



COMPLIANCE COMMITTEE

**CC/ERT/2019/3
5 September 2019**

**Report of the technical review of the seventh national communication
of Belgium**

Note by the secretariat

The report of the technical review of the seventh national communication of Belgium was published on 12 July 2019. For purposes of rule 10, paragraph 2, of the rules of procedure of the Compliance Committee (annex to decision 4/CMP.2, as amended by decisions 4/CMP.4 and 8/CMP.9), the report is considered received by the secretariat on the same date. This report, FCCC/IDR.7/BEL, contained in the annex to this note, is being forwarded to the Compliance Committee in accordance with section VI, paragraph 3, of the annex to decision 27/CMP.1.



United Nations

FCCC/IDR.7/BEL



Framework Convention on
Climate Change

Distr.: General
12 July 2019

English only

Report on the technical review of the seventh national communication of Belgium

Parties included in Annex I to the Convention were requested by decision 9/CP.16 to submit their seventh national communication to the secretariat by 1 January 2018. According to decision 15/CMP.1, Parties included in Annex I to the Convention that are also Parties to the Kyoto Protocol are required to include in their national communications supplementary information under Article 7, paragraph 2, of the Kyoto Protocol. This report presents the results of the technical review of the seventh national communication and relevant supplementary information under the Kyoto Protocol of Belgium, 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”.

GE.19-11834(E)



* 1 9 1 1 8 3 4 *

Please recycle



Contents

	<i>Paragraphs</i>	<i>Page</i>
Abbreviations and acronyms		3
I. Introduction and summary	1–7	4
A. Introduction	1–3	4
B. Summary.....	4–7	4
II. Technical review of the information reported in the seventh national communication, including the supplementary information under the Kyoto Protocol	8–111	6
A. Information on national circumstances and greenhouse gas emissions and removals	8–24	6
B. Information on policies and measures and institutional arrangements	25–57	10
C. Projections and the total effect of policies and measures, including information on supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol.....	58–82	18
D. Provision of financial and technological support to developing country Parties, including information under Articles 10 and 11 of the Kyoto Protocol.....	83–91	25
E. Vulnerability assessment, climate change impacts and adaptation measures .	92–98	27
F. Research and systematic observation.....	99–105	30
G. Education, training and public awareness.....	106–111	32
III. Conclusions and recommendations	112–123	33
IV. Questions of implementation	124	35
Annex		
Documents and information used during the review.....		36

Abbreviations and acronyms

AEA	annual emission allocation
BELSPO	Belgium Science Policy
Benelux	Belgium, the Netherlands and Luxembourg
BR	biennial report
CHP	combined heat and power
CH ₄	methane
CO ₂	carbon dioxide
CO ₂ eq	carbon dioxide equivalent
CTF	common tabular format
ERT	expert review team
ESD	effort-sharing decision
EU	European Union
EU ETS	European Union Emissions Trading System
F-gas	fluorinated gas
GDP	gross domestic product
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbon
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
LDCF	Least Developed Countries Fund
LULUCF	land use, land-use change and forestry
Mtoe	million tonnes of oil equivalent
NA	not applicable
NAP	national adaptation plan
NC	national communication
NCP	National Climate Plan
NE	not estimated
NECP	National Energy and Climate Plan
NF ₃	nitrogen trifluoride
NGO	non-governmental organization
NO	not occurring
non-ETS sectors	sectors not covered by the European Union Emissions Trading System
N ₂ O	nitrous oxide
PaMs	policies and measures
PFC	perfluorocarbon
reporting guidelines for supplementary information	“Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol. Part II: Reporting of supplementary information under Article 7, paragraph 2”
RES	renewable energy sources
SF ₆	sulfur hexafluoride
UNFCCC reporting guidelines on BRs	“UNFCCC biennial reporting guidelines for developed country Parties”
UNFCCC reporting guidelines on NCs	“Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications”
WAM	‘with additional measures’
WEM	‘with measures’
WOM	‘without measures’

I. Introduction and summary

A. Introduction

1. This is a report on the in-country technical review of the NC7 of Belgium. The review was 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”, particularly “Part V: UNFCCC guidelines for the technical review of national communications from Parties included in Annex I to the Convention” (annex to decision 13/CP.20), and the “Guidelines for review under Article 8 of the Kyoto Protocol” (annex to decision 22/CMP.1 and annex I to decision 4/CMP.11).¹

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

3. The review was conducted from 25 to 30 March 2019 in Brussels by the following team of nominated experts from the UNFCCC roster of experts: Ms. Nura Al-Otaibi (Saudi Arabia), Mr. Bernd Guegele (EU), Mr. Julius Madzore (Zimbabwe), Mr. Asger Strange Olesen (Denmark) and Ms. Yasna Rojas Ponce (Chile). Mr. Olesen and Ms. Rojas Ponce were the lead reviewers. The review was coordinated by Mr. James Howland (UNFCCC secretariat).

B. Summary

4. The ERT conducted a technical review of the information reported in the NC7 of Belgium in accordance with the UNFCCC reporting guidelines on NCs (decision 4/CP.5) and the reporting guidelines for supplementary information, in particular the supplementary information required under Article 7, paragraph 2, and on the minimization of adverse impacts under Article 3, paragraph 14, of the Kyoto Protocol (annex to decision 15/CMP.1 and annex III to decision 3/CMP.11).

1. Timeliness

5. The NC7 was submitted on 20 December 2017, before the deadline of 1 January 2018 mandated by decision 9/CP.16.

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

6. Issues and gaps identified by the ERT related to the reported information are presented in table 1. The information reported by Belgium in its NC7, including the supplementary information under the Kyoto Protocol, mostly adheres to the UNFCCC reporting guidelines on NCs.

¹ At the time of the publication of this report, Belgium had submitted its instrument of acceptance of the Doha Amendment; however, the Amendment had not yet entered into force. The implementation of the provisions of the Doha Amendment is therefore considered in this report in the context of decision 1/CMP.8, paragraph 6, pending the entry into force of the Amendment.

