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

Parties included in Annex I to the Convention are requested, in accordance with decision 9/CP.16, to submit a sixth national communication to the secretariat by 1 January 2014. In accordance with decision 7/CMP.8, Parties included in Annex I to the Convention that are also Parties to the Kyoto Protocol shall include in their sixth national communication supplementary information under Article 7, paragraph 2, of the Kyoto Protocol. In accordance with decision 15/CMP.1, these Parties shall start reporting the information under Article 7, paragraph 1, of the Kyoto Protocol with the inventory submission due under the Convention for the first year of the commitment period. This includes supplementary information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol.

This report presents the results of the technical review of the sixth national communication and supplementary information under the Kyoto Protocol of New Zealand conducted by an expert review team in accordance with the “Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention” and the “Guidelines for review under Article 8 of the Kyoto Protocol”.

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## I. Introduction and summary

### A. Introduction

1. For New Zealand the Convention entered into force on 21 March 1994 and the Kyoto Protocol on 16 February 2005. Under the Kyoto Protocol, New Zealand made a commitment, for the first commitment period, to keeping its greenhouse gas (GHG) emissions, on average, at the base year<sup>1</sup> level during the first commitment period, from 2008 to 2012. Under the Convention, New Zealand made an unconditional commitment to reduce its GHG emissions by 5 per cent below 1990 levels by 2020 using the Kyoto Protocol's second commitment period framework of rules. In addition, New Zealand stated its preparedness to take on a GHG emission reduction target of between 10 and 20 per cent below 1990 levels by 2020 under certain conditions, including specific requirements for a comprehensive global agreement.

2. This report covers the in-country technical review of the sixth national communication (NC6) of New Zealand, coordinated 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" (decision 23/CP.19) and the "Guidelines for review under Article 8 of the Kyoto Protocol" (decision 22/CMP.1).

3. The review took place from 24 February to 1 March 2014 in Wellington, New Zealand, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: Mr. Solomone Fifita (Tonga), Mr. Ioannis Sempos (Greece), Mr. Michael Strogies (Germany), and Mr. Jongikhaya Witi (South Africa). Mr. Fifita and Mr. Strogies were the lead reviewers. The review was coordinated by Ms. Barbara Muik and Mr. Daniel Hooper (secretariat).

4. During the review, the expert review team (ERT) reviewed each section of the NC6. The ERT also reviewed the supplementary information provided by New Zealand as a part of the NC6 in accordance with Article 7, paragraph 2, of the Kyoto Protocol. In addition, the ERT reviewed the information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol, which was provided by New Zealand in its 2013 annual submission and previous submissions under Article 7, paragraph 1, of the Kyoto Protocol.

5. In accordance with decisions 23/CP.19 and 22/CMP.1, a draft version of this report was communicated to the Government of New Zealand, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

### B. Summary

6. The ERT conducted the technical review of the information reported in the NC6 of New Zealand and noted that it is mostly in accordance with the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications" (hereinafter referred to as the UNFCCC reporting guidelines on NCs). As required by decision 15/CMP.1,

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<sup>1</sup> "Base year" refers to the base year under the Kyoto Protocol, which is 1990 for all gases. The base-year emissions include emissions from sectors/source categories listed in Annex A to the Kyoto Protocol.

supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol<sup>2</sup> is provided in the NC6 (see para. 154 below). The supplementary information on the minimization of adverse impacts referred to in paragraph 4 above is complete and transparent. The ERT identified gaps and issues in reported information that are summarized in table 1.

7. New Zealand did not consider all recommendations provided in the report on the in-depth review of the fifth national communication of New Zealand.<sup>3</sup> The following elements have not been implemented as expected: the provision of an estimate of the total effect of implemented policies and measures (PaMs) for historic years in accordance with the UNFCCC reporting guidelines; information on the key drivers and assumptions of future projections for individual sectors; and further information on the steps New Zealand has taken to promote and/or implement any decisions of the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO) in order to limit or reduce emissions of GHGs not covered by the Montreal Protocol. In addition, a number of the encouragements provided as result of the review of the NC5 have not been taken into consideration.

8. The ERT commended New Zealand for its coherent and consistent reporting. During the review, New Zealand provided further relevant information (see paras. 29, 89, 96, 124 and 133 below).

#### **1. Completeness and transparency of reporting**

9. The NC6 covers all sections and contains most of the information required by the UNFCCC reporting guidelines on NCs. Gaps and issues related to the reported information identified by the ERT are presented in table 1 below. The ERT encourages New Zealand to continue its efforts to enhance the transparency and consistency of its reporting in its next national communication.

#### **2. Timeliness**

10. The NC6 was submitted on 12 December 2013 with a revised version submitted on 19 December 2013 before the deadline of 1 January 2014 mandated by decision 9/CP.16. The ERT commends New Zealand for the timeliness of its submission.

#### **3. Adherence to the reporting guidelines**

11. The information reported by New Zealand in its NC6 is mostly in adherence with the UNFCCC reporting guidelines on NCs as per decision 4/CP.5 (see table 1).

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<sup>2</sup> Decision 15/CMP.1, annex, chapter II.

<sup>3</sup> FCCC/IDR.5/NZL.

Table 1

**Assessment of completeness and transparency issues of reported information in the sixth national communication of New Zealand<sup>a</sup>**

<i>Sections of national communication</i>	<i>Completeness</i>	<i>Transparency</i>	<i>Reference to paragraphs</i>	<i>Supplementary information under the Kyoto Protocol</i>	<i>Completeness</i>	<i>Transparency</i>	<i>Reference to paragraphs</i>
Executive summary	Complete	Transparent		National systems	Complete	Transparent	
National circumstances	Complete	Transparent		National registries	Complete	Transparent	
Greenhouse gas inventory	Complete	Transparent		Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Complete	Mostly transparent	120
Policies and measures (PaMs)	Complete	Partially transparent	31, 33	PaMs in accordance with Article 2	Complete	Partially transparent	83
Projections and total effect of PaMs	Mostly complete	Partially transparent	89, 91, 96, 117, 119	Domestic and regional programmes and/or arrangements and procedures	Partially complete	Transparent	29
Vulnerability assessment, climate change impacts and adaptation measures	Complete	Transparent		Information under Article 10	Complete	Transparent	
Financial resources and transfer of technology	Partially complete	Partially transparent	123–127, 133	Financial resources	Partially complete	Partially transparent	123–127, 133
Research and systematic observation	Complete	Transparent		Minimization of adverse impacts in accordance with Article 3, paragraph 14	Complete	Transparent	
Education, training and public awareness	Complete	Transparent					

<sup>a</sup> A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in the chapter on conclusions and recommendations.

## II. Technical review of the reported information in the national communication and supplementary information under the Kyoto Protocol

### A. Information on greenhouse gas emissions and national circumstances relevant to greenhouse gas emissions and removals, including other elements related to the Kyoto Protocol

#### 1. Information on relevant national circumstances

12. In its NC6, New Zealand has provided a detailed description of the national circumstances and elaborated on the framework legislation and key policy documents on climate change. Further information on the review of the institutional and legislative arrangements for the coordination and implementation of PaMs is provided in chapter II.B below. Table 2 illustrates the national circumstances of New Zealand by providing some indicators relevant to GHG emissions and removals. The ERT noted that the main drivers of emission trends in New Zealand are population growth and the resulting demand for transport, and international demand for agricultural products. During the period 1990–2011, New Zealand's population and gross domestic product (GDP) increased by 31.2 and 71.3 per cent, respectively, while GHG emissions per GDP and GHG emissions per capita decreased by 29.0 and 6.9 per cent, respectively.

Table 2  
Indicators relevant to greenhouse gas emissions and removals for New Zealand

	1990	2000	2005	2010	2011	Change 1990–2011 (%)	Change 2010–2011 (%)
Population (million)	3.4	3.9	4.2	4.4	4.4	31.2	0.9
GDP (2005 USD billion using PPP)	64.6	86.8	104.6	109.4	110.6	71.3	1.1
TPES (Mtoe)	12.9	17.1	16.9	18.3	18.2	41.2	–0.7
GHG emissions without LULUCF (Mt CO <sub>2</sub> eq)	59.7	69.5	76.7	71.9	72.9	22.1	1.4
GHG emissions with LULUCF (Mt CO <sub>2</sub> eq)	31.6	45.6	55.1	54.1	59.4	87.7	9.7
GDP per capita (2005 USD thousand using PPP)	19.2	22.4	25.2	25.0	25.0	30.6	0.2
TPES per capita (toe)	3.8	4.4	4.1	4.2	4.1	7.6	–1.7
GHG emissions per capita (t CO <sub>2</sub> eq)	17.7	18.0	18.5	16.4	16.5	–6.9	0.5
GHG emissions per GDP unit (kg CO <sub>2</sub> eq per 2005 USD using PPP)	0.9	0.8	0.7	0.7	0.7	–29.0	0.0

Sources: (1) GHG emissions data: New Zealand's 2013 GHG inventory submission; (2) Population, GDP and TPES data: International Energy Agency.

Note: The ratios per capita and per GDP unit are calculated relative to GHG emissions without LULUCF; the ratios are calculated using the exact (not rounded) values and may therefore differ from a ratio calculated with the rounded numbers provided in the table.

*Abbreviations:* GDP = gross domestic product, GHG = greenhouse gas, LULUCF = land use, land-use change and forestry, PPP = purchasing power parity, TPES = total primary energy supply.

13. The ERT noted that, while national circumstances were well described in the NC6, transparency on how these national circumstances and associated changes affect GHG emissions and removals could be further enhanced. In particular, reporting on population density and distribution in tabular format over the same time period used for GHG emissions trends and projections and presentation of key economic indicators in a tabular format could be included. The ERT, therefore, encourages New Zealand to provide such information in its next national communication, with a focus on the population density and distribution and their impact on GHG emission levels.

## 2. Information on the greenhouse gas inventory, emissions and trends

14. New Zealand has provided a summary of information on GHG emission trends for the period 1990–2011. This information is fully consistent with the 2013 April national GHG inventory submission. Summary tables, including trend tables for emissions in carbon dioxide equivalent (CO<sub>2</sub> eq) (given in the common reporting format (CRF) tables), are provided in an annex to the NC6. New Zealand resubmitted its CRF tables following the review of its GHG inventory in September 2013. In response to a question raised by the ERT during the review, New Zealand explained that by the time the CRF tables were resubmitted, the NC6 was already going through the approval process within government ministries and therefore could not be updated. The ERT noted that the difference of total emissions between the two submissions is minor (0.12 per cent for 2011)

15. Total GHG emissions<sup>4</sup> excluding emissions and removals from land use, land-use change and forestry (LULUCF) increased by 22.1 per cent between the base year and 2011, whereas total GHG emissions including net emissions or removals from LULUCF increased by 87.7 per cent over the same period. CO<sub>2</sub> emissions contributed the largest proportion of New Zealand's total emissions in 2011 (45.5 per cent). The main contributors to total CO<sub>2</sub> emissions were road transport (37.4 per cent), and public electricity and heat production (15.4 per cent). From 1990 to 2011, total CO<sub>2</sub> emissions increased by 32.4 per cent mainly due to increased road transport activities.

16. New Zealand, with agriculture contributing to 47 per cent of its total emissions, has a unique emission profile compared with other Parties included in Annex I to the Convention (Annex I Parties). This is due to the export oriented economy with its high share of agricultural exports. Methane (CH<sub>4</sub>) (excluding LULUCF) comprised 37.1 per cent of total emissions in 2011, with 86.9 per cent coming from enteric fermentation in ruminant livestock (mainly dairy cattle) in the agriculture sector. Between 1990 and 2011, methane emissions grew by 5.5 per cent from 1990 levels. This is largely attributed to the increase in the national dairy cattle herd over the same period. Nitrous oxide (N<sub>2</sub>O) contributed 14.7 per cent to New Zealand's total emissions in 2011, with 95 per cent of these emissions coming from agricultural soils. The growth in nitrous oxide resulted from direct nitrous oxide emissions from dairy cattle excreta and an almost six-fold increase in nitrogen fertilizer application over the 1990–2011 period. Total nitrous oxide emissions in 2011 exceeded the 1990 level by 28.8 per cent. An analysis of the drivers of GHG emissions trends in each sector is provided in chapter II.B below. Table 3 provides an overview of GHG emissions by sector from the base year to 2011.

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<sup>4</sup> In this report, the term "total GHG emissions" refers to the aggregated national GHG emissions expressed in terms of CO<sub>2</sub> eq excluding LULUCF, unless otherwise specified. Calculations in the report are based on New Zealand's 2013 annual submission, CRF version 1.2, submitted on 7 September 2013.

Table 3  
Greenhouse gas emissions by sector in New Zealand, 1990–2011

Sector	GHG emissions (kt CO <sub>2</sub> eq)				Change (%)		Share <sup>a</sup> by sector (%)	
	1990	2000	2010	2011	1990–2011	2010–2011	1990	2011
	1. Energy	23 569.2	29 760.9	31 365.2	31 053.7	31.8	–1.0	39.4
A1. Energy industries	5 965.9	6 461.3	6 772.8	6 468.4	8.4	–4.5	10.0	8.9
A2. Manufacturing industries and construction	4 724.2	6 284.1	5 228.7	5 101.4	8.0	–2.4	7.9	7.0
A3. Transport	8 625.7	12 145.6	13 829.9	14 014.6	62.5	1.3	14.4	19.2
A4.–A5. Other	2 895.3	3 157.7	2 929.3	3 085.5	6.6	5.3	4.8	4.2
B. Fugitive emissions	1 358.1	1 712.2	2 604.6	2 383.7	75.5	–8.5	2.3	3.3
2. Industrial processes	3 392.8	3 523.8	4 784.5	5 444.6	60.5	13.8	5.7	7.5
3. Solvent and other product use	41.5	47.1	31.0	27.9	–32.8	–10.0	0.1	0.0
4. Agriculture	30 683.6	34 097.5	33 747.3	34 411.9	12.2	2.0	51.4	47.2
5. LULUCF	–28 112.7	–23 895.2	–17 814.4	–13 540.2	–51.8	–24.0	–	–
6. Waste	2 059.1	2 113.7	2 012.8	1 985.4	–3.6	–1.4	3.4	2.7
<b>GHG total with LULUCF</b>	<b>31 633.6</b>	<b>45 647.7</b>	<b>54 126.4</b>	<b>59 383.3</b>	<b>87.7</b>	<b>9.7</b>	–	–
<b>GHG total without LULUCF</b>	<b>59 746.2</b>	<b>69 542.9</b>	<b>71 940.8</b>	<b>72 923.5</b>	<b>22.1</b>	<b>1.4</b>	–	–

Note: The changes in emissions and the share by sector are calculated using the exact (not rounded) values and may therefore differ from values calculated with the rounded numbers provided in the table.

