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Report of the technical review of the first biennial report of Canada

Developed country Parties are requested, in accordance with decision 2/CP.17, to submit their first biennial report to the secretariat by 1 January 2014. This report presents the results of the technical review of the first biennial report of Canada conducted by an expert review team in accordance with the "Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention".

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I. Introduction and summary

A. Introduction

1. For Canada, the Convention entered into force on 21 March 1994. Under the Convention, Canada made a commitment to reduce its greenhouse gas (GHG) emissions by 17.0 per cent by 2020 below the 2005 level.

2. This report covers the in-country technical review of the first biennial report (BR1)[1] of Canada, 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).

3. The review took place from 6 to 11 October 2014 in Ottawa, Canada, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: Ms. Stacy Angel (United States of America), Ms. Helen Plume (New Zealand), Mr. Arthur Rolle (Bahamas) and Mr. Koen Smekens (Belgium). Ms. Plume and Mr. Rolle were the lead reviewers. The review was coordinated by Ms. Ruta Bubniene (secretariat).

4. During the review, the expert review team (ERT) reviewed each section of the BR1.

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

B. Summary

6. The ERT conducted a technical review of the information reported in the BR1 of Canada according to the "UNFCCC biennial reporting guidelines for developed country Parties" (hereinafter referred to as the UNFCCC reporting guidelines on BRs).

7. During the review, Canada provided further relevant information pertaining to approaches being used to plan for additional policies and measures (PaMs), the projected benefits of implemented PaMs, more detail on the projected emissions by sector and by gas for both the 'with measures' and the 'without measures' scenarios, on its reference level approach for forest land remaining forest land (FLRFL), on its national approach to tracking the provision of support, and on the underlying assumptions and methodologies used to produce information on finance.

1. Completeness and transparency of reporting

8. The information reported by Canada in its BR1 is mostly complete and mostly transparent. Gaps and issues related to the reported information identified by the ERT are presented in table 1 below.

2. Timeliness

9. The BR1 was submitted on 20 December 2013, before the deadline of 1 January 2014 mandated by decision 2/CP.17. The common tabular format (CTF) tables were submitted on 31 December 2013. Revised versions of the BR1 were submitted on

[1] The biennial report submission comprises the text of the report and the common tabular format (CTF) tables. Both the text and the CTF tables have been subject to the technical review.

2 April 2014 and 12 September 2014. Revised CTF tables were submitted on 1 October 2014. The resubmissions addressed some errors in the provision and support section and fine-tuning of the classification of the multilateral support.

3. Adherence to the reporting guidelines

10. The information reported by Canada in its BR1 is mostly in adherence to the UNFCCC reporting guidelines on BRs as per decision 2/CP.17 (see table 1). The ERT noted a few internal inconsistencies between the textual part of the BR1 and the CTF tables (see paras. 18 and 19 below) and recommends that Canada improve consistency in its next biennial report (BR).

Table 1
Summary of completeness and transparency issues of reported information in the first biennial report of Canada[a]

Sections of the biennial report	*Completeness*	*Transparency*	*Reference to paragraphs*
Greenhouse gas emissions and trends	Complete	Transparent	NA
Assumptions, conditions and methodologies related to the attainment of the quantified economy-wide emission reduction target	Complete	Mostly transparent	17
Progress in achievement of targets	Mostly complete	Mostly transparent	18, 19, 24, 29
Projections	Complete	Mostly transparent	33
Provision of support to developing country Parties	Mostly complete	Mostly transparent	36,38, 43,45,56

[a] A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in the chapter on conclusions.

II. Technical review of the reported information

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

11. Canada has provided a summary of information on GHG emission trends for the period 1990–2011 in its BR1 and CTF table 1. This information is completely consistent with the 2013 national GHG inventory submission. During the review, the ERT took note of the 2014 annual submission. The relevant information therein is reflected in this report.

12. Total GHG emissions[2] excluding emissions and removals from land use, land-use change and forestry (LULUCF) increased by 18.2 per cent between 1990 and 2012, whereas total GHG emissions including net emissions or removals from LULUCF increased by 42.2 per cent over the same period. It should be noted that for Canada, emissions and removals from the LULUCF category are critical; their contribution in the period 1990–2012 ranged from −15.0 per cent to 30.8 per cent of the total GHG emissions excluding emissions and removals from LULUCF and showed very high inter-annual variability owing to uncontrollable large forest natural disturbances (wildfires and insect

[2] In this report, the term "total GHG emissions" refers to the aggregated national GHG emissions expressed in terms of carbon dioxide equivalent excluding land use, land-use change and forestry, unless otherwise specified.

infestations). Further information on the review of emission and emission trends is provided in chapter II.A of the report of the technical review of the sixth national communication (IDR/NC6).

