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Report on the technical review of the third biennial report of New Zealand


Developed country Parties were requested by decision 2/CP.17 to submit their third biennial report to the secretariat by 1 January 2018. This report presents the results of the technical review of the third 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”.

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Abbreviations and acronyms

Annex II Party	Party included in Annex II to the Convention
AR4	Fourth 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
CTF	common tabular format
ERT	expert review team
F-gas	fluorinated gas
GDP	gross domestic product
GHG	greenhouse gas
GRA	Global Research Alliance on Agricultural Greenhouse Gases
HFC	hydrofluorocarbon
ICAO	International Civil Aviation Organization
IMO	International Maritime Organization
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
LULUCF	land use, land-use change and forestry
NA	not applicable
NC	national communication
NE	not estimated
NF ₃	nitrogen trifluoride
NIR	national inventory report
NO	not occurring
non-Annex I Party	Party not included in Annex I to the Convention
NZD	New Zealand dollars
NZ ETS	New Zealand Emissions Trading Scheme
N ₂ O	nitrous oxide
OECD DAC	Organisation for Economic Co-operation and Development Development Assistance Committee
PaMs	policies and measures
PFC	perfluorocarbon
SF ₆	sulfur hexafluoride
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 BR31 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” (annex to decision 13/CP.20).

2. In accordance with the same decision, a draft version of this report was transmitted to the Government of New Zealand, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

3. The review was conducted from 18 to 23 February 2019 in Wellington by the following team of nominated experts from the UNFCCC roster of experts: Ms. Diana Harutyunyan (Armenia), Ms. Guadalupe Martinez (Uruguay), Ms. Sekai Ngarize (IPCC), Mr. Erik Rasmussen (Denmark) and Mr. Michael Strogies (Germany). Ms. Harutyunyan and Mr. Rasmussen were the lead reviewers. The review was coordinated by Mr. Davor Vesligaj (UNFCCC secretariat).

B. Summary

4. The ERT conducted a technical review of the information reported in the BR3 of New Zealand in accordance with the UNFCCC reporting guidelines on BRs (annex I to decision 2/CP.17).

1. Timeliness

5. The BR3 was submitted on 21 December 2017, before the deadline of 1 January 2018 mandated by decision 2/CP.17. The CTF tables were submitted on 21 December 2017. New Zealand resubmitted the CTF tables on 8 March 2019.

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

6. Issues and gaps identified by the ERT related to the reported information are presented in table 1. The information reported by New Zealand in its BR3 mostly adheres to the UNFCCC reporting guidelines on BRs.

Table 1

Summary of completeness and transparency of mandatory information reported by New Zealand in its third biennial report

<i>Section of BR</i>	<i>Completeness</i>	<i>Transparency</i>	<i>Reference to description of recommendations</i>
GHG emissions and trends	Complete	Transparent	
Assumptions, conditions and methodologies related to the attainment of the quantified economy-wide emission reduction target	Complete	Transparent	
Progress in achievement of targets	Mostly complete	Mostly transparent	Issues 1 and 2 in table 4; Issues 3, 6 and 7 in table 9

¹ The BR submission comprises the text of the report and the CTF tables, which are both subject to the technical review.

<i>Section of BR</i>	<i>Completeness</i>	<i>Transparency</i>	<i>Reference to description of recommendations</i>
Provision of support to developing country Parties	Complete	Transparent	

Note: A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in chapter III below. The assessment of completeness and transparency by the ERT in this table is based only on the “shall” reporting requirements.

II. Technical review of the information reported in the third biennial report

A. Information on greenhouse gas emissions and removals related to the quantified economy-wide emission reduction target

1. Technical assessment of the reported information

7. Total GHG emissions² excluding emissions and removals from LULUCF increased by 19.6 per cent between 1990 and 2016, whereas total GHG emissions including net emissions or removals from LULUCF increased by 54.2 per cent over the same period. Table 2 illustrates the emission trends by sector and by gas for New Zealand.

Table 2
Greenhouse gas emissions by sector and by gas for New Zealand for the period 1990–2016

<i>Sector</i>	<i>GHG emissions (kt CO₂ eq)</i>					<i>Change (%)</i>		<i>Share (%)</i>	
	<i>1990</i>	<i>2000</i>	<i>2010</i>	<i>2015</i>	<i>2016</i>	<i>1990–2016</i>	<i>2015–2016</i>	<i>1990</i>	<i>2016</i>
1. Energy	23 785.21	30 009.88	32 178.88	32 386.58	31 307.96	31.6	–3.3	36.1	39.8
A1. Energy industries	6 003.90	6 462.11	6 807.62	5 286.38	4 162.54	–30.7	–21.3	9.1	5.3
A2. Manufacturing industries and construction	4 760.25	6 352.83	5 590.07	6 808.90	6 906.24	45.1	1.4	7.2	8.8
A3. Transport	8 772.25	12 425.21	14 150.15	14 762.80	15 027.78	71.3	1.8	13.3	19.1
A4. and A5. Other	2 911.69	3 128.34	2 989.76	3 345.49	3 202.75	10.0	–4.3	4.4	4.1
B. Fugitive emissions from fuels	1 337.12	1 641.39	2 641.28	2 183.02	2 008.67	50.2	–8.0	2.0	2.6
C. CO ₂ transport and storage	NO	NO	NO	NO	NO	NA	NA	NA	NA
2. IPPU	3 585.09	3 462.57	4 647.95	5 315.28	4 853.42	35.4	–8.7	5.4	6.2
3. Agriculture	34 581.88	38 239.78	37 712.02	39 136.62	38 727.34	12.0	–1.0	52.5	49.2
4. LULUCF	–29 539.50	–32 089.92	–31 067.15	–24 861.08	–22 773.66	–22.9	–8.4	NA	NA
5. Waste	3 862.62	4 390.02	4 133.21	3 864.52	3 838.20	–0.6	–0.7	5.9	4.9
6. Other	NO	NO	NO	NO	NO	NA	NA	NA	NA
Gas ^a									
CO ₂	25 453.57	32 359.16	35 010.70	35 837.11	34 462.93	35.4	–3.8	38.7	43.8
CH ₄	32 277.18	35 079.99	33 815.20	34 078.95	33 684.82	4.4	–1.2	49.0	42.8
N ₂ O	7 154.12	8 329.42	8 624.76	9 151.44	9 126.21	27.6	–0.3	10.9	11.6
HFCs	NO, NA	246.51	1 151.16	1 560.25	1 386.98	NA	–11.1	NA	1.8

² In this report, the term “total GHG emissions” refers to the aggregated national GHG emissions expressed in terms of CO₂ eq excluding LULUCF, unless otherwise specified. Values in this paragraph are calculated on the basis of the 2018 annual submission, version 1.0.

Sector	GHG emissions (kt CO ₂ eq)					Change (%)		Share (%)	
	1990	2000	2010	2015	2016	1990– 2016	2015– 2016	1990	2016
	PFCs	909.95	67.61	47.41	58.59	48.69	–94.6	–16.9	1.4
SF ₆	19.97	19.56	22.84	16.67	17.29	–13.4	3.7	0.0	0.0
NF ₃	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total GHG emissions without LULUCF	65 814.79	76 102.25	78 672.07	80 703.01	78 726.92	19.6	–2.4	100.0	100.0
Total GHG emissions with LULUCF	36 275.29	44 012.33	47 604.92	55 841.93	55 953.26	54.2	0.2	NA	NA

Source: GHG emission data: New Zealand's 2018 annual submission, version 1.0.

^a Emissions by gas without LULUCF and without indirect CO₂.

8. The increase in total emissions was driven mainly by factors such as the growth in CH₄ emissions due to the increase in the size of the national dairy cattle herd; the growth in CO₂ emissions from increased road transport activities and the increase in energy consumption in manufacturing industries and construction (especially in the categories chemicals, food processing, beverages and tobacco) due to economic growth and population increase; the growth in N₂O emissions from fertilizer application and dairy cattle excreta; and the increased use of HFCs as replacements for ozone-depleting substances.

9. The summary information provided on GHG emissions was consistent with the information reported in the 2017 annual submission.

10. In brief, New Zealand's national inventory arrangements were established in accordance with the reporting requirements related to national inventory arrangements contained 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" that are required by paragraph 3 of the UNFCCC reporting guidelines on BRs. New Zealand reported that there have been no changes in the legal and institutional arrangements for the national inventory system since its BR2. New Zealand reported on the following operational improvements since its BR2: updating quality control processes and procedures for all sectors; designing and developing computerized quality control tools to ensure better quality of the common reporting format tables and comparability between the inventory report and the common reporting format tables; reviewing the terms of reference for the Reporting Governance Group, which is responsible for approving all changes, improvements and major recalculations in the inventory; developing the expertise of inventory officials; and implementing additional improvements to the accuracy of the emission and removal estimates in all sectors.

2. Assessment of adherence to the reporting guidelines

11. The ERT assessed the information reported in the BR3 of New Zealand and recognized that the reporting is complete, transparent and adhering 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.

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

1. Technical assessment of the reported information

12. 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 CO₂, CH₄, N₂O, HFCs, PFCs, SF₆ and NF₃. It also includes all IPCC sources and sectors included

in the annual GHG inventory. The global warming potential values used are from the AR4. Emissions and removals from the LULUCF sector are included in the target and accounted using the activity-based approach and the second commitment period accounting rules for activities under Article 3, paragraphs 3 (afforestation, reforestation and deforestation) and 4 (forest management), of the Kyoto Protocol. New Zealand reported that it plans to make use of market-based mechanisms to achieve its target. In absolute terms this means that, under the Convention, New Zealand has to reduce its emissions from 64,573.82 kt CO₂ eq (in the base year)³ to 61,345.13 kt CO₂ eq by 2020.

13. New Zealand's primary policy instrument to mitigate GHG emissions is the NZ ETS, which was established in 2008, amended twice during the period 2008–2015 and reviewed in the period 2015–2017. As a result, the New Zealand Government decided to phase out over three years the transitional measure that required the surrender of only one emission unit for every two tonnes of emissions. New Zealand has announced a first tranche of decisions to improve the NZ ETS, which are expected to be legislated in late 2019. They include enabling a cap on emissions, auctioning of emission units and a stronger compliance regime. In 2015 the New Zealand Government stopped accepting Kyoto Protocol units in the NZ ETS, which now operates as a domestic-only emissions trading system. An international carbon markets project was established in 2016 to identify international carbon trading options with a view to enabling New Zealand to source international emission reductions in the 2020s.