Abbreviations: GHG = greenhouse gas, LULUCF = land use, land-use change and forestry.

<sup>a</sup> The shares of sectors are calculated relative to GHG emissions without LULUCF; for the LULUCF sector, the negative values indicate the share of GHG emissions that was offset by GHG removals through LULUCF.

### 3. National system

17. New Zealand provided in its NC6 a description of how its national system is performing the general and specific functions defined in the guidelines for national systems under Article 5, paragraph 1 (decision 19/CMP.1), of the Kyoto Protocol. The description includes all the elements as mandated by decision 15/CMP.1. The NC6 also contains a reference to the description of the national system provided in the national inventory report (NIR) of the 2013 annual submission. The ERT took note of the review of the changes to the national system as reflected in the report of the individual review of GHG inventory of New Zealand submitted in 2013. In particular, the assignment of a national quality assurance/quality control (QA/QC) manager and coordinator to coordinate QA/QC activities in the New Zealand national system. The ERT commends New Zealand for this development and encourages the Party to continue exploring ways and means of improving its national system. The ERT also encourages New Zealand to include a diagram mapping data flows and relevant role players in the national system in its next annual submission to enhance transparency.



18. The ERT took note of the Reporting Governance Group and its membership, which provides leadership in reporting, modelling and providing projections of greenhouse gas emissions and removals. The ERT considers that the involvement of Statistics New Zealand, which provides many of the official statistics used for inventory compilation, in the Reporting Governance Group could help to ensure that the sustainability of New Zealand's national system and its institutional arrangements will be strengthened. The ERT thus encourages New Zealand to consider the involvement of Statistics New Zealand in the Reporting Governance Group.

#### **4. National registry**

19. In its NC6, New Zealand has provided information on the national registry in accordance with the annex to decision 13/CMP.1 and the annex to decision 5/CMP.1. The ERT took note of the review of the changes to the national registry as reflected in the report of the individual review of the GHG inventory of New Zealand submitted in 2013.

20. Following the NC5 in-country review, New Zealand agreed to conduct performance testing on the national registry hosting environment. The test was completed in July 2011 and the test results showed that the New Zealand Emission Unit Register (NZEUR) was fully compliant with data exchange standards (DES) that define the communication protocol between registry systems and the international transaction log (ITL). The ERT further noted that New Zealand has recently updated to the latest DES (1.1.9). The ERT commends New Zealand for implementing these tests to strengthen the integrity of its national registry and encourages the Party to continue performing such tests in the future.

21. New Zealand has adopted a new and detailed approach to minimize discrepancies between the NZEUR and the ITL following DES 1.1.9. The ERT notes that the approach ensures that in the case of an unforeseen error, data discrepancies between the registry and the ITL can be corrected via a manual intervention function within the registry.

22. Changes have been made to publicly available information reported on the NZEUR. This information includes cell phone, telephone and fax numbers of account holders. During the review, New Zealand explained that such changes were introduced on 25 October 2012 and this information was removed for security reasons. The Party further explained that these changes are allowed under Section 13 of the Climate Change Response Act 2002, which permits the registrar to withhold access to email addresses and phone and fax numbers of account holders. The ERT noted that these changes are consistent with domestic legislation.

23. The ERT concluded that, taking into account the confirmed changes in the national registry, including additional information provided to the ERT during the review, New Zealand's national registry continues to perform the functions set out in the annex to decision 13/CMP.1 and the annex to decision 5/CMP.1.

#### **5. Domestic and regional programmes and/or legislative arrangements and procedures related to the Kyoto Protocol**

24. New Zealand has reported in its NC6 information on domestic and regional programmes and/or legislative arrangements and procedures related to the Kyoto Protocol.

25. The overall responsibility for climate change policymaking lies within the Ministry for the Environment (MfE) of New Zealand, and a number of national institutions are involved in the implementation of this policy.

26. Implementation of the Kyoto Protocol is underpinned by the Climate Change Response Act 2002, which established the legal framework to enable New Zealand to meet its obligations under both the Convention and its Kyoto Protocol. New Zealand's primary

policy to mitigate GHG emissions is the New Zealand Emissions Trading Scheme (NZ ETS), which was established in 2008 and has been amended twice since 2008.

27. MfE is responsible for the coordination of climate change policy across government, and for advising the government on the NZ ETS and the development of allocation plans and regulations under the scheme. The implementation of specific climate change policies is frequently led by other relevant departments, including the Ministry for Primary Industries (MPI) on agriculture and forestry policy, including the administration of forestry in the NZ ETS; the Ministry of Business, Innovation and Employment (MBIE) on energy policy; the Energy Efficiency and Conservation Authority (EECA) on energy efficiency programmes; the Environmental Protection Authority (EPA) on the administration of the NZ ETS; the Ministry of Transport on transport policy; and the Treasury on the financial and economic perspective plus budgetary considerations, among others.

28. Concerning the provision of public access to information, New Zealand has a climate change website that was established in 2003.<sup>5</sup> The website is the key source of information provided by the government. It also acts as a portal to a number of other governmental and non-governmental organizations involved in climate change work. Additional websites managed by ministries also provide information on mitigation programmes, reports, and actual and projected GHG emissions, by sources, and removals, by sinks.

29. New Zealand did not provide a description of national legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraph 3, of the Kyoto Protocol, also contribute to the conservation of biodiversity and sustainable use of natural resources. The information provided during the review indicates that New Zealand has a number of national legislative arrangements that contribute to the conservation of biodiversity and the sustainable use of natural resources. Programmes such as the Permanent Forest Sinks initiative, the East Coast Forestry Project and the Sustainable Land Management Hill Country Erosion Programme also contribute to the conservation of biodiversity and the sustainable use of natural resources. The ERT considers that the information provided by New Zealand during the review meets the reporting requirements and recommends that New Zealand provide this information in its seventh national communication.

## **B. Policies and measures, including those in accordance with Article 2 of the Kyoto Protocol**

30. New Zealand has provided in its NC6 comprehensive and well-organized information on its implemented PaMs in order to fulfil its commitments under the Convention and its Kyoto Protocol. New Zealand has not reported on PaMs currently under adoption or in the planning phase.

### **1. Policies and measures related to implementation of commitments under the Convention**

31. New Zealand reported on its implemented PaMs and elaborated on achieving its commitments under the Convention, but did not report on PaMs that are under adoption or in the planning phase. New Zealand provided information on PaMs by sector and by gas and a description of the principal PaMs. Each sector has its own textual description of the principal PaMs, supplemented by the summary table on PaMs also structured by sector. New Zealand has also provided limited information on how it believes its PaMs are

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<sup>5</sup> <<https://www.climatechange.govt.nz>>.

modifying longer-term trends in anthropogenic GHG emissions and removals consistent with the objective of the Convention. Therefore, the ERT recommends that the Party elaborate further on this issue in its next NC to increase transparency. The NC6 contains, with a few exceptions, a set of PaMs similar to those in the NC5.

32. The NC6 includes all mandatory information required by the guidelines. However, the ERT noted that the NC6 – as was the case with the NC5 – does not include some information required by the guidelines on: the process and activities in which progress with PaMs is monitored and evaluated over time, and relevant institutional arrangements; the potential overlap among PaMs; and the effects of single PaMs in terms of emission reduction. Although the NC6 includes a chapter on monitoring, evaluation and review, that describes the review of the NZ ETS, forestry schemes and the Waste Minimisation Act 2008, New Zealand does not report on how the progress with PaMs is monitored and evaluated over time, neither does it report a quantitative estimate of the impacts of most individual PaMs. The GHG emission reduction potential is provided in the NC6 for a very limited number of PaMs, some of which are presented at an aggregated level. For example, the estimated GHG emission reduction potential of the NZ ETS is 9,810 kt CO<sub>2</sub> eq by 2020, while the estimated GHG emission reduction potential of the Efficient Products Programme is 1,400 kt CO<sub>2</sub> eq by 2020. The assumed effect of the NZ ETS also includes other unspecified effects of other described PaMs.

33. The ERT considers that New Zealand would benefit from estimating the effects of its key PaMs as this would increase the reliability of its climate change policy, improve public awareness on the actions taken (and planned), provide a justification on budgets allocated to specific PaMs and consequently lead to a broader acceptance and support from all stakeholders. Also, the estimation of the effect of PaMs would allow for periodic assessment of existing PaMs and the identification of the possible need for additional PaMs. Thus, the ERT strongly encourages New Zealand to report quantitative estimates of the impacts of its individual PaMs to improve the completeness of its reporting and the consistency between the PaMs and projections chapters. The ERT also encourages the Party to improve the completeness of its reporting by providing a description of the way in which progress with PaMs is monitored and evaluated over time, and of the institutional arrangements for the monitoring of GHG mitigation policy. The ERT further encourages New Zealand to extend its reporting on PaMs to adopted and planned PaMs, as well as for the whole process of evaluation, setting up and prioritization for all possible PaMs.

34. For the majority of the implemented PaMs, an overview of the allocated budget and/or implementation costs and related investments is provided. For example, New Zealand reports that the budgeted combined implementation and administration costs for the NZ ETS by government for the fiscal year 2012–2013 come to approximately 19 million New Zealand dollars (NZD) and funding allocated to the primary growth partnership was increased to NZD 70 million for the same fiscal year. The ERT commends the Party for this detailed reporting, but underlines its encouragement to focus more on the effects in terms of emissions for single PaMs. This would improve the transparency of the NC6 in relation to the partly described high costs of single measures (like the described overall cost of approximately NZD 76 million for the period between 2007 and 2012).

35. New Zealand did include a description of four PaMs that are no longer in place compared with those reported in the NC5 and provided an explanation as to why these PaMs were discontinued. These are the New Zealand's Waste Strategy 2002 which was replaced by the Waste Strategy 2010; the Biodiesel Grant Scheme, which did not show the anticipated uptake; the Distributed Generation Fund established in 2008/2009 to support feasibility studies for small-scale renewable electricity projects in New Zealand; and the Marine Energy Deployment Fund.

36. The NC6 does not include some information required by the guidelines on PaMs that potentially could increase emissions and the ERT encourages the Party to identify such PaMs, if appropriate, and report on this in its next NC.

37. With respect to the PaMs in place to mitigate climate change the information in its NC6 is on the same acceptable level as that in its NC5. The transparency and completeness has only been slightly improved by the implementation of the limited recommendation and encouragements from the previous review report. The main recommendation in relation to the improved descriptions of the actions taken by the Government of New Zealand to implement the decisions of ICAO and IMO is still open.

## **2. Policy framework and cross-sectoral measures**

38. The institutions responsible for coordinating and implementing New Zealand's climate change policy, coordinated by the MfE, have been continuously strengthened since the establishment of the Climate Change Programme in 1988. The programme has steadily evolved and now includes several government departments and agencies. The description in the NC6 is more focused on most recent developments such as the function and responsibility of the newly formed MBIE and the further development of the NZ ETS.

39. The MfE is the government's primary adviser on environmental matters, international matters affecting the environment and climate change. In addition, it is principally responsible for the NZ ETS legislation. The MBIE is responsible for energy policy, science and innovation policy, research funding and economic development. The MPI has a specific responsibility in the implementation of the NZ ETS in relation to forestry. The implementation of specific climate change policies, once agreed to by the government, is led by these and other ministries in the areas of their competencies and responsibilities. Furthermore, various research and scientific institutions as well as many agencies from several sectors are also involved in the climate policy implementation process with the EECA and the EPA playing significant roles.

40. Regional and local authorities have primary responsibility for regulating resource use in New Zealand and for promoting the environmental, social, cultural and economic well-being of communities. Many local authorities and regions are involved, being responsible for managing the effects of land-use change, avoiding and mitigation of natural hazards as well as for the water, air and land resource management.

41. The NC6 provides a comprehensive overview on the legal framework, the targets taken and the different institutions involved in New Zealand's climate change policy. However, the ERT noted that the overall process for policy-setting with respect to the assessment of reduction potentials, the analysis of potentials, planned and adopted PaMs as well as the prioritization of these possible PaMs is not described. The ERT encourages New Zealand to assess this overarching policy-setting process and to report on these results in its next NC. Table 4 provides a summary of the reported information on the PaMs of New Zealand.

42. New Zealand considers its ETS as the principal policy instrument in its climate change programme for the period 2008–2020. The NZ ETS was launched in 2008. Forestry was the first sector covered by the NZ ETS in 2008, followed by fossil fuel use in stationary energy sources, transport and the manufacturing industry sector. In 2013, the use of synthetic gases and the waste sector was incorporated into the NZ ETS. The first review of the NZ ETS was carried out in 2011 and led to some modifications in 2012. It also took account of international climate policy developments and led to amendments to the trading scheme. As a decision concerning the inclusion of agriculture within the NZ ETS depends also on developments in international climate change policy, the start date for its inclusion has been put on hold. In addition, extended transitional measures to reduce cost impacts by

the NZ ETS have been implemented (two-for-one surrender obligation and the fixed price option: a possibility to meet the obligation by paying a fixed price of NZD 25 per tonne of emission). The next review of the NZ ETS to include additional sectors is in 2015.

