostly adheres to the UNFCCC reporting guidelines on NCs.

8. The ERT noted that New Zealand made improvements to the reporting in its NC8 compared with that in its NC7, including by addressing many recommendations and

[1] Decision 6/CP.25, annex.
[2] Decision 15/CMP.1, annex, and decision 3/CMP.11, annex III.
[3] Decision 2/CP.17, annex.

encouragements from the previous review report in the areas of national circumstances relevant to GHG emissions and removals, PaMs, projections and the total effects of PaMs, financial, technological and capacity-building support, and education, training and public awareness.

Table 1
Assessment of completeness and transparency of mandatory information reported by New Zealand in its eighth national communication

Section of NC	*Completeness*	*Transparency*	*Reference to description of recommendation*
Executive summary	Complete	Transparent	–
National circumstances relevant to GHG emissions and removals	Complete	Transparent	–
GHG inventory	Complete	Transparent	–
PaMs	Complete	Mostly transparent	Issues 2 and 4 in table I.2
Projections and the total effect of PaMs	Mostly complete	Transparent	Issue 2 in table I.3
Vulnerability assessment, climate change impacts and adaptation measures	Complete	Transparent	–
Financial resources and transfer of technology	Mostly complete	Transparent	Issue 1 in table I.4
Research and systematic observation	Complete	Transparent	–
Education, training and public awareness	Complete	Transparent	–

Note: A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in annex I. The assessment of completeness and transparency by the ERT in this table is based only on the "shall" reporting requirements.

Table 2
Assessment of completeness and transparency of mandatory supplementary information under the Kyoto Protocol reported by New Zealand in its eighth national communication

Supplementary information under the Kyoto Protocol	*Completeness*	*Transparency*	*Reference to description of recommendation*
National system	Complete	Transparent	–
National registry	Complete	Transparent	–
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Complete	Transparent	–
PaMs in accordance with Article 2	Mostly complete	Transparent	Issue 1 in table I.6
Domestic and regional programmes and/or arrangements and procedures	Complete	Transparent	–
Information under Article 10[a]	Complete	Transparent	–
Financial resources	Complete	Transparent	–
Minimization of adverse impacts in accordance with Article 3, paragraph 14	Complete	Transparent	–

Note: A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in annex I. The assessment of completeness and transparency by the ERT in this table is based only on the "shall" reporting requirements.

[a] The assessment refers to information provided by the Party on the provisions contained in Article 4, paras. 3, 5 and 7, of the Convention, as reported under Article 10 of the Kyoto Protocol, which is relevant to Annex II Parties only. An assessment of the information on the other provisions of Article 10 of the Kyoto Protocol is provided under the relevant substantive headings under the Convention, for example research and systematic observation.

9. Issues and gaps identified by the ERT related to the information reported by New Zealand in its BR5 are presented in table 3. The information reported mostly adheres to the UNFCCC reporting guidelines on BRs.

10. The ERT noted that New Zealand made improvements to the reporting in its BR5 compared with that in its BR4, by addressing some recommendations from the previous review report in the areas of progress in achievement of quantified economy-wide emission reduction targets and relevant information, and projections.

Table 3
Summary of completeness and transparency of mandatory information reported by New Zealand in its fifth biennial report

Section of BR	*Completeness*	*Transparency*	*Reference to description of recommendation*
GHG emissions and removals	Complete	Transparent	–
Quantified economy-wide emission reduction target and related assumptions, conditions and methodologies	Complete	Transparent	–
Progress in achievement of targets	Mostly complete	Mostly transparent	Issue 1 in table II.1 Issue 2 in table II.2
Provision of support to developing country Parties	Mostly complete	Transparent	Issue 1 in table II.3

Note: A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in annex II. The assessment of completeness and transparency by the ERT in this table is based only on the "shall" reporting requirements.

11. The BR5 CTF tables, which are included by reference in the NC8 and were resubmitted during the review, improved:

(a) The information reported on progress in achievement of quantified economy-wide emission reduction targets and relevant information by providing corrected data on total emissions in CTF table 4;

(b) The information reported on financial, technological and capacity-building support by clarifying the units used in reporting the support provided in CTF table 7.

II. Technical review of the information reported in the eighth national communication and fifth biennial report

A. National circumstances relevant to greenhouse gas emissions and removals

1. Technical assessment of the reported information[4]

12. The NC8 contains key data on legislation, population trends, geography and land use, climate and climate change, economic developments, energy, transport, the buildings sector, industry, trade, the services sector, agriculture, forestry, resource efficiency and wastewater. New Zealand improved the description of legislation and governmental structure relating to climate change in the NC8 compared with the NC7 and improved the transparency of its reporting by including additional information on the contributions of different industries to New Zealand's GDP.

13. The COVID-19 pandemic restrictions implemented in 2020 and 2021 in New Zealand affected economic growth and international travel. For the accounting year ending in March 2021, annual GDP decreased by 1.4 per cent, with a drastic drop in the second quarter (10.3 per cent). There was a rebound in the third quarter when COVID-19 restrictions eased, with

[4] GHG emissions data in this section, which use GWP values from the AR4, are based on the data reported in New Zealand's NC8.

an increase of 13.7 per cent. During that year, international travel was restricted, which resulted in a drop in international tourism expenditures to NZD 1.5 billion from a level of NZD 17.7 billion in the accounting year ending in March 2020. The restriction in international travel also contributed to a decline in the population growth rate in 2021. COVID-19 pandemic restrictions reduced transport demand and caused changes in the mix of transport activity, particularly a decrease in aviation fuel use. This resulted in a reduced need for New Zealand to refine crude oil into oil products, which contributed to a 15.0 per cent drop in crude oil and other petroleum imports. Furthermore, the COVID-19 pandemic likely caused a slight decrease in individual car ownership in 2020, a trend that had been steadily growing since 2011.

14. New Zealand's TPES was 872 PJ in 2021, down from its 2019 peak of 925 PJ, and is projected to steadily decline further at an annual rate of 0.3 per cent per year until 2050. The energy sector, including transport, accounted for 39.9 per cent of the country's gross GHG emissions in 2020. Although renewable energy comprised 40.8 per cent of TPES in 2021, its use has remained relatively stable since the NC7, with oil and gas comprising 30.4 and 17.6 per cent, respectively, of TPES. The overall energy intensity of the economy showed a 1.5 per cent average annual decrease between 1990 and 2019. It further decreased by 4.7 per cent in 2021 compared with the 2020 level. New Zealand's total energy self-sufficiency was 72.4 per cent in 2021; in 2010, it was 92.0 per cent owing to historically high oil, gas and coal production. Most of New Zealand's electricity generation (82.1 per cent) came from renewable sources in 2021, with hydropower generation contributing 55.5 per cent, geothermal power contributing 18.4 per cent, wind power contributing 6.0 per cent, wood contributing 1.1 per cent, biogas contributing 0.6 per cent and solar power contributing 0.5 per cent. The remaining 17.9 per cent came from fossil fuel thermal generation plants using gas, coal and oil. Unfavourable hydrological conditions and a natural gas shortage led to increased coal use for electricity generation in 2021. New Zealand transformed and consumed 3.2 Mt coal in 2021, marking a 12 per cent increase since 2020. Coal was mainly used for electricity generation (38 per cent) and industrial purposes (29 per cent). This coal usage represented 7.0 per cent of all electricity generated, the highest share from coal since 2012.

15. The transport sector, international aviation and shipping are of critical importance to New Zealand owing to its remote location in the Pacific Ocean and its heavy reliance on primary industry exports and tourism. Transport, being energy-intensive and heavily dependent on fossil fuels, contributed 16.7 per cent of the country's gross GHG emissions in 2020. This marks a significant increase of 62.1 per cent since 1990. Emissions originating from road transport comprised 91.2 per cent of the share of the total transport emissions in 2020. Road transport has a central role in New Zealand's transport system, reflecting the country's small (5.1 million) and widely dispersed population and its elongated geography. Notably, New Zealand has one of the highest rates of car ownership globally, with 796 light vehicles per 1,000 people in 2020. The nation's vehicle fleet tends to be relatively old, with an average age of 14.3 years for light vehicles and 18.0 years for trucks as at 2020.

16. New Zealand's agricultural exports comprise more than half of its total goods exports and contribute half of its gross GHG emissions. In 2020, enteric fermentation CH_4 emissions constituted 73.1 per cent of the agriculture sector's GHG emissions, primarily owing to the substantial populations of dairy cattle (6.2 million), beef cattle (4.0 million), sheep (25.7 million) and deer (0.8 million) in the country. GHG emissions from the sector increased by 16.7 per cent between 1990 and 2006, driven by a 50.2 per cent rise in the national dairy cattle population and a 423.0 per cent increase in synthetic nitrogen fertilizer use. Since 2006, emissions have remained relatively stable, with minor fluctuations driven by product prices and seasonal climate events such as droughts.

17. New Zealand has 10.0 million ha forest, covering approximately 37 per cent of the land; 7.8 million ha are natural (indigenous) forest. New Zealand's forests are currently a net carbon sink, offsetting 30 per cent of the country's gross emissions in 2020. New Zealand almost doubled its annual forest planting rate in 2020 owing to funding received from the One Billion Trees Programme and the increasing carbon prices in the New Zealand Emissions Trading Scheme, which were likely caused by announcements leading up to the

passing in June 2020 of the Climate Change Response (Emissions Trading Reform) Amendment Bill.

2. Assessment of adherence to the reporting guidelines

18. The ERT assessed the information reported in the NC8 of New Zealand and recognized that the reporting is complete and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs. There were no issues raised during the review relating to the topics discussed in this chapter of the review report.

B. Greenhouse gas inventory information[5]

1. Technical assessment of the reported information

19. New Zealand reported information in its BR5 and NC8 on its historical GHG emissions and inventory arrangements using GWP values from the AR4. More recent information on GHG emissions was reported in New Zealand's 2023 annual submission, also using GWP values from the AR4. Total GHG emissions[6] excluding emissions and removals from LULUCF increased by 19.5 per cent between 1990 and 2020, while total GHG emissions including net removals from LULUCF increased by 21.4 per cent over the same period. Emissions peaked in 2005 and largely remained stable thereafter, with a minor drop in 2008–2012. Throughout the reporting period, gross emissions remained higher than the 1990 level. Total GHG emissions excluding emissions and removals from LULUCF in 2021 decreased by 0.7 per cent compared with 2020.

20. The growth in emissions up until 2005 and the subsequent stabilization were driven mainly by increased road transport, food processing, and electricity and heat production in the energy sector and the increasing dairy cattle population in the agriculture sector. This trend in emissions followed population and GDP growth up until 2005, and then a decoupling gradually occurred during 2005–2020. From 1990 to 2020, New Zealand's net emissions were 21.23–29.33 Mt CO_2 eq lower owing to the net removal contribution from the LULUCF sector, but largely followed the same trend. Variations in the LULUCF net sink were driven by changes in land use, including significant afforestation in the late 1990s and again in the late 2010s. The first afforestation period resulted in increased removals from carbon sequestration from 2000 to 2015 but was somewhat counteracted by a temporary increase in deforestation between 2005 and 2015. Short-term changes in afforestation and deforestation just before and after 2008 were influenced by the introduction of the New Zealand Emissions Trading Scheme in that year and the inclusion of planted forests in the Scheme.

21. Table 4 illustrates the emission trends by sector and by gas for New Zealand. The emissions reported in the 2023 annual submission are generally the same as those reported in CTF table 1 of the BR4, apart from minor changes resulting from recalculations.

Table 4
Greenhouse gas emissions by sector and by gas for New Zealand for 1990–2021

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share (%)*	
	1990	*2000*	*2010*	*2020*	*2021*	*1990–2020*	*2020–2021*	*1990*	*2021*
Sector									
1. Energy	23 880.30	29 864.01	32 127.24	31 116.93	31 210.12	30.3	0.3	36.9	40.6
A1. Energy industries	5 986.88	6 394.99	6 704.73	5 574.64	5 399.55	–6.9	–3.1	9.3	7.0

[5] GHG emission data in this section, which use GWP values from the AR4, are based on New Zealand's 2023 annual submission, version 3, which has not yet been subject to review. All emission data in subsequent chapters are based on New Zealand's BR5 CTF tables, which use GWP values from the AR4 unless otherwise noted.

[6] In this report, the term "total GHG emissions" refers to the aggregated national GHG emissions expressed in terms of CO_2 eq excluding LULUCF, unless otherwise specified.

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share (%)*	
	1990	*2000*	*2010*	*2020*	*2021*	*1990–2020*	*2020–2021*	*1990*	*2021*
A2. Manufacturing industries and construction	4 757.72	6 335.25	5 512.94	6 496.01	6 301.96	36.5	–3.0	7.4	8.2
A3. Transport	8 126.19	11 648.31	13 349.43	13 201.95	13 856.02	62.5	5.0	12.6	18.0
A4. and A5. Other	3 578.19	3 877.88	3 795.27	4 645.79	4 539.33	29.8	–2.3	5.5	5.9
B. Fugitive emissions from fuels	1 431.33	1 607.57	2 764.87	1 198.54	1 113.26	–16.3	–7.1	2.2	1.4
C. CO_2 transport and storage	NO	NO	NO	NO	NO	–	–	–	–
2. IPPU	3 579.92	3 477.78	4 563.29	4 582.87	4 609.62	28.0	0.6	5.5	6.0
3. Agriculture	33 312.05	37 068.76	36 759.84	38 360.19	37 786.14	15.2	–1.5	51.5	49.2
4. LULUCF	–20 171.23	–26 788.98	–29 225.21	–23 242.04	–21 078.17	–15.2	9.3	NA	NA
5. Waste	3 944.63	4 436.43	3 873.13	3 266.49	3 214.93	–17.2	–1.6	6.1	4.2
6. Other[a]	3.17	3.49	4.52	4.18	3.78	31.9	–9.5	0.0	0.0
Gas[b]									
CO_2	25 502.51	32 245.51	34 810.38	34 237.33	34 318.00	34.3	0.2	39.4	44.7
CH_4	32 580.70	35 368.28	33 983.91	33 404.37	33 019.35	2.5	–1.2	50.3	43.0
N_2O	5 706.94	6 881.30	7 390.36	8 139.56	7 937.60	42.6	–2.5	8.8	10.3
HFCs	NO, NA	244.66	1 072.96	1 444.80	1 483.22	–	2.7	–	1.9
PFCs	909.95	91.16	47.56	87.92	50.69	–90.3	–42.3	1.4	0.1
SF_6	19.97	19.56	22.84	16.69	15.73	–16.5	–5.7	0.0	0.0
NF_3	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	–	–	–	–
Total GHG emissions excluding LULUCF	**64 720.07**	**74 850.47**	**77 328.02**	**77 330.66**	**76 824.59**	**19.5**	**–0.7**	**100.0**	**100.0**
Total GHG emissions including LULUCF	**44 548.84**	**48 061.49**	**48 102.81**	**54 088.62**	**55 746.42**	**21.4**	**3.1**	**NA**	**NA**

Source: GHG emission data: New Zealand's 2023 annual submission, version 3.

[a] Emissions and removals reported under the sector other (sector 6) are included in total GHG emissions.

[b] Emissions by gas without LULUCF. The Party did not report indirect CO_2 emissions in common reporting format table 6.

22. In brief, New Zealand's national inventory arrangements were established in accordance with a Prime Ministerial directive for the administration of the Climate Change Response Act 2002. The Act established a national system, including institutional, legal and procedural arrangements, for estimating GHG emissions and removals and for reporting and archiving inventory information. The Act names the Ministry for the Environment as New Zealand's central inventory agency, responsible for complying with reporting obligations and for coordinating the overall national inventory process – from the collection of information to the development and compilation of the inventory and its submission to the secretariat.

23. Changes have been made to the national inventory system since the NC7 owing to the inclusion of Tokelau in the inventory. These changes were reported in the BR4, submitted in December 2019. Included in these changes is the development of a reporting system and reporting guidelines for Tokelau, and the implementation of arrangements for the collection of activity data by the Tokelau Ministry for Climate, Oceans and Resilience. There have been no changes in these arrangements since the BR4.

2. Assessment of adherence to the reporting guidelines

24. The ERT assessed the information reported in the NC8 and BR5 of New Zealand and identified an issue relating to completeness, and thus adherence to the UNFCCC reporting guidelines on NCs. The finding is described in table I.1.

3. National system for the estimation of anthropogenic emissions by sources and removals by sinks

(a) Technical assessment of the reported information

25. New Zealand provided in the NC8 a description of how its national system for the estimation of anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol is performing the general and specific functions defined in the annex to decision 19/CMP.1 in conjunction with decisions 3/CMP.11 and 4/CMP.11. The description includes all the elements mandated by paragraph 30 of the annex to decision 15/CMP.1. The NC8 also contains a reference to the description of the national system provided in the national inventory report of the 2022 annual submission. The ERT took note of the review of the changes to the national system reflected in the report on the individual review of the 2022 annual submission of New Zealand and noted that no issues were raised regarding the organization, effectiveness, reliability, procedural and legal arrangements, and performance of the national system for preparing the national inventory report.