14. In 2016 the Government announced the Electric Vehicles Programme, which aims to increase the uptake of electric vehicles. In 2017 a low-emission economy 'transition hub' was established within the Government to bring together relevant government agencies to partner with the private sector on policy options for meeting New Zealand's emission reduction targets under the Paris Agreement. The New Zealand Government tasked the Productivity Commission (an independent Crown entity) with examining how New Zealand can maximize the opportunities and minimize the risks of transitioning to a lower net-emission economy. In August 2017 the Productivity Commission published an issues paper that seeks feedback from individuals and organizations across the country on what New Zealand should be doing to reduce emissions. The New Zealand Government established the following three reference groups to provide specific advice: (i) the Biological Emissions Reference Group to build a solid evidence base to ensure that New Zealand has the best information available on what the agriculture sector can do to reduce emissions; (ii) the Forestry Reference Group to study the important role the forestry sector can play in helping New Zealand to meet its long-term climate change targets; and (iii) the Climate Change Adaptation Technical Working Group to examine options for how New Zealand can build resilience to the effects of climate change while growing its economy sustainably.

2. Assessment of adherence to the reporting guidelines

15. The ERT assessed the information reported in the BR3 of New Zealand and recognized that the reporting is complete, transparent and adhering 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.

C. Progress made towards the achievement of the quantified economy-wide emission reduction target

1. Mitigation actions and their effects

(a) Technical assessment of the reported information

16. New Zealand provided information on its package of PaMs implemented, by sector and by gas, in order to fulfil its commitments under the Convention and its Kyoto Protocol. New Zealand also reported on its policy context and legal and institutional arrangements put in place to implement its commitments and monitor and evaluate the effectiveness of its

³ New Zealand chose 1990 as the base year for its 2020 target.

PaMs. During the review, New Zealand provided the ERT with information on additional PaMs under adoption or in the planning phase, such as Hydrogen Vision, Moving towards 100 per cent renewable electricity and the Process Heat in New Zealand initiative. In a few cases, New Zealand reported on its plan to update an implemented policy or measure.

17. New Zealand provided information on a set of PaMs similar to those previously reported (20 in total), with a few exceptions, such as 7 new, additional PaMs, as well as 4 PaMs no longer in place. New Zealand also provided information explaining that since the previous submission its institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress made towards its target have not changed significantly.

18. New Zealand reported on its self-assessment of compliance with its emission reduction target and national rules for taking action against non-compliance. In the BR3 New Zealand stated that the total GHG emissions (excluding LULUCF) reported for 2015 were 80,155.14 kt CO₂ eq, while in the base year (1990) they amounted to 65,828.38 kt CO₂ eq, according to the “Report on the review of the report to facilitate the calculation of the emissions budget for the period 2013–2020 of New Zealand”.⁴ New Zealand’s total emissions increased by 21.8 per cent between 1990 and 2015. The emission sources that contributed the most to the increase were CH₄ emissions from dairy cattle, CO₂ emissions from road transport and manufacturing industries and construction (especially the categories chemicals, food processing, beverages and tobacco), N₂O emissions from agricultural soils, and consumption of HFCs, PFCs and SF₆ in industrial and household refrigeration and air-conditioning systems.

19. The key overarching cross-sectoral policy reported by New Zealand is the NZ ETS. In addition, the Electric Vehicles Programme, vehicle fuel economy labelling, ENERGYWISE, the Efficient Products Programme, GRA, the National Policy Statement for Freshwater Management, the Erosion Control Funding Programme and the National Environmental Standard for Landfill Methane provide the framework for New Zealand’s climate policy and for New Zealand to meet its emission reduction target for 2020. The mitigation effect of the NZ ETS is the most significant. Other policies that have delivered significant emission reductions are the Erosion Control Funding Programme and the National Environmental Standard for Landfill Methane. Table 3 provides a summary of the reported information on the PaMs of New Zealand.

Table 3

Summary of information on policies and measures reported by New Zealand

<i>Sector</i>	<i>Key PaMs</i>	<i>Estimate of mitigation impact by 2020 (kt CO₂ eq)</i>
Policy framework and cross-sectoral measures	NZ ETS	2 930 ^a
Energy		
Transport	Vehicle fuel economy labelling	41
Renewable energy	ENERGYWISE	28
Energy efficiency	Efficient Products Programme	312
IPPU	NZ ETS	2 930 ^a
Agriculture	GRA	NE
	National Policy Statement for Freshwater Management	274
LULUCF	Erosion Control Funding Programme	1 435
	Afforestation Grant Scheme	491
	Permanent Forest Sink Initiative	197

⁴ FCCC/IRR/2016/NZL available at <https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-the-kyoto-protocol/second-commitment-period/initial-reports>.

	Sustainable Land Management Hill Country Erosion Programme	161
	NZ ETS	2 930 ^a
Waste	National Environmental Standard for Landfill Methane	711
	NZ ETS	2 930 ^a

Note: The estimates of mitigation impact are estimates of emissions of CO₂ or CO₂ eq avoided in a given year as a result of the implementation of mitigation actions.

^a Total effect of the NZ ETS.

(b) Policies and measures in the energy sector

20. **Energy supply.** Some of the standard mitigation options applied in many Parties included in Annex I to the Convention, such as increasing the share of renewable energy in electricity production, have limited impacts on New Zealand's emissions as the share of renewable energy (mainly hydropower) in the fuel mix is very high. Heating in the residential and commercial sectors is electricity-based and therefore the potential for further significant mitigation effects is rather limited. Thus, the implemented PaMs indirectly affect energy supply and are focused on increasing energy efficiency, improvements in planning of energy infrastructure and raising public awareness.

21. **Renewable energy sources.** New Zealand's electricity generation is widely based on renewable sources (80.8 per cent in 2015). In 2015, hydropower generation provided 55.5 per cent of New Zealand's electricity. A further 17.8 per cent came from geothermal, 5.3 per cent from wind, 1.4 per cent from biomass and 0.2 per cent from solar. The remaining 19.8 per cent was provided by fossil fuel thermal generation plants using gas, coal and oil. Currently, there is no government subsidies for new electricity generation in New Zealand, because renewable energy is currently considered cost-competitive comparing to fossil fuels, however the NZ ETS is intended to send a clear price signal and create a competitive advantage for renewable generation. The Ministry of Business, Innovation and Employment is currently funding renewable energy research projects to support sustainable and efficient use of natural resources. One of the goals of the New Zealand Energy Efficiency and Conservation Strategy 2017–2022 is to increase the share of electricity generated from renewable sources to 90 per cent by 2025, provided that security of supply is maintained. The Government's aim is for New Zealand to generate 100 per cent of its electricity using renewable sources by 2035, under normal hydrological conditions. The Government tasked the Interim Climate Change Committee with gathering evidence and analysis on moving towards 100 per cent renewable electricity. The Committee delivered its report to the Government on 30 April 2019. The Government will take the findings of this report into consideration before deciding on policies. Also, the Government is in the process of developing a vision for the use of hydrogen in New Zealand that could play an important role in decarbonizing parts of New Zealand's economy.

22. **Energy efficiency.** The New Zealand Energy Efficiency and Conservation Strategy 2017–2022 was launched on 27 June 2017, superseding the New Zealand Energy Efficiency and Conservation Strategy 2011–2016. The strategy focuses on three priority areas that will provide the most cost-effective opportunities for energy savings and emission reductions: process heat, transport and electricity. ENERGYWISE is the Energy Efficiency and Conservation Authority's consumer information programme, which helps consumers to improve their use of energy by providing well-evidenced, accessible advice on energy efficiency, energy conservation and renewable energy, and provides authoritative advice via its website, digital media and television advertising. New Zealand and Australia have a joint Equipment Energy Efficiency (E3) programme to align energy efficiency regulation across both markets. This supports the Trans-Tasman Mutual Recognition Arrangement between the countries, which allows any product produced in, or imported into, one country to be legally sold in the other. Since 2002 there has been ongoing development of mandatory labels and performance standards for a range of commonly used residential, commercial and industrial electrical products, allowing both countries to set consistent standards and measures for energy efficiency. Twenty-five product classes are regulated and further regulation is being considered for five product areas under the current E3 Prioritisation Plan. The programme aims to reduce emissions from electricity consumption. It achieves this aim

by regulating minimum energy performance levels for certain product classes, and through mandatory energy performance labelling.

23. **Residential and commercial sectors.** New Zealand has implemented a number of measures to reduce energy consumption in the buildings sector. New Zealand's Building Code contains energy efficiency provisions for residential and commercial buildings. Commercial buildings in New Zealand are to be designed, built and managed to maximize energy efficiency opportunities, primarily through electricity efficiency. Since 2009 the Warm Up New Zealand Programme has insulated and improved the thermal performance of more than 300,000 homes.

24. **Transport sector.** The transport sector was responsible for 19.1 cent of New Zealand's total GHG emissions in 2016, mostly caused by road transportation. The application of the NZ ETS has been extended in order to harness this potential for significant emission reductions to mitigate GHG emissions from the transport sector. In addition, since 2008 New Zealand has been implementing a vehicle fuel economy labelling scheme.

25. In 2016, New Zealand announced the Electric Vehicles Programme to increase the uptake of electric vehicles. This includes an exemption from road user charges for light and heavy electric vehicles, a contestable fund of up to USD 6 million per year to encourage innovative low-emission vehicle projects, improvements in charging infrastructure, and investments of USD 1 million annually for a nationwide electric vehicle information and promotion campaign over five years. It set a target of 64,000 electric vehicles by the end of 2021.

26. The BR3 includes updated but very limited information on how New Zealand promotes and implements the decisions of ICAO and IMO to limit emissions from aviation and marine bunker fuels.