43. The allocation of allowances for industry under the NZ ETS is based on energy intensity per unit of production. The monitored reporting and verification system within the NZ ETS is similar to the tax system, as it includes self-assessment and powers of audit. In cases of non-compliance, financial penalties and an obligation to buy missing allowances are implemented.

Table 4

**Summary of information on policies and measures reported by New Zealand**

<i>Sectors affected</i>	<i>List of key policies and measures</i>	<i>Estimate of mitigation impact (kt CO<sub>2</sub> eq)</i>
Policy framework and cross-sectoral measures		
	New Zealand Emissions Trading Scheme	9 810
Energy		
Energy efficiency	Energy efficiency in government	NE
Residential and commercial sectors		
	ENERGYWISE homes	20
	Efficient Products Programme	1 400
	Business programmes	89
Transport		
	Vehicle fuel economy labelling	43
	Biofuels	NE
	Electric Vehicles	NE
	Other transport measures	NE
Agriculture		
	Global Research Alliance on agricultural greenhouse gases	NE
	Primary Growth Partnership	NE
	New Zealand Agricultural Greenhouse Gas Research Centre	NE
	Pastoral Greenhouse Gas Research Consortium	NE
	Sustainable Land Management and Climate Change Plan of Action	NE
Forestry		
	Permanent Forest Sink initiative	NE
	East Coast Forestry Project	NE
	Afforestation Grants Scheme	NE
Waste management		
	National Environmental Standard for Landfill Methane	NE
	Waste Minimisation Fund	NE

*Note:* (1) The estimates of mitigation impacts given for some measures are reductions in kt CO<sub>2</sub> or CO<sub>2</sub> equivalent for 2020. (2) The New Zealand Emissions Trading Scheme (NZ ETS) is assumed to be responsible for the majority of the reported mitigation impact, but its exact effect has not been quantified. This is because the impacts of the NZ ETS are difficult to entirely distinguish from the impacts of other policies.

*Abbreviation:* NE = not estimated.

44. The ERT noted the efforts made by New Zealand to implement the NZ ETS as well as to educate its participants. However, the ERT noted that the design of the scheme and the conditionality of its full implementation by 2015, create uncertainties in relation to the delivery of its estimated emission reductions. The ERT noted the need to monitor the mitigation effect delivered by the NZ ETS, especially in the forestry sector where most emission reductions are expected to occur.

45. New Zealand has described a medium-term target for 2020 (see para. 106 below) of reducing emissions by 5 per cent below 1990 levels by 2020. This target is defined by a number of key strategies related to energy, energy efficiency and transport. The Energy Strategy 2011–2021 and the Energy Efficiency and Conservation Strategy 2011–2016 set a target for electricity generation from renewable energy sources (RES) of 90 per cent by 2025, and aims for energy efficiency savings in the transport sector by improved transport efficiency and alternative technologies. For households, increased energy efficiency leads to warmer, drier conditions in the home, which would result in less ill health and increased productivity. The transport strategy aims for further reduction in CO<sub>2</sub> emissions from land transportation as one of the government actions for the next decade.

46. New Zealand has also described a long-term aspirational target of reducing emissions to 50 per cent below 1990 levels by 2050. While PaMs to reduce emissions to this level have not yet been defined, the ERT noted that New Zealand does have several long-term sectoral strategies in place, such as the New Zealand Energy Strategy and the PaMs taken to reduce the effects of LULUCF. The ERT noted that the fact that the strategies for different sectors set targets with different deadlines may create challenges for coordinated efforts and for the assessment of the contribution of these PaMs to economy-wide medium- and long-term emission reduction targets.

### 3. Policies and measures in the energy sector

47. Between 1990 and 2011, GHG emissions from the energy sector increased by 31.8 per cent (7,485 kt CO<sub>2</sub> eq). The trend in GHG emissions from fuel combustion showed notable increases in transport (62.5 per cent or 5,389 kt CO<sub>2</sub> eq), fugitive emissions (75.5 per cent or 1,026 kt CO<sub>2</sub> eq) and energy industries (8.4 per cent or 503 kt CO<sub>2</sub> eq), mainly owing to increased road transport activities, natural gas production, and public electricity and heat production.

48. **Energy supply.** New Zealand's total primary energy supply (TPES) was 18.2 Mtoe in 2011, 41 per cent higher than in 1990. Of this, renewable energy contributed 37 per cent. The remainder of the primary energy supply was dominated by oil (33 per cent) and gas (19 per cent). Since 1990, the overall energy intensity of the economy improved, in real terms, at an average of 1.4 per cent per year between 1990 and 2011, as GDP growth (71 per cent) was far higher than the growth in TPES.

49. **Renewable energy sources.** The majority of New Zealand's electricity generation comes from renewable sources (76 per cent in 2011). In 2011, hydro generation provided 56 per cent of New Zealand's total electricity, followed by geothermal (14 per cent), wind (4 per cent) and bioenergy (1 per cent). The remaining 24 per cent was provided by fossil fuel thermal generation plants using gas, coal and oil. Due to the abundance of renewable energy, New Zealand's electricity generation emissions per capita are low compared with many other countries. As part of its Energy Strategy 2011–2021, New Zealand has set a target of 90 per cent of electricity generated from renewable energy resources by 2025. This is envisaged to be achieved by ensuring market incentives and the regulatory framework supporting further investment in appropriate renewable energy projects by removing any unnecessary regulatory barriers. There is no government subsidy for new electricity generation in New Zealand, because renewable energy is already considered cost-competitive, however, the NZ ETS is intended to send a clear price signal and create a

competitive advantage for renewable generation. The ERT encourages New Zealand to implement a monitoring system for the further extension of the use of RES in terms of avoided GHG emissions. Under the assumption that the extended energy supply by RES could have been based also on fossil fuel use, the effect could be described as transparent by the application of the national 'fuel-mix' emission factor for fossil energy production to that amount of RES.

50. **Energy efficiency.** Most improvements estimated to be achieved per annum in 2020 are from enhancing energy efficiency in products (through minimum energy performance standards (MEPS), efficient lighting, vehicle fuel economy labelling) and in the residential sector.

51. The key PaM currently in place to promote energy efficiency is the Efficient Products Programme, which includes the development of energy efficiency labels and MEPS for a range of electrical products that are commonly used in the residential, commercial and industrial sectors. In particular, MEPS ensure that the most inefficient products are not available for sale and that products are labelled to provide energy efficiency information. Compulsory labelling covers all white goods appliances and heat pumps for sale. Additionally, a voluntary product labelling scheme (ENERGY STAR) was launched in 2005 and has been awarding labels to the most energy-efficient products on the market.

52. New Zealand's energy efficiency programmes focus on consumers and on businesses. Its business programmes address both the commercial and industrial sectors. Its energy efficient products and transport span both sectors. Business programmes address areas such as efficient lighting, commercial buildings, motorized industrial systems and process heat, and business transport. In the consumer focused programmes, the ENERGYWISE homes programme provides information and funding support to reduce energy consumption. All programmes are underpinned by the provision of information, in particular through the Energy Spot television campaign, which raises awareness of the benefits of energy efficiency.

53. Eleven government agencies are responsible for the promotion of energy efficiency, with EECA working as the government's primary programme delivery agency in the area of energy efficiency improvement, leading many programmes and projects. The other agencies involved include the Ministry of Business Innovation and Employment, the Ministry for the Environment and the Electricity Commission.

54. **Residential and commercial sectors.** In 2011, these two sectors accounted for 8.7 per cent of the fossil fuel used for combustion in New Zealand. The PaMs addressing these subsectors cover all programmes aimed at energy efficiency improvements, such as building insulation (Warm Up New Zealand: Heat Smart) and the reduction of energy consumption (ENERGYWISE homes). The effect of the PaMs on the Warm Up New Zealand: Heat Smart Programme has been estimated to ensure an emission reduction by 2020 of 20 kt CO<sub>2</sub> eq annually.

55. New Zealand considers the programme Warm Up New Zealand: Heat Smart as one of its success stories. Up to the end of September 2013, the programme has delivered 235,000 insulation retrofits of houses. The Government of New Zealand allocated almost NZD 350 million in total to this programme from 2009 to 2013. In May 2013, the government took the decision to continue to support the retrofitting of houses by the implementation of a new programme called 'Warm Up New Zealand: Healthy Homes'. This new programme was equipped with financial resources of NZD 100 million for a three-year period. It is expected that an additional 46,000 houses could benefit from this support. The programme targets low-income households, particularly those with greater health-care needs. The ERT commends New Zealand for this additional programme and

encourages the Party to implement a monitoring activity for this programme to assess its effects.

56. The Efficient Lighting Programme, which addresses both residential and commercial lighting, is estimated to achieve significant GHG emission reductions in the residential and commercial sectors. Other programmes also address energy use in commercial buildings through a combination of design, construction and energy management advice, audits and monitoring, and grants and loans for implementation. There is also a voluntary commercial building energy performance rating scheme.

57. **Transport sector.** Transport is still the largest and fastest-growing energy-consuming sector in New Zealand. During the period 1990–2011, GHG emissions from transport increased by 62.5 per cent, amounting to 19.2 per cent of total national GHG emissions in 2011. The transport related emissions are dominated by emissions caused by road transportation (89.7 per cent). In 2011, the energy use in road transportation accounts for 89.9 per cent of total energy use by transport, followed by 7.2 per cent in civil aviation, 1.8 per cent in navigation and 1.1 per cent in railways.

58. New Zealand considers the NZ ETS, which has covered the transport sector since 1 July 2010, as the main GHG reduction measure for this sector. The New Zealand Transport Strategy (updated in 2011) sets the overarching goal of an effective, efficient, safe, secure, accessible and resilient transport system that supports the growth of the country's economy. The strategies on energy, energy efficiency and transport add a focus on energy efficiency. They include activities for investment in the state highway network to increase the efficient movement of people and freight (roads of national significance and the state highway design, construction and operation activities). In addition, they highlight the potential to reduce energy use in urban areas (the model community programme).

59. The PaMs related to increased vehicle efficiency (vehicle fuel economy labelling, Fleet Best Practice Programme, Heavy Vehicle Fuel Efficiency Programme and the high productivity motor vehicle (HPMV) activities) are designed to provide more information to people and companies, to improve fleet management and monitoring, to provide training in fuel-efficient and safe driving, to provide expert advice and financial support to companies, and to perform fleet audits. The activities related to HPMVs are aimed at reducing the number of truck movements and the number of trucks by increasing the number of permitted trucks that exceed previous length and weight standards.

60. Over the period 2008–2014, the Government of New Zealand has allocated NZD 42 million for research and innovation into biofuels. Recently – after being focused initially on first generation biofuels – the focus has shifted to advanced (second generation) biofuels. The production of these new fuels will be based on the treatment of forestry waste. The results are expected to reflect better country specific circumstances for the future because the planting area for biomass is limited. Other PaMs are focused on support for the implementation of electric vehicles and the establishment of intelligent transport systems to improve traffic management and efficiency across all modes of transport.

61. Out of all of the PaMs implemented in transport, only the effect of the vehicle fuel economy labeling scheme is assessed as having the potential to reduce New Zealand's CO<sub>2</sub> emissions in 2020 by approximately 43 kt CO<sub>2</sub> eq annually. For all other activities, the effect of the PaMs has not been quantified. The ERT, therefore, encourages New Zealand to closely monitor GHG emissions from the transport sector in order to improve the transparency of reporting and to track the progress towards achieving its GHG emission reduction target.

62. New Zealand is highly dependent on activities in international transportation. Almost all passenger travel to and from New Zealand is by air, and aviation is essential for exporting time-sensitive goods, including horticultural and seafood products.



New Zealand's geographical remoteness, coupled with its economically important international tourism, mean that addressing international aviation emissions is a key concern for New Zealand. Airways New Zealand (New Zealand's air navigation service provider) is working together with the air navigation service providers of other countries to improve energy efficiencies on international or long-haul routes through the Asia-Pacific Initiative to Reduce Emissions.

63. International shipping carries the vast majority of New Zealand's imported and exported goods, and shipping is also relied upon to transport freight domestically between the North and South Islands. The NC6 notes that the government plays an active role within the Environment Protection Committee of the IMO and that a joint interdepartmental project is investigating methods of calculating GHG emissions from international shipping.

64. **Industrial sector.** The main type of energy used in the industrial sector is electricity. Another type of energy used is fuels, including biomass (41.2 per cent), gaseous fuels (31.8 per cent), solid fuels (15.1 per cent) and liquid fuels (11.9 per cent). The programmes implemented (grants, audits, technology improvements) aim to improve energy efficiency in the industrial sector.

#### 4. Policies and measures in other sectors

65. Between 1990 and 2011, GHG emissions from industrial processes (including solvent and other product use), agriculture and waste sectors increased by 15.7 per cent (5,692.77 kt CO<sub>2</sub> eq), mainly owing to a growth in emissions from agriculture as well as from metal production, and the consumption of hydrofluorocarbons (HFCs). The GHG emissions trend from the different sectors included here is provided in the following paragraphs. In general, the effects of PaMs implemented by the Government of New Zealand are mostly not quantified in terms of their effect on the emission level.

66. **Industrial processes.** Between 1990 and 2011, GHG emissions from the industrial processes sector increased by 60.5 per cent (2,051.81 kt CO<sub>2</sub> eq), mainly owing to a growth in emissions from metal production and the consumption of HFCs.