Table 1

Assessment of completeness and transparency of mandatory information reported by Belgium in its seventh national communication, including supplementary information under the Kyoto Protocol

<i>Section of NC</i>	<i>Completeness</i>	<i>Transparency</i>	<i>Reference to description of recommendations</i>	<i>Supplementary information under the Kyoto Protocol</i>	<i>Completeness</i>	<i>Transparency</i>	<i>Reference to description of recommendations</i>
Executive summary	Complete	Transparent		National system	Complete	Mostly transparent	Issue 1 in table 5
National circumstances	Complete	Transparent		National registry	Complete	Transparent	
GHG inventory	Complete	Transparent		Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Complete	Transparent	
PaMs	Complete	Mostly transparent	Issue 1 in table 7	PaMs in accordance with Article 2	Complete	Transparent	
Projections and the total effect of PaMs	Mostly complete	Mostly transparent	Issue 5 in table 11 Issue 1 in table 13	Domestic and regional programmes and/or arrangements and procedures	Complete	Transparent	
Vulnerability assessment, climate change impacts and adaptation measures	Complete	Mostly transparent	Issue 1 in table 16	Information under Article 10 ^a	Complete	Transparent	
Financial resources and transfer of technology	Complete	Transparent		Financial resources	Complete	Transparent	
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					

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

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

3. Summary of reviewed supplementary information under the Kyoto Protocol

7. The supplementary information under Article 7, paragraph 2, of the Kyoto Protocol is incorporated in different sections of the NC7, and the supplementary information under Article 7, paragraph 1, of the Kyoto Protocol is reported in the national inventory report of the 2018 annual submission. Table 3 provides references to where the information is reported. The technical assessment of the information reported under Article 7, paragraphs 1 and 2, of the Kyoto Protocol is contained in the relevant sections of this report.

Table 2

Overview of supplementary information under the Kyoto Protocol reported by Belgium

<i>Supplementary information</i>	<i>Reference to section of NC7</i>
National registry	3.3
National system	3.4
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	5.3
PaMs in accordance with Article 2	4.3
Domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures	4.2
Information under Article 10	3.3, 4.3, 6.3, 7.3, 8, 9.2 and 9.3
Financial resources	7.2
Minimization of adverse impacts in accordance with Article 3, paragraph 14	4.5

II. Technical review of the information reported in the seventh national communication, including the supplementary information under the Kyoto Protocol

A. Information on national circumstances and greenhouse gas emissions and removals

1. National circumstances relevant to greenhouse gas emissions and removals

(a) Technical assessment of the reported information

8. The national circumstances of Belgium explain the relationship between its historical and future emission trends and the climate change policy agenda. The changing nature of those circumstances defines the factors that affect the climate policy development and implementation of the Convention. The NC7 contains key data on legislation, population trends, geography and land use, climate and climate change, economic developments, energy, transport, the buildings sector, industry, trade, the services sector, agriculture, forestry, resource efficiency and wastewater.

9. Belgium is a federal State composed of three language-based communities (Flemish-, French- and German-speaking) and three regions (Brussels-Capital Region, Flemish Region and Walloon Region). Each of the regions has its own executive and legislative bodies, and the implementation of climate policy is therefore decentralized. In order to ensure the consistent implementation of national policy, the cooperation bodies of various government agencies carry out coordination between the different levels of government.

10. Owing to the complexity of the State structure, governance of climate policy is difficult in Belgium. The ERT noted that it took the federal and regional governments seven

years to reach an agreement on the burden-sharing targets for each entity following the adoption of the ESD target. The difficulties in governance may also slow the pace of implementation of PaMs.

11. The major drivers of GHG emission trends in Belgium are changes in primary energy use and changes in overall economic activity, such as the closure of some industries and the growth of the tertiary sector. Since 1990, primary energy intensity has declined, reflecting the decoupling of economic growth from primary energy consumption. Between 2008 and 2017, the total primary energy consumption decreased by 3.9 per cent and the total final energy consumption decreased by 2.6 per cent. Primary energy consumption in 2017 was 49.1 Mtoe,² which is significantly above the indicative target of 43.7 Mtoe by 2020 set by Belgium. The share of renewable energy has increased significantly over the past decade, reaching 9.1 per cent of gross final energy consumption in 2017, although this is still far from the 13 per cent 2020 target set out in EU legislation. In the longer term, renewable energy is expected to account for a significant share of primary energy production in Belgium.

12. Owing to Belgium's role as a transit country and its export-dominated economy, the transport sector experiences constant and rapid growth, particularly in the areas of road and air transport. With regard to industry, the number of metallurgy and textile enterprises has been declining since the 1960s. Although the area of agricultural land in use has remained relatively stable, the number of farms has continued to decline significantly in recent years. Organic agriculture is developing rapidly, although the share of total organic land area (6.3 per cent in 2017) is still below the EU average of 7 per cent.³

13. The ERT noted that during the period 1990–2016 Belgium's GDP per capita increased by 37.3 per cent, while GHG emissions per GDP unit and GHG emissions per capita decreased by 48.6 and 29.4 per cent, respectively. Nevertheless, Belgium's GHG emissions per capita are still above the EU GHG emissions per capita. Table 3 illustrates the national circumstances of Belgium by providing some indicators relevant to emissions and removals.

Table 3

Indicators relevant to greenhouse gas emissions and removals for Belgium for the period 1990–2016

<i>Indicator</i>						<i>Change (%)</i>	
	1990	2000	2010	2015	2016	1990–2016	2015–2016
GDP per capita (thousands 2011 USD using purchasing power parity)	30.65	37.19	41.09	41.71	42.08	37.3	0.9
GHG emissions without LULUCF per capita (t CO ₂ eq)	14.71	14.61	12.18	10.43	10.39	–29.4	–0.4
GHG emissions without LULUCF per GDP unit (kg CO ₂ eq per 2011 USD using purchasing power parity)	0.48	0.39	0.30	0.25	0.25	–48.6	–1.3

Sources: (1) GHG emission data: Belgium's 2018 GHG inventory submission, version 2; (2) population and GDP: World Bank.

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.