27. **Industrial sector.** The main energy consumption in the industrial sector is from steel and aluminium production, cement and lime production, methanol production and fertilizer (urea) production. Process heat used in manufacturing offers one of the best opportunities to improve energy efficiency and reduce energy emissions. The Ministry for Business, Innovation and Employment and the Energy Efficiency and Conservation Authority are working on the Process Heat in New Zealand initiative. This initiative is looking into the opportunities for, and barriers to, improving the energy efficiency of process heat and increasing the input of renewable energy. The Government released a technical paper on the barriers to reducing process heat emissions and switching fuels in January 2019. It plans to develop initiatives for addressing these barriers taking into account industry feedback on this technical paper.

(c) **Policies and measures in other sectors**

28. **Industrial processes.** Process emissions and the relevant energy consumption emissions are covered under the NZ ETS. Currently, there is no manufacture of HFCs and PFCs in New Zealand. Therefore, specifically for bulk importers of F-gases, there is an obligation to surrender New Zealand units equivalent to the amount of HFCs and PFCs imported or SF₆ emitted through use. In addition, a levy is applied to imported goods and motor vehicles containing synthetic GHGs (HFCs and PFCs). The levy is linked to the price of carbon in the NZ ETS and varies between items to reflect the amount of gas, the specified gas and its global warming potential. As a consequence of the entry into force of the Kigali Amendment to the Montreal Protocol the Government of New Zealand has started work on regulating the imports of HFCs using a permitting system.

29. **Agriculture.** Supporting research and development activities at the domestic and international level to develop measures to reduce GHG emissions from agriculture is the focus of New Zealand's policy approach in this sector. In practice, these activities are carried out via GRA, the New Zealand Agricultural Greenhouse Gas Research Centre, the Greenhouse Gas Inventory Research Fund, the Pastoral Greenhouse Gas Research Consortium, the Primary Growth Partnership, the Sustainable Land Management and Climate Change Plan of Action and the Sustainable Farming Fund.

30. Examples of such activities include the work under the Dairy Action for Climate Change, initiated in 2017 and led by the dairy industry, whose purpose is to develop a framework for the dairy sector to tackle CH₄ and N₂O emissions and contribute to meeting New Zealand's first nationally determined contribution. The Ministry for Primary Industries is supporting activities designed to raise awareness of climate change among dairy farmers and demonstrate the potential for emission reductions via changes to farm systems. In addition, New Zealand provides increasing financial and capacity-building support to agricultural GHG mitigation research under GRA, in addition to the funding already committed to the New Zealand Agricultural Greenhouse Gas Research Centre. Currently, approximately 48 countries have joined GRA. The New Zealand Agricultural Greenhouse Gas Research Centre was created to build on existing research, working with existing organizations to create an effective, trusted partnership to bring cost-effective, simple solutions to New Zealand farms, and contribute world-leading results to the international science community.

31. The ERT noted the wealth of research collaborations and initiatives undertaken by New Zealand to reduce GHG emissions from the agriculture sector. The ERT noted that the implemented measures do not contain any quantitative estimates of the effect of PaMs on GHG emissions.

32. **LULUCF.** The LULUCF sector plays an important role in New Zealand's strategy to achieve its 2020 target. All activities to increase sinks through afforestation measures are strongly promoted.

33. New Zealand has five principal measures to promote afforestation (for several reasons, including carbon sequestration, erosion and water quality) and provide incentives to maintain forests: the NZ ETS, the Permanent Forest Sink Initiative, the Sustainable Land Management Hill Country Erosion Programme, the Erosion Control Funding Programme and the Afforestation Grant Scheme. Between 1990 and 2015 these initiatives led to the sequestering of an estimated additional 24,812 kt CO₂ eq from the atmosphere. The predicted effect of carbon sequestration for 2020 will be around 2,284 kt CO₂ eq.

34. The NZ ETS is the main policy instrument to encourage afforestation and reduce deforestation for climate change purposes. The forests planted since 1 January 1990 and covered under the NZ ETS are eligible to earn emission units that represent the carbon sequestered by the forest since the start of the current mandatory emissions return period but are also liable to repaying units if there is a reduction in carbon stock.

35. The Sustainable Land Management Hill Country Erosion Programme helps protect New Zealand's estimated 1.4 million hectares of pastoral hill country that is classified as erosion-prone. It provides USD 2.2 million of targeted funding support annually to regional and unitary councils. Initiated in 2008 in response to significant storm events in previous years, the purpose of the programme is to speed up the rate of treatment of erosion-prone land. Projects under the programme deliver sustainable land management treatments, including wide-spaced poplar and willow planting and small-scale afforestation, treating over 3,500 hectares each year. The programme also supports catchment facilitation work and capability-building initiatives.

36. The Permanent Forest Sink Initiative promotes the establishment of permanent forests on land that was unforested before 1 January 1990. It offers landowners with land registered with the Permanent Forest Sink Initiative the opportunity to earn emission units for the carbon sequestered by their forests since the start of the last mandatory emissions return period. In return, participants have a legal covenant. The covenant is in perpetuity, even if the land is sold, although there is an option to terminate it after 50 years. Landowners are responsible for establishing and maintaining the forest. Limited harvesting is allowed on a continuous forestry cover basis. In 2016, 15,464 hectares of forest was registered in the Permanent Forest Sink Initiative, of which over 70 per cent was natural forest.

37. The Erosion Control Funding Programme was implemented in 1992 to address soil erosion in the Gisborne district. The programme aims to encourage tree planting on severely eroding or erodible land. Landowners are eligible for government grants, which help to fund the cost of establishing and managing erosion treatments on such land. Around 41,000 hectares has been treated through the programme to date. In 2016 the scope of the programme

was broadened to address erosion issues at the community and regional level and to deliver wider environmental, social and economic benefits.

38. Through the Afforestation Grant Scheme NZD 19.5 million will be invested between 2015 and 2020 to encourage and support the planting of new forests. This builds on the success of a previous scheme carried out from 2008 to 2013 that resulted in the planting of almost 12,000 hectares of new forest. Applications under the Afforestation Grant Scheme are prioritized, if necessary, according to their contribution to environmental outcomes. The scheme is expected to result in 15,000 hectares of new forest planting by 2020. Under the Afforestation Grant Scheme, landowners can receive a government grant of NZD 1,300 per hectare for establishing new forests on eligible land. Recipients of the grant own the forests while the Government retains the Kyoto Protocol removals 'credits' (and liabilities) generated during the 10-year period of the grant agreement. The Government committed funding to establish new forests on 12,450 hectares by 2018. It announced the One Billion Trees Programme in 2017. This aims to see one billion trees planted over the decade to 2027, of which approximately half will be replanting of existing forest. A new grants scheme was introduced in late 2018 to support delivery of this programme. The One Billion Trees Fund, which is funded for three years, intends to establish approximately 50,000 hectares of new forest through planting and natural regeneration. The Afforestation Grant Scheme ran its final funding round in 2018 and this resulted in the full allocation of available funding for that scheme. The grant rates for the final round were increased in line with the new grants scheme and the Government will retain removal units for a 6-year period for *Pinus radiata* (the predominant commercial species).

39. **Waste management.** The major legislation governing waste management in New Zealand is the Waste Minimisation Act 2008. The Act sets out the Government's long-term priorities and places a levy of NZD 10 on each tonne of waste going to disposal facilities for household waste to fund local authorities for activities in their waste management plans and for waste minimization initiatives for reduction, reuse and recycling. The legislation is supported by the New Zealand Waste Strategy, which was revised in 2010 (replacing the 2002 strategy) and replaces the previous targets with two high-level goals: to reduce the harmful effects of waste; and to improve the efficiency of resource use. The National Environmental Standard on Landfill Gas mandates the use of landfill gas collection on certain landfills, which has had the largest impact on reducing emissions in the waste sector. The waste management sector is also required to report on its emissions and is obliged to surrender emission units under the NZ ETS. Future developments for the waste sector include the definition of new landfill classes; updated consenting requirements for non-municipal landfills; updates for the solid waste analysis standard; the possible extension of the waste levy to additional sites; and a possible streamlining of the NZ ETS requirements to better incentivize landfill gas utilization.

(d) Response measures

40. New Zealand reported on the approach taken regarding the assessment of the economic and social consequences of response measures. Legislative decisions on climate change response measures taken by the New Zealand Government must have the support of the majority of Parliament before they can be passed into law. The public consultation phase of the legislative process allows any member of the public or any organization to raise concerns and issues about proposed measures. In addition, New Zealand's regular trade, economic and political consultation with other governments, including some non-Annex I Parties, also provides opportunities for those countries to raise any concerns directly. In the BR3, New Zealand refers to its 2017 annual inventory submission for more detailed information on the implementation of PaMs that minimize adverse social, environmental and economic impacts on non-Annex I Parties.

(e) Assessment of adherence to the reporting guidelines

41. The ERT assessed the information reported in the BR3 of New Zealand and identified issues relating to completeness and transparency. The findings are described in table 4.

Table 4

Findings on mitigation actions and their effects from the review of the third biennial report of New Zealand

No.	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation or encouragement</i>
1	Reporting requirement specified in CTF table 3 Issue type: transparency Assessment: recommendation	<p>The ERT noted that New Zealand made progress in its BR3 compared with its BR2 by providing quantitative estimates of the impacts on GHG emissions of some of its individual PaMs, particularly in the LULUCF sector and for the housing programme. However, this information was not provided for all PaMs. New Zealand used the notation key “NE” for a number of measures but did not provide an explanation as to why the impacts could not be estimated.</p> <p>During the review, New Zealand explained that there are various reasons why a quantified amount of emission reductions cannot be directly associated with particular PaMs. Some of these activities (e.g. the Transition Hub and the Agricultural Greenhouse Gas Research Centre) are research and information efforts and have no role in directly achieving emission reductions. Others (e.g. the Waste Minimisation Act) are legislation and strategies which incentivize reductions only indirectly through other programmes. New Zealand acknowledged that the issue of estimating emission impacts of PaMs prior to implementation and monitoring them during implementation needs to be addressed for individual PaMs. Therefore, MfE is developing a Climate Implications of Policy Assessment toolkit, which will support officials in estimating the emission impacts of policies and assist ministers in considering the potential climate change impacts of policy proposals when taking decisions. The ERT is of the view that there are certain PaMs which could have been quantified in terms of emission reductions, such as the Electric Vehicle Programme (even when newly implemented).</p> <p>The ERT reiterates the recommendation made in the previous review report that New Zealand provide quantitative estimates of the impacts of its individual PaMs or clearly explain why it may not be feasible to provide such information due to its national circumstances.</p>
2	Reporting requirement specified in paragraph 6 Issue type: completeness Assessment: recommendation	<p>The ERT noted that New Zealand reported implemented PaMs but did not provide information on its planned PaMs.</p> <p>During the review, New Zealand explained that there are difficulties in reporting on planned but not yet implemented PaMs in an official government report when a formal decision on them has not yet been taken. In response to a question raised by the ERT during the review, New Zealand provided information on the Zero Carbon Bill initiative and the process of amending the NZ ETS in the near future as examples of planned measures. In addition, New Zealand made reference to the independent report provided by the Productivity Commission, which makes recommendations on various possible PaMs.</p> <p>The ERT recommends that New Zealand include information on its planned PaMs in its next BR.</p>

Note: Paragraph number 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, transparent and adhering to the UNFCCC reporting guidelines on BRs.