67. This sector has been covered by the NZ ETS since 1 July 2010 (synthetic gases from 1 January 2013). The NZ ETS is the principal PaM through which GHG emission reductions are expected.

68. **Agriculture.** Between 1990 and 2011, GHG emissions from the agriculture sector increased by 12.2 per cent (3,728.26 kt CO<sub>2</sub> eq), mainly owing to an increase in emissions from enteric fermentation from livestock and N<sub>2</sub>O emissions from agricultural soils.

69. New Zealand's PaMs in the agriculture sector include the NZ ETS, and the provision of information and support for research and development programmes to reduce GHG emissions, and enhance the introduction of nitrification inhibitors as well as sustainable land management.

70. Emissions from the agriculture sector covered under the NZ ETS are CH<sub>4</sub> and N<sub>2</sub>O emissions from biological sources. The mandatory reporting of CH<sub>4</sub> and N<sub>2</sub>O emissions by potential NZ ETS participants started in 2012. The government has indicated that the start date for surrendering obligations in the agriculture sector will depend on the availability of economically viable and practicable technologies, the progress by New Zealand's trading partners on tackling their emissions in general, and on developments in international climate change policy. The ERT noted the risks associated with the uncertainty of implementing the NZ ETS for the agriculture sector.

71. New Zealand supports research and development activities, both domestic and international, to develop measures to reduce GHG emissions from agriculture. It provides increasing financial support to agricultural GHG mitigation research under the Global

Research Alliance on Agricultural Greenhouse Gases, in addition to the funding already committed to the national Agricultural Greenhouse Gas Research Centre. Currently, approximately 40 countries have joined the alliance. The aim of this centre is to combine international research in the area of cropland, livestock and 'paddy' rice. It also focuses on the building of capacity and capability worldwide. The establishment of this centre is the key programme under the Primary Growth Partnership, focusing on the identification and selection of high- and low-methane-producing sheep, working on the partial sequencing of several methanogen genomes to aid in the development of a vaccine for methane reduction in enteric fermentation and the testing of possible methanogen inhibitors.

72. New Zealand has developed a Sustainable Land Management and Climate Change Plan of Action research programme, which implements research activities on farm-level GHG reporting. It has developed a budgeting tool called 'Overseer' to provide farmers with information on nitrogen-use efficiency and nitrate leaching as well as on the calculation of farm-level GHG emissions. The plan is further focused on national nitrification inhibitor research (dicyandiamide), improvements in country-specific emission factors (EFs) and the development of GHG footprinting methodologies.

73. The ERT commended New Zealand for the research collaborations and initiatives undertaken 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. The ERT – taking into account the priority of agricultural emissions – reiterates its encouragement to New Zealand to enhance the transparency and completeness of its reporting by providing information on the effect of each PaM.

74. **LULUCF.** The LULUCF sector was a net sink of 13,540.19 kt CO<sub>2</sub> eq in New Zealand in 2011 and net GHG removals decreased by 51.8 per cent since 1990 (28,112.69 kt CO<sub>2</sub> eq). The trend was mainly driven by deforestation, and rates of harvesting, afforestation and reforestation.

75. New Zealand's main policy instrument to reduce emissions from deforestation and encourage afforestation beyond 2012 is the NZ ETS. In addition, New Zealand has already established three major schemes that promote afforestation and provide incentives to maintain forests. The Ministry for Primary Industries is responsible for developing forestry-related policy.

76. Forests in New Zealand (excluding pre-1990 natural forests) have been included in the NZ ETS since 1 July 2008, with forest landowners as participants. Under the NZ ETS, forests are grouped into 'pre-1990 planted forest' and 'post-1989 forest' (including exotic plantations and regenerating natural forests). Owners of 'pre-1990 planted forest' are mandatory participants in the NZ ETS if they deforest more than 2 ha of this forest type in any five-year period. Owners of 'post-1989 forest' may voluntarily participate in the NZ ETS where they can claim credit for growth in their forests from 1 January 2008. The effect of the NZ ETS – after its modification in 2012 and the connected price effect – on the forestry sector is not reported in the NC6.

77. The three major PaMs in this sector, apart from the NZ ETS, are the East Coast Forestry Project (since 1992), the Afforestation Grant Scheme (since 2008) and the Permanent Forest Sinks Initiative (since 2008). Under the East Coast Forestry Project, at the time of the NC6 review, around 40,000 ha of forest had been planted. The Afforestation Grant Scheme offers an alternative to the ETS for landowners with small tracts of forest. Up to the review of the NC6, 12,500 ha of forests have been established under this specific grant scheme. Under the Permanent Forest Sinks Initiative, the establishment of permanent forests on previously non-forested land is encouraged. At the time of the review, more than 18,000 ha were covered. The effect of these three PaMs is quantified to be approximately

637 kt CO<sub>2</sub> eq per year by 2040. Quantification on the current progress and the effects by 2020 is not provided.

78. The ERT encourages New Zealand to improve the transparency of its reporting of PaMs in the LULUCF sector by monitoring and evaluating the effect of the ETS and other PaMs on the sector, and to report on the outcome in its next national communication.

79. **Waste management.** Between 1990 and 2011, GHG emissions from the waste sector decreased by 3.6 per cent (73.66 kt CO<sub>2</sub> eq). This reduction occurred mostly in the 'solid waste disposal on land' subcategory as a result of initiatives to improve solid waste management practices and increase the rate of landfill gas capture in New Zealand. It is mainly driven by two specific measures: the National Environmental Standard for Landfill Methane (2004) and the Waste Minimisation Act, which was adopted in 2008. The Waste Minimisation Act requires territorial authorities to adopt a waste management and minimization plan and introduced a levy (NZD 10/t of waste) on waste disposal. The revenue from the levy is used to support actions on waste minimization at the central and regional levels. Since 2012, the waste sector (landfills) is also covered by the NZ ETS.

80. Until now, in the waste sector, the effect of measures is only estimated for the implemented National Environmental Standard for Landfill Methane. As result of the effective management of discharges of GHGs, the cumulative emissions of 1,640 kt CO<sub>2</sub> eq have been avoided by the end of 2012. It is estimated that this measure will avoid approximately 502 kt CO<sub>2</sub> eq annually by 2020.

81. As part of the monitoring and evaluation process of the implemented PaMs, the Waste Minimisation Act requires the minister for the environment to review the effectiveness of the levy every three years. The next review will take place in 2014. The ERT commends New Zealand for introducing such review of effectiveness but reiterates the encouragement to focus more on the quantification of the effects of PaMs. In addition, the ERT noted that the effect of increased tourism on the waste sector has not yet been analysed, but territorial authorities that are impacted by tourism will undertake some analysis at the local level.

## **5. Policies and measures related to implementation of commitments under the Kyoto Protocol**

82. New Zealand reported on its package of implemented PaMs to achieve its commitment under the Kyoto Protocol. New Zealand does not include reporting on adopted and planned PaMs to indicate further reduction potentials for GHG emissions. The NC6 includes all of the information required by the guidelines.

83. However, the NC6 includes limited information on how New Zealand promotes and implements the ICAO/IMO decisions to limit emissions from aviation and marine bunker fuels. The information in its NC6 indicates that the government plays an active role within the Maritime Environment Protection Committee of the IMO and that a joint interdepartmental project is investigating methods for calculating emissions from international shipping. The ERT reiterates its recommendation that New Zealand further increase transparency in its next national communication by reporting the steps it has taken to promote and/or implement any decisions by the ICAO and the IMO in order to limit or reduce emissions of GHGs not controlled by the Montreal Protocol.

84. In its NC6, New Zealand reported information on how it strives to implement PaMs under Article 2 of the Kyoto Protocol in such a way as to minimize adverse effects, including the adverse effects of climate change and effects on international trade and social, environmental and economic impacts, on other Parties, especially developing country Parties. The main measures are public consultation processes and intergovernmental consultations, and are focused broadly on the Pacific region. Further information on how

New Zealand strives to implement its commitments under Article 3, paragraph 1, of the Kyoto Protocol in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties, as reported in the 2013 annual submission, is presented in chapter III.B below.

85. The NC6 underlines that the Government of New Zealand has established the New Zealand Aid Programme,<sup>6</sup> has regular official development assistance talks with partner country governments, at which partners have the opportunity to raise concerns about any impacts and to ask for priority assistance to deal with those impacts. Based on these discussions, New Zealand works closely with the partner country to prepare a country strategic framework for development. These engagement frameworks are relatively long term (five or ten years) and convey New Zealand's development assistance strategy in each country in which it provides aid. They are aligned to the priorities and needs of the partner country, while also reflecting New Zealand's priorities and policies.

### **C. Projections and the total effect of policies and measures, including information on complementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol**

86. In its NC6, New Zealand has presented comprehensive and well-organized information on projections of its GHG emissions. In addition, its NC6 provides references to source documents that include more detailed information on projections. New Zealand produces an annual projection of progress towards meeting its commitment under Article 3, paragraph 1, of the Kyoto Protocol. The longer-term projections are updated every one to two years, depending on the availability of new data.

87. The ERT commends New Zealand for improving the structure and enriching the content of the projections section of its NC6 compared to its NC5. The ERT also commends the Party for its prompt and effective response to the request for additional information during the review.

#### **1. Projections overview, methodology and key assumptions**

88. The GHG emission projections provided by New Zealand in the NC6 include a 'with measures' and a 'without measures' scenario until 2030, presented relative to actual inventory data for 1990, 1995, 2000, 2005, 2010 and 2011. Projections are presented on a sectoral basis, using the same sectoral categories used in the PaMs section and on a gas-by-gas basis for the following GHGs: CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, perfluorocarbons (PFCs), HFCs and sulphur hexafluoride (SF<sub>6</sub>) (treating PFCs and HFCs collectively in each case). Projections are also provided in an aggregated format for each sector as well as for a national total, using global warming potential (GWP) values. Emission projections related to fuel sold to ships and aircraft engaged in international transport were reported separately and not included in the totals.

89. The ERT noted that the NC6 does include all of the information related to projections required by the guidelines, with the exception of the total effect of implemented PaMs for the years before 2020. This information was presented by the Party during the review. The ERT recommends that New Zealand provide an estimate of the total effect of implemented PaMs for historic years in accordance with the UNFCCC reporting guidelines on NCs in its next national communication.

90. In its NC6, New Zealand has defined the 'with measures' scenario as including the effect of New Zealand's quantifiable climate change policies; specifically, it includes the

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<sup>6</sup> <<http://www.aid.govt.nz>>.

effect of the NZ ETS for the energy, industrial processes, waste and forestry sectors, the afforestation grant schemes, and the National Environmental Standard for Landfill Methane. The ERT noted that from the description in the NC6, it is not clear which individual policies and measures reported in the PaMs section of the NC are included in the projections. During the review, considering the additional information provided by the Party, the ERT noted that the ‘with measures’ scenario reflects the mitigation impact of existing PaMs, but not the effect of recently adopted policies. For example, regarding the energy sector, it includes the autonomous improvements in energy efficiency based on historical record, while no explicit assumptions are made to capture future improvements in energy efficiency due to PaMs beyond the autonomous improvements.

91. With regard to the IP sector, the scenario does not include the effect of NZ ETS on bulk importers of HFCs and PFCs, and the users of SF<sub>6</sub>, and the levy that has been imposed on imported goods and motor vehicles containing HFCs and PFCs since 1 July 2013. In the waste sector, the influence of NZ ETS on the amount of methane recovered from landfills and the effect of the waste levy were not included in projections. During the review, the Party explained that with regard to the new surrender obligations under the NZ ETS (e.g. waste sector and fluorinated gases) their effect has not yet been evaluated and has therefore not been included in the projections. The ERT encourages New Zealand to evaluate the effect of these PaMs based on the GHG inventories of subsequent years and include them in the projections. The ERT also recommends that the Party improve the transparency of its reporting of the ‘with measures’ scenario by indicating which individual policies and measures reported in the PaMs section of the NC are included in the projections.

92. According to New Zealand’s definition of the ‘without measures’ scenario, this scenario includes the effects of the same measures as the ‘with measures’ scenario, with the exception of the modelled effect of the NZ ETS from the energy, transport, waste and forestry sectors, the effect of new forest planting resulting from government afforestation schemes, as well as the effect of the landfill gas standard on waste emissions. The ERT noted that this definition is not in accordance with the UNFCCC reporting guidelines on NCs, as it does not exclude all PaMs implemented, adopted or planned after the year chosen as the starting point for this projection. During the review, the Party explained that the starting year of the ‘without measures’ scenario is 2008, which is also the starting year of the NZ ETS. The ERT encourages New Zealand to improve the transparency of the definition of the ‘without measures’ scenario by entitling it as a ‘business as usual’ or ‘reference’ projection scenario, and by clearly specifying the measures that are included in the projections.

93. New Zealand’s emission projections are produced by a cross-government technical group led by the MfE. Agricultural emissions and net removals from forests are projected by the MPI. Emissions from stationary energy and transport, and CO<sub>2</sub> emissions from industrial processes are projected by the MBIE. Projections of emissions from the waste sector and emissions of fluorinated gases are completed by the MfE. In addition, the MfE leads a cross-departmental group – the Reporting Governance Group – comprised of the departments and agencies involved in the production of the GHG inventory and the emissions projections. This group provides an overarching level of governance across the reporting sector, including agreeing on QA and QC standards. Moreover, the ERT noted that the projections related to the first commitment period to the Kyoto Protocol and the methodology used by New Zealand has been externally reviewed by international consultants in 2005, 2007 and 2010. The ERT is of the view that the institutional arrangements for the preparation of projections of New Zealand ensure the high quality of projection scenarios and their ongoing improvement.