(b) Assessment of adherence to the reporting guidelines

14. The ERT assessed the information reported in the NC7 of Belgium and recognized that the reporting is complete, transparent and adhering to the UNFCCC reporting guidelines

² See <https://ec.europa.eu/eurostat/web/energy/data/energy-balances>.

³ See https://ec.europa.eu/eurostat/statistics-explained/index.php/Organic_farming_statistics.

on NCs. There were no issues raised during the review relating to the topics discussed in this chapter of the review report.

2. Information on greenhouse gas inventory arrangements, emissions, removals and trends

(a) Technical assessment of the reported information

15. Total GHG emissions⁴ excluding emissions and removals from LULUCF decreased by 19.7 per cent between 1990 and 2016, whereas total GHG emissions including net emissions or removals from LULUCF decreased by 19.2 per cent over the same period. Table 4 illustrates the emission trends by sector and by gas for Belgium.

Table 4

Greenhouse gas emissions by sector and by gas for Belgium for the period 1990–2016

Sector	GHG emissions (kt CO ₂ eq)					Change (%)		Share (%)	
	1990	2000	2010	2015	2016	1990–2016	2015–2016	1990	2016
1. Energy	103 738.34	106 040.81	98 523.94	86 183.01	85 869.04	–17.2	–0.4	70.7	72.9
A1. Energy industries	30 059.40	28 670.55	26 547.01	21 284.01	19 981.75	–33.5	–6.1	20.5	17.0
A2. Manufacturing industries and construction	23 241.65	21 538.38	15 730.32	13 570.29	13 318.05	–42.7	–1.9	15.8	11.3
A3. Transport	20 891.69	24 881.94	26 433.12	26 691.85	26 390.07	26.3	–1.1	14.2	22.4
A4. and A5. Other	28 308.23	30 093.95	29 052.19	23 968.81	25 535.74	–9.8	6.5	19.3	21.7
B. Fugitive emissions from fuels	1 237.37	855.98	761.30	668.05	643.43	–48.0	–3.7	0.8	0.5
C. CO ₂ transport and storage	NO	NO	NO	NO	NO	–	–	–	–
2. IPPU	26 292.80	28 420.01	21 456.66	19 714.23	20 466.60	–22.2	3.8	17.9	17.4
3. Agriculture	12 287.81	11 372.49	10 229.37	10 088.96	9 897.06	–19.5	–1.9	8.4	8.4
4. LULUCF	–2 433.69	–1 889.89	–1 536.50	–1 182.24	–1 149.54	–52.8	–2.8	–	–
5. Waste	4 335.07	3 950.80	2 502.39	1 598.23	1 494.41	–65.5	–6.5	3.0	1.3
6. Other	NO	NO	NO	NO	NO	–	–	–	–
Indirect CO ₂	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	–	–	–	–
Gas ^a									
CO ₂	120 484.40	126 794.79	113 582.03	100 229.49	100 243.71	–16.8	0.0	82.2	85.1
CH ₄	12 197.20	11 008.01	8 789.10	8 106.56	8 043.92	–34.1	–0.8	8.3	6.8
N ₂ O	10 159.33	10 259.75	7 586.46	6 022.14	5 746.39	–43.4	–4.6	6.9	4.9
HFCs	NA, NO	1 131.39	2 544.80	2 834.10	2 939.17	–	3.7	–	2.5
PFCs	2 191.05	446.11	106.61	299.93	658.55	–69.9	119.6	1.5	0.6
SF ₆	1 622.04	144.06	102.03	91.36	94.67	–94.2	3.6	1.1	0.1
NF ₃	NA, NO	NA, NO	1.32	0.85	0.71	–	–15.9	–	0.0
Total GHG emissions without LULUCF	146 654.02	149 784.10	132 712.35	117 584.43	117 727.11	–19.7	0.1	100.0	100.0
Total GHG emissions with LULUCF	144 220.33	147 894.21	131 175.85	116 402.19	116 577.58	–19.2	0.2	–	–

Source: GHG emission data: Belgium's 2018 annual submission, version 2.

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

16. The decrease in total emissions was driven mainly by a shift from coal to RES and natural gas in the energy sector and changes in activity level and technology improvements

⁴ In this report, the term “total GHG emissions” refers to the aggregated national GHG emissions expressed in terms of CO₂ eq excluding LULUCF, unless otherwise specified. Values in this paragraph are calculated on the basis of the 2018 annual submission, version 2.

in the manufacturing sector. However, the decrease was countered by increasing road transport emissions. CH₄ emissions in the waste sector decreased significantly. The ERT noted that the NC7 does not provide a figure including graphs for sector totals and total emissions from 1990 to the most recent year for which data are available (2016), which would improve the understanding of trends.

17. Between 1990 and 2016, GHG emissions from the energy sector decreased by 17.2 per cent (17,869.30 kt CO₂ eq) owing mainly to the closure of six coke plants over the past 30 years; a shift from coal to natural gas and renewables, technological improvements and an increase in the share of CHP in the energy sector; and the switch to electric furnaces in the manufacturing industry. The trend in GHG emissions from fuel combustion showed notable increases in transport (26.3 per cent or 5,498.38 kt CO₂ eq) while GHG emissions from energy use in other sectors decreased (by 9.8 per cent or 2,772.49 kt CO₂ eq). The observed increase in transport emissions is mainly driven by increasing road transport, which constituted 97.5 per cent of all transport emissions in 2015.

18. Between 1990 and 2016, GHG emissions from IPPU decreased by 22.2 per cent (5,826.2 kt CO₂ eq) owing mainly to reduced activity in the metal production industry since 2009 and changes in the chemical industry, in particular the use of catalysts in nitric acid production beginning in 2003 and a sharp decrease in emissions from fluorochemical production. Between 1990 and 2016, GHG emissions from the agriculture sector decreased by 19.5 per cent (2,390.75 kt CO₂ eq), owing mainly to reduced emissions from enteric fermentation resulting from lower livestock head counts, particularly dairy cattle, and the reduced application of nitrogen fertilizers. The LULUCF sector was a net sink of 1,149.54 kt CO₂ eq in 2016; net GHG removals have decreased by 1,284.15 kt CO₂ eq since 1990. The trend was mainly driven by increased land area for settlements (partly at the expense of grasslands) and methodological changes to the reporting of emissions on forest land. The ERT noted that figure 3.12 does not include a line for total reported LULUCF emissions, which would improve understanding of the overall trend. During the review, Belgium informed the ERT that the emission factors used for reporting on forest land had recently been changed, resulting in a reduction in the reported sink value for this land category. The recalculated inventory numbers were not available at the time of the review. Between 1990 and 2016, GHG emissions from the waste sector decreased by 65.5 per cent (2,840.66 kt CO₂ eq) owing mainly to reduced CH₄ emissions from solid waste disposal sites, which decreased by 69 per cent between 1990 and 2015.