B. Assumptions, conditions and methodologies related to the attainment of the quantified economy-wide emission reduction target

13. In its BR1 and CTF table 2, Canada reported a description of its quantified economy-wide emission reduction target, referred to henceforth as the target, including associated conditions and assumptions. The target for Canada is associated with the Copenhagen Accord and is set at −17.0 per cent in 2020 compared to 2005 emissions. The gases covered include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6), and the base year for all gases is 2005. The global warming potentials (GWPs) used are from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report. The ERT noted an inconsistency between the BR1 and the CTF tables because nitrogen trifluoride (NF_3) was included in CTF table 2(c). During the review, Canada informed the ERT that the information in the BR1 is correct, and that NF_3 was erroneously included in CTF table 2(c).

14. The sectors covered are according to Canada's own economic classification and consist of: electricity, oil and gas, emission-intensive and trade-exposed industries, transport, buildings, agriculture, and waste and others sectors. Canada does not include LULUCF in its base year, but does apply the accounting contribution of selected LULUCF categories in its target year. The selected categories are: FLRFL, cropland remaining cropland (CLRCL), forest land converted to other land categories (FLCOLC) and other land categories converted to forest land (OLCCFL). Emissions from settlements, grasslands and wetlands are excluded.

15. The rationale behind this exclusion is the lack of a proven methodology for emissions from these categories. Research on a methodology is still ongoing, as explained by the Party during the review. For the included LULUCF emissions, Canada will use an accounting system based on the difference with 2005 emissions and on a reference level approach for FLRFL to estimate the total LULUCF contribution towards the target. The accounting method for 2020 for CLRCL, FLCOLC and OLCCFL is based on projections for these categories, after which the values are compared with the actual 2005 inventory values for the same categories. The difference is added as contributions towards the target. For FLRFL, a reference approach is used. The reference level value for 2020 is compared to the projected emissions for 2020, with both excluding natural disturbance impacts. This difference is also added as a projected contribution towards the target. The difference mainly reflects the current expectation that future harvests rates will be lower than were assumed in the reference level.

16. Ensuring consistent application of the reference level accounting approach for FLRFL requires what is called in the BR1 a "technical" correction to the reference level originally inscribed in the appendix to decision 2/CMP.7. Technical corrections to reference levels are required by decision 2/CMP.7 to ensure that they are derived in a way that is methodologically consistent with the most recent FLRFL estimates and projections. The correction reflects observed data changes, methodological changes and corrections of errors, but does not change the underlying assumptions about forest management (e.g. harvest rates) made for the reference level.

17. The ERT noted that the reporting of this approach is not transparent and that the required information to understand the methodology for estimating the LULUCF

contribution to the target and to reproduce the cited numbers is spread over different sections of the sixth national communication (NC6), BR1 and national inventory report of the 2013 annual submission. In response to questions raised during the review, Canada provided a more transparent explanation of the methodology applied. The ERT recommends that Canada report more transparently on the methodology used to estimate this LULUCF contribution, in particular, for the FLRFL category, and ensure that the CTF tables and the BR1 are consistent.

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

18. In its BR1 and CTF tables 3 and 4, Canada reported information on its mitigation actions implemented and planned since its fifth national communication (NC5) to achieve its target. Canada also reported that it does not intend to use units from international market-based mechanisms to achieve its target. The ERT noted some inconsistencies between the status of the PaMs as listed in CTF table 3 and those measures included in the projection of the 'with measures' scenario of the BR1. The ERT recommends that Canada increase transparency of reporting and ensure consistency between the PaMs and projections sections of the BR. The ERT reviewed the reported information and provided its assessment of progress made towards achieving the target for the years 2010 and 2011. Canada also provided, for both years, information on the contribution of LULUCF towards its target.

19. The ERT noted however that the reporting on how the LULUCF contribution has been determined is not transparent and that there are inconsistencies in the numbers for this contribution as reported in the BR1 and CTF tables; for example, for the same year (2010), three different values (−2,000, −2,400 and −2,401 kt carbon dioxide equivalent (CO_2 eq)) are mentioned. The ERT noted also that the BR1 contains table 4(a)I for 2010 and 2011, but the submitted CTF tables are only provided for 2011. For CLRCL, FLCOLC and OLCCFL, the reported emission levels for 2010 and 2011 are compared with those of the base year 2005 and the difference between them is the LULUCF contribution towards the target.