26. Since the reporting in its NC7, New Zealand has made changes to the national inventory system; namely, in 2017, it included Tokelau in the obligatory climate change reporting managed by the Ministry for the Environment. The ERT noted that the transparency of reporting on the national system has been improved by including additional information on quality assurance procedures.

(b) Assessment of adherence to the reporting guidelines

27. The ERT assessed the information reported in the NC8 of New Zealand and recognized that the reporting is complete and transparent, and thus adheres to the reporting guidelines for supplementary information. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

4. National registry

(a) Technical assessment of the reported information

28. In its NC8 New Zealand provided information on how its national registry performs the functions in accordance with the annex to decision 13/CMP.1 in conjunction with decision 3/CMP.11 and the annex to decision 5/CMP.1 and complies with the requirements of the technical standards for data exchange between registry systems.

(b) Assessment of adherence to the reporting guidelines

29. The ERT assessed the information reported in the NC8 of New Zealand and recognized that the reporting is complete and transparent, and thus adheres to the reporting guidelines for supplementary information. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

C. Quantified economy-wide emission reduction target and related assumptions, conditions and methodologies

1. Technical assessment of the reported information

30. New Zealand reported information on its economy-wide emission reduction target in its BR5. For New Zealand the Convention entered into force on 16 September 1993. Under the Convention New Zealand committed to reducing its GHG emissions by 5.0 per cent below the 1990 level by 2020. The target includes all GHGs included in the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories", namely CO_2, CH_4, N_2O, HFCs, PFCs, SF_6 and NF_3. It also includes all IPCC sources and sectors in the annual GHG inventory. The GWP values used are from the AR4. Emissions and removals from the LULUCF sector are included in the target using an activity-based accounting

approach and are excluded from the base year. New Zealand reported that it plans to make use of market-based mechanisms for achieving its target (see para. 58 below).

31. New Zealand reported in its BR5 that it plans to fulfil its target under the Convention through an emission budget approach that it considers equivalent to its target. New Zealand's emission budget covers cumulative emissions below the trajectory starting from its 1990 base-year emissions and ending at 5.0 per cent below the 1990 level in 2020. In absolute terms, taking into account its base-year emissions of 65,828.38 kt CO_2 eq (excluding LULUCF), the Party's total estimated emission budget for 2013–2020 is reported as 509,774.98 kt CO_2 eq. This translates into average annual emissions of 63,721.87 kt CO_2 eq in 2013–2020. New Zealand reported that it will include accounting for units from market-based mechanisms and the contribution of LULUCF based on Kyoto Protocol second commitment period accounting rules for reporting and measuring progress towards its target. The Party noted that the emissions of Tokelau are not included in New Zealand's 2013–2020 target, as they have been included in the Party's annual submissions only since 2019.

32. In addition to its 2020 target, in 2021 New Zealand updated its first NDC with a more ambitious target in order to align with global efforts to limit global warming to 1.5 °C above pre-industrial levels. New Zealand's revised target is to reduce net GHG emissions to 50 per cent below the 2005 level of gross emissions by 2030. This corresponds to a 41.0 per cent reduction when using a multi-year emission budget starting from New Zealand's 2020 emission target and gross emission estimates for 2005, as outlined in New Zealand's GHG inventory for 1990–2019. This budget roughly equals 571.0 Mt CO_2 eq over 2021–2030. The NDC target is economy-wide, covering all sectors and all GHGs. In November 2017, New Zealand extended its ratification of the Convention and the Paris Agreement to include Tokelau, which is also incorporated in New Zealand's NDC. In meeting its target, New Zealand intends to use domestic mitigation actions, international market mechanisms and net removals of GHG emissions from eligible forestry activities.

33. The Climate Change Response Act 2002 amendment in 2019 established a system of emission budgets for New Zealand to set a GHG emission reduction path towards 2050. The legislation includes a domestic target for all GHG emissions other than biogenic CH_4 to be net zero by 2050. For biogenic CH_4, the target is a minimum 10.0 per cent reduction in emissions by 2030 and a 24.0–47.0 per cent reduction by 2050 compared with the 2017 level. In addition, the Climate Change Commission was established to provide independent, expert advice to the Government on climate mitigation and adaptation. This includes advice on setting targets, and monitoring and reporting on the Government's progress towards its emission reduction and adaptation goals.

2. Assessment of adherence to the reporting guidelines

34. The ERT assessed the information reported in the BR5 of New Zealand and recognized that the reporting is complete and transparent, and thus adheres to the UNFCCC reporting guidelines on BRs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

D. Information on policies and measures

1. Technical assessment of the reported information

35. New Zealand provided in its NC8 and BR5 information on its PaMs[7] implemented, adopted and planned to fulfil its commitments under the Convention. New Zealand's set of PaMs show an evolution in its emission reduction activities since its NC7. For example, the Party made amendments in 2019 to its Climate Change Response Act 2002 that, among other decisions, introduced the Zero Carbon Framework, New Zealand's main policy framework relating to climate change, set new domestic emission reduction targets for 2050 and established a system of emission budgets as steps to achieving the 2050 targets. Following

[7] The UNFCCC reporting guidelines on BRs use the term "mitigation actions", whereas the UNFCCC reporting guidelines on NCs use the term "policies and measures". The terms are used interchangeably in this report to refer to the relevant information in either the NC or BR.

this legislative change, New Zealand released its first emission reduction plan in May 2022, which set out the policies and strategies for how New Zealand will meet its first emission budget (for 2022–2025) as its first step on the pathway to achieving its 2050 targets.

36. Some PaMs have been discontinued since the Party's previous submission in response to changing circumstances. For example, some PaMs were replaced by others with similar objectives (e.g. the Warm-Up New Zealand: Healthy Homes insulation programme was replaced by the Warmer Kiwi Homes programme). Other PaMs reached the end of their funded period (e.g. the One Billion Trees Programme ceased funding new projects on 30 June 2021, but existing funding agreements were extended into the future to ensure completion). Five policies were reported as no longer active government policy (e.g. the Business Growth Agenda).

37. New Zealand reported on its policy context and legal and institutional arrangements in place for implementing its commitments and monitoring and evaluating the effectiveness of its PaMs. New Zealand also provided information on changes to its institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of progress towards its target, namely changes to include Tokelau in New Zealand's inventory system and appropriate assignment of the responsibility of various institutions in New Zealand and Tokelau to implement this change. New Zealand reported on the role of the Climate Change Commission, established under the 2019 amendment of the Climate Change Response Act 2002. The Commission is an independent Crown entity that provides evidence-based climate advice to the Government, and it also has responsibility for monitoring and reporting on progress towards meeting emission budgets and the 2050 target and on the implementation of emission reduction plans. It produces reports each year and at the end of each emission budget period.

38. The central Government has primary responsibility for national-level PaMs, with the Ministry for the Environment being the Government of New Zealand's primary adviser on climate change and responsible for key PaMs, including the New Zealand Emissions Trading Scheme. Other ministries and agencies, such as the Ministry for Primary Industries, the Ministry of Business, Innovation and Employment, the Energy Efficiency and Conservation Authority and the Ministry of Transport, are responsible for specific PaMs relevant to the sector they have responsibility for. Two government working groups, the Climate Change Chief Executives Board and the Climate Response Ministerial Group, provide centralized, coordinated oversight of climate action across the different sectors and by the central Government.

39. New Zealand has 78 local authorities, which have legislative responsibilities to act on climate adaptation, specifically the management of natural hazard risk and preparation for the impacts of climate change. During the review, the Party clarified that there are no direct legislative links that mandate local governments to reduce GHG emissions; however, some local authorities have voluntary and non-regulatory strategies to reduce emissions.

40. New Zealand's assessment of the economic and social consequences of its response measures includes an assessment by the Climate Change Commission of the economic and social consequences of delaying a transition to a low-emission economy. Furthermore, key priority areas and specific actions to support New Zealanders through the transition to a low-emission economy from New Zealand's first emission reduction plan are outlined in its NC8. For example, "Seize the opportunities of the transition" is an outcome of action 3.1.1, "Equip all children and young people for the transitions", and action 3.1.2, "Create a more responsive and flexible tertiary education and training system". The economic and social consequences of some mitigation actions were highlighted. For example, all three objectives of the 2050 vision for energy and industry are to support the social and economic well-being of New Zealanders.

41. New Zealand reported that its actions to identify and review its own policies and practices that encourage activities that lead to greater levels of emissions are legislatively mandated through the Climate Change Response Act 2002 and its 2019 amendment. Importantly, the 2019 amendment established the Climate Change Commission, which has responsibility for monitoring and review. New Zealand also reported on the recent review of

the Resource Management Act of 1991, which governs the use of New Zealand's land, water and air resources.

42. In its reporting on PaMs, New Zealand provided the estimated emission reduction impacts for some of its PaMs. Mitigation impacts were provided mostly for PaMs in the waste, agriculture and LULUCF sectors. The Party used the notation key "NE" to indicate that mitigation impacts were not estimated for some PaMs and indicated that this could be for any of the following reasons: a policy or measure had not been implemented or was in the early stages of implementation, insufficient data were available to estimate the impact of the policy or measure, there were model constraints associated with the policy or measure, or the impact of the policy or measure was deemed likely to be negligible. The Party described its general methodology for estimating the impacts of its PaMs, which comprises the application of a bottom-up modelling approach to estimate changes in activity data and resulting changes in emissions.

43. Key overarching cross-sectoral policies are reported by the Party through the first New Zealand emission reduction plan. The first emission reduction plan strategically sets out how New Zealand will achieve its 2022–2025 emission budget of 290 Mt CO_2 eq, and ultimately contribute to its 2030 and 2050 domestic emission reduction targets, namely, through a combination of emission pricing, regulation, sectoral policies, direct investment and support of an equitable transition across society. The mitigation effect of the New Zealand Emissions Trading Scheme is the most significant, as a stand-alone policy but also for its impact on emissions in the agriculture sector. The Scheme is a form of cap-and-trade system that creates a price signal on domestic emissions within the stationary energy, liquid fossil fuels, industrial processes, synthetic GHGs, waste and forestry sectors. Other sectoral-based policies that are delivering significant emission reductions are:

(a) The Equipment Energy Efficiency Program, which is designed to support households and businesses in purchasing and using a range of residential, commercial and industrial products that use less energy through energy rating labelling and the setting of mandatory performance standards;

(b) The expansion of the Government Investment in Decarbonising Industry Fund, which supports businesses through the provision of financial assistance for activities related to decarbonization (e.g. of industrial process heat, commercial space heating and water heating) and energy efficiency (e.g. replacement of inefficient industrial equipment);

(c) Public transport bus decarbonization, which requires only zero emission public transport buses to be purchased after 1 July 2025 and full decarbonization of the bus fleet by 2035;

(d) The Essential Freshwater package (excluding the impact of the nitrogen cap), which aims to improve the quality of fresh water in New Zealand through more streamside planting, retention of more natural wetlands and potentially less intensive stocking, which will also contribute to emission reduction and carbon capture;

(e) The One Billion Trees Programme, which aims to plant one billion trees by 2028 and have an ongoing mitigation impact beyond 2035;

(f) The National Environmental Standards for Air Quality, which require landfills over a prescribed size threshold to collect and destroy CH_4 emissions.

44. Among the most novel PaMs implemented by New Zealand that other Parties could potentially learn from is its mandatory annual disclosure of climate-related risks and opportunities by large publicly listed companies and financial institutions. New Zealand was the first country in the world to require climate disclosures from the private sector through its Financial Sector (Climate-related Disclosures and Other Matters) Amendment Act 2021. With many Parties worldwide considering establishing requirements for mandatory climate disclosures for the private sector, this policy provides an opportunity for them to learn from practical experience.

45. New Zealand highlighted the mitigation actions that are under development, such as the Hydrogen Roadmap, an offshore energy regulatory framework, a native afforestation initiative and expanding policies under the emission reduction plan. Table 5 provides a

summary of the reported information on the PaMs of New Zealand with the greatest estimated mitigation impact.

Table 5
Summary of information on policies and measures reported by New Zealand

Sector	*Key PaMs*[a]	*Estimated mitigation impact in 2025 (kt CO_2 eq)*	*Estimated mitigation impact in 2030 (kt CO_2 eq)*	*Estimated mitigation impact in 2035 (kt CO_2 eq)*
Policy framework and cross-sectoral measures	New Zealand Emissions Trading Scheme (impact on energy and transport)	2 520.4	4 419.1	5 638.6
	New Zealand Emissions Trading Scheme (impact on agriculture)	589.4	903.2	1 215.3
	New Zealand Emissions Trading Scheme (promotion of afforestation and disincentive for planted forest deforestation)	4 569.7	10 109.0	16 394.3
Energy				
Energy efficiency	Equipment Energy Efficiency Program	214.6	234.0	301.4
Energy supply and renewable energy	Expansion of the Government Investment in Decarbonising Industry Fund	1 080.7	2 543.1	1 709.5
Transport	Public transport bus decarbonization	23.0	78.0	177.0
IPPU	Kigali Amendment to the Montreal Protocol	NE	NE	NE
Agriculture	Essential Freshwater package (excluding the impact of the nitrogen cap)	82.2	424.5	767.5
LULUCF	One Billion Trees Programme	932.9	1 111.8	1 283.4
Waste	National Environmental Standards for Air Quality	605.3	657.2	691.6
Other	New Zealand Green Investment Finance	NE	NE	NE

Note: The estimated mitigation impacts are estimates of emissions of CO_2 eq avoided in a given year as a result of the implementation of mitigation actions. The mitigation impacts of reported PaMs are not provided for 2020.
[a] Names of PaMs reproduced as reported in New Zealand's BR5.

46. New Zealand reported more than 70 PaMs in NC8 table 4.3 and CTF table 3 from across the energy, energy efficiency, transport, waste, LULUCF, agriculture and cross-cutting sectors. For the "Start year of implementation" column of these tables, starting and end years were provided for four PaMs because, as the Party explained during the review, the individual measure had ceased funding or accepting new projects but its mitigation impact was still projected to be experienced up until 2035. The ERT notes that it is confusing to have end years for some PaMs and not for others, as it implies that all the other PaMs are still in place. Applying the use of end years consistently for all PaMs reported in these tables would lead to greater transparency of reporting.

2. Assessment of adherence to the reporting guidelines

47. The ERT assessed the information reported in the NC8 and BR5 of New Zealand and identified issues relating to transparency, and thus adherence to the UNFCCC reporting guidelines on NCs and the UNFCCC reporting guidelines on BRs. The findings are described in tables I.3 and II.2.

3. Domestic and regional programmes and legislative arrangements and procedures related to the Kyoto Protocol

(a) Technical assessment of the reported information

48. In its NC8, New Zealand reported that the implementation of the Kyoto Protocol is underpinned by the Climate Change Response Act 2002, which established the legal framework that enables New Zealand to meet its obligations under the Convention and its Kyoto Protocol. The administration of this Act and overall responsibility for climate change policymaking lies with the Ministry for the Environment, and a number of national institutions are involved in policy implementation. The Ministry for the Environment is the

national inventory agency, recording and reporting information relating to GHG emissions following international requirements. New Zealand's holdings of units representing the country's target allocation for GHG emissions under the Kyoto Protocol are managed under the Minister of Finance and a registry has been established to record holdings and transfers of units.

49. The implementation of sectoral climate change policies is frequently led by other relevant institutions, such as the Ministry for Primary Industries for agriculture and forestry policy, including the administration of forestry under the New Zealand Emissions Trading Scheme; the Environmental Protection Authority for regulatory functions concerning environmental management – the Authority is responsible for the operation of the New Zealand Emissions Trading Scheme Register and the administration of the non-forestry sectors; the Ministry of Business, Innovation and Employment for energy policy; the Energy Efficiency and Conservation Authority for energy efficiency programmes and uptake of renewable energy sources; and the Ministry of Transport for transport policy. Furthermore, an independent Climate Change Commission was established in November 2019 to provide independent, expert advice to the Government on climate targets set under the Climate Change Response Act 2002 and its 2019 amendment.

50. For the second commitment period of the Kyoto Protocol, from 2013 to 2020, New Zealand has no target inscribed in the Doha Amendment to the Kyoto Protocol.

51. New Zealand has provisions in place to make information on legislative arrangements and administrative procedures related to compliance and enforcement publicly accessible. The primary source of Government-provided climate change information is the climate change section of the Ministry for the Environment's website. This resource offers comprehensive information on the underlying evidence for, and causes and impacts of, climate change, as well as other related information. It also provides guidance on how members of the public can take action, access funding for projects and share their individual perspectives on the Government's climate change proposals.