2. Estimates of emission reductions and removals and the use of units from market-based mechanisms and land use, land-use change and forestry

(a) Technical assessment of the reported information

42. For 2014 New Zealand reported in CTF table 4 annual total GHG emissions excluding LULUCF of 80,267.87 kt CO₂ eq, which is 20.3 per cent above the 1990 level.

43. For 2015 New Zealand reported in CTF table 4 annual total GHG emissions excluding LULUCF of 80,155.14 kt CO₂ eq, which is 20.1 per cent above the 1990 level.

44. New Zealand reported in CTF tables 4 and 4(a) that in 2014 and 2015 LULUCF activities contributed 9,538.18 kt CO₂ eq and 12,535.32 kt CO₂ eq, respectively, to offset 11.9 and 15.6 per cent of its total GHG emissions, respectively. New Zealand reported the use of units from market-based mechanisms as “NA” in CTF table 4. New Zealand reported

that it intends to use units from market-based mechanisms to meet its 2020 target under the Convention; however, the scale of their contribution in meeting the Party's 2020 target will not be known until the end of the accounting period 2013–2020. Table 5 illustrates New Zealand's total GHG emissions, the contribution of LULUCF and the use of units from market-based mechanisms to achieve its target.

Table 5

Summary of information on the use of units from market-based mechanisms and land use, land-use change and forestry by New Zealand to achieve its target

<i>Year</i>	<i>Emissions excluding LULUCF (kt CO₂ eq)</i>	<i>Contribution of LULUCF (kt CO₂ eq)</i>	<i>Emissions including contribution of LULUCF (kt CO₂ eq)</i>	<i>Use of units from market- based mechanisms (kt CO₂ eq)</i>
1990	66 720.16	NA	NA	NA
2013	79 397.17	–9 365.16	70 032.01	0
2014	80 267.87	–9 538.18	70 729.69	0
2015	80 155.14	–12 535.32	67 619.82	0

Sources: New Zealand's BR3 and CTF tables 1, 4, 4(a)I, 4(a)II and 4(b).

45. In assessing the progress towards the achievement of the 2020 target, the ERT noted that New Zealand's emission reduction target under the Convention is 5.0 per cent below the 1990 level (see para. 12 above). As discussed above, in 2016 New Zealand's annual total GHG emissions excluding LULUCF were 19.6 per cent (12,912.13 kt CO₂ eq) above the base-year level. In addition, the ERT noted that in 2015 the contribution of LULUCF was 12,535.32 kt CO₂ eq.

46. The ERT noted that New Zealand's achievement of its 2020 target is strongly linked to the anticipated contribution of LULUCF and the contribution from market-based mechanisms. As reported in the latest update on New Zealand's 2020 net position,⁵ the Party expects to meet its 2020 target by using removals from LULUCF activities and surplus units from the first commitment period of the Kyoto Protocol.

(b) Assessment of adherence to the reporting guidelines

47. The ERT assessed the information reported in the BR3 of New Zealand and recognized that the reporting is complete, transparent and adhering 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. Projections overview, methodology and results

(a) Technical assessment of the reported information

48. New Zealand reported updated projections for 2020 and 2030 relative to actual inventory data for 2015 under the WEM scenario. The WEM scenario reported by New Zealand includes implemented and adopted PaMs until July 2017.

49. In addition to the WEM scenario, New Zealand reported the WOM scenario. The WOM scenario excludes all PaMs implemented, adopted or planned. The emission projections for the NZ ETS for the IPPU and waste sectors are identical under both the WEM and the WOM scenario, and thus there is no need to define a starting year for those PaMs.

50. New Zealand provided a definition of its scenarios, explaining that its WEM scenario projections are based on a 'business as usual' scenario that includes only key quantifiable climate change PaMs currently implemented; specifically, it includes the effect of the NZ ETS for the energy, transport and LULUCF sectors, the Efficient Products Programme, ENERGYWISE homes, Energy Efficiency and Conservation Authority business programmes, vehicle fuel economy labelling, the National Policy Statement for Freshwater

⁵ Available at www.mfe.govt.nz/climate-change/reporting-greenhouse-gas-emissions/latest-2020-net-position.

Management, the Erosion Control Funding Programme, the Afforestation Grant Scheme, the Sustainable Land Management Hill Country Erosion Programme, the Permanent Forest Sink Initiative, the National Environmental Standards for Air Quality and the waste disposal levy. New Zealand also reported a WOM scenario, which excludes all PaMs implemented, adopted or planned that were included in the WEM scenario.

51. The definitions indicate that the scenarios were prepared according to the UNFCCC reporting guidelines on NCs.

52. 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 CO₂, CH₄, N₂O, PFCs, HFCs and SF₆ (treating PFCs and HFCs collectively in each case) for 1990–2030. The projections are also provided in an aggregated format for each sector as well as for a Party total using global warming potential values from the AR4.

53. New Zealand did not report emission projections for indirect GHGs such as carbon monoxide, nitrogen oxides, non-methane volatile organic compounds or sulfur oxides.

54. Emission projections related to fuel sold to ships and aircraft engaged in international transport were not reported.

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

55. The methodology used for the preparation of the projections is mostly identical to that used for the preparation of the emission projections for the BR2. New Zealand reported supporting information further explaining the methodologies, updates and the changes made since the BR2. Specifically, various scenario assumptions have been updated, but there have been no significant modifications to the models and methodologies used. Across all sectors, differences in modelling approaches include making improvements or corrections to errors in inventory reporting; including GHG emissions for 2014 and 2015, as reported in the 2017 NIR submission; applying the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*; and using global warming potential values from the AR4. The BR3 provides a reference to chapter 5 of the NC7 for detailed information on projections, including tables 5.10 and 5.11 of the NC7, and appendix C.3 to the NC7 that set out the differences in emission projections for 2020 and 2030 as reported in the BR2 and BR3/NC7. The ERT notes that the detailed information provided by New Zealand regarding the changes since previous submissions has significantly enhanced reporting transparency.

56. To prepare its projections, New Zealand relied on the following key underlying assumptions: GDP growth rate, NZ ETS carbon prices (for forestry and non-forestry projections), population, oil price, the currency exchange rate, gas supply from new discoveries, agricultural and forestry parameters, transport fleet information and total solid waste disposal. These variables and assumptions were reported in CTF table 5. New Zealand provided supporting documentation to explain the changes since the NC6. The assumptions were updated on the basis of the most recent economic developments known at the time of the preparation of the projections. The main model used for the projections of GHG emissions from the energy sector is the Supply and Demand Equilibrium Model, which is a partial equilibrium model run in conjunction with more detailed subsector models for electricity, oil and gas production, and transport. The projections are based on the ‘mixed renewables’ scenario from the 2016 electricity demand and generation scenarios published by the Ministry of Business, Innovation and Employment. However, the carbon price assumed follows a different trajectory from the ‘mixed renewables’ scenario. In addition, the NZ ETS measures for stationary energy participants are assumed to continue. GDP growth, crude oil price, coal price, exchange rates, gas discoveries and population growth assumptions are, however, the same as those in the ‘mixed renewables’ scenario.

57. The ERT noted that the New Zealand Government has reconfirmed a target of achieving 90 per cent renewable electricity generation by 2025. However, the ‘mixed renewables’ scenario on which the WEM scenario was based predicted a rate below 90 per cent of electricity generated from renewable resources by 2050. During the review week, New Zealand explained that this target is not legally binding and the share of renewable energy is not an input or assumption to the model. The ERT suggests that New Zealand

include this information in its next NC submission as well as information on the approach taken to achieve the renewable electricity target.

58. The main model used for the projections of GHG emissions from the road transport sector is the Vector Finite Element Method. The assumptions for the road transport estimates included fleet size, engine technology and energy intensity per type of vehicle. During the review week, New Zealand provided additional information related to the average engine size for light passenger vehicles and a detailed share of the different types of vehicles per fuel type. The ERT suggests that New Zealand include this information in its next BR/NC submission.

59. Energy demand for, and emissions from, the energy and transport sectors are considered inelastic to fuel and carbon prices because of the current lack of viable substitutions, as indicated in the sensitivity analysis reported in the BR3.

60. The ERT noted that the BR3 did not include information related to the model and assumptions used for the projections of GHG emissions from national navigation, aviation and rail transport and activities for F-gases. During the review week, New Zealand provided information on models and assumptions and relevant factors and information for those categories.

61. The main model used for the projections of agricultural activity is the pasture supply response model, which projects animal numbers and animal performance (milk yield and animal weight), the key drivers of emissions from agriculture. These are forecast by type of animal and are primarily driven by commodity prices for agricultural products, days of soil moisture deficit (which is a measure of drought) and the returns on agricultural land relative to returns in the forestry sector. The inventory tier 2 model is then used to convert agricultural activity into emissions for New Zealand's four major livestock species (dairy cattle, non-dairy cattle, sheep and deer). The ERT commends New Zealand for the detailed information provided in annex C.2 to the NC7 and referred to in the BR3 on the analysis and advanced models used for the projections for the agriculture sector.