20. The contribution of FLRFL is separately determined using the reference level approach. The reference level emissions were estimated in 2011 for years 2010 and 2011, as part of the process for determining the reference level originally submitted in 2011 and inscribed in decision 2/CMP.7. The reference level uses an assumption about future harvest levels based on the average of recent (1990–2009) harvest levels, and it uses the production approach for accounting for harvested wood products. The reference level estimates were "technically corrected" in the BR1 to reflect data and methodological changes since the reference level was originally developed. To balance out the effect of natural disturbances when comparing reference level values with actual emission levels for 2010 and 2011, the same amount of emissions and removals from natural disturbances (direct and indirect emissions and removals resulting from wildfires and insect infestations as presented in the 2010 and 2011 inventory reports were added to the corrected reference level emissions. Comparing the corrected reference level values to the actual values for FLRFL emissions led to the reported contribution of FLRFL towards the target year in the inventory years concerned.

21. The same approach will be followed for 2012 and 2013 in the next BR. The steps described above lead to contributions from FLRFL of +1,242 kt CO_2 eq in 2010 and −4,792 kt CO_2 eq in 2011. The total contributions of LULUCF in 2010 and 2011 are −2,401 kt CO_2 eq and −9,096 kt CO_2 eq, respectively. These amounts correspond in absolute terms to 0.3 and 1.3 per cent of the total GHG emissions excluding LULUCF in

2010 and 2011, respectively. Including the contributions from LULUCF, the emissions in 2010 and 2011 are 5.3 and 5.9 per cent lower than the 2005 level, but are still 14.1 and 13.3 per cent above the 2020 target level, respectively.

22. The ERT noted that the reported GHG emission trends projection for the 'with measures' scenario show an increasing emission trend. The increase indicates the magnitude of Canada's challenges to meet its target, especially as Canada has not yet reported on additional measures to reach this target. During the review, however, Canada provided some information on intended measures following announcements made during the United Nations Climate Summit 2014 in New York. These intended measures would include, among others, measures for HFCs and measures in the transport sector.

1. Mitigation actions and their effects

23. Canada has provided in its BR1 comprehensive information on its package of mitigation actions introduced to achieve its target. The textual part of the BR1 is limited to describing the organization and content of CTF table 3. The information reported in CTF table 3 is well organized by economic sector (namely, transport, oil and gas, electricity, building, emission-intensive and trade-exposed industries, agriculture, waste and others). All sectors include PaMs at both federal and provincial levels, except for agriculture and waste, where only provincial PaMs are presented. Territorial PaMs are presented for electricity, buildings and cross-cutting sectors. Only some of the PaMs reported in CTF table 3 have an estimated mitigation effect (i.e. 30 out of the 90 listed).

24. Canada provided a robust description of mitigation PaMs in its NC6, but did not direct the reader of the BR1 to the NC6 to find this information. Canada only referred to its NC6 within BR1 section 4.A on mitigation actions and their effects, in order to direct the reader to an explanation of why PaMs were organized by economic sectors unique to Canada. Canada's unique approach to its sector classification is in line with the UNFCCC reporting guidelines on BRs. A detailed review of the reported information on PaMs is provided in chapter II.B of the IDR/NC6. The ERT recommends that Canada improves transparency in reporting and provides an elaborated description of its mitigation PaMs or cross references to the relevant information provided in the NC.

25. Canada's climate change policy portfolio is predominantly composed of regulatory PaMs that address individual economic sectors. These are complemented by a few economic instruments at the federal level (e.g. the Sustainable Development Technology Fund) and by a number of economic instruments, regulations and market-based mechanisms at the provincial and territorial levels.

26. The shared responsibilities among federal and provincial/territorial governments for climate change related policymaking and implementation of the PaMs implies the need for additional efforts in coordinating and monitoring the implementation of the relevant PaMs. As per the Canadian Environmental Protection Act of 1999, the federal government may enter into equivalency agreements with provinces and territories. During the review, Canada informed the ERT that provinces and territories may request an equivalency agreement with the federal government to avoid regulatory duplication where the conditions outlined in the Canadian Environmental Protection Act of 1999 are met and where equivalent enforceability and environmental benefits can be achieved. For example, the federal government and Nova Scotia finalized an equivalency agreement on coal-fired electricity in June 2014 by which federal coal-fired power plant regulations stand down to Nova Scotia's GHG emissions regulations.

27. While developing climate change policy, Canada is implementing a country-specific economic sector-by-sector regulatory approach that has, to date, focused on the transport and electricity sectors, which are two of the highest emitting sectors in Canada. The total

mitigation effect of implemented and adopted federal regulatory PaMs in these sectors is projected to reach over 36,000 kt CO_2 eq by 2020. The mitigation effect of the PaMs in other sectors, including the oil and gas sector and the nine emission-intensive and trade-exposed industries are not estimated, although the total GHG emissions in these sectors is equal to the combined emissions for the electricity and transport sectors (251,000 kt CO_2 eq in 2012). During the review, Canada explained that additional regulatory PaMs are in the planning process for transport (heavy-duty vehicles phase II, shipping and aviation), oil and gas, and aluminium and eight additional emission-intensive and trade-exposed sectors. Because Canada did not report on a range of potential mitigation from these additional planned PaMs, it is not possible to assess how these may affect Canada's ability to achieve its target.