52. New Zealand has national legislative arrangements and administrative procedures in place that seek to ensure that the implementation of activities under Article 3, paragraph 3, and any elected activities under Article 3, paragraph 4, of the Kyoto Protocol also contributes to the conservation of biodiversity and the sustainable use of natural resources. New Zealand's Climate Change Response Act 2002 references the Kyoto Protocol to ensure that implementing activities under Article 3, paragraph 3, contributes to biodiversity conservation and the sustainable use of natural resources. New Zealand excluded land that was natural forest in 1990 and subsequently converted to planted forest from its accounting of afforestation and reforestation activities under Article 3, paragraph 3. The Government of New Zealand has funding and programmes available to encourage land protection or reduce erosion, such as the One Billion Trees Programme, the Hill Country Erosion Programme, the Matariki Tu Rākau programme for memorial tree planting, the Sustainable Food and Fibre Futures initiative, and the Sustainable Land Management and Climate Change research programme. In addition, several legal acts regulate and promote sustainable forest management activities, such as the Forests Amendment Act 1993 (for indigenous forests), the South Island Landless Natives Act 1906 and the Conservation Act 1987.

(b) Assessment of adherence to the reporting guidelines

53. The ERT assessed the information reported in the NC8 of New Zealand and recognized that the reporting is complete and transparent, and thus adheres to the reporting guidelines for supplementary information. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

4. Policies and measures in accordance with Article 2 and minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol

(a) Technical assessment of the reported information

54. In the NC8 New Zealand reported information on how it strives to implement PaMs under Article 2 of the Kyoto Protocol in such a way as to minimize adverse effects, including

the adverse effects of climate change and effects on international trade and social, environmental and economic impacts on other Parties, especially developing country Parties. New Zealand provided information on how it considers the impact of its climate change policies on international trade and impacts on developing countries. The Party highlighted that cabinet and legislative processes related to climate change include consultation with the Ministry of Foreign Affairs and Trade on the development of climate change policies. The Party further noted that it regularly engages in trade, economic and political consultations with other Governments (particularly with partner Pacific Governments) and no Government has raised specific concerns about possible or actual impacts of New Zealand's climate change policies.

55. The NC8 includes information on how New Zealand promotes and implements the decisions of the International Civil Aviation Organization and IMO to limit emissions from aviation and marine bunker fuels. In the NC8 the Party acknowledged international cooperation through IMO to limit emissions from international shipping. During the review, New Zealand explained that it has been an active participant in the IMO decarbonization negotiations during the development of the 2023 IMO Strategy on Reduction of GHG Emissions from Ships and is working alongside other IMO member States to develop measures to operationalize the Strategy.

56. Further information on how New Zealand strives to implement its commitments under Article 3, paragraph 14, of the Kyoto Protocol in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties was reported in the 2022 annual submission. New Zealand prioritizes cooperation in developing environmentally friendly technologies, works to remove subsidies for environmentally unsound technologies. New Zealand conducts a regular analysis of the impacts of its climate policies, engages with other Governments to address concerns related to those policies and provides opportunities for public consultation. New Zealand is committed to providing climate finance to developing countries that align with its priorities and values. New Zealand actively advocates for the reduction and elimination of fossil fuel subsidies internationally, working through various platforms and organizations to advance reform. In addition, it focuses on supporting renewable energy, energy efficiency and the transition away from fossil fuels in partner countries, particularly in the Pacific region. It also assists non-Annex I Parties that are heavily dependent on fossil fuel exports in diversifying their economies, including by investing in climate-resilient renewable energy systems, such as geothermal resources and coconut oil for electricity generation.

(b) Assessment of adherence to the reporting guidelines

57. The ERT assessed the information reported in the NC8 of New Zealand and identified an issue relating to transparency, and thus adherence to the reporting guidelines for supplementary information. The finding is described in table I.6.

E. Estimates of emission reductions and removals and the use of units from market-based mechanisms and land use, land-use change and forestry and progress in achieving the quantified economy-wide emission reduction target

1. Technical assessment of the reported information

58. On its use of units from LULUCF activities, New Zealand reported in CTF tables 4 and 4(a) that in 2013–2020 it used contributions from LULUCF to offset 19.3 per cent of its total GHG emissions. It reported in CTF tables 4 and 4(b) that it used units from market-based mechanisms towards achieving its 2013–2020 budget target in the amount of 6,544.58 kt CO_2 eq. Table 6 illustrates New Zealand's total GHG emissions, contribution of LULUCF and use of units from market-based mechanisms towards achieving its target.

Table 6
Summary of information on greenhouse gas emissions, use of units from market-based mechanisms and land use, land-use change and forestry by New Zealand
(kt CO_2 eq)

Year	*Emissions excluding LULUCF*[a]	*Contribution of LULUCF*	*Use of units from market-based mechanisms*	*Net emissions including LULUCF and market-based mechanisms*
1990	65 196.98	NA	NA	65 196.98
2013	79 802.14	–8 583.68	0	71 218.46
2014	80 614.91	–11 255.97	0	69 358.94
2015	80 446.64	–13 088.79	0	67 357.85
2016	78 388.04	–13 562.41	0	64 825.63
2017	79 886.06	–15 640.75	0	64 245.31
2018	80 075.95	–15 421.97	0	64 653.98
2019	81 612.76	–13 601.76	0	68 011.00
2020	78 774.19	–32 125.83	6 544.58	40 103.78
Cumulative 2013–2020	639 600.69	–123 281.16	6 544.58	509 774.95
			Emission budget 2013–2020[b]	509 774.98

Sources: New Zealand's BR5 and BR5 CTF tables 2(a), 4, 4(a)I, 4(a)II, 4(b) and 6(a), information provided by the Party during the review and New Zealand's 2022 annual submission, version 3, which use GWP values from the AR4.
[a] Excludes emissions from Tokelau.
[b] This value corresponds to the 2020 target reported in New Zealand's BR5.

2. Assessment of adherence to the reporting guidelines

59. The ERT assessed the information reported in the BR5 of New Zealand and recognized that the reporting is complete and transparent, and thus adheres to the UNFCCC reporting guidelines on BRs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

3. Assessment of achievement of the quantified economy-wide emission reduction target

60. In assessing the Party's achievement of its 2020 target on the basis of the information reported in its BR5, the ERT noted that New Zealand committed to reducing its emissions to 5.0 per cent below the 1990 level by 2020 and that it reported that it will use an emission budget approach for 2013–2020 (see paras. 30–31 above), with an emission budget of 509,774.98 kt CO_2 eq. Between 2013 and 2020 New Zealand's total GHG emissions excluding LULUCF amounted to 639,600.69 kt CO_2 eq, the contribution of LULUCF amounted to –123,281.16 kt CO_2 eq and the use of market-based mechanisms amounted to 6,544.58 kt CO_2 eq, resulting in a net figure of 509,774.95 kt CO_2 eq, which equals 100.0 per cent of the Party's emission budget for 2013–2020. The ERT concluded that, on the basis of the information reported in the BR5 and provided during the review, the total GHG emissions excluding LULUCF of New Zealand including the contribution of LULUCF and use of units from market-based mechanisms do not exceed the Party's emission budget corresponding to the 2020 target, and thus that the target has been achieved.

F. Projections

1. Projections overview, methodology and results

(a) Technical assessment of the reported information

61. New Zealand reported in its BR5 and NC8 updated projections for 2025, 2030 and 2035 relative to actual inventory data for 2020 under the WEM scenario, using GWP values from the AR4. The WEM scenario reported by New Zealand includes PaMs implemented and adopted until May 2022.

62. In addition to the WEM scenario, New Zealand reported WAM and WOM scenarios. The WAM scenario includes planned PaMs, while the WOM scenario excludes the impacts of all implemented, adopted or planned PaMs on the basis of the date on which their impacts began. New Zealand provided a definition of its scenarios, explaining that its WEM scenario includes PaMs such as the New Zealand Emissions Trading Scheme, while its WAM scenario includes, for example, a number of planned LULUCF PaMs. The WEM scenario reflects the current state of legislation, taking into account any strengthening of existing PaMs foreseen under current legislation. The WAM scenario considers the planned strengthening of existing PaMs, as well as new PaMs that have been approved but have not yet been legislated for. The WOM scenario is the WEM scenario minus all estimated effects of implemented and adopted PaMs, noting that not all the effects of PaMs have been estimated. The definitions indicate that the scenarios were prepared in accordance with the UNFCCC reporting guidelines on BRs.

63. The projections are presented on a sectoral basis, using the same sectoral categories as those used in the reporting on mitigation actions, and on a gas-by-gas basis for CO_2, CH_4, N_2O, PFCs, HFCs and SF_6 (treating PFCs and HFCs collectively in each case) for 2030–2035. NF_3 is reported as "NO". The projections are also provided in an aggregated format for each sector and for a Party total using GWP values from the AR4. New Zealand reported on factors and activities affecting emissions for each sector.

(b) Methodology, assumptions and changes since the previous submission

64. The methodology used for the preparation of the projections is identical to that used for the preparation of the emission projections for the NC7. New Zealand provided information on changes since the submission of its NC7 in the assumptions, methodologies, models and approaches used for the projection scenarios. New Zealand reported supporting information further explaining the methodologies and the changes made since the NC7.

65. New Zealand reported information on the main differences between the projections produced in 2019 for the BR4 and the projections reported in the NC8. These include additional implemented and adopted PaMs, re-estimations of the impacts of PaMs, and revised carbon price, population growth and economic growth assumptions. New Zealand also reported that changes in historical inventory methods, emission factors and activity data resulted in decreased projected gross emissions of 5.4 Mt CO_2 eq (6.9 per cent) for 2025, mainly owing to decreased projected energy sector emissions. The net effect of all changes to the projections are reported in tabular format in the NC8 and BR5 for 2025, 2030 and 2035.

66. To prepare its projections, New Zealand relied on key underlying assumptions relating to population, GDP and carbon price (in the New Zealand Emissions Trading Scheme) for all sector projections, and in addition net migration, exchange rate and labour force for energy and transport sector projections. In its NC8, the Party provided a description of the key assumptions and variables, and in CTF table 5, it reported the full range of applied underlying assumptions. The assumptions were updated on the basis of the most recent economic developments known at the time of the preparation of the projections.

67. The Party reported in a consistent manner a sensitivity analysis in its NC8 and BR5 using high and low policy implementation scenarios around the WEM scenario as for the energy, IPPU, agriculture and LULUCF sectors. The Party also included a qualitative discussion of the sensitivity of the underlying assumptions beyond the high and low scenarios for projections from the model used for the energy sector (SADEM) and projections for residence time of HFCs in the atmosphere under the IPPU sector. For the waste sector, a qualitative sensitivity analysis was provided. During the review, the Party provided the ERT with background information on the complexity of analysing uncertainty for the transport sector and informed the ERT that sensitivity was also explored through scenarios in the modelling.

(c) Results of projections

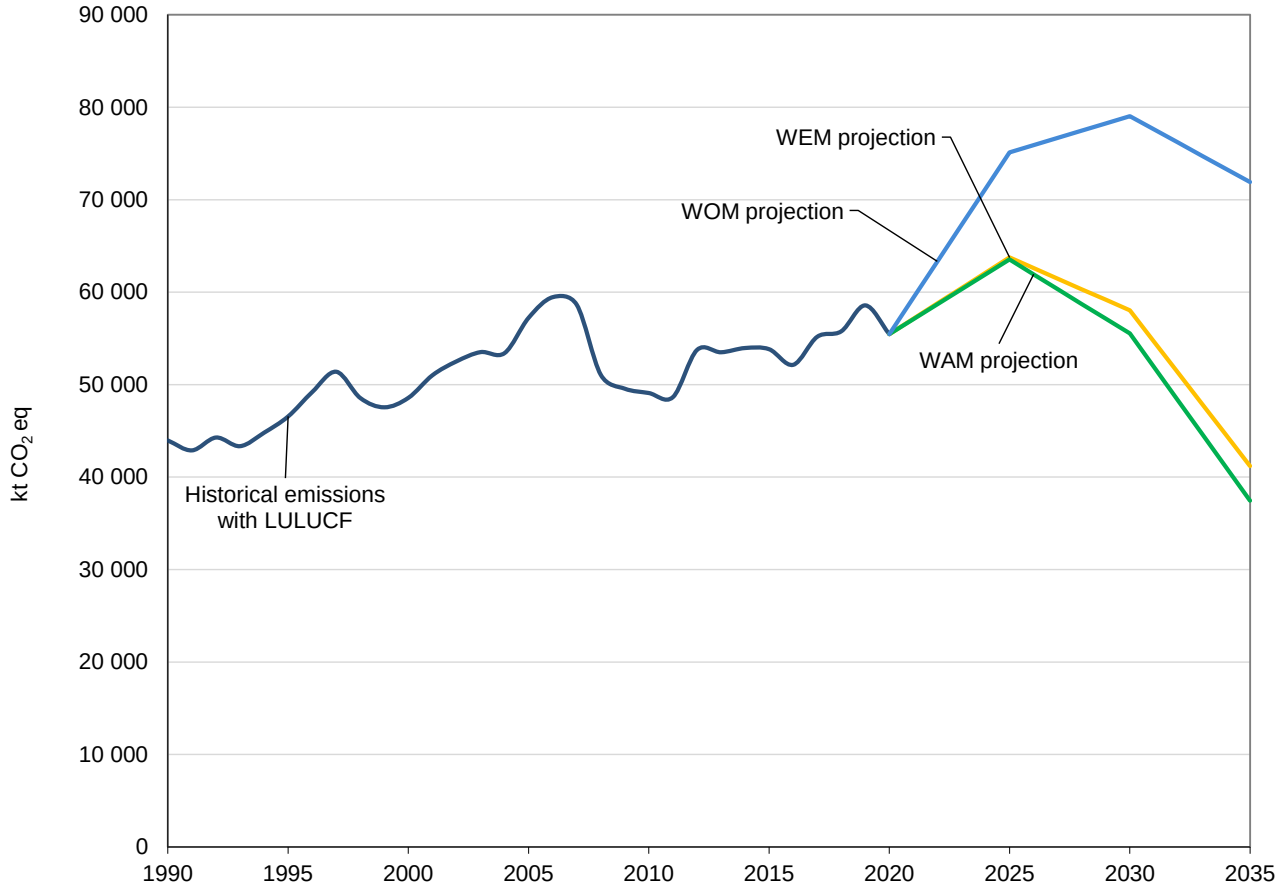
68. The projected emission levels under different scenarios are presented in table 7 and figure 1. New Zealand projected WEM, WAM and WOM scenarios for 2025, 2030 and 2035. All scenarios exclude indirect emissions, as confirmed by the Party during the review.

Table 7
Summary of greenhouse gas emission projections for New Zealand

	GHG emissions (kt CO_2 eq/year)	*Change in relation to 1990 level (%)*	*Change in relation to 2020 level (%)*
Inventory data 1990	43 967.76	NA	NA
Inventory data 2020	55 465.11	26.1	NA
WOM projections for 2030	79 045.38	79.8	42.5
WEM projections for 2030	58 030.20	32.0	4.6
WAM projections for 2030	55 528.35	26.3	0.1
WOM projections for 2035	71 898.60	63.5	29.6
WEM projections for 2035	41 204.35	–6.3	–25.7
WAM projections for 2035	37 457.00	–14.8	–32.5

Sources: New Zealand's BR5 and BR5 CTF table 6, which use GWP values from the AR4.
Note: The projections are of GHG emissions including LULUCF and excluding indirect CO_2.