94. The methodology used to prepare the projections is briefly covered in the NC6. Multiple sector-specific models are prepared and maintained by different national

ministries. The main model used for projections of GHG emissions from energy is the supply and demand equilibrium model (SADEM), which is a partial equilibrium model run in conjunction with more detailed subsector models for electricity, oil and gas production, and transport. The key assumptions of the energy sector are the GDP growth rate, the NZ ETS carbon price, fuel prices, the currency exchange rate, gas supply from new discoveries and the population. During the review, New Zealand informed the ERT of a new decision by its government to disallow international units in NZ ETS after 2015. The ERT noted that this decision should be reflected in the assumptions of the NZ ETS carbon prices.

95. The main model used for projections of agriculture activity is the pasture supply response model (PSRM), which projects animal numbers and animal performance (milk yield and animal weight), the key drivers of emissions from agriculture. These are forecasted 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 analysis and advanced models used for the projections of the agriculture sector.

96. During the review, the Party provided additional assumptions – factors and activities that have been used for the projections of emissions from road transport (fleet size, engine technology and energy intensity per type of vehicle) and the agriculture sector (commodity prices of agricultural products and the days of soil moisture deficit) – which were not included in the NC6. The ERT recommends New Zealand to improve the transparency of its reporting of the factors and activities by including these key assumptions in the next projections submission (biennial report (BR) or NC).

97. The projections for the LULUCF sector are calculated using methodologies consistent with those used for the NIR 2013 and projections cover 98 per cent of LULUCF emissions and removals (forest and grassland sectors). Given the high sensitivity of forestry projections to underlying assumptions, three 'with measures' scenarios were presented in the NC6 that represent low, midpoint and high emissions. The three forestry scenarios incorporate assumptions to address uncertainties relating to future rates of afforestation, deforestation, harvesting rates, rotation ages and carbon prices. Moreover, natural forests are considered to be in a steady state with respect to CO<sub>2</sub> emissions. The forestry projections are backdated to 2008 because the final levels of deforestation, harvesting and afforestation from 2008 to 2012 will only be confirmed once New Zealand's mapping is completed in 2013, and then included in New Zealand's 2014 NIR.

98. During the review, the Party provided some preliminary draft conclusions from the mapping completed in 2013, as follows: deforestation areas have increased from those used in the 2011 NIR with the final area deforested from 2008 to 2012 likely to be between the midpoint and the high emissions scenario presented in NC6; afforestation areas are very close to the actual level of afforestation that will be reported in the 2014 NIR submission; preliminary analysis indicates that natural forests are a small carbon sink on a per hectare basis. The ERT noted, however, that due to the large area of natural forests in New Zealand – around 80 per cent of its forests – even this slight increase in their sinking capacity may have a material effect on removals of the forestry sector.

99. The projections of fluorinated gases are based on historical trends. The ERT noted that the 2011 emissions from fluorinated gases are not consistent both with the past emissions (1990–2010) and projections. During the review, the Party explained that the sharp increase in the consumption of fluorinated gases in 2011 may have been a result of stockpiling ahead of the inclusion of fluorinated gases in the NZ ETS and the Synthetic Greenhouse Gas levy in 2012. The ERT encourages New Zealand to explore whether the

increased emissions in 2011 is indicative of a longer-term trend and report accordingly in the next projections submission (BR and NC).

100. 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 is not taken into account in the future levels of solid waste disposal per capita. The ERT encourages the Party to update the projections in its next BR/NC submission by using a decreasing waste disposal per capita ratio that takes into account the waste sector mitigation policies.

101. Apart from the LULUCF sector (see para. 97 above), in the NC6, a sensitivity analysis is also reported for the projections of the energy sector compared with the carbon price. The results show that New Zealand's energy emissions are less sensitive to changes in carbon prices than to other key assumptions. The ERT encourages the Party to perform and report in its next projections submission a sensitivity analysis of the other key assumptions of the energy sector such as the GDP growth and climatic effects on hydroelectric generation.

102. The projections of emissions from the agriculture sector do not include the effect of the scientific research programmes and initiatives described in section 4 of the NC6, because the effectiveness of a science programme cannot be estimated until the research is completed, reviewed and implemented. Moreover, the uncertainties of the economic circumstances of the agricultural industry, which are largely driven by overseas markets, may have a significant impact on projections. The ERT encourages New Zealand to prepare and report in its next projections submission a sensitivity analysis of the agriculture sector related to the potential effects of scientific research and economic factors in overseas markets.

103. The approach, assumptions and institutional arrangements in place to prepare GHG emission projections are consistent with those used in the NC5. The main changes between the NC6 and the NC5 resulted from the lower carbon price and population growth, the higher international crude oil prices, and emissions from fluorinated gases assumed in the NC6. The changes in the agriculture emissions were influenced by the recent droughts in 2007–2008 and 2010, and by numerous improvements in New Zealand's GHG inventories that related to the improvement of activity data and the country-specific model and EFs. The LULUCF projections were changed due to a significant improvement in activity data and EFs since 2009. The calculation of projected waste emissions have been also improved, especially the emissions from solid waste disposal sites and industrial wastewater treatment.

104. Although the differences between the total emissions without and with LULUCF for 2020 in the NC6 and the NC5 are relatively minor (0.4 and –4.8 per cent, respectively), the difference in the forestry sector was –214.2 per cent for 2020. However, the cumulative forestry emissions and removals from 2008 to 2020 present a marginal difference between the two submissions. The ERT encourages New Zealand to increase the transparency of the presentation of the differences between the two most recent NCs by including diagrams and tables that compare the emissions of the sectors that undergo significant changes in the two NCs.

## **2. Results of projections**

105. According to the information reported in its NC6, New Zealand is expected to meet its Kyoto Protocol target for the first commitment period and have a surplus of 29.6 Mt CO<sub>2</sub> eq compared with this target. During the review, the Party provided an update on the

surplus for the first commitment period, which is estimated to be around 78 Mt CO<sub>2</sub> eq. This surplus would be achieved by domestic actions, the contribution of activities under Article 3, paragraph 3, of the Kyoto Protocol, which are estimated to offset about 77.2 Mt CO<sub>2</sub> eq of emissions during the first commitment period, and international carbon credits (certified emission reductions (CERs), emission reduction units (ERUs) and removal units (RMUs)) surrendered via the NZ ETS, which are currently approximately equivalent to 60 Mt CO<sub>2</sub> eq in the government account.

106. New Zealand does not have a target for the second commitment period of the Kyoto Protocol. Under the Convention, New Zealand has announced two economy-wide emission reduction targets for 2020: an unconditional target of 5 per cent below 1990 by 2020 (which is equivalent to a quantified emission limitation and reduction objective (QELRO) of 96.8 per cent on 1990 emissions over 2013–2020), and a conditional target of between 10 and 20 per cent below 1990 levels by 2020. The conditional target relates to a global agreement including specific requirements regarding the framework of the agreement and contributions of Parties. New Zealand's targets under the Convention are based on Kyoto Protocol accounting rules, including those agreed in Durban, South Africa, in 2011 for the land sector. For 2013–2020, New Zealand will calculate the contribution of LULUCF using the activity-based approach using Kyoto Protocol rules for activities under Article 3, paragraph 3, of the Kyoto Protocol (afforestation, reforestation and deforestation), and under Article 3, paragraph 4 (forest management).

107. The ERT noted information reported by New Zealand on projected emission trends by 2020. According to the reported information, the projected emission levels without LULUCF are 29.2 per cent above the base year by 2020, while the target is 5.0 per cent below the base year. The ERT also noted that based on the information presented in its NC6, it is not possible to assess whether New Zealand expects to achieve its unconditional target for 2013–2020, because of the following reasons: the projections of activities in the forestry sector are aggregated, and not reported separately for the activities under Article 3, paragraph 3, and elected activities under Article 3, paragraph 4, of the Kyoto Protocol (afforestation and reforestation, deforestation and forest management); the projections of the forestry sector were not prepared according to the Kyoto Protocol accounting rules, agreed in Durban, for the land sector (e.g. to include forest management reference level (FMRL), harvested wood products (HWP)) and the GWPs of the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report, but under land sector reporting rules and GWPs consistent with the national GHG inventory, as required by the reporting guidelines; and the reported forestry projections are based on 2008–2011 data, which are provisional and will be confirmed once New Zealand's 2012 land-use mapping will be completed and assessed (refer to para. 97 above).

108. During the review, the Party explained that the projections of emissions/removals from forest management under Article 3, paragraph 4, of the Kyoto Protocol are expected to be very close to the FMRL. The Party expects that the HWP rule will affect the projections of emissions/removals from the post-1989 forests included in Article 3, paragraph 3, of the Kyoto Protocol after 2018, based on a 28-year harvesting rotation cycle. During the review, New Zealand also provided a detailed analysis related to the accomplishment of its unconditional target, which takes into account, as far as possible, the effect of the HWP rule and the flexible land-use rule. According to this analysis, New Zealand expects to meet its unconditional target. The surplus of units from the first commitment period to the Kyoto Protocol and the Article 3, paragraphs 3 and 4 activities are estimated to contribute 15 and 17 per cent, respectively, to the accomplishment of this target. The ERT commends the Party for this detailed analysis and encourages New Zealand to include it in its next submission along with a more detailed presentation of the projections of the forestry sector (e.g. emissions breakdown by different activities).



109. The ERT noted that the achievement of the unconditional target is strongly dependent on the contribution of the forestry sector. However, the projections of emission from forestry are highly uncertain since they are dependent on highly uncertain factors such as the carbon price, land use economics, international log prices and forest owner behaviour.

110. In its NC6, New Zealand did not provide a projections scenario indicating the pathway to achieve its conditional 2020 target under the Convention and the longer-term 2050 target, which should be directly linked with a set of additional planned PaMs. The ERT encourages the Party to report in its next projections submission (BR or NC) a ‘with additional measures’ scenario, which could indicate the trajectory of emissions, along with information about key factors and activities for meeting these targets. The ‘with additional measures’ scenario should be directly linked with the additional planned PaMs that would be needed to achieve the conditional 2020 target and the long-term target of 50 per cent reduction in emissions below 1990 levels by 2050.

111. The overall GHG emissions of New Zealand, excluding LULUCF, are expected to increase from 59.75 Mt CO<sub>2</sub> eq in 1990 to 77.22 Mt CO<sub>2</sub> eq in 2020 and 82.24 Mt CO<sub>2</sub> eq in 2030 in the ‘with measures’ scenario. Emissions are expected to increase in all sectors compared with 1990 levels: energy (excluding transport) by 20 per cent in 2020 and 23 per cent in 2030 due to increased demand for electricity to be covered by fossil fuel power plants until 2020, and afterwards by renewables and gas-fired plants; transport by 72 per cent in 2020 and 84 per cent in 2030 due to growth in the heavy vehicle transport of freight; industrial processes and solvents by 56 per cent in 2020 and 78 per cent in 2030, due to the increased use of fluorinated gases; and agriculture by 21 per cent in 2020 and 29 per cent in 2030, due to increased animal productivity and nitrogen fertilizer use. The ‘without measures’ scenario leads to very similar results, which is explained by the scenario definition applied by New Zealand (see para. 92 above)

112. Assuming the midpoint emission projection scenario (see para. 97 above), New Zealand’s forestry sector is likely to temporarily be in transition from a net sink to a net source of CO<sub>2</sub> between 2017 and 2023 as forests planted in the late 1980s and early 1990s are harvested for timber production. Once the forests are replanted and sequester CO<sub>2</sub>, the forestry sector is expected to revert to a net carbon sink in the late 2030s.

113. The projected emission levels under different scenarios and information on the Kyoto Protocol targets and quantified economy-wide emission reduction target are presented in table 5 and the figure.

Table 5  
**Summary of greenhouse gas emission projections for New Zealand**

	<i>Greenhouse gas emissions (kt CO<sub>2</sub> eq per year)</i>	<i>Changes in relation to the base year<sup>a</sup> level (%)</i>	<i>Changes in relation to the 1990 level (%)</i>
Kyoto Protocol base year <sup>b</sup>	61 913.0	0.0	3.6
Kyoto Protocol target for the first commitment period (2008–2012)	61 913.0	0.0	3.6
Quantified economy-wide emission reduction target under the Convention <sup>c</sup>	57 834.4	–5.0	–3.2
Inventory data 1990 <sup>d</sup>	59 746.2	–3.5	0.0
Inventory data 2011 <sup>d</sup>	72 923.5	17.8	22.1
Average annual emissions	72 626.2	17.3	21.6

	Greenhouse gas emissions (kt CO <sub>2</sub> eq per year)	Changes in relation to the base year <sup>a</sup> level (%)	Changes in relation to the 1990 level (%)
for 2008–2011 <sup>d</sup>			
‘Without measures’ projections for 2020 <sup>e</sup>	77 655.4	25.4	30.0
‘With measures’ projections for 2020 <sup>e</sup>	77 218.3	24.7	29.2
‘Without measures’ projections for 2030 <sup>e</sup>	82 548.3	33.3	38.2
‘With measures’ projections for 2030 <sup>e</sup>	82 244.2	32.8	37.7

<sup>a</sup> Base year in this column refers to the base year used for the target under the Kyoto Protocol, while for the target under the Convention it refers to the base year used for that target.