28. Table 2 provides a concise summary of the key mitigation actions implemented by Canada to achieve its target.

Table 2
Summary of information on mitigation actions reported by Canada

Sectors affected	*List of key policies and measures*	*Estimate of mitigation impact (kt CO_2 eq)*
Policy framework and cross-sectoral measures		
	Canadian Environmental Protection Act 1999[a]	NE
	Energy Efficiency Act 1992	NE
	Canadian Shipping Act 2001	NE
	Aeronautics Act	NE
	Railway Safety Act	NE
	Government of Canada's 2013–2016 federal sustainability development strategy	NE
	Sustainable Development Technology Canada – Sustainable Development Tech Fund	NE
	British Columbia carbon tax	3 000
	Quebec's cap-and-trade system	NE
Energy		
Cross-cutting		
	Clean Energy Fund	2 800
Energy supply		
	CO_2 emissions from coal-fired generation regulations	3 000
	Ontario coal phase-out	31 600
	Nova Scotia greenhouse gas emissions regulations	2 500
Renewable energy		
	ecoENERGY for Renewable Power Program	6 240
	Newfoundland and Labrador's Muskrat Falls hydroelectric project	1 200
Energy efficiency		
	ecoENERGY Efficiency Program	6 500
	Energy efficiency programmes at the provincial level	4 500
Transport		
	Light-duty vehicle GHG regulations: phases 1 and	13 000

Sectors affected	*List of key policies and measures*	*Estimate of mitigation impact (kt CO_2 eq)*
	2	
	Heavy-duty vehicle GHG regulations	3 000
	Federal renewable fuels regulations	2 000
	Carbon dioxide standards for aviation	NE
Industries		
	Emission-intensive and trade-exposed sector regulations	NE
	Oil and gas sector GHG regulations	NE
	Alberta industrial regulations	10 000
	Alberta Carbon Capture and Storage Funding Act	2 800
	Pulp and Paper Green Transformation Program	1 360
Agriculture		
	Growing Forward 2 funding and environmental plans	NE
	Provincial regulatory and fiscal policies and measures	NE
Forestry		
	National Forest Sinks Committee policy strategy research	NE
Waste management		
	Landfill gas regulations in three provinces	2 195

Abbreviations: GHG = greenhouse gas, NE = not estimated.

[a] Provides legislative authority to regulate GHGs.

29. Canada did not provide information, neither directly nor via reference to the NC6, on changes in its domestic institutional arrangements, including institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress towards its target. The ERT recommends that Canada improve completeness by providing this required information in its next BR.

30. Canada did not provide information on the assessment of the economic and social consequences of response measures. The ERT encourages Canada to provide, to the extent possible, information on response measures in its next BR.

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

31. Canada reported in its BR1 that it is not planning to use market-based mechanisms to meet its target under the Convention. Canada reported on the contribution from LULUCF to achieve its target in its BR1 and CTF table 4. Canada reported in the BR1 on its exclusion of specific categories under the LULUCF sector for the contribution from this sector towards its target. Table 3 illustrates how Canada reported on the use of units from market-based mechanisms and LULUCF to achieve its target.

Table 3
Summary information on the use of units from market-based mechanisms and land use, land-use change and forestry as part of the reporting on the progress made towards achievement of the target by Canada

Year	*Emissions excluding LULUCF*[a] *(kt CO_2 eq)*	*LULUCF*[b] *emissions/removals (kt CO_2 eq)*	*Emissions including LULUCF*[a] *(kt CO_2 eq)*	*Use of units from the market-based mechanisms*[c] *(kt CO_2 eq)*
Base year (2005)	735 829.05	NR	789 241.39	0
1990	590 908.11	NR	519 888.13	0
2010	699 302.26	–2 401.0	775 045.16	0
2011	701 212.37	–9 096.0	778 021.55	0
2012	698 626.47	NA	739 486.72	0

Abbreviations: LULUCF = land use, land-use change and forestry, NA = not applicable, NR = not reported.

[a] *Source:* 2014 annual greenhouse gas (GHG) submission of Canada (for GHG emissions including and excluding LULUCF). LULUCF emissions include the effect of uncontrollable large forest natural disturbances (wildfires and insect infestations) and, as a result, are highly variable from year to year due to these non-anthropogenic factors.