Figure 1
Greenhouse gas emission projections reported by New Zealand



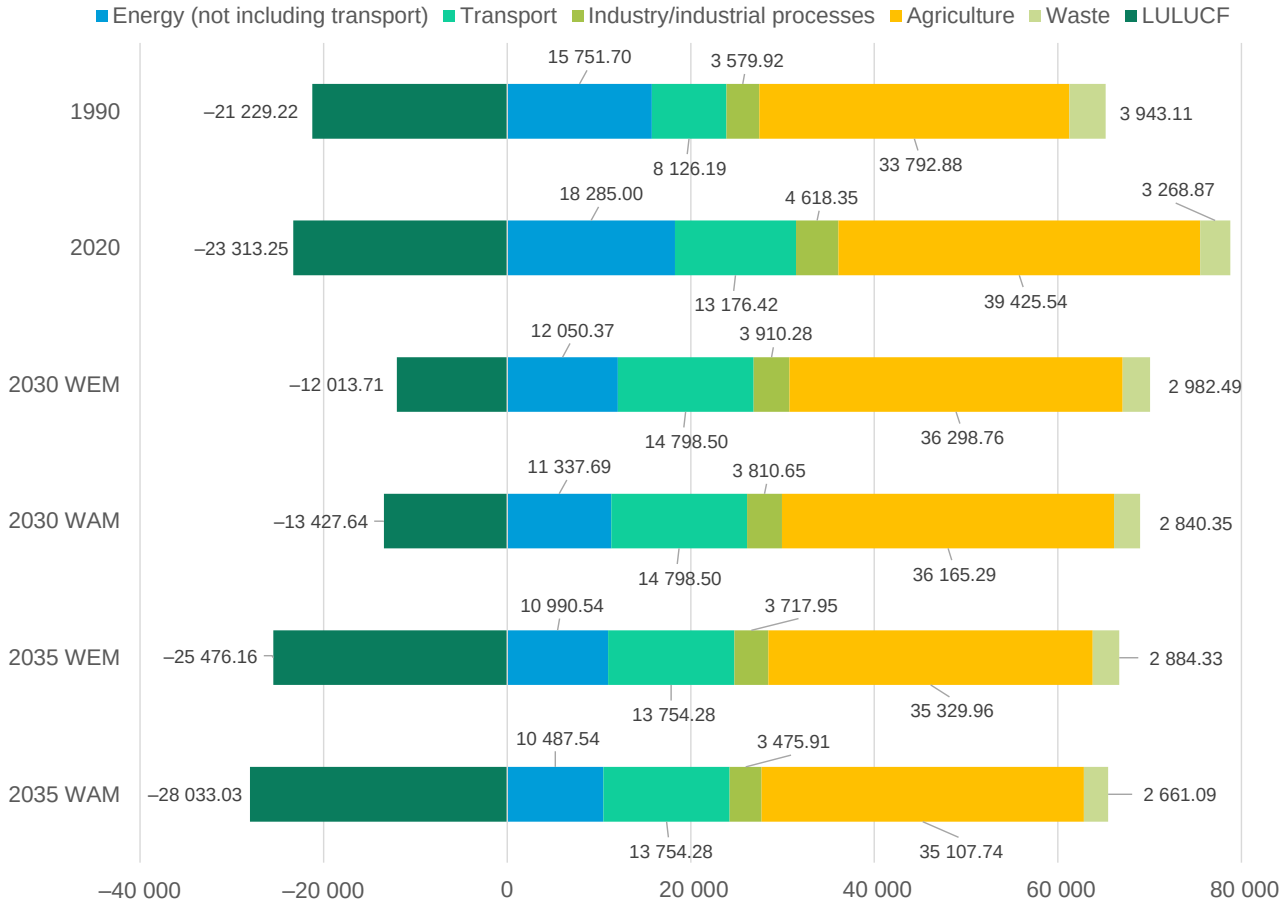
Sources: New Zealand's BR5 and BR5 CTF tables 1 and 6 (total GHG emissions including LULUCF), which use GWP values from the AR4.

69. New Zealand's total GHG emissions excluding LULUCF are projected under the WEM scenario to increase by 7.4 and 2.3 per cent above the 1990 level in 2030 and 2035 respectively. When including LULUCF, total GHG emissions are projected under the WEM scenario to increase by 32.0 per cent above and decrease by 6.3 per cent below the 1990 level

in 2030 and 2035 respectively. Under the WAM scenario (including LULUCF), emissions in 2030 are projected to be higher than those in 1990 by 26.3 per cent and emissions in 2035 are projected to be lower than those in 1990 by 14.8 per cent.

70. New Zealand presented the WEM and WAM scenarios by sector for 2030 and 2035, as summarized in figure 2 and table 8. Emissions with and without LULUCF are expected to peak by 2025 and fall to the 2020 level by 2030. The energy, IPPU and waste sectors reached peak emissions in or before 2020, but projected emissions up until 2035 remain above the 1990 level of emissions for these sectors and the agriculture sector. In 2035, net emissions across all sectors are expected to be below the 1990 level, while gross emissions will remain slightly above the 1990 level.

Figure 2
Greenhouse gas emission projections for New Zealand presented by sector
(kt CO_2 eq)



Source: New Zealand's BR5 CTF table 6, which uses GWP values from the AR4.

Table 8
Summary of greenhouse gas emission projections for New Zealand presented by sector

	GHG emissions and removals (kt CO_2 eq)					*Change (%)*			
		2030		*2035*		*1990–2030*		*1990–2035*	
Sector	*1990*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*
Energy (not including transport)	15 751.70	12 050.37	11 337.69	10 990.54	10 487.54	–23.5	–28.0	–30.2	–33.4
Transport	8 126.19	14 798.50	14 798.50	13 754.28	13 754.28	82.1	82.1	69.3	69.3
Industry/ industrial processes	3 579.92	3 910.28	3 810.65	3 717.95	3 475.91	9.2	6.4	3.9	–2.9
Agriculture	33 792.88	36 298.76	36 165.29	35 329.96	35 107.74	7.4	7.0	4.5	3.9

	GHG emissions and removals (kt CO_2 eq)					*Change (%)*			
		2030		*2035*		*1990–2030*		*1990–2035*	
Sector	*1990*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*
LULUCF	–21 229.22	–12 013.71	–13 427.64	–25 476.16	–28 033.03	43.4	36.7	–20.0	–32.0
Waste	3 943.11	2 982.49	2 840.35	2 884.33	2 661.09	–24.4	–28.0	–26.9	–32.5
Other	3.17	3.51	3.51	3.46	3.46	10.7	10.7	9.1	9.1
Total GHG emissions excluding LULUCF	**65 196.98**	**70 043.90**	**68 955.99**	**66 680.52**	**65 490.02**	**7.4**	**5.8**	**2.3**	**0.4**
Total GHG emissions including LULUCF	**43 967.76**	**50 030.20**	**55 528.35**	**41 204.35**	**37 457.00**	**32.0**	**26.3**	**-6.3**	**-14.8**

Source: New Zealand's BR5 CTF table 6, which uses GWP values from the AR4.

71. According to the projections reported for 2030 under the WEM scenario, the most significant absolute emission reductions are expected to occur in the energy sector, amounting to projected reductions of 23.5 per cent between 1990 and 2030. The pattern of projected sectoral emissions reported for 2035 under the same scenario remains the same, with an additional 6.7 per cent reduction for the energy sector. The projected reductions in the energy sector are largely driven by shifting remaining thermal baseload electricity generation to generation from a combination of wind, geothermal and gas-fired peaking power plants. The emission intensity is expected to continue to decline in the residential sector as inefficient heating systems are replaced. Three fossil fuel power plants will be decommissioned by 2031. As a result of these changes, manufacturing and construction will remain the largest contributor to energy sector emissions, and it will have an increasing share.

72. According to projections reported for 2030 and 2035, the waste sector is expected to deliver significant emission reductions compared with the 1990 level, amounting to 24.4 and 27.0 per cent respectively. Chiefly, the reductions result from the increased use of landfill gas capture. This is supported by a minor decreasing trend from the changing composition of waste, as food and paper are increasingly removed from waste streams.

73. The transport and IPPU sectors are projected to have higher emissions by 2025, 2030 and 2035 compared with the 1990 level. In the transport sector, vehicle distances travelled and vehicle numbers are expected to continue to increase, but increased adoption of electric vehicles and improved fuel efficiency are expected to mitigate emissions. By 2035, transport emissions will be slightly above the reported 2020 emissions under the WEM scenario, indicating that the continuous historical increase in emissions will plateau. IPPU sector emissions peaked in 2015. Emissions from the IPPU sector are projected to continue to decrease but remain above the 1990 level in 2030. By 2030, IPPU emissions are expected to have been reduced by 15.3 per cent compared with the 2020 level. The main driver of reductions is the announced and expected closure of the Tiwai Point Aluminium Smelter in 2024.

74. In the agriculture sector, projected emissions up until 2035 will remain above the 1990 level. However, this represents a continuous decrease from the peak in 2005–2020. Emissions in 2030 and 2035 are projected to decrease by 7.9 and 10.4 per cent respectively compared with the 2020 level. The main driver is projected reductions in the number of dairy cows, beef cattle and sheep, and an associated decrease in agricultural land as the New Zealand Emissions Trading Scheme drives increased afforestation (reflected in LULUCF projections). Various measures driving changes in farm management practices, notably concerning nitrogen emissions, result in a continued decrease in emission intensity at the product level.

75. The LULUCF sector contributes significant net removals – it has done so in all reporting years and is foreseen to continue to do so for the projection period. The carbon sequestration mainly comes from afforestation and pre-1990 planted forests. While constituting 79 per cent of New Zealand's forested area in 2020, pre-1990 natural forests

exhibit a very limited and uncertain total sink capacity. The vast majority (99.9 per cent) of harvests are in planted forests.

76. In 2020, reported LULUCF net removals were slightly higher than base-year removals. In 1990, LULUCF carbon removals amounted to 21.6 Mt CO_2, and carbon removals peaked in 2010, at 29.8 Mt CO_2, before declining to 23.7 Mt CO_2 in 2020. Base-year removals were largely from sequestration in pre-1990 planted forests, while in 2020, two thirds of LULUCF net removals were from lands afforested since 1990. The projected sink under the WEM scenario for 2025 and 2030 will drop significantly, to 9.9 and 12.4 Mt CO_2 respectively. In 2035, the LULUCF sink is foreseen to have rebounded to past levels, at 25.5 Mt CO_2.

77. The main driver of the periodic reduction in the sink is legacy effects of past harvests and planting cycles in 1990–2000. With the pre-1990 planted forest area dominated by more than 90 per cent radiata pine, and with target harvest ages of 28–30 years, the harvest of mature stands in the first half of the projection period will be significant. In the second half of the projection period, replanting and early growth in harvested areas will drive removals up again.

78. Aside from the legacy effects, trends in projected LULUCF removals will be driven by the New Zealand Emissions Trading Scheme and a handful of policies incentivizing or removing barriers for afforestation. With the reported key assumption on carbon price developments under the New Zealand Emission Trading Scheme, afforestation on some agricultural land will be strongly incentivized and deforestation disincentivized. Between 30,000 and 40,000 ha of annual afforestation with exotic species is expected in 2023–2030, with very limited deforestation. The result is that the legacy effect of harvest cycles on the LULUCF sink is compounded by an area increase in forest land throughout the projection period. During the review, the Party explained that carbon prices are inherently unpredictable, and that scenarios of afforestation and deforestation are highly dependent on that price, as confirmed by recent surveys.

79. New Zealand presented the WEM and WAM scenarios by gas for 2030 and 2035, as summarized in table 9.

Table 9
Summary of greenhouse gas emission projections for New Zealand presented by gas

	GHG emissions and removals (kt CO_2 eq)					*Change (%)*			
		2030		*2035*		*1990–2030*		*1990–2035*	
Gas[a]	*1990*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*
CO_2	3 878.45	17 051.54	14 924.93	1 466.04	–1 593.83	339.6	284.8	–62.2	–141.1
CH_4	33 041.22	31 592.07	31 319.35	30 762.47	30 330.58	–4.4	–5.2	–6.9	–8.2
N_2O	6 118.17	8 157.57	8 154.69	7 948.45	7 934.89	33.3	33.3	29.9	29.7
HFCs	NO, NA	1 209.46	1 109.83	1 006.70	764.66	–	–	–	–
PFCs	909.95	0.00	0.00	0.00	0.00	–	–	–	–
SF_6	19.97	19.55	19.55	20.70	20.70	–2.1	–2.1	3.7	3.7
NF_3	NO, NA	NO	NO	NO	NO	–	–	–	–
Total GHG emissions excluding LULUCF	**65 196.98**	**70 043.90**	**68 955.99**	**66 680.52**	**65 490.02**	**7.4**	**5.8**	**2.3**	**0.4**
Total GHG emissions including LULUCF	**43 967.76**	**58 030.20**	**55 528.35**	**41 204.35**	**37 457.00**	**32.0**	**26.3**	**–6.3**	**–14.8**

Source: New Zealand's BR5 CTF table 6, which uses GWP values from the AR4.
[a] Figures for CO_2, CH_4 and N_2O include emissions and removals from LULUCF. New Zealand did not include indirect CO_2 emissions in its projections.

80. The Party reported significant changes in the projections and variations in important variables since the NC7. Changes include additional implemented and adopted PaMs, re-estimations of the impacts of PaMs, and revised carbon price, population growth and (for the

energy and transport sectors only) economic growth assumptions. Most importantly, the assumed carbon price for 2025 and 2030 was revised upward by 138.1 and 223.0 per cent respectively, in line with higher price levels in the submission year for the NC8 compared with the NC7. The higher price level is a function of changes to the New Zealand Emissions Trading Scheme. Projections of the population were also adjusted upward by 0.4 per cent. Of all the changes applied since the NC7, carbon price was found to have the most profound impact on projected emissions and removals across all sectors. As reported in the BR5 and NC8, the change in the carbon price alone resulted in a doubling of the assumed 2030 afforestation rate of exotic forests, from 15,000 ha per year reported in the NC7 to 36,000 ha per year reported in the NC8. The changes in assumed afforestation of exotic forests between the BR4 and the BR5 are less prominent, as 26,000 ha per year were assumed in the former, confirming the dynamic nature of assumed afforestation rates and their dependence on carbon price assumptions.

(d) Assessment of adherence to the reporting guidelines

81. The ERT assessed the information reported in the NC8 and BR5 of New Zealand and identified issues relating to completeness and transparency, and thus adherence to the UNFCCC reporting guidelines on NCs and the UNFCCC reporting guidelines on BRs. The findings are in tables I.3 and II.2.

2. Assessment of the total effect of policies and measures

(a) Technical assessment of the reported information

82. In its NC8 New Zealand presented the estimated and expected total effect of implemented and adopted PaMs and an estimate of the total effect of its PaMs, in accordance with the WEM scenario, compared with a situation without such PaMs. Information is presented in terms of GHG emissions avoided or sequestered, by gas (on a CO_2 eq basis), in 2030 and 2035. It also presented relevant information on factors and activities for each sector for 1990–2030.

83. New Zealand reported that the total estimated effect of its implemented and adopted PaMs is 21.02 kt CO_2 eq in 2030 and 30.69 kt CO_2 eq in 2035 (including LULUCF). According to the information reported in its NC8, PaMs implemented in the LULUCF, energy and agriculture sectors will deliver the largest emission reductions. Table 10 provides an overview of the total effect of PaMs as reported by New Zealand.

Table 10
Projected effects of New Zealand's planned, implemented and adopted policies and measures in 2030 and 2035
(kt CO_2 eq)

	2030		*2035*	
Sector	*Effect of implemented and adopted measures*	*Effect of planned measures*	*Effect of implemented and adopted measures*	*Effect of planned measures*
Energy (without transport)	4 002.00	713.00	4 996.00	503.00
Transport	434.00	0.00	657.00	0.00
Industry/industrial processes	311.00	100.00	383.00	242.00
Agriculture	2 048.00	133.00	3 267.00	222.00
Land-use change and forestry	13 496.00	1 414.00	20 616.00	2 557.00
Waste management	725.00	142.00	776.00	223.00
Total	**21 015.00**	**2 502.00**	**30 694.00**	**3 747.00**

Source: New Zealand's NC8, which uses GWP values from the AR4.
Note: The total effect of implemented and adopted PaMs is defined as the difference between the WOM and the WEM scenarios; the total effect of planned PaMs is defined as the difference between the WEM and the WAM scenarios.

(b) Assessment of adherence to the reporting guidelines

84. The ERT assessed the information reported in the NC8 of New Zealand and recognized that the reporting is complete and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

3. Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol

(a) Technical assessment of the reported information

85. In the NC8 New Zealand reported that it maintains its linkages with the international transaction log but did not actively participate in the mechanisms established by Articles 6, 12 and 17 of the Kyoto Protocol for 2013–2020. The ERT notes that reporting on the supplementarity of such mechanisms is, therefore, not relevant for New Zealand as its target for 2013–2020 is pledged under the Convention.

(b) Assessment of adherence to the reporting guidelines

86. The ERT assessed the information reported in the NC8 of New Zealand and recognized that the reporting is complete and transparent, and thus adheres to the reporting guidelines for supplementary information. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

G. Provision of financial, technological and capacity-building support to developing country Parties

1. Technical assessment of the reported information

(a) Approach and methodologies used to track support provided to non-Annex I Parties

87. In its NC8 and BR5 New Zealand reported information on its provision of financial, technological and capacity-building support to non-Annex I Parties.

88. New Zealand has provided support that it considers to be “new and additional”. New Zealand’s approach to determining new and additional financial resources for 2019–2020 was to classify as new and additional all climate-related support provided over the reporting period that meets agreed definitions for official development assistance (i.e. support with a strong concessional element and with economic development and the welfare of developing countries as its main objective). New Zealand reported all climate-related support provided during the reporting period, noting that it considered this to be the most transparent and appropriate way of communicating new resources provided. The Party reported that approximately 20 per cent of New Zealand’s international development cooperation programme for 2019–2020 had a climate-related component.

89. New Zealand reported on the support that it has provided to non-Annex I Parties, distinguishing between support for mitigation and adaptation activities and identifying the capacity-building elements of such support. The methodology for distinguishing climate change activities from other activities is based on the Rio markers system of the Organisation for Economic Co-operation and Development’s Development Assistance Committee.