62. The projected emissions and removals from the LULUCF sector are calculated using methodologies consistent with those used for the NIR, with activity data and emission factors used in the NIR covering the historical time series 1990–2015. The LULUCF sector is especially sensitive to the underlying assumptions used. Uncertainty has been included in the projections using scenarios that represent low, mid-point and upper levels of removals, reflecting estimates of future rates of afforestation, deforestation, harvesting, pre-1990 natural forest sequestration, harvested wood products and carbon prices from 2016 to 2030. The three forestry scenarios incorporate assumptions to address uncertainties relating to future rates of afforestation, deforestation, harvesting rates, rotation ages and carbon prices. The projected afforestation scenarios factor in a range of drivers, including government forestry initiatives (such as the Afforestation Grant Scheme, the Permanent Forest Sink Initiative, the Sustainable Land Management Hill Country Erosion Programme and the East Coast Funding Programme), wood product returns, carbon prices, relative land-use economics, and land costs and availability.

63. As a result of New Zealand's fast-growing production forests and high levels of afforestation in the late 1980s and early 1990s, the LULUCF projections are particularly sensitive to production forest harvest age, levels and timing. As such, the three removal scenarios incorporate this sensitivity and attempt to capture variations in production forest harvest levels and timing.

64. Emissions from solid waste disposal are projected by assuming a constant level of solid waste disposal per capita, which is based on the most recent national survey. National population projections have been used as a key driver to estimate total domestic and commercial wastewater treated and the resulting emissions from wastewater treatment. The ERT noted that the mitigation effect of waste management policies was not clearly considered in the future levels of solid waste disposal per capita or in possible changes in waste composition. The ERT suggests that New Zealand evaluate the inclusion of these parameters in the waste sector projection model for its next submission.

65. Sensitivity analyses were conducted for several important assumptions, such as energy demand, dairy commodity prices and the waste disposal levy rate.

66. For the high-demand scenario of the energy sector, an average increase in electricity demand of 1.3 per cent per annum from 2015 is estimated to increase emissions by 1,130 kt CO₂ eq in 2020 (or 3.5 per cent) and by 5,084 kt CO₂ eq (or 17.3 per cent) in 2030. For the low-demand scenario (representing closure of an aluminium smelting operation in New Zealand), electricity demand is estimated to result in a decrease in emissions of 2,071 kt CO₂ eq in 2020 (or 6.4 per cent) and 659 kt CO₂ eq (or 2.3 per cent) in 2030.

67. A sensitivity analysis conducted for the agriculture sector suggests that dairy emissions are relatively unresponsive to changes in dairy commodity prices.

68. Relative to the current waste disposal levy rate, a rate increase to assist in reducing solid waste disposal at landfills could generate a further reduction in CH₄ emissions of up to 0.4 per cent in 2020, 4.2 per cent in 2025 and 8.6 per cent in 2030. Removing the levy rate could generate an increase in CH₄ emissions of up to 1 per cent in 2020, 1.4 per cent in 2025 and 1.6 per cent in 2030. The ERT commends New Zealand for considering the encouragements of the previous review reports and including a sensitivity analysis for the agriculture, energy and waste sectors.

(c) Results of projections

69. The projected emission levels under different scenarios and information on the Kyoto Protocol targets and the quantified economy-wide emission reduction target are presented in table 6 and the figure below.

Table 6

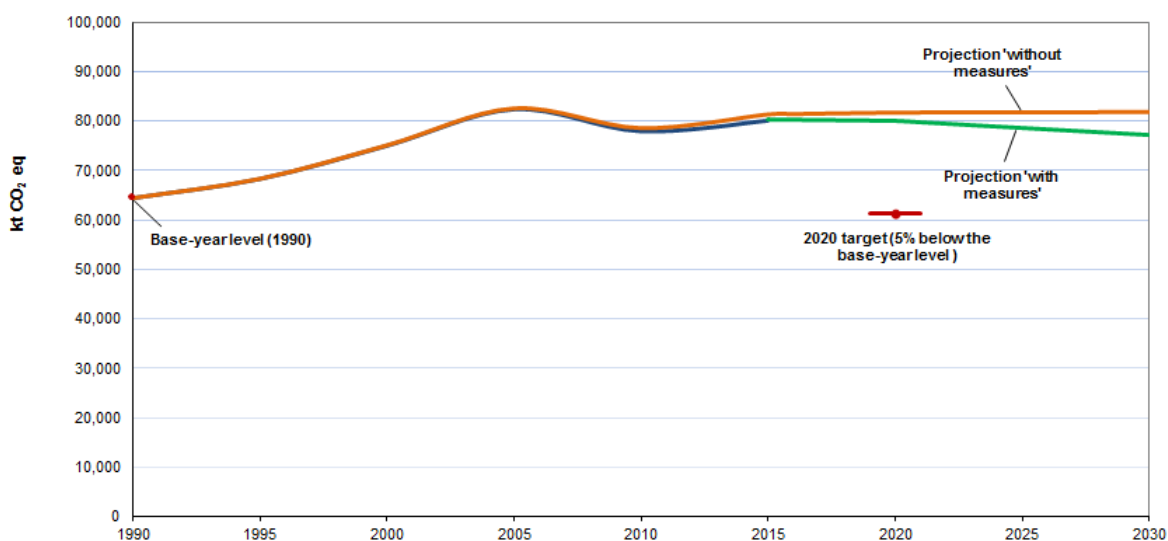
Summary of greenhouse gas emission projections for New Zealand

	<i>GHG emissions (kt CO₂ eq per year)</i>	<i>Changes in relation to base-year^a level (%)</i>	<i>Changes in relation to 1990 level (%)</i>
Quantified economy-wide emission reduction target under the Convention	NA	NA	NA
Inventory data 1990 ^b	64 573.84	-1.9	NA
Inventory data 2015 ^b	80 206.32	21.8	24.2
WOM projections for 2020 ^b	81 682.29	24.1	26.5
WEM projections for 2020 ^b	79 958.30	21.5	23.8
WOM projections for 2030 ^b	81 792.25	24.3	26.7
WEM projections for 2030 ^b	77 238.60	17.3	19.6

^a "Base year" in this column refers to the base year used for the targets under the Kyoto Protocol, while for the target under the Convention it refers to the base year used for that target.

^b From New Zealand's BR3 CTF table 6.

Greenhouse gas emission projections reported by New Zealand



Sources: (1) data for 1990–2015: CTF table 6(a); total GHG emissions excluding LULUCF; (2) data for 2015–2030: New Zealand’s BR3; total GHG emissions excluding LULUCF.

Note: New Zealand is expected to meet its 2020 target by using removals from LULUCF activities and surplus units from the first commitment period of the Kyoto Protocol. For more information see <https://www.mfe.govt.nz/climate-change/climate-change-and-government/emissions-reduction-targets/reporting-our-targets-0>.

70. New Zealand’s total GHG emissions excluding LULUCF are projected to be 79,958.30 and 77,238.60 kt CO₂ eq in 2020 and 2030, respectively, under the WEM scenario, which is an increase of 23.8 and 19.6 per cent, respectively, above the 1990 level.

71. The 2020 projections suggest that New Zealand may face challenges in achieving its 2020 target under the Convention without the use of Kyoto Protocol units. According to New Zealand’s 2020 net position report, the Party will recognize 26.1 million Kyoto Protocol units from the first commitment period to meet its 2020 target.

72. New Zealand presented the WEM scenario by sector for 2020 and 2030, as summarized in table 7.

**Table 7
Summary of greenhouse gas emission projections for New Zealand presented by sector**

Sector	GHG emissions and removals (kt CO ₂ eq)			Change (%)	
	1990	2020 WEM	2030 WEM	1990–2020 WEM	1990–2030 WEM
Energy (not including transport)	14 984	16 418	14 324	9.6	–4.4
Transport	8 765	15 303	15 014	74.6	71.3
Industry/industrial processes	3 584	5 487	6 185	53.1	72.6
Agriculture	33 123	37 888	37 737	14.4	13.9
LULUCF	–30 122	–15 694	–4 043	–47.9	–86.6
Waste	4 118	3 976	3 978	–3.4	–3.4
Total GHG emissions without LULUCF	64 574	79 958	77 239	23.8	19.6

Source: New Zealand’s BR3 CTF table 6.

73. According to the projections reported for 2020 under the WEM scenario, the most significant emission reductions are expected to occur in the waste sector, amounting to projected reductions of 142 kt CO₂ eq (3.4 per cent).

74. The pattern of projected emissions reported for 2030 under the same scenario is significantly different owing to additional emission reductions expected to occur in the energy sector (660 kt CO₂ eq, or 4.4 per cent). The remaining coal-fired power plant in New Zealand is expected to be decommissioned by 2022, thereby reducing emissions from coal.

75. According to the projections, New Zealand's LULUCF sector trend is a decline in annual removals as extensive plantation forests established in the late 1980s and early 1990s reach maturity and are harvested for timber production. The Party explained that, given the cyclical emission and removal profile of plantation forests, the LULUCF sector is expected to revert to an increasing net carbon sink during the 2030s once the forests harvested in the 2020s are replanted.

76. New Zealand presented the WEM scenario by gas for 2020 and 2030, as summarized in table 8.

Table 8

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

Gas	GHG emissions and removals (kt CO ₂ eq)			Change (%)	
	1990	2020	2030	1990–2020	1990–2030
		WEM	WEM	WEM	WEM
CO ₂	25 429	35 467	32 250	39.5	26.8
CH ₄	32 522	34 159	33 899	5.0	4.2
N ₂ O	5 693	8 372	8 357	47.1	46.8
HFCs	0	1 915	2 697	NA	NA
PFCs	910	24	12	–97.4	–98.7
SF ₆	20	23	23	13.4	13.4
NF ₃	NA	NA	NA	NA	NA
Total GHG emissions without LULUCF	64 574	79 958	77 239	23.8	19.6

Source: New Zealand's BR3 CTF table 6.