[b] Source: Common tabular format (CTF) table 4(a)I (for LULUCF emissions/removals). The emissions shown reflect the application of accounting approaches as shown in CTF table 4(a)I. These accounted amounts contribute to progress made towards achievement of the target by Canada.

[c] Canada, in CTF table 4, did not report on units that it intends to use to achieve the target. In the biennial report Canada noted that it is not planning to use units from the market-based mechanisms.

3. Projections

32. Canada has provided in its BR1 and CTF tables 5 and 6 comprehensive and well-organized information on its updated projections for 2020 and 2030. A detailed review of the reported information is provided in chapter II.C of the IDR/NC6. Canada reported a 'with measures' scenario up to 2030 and a 'without measures' scenario up to 2020. The information reported in the BR1 is consistent with the information in the NC6; however, some differences between the figures in the BR1 and NC6 occurred due to the rounding of numbers in the BR1. The GHG emission projections are provided on a sector-by-sector basis as well as on a gas-by-gas basis. The ERT noted that the contribution from LULUCF was only reported for 2020.

33. The ERT noted that the transparency of the reporting of 'with measures' scenario projections in CTF table 6(a) and of 'without measures' scenario, especially on LULUCF projections could be improved. In CTF table 6(a), emissions including LULUCF are reported in the gas-by-gas tables, while the contribution of LULUCF as well as LULUCF projections are reported in the sector-by-sector tables, In CTF table 6(b), emissions by sector were not provided for the 'without measures' scenario for 2020. However, this information was provided during the review. Emissions including LULUCF were not reported on a gas-by-gas basis for the 'without measures' scenario, and the total including LULUCF for 'without measures' in 2020 was reported to be the sum of the fluorinated gas emissions only. The ERT recommends that Canada improve the transparency of its reporting of GHG projections in the CTF tables.

34. The ERT noted information reported by Canada on projected emissions by 2020. According to the reported information, the projected emissions including the contribution of LULUCF are 0.3 per cent below the base year by 2020, and emissions excluding the contribution of LULUCF are 3.5 per cent above the base year by 2020, while the target is 17.0 per cent below the base year (2005).

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

1. Provision of financial support to developing country Parties

35. In its BR1 and CTF tables 7, 7(a) and 7(b), Canada reported information on the provision of financial, technological and capacity-building support required under the Convention.

36. The information provided in the BR1 is mostly complete and mostly transparent, with gaps in providing information on support for the development and enhancement of endogenous capacities and technologies in developing countries. Although some information is provided, there is a lack of transparency in describing the national approach to tracking the provision of support, reporting the underlying assumptions and methodologies used to produce information on finance.

37. During the review, Canada provided additional information, elaborating on its national approach to tracking the provision of support and reporting the underlying assumptions and methodologies used to produce information on finance. Canada explained that it uses a climate finance database to track and report climate finance, tagging each contribution according to UNFCCC sectors or Development Assistance Committee (Organisation for Economic Co-operation and Development) and Rio markers. Canada also provided information on its results-based management approach, which supports the maintenance of a climate finance database. The management approach focuses on achieving different levels of outcomes and results, implementing performance measurements, evaluating impacts, learning and adapting, as well as reporting performance.

38. The ERT recommends that Canada improve the completeness and transparency of its reporting on the provision of financial, technological and capacity-building support to developing countries by describing, to the extent possible, how it seeks to ensure that the resources it provides effectively address the needs of Parties not included in Annex I to the Convention (non-Annex I Parties) with regard to climate change adaptation and mitigation.

39. In its BR1, Canada provided details on what "new and additional" financial resources it has provided and clarified how these resources are "new and additional". Canada reports that all of its fast-start finance is completely "new and additional" to planned levels of climate finance prior to the Copenhagen Accord. Canada describes how its resources address the adaptation and mitigation needs of non-Annex I Parties. Canada reports that it responds to priorities identified by bilateral partners in the context of ongoing and long-standing development partnerships that include addressing climate change issues as part of development objectives set by its partners. Canada offers assistance to countries in climate-related sectors that these countries identify as priorities. The source of all bilateral funding is through official development assistance, following international aid-effectiveness principles to ensure appropriate country ownership of proposed projects.

40. During the review, the ERT learned that the more detailed reporting requirements in the BR1 have encouraged Canada to develop and enhance its climate finance monitoring and reporting capacities. Canada reported to the ERT that it has gained much experience relevant to reporting on climate finance over the last few years. The ERT encourages Canada to include relevant additional material in its BRs that may not fit within the required format, but that nevertheless could help provide a more complete picture of Canada's efforts regarding climate finance, technology transfer and capacity-building. Table 4 includes some of the information reported by Canada on its provision of financial support.