90. New Zealand’s national approach to tracking the provision of support, including information on indicators, delivery mechanisms used and allocation channels tracked, is described in its NC8 and BR5. The principles underlying its international development cooperation tracking system are also described. The Party reported that this system allows climate-related expenditure to be quantified and recorded under the international development cooperation programme in accordance with climate change activity types, which mainly build on the Rio marker principles. The review of New Zealand’s policy on the application of the Rio markers has not progressed as expected owing to the COVID-19 pandemic and resource constraints; although the Party still plans to undertake a review of the tracking system, subject to the availability of financial resources, it considers that its current

approach is satisfactory at present. During the review, the Party clarified that the capacity-building indicator previously added to the international development cooperation tracking system, which is a binary indicator, is still being applied, noting challenges in isolating costs for capacity-building given that it is often a cross-cutting element of activities.

91. New Zealand's methodology and underlying assumptions used for collecting and reporting information on financial support include the classification, weighting, quantification and recording of climate-related expenditures. Where climate change is the principal focus of a particular activity, 100 per cent of the activity value is reported; where climate change is a significant focus, 30 per cent is recorded; and where climate change is not a focus, 0 per cent is recorded.

(b) Financial resources

92. New Zealand reported in its NC8 and BR5 information on its provision of financial support to non-Annex I Parties as required under the Convention, including on financial support committed and disbursed, allocation channels and annual contributions. In its NC8 and BR5, New Zealand reported that "provided" refers to funds have been transferred from the Government of New Zealand to a recipient (which may be a multilateral or a regional organization). In the 2019–2020 reporting period, climate change related financial support was separated from the core general budget of public financial support. In its provision of climate-related support, New Zealand's international development cooperation programme is guided by four overarching principles, which are outlined in New Zealand's International Cooperation for Effective Sustainable Development policy: effective development, inclusive development, resilient development and sustained development. New Zealand's support policy is guided by the Pacific and Development Climate Change Action Plan 2019–2022, which has the following overarching goal: "our Pacific engagement and international development cooperation – including our response to COVID-19 – supports an effective global response to climate change and improves Pacific resilience".

93. New Zealand described during the review how it seeks to ensure that the resources it provides to non-Annex I Parties effectively address their adaptation and mitigation needs. Its approach is built on an intensive partnership with the recipient countries through which New Zealand aims to understand their needs and priorities (rather than directing support on the basis of a set of its own predetermined priorities). The needs and priorities of partners are understood through ongoing bilateral engagement and through plans such as NDCs and NAPs.

94. Table 11 summarizes the information reported by New Zealand on its provision of financial support.

Table 11
Summary of information on provision of financial support by New Zealand in 2019–2020
(Millions of United States dollars)

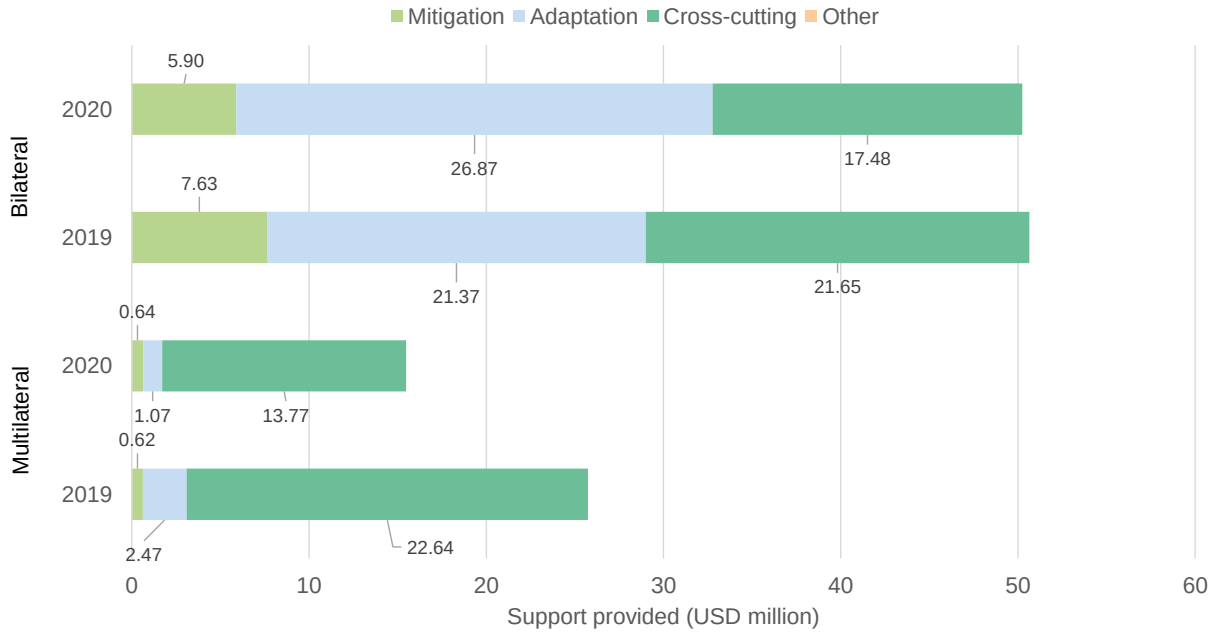
Allocation channel of public financial support	*Disbursement in 2019–2020*
Official development assistance	1 084.50
Climate-specific contributions through multilateral channels, including:	41.21
GEF	2.27
Adaptation Fund	1.98
Green Climate Fund	9.88
Financial institutions, including regional development banks	18.03
United Nations bodies	9.05
Climate-specific contributions through bilateral, regional and other channels	100.90

Sources: New Zealand's BR5 CTF tables and Query Wizard for International Development Statistics, available at http://stats.oecd.org/qwids/.

95. New Zealand's climate-specific public financial support[8] totalled USD 142.11 million in 2019–2020, representing an increase of 97.4 per cent since the BR4 (2017–2018).[9] All climate finance reported in NC8 tables 7.4(a–b) and 7.5(a–b) and the corresponding CTF tables has been disbursed. With regard to future financial pledges aimed at enhancing the implementation of the Convention by developing countries, New Zealand has committed to providing NZD 1.3 billion in grant-based climate finance between 2022 and 2025. Allocation of this climate finance will be guided by the Aotearoa New Zealand International Climate Finance Strategy. The four key goals under this strategy are to enhance resilience and adaptation, promote quicker action on mitigation, improve information to allow evidence-based decision-making and leverage investments for greater impact.

96. New Zealand contributed through multilateral channels USD 41.21 million in 2019–2020. The contributions were made to specialized multilateral climate change funds, such as the Adaptation Fund, the GEF and the Green Climate Fund. This represents a significant increase of 3,612.6 per cent since 2017–2018 (reported in the BR4). The Party noted that the reporting period (2019–2020) fell within the seventh replenishment period for the GEF (2018–2022), for which New Zealand provided USD 2.27 million of climate-specific funding (for 2019–2020). This contribution recognizes the considerable efforts of the GEF to increase the support it provides to the least developed countries and small island developing States, and the responsiveness of the GEF to the 2030 Agenda for Sustainable Development. Information on financial support from the public sector provided through multilateral and bilateral channels and the allocation of that support by target area is presented in figure 3 and table 12.

Figure 3
Provision of support by New Zealand in 2019–2020



Sources: New Zealand's BR5 CTF tables 7, 7(a) and 7(b).

[8] For the remainder of this chapter, the term "financial support" means climate-specific financial support, unless otherwise noted.

[9] Comparisons with data from previous years have been calculated directly without adjusting for inflation.

Table 12
Summary of information on channels of financial support reported by New Zealand
(Millions of United States dollars)

Allocation channel of public financial support	*Amount disbursed in 2019–2020*	*Amount disbursed in 2017–2018*	*Change (%)*[a]	*Share of total (2019–2020) (%)*
Detailed information by type of channel				
Multilateral channels				
Mitigation	1.26	1.04	21.2	3.1
Adaptation	3.54	0.00	–	8.6
Cross-cutting	36.41	0.07	51 914.3	88.4
Total multilateral	**41.21**	**1.11**	**3 612.6**	**100.0**
Bilateral channels				
Mitigation	13.53	18.42	–26.5	13.4
Adaptation	48.24	31.73	52.0	47.8
Cross-cutting	39.13	20.73	88.8	38.8
Total bilateral	**100.90**	**70.88**	**42.4**	**100.0**
Total multilateral and bilateral	**142.11**	**71.99**	**97.4**	**100.0**

Sources: New Zealand's BR5 CTF tables 7, 7(a) and 7(b), and the report on the technical review of the BR4 of New Zealand for 2017–2018 data.

[a] Note that variances in contribution amounts from year to year can occur that are not reflective of trends, owing to factors such as the biennial or triennial contribution cycles of some multilateral funds, the timing of approvals for individual bilateral projects or changes in exchange rates.

97. The Party reported detailed information on the total financial support provided though bilateral and regional (USD 100.90 million) channels in 2019–2020. During the reporting period, New Zealand placed a particular focus on Pacific island countries, to which it allocated approximately 75 per cent of its bilateral and regional support.

98. The NC8 and the BR5 provide information on the types, sectors and instruments of support provided. The information reported shows that in 2019–2020 the average shares of bilateral and regional financial support allocated to mitigation, adaptation and cross-cutting projects were 13.4, 47.8 and 38.8 per cent respectively. Adaptation funding for the period was approximately 3.5 times greater than mitigation funding, which is aligned with the high-level risk of climate change impacts faced by countries in the Pacific region, which is the focus of New Zealand's support. In 2019–2020, the majority of financial contributions through bilateral and regional channels were allocated to the energy, agriculture and cross-cutting sectors. The ERT noted that the grants provided in 2019–2020 accounted for all of the bilateral and regional financial support.

99. An example of New Zealand's support is the NZD 1.43 million it provided in 2019–2020 for a renewable energy project in Niue focused on resolving issues with its current electricity network, increasing its renewable energy supply and reducing its dependence on imported fuel. Another example is the NZD 590,000 project to develop a long-term low-emission development strategy for Tonga, led by the Department of Climate Change in Tonga's Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications. The strategy articulates a long-term vision and direction for the future of Tonga across all sectors in a low-carbon world and in a changing climate. Both of these projects demonstrate the work that New Zealand is doing to support developing countries in the Pacific region in developing low-emission and climate-resilient development strategies and implementing activities that reduce emissions and promote adaptation.

100. New Zealand also reported on how it uses public funds to promote private sector financial support for developing countries to increase mitigation and adaptation efforts in developing countries. Leveraging investment to achieve greater climate-related impact is one of the core goals of the Aotearoa New Zealand International Climate Finance Strategy. As the cost of renewable energy generation has decreased, New Zealand has worked with development partners to encourage the private sector to fund and develop commercially viable renewable energy generation projects, particularly in the Pacific region. New Zealand

continues to value private sector expertise and actively seeks private sector climate finance. The private sector plays an important role in contributing to positive climate change outcomes through knowledge, innovation, investment and responsible business conduct.

101. In 2019, New Zealand committed NZD 4 million to the Pacific Infrastructure Technical Assistance Fund, which provides technical assistance grants to support Pacific island countries in attracting high-quality infrastructure finance. The Fund has helped to develop a number of renewable energy and resilient infrastructure projects across the region. Also in 2019, New Zealand established the Crown-owned investment vehicle New Zealand Green Investment Finance. Total capital commitments as at 30 September 2023 were NZD 432 million. It will seek to partner with industry, private investors and other sources of private finance to develop large-scale projects in areas such as transport, industrial process heat, the built environment and agriculture. In 2020, New Zealand completed the design for InvestPacific, a NZD 50 million impact investment fund based in the country that will mobilize private investment for inclusive and climate-resilient development in the Pacific region. The fund was expected to launch in 2023.

(c) Technology development and transfer

102. New Zealand reported on its measures and activities related to technology transfer, access and deployment benefiting developing countries, which are undertaken mainly by the public sector. New Zealand supports both ‘hard’ (tangible components) and ‘soft’ (information- and knowledge-sharing, training and research) technology transfer. This approach helps to ensure that the management and development of climate-friendly technologies are country-relevant, sustainable and long-lasting. New Zealand promotes and facilitates the development of agriculture-specific endogenous and non-endogenous capacities and technologies of developing country Parties; it does not differentiate between endogenous and non-endogenous technology. Improvements since the previous reporting period include the strengthening of local capacity-building in developing countries for successful technology transfer and the monitoring of capacity-building indicators.

103. New Zealand described success stories in relation to technology transfer, and in particular measures taken to promote, facilitate and finance the transfer and deployment of climate-friendly technologies. During the review, the Party clarified that it reports lessons learned but does not report failures because it has been able to address challenges that have occurred during projects, thus avoiding failures. New Zealand considers the Tonga Village Network Upgrade Programme and Nuku’alofa Network Upgrade Project to be among its most successful projects. Under these projects, the capability to undertake all of its own network upgrades and repairs was built and embedded in the Tongan electricity utility (Tonga Power). A large group of Tongans were trained to New Zealand line mechanic standards, and the electricity network on the main island of Tongatapu was upgraded. In 2020, Tropical Cyclone Harold hit Tonga, causing widespread damage. However, on Tongatapu, where lines had been upgraded, the damage was relatively minor and power cables were reinstated relatively easily. The Tonga Power team was able to assess damage across all island groups quickly and established a plan to repair damaged lines.

104. New Zealand’s international development cooperation programme is committed to supporting climate change action in developing countries, focusing on the Pacific region, and on the areas of renewable energy and agriculture. In addition to the Pacific region, New Zealand has supported a number of technology transfer activities in Africa, Latin America and the Caribbean and South-East Asia, through both its international development cooperation programme and the Global Research Alliance on Agricultural Greenhouse Gases. The international development cooperation programme has mainly supported initiatives that enable access to affordable, reliable and clean energy sources and that reduce carbon emissions, and adaptation projects for water and sanitation, agriculture and disaster-resilient infrastructure that reduce the vulnerability of human and natural systems to the effects of climate change by increasing community and infrastructure resilience.

(d) Capacity-building

105. New Zealand reported on its capacity-building support for mitigation, adaptation and technology that responds to the existing and emerging needs identified by non-Annex I

Parties. It described individual measures and activities related to capacity-building support in textual and tabular format. New Zealand's capacity-building activities are targeted to areas in which it has expertise, such as weather and climate data analysis and forecasting, agriculture, renewable energy generation and disaster risk resilience-building, and in which countries have identified specific needs and capacity gaps. This approach is aimed at ensuring the support of activities that respond to the existing and emerging capacity-building needs of non-Annex I Parties. New Zealand's provision of capacity-building support to non-Annex I Parties is based on the principles of national ownership, stakeholder participation, country-driven demand, cooperation between donors and across programmes, and impact assessment and monitoring.

106. New Zealand has supported climate-related capacity development activities relating to adaptation and mitigation in the agriculture, water, energy and other sectors. Since the BR4, the Pacific region remains the priority for the Party and a large portion of its capacity-building activities are, therefore, aimed at this region. Capacity-building support is focused on responding to the needs of those countries with the least capacity, namely, small island developing States, many of which are also the countries most vulnerable to climate change.

107. Climate-related support is also provided by New Zealand bilaterally to partner countries in Africa and in Latin America and the Caribbean and to members of the Association of Southeast Asian Nations, with a particular focus on disaster risk reduction, renewable energy and sustainable agriculture. Furthermore, New Zealand is scoping potential activities that could avert, minimize and address loss and damage.

2. Assessment of adherence to the reporting guidelines

108. The ERT assessed the information reported in the NC8 and BR5 of New Zealand and identified issues relating to completeness, and thus adherence to the UNFCCC reporting guidelines on NCs and the UNFCCC reporting guidelines on BRs. The findings are described in tables I.4 and II.3.

3. Reporting on finance, capacity-building and technology transfer information related to the Kyoto Protocol

(a) Technical assessment of the reported information

109. In its NC8 New Zealand reported its activities, actions and programmes undertaken in fulfilment of its commitments under Article 10 of the Kyoto Protocol. New Zealand provided information on steps taken to promote, facilitate and finance the transfer of technology to developing countries and to build their capacity in order to facilitate implementation of Article 10 of the Kyoto Protocol (see paras. 106–107 above).

110. New Zealand provided information on its implementation of Article 11 of the Kyoto Protocol, including a description of the steps that it is taking towards ensuring the adequacy and predictability of climate finance. In 2018, New Zealand made a high-level, multi-year climate finance commitment of NZD 300 million for 2019–2022, including NZD 150 million dedicated to an adaptation-focused climate change programme in the Pacific region. Furthermore, in 2021, New Zealand committed to providing NZD 1.3 billion in grant-based climate finance from 2022 to 2025, with the allocation of this funding to be guided by the Aotearoa New Zealand International Climate Finance Strategy. The Strategy ensures that New Zealand's climate finance supports developing countries and communities to build resilience in a world on a pathway to keeping global temperature rise below 1.5 °C. The Party described how its contributions are "new and additional" (see para. 88 above).

111. New Zealand reported on its financial contributions to the Adaptation Fund, which consisted of USD 1.98 million in 2019. This contribution focuses on finance activities for climate change adaptation in Pacific countries.