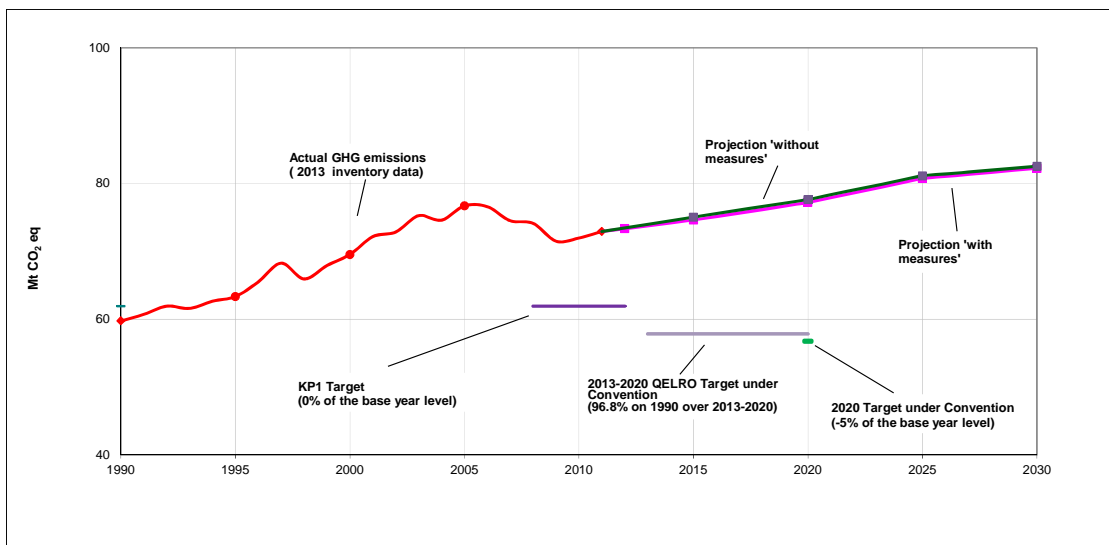
<sup>b</sup> Based on the initial review report contained in document FCCC/IRR/2007/NZL.

<sup>c</sup> According to New Zealand, the unconditional target of 5 per cent below 1990 levels by 2020, tabled under the Convention is equivalent to a quantified emissions limitation or reduction objective of 96.8 on 1990 emissions in 2013–2020.

<sup>d</sup> New Zealand’s 2013 greenhouse gas inventory submission; the emissions are without land use, land-use change and forestry (LULUCF).

<sup>e</sup> New Zealand’s sixth national communication and/or first biennial report.

### Greenhouse gas emission projections



Sources: (1) Data for the years 1990–2011: New Zealand’s 2013 September greenhouse gas inventory submission; the emissions are without land use, land-use change and forestry; (2) Data for the years 2012–2030: New Zealand’s sixth national communication and/or first biennial report; the emissions are without land use, land-use change and forestry.

Note: According to the information reported in its sixth national communication, New Zealand is expected to meet its Kyoto Protocol target for the first commitment period (see para. 105 above).

Abbreviations: GHG = greenhouse gas, KP1 target = Kyoto Protocol target for the first commitment period, QELRO = quantified emission limitation and reduction objective.

### 3. Total effect of policies and measures

114. In the NC6, New Zealand presents the expected total effect of implemented and adopted PaMs in terms of GHG emissions avoided or sequestered per sector for 2020 and 2030. Although the total effect of PaMs is not explicitly reported by gas (on a CO<sub>2</sub> eq basis), as required by the reporting guidelines, the information reported in the respective section of the NC6 is sufficient to show that the effect of PaMs of the energy, transport and forestry sectors is associated with CO<sub>2</sub> emissions and those of the waste sector with CH<sub>4</sub> emissions.

115. The total effect of PaMs is estimated by comparing the projected emissions between the ‘with measures’ and ‘without measures’ scenarios. New Zealand reported that the total estimated effect of adopted and implemented PaMs is 9,810 kt CO<sub>2</sub> eq and 3,624 kt CO<sub>2</sub> eq for 2020 and 2030, respectively. According to the information reported in the NC6, PaMs implemented in the forestry sector will deliver the largest emission reductions, followed by the effect of PaMs implemented in the waste sector. The contribution of the energy and transport sectors to the total effect of PaMs is estimated to be minor, while the effect of PaMs in the IP and agriculture sectors was not estimated. The most effective PaMs and drivers behind GHG emission reductions are described in chapter II.B above. Table 6 provides an overview of the total effect of PaMs as reported by New Zealand.

Table 6  
**Projected effects of implemented, adopted and planned policies and measures in 2020 and 2030**

Sector	Effect of implemented and adopted measures	Relative value (% of 1990 emissions)	Effect of planned measures	Relative value (% of 1990 emissions)	Effect of implemented and adopted measures	Relative value (% of 1990 emissions)	Effect of planned measures	Relative value (% of 1990 emissions)
	(kt CO <sub>2</sub> eq)		(kt CO <sub>2</sub> eq)		(kt CO <sub>2</sub> eq)		(kt CO <sub>2</sub> eq)	
	2020				2030			
Energy (without GHG from transport)	50.9	0.3	NA	–	48.9	0.3	NA	–
Transport	6.2	0.1	NA	–	4.6	0.1	NA	–
Industrial processes	NE	–	NA	–	NE	–	NA	–
Agriculture	NE	–	NA	–	NE	–	NA	–
Land-use change and forestry	9 372.9	33.3	NA	–	3 320.2	11.8	NA	–
Waste management	380.0	18.5	NA	–	250.6	12.2	NA	–
<b>Total</b>	<b>9 810.0</b>		<b>NA</b>		<b>3 624.3</b>		<b>NA</b>	

Source: New Zealand’s sixth national communication.

Note: The total effect of implemented and adopted policies and measures is defined as the difference between the ‘without measures’ and ‘with measures’ scenarios.

Abbreviations: NA = not available, NE = not estimated.

116. The ERT noted that due to the definition of the ‘without measures’ scenario (see para. 92 above), the total effect of PaMs reported in the NC6 does not demonstrate the full impact of New Zealand’s PaMs. The ERT is of the view that the approach followed by the Party to quantify the total effect of PaMs is suitable for the forestry sector, but that for the other sectors a bottom-up approach seems more suitable. During the review, New Zealand explained that it is exploring other approaches (bottom-up approaches as well as computable general equilibrium modelling) to better address the estimation of the total

effect of PaMs. The ERT encourages New Zealand to improve the estimation and reporting of the total effect of PaMs in its next projections submission.

117. The ERT noted that the PaMs chapter in the NC6 includes a range of quantified emission reduction policies for 2020, which were not included in the total effect of PaMs. For example, the estimated effect of the policies: the Efficient Products Programme, ENERGY WISE homes and Vehicle fuel economy labelling is 1,463 kt CO<sub>2</sub> eq and the effect of the National Environmental Standard for Landfill Methane is estimated to be more than the total effect of PaMs from the waste sector. The ERT recommends New Zealand to improve consistency across chapters and the completeness of the total estimated effect of PaMs in its next national communication.

118. According to information reported in the NC5, PaMs implemented in the energy sector, specifically the NZ ETS, would deliver the largest emission reductions among the sectors in 2020 (7.2 Mt CO<sub>2</sub> eq or 60 per cent of the total effect of PaMs) resulting from the phase-out of coal and its replacement by geothermal and wind for electricity generation. However, the total effect of PaMs in 2020 reported in its NC6 is 9.8 Mt CO<sub>2</sub> eq, while the effect of PaMs in the energy sector is minor (50 kt CO<sub>2</sub> eq) compared to its NC5. During the review, the Party explained that in the 'without measures' scenario of its NC6, it is assumed that no additional coal-fired power plant would be built and in the 'with measures' scenario that existing coal generation capacity would be phased out more slowly than in its NC5. The ERT encourages New Zealand to transparently report the differences in the total effect of PaMs between the current and previous NC submissions.

119. The ERT noted that New Zealand did not provide in its NC6 an ex-post analysis of the total effect of PaMs of historic years, which is a requirement according to the reporting guidelines. During the review, the Party explained that currently it does not have the capability to accurately estimate historic emissions for a hypothetical 'without measures' scenario, with the exception of the forestry sector after 2008. During the review, New Zealand provided an estimation of the mitigation effect that the NZ ETS has had on forestry emissions in 2010, which is 4,276.7 kt CO<sub>2</sub> eq. The ERT is of the view that the Party may use a bottom-up approach to estimate at least the effect of PaMs related to RES, fuel switch, energy efficiency and capture of landfill gas, based on historical data of the national energy balance and national GHG inventory. The ERT recommends that New Zealand improve the completeness of its reporting of the total effect of PaMs by including estimations for the historical years in its next national communication.

#### **4. Supplementary relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol**

120. New Zealand, in its NC6 reported that it will not need to use the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol to meet its first commitment period to the Kyoto Protocol target, but it did not define supplementarity as such. During the review, the Party explained that it does not define supplementarity in quantified terms, nor has there been any international agreement that Parties should do so. New Zealand also explained that it has a considerable number of PaMs in place for domestic emissions abatement that target emission reductions across its economy. New Zealand's domestic mitigation in the forestry sector alone is projected to result in a net reduction of 77.2 Mt CO<sub>2</sub> eq over the first commitment period. Furthermore, the units derived from the Kyoto Protocol flexibility mechanisms held by the Government of New Zealand are accrued through the operation of a domestic policy mechanism, the NZ ETS. Therefore, New Zealand assesses that the use of units from Kyoto Protocol mechanisms is supplemental to domestic action.

121. The ERT noted that under the NZ ETS, there is no limitation on the use of international units for participants in the scheme. The eligible international units for the

NZ ETS are CERs, ERUs and RMUs. New Zealand informed the ERT that after 2015 use of international units will not be allowed under the NZ ETS.

122. During the review, New Zealand provided information on the Projects to Reduce Emissions (PRE) Programme. Under this programme, 19 projects were completed, eight of which were granted joint implementation approval. A net reduction of 6.5 Mt CO<sub>2</sub> eq has been achieved during the first commitment period to the Kyoto Protocol and a total of 4.9 million emission units (2.9 ERUs and 2.0 assigned amount units) have been transferred to PRE Programme participants. The projects implemented under this programme were related to cogeneration, geothermal, hydroelectricity, wind generation, and landfill gas capture and energy use. The mitigation effect of these programmes is reflected in the national GHG inventory.

## **D. Provision of financial resources and technology transfer to developing country Parties, including information under Articles 10 and 11 of the Kyoto Protocol**

### **1. Financial resources, including “new and additional” resources and resources under Article 11 of the Kyoto Protocol**

123. In its NC6, New Zealand provided information covering most elements on which information is required under the Convention and its Kyoto Protocol. The NC6 does not include some information required by the guidelines, including a clear indication of which ‘new and additional’ financial resources New Zealand has provided and a clarification on how it has determined such resources as being ‘new and additional’.

124. During the review, New Zealand provided additional information explaining that the reporting period includes the 2010–12 fast-start finance period, and so New Zealand reported significant increases in bilateral assistance for climate outcomes delivered as a contribution to its fast-start finance commitment.

125. In the absence of an internationally agreed definition of what can be counted as ‘new and additional’, New Zealand’s practical approach has been to report all climate-related assistance for that period, noting that climate-related finance accounted for a growing proportion of expenditure within official development assistance (ODA), which also increased over the previous three years. New Zealand believes that this is the most transparent and appropriate way of communicating new resources committed because, in the absence of an agreed definition, any answer as to which resources reported in New Zealand’s NC6 are ‘new and additional’ would vary widely depending on which approach was taken. Considering this explanation, the ERT noted that the Party did not express its climate change related assistance as a proportion of ODA and explained that not all of that assistance necessarily matches the agreed definition of development assistance.

126. New Zealand also provided additional information in relation to its tracking of the effectiveness of its climate change assistance. This included the New Zealand Aid Programme’s Climate Change Operational Policy and the Environmental and Social Impacts Operational Policy. It further provided additional information on its technology transfer assistance such as the Tokelau Renewable Energy Project.

127. The ERT recommends that New Zealand include in its next NC its clarification on how it has determined the reported resources as being ‘new and additional’ and encourages the Party to provide an estimate of New Zealand’s financial assistance under the Convention against its overall ODA to increase transparency and substantiate its clarification of ‘new and additional’.

128. New Zealand improved its reporting in its NC6, following up on the recommendation in the previous review report, by listing the beneficiary countries and sectors in its climate-related assistance. The ERT commends the Party for these improvements. The ERT noted that the transparency of the report could be further improved by presenting an analysis of the assistance in terms of trends, shares and growth; by recipient country/agency and by mitigation and adaptation; and by maintaining some consistency in the order of listing of the recipient countries/regions in the tables of bilateral and regional financial contributions. The ERT, therefore, encourages New Zealand to increase transparency in that regard in its next NC.

129. In its NC6, New Zealand provided details on measures taken to give effect to its commitments under Article 4, paragraphs 3, 4 and 5, of the Convention as required by the UNFCCC reporting guidelines on NCs and under Article 11 of the Kyoto Protocol, as required by the “Guidelines for the preparation of information required under Article 7 of the Kyoto Protocol”.

130. New Zealand has also provided detailed information on the assistance it has made available 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. New Zealand’s total financial assistance for the reporting period was NZD 309 million, of which, 29 per cent was specifically for regional and bilateral activities in the Pacific Island Countries (PICs). In terms of its bilateral assistance, 59 per cent was for PICs. Furthermore, New Zealand has provided information on financial resources related to the implementation of the Convention provided through bilateral, regional and other multilateral channels. In particular, it provided financial resources related to the implementation of the Convention through bilateral, regional and other multilateral channels, including the Global Environment Facility, the World Bank, the Asian Development Bank, the United Nations Development Programme, the World Food Programme, the Secretariat of the Pacific Community and the University of the South Pacific, among others.