77. For 2020 the most significant reductions are projected for PFC emissions: 886 kt CO₂ eq (97.4 per cent) between 1990 and 2020. For 2030 the most significant reductions are also projected for PFC emissions: 898 kt CO₂ eq (98.7 per cent) between 1990 and 2020.

(d) Assessment of adherence to the reporting guidelines

78. The ERT assessed the information reported in the BR3 of New Zealand and identified issues relating to completeness and transparency. The findings are described in table 9.

Table 9

Findings on greenhouse gas emission projections reported in the third biennial report of New Zealand

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement ^d specified in paragraph 28 Issue type: completeness Assessment: encouragement	New Zealand did not report projections for a WAM scenario in its BR3. During the review, New Zealand acknowledged the issue and provided information describing the difficulty of producing a WAM scenario that includes PaMs that are under development or approval and as such could change their status and/or scope during the preparation of projections. The ERT reiterates the encouragement to the Party to include a WAM scenario in its next submission and indicate the cut-off date for planned PaMs included in WAM scenario.
2	Reporting requirement ^d specified in paragraph 35	The Party did not report projections for indirect GHGs.

No.	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation or encouragement</i>
	<p>Issue type: completeness</p> <p>Assessment: encouragement</p>	<p>During the review, New Zealand acknowledged the issue and stated that it will consider including such projections in its next submission.</p> <p>The ERT reiterates the encouragement to the Party to include in its next submission emission projections for indirect GHGs.</p>
3	<p>Reporting requirement^d specified in paragraph 36</p> <p>Issue type: completeness</p> <p>Assessment: recommendation</p>	<p>New Zealand did not report the emission projections related to fuel sold to ships and aircraft engaged in international transport.</p> <p>During the review, New Zealand stated that it will include those projections in its next submission.</p> <p>The ERT recommends that New Zealand in its next submission include the emission projections related to fuel sold to ships and aircraft engaged in international transport, to the extent possible, and report them separately and not included in the totals.</p>
4	<p>Reporting requirement^d specified in paragraph 43</p> <p>Issue type: completeness</p> <p>Assessment: encouragement</p>	<p>In its BR3, New Zealand did not provide information on strengths or weaknesses of the models or approach used for the projections, or on how the approach accounts for any overlap or synergies that may exist between different PaMs.</p> <p>During the review, New Zealand provided detailed information on the waste and transport and energy models used for the projections, including on their strengths and weaknesses.</p> <p>The ERT encourages the Party to provide, in its next NC and BR, brief information on the strengths and weaknesses of the models or approach used and on how the approach accounts for any overlap or synergies, such as the information provided during the review.</p>
5	<p>Reporting requirement^d specified in paragraph 46</p> <p>Issue type: transparency</p> <p>Assessment: encouragement</p>	<p>In its BR3, New Zealand did not include discussions of the sensitivity of the projections to underlying assumption for LULUCF sector and the climatic effects on hydroelectric generation in the energy sector, as encouraged by the previous ERT.</p> <p>During the review, New Zealand explained that for the LULUCF sector the focus to date has been sensitivity within the activity data themselves, rather than an overall uncertainty assessment of the model or modelling results. New Zealand stated that it will consider including a sensitivity analysis for the LULUCF sector and climatic effects in the energy sector in its next submission.</p> <p>The ERT reiterates the encouragement made to New Zealand in the previous review report to include, in its next submission, qualitative and, where possible, quantitative information on the sensitivity of the projections to the underlying assumptions for the LULUCF sector and the climatic effects on hydroelectric generation in the energy sector.</p>
6	<p>Reporting requirement^d specified in paragraph 48</p> <p>Issue type: completeness</p> <p>Assessment: recommendation</p>	<p>The Party did not provide relevant information on factors and activities for F-gases in the IPPU sector, national navigation, aviation and rail transport.</p> <p>During the review, New Zealand provided additional information on factors and activities for national navigation, aviation, rail transport and F-gases.</p> <p>The ERT recommends that New Zealand include relevant information on factors and activities for F-gases in the IPPU sector, national navigation, aviation and rail transport in its next submission.</p>
7	<p>Reporting requirement^d specified in paragraph 29</p> <p>Issue type: transparency</p> <p>Assessment: recommendation</p>	<p>The ERT noticed that information on PaMs included in the WEM scenario is not fully transparent owing to inconsistency between table 5.13 of the NC7 (p.138) on PaMs in the energy sector included in the WEM scenario and PaMs presented in CTF table 3 of the BR3 (p.30), specifically for the Warm Up New Zealand Programme.</p> <p>During the review, New Zealand explained that the Warm Up New Zealand Programme is missing from NC7 table 5.13. The commercial building programme is reported as “NE” in CTF table 3, and is therefore not included in NC7 table 5.13. The National Environmental Standards for Air Quality and the waste disposal levy</p>

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
		<p>were incorrectly stated as not being included in the WEM scenario, when in fact they are. New Zealand stated that this will be corrected in the next submission.</p> <p>The ERT recommends that New Zealand provide consistent information on PaMs included in the WEM scenario in its next submission.</p>

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

^a Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs.

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

1. Approach and methodologies used to track support provided to non-Annex I Parties

(a) Technical assessment of the reported information

79. In the BR3 New Zealand reported information on the provision of financial, technological and capacity-building support required under the Convention, including on financial support provided, committed and pledged, allocation channels and annual contributions.

80. New Zealand provided details of the “new and additional” support it has provided and clarified how this support is “new and additional” (see para. 90 below for further information on “new and additional” financial resources).

81. New Zealand reported the financial support that it has provided to non-Annex I Parties, distinguishing between support for mitigation and adaptation activities, and recognizing the capacity-building elements of such support. It explained how it tracks finance for adaptation and mitigation using the Rio markers, which were developed for OECD DAC and are publicly available in the OECD DAC Creditor Reporting System. The Rio markers are assigned on the basis of well-defined guidelines and technical eligibility criteria agreed by OECD DAC.

82. The BR3 includes information on the national approach to tracking the provision of support, indicators, delivery mechanisms used and allocation channels tracked. New Zealand included information on how it has refined its approach to tracking climate support and methodologies. The New Zealand Aid Programme’s Climate Change Operational Policy details the approaches to delivering climate change support and how the support has to be quantified and recorded.

83. The climate change support provided by the Party for the period 2015–2016 equates to around 22 per cent of the total official development assistance. The ERT acknowledged that the financial support provided for developing countries for the reporting period has been increased by NZD 47.09 million compared with the support reported in the BR2.

84. New Zealand described the methodology and underlying assumptions used for collecting and reporting information on financial support, including the system used for quantifying expenditure towards the DAC Rio markers based on criteria and moderation weightings recorded in the New Zealand Aid Programme’s climate change inventory. The methodology used for preparing information on international climate support is provided in tables 5.1 and 5.2 of the BR3. The Party reported that in the case of bilateral support the projects were assessed as being either “principal” or “significant”, while regional and multilateral contributions are not monitored at a level that tracks specific climate change allocations or actions.

85. During the review, New Zealand informed the ERT that there is an ongoing programme to improve the national approach for tracking financial resources, indicators and delivery mechanisms used. The ERT noted that the Party should consider providing details of the improved tracking system applied to climate change financing in its next BR.

(b) Assessment of adherence to the reporting guidelines

86. The ERT assessed the information reported in the BR3 of New Zealand and recognized that the reporting is complete, transparent and adhering 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.

2. Financial resources**(a) Technical assessment of the reported information**

87. New Zealand reported information on the provision of financial support required under the Convention and its Kyoto Protocol, including on financial support provided, committed and pledged, allocation channels and annual contributions.

88. The New Zealand Aid Programme is the main mechanism through which New Zealand provides public support to developing countries, hosted by the Ministry of Foreign Affairs.

89. New Zealand included and reported all climate-related support that is defined as “new and additional”. The Party provided details of the financial resources it has provided and clarified how it has determined such resources as being “new and additional”. New Zealand’s definition of “new and additional” has not changed since the NC6. New Zealand considers that, in the absence of an international definition of “new and additional”, the transparent and appropriate communication of new resources provided for the reporting period is the most relevant approach. New Zealand’s climate-related support is an increasing part of the country’s growing aid budget. For the 2013–2016 reporting period around 22 per cent of the financial support provided by the New Zealand Aid Programme had a climate component.

90. New Zealand specifies all funding as “provided” to indicate that the funding has been transferred to the recipients, including multilateral organizations. The annual contributions for the reporting period 2013–2016 are expressed in New Zealand dollars and United States dollars.

91. New Zealand described how its resources address the adaptation and mitigation needs of non-Annex I Parties. It also described how those resources assist non-Annex I Parties to mitigate and adapt to the adverse effects of climate change, facilitate economic and social response measures, and contribute to technology development and transfer and capacity-building related to mitigation and adaptation. New Zealand reported information on the assistance that it has provided to developing country Parties that are particularly vulnerable to the adverse effects of climate change to help them to meet the costs of adaptation to those adverse effects.

92. With regard to the most recent financial contributions aimed at enhancing the implementation of the Convention by developing countries, New Zealand reported that its climate-related finance to developing countries is provided primarily as public finance and has been allocated on the basis of priority areas identified by recipient countries and reflected in their national plans.

93. The major share of the support provided is to increase access to affordable, reliable and clean energy resources, and to adapt to the impacts of climate change through building capacity, stronger and resilient infrastructure, and strengthened disaster preparedness systems. New Zealand is also supporting low-emission agricultural development, including through GRA. A large proportion of New Zealand’s climate-related support is delivered through bilateral channels managed by the New Zealand Aid Programme in accordance with the strategic plan for 2015–2019. During this reporting period, New Zealand’s bilateral support maintained a strong focus on small island developing States in the Pacific region. The support is also provided to partner countries in Africa and the Caribbean and to member countries of the Association of Southeast Asian Nations. Table 10 includes some of the information reported by New Zealand on its provision of financial support.