(b) Assessment of adherence to the reporting guidelines

112. The ERT assessed the information reported in the NC8 of New Zealand and recognized that the reporting is complete and transparent, and thus adheres to the reporting

guidelines for supplementary information. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

H. Vulnerability assessment, climate change impacts and adaptation measures

1. Technical assessment of the reported information

113. In its NC8 New Zealand provided information on the expected impacts of climate change in the country; the adaptation policies covering regional, sectoral and cross-sectoral vulnerabilities and considerations; and an outline of the action taken to implement Article 4, paragraph 1(b) and (e), of the Convention with regard to adaptation. New Zealand provided a description of climate change vulnerability and impacts on different sectors and areas and highlighted the adaptation response actions taken and planned at different levels of government.

114. Since the NC7, there have been several key developments in New Zealand related to broadening understanding of climate risks through increased research, capacity-building and awareness-raising and through the strengthening of the legal, policy and institutional arrangements relevant to tackling climate risks and to implementing adaptation measures. In 2019, the Government published *Arotakenga Huringa Āhuarangi: a Framework for the National Climate Change Risk Assessment for Aotearoa New Zealand* to support a consistent approach to defining and assessing risks from the changing climate at the local, regional and national level. The framework provides the means to evaluate the risks and opportunities from climate change in terms of their nature, severity and urgency using a variety of information sources. It includes a three-stage approach to assessing and comparing risks (stage 1: first-pass risk screen, stage 2: detailed risk assessment and stage 3: adaptation and decision urgency). The ERT noted that New Zealand reported more comprehensive information on climate change adaptation in the NC8 than in the NC7.

115. New Zealand has addressed adaptation matters through the adoption of several Government PaMs and research programmes. The Climate Change Adaptation Technical Working Group, established by the Government, completed a stocktake on adaptation action and provided recommendations on New Zealand's adaptation to climate change. The 2019 amendment to the Climate Change Response Act 2002 includes requirements for assessing climate risks and for developing action plans and monitoring their implementation.

116. The first National Climate Change Risk Assessment, published in 2020, identified the most urgent risks and opportunities from climate-related hazards in New Zealand and highlights the gaps in the information and data needed to properly assess and manage the risks and opportunities. The assessment utilized a combination of scientific knowledge, traditional Māori knowledge (Indigenous Peoples' knowledge) and local knowledge to inform its findings. The assessment also provided the basis for New Zealand's first NAP, which was published in 2022. The NAP sets out New Zealand's long-term adaptation strategy and the actions that will be taken up until 2028 to address climate risks. The actions include work that central government agencies will undertake, focused on enabling better risk-informed decisions, driving climate-resilient development in the right places, laying the foundations for a range of options, including managed retreat and embedding climate resilience across government policy. The NAP also directs local government to act now to drive climate-resilient development in the right locations.

117. The National Climate Change Risk Assessment provides a national overview of how New Zealand may be affected by climate-related hazards. In stage 1 (first-pass risk screen), 43 priority risks that New Zealand will face from climate change up until 2026 were identified. For each risk, the consequences, urgency rating and research priorities were defined. Urgency ratings were determined on the basis of exposure to climate impacts, the capacity to adapt and sensitivity to climate change. The 43 risks were grouped according to five value domains: human, the natural environment, the economy, the built environment and governance. The two most urgent risks in each domain are defined as the 10 most significant risks. Table 13 summarizes examples of the information on vulnerability and adaptation to climate change presented in the NC8 of New Zealand.

Table 13
Summary of information on vulnerability and adaptation to climate change reported by New Zealand

Vulnerable area	*Examples/comments/adaptation measures reported*
Agriculture and food security	Vulnerability: crop yields, livestock health, and overall food production and availability.
	Adaptation: improving water and soil management, and supporting farmers in adapting to the impacts of climate change.
Biodiversity and natural ecosystems	Vulnerability: native species, ecosystems and ecological processes.
	Adaptation: conservation initiatives, habitat restoration, and ecosystem-based management to enhance the resilience and adaptive capacity of biodiversity and natural ecosystems.
Coastal zones	Vulnerability: sea level rise, storm surges, and coastal erosion risk to infrastructure, communities and ecosystems along coastlines.
	Adaptation: coastal hazard assessments, nature-based solutions such as dune restoration, and integration of climate considerations into coastal planning.
Drought	Vulnerability: changing precipitation patterns and increased temperatures heightening the risk of drought.
	Adaptation: improving drought forecasting, enhancing water storage and irrigation infrastructure, and implementing water-efficient farming practices.
Fisheries	Vulnerability: altered ocean conditions and biodiversity affecting fish populations and fishing industry livelihoods.
	Adaptation: improving understanding of climate change impacts on fish stocks, implementing adaptive management strategies and promoting sustainable fishing practices.
Forests	Vulnerability: wildfires, pests and diseases.
	Adaptation: forest management practices, afforestation efforts and biosecurity measures.
Human health	Vulnerability: heatwaves, extreme weather events and increased air pollution.
	Adaptation: enhancing public health systems and promoting climate-resilient health-care infrastructure.
Infrastructure and economy	Vulnerability: extreme weather events and sea level rise.
	Adaptation: ‘climate-proofing’ infrastructure, enhancing disaster risk management and integrating climate considerations into economic planning.
Water resources	Vulnerability: changing climate patterns affecting water availability and security, impacting freshwater resources.
	Adaptation: improving understanding of climate change impacts on water resources, developing adaptive water management strategies and promoting sustainable water use.

118. New Zealand provided a detailed description of international adaptation activities, including those funded through the financial support summarized in table 12. New Zealand also provided information on bilateral cooperation with developing countries on adaptation, such as the Pacific Climate Change Centre, a regional hub established in partnership with the Secretariat of the Pacific Regional Environment Programme. The Pacific Climate Change Centre will strengthen climate change adaptation efforts in the Pacific region and support science students from developing countries who want to complete their doctorate in New Zealand through the New Zealand Global Research Alliance Doctoral Scholarship. Moreover, New Zealand’s activities have established global networks of scientists, creating capability development and training opportunities (particularly for scientists from developing countries) and identifying good practice mitigation options for different production systems and climates. This highlights New Zealand’s commitment to bilateral cooperation with developing countries to enhance their resilience to the impacts of climate change and promote global adaptation efforts.

2. Assessment of adherence to the reporting guidelines

119. The ERT assessed the information reported in the NC8 of New Zealand and identified an issue relating to completeness, and thus adherence to the UNFCCC reporting guidelines on NCs. The finding is described in table I.5.

I. Research and systematic observation

1. Technical assessment of the reported information

120. In its NC8 New Zealand provided information on its general policy and funding relating to research and systematic observation and both domestic and international activities, including contributions to the World Climate Research Programme and the Global Climate Observing System. New Zealand also provided information on the identification of opportunities for and barriers to free and open international exchange of data and information and on action taken to overcome such barriers.

121. New Zealand continues to collaborate internationally on scientific research, contributing personnel and funding. New Zealand researchers participate in international research and observation programmes of the World Meteorological Organization, the World Climate Research Programme, the Global Climate Observing System and its Pacific component, the Integrated Marine Observing System, the Southern Ocean Observing System, the Scientific Committee on Antarctic Research, Future Earth, the Asia-Pacific Network for Global Change Research and the IPCC. The country's research organizations, such as the National Institute of Water and Atmospheric Research, provide the public with access to climate data and regularly update information provided to the public through a range of channels, including websites, conferences and peer-reviewed publications.

122. New Zealand has implemented international and domestic policies and programmes on climate change research, systematic observation and climate modelling that aim to advance capabilities to predict and observe the physical, chemical, biological and human components of the Earth's system over space and time. Since the NC7, several priority studies, research projects and strategies have been identified to support innovation in mitigation and adaptation technologies in New Zealand. The key developments reported in the NC8 include the release of New Zealand's first emission reduction plan and its NAP, both of which identify key priorities and gaps in mitigation and adaptation research. In addition, the Government of New Zealand has announced the establishment of a new Centre for Climate Action on Agricultural Emissions, and it is in the process of considering the future of the research, science and innovation system through the Future Pathways programme in areas including climate change. Progress continues on climate change research through the National Science Challenges. All of these developments reflect New Zealand's commitment to understanding climate change impacts and addressing them effectively.

123. In terms of activities related to systematic observation, New Zealand reported on national plans, programmes and support for ground- and space-based climate observing systems, including satellite and non-satellite climate observation. New Zealand also reported on challenges related to the maintenance of a consistent and comprehensive observation system.

124. The ERT noted that New Zealand has made significant improvements in research and systematic observation since the NC7. One of the notable changes is that the New Zealand GHG monitoring network has been expanded, and observations from this network were used to refine CO_2 and CH_4 source and sink estimates for forest land and grassland. The CarbonWatch NZ programme has been developed to provide a more comprehensive understanding of the country's carbon balance. Other changes include the refinement and improvement of data-collection methodologies and the enhancement of data-analysis methods. Continued re-measurement of pre-1990 natural forest ground plots over a 10-year cycle has provided valuable data for the national inventory report. These efforts reflect New Zealand's continued commitment to contributing to global observation systems and data management in the fight against climate change.

125. The NC8 reflects actions taken to support capacity-building and the establishment and maintenance of observation systems and related data and monitoring systems in developing countries. New Zealand provided funding for scientists from developing countries working on global climate change research. New Zealand supports the Climate, Food and Farming Global Research Alliance on Agricultural Greenhouse Gases Development Scholarships Programme. From 2018 to 2022, it awarded 123 such scholarships to doctoral students from numerous countries. It also provides short-term grants for doctoral students from developing countries to undertake scientific training and research in the measurement and mitigation of GHG emissions in agricultural systems, carbon storage in agricultural systems, and quantification and mitigation of GHG emissions from food loss and waste. Furthermore, New Zealand provides assistance through graduate research grants for students studying at African universities that are members of the Regional Universities Forum for Capacity Building in Agriculture, promoting applied research on agricultural GHGs. As at July 2022, New Zealand had provided several education fellowship awards to students from developing countries, such as the Livestock Emissions Abatement Research Network awards.

2. Assessment of adherence to the reporting guidelines

126. The ERT assessed the information reported in the NC8 of New Zealand and recognized that the reporting is complete and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

J. Education, training and public awareness

1. Technical assessment of the reported information

127. In its NC8 New Zealand provided information on its actions relating to education, training and public awareness. The Party provided information on the general policy on education, training and public awareness; primary, secondary and higher education; public information campaigns; training programmes; education materials; resource or information centres; the involvement of the public and non-governmental organizations; and its participation in international activities. The information reported in the NC8 demonstrates an increased emphasis on education, training and public awareness about climate change compared with that reported in the NC7. The Government of New Zealand has allocated more resources and funding to support climate change related education programmes in schools, institutes and research centres. Climate change education has been integrated into the national curriculum, ensuring that students across different year levels learn about sustainability, which, along with public engagement initiatives, aim to improve understanding and action on climate change.

128. The Government actively engages with the public through consultations, awareness-raising campaigns and initiatives such as the Zero Waste education programme, which promoted reducing, reusing, recycling and composting to achieve zero waste goals (the project was completed in 2021). In December 2020, the Government declared a climate emergency, which has resulted in an increased focus on climate change at the highest level of Government.

129. In May 2022, the Party published its first emission reduction plan, which contains PaMs for meeting New Zealand's first emission budget (2022–2025). Public consultation has provided feedback to inform major climate change policies, including the 2019 amendment to the Climate Change Response Act 2002, the Climate Change Commission's 2021 report containing advice to the Government on its first three emission budgets and the direction for its first emission reduction plan, the first emission reduction plan, the NAP, climate-related financial disclosures, action on agricultural emissions and changes to the New Zealand Emissions Trading Scheme. Several online platforms, such as Gen Less, which is a communications platform supported by the Energy Efficiency and Conservation Authority, have been launched. Gen Less inspires businesses and the public to reduce their personal GHG emissions and take positive climate action, supporting the Government's wider efforts in New Zealand's transition towards net zero emissions in 2050.

130. The NC8 highlights the efforts of institutes and research centres, such as the Antarctic Research Centre, Deep South Challenge (National Science Challenges) and Institute for Governance and Policy Studies, to deliver high-quality research that informs policymaking and influences the development and implementation of climate change policies. The New Zealand Agricultural Greenhouse Gas Research Centre has published more than 60 peer-reviewed publications. It also administers a website, Ag Matters, that provides practical information backed by science, and delivers webinars to inform farmers and growers about climate change.

2. Assessment of adherence to the reporting guidelines

131. The ERT assessed the information reported in the NC8 of New Zealand and recognized that the reporting is complete and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

III. Conclusions and recommendations

132. The ERT conducted a technical review of the information reported in the NC8 of New Zealand in accordance with the UNFCCC reporting guidelines on NCs. The ERT concluded that the reported information mostly adheres to the UNFCCC reporting guidelines on NCs and that the NC8 provides an overview of the national climate policy of New Zealand.

133. The information provided in the NC8 includes most of the elements of the supplementary information under Article 7, paragraph 2, of the Kyoto Protocol. New Zealand reported on the national system, the national registry, supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol, PaMs in accordance with Article 2 of the Kyoto Protocol, domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures, information under Article 10 of the Kyoto Protocol, and financial resources provided to developing country Parties. Supplementary information under Article 7, paragraph 1, of the Kyoto Protocol on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol was provided by New Zealand in its 2022 annual submission.

134. The ERT conducted a technical review of the information reported in the BR5 and BR5 CTF tables of New Zealand in accordance with the UNFCCC reporting guidelines on BRs. The ERT concluded that the reported information mostly adheres to the UNFCCC reporting guidelines on BRs and that the BR5 and its CTF tables provide an overview of emissions and removals related to the Party's quantified economy-wide emission reduction target; assumptions, conditions and methodologies related to the attainment of the target; the progress of New Zealand towards achieving its target; and the Party's provision of support to developing country Parties.

135. In its NC8, New Zealand reported on its key national circumstances related to GHG emissions and removals, including the significant impact of the COVID-19 pandemic on international travel, which affected the annual economic and population growth rate. New Zealand has a unique geographical and economic context as it is distant from most trading partners. It has an export-dependent economy, with a significant reliance on primary sectors, especially agriculture, which comprise half of New Zealand's gross GHG emissions. New Zealand has significantly improved production efficiency across the agriculture sector and continues to work on reducing emissions across the sector and GHG emission monitoring and adaptation at the farm level. Furthermore, New Zealand, owing to its widely dispersed small population of 5.1 million across a long, narrow and mountainous country, is still highly dependent on fossil fuel powered transport. Despite GHG emissions increasing since 1990 owing to economic and population growth, New Zealand has managed to decouple emissions from economic growth.

136. New Zealand's total GHG emissions excluding LULUCF covered by its quantified economy-wide emission reduction target were estimated to be 19.5 per cent above its 1990 level in 2020, using GWP values from the AR4. Emissions peaked in 2005 and largely remained stable thereafter, with a minor drop in 2008–2012. The changes in total emissions

were driven mainly by factors such as increased road transport, food processing and electricity and heat production in the energy sector and the increasing dairy cattle population in the agriculture sector.

137. As reported in the BR5, under the Convention New Zealand committed to achieving a quantified economy-wide emission reduction target of 5.0 per cent below the 1990 level by 2020 and will use an emission budget approach for 2013–2020 that it considers equivalent to its target. New Zealand's emission budget covers cumulative emissions below the trajectory starting from its 1990 base-year emissions and ending at 5.0 per cent below the 1990 level in 2020. The target covers CO_2, CH_4, N_2O, HFCs, PFCs, SF_6 and NF_3, expressed using GWP values from the AR4, and covers all sources and sectors included in the annual GHG inventory. Contributions from the LULUCF sector are included in the target but not in the base year. New Zealand reported that it plans to make use of market-based mechanisms for achieving its target. In absolute terms, taking into account its base-year emissions of 65,828.38 kt CO_2 eq, the Party's total estimated emission budget for 2013–2020 is reported as 509,774.98 kt CO_2 eq. This translates into average annual emissions of 63,721.87 kt CO_2 eq in 2013–2020.

138. In addition to its 2020 target, New Zealand committed to reducing net GHG emissions by 50.0 per cent below the 2005 level of gross emissions by 2030 in its updated NDC (2021). The Climate Change Response Act 2002 amendment in 2019 established a system of emission budgets for New Zealand to set a GHG emission reduction path towards 2050. The legislation includes a domestic target for all GHG emissions other than biogenic CH_4 to be net zero by 2050. For biogenic CH_4, the target is a minimum 10.0 per cent reduction in emissions by 2030 and a 24.0–47.0 per cent reduction by 2050 compared with the 2017 level.