19. The summary information provided on GHG emissions was consistent with the information reported in the 2017 annual submission. The ERT noted that in the 2018 annual submission a new version of the 2015 inventory is included, and that most sector totals and the total GHG emissions (with and without LULUCF) have changed. The total emissions for 2015 have been adjusted upwards by 0.75 per cent (864.41 kt CO₂ eq), owing mostly to upward revisions of chemical industry emissions by 1.53 per cent (164.93 kt CO₂ eq) and the 23.6 per cent (988.00 kt CO₂ eq) decrease reported in forest land removals.

(b) Assessment of adherence to the reporting guidelines

20. The ERT assessed the information reported in the NC7 of Belgium and recognized that the reporting is complete, transparent and adhering to the UNFCCC reporting guidelines on NCs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

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

(a) Technical assessment of the reported information

21. Belgium provided in the NC7 a description of how its national system for the estimation of anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol is performing the general and specific functions defined in the annex to decision 19/CMP.1. The description includes all the elements mandated by paragraph 30 of the annex to decision 15/CMP.1. The NC7 also contains a reference to the description of the national system provided in the national inventory report of the 2017 annual

submission, which contains more detailed information regarding legal arrangements and inventory preparation. The ERT took note that no changes have been made to the national system since the NC6 and BR2.

(b) Assessment of adherence to the reporting guidelines

22. The ERT assessed the information reported in the NC7 of Belgium and identified an issue relating to transparency and adherence to the UNFCCC reporting guidelines on NCs. The finding is described in table 5.

Table 5

Findings on the national system for the estimation of anthropogenic emissions by sources and removals by sinks from the review of the seventh national communication of Belgium

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 30 Issue type: transparency Assessment: recommendation	Belgium did not provide in its NC7 a transparent description of the process for collecting activity data as required under paragraph 30(c). In particular, the Party did not report information on how data are collected and consolidated between the regional and the federal level without double counting or omission of emissions. During the review, Belgium provided information about the processes to compile energy balances and GHG inventories at the regional and federal level. The ERT reiterates the recommendation from the previous review report that Belgium include in its next submission information on the process of data collection and aggregation that includes the process of consolidation between the regional and federal level, or provide a reference indicating where that information is reported in its national inventory report.

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

4. National registry

(a) Technical assessment of the reported information

23. In the NC7 Belgium provided information on how its national registry performs the functions in accordance with the annex to decision 13/CMP.1 and the annex to decision 5/CMP.1 and complies with the requirements of the technical standards for data exchange between registry systems. The NC7 also includes some small changes made to the registry since the NC6. The ERT took note of the review of the changes to the national registry reflected in the report on the individual review of the 2016 annual submission of Belgium. The changes were related to database structure, conformance with technical standards, security, publicly available information and test results.

(b) Assessment of adherence to the reporting guidelines

24. The ERT assessed the information reported in the NC7 of Belgium and recognized that the reporting is complete and transparent. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

B. Information on policies and measures and institutional arrangements

1. Domestic and regional programmes and/or legislative arrangements and procedures related to the Kyoto Protocol

(a) Technical assessment of the reported information

25. For the second commitment period of the Kyoto Protocol, from 2013 to 2020, Belgium committed to contributing to the joint EU effort to reduce GHG emissions by 20 per

cent below the base-year level by reducing its emissions related to non-ETS sectors by 15 per cent below its 2005 level.

26. The PaMs to implement the Kyoto Protocol are set out in the NCP, which is essentially a compilation of measures from regional and federal entities that contribute to the fulfilment of Belgium's obligations under the Kyoto Protocol. These measures largely follow the requirements of EU policies on emissions trading, Kyoto Protocol mechanisms and the energy, transport, agriculture and waste management sectors. The NCP was approved by the National Climate Commission in 2009 and covers 2009–2012. It will continue to be implemented until the first NECP (NECP 2030), which covers 2021–2030, is adopted. NECP 2030 will need to be adopted by the end of 2019 in accordance with the relevant EU regulations (the package of measures known as “Clean energy for all Europeans”).

27. The National Climate Commission, which was established under the cooperation agreement of 14 November 2002, under the auspices of the Inter-ministerial Conference for the Environment, is responsible for the establishment and revision of the NCP and the execution of international and European reporting obligations. Under the Belgian federal system, responsibilities and policymaking powers are divided among the Federal Government and the three regions, or among the Federal Government and the three language communities, according to areas of competence. Implementation of climate change policies is based on joint plans agreed by the federal and regional governments, which set up their own priorities and goals.

28. Belgium has legislative arrangements and administrative procedures in place to make information publicly accessible. Public access to environmental information, including legislative instruments and PaMs developed under the Kyoto Protocol, is regulated at the federal and regional level by legislation that is based on the first pillar of the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters and also transposes the EU directive on public access to environmental information (directive 2003/4/EC).

29. Belgium has national legislative arrangements and administrative procedures in place that seek to ensure that the implementation of activities under Article 3, paragraph 3, forest management activities under Article 3, paragraph 4, and any elected activities under Article 3, paragraph 4, of the Kyoto Protocol also contribute to the conservation of biodiversity and the sustainable use of natural resources. In the Walloon Region, the Forest Code (decree of 15 July 2008) has introduced the sustainable management of forests, including the restriction of clear-cutting and forest certification, to the region. In the Brussels-Capital Region, the Forêt de Soignes/Zoniënwoud is protected and Forest Stewardship Council certified; no deforestation is allowed. The forest management aims to ensure ecological stability and a long-term balance in the distribution of forest age, taking into account biodiversity, ecological and social aspects. The Flemish Region has an active forest expansion policy. Flemish authorities have drawn up strict regulations for optimum conservation and protection of the Flemish forest. As a general rule, deforestation is prohibited, and instruments were created to protect the biodiversity and ensure the sustainable use of natural resources.