Table 4
Summary of information on provision of financial support in 2011–2012
(Millions of United States dollars)

	Years of disbursement	
Allocation channel of public financial support	*2011*	*2012*
Climate-specific contributions through multilateral channels, including:		
Contribution to the Global Environment Facility	54.15	56.67
UNFCCC Trust Fund for Supplementary Activities	0.64	0.99
Other multilateral climate change funds	0.59	2.26
Contributions through United Nations bodies including:		
United Nations Development Programme	–	18.79
United Nations Environment Programme	–	15.36
Other	40.09	12.50
Multilateral financial institutions, including regional development banks	331.35	293.93
Climate-specific contributions through bilateral, regional and other channels	72.35	94.59

Source: Common tabular format tables 7 and 7(a).

Note: For reporting, Canada used fiscal years: the 2011 column covers fiscal year period 1 April 2011 to 30 March 2012, and the 2012 column covers fiscal year period 1 April 2012 to 31 March 2013.

2. Approach used to track support provided

41. Canada provides information in its BR1 and CTF tables 7, 7(a) and 7(b) on trends in the flows of financial resources through multilateral, bilateral and other channels. During the last four years (2009–2013), Canada has provided a total of over Canadian dollars (CAD) 1.54 billion to support climate change projects through a variety of channels and programmes. Of this total, CAD 1.2 billion is fast-start finance, together with over CAD 340 million in international assistance projects with direct or significant focus on climate change.

42. In its BR1, Canada identifies priority countries and regions, notably sub-Saharan Africa, Latin America/Caribbean and South Asia, responding to priorities identified by bilateral partners. A similar distribution of priority countries and regions is shown in the NC5. Priority areas identified in the BR1 are adaptation by the poorest and most vulnerable, clean energy, and forests and agriculture, which are the same priority areas identified in the NC5.

43. Methodologies and assumptions used to produce information on finance are partially covered in the BR1. A fuller explanation was provided during the review. The ERT recommends that Canada provide a more complete description of methodologies and assumptions used to produce information on finance in its next BR.

44. The status of all contributions in CTF tables 7(a) and 7(b) is identified as "provided". Delivery of Canada's climate finance is primarily via multilateral channels and hence is only able to be identified as cross-cutting in nature. Where a breakdown of mitigation or adaptation support is possible, the relative shares of mitigation and adaptation of specific support have changed across the four reported years in the NC6 and BR1, from around 85 per cent adaptation in 2009–2010 to around 47 per cent adaptation in 2012–2013, noting that absolute amounts for adaptation have increased.

45. Canada does not describe how it measures or assesses the effectiveness of its climate finance. More information on these elements was provided during the review. The ERT

recommends that Canada provide a description of its national approach for tracking of the provision of financial, technological and capacity-building support to non-Annex I Parties. The ERT also recommends that this description include information on indicators and delivery mechanisms used and allocation channels tracked.

46. With regard to the most recent financial contributions to enhance the implementation of the Convention by developing countries, Canada's contribution to fast-start finance is described in paragraph 41 above, with CAD 400 billion per year allocated over the period 2009–2010 to 2012–2013. Canada's fast-start finance was a considerable scale-up from previous levels, representing an increase of around 300 per cent.

3. Technology development and transfer

47. In its BR1 and CTF table 8, Canada has provided information on activities related to the transfer of technology to developing countries, including information on the public and private sectors. Canada is committed to a broad range of actions to advance clean technologies globally, including support for domestic research and development, science and technology cooperation with international partners, and capacity-building in developing countries. Examples of this commitment include: support to the UNFCCC Climate Technology Centre and Network (CTCN) (Canada has a seat on the CTCN Advisory Board) and Canada's range of activities aimed at increasing the deployment of carbon capture and storage (CCS). With the CTCN, one of Canada's key areas of focus is to facilitate private sector engagement, given its important role in the technology transfer process.

48. ERT notes that a portion of Canada's fast-start finance also focused on the development and deployment of clean energy technologies. Public and private funding of technology transfer is included in CTF table 8, and in some cases, the activities are jointly undertaken by public and private sectors, for example, a programme targeting forest GHG mitigation and forest management adaptation.

49. Canada acknowledges that bilateral relationships are key to further strengthening its financing and technology transfer programmes, and that increased participation of the private sector in climate finance and technology-related activities could help leverage public funds and facilitate technology transfer activities. Information was provided during the review on how Canada tracks its climate change assistance.

50. Support for development and enhancement of endogenous capacities and technologies of non-Annex I Parties was not explicitly reported in the BR1. During the review, in response to the ERT's request, Canada provided some examples of capacity-building and technology transfer. However, there was no explicit link to support for developing countries to develop or enhance their own technologies. The ERT recommends that in accordance with the UNFCCC reporting guidelines on BRs, Canada include information in its next BR on how it supports the endogenous capacities of developing country Parties, with a focus on technology transfer and capacity-building, which supports development of technologies stemming from the developing countries themselves.