Table 10
Summary of information on provision of financial support by New Zealand in 2015–2016

(Millions of United States dollars)

<i>Allocation channel of public financial support</i>	<i>Year of disbursement</i>	
	<i>2015</i>	<i>2016</i>
Official development assistance	451.86	569.86
Climate-specific contributions through multilateral channels, including:	2.53	0.26
GCF	2.09	0
Trust Fund for Supplementary Activities	0.09	0.16
Financial institutions, including regional development banks	0	0.28
Other	0.35	0.10
Climate-specific contributions through bilateral, regional and other channels	40.27	34.61
Other	0	0

Sources: (1) Query Wizard for International Development Statistics, available at <http://stats.oecd.org/qwids/>; (2) NC7 tables 7.3a–7.3d; (3) BR3 CTF tables.

Note: In addition, New Zealand provided USD 41.79 million in 2015 and USD 46.79 million in 2016 in core/general contributions through multilateral channels, including for climate change mitigation and adaptation activities.

94. The bilateral contributions reported by the Party to address climate change are assessed as being either “principal” or “significant”, while contributions to regional and multilateral organizations, with the exception of funding provided to GRA, are not monitored at a level that tracks climate change actions.

95. New Zealand reported on its climate-specific public financial support, totalling USD 40.27 million in 2015 and USD 34.61 million in 2016. With regard to the future financial pledges aimed at enhancing the implementation of the Convention by developing countries, New Zealand committed itself to providing NZD 200 million for the period 2015–2019. For this reporting period, 56 per cent of the above-mentioned committed finance was delivered. During the reporting period, New Zealand continued to focus its support to the South Pacific island States, for which it allocated USD 26.45 million of the USD 35.15 million of its support provided in 2016. The ERT noted that New Zealand’s share of bilateral support in its total allocation for 2015 and 2016 has increased compared with the previous reporting period. Information on financial support from the public sector provided through multilateral and bilateral channels and the allocation of that support by priority is presented in table 11.

96. In its BR3 New Zealand stated that it remains committed to the global goal of jointly mobilizing USD 100 billion per year by 2020.

Table 11
Summary of information on channels of financial support used in 2015–2016 by New Zealand

(Millions of United States dollars)

<i>Allocation channel of public financial support</i>	<i>Year of disbursement</i>				<i>Share (%)</i>	
	<i>2015</i>	<i>2016</i>	<i>Difference</i>	<i>Change (%)</i>	<i>2015</i>	<i>2016</i>
Support through bilateral and multilateral channels allocated for:						
Mitigation	20.10	18.95	–1.15	–5.7	47.0	53.9
Adaptation	17.70	11.73	–5.97	–33.7	41.4	33.4
Cross-cutting	5.18	4.47	–0.53	–10.6	11.7	12.7

Allocation channel of public financial support	Year of disbursement				Share (%)	
	2015	2016	Difference	Change (%)	2015	2016
Other	0	0	NA	NA	NA	NA
Total	42.80	35.15	-7.65	-17.9	100.0	100.0
Detailed information by type of channel						
Multilateral channels						
Mitigation	0.35	0	NA	NA	13.8	NA
Adaptation	0	0	NA	NA	NA	NA
Cross-cutting	2.18	0.54	-1.64	-75.2	86.2	100.0
Other	0	0	NA	NA	NA	NA
Total	2.53	0.54	-1.99	-78.7	100.0	100.0
Bilateral channels						
Mitigation	19.75	18.95	-0.80	-4.1	49.0	54.8
Adaptation	17.70	11.73	-5.97	-33.7	44.0	33.9
Cross-cutting	2.82	3.93	1.11	39.4	7.0	11.4
Other	0	0	NA	NA	NA	NA
Total	40.27	34.61	-5.66	-14.1	100.0	100.0
Multilateral compared with bilateral channels						
Multilateral	2.53	0.54	-1.99	-78.7	5.9	1.5
Bilateral	40.27	34.61	-5.66	-14.1	94.1	98.5
Total	42.80	35.15	-7.65	-17.9	100.0	100.0

Source: CTF tables 7, 7(a) and 7(b) of the BR3 of New Zealand.

Note: In addition, New Zealand provided USD 41.79 million in 2015 and USD 46.79 million in 2016 in core/general contributions through multilateral channels, including for climate change mitigation and adaptation activities.

97. The BR3 includes detailed information on the financial support provided through multilateral, bilateral and regional channels in 2015 and 2016. More specifically, New Zealand contributed through multilateral channels, as reported in the BR3 and in CTF table 7(a), USD 2.53 and 0.54 million for 2015 and 2016, respectively. The contributions were made to specialized multilateral climate change funds, such as the Global Environment Facility, the Capacity Building Initiative for Transparency, the Green Climate Fund, the Trust Fund for Supplementary Activities and the Multilateral Fund for the Implementation of the Montreal Protocol, as well as other multilateral and regional funds, such as the Consultative Group on International Agricultural Research Fund, the Regional Fund for Agricultural Technology, the International Renewable Energy Agency, the secretariats of the Pacific Islands Forum and the Pacific Community, and the Pacific Regional Environment Programme.

98. The BR3 and CTF table 7(b) also include detailed information on the total financial support provided through bilateral (USD 40.27 and 34.61 million) and multilateral (USD 2.53 and 0.54 million) channels in 2015 and 2016, respectively.

99. The BR3 provides information on the types of support provided. In terms of the focus of public financial support, as reported in CTF table 7 for 2015, the shares of the total public financial support allocated for mitigation, adaptation and cross-cutting projects were 47, 41.4 and 11.7 per cent, respectively. In addition, 5.9 per cent of the total public financial support was allocated through multilateral channels and 94.1 per cent through bilateral channels. In 2016, the shares of total public financial support allocated for mitigation, adaptation and cross-cutting projects were 53.9, 33.4 and 12.7 per cent, respectively. Furthermore, 1.5 per cent of the total public financial support was allocated through multilateral channels and 98.5 per cent through bilateral, regional and other channels.

100. The ERT noted that in 2015 a majority of financial contributions made through multilateral channels were allocated to cross-cutting issues. Some funds were allocated for mitigation activities in 2015, as reported in CTF table 7(a). The corresponding allocations for 2016 were directed primarily to cross-cutting activities. The bilateral and regional resources for 2015 and 2016 have a slightly higher share of allocations for mitigation than for adaptation projects, although the ERT noted that the share of support for the adaptation sector has increased compared with the previous reporting period.

101. In the BR3 New Zealand identified certain projects aimed at promoting private investment in renewable energy installations in developing countries, but did not provide information on private financial flows leveraged by bilateral climate finance for mitigation and adaptation activities in non-Annex I Parties because of the lack of established practice of reporting by private organizations.

102. The ERT noted that the public financial support provided in 2015 and 2016 is all in the form of grants and that the large proportion of the financial support provided by New Zealand is managed by the New Zealand Aid Programme, which tracks, measures and records allocated climate-related grant resources to developing countries.

103. In the reporting period the New Zealand Ministry of Primary Industries provided NZD 403,000 to a regional capability support project through a work programme implemented by the GRA Livestock Research Group.

(b) Assessment of adherence to the reporting guidelines

104. The ERT assessed the information reported in the BR3 of New Zealand and identified an issue relating to transparency. The finding is described in table 12.

Table 12

Findings on financial resources from the review of the third biennial report of New Zealand

<i>No.</i>	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation or encouragement</i>
1	Reporting requirement specified in paragraph 19 Issue type: transparency Assessment: encouragement	In its NC7, New Zealand did not report on private financial flows leveraged by bilateral climate finance towards mitigation and adaptation activities in non-Annex I Parties. During the review, New Zealand provided information, explaining that the management software of the New Zealand Aid Programme does not currently provide for tracking of private finance mobilized as a result of public interventions and that, where applicable, these data are calculated manually. The ERT encourages New Zealand to improve the transparency of its reporting by including, to the extent possible, in its next BR information on private investment in mitigation and adaptation activities in developing country Parties.

Note: Paragraph number 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, transparent and adhering to the UNFCCC reporting guidelines on BRs.

3. Technology development and transfer

(a) Technical assessment of the reported information

105. New Zealand provided information on steps, measures and activities related to technology transfer, access and deployment benefiting developing countries. The Party provided examples of support provided for the deployment and enhancement of the endogenous capacities and technologies of non-Annex I Parties. During the reporting period, New Zealand delivered its technology transfer related support through the New Zealand Aid Programme and practical assistance and cooperative actions through GRA.

106. The ERT noted that in its BR3 New Zealand improved the reporting related to the promotion and facilitation of the development of the endogenous and non-endogenous capacities and technologies of developing country Parties. For example, under the framework of GRA, New Zealand promotes and facilitates the development of the endogenous and non-

endogenous capacities and technologies of developing country Parties in the preparation of the GHG inventory for the agriculture sector and with a view to improving agricultural development strategies aimed at lowering GHG emissions and reducing vulnerability or increasing resilience to climate change.

107. The ERT took note of the information provided in CTF table 8 on technology transfer support, mostly provided as a combination of ‘hard’ and ‘soft’ technology. The number of recipient countries supported by the New Zealand Aid Programme has increased; although the main recipient target group remained small island developing States in the South Pacific, New Zealand reported on projects to provide support to Afghanistan and to countries in Africa, the Caribbean and East Asia. The technology transfer supported mitigation activities that are mainly aimed at promoting renewable energy applications, ensuring access to clean energy sources and mitigating GHG emissions from livestock production. Adaptation projects are aimed at transfer of knowledge and measures for reducing risks related to droughts and extreme weather events, increasing resilience of infrastructure and improving food security.

108. The technology transfer delivered through GRA promotes and facilitates endogenous and non-endogenous technologies and capacities in the agriculture sector, improving national GHG inventories and agricultural development strategies that aim to reduce GHG emissions and vulnerability to climate change.

109. The ERT noted that New Zealand reported on success stories in relation to technology transfer, in particular on measures taken to promote, facilitate and finance the transfer and deployment of climate-friendly technologies. For example, New Zealand’s Pacific Partnership with the European Union mobilized private investments for renewable energy in the Pacific region in the amount of around NZD 2 billion.

110. 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. The support provided to climate-related agriculture initiatives during the period 2015–2016 was aimed at supporting non-Annex I Parties in decoupling emissions from food production.