139. Between 2013 and 2020 New Zealand's total GHG emissions excluding LULUCF amounted to 639,600.69 kt CO_2 eq, the contribution of LULUCF amounted to –123,281.16 kt CO_2 eq and the use of market-based mechanisms amounted to 6,544.58 kt CO_2 eq, resulting in a net figure of 509,774.95 kt CO_2 eq, which equals 100.0 per cent of the Party's emission budget for 2013–2020. The ERT concluded that the total GHG emissions excluding LULUCF of New Zealand including the contribution of LULUCF and use of units from market-based mechanisms do not exceed the Party's emission budget corresponding to the 2020 target, and therefore that the target has been achieved.

140. The gross GHG emission projections provided by New Zealand in its NC8 and BR5 correspond to the WEM, WOM and WAM scenarios. Under the WEM scenario, gross emissions in 2030 are projected to be 7.4 per cent above the 1990 level and 11.1 per cent below the 2020 level. Net emissions by 2030 in the WEM projection are 32.0 per cent above 1990 net emissions and 4.6 per cent above the 2020 level. Under the WAM scenario, gross emissions in 2030 are projected to be 5.8 per cent above the 1990 level and 12.5 per cent below the 2020 level. Net emissions by 2030 in the WAM projection are 26.3 per cent above 1990 net emissions and on par with the 2020 level. New Zealand's emissions excluding emissions and removals from LULUCF are expected to decrease to the 1990 level in the period up until 2035. Taking into consideration the projected LULUCF contribution, New Zealand's net emissions are projected to peak in 2025, and then decrease to below the 1990 level by 2035. The projected difference between net and gross emissions indicates the importance of the LULUCF sector and the implications of past planting and harvest cycles in planted forest land for the total emission budget of New Zealand.

141. New Zealand's main policy framework relating to energy and climate change is the Zero Carbon Framework that was introduced as part of the amendments to the Climate Change Response Act 2002 in 2019. The amendments include establishing a system of emission budgets to move New Zealand towards its 2050 net target and the requirement to develop emission reduction plans for each emission budget period. The Party described the mitigation actions that it has implemented to achieve its 2020 and longer-term targets, which include the New Zealand Emissions Trading Scheme and LULUCF policies such as the One Billion Trees Programme. The New Zealand Emissions Trading Scheme has a quantifiable mitigation impact on the sectors covered under the Scheme, including forestry. It also has a mitigation impact on emissions sources outside it, including from livestock. The LULUCF PaMs also have measurable impacts on GHG emissions through land-use change, where

emitting agricultural activities are replaced by the removal of emissions from the atmosphere by forest establishment.

142. New Zealand continued to provide climate financing to developing countries in line with its international development cooperation programme and is guided by four overarching principles when providing climate-related support, which are outlined in New Zealand's International Cooperation for Effective Sustainable Development policy. It has increased its contributions by 97.4 per cent since the BR4; its public financial support in 2019–2020 totalled USD 142.11 million. For those years, New Zealand provided more support for adaptation. The biggest share of support went to cross-cutting projects. An example of this support is the renewable energy project in Niue that helped to increase the country's renewable energy supply and reduce its dependence on imported fuels.

143. New Zealand continued to provide support for technology development and transfer and capacity-building. Priority for technological support was given to projects in adaptation in the Pacific region. Over time, the focus has remained the same. Priority for capacity-building support was given to projects and programmes in adaptation and mitigation, including in the agriculture, water and energy sectors, in the Pacific region. Over time, the focus has remained the same.

144. In its NC8 New Zealand provided information on the expected impacts of climate change in the country; the adaptation policies covering regional, sectoral and cross-sectoral vulnerabilities and considerations; and an outline of the action taken to implement Article 4, paragraph 1(b) and (e), of the Convention with regard to adaptation. New Zealand's first National Climate Change Risk Assessment, conducted in 2020, identified the most urgent risks and provided the basis for New Zealand's first NAP, published in 2022.

145. In its NC8 New Zealand provided information on its activities relating to research and systematic observation. New Zealand announced the establishment of the Centre for Climate Action on Agricultural Emissions and made ongoing progress in climate change research through the National Science Challenges. The Government is considering the future of the research, science and innovation system through the Future Pathways programme in areas including climate change.

146. In its NC8 New Zealand provided information on its actions relating to education, training and public awareness. The Government of New Zealand declared a climate emergency in December 2020, which resulted in an increased focus on climate change at the highest level of Government. Public consultation provided feedback to inform the Climate Change Commission's 2021 report containing advice to the Government on its first three emission budgets and the direction for its first emission reduction plan.

147. In the course of the review, the ERT formulated the following recommendations for New Zealand to improve its adherence to the UNFCCC reporting guidelines on NCs in its next NC:

(a) To improve the completeness of its reporting by:

(i) Estimating and reporting separately, to the extent possible, the emission projections related to fuel sold to ships and aircraft engaged in international transport (see issue 2 in table I.3);

(ii) Reporting, to the extent possible, information on how it seeks to ensure that the resources it provides effectively address the needs of non-Annex I Parties with regard to climate change adaptation and mitigation (see issue 1 in table I.4);

(b) To improve the transparency of its reporting by:

(i) Reporting consistent information on PaMs in the text and tables of its NC (see issue 2 in table I.2);

(ii) Providing quantitative estimates of the impacts of individual PaMs or clearly explaining why it is not feasible to do so (see issue 4 in table I.2).

148. In the course of the review of New Zealand's NC8, the ERT formulated the following recommendation relating to adherence to the reporting guidelines for supplementary information: to improve the completeness of its reporting by providing information on the

steps it has taken to promote and/or implement any decisions of IMO (see issue 1 in table I.6).

149. In the course of the review of New Zealand's BR5, the ERT formulated the following recommendations relating to adherence to the UNFCCC reporting guidelines on BRs:

(a) To improve the completeness of its reporting by:

(i) Estimating and reporting separately, to the extent possible, the emission projections related to fuel sold to ships and aircraft engaged in international transport (see issue 2 in table II.2);

(ii) Reporting, to the extent possible, information on how it seeks to ensure that the resources it provides effectively address the needs of non-Annex I Parties with regard to climate change adaptation and mitigation (see issue 1 in table II.3);

(b) To improve the transparency of its reporting by providing consistent information on PaMs in the text and tables of the report (see issue 1 in table II.1).

Annex I

Assessment of adherence to the reporting guidelines for the eighth national communication of New Zealand

Tables I.1–I.6 summarize the ERT assessment of adherence to the UNFCCC reporting guidelines on NCs for New Zealand's NC8.

Table I.1
Findings on greenhouse gas inventory information from the review of the eighth national communication of New Zealand

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 7 Issue type: transparency Assessment: encouragement	New Zealand provided in the NC8 a descriptive summary of and figures illustrating the historical GHG emissions reported in the summary tables of the NC8. The Party also provided a description of the factors underlying the emission trends for most sectors. The ERT noted that the description of the factors underlying the changes in emissions between the last two reporting years is generally complete and transparent. However, the descriptions of the factors driving trends between 1990 and 2020 for all sectors consist mainly of detailed or subcategory descriptions of changes in numerical values and do not directly or explicitly refer to the underlying factors. During the review, the Party provided background information on its understanding of the underlying factors and on how sector experts are instructed to describe the underlying factors. The ERT encourages New Zealand to provide in its next NC descriptions of the underlying factors for historical emissions for each sector, including for 1990–2020.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs. The reporting on the requirements not included in this table is considered to be complete and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs.

Table I.2
Findings on policies and measures from the review of the eighth national communication of New Zealand

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 11 Issue type: transparency Assessment: encouragement	New Zealand reported PaMs that are implemented by the national Government but did not report on any of the climate change PaMs being implemented, adopted or planned by its local governments. The Party noted in its NC8 the important role of its 78 local authorities in achieving a thriving, climate-resilient and low-emission New Zealand and that local governments have functions and authority relating to managing natural hazards and climate change effects under legislation. During the review, the Party explained that local authorities have legislative responsibilities to act on climate adaptation, and the Resource Management Amendment Act 2020 now requires, where relevant, that consideration be given to the climate change impacts of GHG emissions. There is no legislation that mandates local authorities to reduce their own GHG emissions, but some local authorities have voluntary and non-regulatory strategies for reducing emissions, with the level of ambition varying between local authorities. The ERT encourages New Zealand to enhance the transparency of its reporting by providing information on PaMs planned, adopted and implemented at the local level, for example by explaining, as applicable, the legislative requirements for local authorities in mitigation and adaptation and providing examples of voluntary emission reduction activities by local governments.
2	Reporting requirement specified in paragraph 19 Issue type: transparency	New Zealand reported a number of PaMs in the text of its NC8, such as the Carbon Neutral Government Programme, climate-related disclosures, the Sector Decarbonisation Programme and the Building for Climate Change Programme, that were not reported in tabular format in table 4.3.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
	Assessment: recommendation	During the review, the Party noted that some PaMs reported in table 4.3 are a part of the Carbon Neutral Government Programme, namely the sustainable building rating systems and energy-efficient government office accommodation programmes. The ERT recommends that New Zealand report consistent information on PaMs in the text and tables of its next NC. The ERT notes that transparency would be improved by providing a list of all PaMs incorporated under the Carbon Neutral Government Programme.
3	Reporting requirement specified in paragraph 19 Issue type: transparency Assessment: encouragement	New Zealand reported some PaMs in tabular format in a way that does not align with the UNFCCC reporting guidelines on NCs, namely in the columns "Sectors affected", "Types of instruments" and "Status of implementation" of table 4.3. For example, the sectors reported in the "Sectors affected" column (e.g. "various", "construction" and "Tokelau") do not align with those provided in the guidelines. During the review, the Party provided clarification on why it reported information that does not align with the guidelines, explaining to the ERT that it provided additional policy instruments in table 4.3 in order to provide more details on what type of instrument the policy is. The ERT encourages New Zealand to enhance the transparency of its tabular reporting on PaMs by aligning with the UNFCCC reporting guidelines on NCs for "sectors affected", "types of instruments" and "status of implementation", to the extent possible. The ERT notes that multiple categories are permitted to be reported against a policy or measure; for example, multiple sectors can be reported in the "Sectors affected" column, and that where existing categories are not appropriate, a new category can be defined and then should be consistently applied to all relevant reported PaMs.
4	Reporting requirement specified in paragraph 20 Issue type: transparency Assessment: recommendation	The Party reported mitigation impacts for only some PaMs – mostly those in the waste, agriculture and LULUCF sectors. The Party provided a general explanation for table 4.3 that mitigation impacts were not estimated for some PaMs because the policy or measure had not been implemented or was in the early stages of implementation, insufficient data were available to estimate the impact of the policy or measure, there were model constraints associated with the policy or measure, or the impact of the policy or measure was deemed likely to be negligible. This explanation is an improvement from that provided in the NC7; however, it remains unclear which explanation applies to which policy or measure that lacks an estimated mitigation impact. This lack of information, or explanation, made it difficult for the ERT to determine the significance of some PaMs. During the review, the Party reported that it had taken a more encompassing view of domestic mitigation PaMs in its NC8 with a view to enhancing transparency, hence the inclusion of PaMs with negligible mitigation impacts. In some cases, mitigation impacts for individual PaMs could not be reported at the risk of double counting (e.g. Climate Emergency Response Fund). For other PaMs, it was challenging to account for mitigation impacts. The ERT recommends that New Zealand provide in its next NC quantitative estimates of the impacts of individual PaMs or clearly explain why it is not be feasible to provide such information. The ERT notes that transparency could be improved by including additional information to help provide an understanding of a policy or measure's potential scale for those PaMs with an insignificant mitigation impact and those with an impact that is likely to be significant but cannot currently be calculated.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs. The reporting on the requirements not included in this table is considered to be complete and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs.

Table I.3
Findings on projections including aggregate effects of policies and measures reported in the eighth national communication of New Zealand

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 27 Issue type: completeness Assessment: encouragement	In its NC8 the Party reported a qualitative sensitivity analysis for the waste sector and a quantitative sensitivity analysis comprised of a high and low scenario around the WEM scenario for all other sectors, except transport. During the review, the Party provided background information showing the complexity of analysing uncertainty for the transport sector. The Party also informed the ERT that sensitivity is explored through scenarios in modelling. The ERT, noting that there is no information provided in the NC on these scenarios that are used to explore sensitivity, encourages New Zealand to include in its next NC a qualitative discussion of the sensitivity of the projections to the underlying assumptions used for the transport sector. If possible, and in line with the reporting for other sectors of low and high policy implementation, the sensitivity analysis could include a quantitative explanation of the drivers of uncertainty for the transport sector.
2	Reporting requirement specified in paragraph 33 Issue type: completeness Assessment: recommendation	The Party did not report emission projections related to fuel sold to ships and aircraft engaged in international transport. The ERT noted that historical emissions related to international transport are provided in the national GHG inventory, and that a model for projections of GHG emissions from international transport is mentioned in table 5.13 of the NC8. During the review, the Party stated that fuel sold to ships and aircraft in international transport is not currently reported in its NC and that doing so could be considered in the future. The ERT reiterates the recommendation from the previous review report for New Zealand to estimate and report separately, to the extent possible, emission projections related to fuel sold to ships and aircraft engaged in international transport.
3	Reporting requirement specified in paragraph 43 Issue type: transparency Assessment: encouragement	The Party reported in its NC8 a quantitative sensitivity analysis for the energy, IPPU, agriculture and LULUCF sectors in a consistent manner. The Party provided low and high policy implementation scenarios and discussed the sensitivity of the underlying assumptions. The ERT noted, however, that the scenarios provided do not explain or cover the changes in the parameter values used in the modelling. The Party also reported in its NC8 a qualitative discussion of the sensitivity of the underlying assumptions for projections for the IPPU sector for the residence time of HFCs and for the model used for the energy sector (SADEM). The ERT also noted that similar considerations of sensitivity to underlying assumptions were largely absent for the other sectors, while acknowledging that quantitative sensitivity modelling can be complicated for some sectors, for example transport. The ERT further noted that for some sectors the Party reported that changes to emission factors, activity data or underlying assumptions resulted in significant changes to previously provided projections. During the review, the Party explained that for the energy, agriculture and LULUCF sectors, the New Zealand Emissions Trading Scheme carbon price is a significant source of uncertainty. The Party provided the ERT with detailed technical information on the 2022 projections for LULUCF accounting, which includes a historical overview and an assessment of the correlation between New Zealand Emissions Trading Scheme pricing and land-use dynamics. The Party mentioned that price modelling for impacts up until 2030 had been conducted for the agriculture sector after the submission of the NC8. Sensitivity related to assumptions of future carbon prices is, however, not modelled for these sectors. The ERT encourages New Zealand to provide in its next NC a qualitative sensitivity analysis for sectors with uncertainties related to emission factors or activity data that is in line with the understanding of a sensitivity analysis as applied in the IPCC *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*. The ERT notes that providing a scenario-based quantitative sensitivity analysis of the carbon price for sectors where it is considered a key factor would improve the transparency of reporting.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
4	Reporting requirement specified in paragraph 44 Issue type: transparency Assessment: encouragement	The Party reported in its NC8 information on key underlying assumptions and values of variables used for projections. For all reported assumptions and variables, the Party provided information for 2020–2035. However, no historical information was provided for carbon price for the WEM and WAM scenarios. Also, for assumptions and variables specific to the energy and transport sectors, such as net migration, exchange rate and labour force, only forward-looking information was presented. During the review, the Party confirmed that for most assumptions and variables, historical information is available. The ERT encourages New Zealand to provide historical information for all key underlying assumptions and variables in its next NC, noting that historical information for all applied assumptions and variables should be provided to enhance transparency and allow for comparability of past and future conditions.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs. The reporting on the requirements not included in this table is considered to be complete and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs.

Table I.4
Findings on financial, technological and capacity-building support from the review of the eighth national communication of New Zealand

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 51 Issue type: completeness Assessment: recommendation	New Zealand did not report in its NC8 how it seeks to ensure that the resources it provides effectively address the needs of non-Annex I Parties with regard to climate change adaptation and mitigation. During the review, the Party explained that it ensures its support effectively addresses the needs of non-Annex I Parties through taking a partnership approach, meaning that that it seeks to understand the needs and priorities of its partners, rather than, for example, directing its support on the basis of its own predetermined priorities. The ERT recommends that New Zealand include in its next NC, to the extent possible, information on how it seeks to ensure that the resources it provides effectively address the needs of non-Annex I Parties with regard to climate change adaptation and mitigation.
2	Reporting requirement specified in paragraph 55 Issue type: completeness Assessment: encouragement	New Zealand provided in its NC8 information about its activities for the mobilization of financial resources from the private sector in recipient (non-Annex I) Parties but did not report on the mobilization of financial resources from the Party's own private sector to non-Annex I Parties. New Zealand also did not report on the scaling up of private investment leveraged in developing countries through its policies and activities. During the review, the Party explained that it does not track climate finance provided by its private sector to non-Annex I countries. It also explained that it has not tracked the scaling up of private investment through its policies or activities (through to 2020), but for the current commitment period (2022–2025) it has established a programme aimed at mobilizing private finance and reporting thereon. The ERT encourages New Zealand to report it its next NC, to the extent possible, on private finance flows leveraged by bilateral climate finance towards mitigation and adaptation activities in non-Annex I Parties. The ERT also encourages New Zealand to report on the scaling up of private investment in developing countries through its policies and activities. The ERT notes that including information from the private sector in New Zealand would be helpful.
3	Reporting requirement specified in paragraph 58 Issue type: completeness Assessment: encouragement	New Zealand did not report on how it has encouraged private sector activities and how those activities help Parties to meet their commitments under Article 4, paragraphs 3, 4 and 5, of the Convention. During the review, the Party clarified that, in alignment with Article 4 of the Convention, New Zealand's international development cooperation programme continues to provide support to the private sector to transition to a green economy by strengthening the enabling policy environment, catalysing investment and providing technical assistance across industry sectors.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
		The ERT encourages New Zealand, where feasible, to report on how it encourages private sector activities and how those activities help Parties to meet their commitments under Article 4, paragraphs 3, 4 and 5, of the Convention.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs. The reporting on the requirements not included in this table is considered to be complete and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs.