(b) Assessment of adherence to the reporting guidelines

30. The ERT assessed the information reported in the NC7 of Belgium and recognized that the reporting is complete, transparent and adhering to the reporting guidelines for supplementary information. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

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

(a) Technical assessment of the reported information

31. Belgium provided information on its package of PaMs implemented, adopted and planned, by sector and by gas, in order to fulfil its commitments under the Convention and its Kyoto Protocol. The Party reported on its policy context and legal and institutional

arrangements put in place to implement its commitments and monitor and evaluate the effectiveness of its PaMs.

32. Belgium provided information on a set of PaMs similar to those previously reported. It also provided information on changes made since the previous submission, in particular with regard to newly introduced PaMs and those no longer being implemented. During the review, the Party provided information on PaMs implemented at the federal and regional level since the submission of its NC7. These mainly relate to renewable energy, energy efficiency, mobility, F-gases, N₂O from chemical production and green bonds.

33. Belgium gave priority to reporting the PaMs that make the most significant contribution to its emission reduction efforts. Belgium provided information on how it believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals in accordance with the objective of the Convention. The Party provided quantitative information on the mitigation impact up to 2035 of selected PaMs. In addition, Belgium described federal and regional strategies relating to long-term (up to 2050) sustainable development. The Party also stated that its NC8 would contain a more advanced analysis based on the long-term strategy that is currently under development. The ERT notes that Belgium could increase the transparency of its reporting by identifying policies that have structural effects, affect common practices and have long-term impacts. Belgium provided information on how it periodically updates its PaMs to reduce greater levels of emissions than would otherwise occur and on the PaMs that have been discontinued since the previous submission.

34. A significant number of PaMs are planned and implemented at the regional level. In June 2013, the Flemish Government formally adopted its Flemish Climate Policy Plan 2013–2020. The Plan consists of an overall framework and two closely related sections: the Flemish Mitigation Plan and the Flemish Adaptation Plan. In the Walloon Region, the Walloon Air, Climate and Energy Plan includes PaMs for the region. The Brussels-Capital Region has two main sets of climate-related PaMs: the Brussels Air, Climate and Energy Control Code and the Air, Climate, Energy Plan.

35. The key overarching cross-sectoral policy in the EU is the 2020 climate and energy package, adopted in 2009, which includes the revised EU ETS and the ESD. The package is supplemented by renewable energy and energy efficiency legislation and legislative proposals on the 2020 targets for CO₂ emissions from cars and vans, the carbon capture and storage directive and the general programmes for environmental conservation, namely the 7th Environment Action Programme and the clean air policy package.

36. In operation since 2005, the EU ETS is a cap-and-trade system that covers all significant energy-intensive installations (mainly large point emissions sources such as power plants and industrial facilities), which produce 40–45 per cent of the GHG emissions of the EU. It is expected that the EU ETS will guarantee that the 2020 target (a 21 per cent emission reduction below the 2005 level) will be achieved for sectors under the scheme. The third phase of the EU ETS started in 2013, and the system now includes aircraft operations (since 2012) as well as N₂O emissions from chemical industries, PFC emissions from aluminium production and CO₂ emissions from some industrial processes that were not covered in the previous phases of the EU ETS (since 2013).

37. The ESD became operational in 2013 and covers sectors outside the EU ETS, including transport (excluding domestic and international aviation, and international maritime transport), residential and commercial buildings, agriculture and waste, together accounting for 55–60 per cent of the GHG emissions of the EU. The aim of the ESD is to decrease GHG emissions in the EU by 10 per cent below the 2005 level by 2020, and it includes binding annual targets for each member State for 2013–2020.

38. Belgium introduced national-level climate policies to achieve its climate and energy targets. The key policies reported are (a) in the area of renewable energy, including offshore wind energy, various support schemes for wind, solar and biomass energy production, and biofuel incorporation in transport fuels; (b) in the area of buildings, various support schemes for energy savings in existing buildings and implementation of the EU directive on energy performance of buildings for new construction; (c) in the area of transport, a distance-based road charging system for heavy goods vehicles, investments in public transport and cycling

infrastructure, and free public transport for commuters in public sector jobs; and (d) in the area of agriculture and manure management policies. The mitigation effect of energy efficiency standards for electrical appliances is the most significant. Other policies that have delivered significant emission reductions are included in table 6.

39. During the review, Belgium highlighted the domestic mitigation actions that are under development or being investigated. One such important measure under investigation is carbon pricing for non-ETS sectors. Related studies have been prepared in consultation with experts and national stakeholders in an open process. The Party indicated that while clear implementation modalities have been identified and could be implemented on a short-term basis, further studies (related to jurisdictional issues and energy poverty) on this issue are ongoing. The ERT notes that these developments could, once implemented, serve as an example to other Parties. In any case, the scope for additional energy taxes is considerable given that the share of energy taxes of the GDP is very low in Belgium compared with other EU countries.⁵

40. Belgium also indicated during the review that, by means of its NECP, it aims to make the fiscal system more climate-friendly, including by progressively reducing indirect support for fossil fuels. In its NC7 the Party reported that it has abolished subsidies for the use of coal, which it expects will also have a positive impact on health in the long term. Nevertheless, various international bodies have conducted studies in which they identified areas where progress could be made to decrease fossil fuel subsidies in Belgium. According to these studies, the scope for reducing fossil fuel subsidies is between EUR 2 billion and EUR 4 billion. The most recent national study lists the following largest subsidies in this context: EUR 1.1 billion for fuel tax reduction for residential users (heating oil); EUR 0.6 billion for fuel tax reduction for certain professional users (heating oil); EUR 0.2 billion for favourable tax treatment of fuel used in company cars; and EUR 0.2 billion for fuel tax exemption in aviation (kerosene) (Climact, 2019).