51. During the review, Canada elaborated on developments in technology transfer since the BR1/NC6 and on the lessons learned from its experiences to date. One example is Canada's leading role through the International Development Research Center, where it provided close to CAD 1 million in 2014 to the Climate Technology Initiative's Private Financing Advisory Network in supporting adaptation research globally and connecting adaptation-related projects with private financing, noting that this is an ongoing project.

52. Canada also highlighted its achievements in its key areas including modelling and software tools relating to a standardized methodology tool to assess the engineering vulnerability of infrastructure in a changing climate (applied in infrastructure risk

assessments in Costa Rica and Honduras), wide deployment of the clean energy decision-making software RETScreen and the carbon budget model forest carbon accounting software that Canada provides free of charge and which is used in a number of developing countries including China, Mexico and Republic of Korea. Canada also highlighted its role as a global leader in the research, development and demonstration of CCS technologies, with four large-scale demonstration projects in operation or under construction.

53. Canada understands that increased participation of the private sector in climate finance and technology-related activities could help leverage public funds and facilitate technology transfer activities. In this regard, Canada informed the ERT that it will continue to engage with the Canadian private sector to share and promote Canada's technology expertise in international forums. CCS activities, the Clean Energy Ministerial initiatives and the CTCN were mentioned. Canada also acknowledges the challenges in separating support for technology transfer from support for capacity-building because the two activities are very often closely linked, hence, the overlap in reporting in CTF tables 8 and 9.

54. The ERT encourages Canada to further develop its reporting on private sector activities relating to technology transfer. The ERT recommends that Canada transparently report on support for technology transfer versus support for capacity-building in accordance with CTF tables 8 and 9.

4. Capacity-building

55. In its BR1 and CTF table 9, Canada has included information on how it has provided capacity-building support for mitigation, adaptation and technology. A portion of Canada's fast-start finance has focused on developing institutional and technical capacity. Capacity-building needs are also addressed through many of Canada's activities focused on technology development and transfer, including dissemination of software and tools developed by Canada, together with provision of support to help partners effectively use these tools (see para. 52 above), and research development and cooperation. The ERT notes that section 9 (education, training and public awareness) of the NC6 also addresses participation in international activities.

56. The BR1 does not include explicit information required by the UNFCCC reporting guidelines on BRs on how Canada has provided capacity-building support that responds to the existing and emerging capacity-building needs identified by non-Annex I Parties. However, the BR1 is clear that Canada's climate change support responds to priorities identified by bilateral partners in the context of ongoing and long-standing development partnerships that include addressing climate change issues as part of development objectives set by its 56partners. The ERT recommends that, in accordance with the UNFCCC reporting guidelines on BRs, Canada provide more explicit information in its next BR on how it responds to the existing and emerging capacity-building needs identified by non-Annex I Parties.

57. The ERT encourages Canada to provide in its next BR more complete cross references to supporting material regarding the capacity-building support reported in the NC6 (e.g. in section 9 on education, training and public awareness), as this will increase transparency and facilitate the review of the information reported.

III. Conclusions

58. The ERT conducted a technical review of the information reported in the BR1 and CTF tables of Canada in accordance with the UNFCCC reporting guidelines on BRs. The ERT concludes that the BR1 and CTF tables provide a good overview of information on:

emissions and removals related to the quantified economy-wide emission reduction target, a description of the target, progress made by Canada to achieve its target, and provision of support to developing country Parties. During the review, Canada provided additional information on plans for additional PaMs, projected emissions and removals relevant for assessing progress towards the target, its national approach to tracking the provision of support, and the underlying assumptions and methodologies used to produce information on finance.

59. Canada's emissions and removals related to the target were estimated for 2012 to be 6.3 per cent below its 2005 level excluding LULUCF. Although contributions from the LULUCF sector were quantified for 2011, contributions from the sector will only be applied to the 2020 CO_2 eq emissions total. Emission decreases resulted from regulations in the electricity and transport sectors and improvements in the efficiency of energy supply and use.

60. Canada reports a clear description of its target, including associated conditions and assumptions. The target for Canada is associated with the Copenhagen Accord and is set at −17.0 per cent in 2020 compared to 2005 emissions. The gases covered include CO_2, CH_4, N_2O, HFCs, PFCs and SF_6, and the base year for all gases is 2005. The GWPs used are from the IPCC Second Assessment Report. The sectors covered are according to Canada's own economic classification and consist of: electricity, oil and gas, emission-intensive and trade-exposed industries, transport, buildings, agriculture, and waste and others. Canada does not include LULUCF in its base year, but does apply the contribution of selected LULUCF categories in its target year.