Table I.5

Findings on vulnerability assessment, climate change impacts and adaptation measures from the review of the eighth national communication of New Zealand

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 47 Issue type: completeness Assessment: encouragement	The Party did not report in its NC8 on its approach to the monitoring and evaluation of implemented adaptation strategies or plans, for example, its methodologies, data-collection techniques, standards or benchmarks, or on the accuracy and reliability of data collected under the framework for monitoring and evaluating the progress and results of NAP implementation. During the review, the Party clarified that the Climate Change Chief Executives Board provides progress reports every six months to ministers on the emission reduction plan and the NAP. The first six-monthly progress report for the NAP, produced in August 2023, assessed NAP actions through a colour-coded system. Red indicated issues such as a lack of funding, deferred work, work no longer being progressed, or further clarification needed before work can start. Amber indicated funding and capacity constraints, a delay in policy decisions, or a government reprioritization. Green indicated no outstanding risks. Report preparation was guided by a principle-based approach (relevance, functionality, transparency, accountability and quality assurance). It relied on the *Principles and Protocols of Producers of Tier 1 Statistics* for data reporting and the Office of the Auditor-General's guidance on performance reporting. The report was independently reviewed. The Climate Change Chief Executives Board reports annually on the implementation of NAP actions, and biennially on their sufficiency. The six-monthly report fulfils the Climate Change Chief Executives Board's requirement to report annually to the Prime Minister on NAP implementation. Work on the annual report is under way. After each NAP is published, the Climate Change Commission must report every two years on its implementation and effectiveness in reducing climate risks. The process for verifying the accuracy and reliability of the data collected through the monitoring system is yet to be determined. The Government must respond to the Climate Change Commission's report within six months of receiving the report. The first report is due in August 2024. The ERT encourages New Zealand to include in its next NC information on its framework for monitoring and evaluating the progress and results of NAP implementation, for example, its approach to the monitoring and evaluation of implemented adaptation strategies or plans.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs. The reporting on the requirements not included in this table is considered to be complete and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs.

Table I.6

Findings on minimization of adverse impacts and supplementary information related to the Kyoto Protocol reported in the eighth national communication of New Zealand

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation*
1	Reporting requirement specified in paragraph 35 Issue type: completeness Assessment: recommendation	The Party reported in its NC8 that it participated in international cooperation through the IMO to reduce emissions from international shipping. However, the Party did not report specific information on the Party's actions or commitments to the emission reduction work of the IMO. During the review, the Party explained that it has been an active participant in IMO decarbonization negotiations during the development of the 2023 IMO Strategy on

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation*
		Reduction of GHG Emissions from Ships and is working alongside other IMO member States to develop measures for its operationalization. The ERT reiterates the recommendation from the previous review report for New Zealand to clearly report in its next submission on the steps it has taken to promote and/or implement any decisions of IMO. The ERT concludes that this potential problem of a mandatory nature does not influence the Party's ability to fulfil its commitments for the second commitment period of the Kyoto Protocol.

Note: Item listed under reporting requirement refers to the relevant paragraph of the reporting guidelines for supplementary information. The reporting on the requirements not included in this table is considered to be complete and transparent, and thus adheres to the reporting guidelines for supplementary information.

Annex II

Assessment of adherence to the reporting guidelines for the fifth biennial report of New Zealand

The BR5 of New Zealand is the final BR under the measurement, reporting and verification system established under the Convention.[1] Nevertheless, ERTs continue to provide recommendations and encouragements to the Parties on completeness, transparency and adherence to the UNFCCC reporting guidelines on BRs. Parties may find these recommendations and encouragements relevant, as appropriate, when preparing their initial biennial transparency report under the enhanced transparency framework of the Paris Agreement. Tables II.1–II.3 summarize the ERT assessment of adherence to the UNFCCC reporting guidelines on BRs for New Zealand's BR5.

Table II.1
Findings on mitigation actions and their effects from the review of the fifth biennial report of New Zealand

No.	*Reporting requirement and issue type*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 6 Issue type: transparency Assessment: recommendation	New Zealand reported a number of PaMs in the textual portion of its NC8, which is referenced in its BR5, such as the Carbon Neutral Government Programme, climate-related disclosures, the Sector Decarbonisation Programme and the Building for Climate Change Programme, that were not reported in CTF table 3. During the review, the Party noted that some PaMs reported in the table are a part of the Carbon Neutral Government Programme, namely the sustainable building rating systems and energy-efficient government office accommodation programmes. The ERT recommends that New Zealand report consistent information on PaMs in the text and tables of its next submission. The ERT notes that transparency would be improved by providing a list of all PaMs incorporated under the Carbon Neutral Government Programme.

Note: Item listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on BRs or to the CTF table number from the "Common tabular format for 'UNFCCC biennial reporting guidelines for developed country Parties'". The reporting on the requirements not included in this table is considered to be complete and transparent, and thus adheres to the UNFCCC reporting guidelines on BRs.

Table II.2
Findings on projections reported in the fifth biennial report of New Zealand

No.	*Reporting requirement and issue type*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement[a] specified in paragraph 27 Issue type: completeness Assessment: encouragement	In its BR5 the Party reported a qualitative sensitivity analysis for the waste sector and a quantitative sensitivity analysis comprised of a high and low scenario around the WEM scenario for all other sectors, except transport. During the review, the Party provided background information showing the complexity of analysing uncertainty for the transport sector. The Party also informed the ERT that sensitivity is explored through scenarios in modelling. The ERT, noting that there is no information provided in the BR5 on these scenarios that are used to explore sensitivity, encourages New Zealand to include in its next submission a qualitative discussion of the sensitivity of the projections to the underlying assumptions used for the transport sector. If possible, and in line with the reporting for other sectors of low and high policy implementation, the sensitivity analysis could include a quantitative explanation of the drivers of uncertainty for the transport sector.

[1] The Conference of the Parties, by decision 1/CP.24, decided that the final BRs shall be those submitted to the secretariat no later than 31 December 2022 and reaffirmed that, for Parties to the Paris Agreement, following the submission of the final BR, the modalities, procedures and guidelines contained in the annex to decision 18/CMA.1 will supersede the measurement, reporting and verification system established under decision 1/CP.16, paras. 40–47 and 60–64, and decision 2/CP.17, paras. 12–62.

No.	*Reporting requirement and issue type*	*Description of the finding with recommendation or encouragement*
2	Reporting requirement[a] specified in paragraph 33 Issue type: completeness Assessment: recommendation	The Party did not report emission projections related to fuel sold to ships and aircraft engaged in international transport. The ERT noted that historical emissions related to international transport are provided in the national GHG inventory, and that a model for projections of GHG emissions from international transport is mentioned in table 5.13 of the NC8, which is referenced in the BR5. During the review, the Party stated that fuel sold to ships and aircraft in international transport is not currently reported in its BR and that doing so could be considered in the future. The ERT reiterates the recommendation from the previous review report for New Zealand to estimate and report separately, to the extent possible, emission projections related to fuel sold to ships and aircraft engaged in international transport.
3	Reporting requirement[a] specified in paragraph 43 Issue type: transparency Assessment: encouragement	The Party reported in its BR5 a quantitative sensitivity analysis for the energy, IPPU, agriculture and LULUCF sectors in a consistent manner. The Party provided low and high policy implementation scenarios and discussed the sensitivity of the underlying assumptions. The ERT noted, however, that the scenarios provided do not explain or cover the changes in the parameter values used in the modelling. The Party also reported in its NC8 a qualitative discussion of the sensitivity of the underlying assumptions for projections for the IPPU sector for the residence time of HFCs and for the model used for the energy sector (SADEM). The ERT also noted that similar considerations of sensitivity to underlying assumptions were largely absent for the other sectors, while acknowledging that quantitative sensitivity modelling can be complicated for some sectors, for example transport. The ERT further noted that for some sectors the Party reported that changes to emission factors, activity data or underlying assumptions resulted in significant changes to previously provided projections. During the review, the Party explained that, for the energy, agriculture and LULUCF sectors, the New Zealand Emissions Trading Scheme carbon price is a significant source of uncertainty. The Party provided the ERT with detailed technical information on the 2022 projections for LULUCF accounting, which includes a historical overview and an assessment of the correlation between New Zealand Emissions Trading Scheme pricing and land-use dynamics. The Party mentioned that price modelling for impacts up until 2030 had been conducted for the agriculture sector after the submission of the BR5. Sensitivity related to assumptions of future carbon prices is, however, not modelled for these sectors. The ERT encourages New Zealand to provide in its next submission a qualitative sensitivity analysis for sectors with uncertainties related to emission factors or activity data that is in line with the understanding of a sensitivity analysis as applied in the IPCC *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*. The ERT notes that providing a scenario-based quantitative sensitivity analysis of the carbon price for sectors where it is considered a key factor would improve the transparency of reporting.
4	Reporting requirement[a] specified in paragraph 44 Issue type: transparency Assessment: encouragement	The Party reported in its BR5 information on key underlying assumptions and values of variables used for projections. For all reported assumptions and variables, the Party provided information for 2020–2035. However, no historical information was provided for carbon price for the WEM and WAM scenarios. Also, for assumptions and variables specific to the energy and transport sectors, such as net migration, exchange rate and labour force, only forward-looking information was presented. During the review, the Party confirmed that, for most assumptions and variables, historical information is available. The ERT encourages New Zealand to provide historical information for all key underlying assumptions and variables in its next submission, noting that historical information for all applied assumptions and variables should be provided to enhance transparency and allow for comparability of past and future conditions.

Note: The reporting on the requirements not included in this table is considered to be complete and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs and on BRs.

[a] Item listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs, as per para. 11 of the UNFCCC reporting guidelines on BRs.

Table II.3
Findings on provision of financial, technological and capacity-building support to developing country Parties from the review of the fifth biennial report of New Zealand

No.	*Reporting requirement and issue type*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 16 Issue type: completeness Assessment: recommendation	New Zealand did not report in its BR5 how it seeks to ensure that the resources it provides effectively address the needs of non-Annex I Parties with regard to climate change adaptation and mitigation. During the review, the Party explained that it ensures its support effectively addresses the needs of non-Annex I Parties through taking a partnership approach, meaning that it seeks to understand the needs and priorities of its partners, rather than, for example, directing its support on the basis of its own predetermined priorities. The ERT recommends that New Zealand include in its next submission, to the extent possible, information on how it seeks to ensure that the resources it provides effectively address the needs of non-Annex I Parties with regard to climate change adaptation and mitigation.
2	Reporting requirement specified in paragraph 19 Issue type: completeness Assessment: encouragement	New Zealand provided in its BR5 information about its activities for the mobilization of financial resources from the private sector in recipient (non-Annex I) Parties but did not report on the mobilization of financial resources from the Party's own private sector to non-Annex I Parties. New Zealand also did not report on the scaling up of private investment leveraged in developing countries through its policies and activities. During the review, the Party explained that it does not track climate finance provided by its private sector to non-Annex I countries. It also explained that it has not tracked the scaling up of private investment through its policies or activities (through to 2020), but for the current commitment period (2022–2025) it has established a programme aimed at mobilizing private finance and reporting thereon. The ERT encourages New Zealand to report it its next submission, to the extent possible, on private finance flows leveraged by bilateral climate finance towards mitigation and adaptation activities in non-Annex I Parties. The ERT also encourages New Zealand to report on the scaling up of private investment in developing countries through its policies and activities. The ERT notes that including information from the private sector in New Zealand would be helpful.

Note: Item listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on BRs. The reporting on the requirements not included in this table is considered to be complete and transparent, and thus adheres to the UNFCCC reporting guidelines on BRs.

Annex III

Documents and information used during the review

A. Reference documents

2022 GHG inventory submission of New Zealand. Available at https://unfccc.int/ghg-inventories-annex-i-parties/2022.

2023 GHG inventory submission of New Zealand. Available at https://unfccc.int/ghg-inventories-annex-i-parties/2023.

BR5 CTF tables of New Zealand. Available at https://unfccc.int/BR5.

BR5 of New Zealand. Available at https://unfccc.int/BR5.

"Common tabular format for 'UNFCCC biennial reporting guidelines for developed country Parties'". Annex to decision 19/CP.18. Available at https://unfccc.int/resource/docs/2012/cop18/eng/08a03.pdf.

"Compilation of economy-wide emission reduction targets to be implemented by Parties included in Annex I to the Convention". FCCC/SBSTA/2014/INF.6. Available at http://unfccc.int/resource/docs/2014/sbsta/eng/inf06.pdf.

"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications". FCCC/CP/2019/13/Add.1. Available at https://unfccc.int/documents/210471.

"Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol". Annex to 15/CMP.1. Available at https://unfccc.int/documents/4253.

"Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol". Annex III to decision 3/CMP.11. Available at https://unfccc.int/documents/9101.

"Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention". Annex to decision 13/CP.20. Available at http://unfccc.int/resource/docs/2014/cop20/eng/10a03.pdf.

IPCC. 2000. *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*. J Penman, D Kruger et al. (eds.). Japan: Institute for Global Environmental Strategies. Available at https://www.ipcc.ch/publication/good-practice-guidance-and-uncertainty-management-in-national-greenhouse-gas-inventories/.

NC8 of New Zealand. Available at https://unfccc.int/NC8.

Report on the individual review of the annual submission of New Zealand submitted in 2022. FCCC/ARR/2022/NZL. Available at https://unfccc.int/documents/627071.

Report on the technical review of the BR4 of New Zealand. FCCC/TRR.4/NZL. Available at https://unfccc.int/documents/268837.

Report on the technical review of the seventh national communication of New Zealand. FCCC/IDR.7/NZL. Available at https://unfccc.int/documents/196159.

"UNFCCC biennial reporting guidelines for developed country Parties". Annex I to decision 2/CP.17. Available at http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf.

B. Additional information provided by the Party

Responses to questions during the review were received from Alice Ryan (Ministry for the Environment), including additional material. The following references were provided by New Zealand and may not conform to UNFCCC editorial style as some have been reproduced as received:

Ministry for the Environment. 2016. *New Zealand's Report to facilitate the calculation of its emissions budget for the period 2013 to 2020*. Wellington. Available at: https://environment.govt.nz/assets/Publications/Files/New-Zealands-Initial-Report-July-2016.pdf.

New Zealand's Climate Change Response (Zero Carbon) Amendment Act 2019, available at: https://www.legislation.govt.nz/act/public/2019/0061/latest/whole.html#LMS183812.

Latest update on New Zealand's 2020 net position, available at: https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/emissions-reduction-targets/latest-update-on-new-zealands-2020-net-position/.

New Zealand Ministry of Foreign Affairs and Trade – Manatū Aorere. 2022. *Aotearoa New Zealand International Climate Finance Strategy – Tuia te Waka a Kiwa*. Wellington. Available at: https://www.mfat.govt.nz/assets/Aid/Climate-finance/International-Climate-Finance-Strategy-FINAL-16Aug22-low-res.pdf.

New Zealand Ministry of Foreign Affairs and Trade – Manatū Aorere. 2019. Pacific and Development Climate Change Action Plan 2019–2022. Available at: https://www.mfat.govt.nz/assets/Aid-Prog-docs/Pacific-and-Development-Climate-Change-Action-Plan-2019-22.pdf.

Ministry for the Environment. 2019. *Arotakenga Huringa Āhuarangi: A framework for* the *National Climate Change Risk Assessment for Aotearoa New Zealand*. Wellington. Available at: https://environment.govt.nz/publications/arotakenga-huringa-ahuarangi-a-framework-for-the-national-climate-change-risk-assessment-for-aotearoa-new-zealand/.

Statistics New Zealand. 2007. *Principles and Protocols of Producers of Tier 1 Statistics.* Wellington. Available at: https://www.stats.govt.nz/assets/Uploads/Principles-and-protocols-for-producers-of-tier-1-stats/principles-and-protocols-for-producers-of-tier-1-stats.pdf.