Table 6

Summary of information on policies and measures reported by Belgium

<i>Sector</i>	<i>Key PaMs</i>	<i>Estimate of mitigation impact by 2020 (kt CO₂ eq)</i>	<i>Estimate of mitigation impact by 2030 (kt CO₂ eq)</i>
Policy framework and cross-sectoral measures	EU ETS	NE	NE
	Energy conservation	NE	NE
	Awareness-raising activities on climate change	NE	NE
Energy	Action plan for RES and CHP	2 464.00	2 724.00
Transport	Promoting clean vehicles	11.57	11.57
	Promoting multi-modal freight transport	117.26	164.21
	Improving and promoting public transport	495.15	665.01
	Promoting use of biofuels	1 945.00	2 717.00
Renewable energy	Support for electricity production from RES	5 311.3	6 664.24
	Financial support for RES and taxation of fossil fuels	1 319.00	1 319.00
Energy efficiency	Energy efficiency improvement in existing buildings	3 587.00	2 871.00
	Energy efficiency in electrical appliances	6 512.00	11 282.00
IPPU	Catalytic reduction of N ₂ O emissions from nitric acid plants	3 362.21	3 362.21
	Energy efficiency in industry	2 627.03	2 627.03

⁵ See https://ec.europa.eu/eurostat/en/web/products-datasets/-/T2020_RT320.

<i>Sector</i>	<i>Key PaMs</i>	<i>Estimate of mitigation impact by 2020 (kt CO₂ eq)</i>	<i>Estimate of mitigation impact by 2030 (kt CO₂ eq)</i>
	Reduction in emissions from F-gases (HFCs and PFCs)	1 647.00	3 334.00
Agriculture	Reduction in GHG emissions from fertilizer use and manure management policy	NE	NE
LULUCF	Limiting deforestation and promotion of reforestation	NE	NE
Waste	Ban on landfilling of organic waste	NE	NE
	Optimization of incineration plants	NE	NE
	Reduction of waste generation	NE	NE

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

41. The National Climate Commission is responsible for reporting annually on the evaluation of the PaMs contained in the NCP. A bottom-up approach is used for assessing the mitigation impacts. The estimated sum of GHG emission reductions from PaMs to be adopted and implemented by 2020 is 32.16 Mt CO₂ eq (CTF table 3). Belgium also reported its sum of estimated GHG emission reductions as 36.70 Mt CO₂ eq in (annex II, table B). The ERT noted a discrepancy in the estimated GHG emission reduction. During the review week, the Party revised the GHG emission reduction estimate to 31.76 Mt CO₂ eq, citing misallocation of a PaM that belonged to the residential sector and calculation errors due to the double counting effects of some PaMs, mainly of energy efficiency and cross-cutting measures. The ERT noted that transparency would be improved if these corrections to the aggregate effects of Belgium's mitigation actions are applied in its next submission. During the review, the Party provided planned, adopted and implemented measures that are additional to those included in the draft NECP 2030. The Party was not able to provide during the review week its latest report on the assessment, monitoring and evaluation of the impact of its mitigation actions. The Party indicated that this annual report of the National Climate Commission had not taken place as expected.

(b) Policies and measures in the energy sector

42. **Energy supply.** Belgium has limited energy resources and produces only about 20 per cent of its primary energy consumption. Renewables and waste account for 26.5 per cent of the domestic primary energy supply, while nuclear power plants account for 63.7 per cent. Between 1990 and 2014, emissions from energy industries decreased by 30 per cent, primarily owing to an increase in the share of renewables, an increase in CHP installations, a shift from solid fuels to natural gas and technological improvements. The main mitigation actions in the energy production transformation sector are an increase in the renewable energy supply, mostly through offshore wind energy, and an increase in energy efficiency on the supply side. Belgium is phasing out energy production from nuclear plants by 2025 and promoting CHP installations.

43. **Renewable energy sources.** The main RES in Belgium are offshore wind power, for which development is ongoing, and energy from waste. As a member State of the EU, Belgium is striving to meet its obligation of increasing the share of renewables to 13 per cent of gross final energy consumption by 2020 under the EU 2020 climate and energy package, and to 27 per cent by 2030 under the EC 2030 climate and energy policy framework. In 2017, renewables accounted for 9.1 per cent of gross final energy consumption in Belgium.⁶ The key RES PaM is EP-A05: Action plan for RES and CHP, which estimates a reduction in GHG emissions of 2,464.00 kt CO₂ eq by 2020.

⁶ See <https://ec.europa.eu/eurostat/web/energy/data/shares>.

44. **Energy efficiency.** The national energy efficiency target is an 18 per cent reduction of primary energy consumption by 2020, pursuant to the EU energy efficiency directive (2012/27/EU). The main PaMs in energy efficiency are designed, developed and implemented at both the federal and the regional level. The PaMs on energy efficiency, which are expected to yield significant GHG emission reductions by 2020, primarily cover the areas of production of electricity (4,526.01 kt CO₂ eq), buildings (1,665.41 kt CO₂ eq), industry (3,267.22 kt CO₂ eq), electrical appliances (6,572.00 kt CO₂ eq) and transport (178.08 kt CO₂ eq).

45. **Residential and commercial sectors.** The main objective of the PaMs in the residential and commercial sectors is compliance with the EU directives on energy performance in new and existing buildings (directives 2002/91/EC and 2010/31/EU). The Brussels-Capital Region, for example, has instituted an obligation to conduct energy audits of buildings of more than 3,500 m² to help meet the building efficiency requirements. The PaMs in the residential and commercial sectors are implemented together with PaMs that promote use of renewable energy.