Table 7  
**Summary of information on financial resources and technology transfer for 2009–2012**  
 (Million New Zealand dollars)

<i>Allocation channel of public financial support</i>	<i>Years of disbursement</i>			
	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>
Contributions to the Global Environment Facility	2.81	2.19	3.54	2.14
Contributions through multilateral channels	48.20	46.53	48.75	36.82
Contributions through Pacific regional organizations	9.92	14.16	10.92	12.89
Contributions through bilateral channels	5.45	8.95	22.74	32.98

131. Also, New Zealand has provided information on its financial contribution to the Least Developed Countries Fund. With regard to the most recent financial contributions to fast-start finance to enhance the implementation of the Convention by developing countries, New Zealand has already provided NZD 90.34 million and has confirmed that a post fast-start finance contribution will continue at a similar level, with the focus remaining on renewable energy and climate resilience in the Pacific. Table 7 summarizes information on

financial resources and technology transfer. The ERT encourages New Zealand to report its financial assistance in United States dollars in the future.

## **2. Technology transfer, including information under Article 10 of the Kyoto Protocol**

132. New Zealand has provided in its NC6 information on activities related to the transfer of technology. A detailed review of reported information is provided in II.D.3 of the technical report on the review of the first biennial report (TRR/BR1).

133. New Zealand reported activities related to technology transfer, including a successful renewable energy project at Tokelau but no failure stories. During the review, New Zealand provided further information regarding the Tokelau project. The ERT noted that this project was commissioned after 2012 and is therefore only in operation for a few months. Therefore, there is no information on the actual achievements in terms of GHG reduction but only on the planned savings. The ERT also noted that New Zealand has many bilateral projects, of which some started in 2009. The ERT considers that it is feasible for the Party to report on such projects with actual on-the-ground results and recommends that the Party reports such success stories in its next NC. In addition, the ERT encourages New Zealand to collect information on failure stories and report on those in its next NC, where feasible.

134. Furthermore, New Zealand has reported in textual format on the steps taken by its government to promote, facilitate and finance the transfer of technology, and to support the development and enhancement of endogenous capacities and technologies of developing countries. These include bilateral-funded capacity-building activities in adaptation, the Livestock Emissions Abatement Research Network (LEARN) and training on geothermal energy with the Indonesian geothermal industry and the University of Gadjah Mada.

135. The ERT noted that when reporting details of measures related to the promotion, facilitation and financing of the transfer of, or access to, environmentally-sound technologies, New Zealand did not report activities undertaken by the private sector; neither did it provide an indication of how it has encouraged private-sector activities, and how these activities help to meet the commitments of New Zealand under Article 4, paragraphs 3–5, of the Convention. The ERT encourages New Zealand to improve transparency by reporting on activities undertaken by the private sector, where feasible, and how it has encouraged private-sector activities in its next NC.

136. In its NC6, New Zealand has provided information on fulfilment of its commitments under Article 10 of the Kyoto Protocol. New Zealand reported on the formation of the Reporting Governance Group to guide its reporting, modelling and projections of GHG emissions and removals. It has conducted testing of its national registry hosting environment, which was found to be compliant and continues to maintain a climate change website for public access to information.

137. New Zealand continued to cooperate in scientific and technical research and promote the maintenance and development of systematic observation systems. It opened its Agricultural Greenhouse Gas Research Centre in 2010. It continued to play a lead role in the Global Research Alliance on Agricultural Greenhouse Gases and has extended its funding to the Global Research Alliance to 2019. New Zealand continued to support the diffusion, finance and transfer of, and access to, environmentally sound technologies, particularly to the PICs. It has also supported capacity-building activities like LEARN and training on geothermal energy with the Indonesian geothermal industry and the University of Gadjah Mada.

## E. Vulnerability assessment, climate change impacts and adaptation measures

138. In its NC6, New Zealand has provided the required information on the expected impacts of climate change in the country and on adaptation options. Table 8 summarizes the information on vulnerability and adaptation to climate change presented in the NC6.

Table 8  
**Summary of information on vulnerability and adaptation to climate change**

<i>Vulnerable area</i>	<i>Examples/comments/adaptation measures reported</i>
Agriculture and forestry	<p><i>Vulnerability:</i> crop/pasture productivity and persistence, forest productivity, soil ecosystem services, erosion, droughts, extreme winds, floods and frosts, rural water infrastructure, farmer resilience and changing biosecurity risks</p> <p><i>Adaptation:</i> sustainable land management and climate change plan of action; five-year climate change technology transfer programme to promote more resilient farming practices; toolbox to help land managers to respond to climate change; establishment of a nationwide rural support trust programme to help families during and after extreme weather or environmental events; Irrigation Acceleration Fund to help to realize irrigated agriculture’s potential to contribute to sustainable economic growth throughout New Zealand; establishment of Crown Irrigation Investment Limited, which manages funding for investment in construction of regional-scale irrigation schemes</p>
Biodiversity and native ecosystems	<p><i>Vulnerability:</i> high percentage of endemic species, increased pressure from invasive pests as well as pressure from land-use and management changes by other sectors adapting to climate change</p> <p><i>Adaptation:</i> development of a framework for conservation of terrestrial native biodiversity in New Zealand by the Department of Conservation</p>
Coastal zones	<p><i>Vulnerability:</i> increased coastal erosion, more frequent and extensive coastal inundation, increased drainage problems in adjacent low-lying areas, higher storm surge flooding, seawater reaching further inland in estuaries and coastal aquifers</p> <p><i>Adaptation:</i> Coastal Policy Statement to provide policy direction to local government on the management of activities in the coastal environment, including the management of coastal hazards and the effects of climate change; development of a guidance manual for local government on coastal hazards and climate change</p>
Fresh water and glaciers	<p><i>Vulnerability:</i> variable water availability in catchments, more floods in the north, more droughts in the east, risks to water resource infrastructure, higher evaporation rates</p> <p><i>Adaptation:</i> National Policy Statement for freshwater management provides national policy direction to regional councils on freshwater management; drought risk management and mitigation; establishment of an Irrigation Acceleration Fund</p>
Human health	<p><i>Vulnerability:</i> impacts on human health and health infrastructure</p> <p><i>Adaptation:</i> the health analysis and information for action resource system to provide central, regional and local authorities with information to help them formulate responses and adaptive strategies for increasing human health resilience to the infectious disease consequences of climate variation and change</p>
Infrastructure and economy	<p><i>Vulnerability:</i> rural water infrastructure, climate change and trade, primary-sector infrastructure</p>



<i>Vulnerable area</i>	<i>Examples/comments/adaptation measures reported</i>
Marine environment and fisheries	<p><i>Adaptation:</i> National Infrastructure Plan with climate change being reflected in one of the principles (resilience) for infrastructure. A toolbox to support planners, engineers, asset managers and hazard analysts in New Zealand has been developed to understand and evaluate the potential impacts of climate change on cities. The impacts of climate change on urban infrastructure and the built environment toolbox was launched in 2012. The State Highway Environmental Plan includes climate change objectives to manage increased hazards from climate change impacts</p> <p><i>Vulnerability:</i> impacts on fish stocks and shellfish populations, acidification affecting organisms that produce shells or skeletal structures of calcium carbonate</p> <p><i>Adaptation:</i> policies and measures in place to ensure sustainable management of fisheries in New Zealand. Harvest strategy standards provides for targets and limits to be set for fisheries and fish stocks taking into account environmental conditions. Establishment of a network of 34 marine reserves, which collectively protect 7 per cent of New Zealand’s territorial sea</p>

139. New Zealand has also reported on the adaptation measures that have been implemented so far and those planned for implementation in the future. The ERT notes that New Zealand has intensified its work on climate change adaptation since its NC5 and has substantially broadened and deepened its understanding of climate risks through increased research, capacity-building and awareness-raising activities. New Zealand has reported, in its NC6, the expected impacts of climate change on land-based industries (agriculture and forestry), marine environment and fisheries, natural environment and biodiversity, freshwater, human health and infrastructure. Extensive research with regard to climate change scenarios and an impact assessment have been undertaken since the Party’s NC5.

140. The New Zealand Government sets the legislative and policy framework, provides information and guidance to support local government and private parties to make effective adaptive decisions, and funds research aimed at understanding and supporting climate change adaptation. The ERT notes that New Zealand could benefit from developing a more comprehensive and overarching framework so that current and future activities can be bounded on a well-defined climate change adaptation response pathway that is adopted by all role-players, including central and local government, and encourages the Party to consider developing such a framework.

141. New Zealand presented the climate change impacts modelling approach in its NC6. The ERT noted that New Zealand has not transparently reported on methodological consistency between its NC5 and NC6. The ERT notes that this makes it difficult to assess methodological improvement and assumptions in the modelling framework adopted in its NC5 and NC6. During the review, New Zealand explained that the modelling framework of projected climate change impacts provided in its NC6 has not changed from its NC5 and that the principal source of modelling information for climate change impacts in New Zealand is that provided by the National Institute of Water and Atmospheric Research (NIWA). Work is currently underway to downscale the Coupled Model Intercomparison Project Phase 5 (CMIP5) model results and New Zealand’s NC7 will include the results of the updated modelling. The ERT welcomes these developments and encourages the Party to transparently report on methodological changes and improvements in its NC7.

142. The ERT enquired if New Zealand has a framework with regards to the implementation, monitoring and evaluation of adaptation programmes. During the review, New Zealand explained that the MfE conducts monitoring and assurance activities for the Resource Management Act 1991, although climate change adaptation is not currently specifically considered. The ERT noted that New Zealand has a wealth of experience in providing guidance (in the form of guidance manuals) to local government on issues related to adaptation and could consider providing guidance to local government on the monitoring and evaluation of adaptation programmes.

143. NIWA provides coordination support for the production and publication of the Island Climate Update, in collaboration with various scientific organizations in the Pacific islands and other countries. The Island Climate Update provides updates on current climate conditions and outlooks to help PICs to plan and adapt to climate change and variability. The ERT notes the contribution of New Zealand and in particular NIWA in assisting PICs in their efforts to improve adaptive capacity and encourages the Party to sustain such support.

## **F. Research and systematic observation**

144. New Zealand has provided information on its actions relating to research and systematic observation, and addressed both domestic and international activities, including the International Geosphere–Biosphere Programme, the Global Climate Observing System (GCOS), and the IPCC. The NC6 also reflects action taken to support related capacity-building in developing countries. Furthermore, New Zealand has provided a summary of information on GCOS activities.

145. Major developments since the NC5 include reorganization of the system for allocating research funds to Crown Research Institutes to promote research that contributes to the well-being and prosperity of New Zealand; research on projected regional climate changes and impacts that follow the most recent global climate model results; and investment in climate change research by the government to the value of NZD 57.8 million in the 2011/12 financial year.

146. Research into biofuels for the transport sector is facilitated by the Advanced Biofuels Research Network, which aims to accelerate the development of biofuel technology for the benefit of New Zealand. During the review, New Zealand explained that potential sources of biofuels that are being researched could come from agricultural crops and wood biomass from forestry. The ERT noted that forestry is one of the sectors included in the NZ ETS and enquired whether New Zealand has performed any study to examine the possible impacts of introducing woody biomass-based biofuels on the NZ ETS. New Zealand further explained that such a study has not been undertaken as yet. The ERT observes that commercial, woody based biofuels could have an impact on the availability of living biomass for the NZ ETS. Therefore, the ERT encourages New Zealand to undertake such a study with a view to having a better understanding of such impacts.

147. The ERT noted the ground-breaking research that New Zealand is undertaking in addressing its GHG emissions from its key source/sink sectors such as agriculture and forestry and enquired whether New Zealand has a research strategy that goes beyond the current research initiatives and is linked to a well-defined 2050-target emissions reduction pathway. During the review, New Zealand indicated that it does not have a long-term research strategy. The ERT encourages New Zealand to consider developing such a strategy in the future.

148. Regarding climate change research gaps, during the review, New Zealand indicated that current research gaps that need to be addressed include the understanding of second-order and third-order impacts of climate change linked with the interaction of climate variables; and an in-depth understanding of climate change impacts on biodiversity and native ecosystems as well as research on impacts and adaptation based decision-making tools for communities and businesses.

149. The Meteorological Service of New Zealand provides some assistance to a number of Pacific island nations such as the Cook Islands, Kiribati, Niue, Tonga, Tuvalu, Samoa and Tokelau with their weather and climate observing systems. The ERT notes that New Zealand funding has been used by NIWA to participate in a Pacific islands data rescue programme.

150. New Zealand has recently completed a four-year project addressing diverse aspects of community vulnerability, resilience and adaptation to climate change. The impact of climate change on Maori land has been assessed at the national level and at an individual farm-scale level.

## **G. Education, training and public awareness**

151. In the NC6, New Zealand has provided information on its actions relating to education, training and public awareness at both the domestic and international level. Compared to the NC5, the Party provided more extensive information on work performed by institutes and research centres, energy efficiency awareness programmes, industrial training programmes and public engagement. The ERT noted that New Zealand has not included information on the extent of public participation in the preparation or domestic review of the NC. During the review, New Zealand explained that the government engages with public groups as part of its day-to-day business on environmental matters, including climate change. Although public groups are not formally involved in the preparation of the NC, non-governmental organizations are involved in the secretariat coordinated review of the NC. The ERT reiterates the suggestion made by the previous ERT that New Zealand reports such information, where feasible, in its next NC.

152. The ERT noted that New Zealand has implemented public awareness campaigns that focus on household and vehicle energy efficiency, certification schemes, tools for measuring emissions, and environmental rewards using a wide range of awareness-raising tools. The ERT notes that these programmes are well coordinated but the impacts are not necessarily monitored. An exception to this is the Energy Spot television campaign, where consumer research is undertaken to understand the campaign's effectiveness. The ERT encourages New Zealand to consider, where possible, to monitor the impact of public awareness campaigns and develop means and ways of assessing the effectiveness of the awareness-raising tools used.

153. The ERT noted that New Zealand's climate change curriculum targeting schools is not linked to long-term objectives such as transitioning to a low carbon and climate resilient society/economy. The ERT also noted the aspirational 2050 target of New Zealand (see para. 46 above) and encourages the Party to consider developing a curriculum that is supportive of a pathway to achieve this long-term target.