111. In its BR3 New Zealand provided information in textual and tabular format on key mitigation, adaptation, disaster risk management and resilience-building, and ‘soft’ and ‘hard’ technology transfer activities. Mitigation projects are mainly aimed at building a supportive environment for reducing existing and perceived risks to investments for renewable energy, while adaptation projects are focused more on building infrastructure resilience through grant resources provided.

(b) Assessment of adherence to the reporting guidelines

112. The ERT assessed the information reported in the BR3 of New Zealand and recognized that the reporting is complete, transparent and adhering 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.

4. Capacity-building

(a) Technical assessment of the reported information

113. In the BR3 and CTF table 9 New Zealand supplied information on how it has provided capacity-building support for mitigation, adaptation and technology that responds to the existing and emerging needs identified by non-Annex I Parties. New Zealand described individual measures and activities related to capacity-building support in textual and tabular format in CTF table 7(b) and, specifically, in CTF table 9.

114. New Zealand reported that it has supported climate-related capacity development activities relating to adaptation, mitigation, technology transfer, accessing climate finance, reporting and observation systems as designed and implemented by the New Zealand Aid Programme. New Zealand also reported that it has responded to the existing and emerging capacity-building needs of non-Annex I Parties by following the principles of national

ownership, aligning support with countries' own identified priorities, regional consultations, and cooperation between donors across programmes. The capacity-building programmes are focused primarily on the needs of small island developing States as those with the least capacity; however, New Zealand also delivered support to developing country Parties in Africa and South-East Asia in areas where it has specific expertise to share.

115. New Zealand also delivered capacity-building support through other mechanisms, including GRA, Pacific regional organizations such as the Secretariat of the Pacific Regional Environment Programme, the Asia-Pacific Network for Global Change Research and the Asia-Pacific Economic Cooperation.

116. In its BR3 New Zealand reported on its capacity-building activities as a founder member of the Friends of Fossil Fuel Subsidy Reform on building consensus on policies for fuel subsidy reform as a perceived barrier to promoting environmentally friendly technology transfer, such as renewable energy.

(b) Assessment of adherence to the reporting guidelines

117. The ERT assessed the information reported in the BR3 of New Zealand and recognized that the reporting is complete, transparent and adhering 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.

III. Conclusions and recommendations

118. The ERT conducted a technical review of the information reported in the BR3 and CTF tables of New Zealand in accordance with the UNFCCC reporting guidelines on BRs. The ERT concludes that the reported information mostly adheres to the UNFCCC reporting guidelines on BRs and provides 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; progress made by New Zealand in achieving its target; and the Party's provision of support to developing country Parties.

119. New Zealand's total GHG emissions excluding LULUCF covered by its quantified economy-wide emission reduction target were estimated to be 19.6 per cent above the 1990 level in 2016, whereas total GHG emissions including LULUCF were 54.2 per cent above the 1990 level in 2016. Emission increases were driven by economic and population growth as well as the increase in the international demand for agricultural products, which led to the increase in the size of the national dairy cattle herd; fertilizer application and dairy cattle excreta; road transport activities; the increase in energy consumption in manufacturing industries and construction (due to economic growth and population increase); and the increase in HFCs used as replacements for ozone-depleting substances.

120. Under the Convention, New Zealand committed itself to achieving a quantified economy-wide emission reduction target of 5.0 per cent below the 1990 level by 2020. The target covers CO₂, CH₄, N₂O, HFCs, PFCs, SF₆ and NF₃, expressed using global warming potential values from the AR4, and covers all sources and sectors included in the annual GHG inventory. Emissions and removals from the LULUCF sector are included in the target. New Zealand reported that it plans to make use of market-based mechanisms to achieve its target. In absolute terms, this means that under the Convention New Zealand has to reduce its emissions from 64,573.82 kt CO₂ eq (in the base year) to 61,345.13 kt CO₂ eq by 2020.

121. New Zealand's main policy framework relating to energy and climate change consists of the Energy Efficiency and Conservation Act, the Climate Change Response Act, the Waste Minimisation Act and, in the near future, the Zero Carbon Bill, which will guide New Zealand's transition towards a net-zero emissions economy, and the amendments to the Climate Change Response Act to incorporate the requirements of the Paris Agreement and make improvements to the NZ ETS. Key legislation supporting New Zealand's climate change goals includes the New Zealand Energy Strategy 2011–2021 and the New Zealand Energy Efficiency and Conservation Strategy 2017–2022. The mitigation actions with the most significant mitigation impact for reaching the target in 2020 are expected to be the NZ

ETS (2,930 kt CO₂ eq), the Erosion Control Funding Programme (1,435 kt CO₂ eq), the National Environmental Standard for Landfill Methane (711 kt CO₂ eq) and the Afforestation Grant Scheme (491 kt CO₂ eq).

122. For 2015 New Zealand reported in CTF table 4 annual total GHG emissions excluding LULUCF of 80,155.14 kt CO₂ eq, which is 20.1 per cent above the 1990 level. New Zealand reported in CTF tables 4 and 4(a) that in 2014 and 2015 LULUCF activities contributed 9,538.18 kt CO₂ eq and 12,535.32 kt CO₂ eq, respectively, to offset 11.9 and 15.6 per cent of its total GHG emissions, respectively. New Zealand reported the use of units from market-based mechanisms as “NA” (in CTF table 4). New Zealand reported that it intends to use units from market-based mechanisms under the Convention; however, the scale of their contribution in meeting the Party’s 2020 target will not be known until the end of the accounting period 2013–2020.

123. The GHG emission projections provided by New Zealand in the BR3 correspond to the WOM and WEM scenarios. Under the WOM scenario, emissions are projected to be 26.5 and 26.7 per cent above the 1990 level in 2020 and 2030, respectively. Under the WEM scenario, emissions are projected to be 23.8 and 19.6 per cent above the 1990 level in 2020 and 2030, respectively. On the basis of the results of the projections for 2020 under the WEM scenario, the ERT noted that New Zealand may face challenges in achieving its target by implementing only domestic mitigation actions. In this regard, New Zealand reported in the latest update on its 2020 net position that it expects to meet its 2020 target by using removals from LULUCF activities and surplus units from the first commitment period of the Kyoto Protocol.

124. New Zealand continues to provide climate financing to developing countries in line with the New Zealand Aid Programme and GRA. It has increased its contributions by 38.6 per cent since the its BR2; its public financial support in 2015 and 2016 totalled USD 40.27 and 34.61 million per year, respectively. For those years, New Zealand provided more support for mitigation than for adaptation. The biggest share of financial support went to projects in the energy sector. The biggest share of New Zealand’s financial support went to projects in the energy sector. The technology transfer activities supported were a combination of ‘hard’ and ‘soft’ technology and were mainly aimed at increasing access to and deployment of renewable energy resources, and building resilience, with a primary focus on small island developing States in the Pacific region.

125. 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 BRs in its next BR:

- (a) To improve the completeness of its reporting by:
 - (i) Providing information on planned PaMs (see issue 2 in table 4);
 - (ii) Providing information on emission projections related to fuel sold to ships and aircraft engaged in international transport, to the extent possible, and reporting them separately and not included in the totals (see issue 3 in table 9);
 - (iii) Providing information on factors and activities used for projections of F-gases in the IPPU sector and GHG emissions from navigation, aviation and rail transport (see issue 6 in table 9);
- (b) To improve the transparency of its reporting by:
 - (i) Providing more detailed information on the estimated mitigation impact of its mitigation actions in CTF table 3 or by providing clear explanations as to why this may not be possible due to its national circumstances (see issue 1 in table 4);
 - (ii) Providing consistent information on PaMs included in the WEM scenario (see issue 7 in table 9).

Annex

Documents and information used during the review

A. Reference documents

2017 GHG inventory submission of New Zealand. Available at

<https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/submissions/national-inventory-submissions-2017>.

2018 GHG inventory submission of New Zealand. Available at <https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/national-inventory-submissions-2018>.

BR3 of New Zealand. Available at <https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/national-communications-and-biennial-reports-annex-i-parties/third-biennial-reports-annex-i>.

BR3 CTF tables of New Zealand. Available at <https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/national-communications-and-biennial-reports-annex-i-parties/third-biennial-reports-annex-i>.

Compilation of economy-wide emission reduction targets to be implemented by Parties included in Annex I to the Convention. Available at

<https://unfccc.int/topics/mitigation/workstreams/pre-2020-ambition/compilation-of-economy-wide-emission-reduction-targets-to-be-implemented-by-parties-included-in-annex-i-to-the-convention>.

“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”. Annex to decision 24/CP.19. Available at <http://unfccc.int/resource/docs/2013/cop19/eng/10a03.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/1999/7. Available at <http://unfccc.int/resource/docs/cop5/07.pdf>.

“Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol”. Annex to decision 15/CMP.1. Available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf>.

“Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol”. Annex III to decision 3/CMP.11. Available at <http://unfccc.int/resource/docs/2015/cmp11/eng/08a01.pdf>.

“Guidelines for review under Article 8 of the Kyoto Protocol”. Annex to decision 22/CMP.1. Available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf>.

“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>.

NC7 of New Zealand. Available at <https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/national-communications-and-biennial-reports-annex-i-parties/seventh-national-communications-annex-i>.

Report on the individual review of the annual submission of New Zealand submitted in 2016. FCCC/ARR/2016/NZL. Available at <https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories/greenhouse-gas-inventory-review-reports-2016>.

Report on the review of the report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol of New Zealand.

FCCC/IRR/2016/NZL. Available at <https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-the-kyoto-protocol/second-commitment-period/initial-reports>.

Report of the technical review of the second biennial report of New Zealand.

FCCC/TRR.2/NZL. Available at <https://unfccc.int/node/66151>.

Report of the technical review of the sixth national communication of New Zealand.

FCCC/IDR.6/NZL. Available at <https://unfccc.int/node/66151>.

Revisions to the guidelines for review under Article 8 of the Kyoto Protocol. Annex I to decision 4/CMP.11. Available at

<http://unfccc.int/resource/docs/2015/cmp11/eng/08a01.pdf>.

“UNFCCC biennial reporting guidelines for developed country Parties”.

FCCC/SBSTA/2014/INF.6. 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 Ms. Emily Dunning (Ministry of Environment), including additional material.