46. **Transport sector.** Emissions in the transport sector have been increasing, mostly because of road transport emissions. Since 2004, Belgium has been implementing various PaMs aimed at reducing GHG emissions from the road transport sector. The most recent of these is the taxation of road transport, introduced in 2016, which is being implemented on a phased basis. The measure aims to establish effective pricing of vehicle kilometres by road; differentiate kilometre taxes for freight vehicles; and develop pricing mechanisms for passenger cars, following an evaluation trial project. During the review, Belgium informed the ERT of measures in the transport sector that have been implemented at the federal level since the submission of its NC7. They include a provision on mobility allowances, a mobility budget, incentives for e-bikes, modification of fiscal regimes for company cars and a new excise duty regime for petrol and diesel. Other implemented PaMs pertain to promoting biofuels; improving public transport efficiency; and promoting environmentally friendly vehicles, eco-driving training and intermodality. The ERT notes that additional measures may be required to curb the increase in GHG emissions from the road transport sector. Such measures have been planned at both the federal and the regional level and are included in the draft NECP 2030.

47. The NC7 includes information on how Belgium promotes and implements the decisions of the International Civil Aviation Organization and the International Maritime Organization on limiting emissions from aviation and marine bunker fuels. For example, Belgium indicated in its NC7 that it will participate in the Carbon Offsetting and Reduction Scheme for International Aviation of the International Civil Aviation Organization in 2021.

48. **Industrial sector.** The reduction of emissions in the industrial sector is carried out via the EU ETS. The regional governments also have specific agreements, such as benchmark and voluntary agreements that aim to reduce emissions from the industrial sector in the Flemish Region.

(c) Policies and measures in other sectors

49. **Industrial processes.** The main PaMs in this sector are voluntary agreements that seek to reduce N₂O emissions from nitric acid and other plants. In consultation with industry, the Flemish Government has also put a cap on N₂O emissions from the production of caprolactam, which will take effect in 2020. Emissions from nitric acid plants have declined owing to the closure of two of the plants and implementation of the aforementioned PaMs. During the review, Belgium indicated that the first regulation on F-gases was replaced by regulation 517/2014 in 2014, which strengthened the existing measures and introduced new provisions on F-gas consumption and production. This regulation came into force in 2015 and was not reported in the NC7.

50. **Agriculture.** Enteric fermentation, manure management and N₂O emissions from agricultural soils are the main sources of non-fuel related GHG emissions from agriculture. The mitigation actions implemented include the reduction of GHG emissions from fertilizer use and the Manure Action Plan of the Flemish Region, which seeks to reduce ammonia and

N₂O emissions from the application of manure. However, the ERT noted that neither the aggregate nor the individual impact of these PaMs was evaluated in the NC7.

51. **LULUCF.** The LULUCF sector is a net sink in Belgium in the range of –2,500 kt CO₂ eq. However, there are direct N₂O emissions from nitrogen mineralization and immobilization. These emissions are indirectly offset by increasing the sink capacity through limiting deforestation and promoting reforestation measures. However, this impact of the measure is not estimated in the NC7.

52. **Waste management.** Belgium is subject to EC directives on managing emissions from the waste sector, such as directive 1999/31/EC. A number of measures have been put in place since 2004, resulting in a reduction in emissions from the waste sector. These include PaMs to ban landfilling of organic waste, optimize incineration plants and reduce waste generation. During the review, Belgium also informed the ERT of waste PaMs that have been strengthened or implemented since submission of the NC7, as well as PaMs that are planned in NECP 2030, including measures to promote a circular economy and increase recycling rates, for example through the Walloon Waste and Resources Plan. Although the Party informed the ERT that the PaMs in the waste sector are directly linked to the reduction in GHG emissions from the sector, it did not estimate the impact of either individual measures or the sector cluster.

(d) Minimization of adverse impacts in accordance with Article 2 and Article 3, paragraph 14, of the Kyoto Protocol

53. In the NC7 Belgium 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 ERT noted that, in response to a recommendation from the previous ERT, Belgium provided this information in a separate section (section 4.5 of the NC7) to improve transparency. The NC7 underlines that Belgium has taken actions intended to prevent dangerous anthropogenic interference with the climate system and to reduce air pollution for the benefit of all countries. As a member State of the EU, Belgium designs and implements most of its policies in accordance with the framework of EU directives, regulations, decisions and recommendations. For instance, Belgium has aimed to address market imperfections and better reflect externalities in energy prices by implementing the liberalization of European electricity and natural gas markets and participating in the EU ETS.

54. Various international bodies have identified ways to decrease fossil fuel subsidies in Belgium. The Party has abolished subsidies supporting the use of coal and other fossil fuels for energy production and expects these measures to have a positive impact on health in the long term. However, the ERT noted that fossil fuel subsidies still amount to about EUR 2 billion (see para. 40 above), which means that there is substantial scope to further reduce these subsidies.

55. Belgian agricultural policies and actions to promote biofuels are developed in accordance with EU common policies. The new EU common agriculture policy should make market conditions more accessible to products from developing countries. With respect to biofuels, recognizing that their development could create pressures on food prices and on land and forest management, especially in developing countries, the EU has established strict sustainability criteria that specifically prohibit support for biofuels from land with high biodiversity value, from land converted from wetlands or peatlands, or from continuously forested areas. Belgium reported that the EU biofuels policy will also promote cautiousness with regard to broader environmental and social aspects such as air, water and soil quality and labour conditions.

56. Further information on how Belgium strives to implement its commitments under Article 3, paragraph 14, of the Kyoto Protocol in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties was reported in the 2018 annual submission. The Party reported on the same issues as in the NC7.

(e) Assessment of adherence to the reporting guidelines

57. The ERT assessed the information reported in the NC7 of Belgium and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 7.