### III. Summary of reviewed supplementary information under the Kyoto Protocol

#### A. Overview of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol

154. Supplementary information provided by New Zealand under Article 7, paragraph 2, of the Kyoto Protocol in its NC6 is mostly complete and partially transparent. The supplementary information is located in different sections of the NC6. Table 9 provides an overview of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol as well as references to the NC6 chapters in which this information is provided.

155. New Zealand has not reported the following elements of the supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol: a description of national legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol also contribute to the conservation of biodiversity and sustainable use of natural resources and a clarification of the way in which financial resources provided are new and additional. The technical assessment of the information reported under Article 7, paragraph 2, of the Kyoto Protocol is contained in the relevant sections of this report. The ERT recommends that New Zealand include these reporting elements in its next national communication.

Table 9

#### Overview of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol

<i>Supplementary information</i>	<i>Reference to the sixth national communication</i>
National registry	Annex B
National system	Annex B
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Annex B
Policies and measures in accordance with Article 2	Chapter 4, annex B
Domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures	Chapter 4, annex B
Information under Article 10	Chapters 4 and 6–9
Financial resources	Chapter 7

#### B. Minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol

156. New Zealand reported the information requested in section H, “Minimization of adverse impacts in accordance with Article 3, paragraph 14”, of the annex to decision 15/CMP.1 as a part of its 2013 annual submission. During the review, New Zealand provided the ERT with the additional information on how it strives to implement its commitments under Article 3, paragraph 1, of the Kyoto Protocol in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties, particularly those identified in Article 4, paragraphs 8 and 9, of the Convention. The ERT considers the reported information to be complete and transparent. The ERT commends New Zealand for the additional information provided. The ERT noted that

New Zealand could continue exploring and reporting on the adverse impacts of the response measures.

157. The 2013 NIR and the previous NIRs and the additional information provided during the review presented several initiatives of New Zealand aimed at minimizing adverse impacts, including helping to build capacity for the reform of inefficient fossil fuel subsidies within Asia-Pacific Economic Cooperation member economies; funding of a project to construct solar-based mini grids on three atolls ensuring that Tokelau archives nearly 100 per cent of its electricity needs through solar generation; and helping Timor-Leste, a highly oil-dependent economy, to realize new economic opportunities rehabilitating the coffee sector.

#### **IV. Conclusions and recommendations**

158. The ERT conducted a technical review of the information reported in the NC6 of New Zealand according to the UNFCCC reporting guidelines on NCs. The ERT concludes that the NC6 provides in general a good overview of the national climate policy of New Zealand. The information provided in the NC6 includes most elements of the supplementary information under Article 7 of the Kyoto Protocol. During the review, New Zealand provided additional information on national legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol also contribute to the conservation of biodiversity and sustainable use of natural resources, and a clarification of the way in which the financial resources provided are new and additional.

159. New Zealand's emissions in 2011 were estimated to be 22.1 per cent above its 1990 level excluding LULUCF and 87.7 per cent above including LULUCF. Emission increases were driven by strong economic and population growth, demand in transport leading to an increase in the number of cars and their related emissions, and an increase in the number of animals and the productivity in the agriculture sector. These factors outweighed improvements in the efficiency of energy use in the residential and industrial sectors and in waste management and resulting emission reductions. New Zealand has a unique emission profile compared with other Annex I Parties with agriculture comprising 47 per cent of total emissions, which is due to the export oriented economy with its high share of agricultural exports.

160. In the NC6, New Zealand presents GHG projections for the period from 2010 to 2030. Two scenarios are included: baseline ('without measures') scenario and 'with measures' scenario. The projected increase in GHG emissions under the baseline scenario, in relation to the base year, and under the 'with measures' scenarios, are 29.2 and 30.0 per cent, respectively in 2020, and 38.2 and 37.7 per cent, respectively in 2030.

161. The projections and the additional information provided during the review indicate that New Zealand expects to meet its unconditional commitment to reduce its GHG emissions by 5 per cent by 2020 compared with 1990. This is envisaged to be accounted using the Kyoto Protocol's second commitment period framework of rules, including making use of the surplus from the first commitment period and accounting of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol. Regarding the conditional medium term target of a 10 to 20 per cent emission reduction below 1990 levels by 2020 and the long term target of a 50 per cent emission reduction below 1990 levels by 2050, New Zealand did not present additional PaMs indicating how these targets could be met.

162. According to the information reported in the NC6 and in addition provided during the review, New Zealand is expected to meet its Kyoto Protocol target for the first commitment period and have a surplus of approximately 78 Mt CO<sub>2</sub> eq compared with the

Kyoto Protocol target. The NC6 contains information on how its use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action, although it did not elaborate on supplementarity as such. New Zealand indicated that it would not need to use the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol to meet its target for the first commitment period of the Kyoto Protocol.

163. New Zealand considers its ETS as the principal policy instrument in its climate change programme for the period 2008–2020. Forestry was the first sector covered by the NZ ETS in 2008, followed by fossil fuel use in stationary energy sources, transport and the manufacturing industry sector. In 2013, the use of synthetic gases and the waste sector was added to the NZ ETS. The agriculture sector has been required to report agricultural emissions under the NZ ETS since 2012. The inclusion of surrender obligations for agriculture within the NZ ETS depends on the availability of economically viable and practical technologies to reduce emissions from agriculture; therefore the start date for the inclusion of surrender obligations for agriculture has been put on hold. This leads to some uncertainty regarding GHG mitigation in this important sector for New Zealand. Other key PaMs include market incentives and the regulatory framework to achieve the target of 90 per cent of electricity generated from renewable energy resources by 2025 and research and technology development in the agriculture sector, energy efficiency initiatives in residential and commercial buildings, and transport sector initiatives.

164. New Zealand's total financial assistance provided to developing countries for the reporting period was NZD 309 million, of which, 29 per cent was specifically for regional and bilateral activities in PICs. With regard to the most recent financial contributions to fast-start funding to enhance the implementation of the Convention by developing countries, New Zealand has already provided NZD 90.34 million and has confirmed that a post fast-start finance contribution will continue at a similar level, with the focus remaining on renewable energy and climate resilience in the Pacific. New Zealand has also reported on the steps it has taken to promote, facilitate and finance the transfer of technology, and to support the development and enhancement of endogenous capacities and technologies of developing countries.

165. In its NC6, New Zealand has provided the required information on the expected impacts of climate change and on adaptation options in the country. The main activities target climate change impacts on flooding, coastal zones, agriculture, freshwater management and urban infrastructure.

166. New Zealand has provided information on its actions relating to research and systematic observation, and addressed both domestic and international activities. New Zealand has also provided a summary of information on GCOS activities and research activities regarding biofuels, and agriculture and forestry. On education, training and public awareness, compared to its NC5, New Zealand provided more extensive information on work performed by institutes and research centres, energy efficiency awareness programmes, industrial training programmes and public engagement.

167. Supplementary information under Article 7, paragraph 1, of the Kyoto Protocol on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol is provided by the Party in its 2013 annual submission.

168. In the course of the review, the ERT formulated and partly reiterated several recommendations relating to the completeness and transparency of New Zealand's reporting under the Convention and its Kyoto Protocol. The key recommendations<sup>7</sup> are that New Zealand:

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<sup>7</sup> The recommendations are given in full in the relevant sections of this report.

(a) Improve completeness of reporting by including in the next national communication the following information:

- (i) An estimate of the total effects of implemented PaMs for historic years including all quantified PaMs in the total effect;
- (ii) A clarification of how it has determined the reported financial resources as being ‘new and additional’;
- (iii) A description of national legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraph 3, of the Kyoto Protocol also contribute to the conservation of biodiversity and the sustainable use of natural resources;

(b) Improve the transparency of reporting by including in the next national communication the following:

- (i) An indication of which individual PaMs reported in the PaMs section of the NC are included in the ‘with measures’ projections;
- (ii) All factors and activities underlying the projections, especially for road transport and agriculture;
- (iii) Success stories of its activities related to technology transfer with actual on the ground results;
- (iv) Further information on the steps it has taken to promote and implement any decisions by the ICAO and the IMO in order to limit or reduce emissions of GHGs not controlled by the Montreal Protocol.

169. The ERT encourages New Zealand to improve the transparency and completeness of its reporting; the most important of these are that New Zealand:

- (a) Report quantitative estimates of the impacts of its individual PaMs;
- (b) Describe the way in which progress with PaMs is monitored and evaluated over time, including the overall process for policy-setting with respect to the assessment of reduction potentials, the analysis of potentials, planned and adopted PaMs as well as the prioritization of these possible PaMs;
- (c) Report a ‘with additional measures’ scenario, which will indicate the trajectory of emissions for meeting the conditional 2020 target and the long-term target of 50 per cent reduction in emissions below 1990 levels by 2050;
- (d) Report on activities undertaken by the private sector, where feasible, regarding the measures related to the promotion, facilitation and financing of the transfer of, or access to, environmentally-sound technologies, and in what way it has encouraged private-sector activities.

## V. Questions of implementation

170. During the review, the ERT assessed the NC6, including supplementary information provided under Article 7, paragraph 2, of the Kyoto Protocol and reviewed information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol, with regard to timeliness, completeness, transparency and adherence to the reporting guidelines on NCs. No question of implementation was raised by the ERT during the review.

## Annex

### Documents and information used during the review

#### A. Reference documents

“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 national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories”. 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”. Decision 15/CMP.1. Available at <<http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf#page=54>>.

“Guidelines for review under Article 8 of the Kyoto Protocol”. Decision 22/CMP.1. Available at <<http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf#page=51>>.

“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 23/CP.19. Available at <<http://unfccc.int/resource/docs/2013/cop19/eng/10a02.pdf#page=20>>.

FCCC/SBI/2011/INF.1. Compilation and synthesis of fifth national communications. Executive summary. Note by the secretariat. Available at <<http://unfccc.int/resource/docs/2011/sbi/eng/inf01.pdf>>.

FCCC/SBI/2011/INF.1/Add.1. Compilation and synthesis of fifth national communications. Note by the secretariat. Addendum. Policies, measures, and past and projected future greenhouse gas emission trends of Parties included in Annex I to the Convention. Available at <<http://unfccc.int/resource/docs/2011/sbi/eng/inf01a01.pdf>>.

FCCC/SBI/2011/INF.1/Add.2. Compilation and synthesis of fifth national communications. Note by the secretariat. Addendum. Financial resources, technology transfer, vulnerability, adaptation and other issues relating to the implementation of the Convention by Parties included in Annex I to the Convention. Available at <<http://unfccc.int/resource/docs/2011/sbi/eng/inf01a02.pdf>>.

FCCC/SBI/2011/INF.2. Compilation and synthesis of supplementary information incorporated in fifth national communications submitted in accordance with Article 7, paragraph 2, of the Kyoto Protocol. Note by the secretariat. Available at <<http://unfccc.int/resource/docs/2011/sbi/eng/inf02.pdf>>.

FCCC/ARR/2013/NZL. Report of the individual review of the annual submission of New Zealand submitted in 2013. Available at <<http://unfccc.int/resource/docs/2014/arr/nzl.pdf>>.

FCCC/IRR/2007/NZL. Report of the review of the initial report of New Zealand. Available at <<http://unfccc.int/resource/docs/2007/irr/nzl.pdf>>.

FCCC/IDR.5/NZL. Report of the in-depth review of the fifth national communication of New Zealand. Available at <<http://unfccc.int/resource/docs/2011/idr/nzl05.pdf>>.



Sixth national communication of New Zealand. Available at <[http://unfccc.int/files/national\\_reports/annex\\_i\\_natcom/submitted\\_natcom/application/pdf/sixth-national-communication\\_20131220\[1\].pdf](http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/sixth-national-communication_20131220[1].pdf)>.

2013 GHG inventory submission of New Zealand. Available at <[http://unfccc.int/files/national\\_reports/annex\\_i\\_ghg\\_inventories/national\\_inventories\\_submissions/application/zip/nzl-2013-nir-12apr.zip](http://unfccc.int/files/national_reports/annex_i_ghg_inventories/national_inventories_submissions/application/zip/nzl-2013-nir-12apr.zip)>.

## **B. Additional information provided by the Party**

Responses to questions during the review were received from Mr. Dylan Muggeridge (Ministry for the Environment), including additional material on updated policies and measures, greenhouse gas projections, the national registry and recent climate policy developments in New Zealand. The following documents<sup>1</sup> were also provided by New Zealand:

Dake CKG. 2011. *The Econometrics of New Zealand Pastoral Agriculture: With Special Reference to Greenhouse Gas Emissions*. MAF Technical Paper No: 2011/38. Ministry of Agriculture and Forestry.

DM Practice & Process. 2013. *Activity Quality Policy*. New Zealand Aid Programme. Available at <<http://www.aid.govt.nz/>>.

Forbes R., Gardiner P. 2004. *Projecting Livestock Numbers*. New Zealand Agricultural and Resource Economics Society (Inc.).

Government of Tokelau, New Zealand foreign affairs and trade aid programme. 2013. *Tokelau Renewable Energy Project, Case Study*. New Zealand Aid Programme. Available at <<http://www.aid.govt.nz/>>.

New Zealand foreign affairs and trade aid programme. 2012. *New Zealand Aid Programme Sector Priorities 2012-15*. New Zealand Ministry of Foreign Affairs and Trade. Available at <<http://www.aid.govt.nz/>>.

PDM Environment and Climate Change. 2012. *Environmental and Social Impacts Guideline*. New Zealand Aid Programme. Available at <<http://www.aid.govt.nz/>>.

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<sup>1</sup> Reproduced as received from the Party.