61. Canada's reported GHG emission trends do not show a structural change. The reported emission projection for the 'with measures' scenario also shows an emission increase. As Canada has not yet reported on additional measures to reach this target, the magnitude of its challenge to meet its target is significant.

62. While developing climate change policy, Canada is implementing a country-specific economic sector-by-sector regulatory approach that has, to date, focused on the transport and electricity sectors, which are two of the highest emitting sectors in Canada. In the energy sector, federal regulations have been introduced for coal-fired power plants, and in the transport sector. Canada has introduced GHG emission regulations for light- and heavy-duty on-road vehicles and renewable fuel. Canada is pursuing regulatory approaches for the reduction of GHG emissions via: fuel-efficiency standards for light- and heavy-duty on-road vehicles; renewable fuels standards; and global mitigation measures developed by the International Maritime Organization and International Civil Aviation Organization for maritime transportation and aviation, respectively. Canada reported that it is not planning to use market-based mechanisms to meet its target under the Convention.

63. Canada has provided in its BR1 and CTF tables 5 and 6 comprehensive and well-organized information on its projections for 2020 and 2030. According to the reported information, the projected emissions, including LULUCF, are 0.3 per cent below the base year by 2020 and emissions excluding LULUCF are 3.5 per cent above the base year in 2020, while the target is 17.0 per cent below the base year 2005.

64. Comprehensive information is provided by Canada on the provision of financial, technological and capacity-building support. Canada's fast-start finance was a considerable scale-up from previous levels, representing an increase of around 300 per cent to a total of over CAD 1.54 billion to support climate change projects through a variety of channels and programmes. Canada is involved in a broad range of actions to advance clean technologies globally, including support for domestic research and development, science and technology cooperation with international partners, and capacity-building in developing countries.

65. In the course of the review, the ERT formulated several recommendations relating to the completeness and transparency of Canada's reporting under the Convention. The key recommendations[3] are that Canada:

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

(i) Changes in its domestic institutional arrangements, including institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of progress towards its target;

(ii) A description of the national approach to tracking the provision of support (including for technology transfer), including information on indicators and delivery mechanisms used and allocation channels tracked, and a full explanation of the methodologies and assumptions used to produce information on finance (i.e. information on how it assesses the effectiveness of its climate finance);

(iii) How it supports endogenous capacities of developing country Parties, with a focus on technology transfer and capacity-building, which supports development of technologies stemming from the developing countries themselves;

(iv) How it responds to the existing and emerging capacity-building needs identified by non-Annex I Parties;

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

(i) A simplified explanation of the methodology used to estimate the LULUCF contribution to the target, in particular, for the FLRFL category;

(ii) More consistency between information provided on PaMs in the PaMs and projections chapters;

(iii) An elaborated description of its mitigation PaMs or cross references to the relevant information provided in the national communication;

(iv) More consistency in its reporting of GHG projections in the CTF tables and the relevant BR, especially for the LULUCF sector and the 'without measures' scenario;

(v) A description of the methodologies and assumptions used to produce information on finance;

(vi) Distinct information on support provided for technology transfer versus support for capacity-building in accordance with CTF tables 8 and 9.

[3] The recommendations are given in full in the relevant sections of this report.

Annex

Documents and information used during the review

A. Reference documents

"UNFCCC biennial reporting guidelines for developed country Parties". Annex to decision 2/CP.17.
Available at <http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf#page=4>.

"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/ARR/2013/CAN. Report of the individual review of the inventory submission of Canada submitted in 2013. Available at <http://unfccc.int/resource/docs/2014/arr/can.pdf>.

FCCC/IDR.5/CAN. Report of the in-depth review of the fifth national communication of Canada. Available at <http://unfccc.int/resource/docs/2011/idr/can05.pdf>.

Sixth national communication of Canada. Available at <http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/nc6_can_resubmission_english.pdf>.

First biennial report of Canada. Available at <http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/nc6_can_resubmission_english.pdf>.

Common tabular format tables of Canada. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/can_br1_ctf_2014_v1.0_resubmission.pdf>.

2013 GHG inventory submission of Canada. Available at <http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/7383.php>.

2014 GHG inventory submission of Canada. Available at <http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/8108.php>.

B. Additional information provided by the Party

Responses to questions during the review were received from Ms. Lyne Monastesse and Ms. Laura Coates (Department of Environment, Canada), including additional material on updated policies and measures, greenhouse gas projections, provision of financial, technological and capacity-building support and recent climate policy developments in Canada. The following document[1] was also provided by Canada and used by the ERT while preparing the report:

Natural Resources Canada. 2014. *Energy Markets Fact Book 2014–2015.* Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2014.

[1] Reproduced as received from the Party.