Table 7

Findings on policies and measures, including those in accordance with Article 2 of the Kyoto Protocol, from the review of the seventh national communication of Belgium

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement ^a specified in paragraph 17 Issue type: transparency Assessment: recommendation	The Party did not provide information on PaMs by sector, subdivided by GHG in its NC7. The ERT recommends that Belgium improve the transparency of its reporting by organizing information on its PaMs by sector, subdivided by GHG.
2	Reporting requirement ^a specified in paragraph 23 Issue type: transparency Assessment: encouragement	The Party did not report a quantitative estimate of the impacts of individual PaMs or collections of PaMs in the agriculture, LULUCF and waste sectors, or of some PaMs in the transport sector (OB-C06 and OB-C07) in its NC7. During the review, Belgium explained that it encountered difficulties in estimating the impact of PaMs owing to, among other reasons, the cross-cutting nature of some PaMs and the complementarity of some measures. Belgium further explained during the review that the estimated impacts of the measures OB-C06 and OB-C07 were very small. The ERT encourages Belgium to improve transparency by reporting, as appropriate, the estimated impact of implemented measures in the agriculture, waste and LULUCF sectors or clearly explain why this may not be possible due to its national circumstances.
3	Reporting requirement ^a specified in paragraph 24 Issue type: transparency Assessment: encouragement	The Party did not report information on the costs of PaMs in its NC7. During the review, Belgium provided information on the socioeconomic costs of some federal PaMs, and acknowledged the lack of information with respect to other PaMs. The Party noted that since the publication of its NC7 and BR3, the focus of work on PaMs has been on prospective studies to develop NECP 2030. The ERT encourages the Party to provide information on the cost of PaMs in its next submission in order to improve the transparency of its reporting.
4	Reporting requirement ^a specified in paragraph 26 Issue type: completeness Assessment: encouragement	The Party did not explain why four of the PaMs reported in its NC6 are no longer in effect and therefore omitted from its NC7. During the review, Belgium confirmed that the PaMs EC-C05, EP-B01, EC-B04 and EC-A02 reported in its NC6 are no longer in place. The Party explained that there were different reasons for the terminations, including that a PaM did not produce sufficient emission reductions, was no longer relevant owing to regulatory changes or was a pilot project that had ended. The ERT encourages Belgium to explain in its next NC when PaMs listed in previous NCs are no longer in place why this is so.

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

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

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

1. Projections overview, methodology and results

(a) Technical assessment of the reported information

58. Belgium reported updated projections for 2020 and 2030 relative to actual inventory data for 2015 under the WEM scenario. The WEM scenario reported by Belgium includes implemented and adopted PaMs until 2035.

59. In its NC7, Belgium did not provide WAM or WOM scenarios. Belgium explained in its NC7 that, as a result of national circumstances, new policy development between 2016 and 2018 remained at an early stage and estimating the effects of new PaMs had not been possible. A WAM scenario therefore could not be produced in time for the submission of the NC7. Belgium included a WAM projection scenario in its NC6. During the review, Belgium provided a WAM scenario that it had submitted to the EU in March 2019, developed for the draft NECP 2030, and confirmed its intention to include a WAM scenario in its next NC.

60. The WEM projection is presented on a sectoral basis, using the same sectoral categories as those used in the reporting on mitigation actions, and on a gas-by-gas basis for CO₂, CH₄, N₂O, PFCs, HFCs and SF₆ (treating PFCs and HFCs collectively in each case) for 1990–2030, as well as NF₃ for 2010–2030. The projections are also provided in an aggregated format for each sector as well as for a Party total using GWP values from the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.

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

62. Emission projections related to fuel sold to ships engaged in international transport were reported separately and not included in totals. Emission projections related to fuel sold to aircraft engaged in international transport were reported separately in some tables (e.g. CTF tables) but not reported in other tables in the NC. Belgium reported on factors and activities affecting emissions for each sector.

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

63. The methodology used for the preparation of the projections is identical to that used for the preparation of the emission projections for the NC6. Belgium reported supporting information further explaining the methodologies and the changes to assumptions made since the NC6 and BR2.

64. To prepare its projections, Belgium relied on the following key underlying assumptions: population, household size, degree days, electricity imports, passenger and freight tonne-kilometres, and certain livestock head counts. These variables and assumptions were reported in CTF table 5, with a supplementary qualitative discussion of the two assumptions considered the most important in the NC. The assumptions were updated on the basis of the most recent economic and climatic developments known at the time of the preparation of the projections. With regard to degree days, the assumed number was reduced by 12, from 1819 to 1807. For electricity imports, the impact of the changes in the planned phase-out of nuclear power stations meant that higher transboundary imports were assumed.

65. Belgium provided information in CTF table 5 on assumptions and key variables, and in the NC on methodologies, models and approaches used in the preparation of the projection scenarios. To explain the changes, Belgium provided supporting documentation. It also provided information on sensitivity analyses for two underlying assumptions.

66. Sensitivity analyses were conducted for two important assumptions: degree days and electricity imports. For degree days, the sensitivity analysis showed that warm winters (as in 2014) would lead to lower emissions owing to a lower energy demand for heating. The reduced energy demand in a warm winter would equal an additional emission reduction in 2020 of 2.6 per cent compared with the 2005 base-year emissions. A cold winter (as in 2013)

would mean an increase in projected emissions in 2020 of 3.1 per cent compared with the WEM scenario. For transboundary electricity imports, lower imports would lead to higher demand for in-country natural gas power generation. The maximum estimated sensitivity of projected emissions related to a change in electricity imports in 2030 (25 TWh less imported) was equal to a 9.4 per cent increase in WEM emissions in 2030 or 10,728 kt CO₂ eq.

(c) Results of projections

67. The projected emission levels under the WEM scenario and information on the Kyoto Protocol targets and the quantified economy-wide emission reduction target are presented in table 8 and the figure below.

Table 8

Summary of greenhouse gas emission projections for Belgium

	GHG emissions (kt CO ₂ eq per year)	Changes in relation to base-year ^a level (%)	Changes in relation to 1990 level (%)
Kyoto Protocol base year ^b	147 811.09	NA	NA
Quantified emission limitation or reduction commitment under the Kyoto Protocol (2013– 2020) ^c	NA	NA	NA
Quantified economy-wide emission reduction target under the Convention ^d	NA	NA	NA
Inventory data 1990 ^e	146 294.18		
Inventory data 2015 ^e	117 443.26	–20.5	–10.7
WEM projections for 2020 ^f	114 677.00	–22.4	–21.6
WEM projections for 2030 ^f	114 134.48	–22.8	–22.0

^a “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 the base year for Belgium is 1990, and changes in relation to this year are shown in the last column.

^b The Kyoto Protocol base-year level of emissions is provided in the initial review report, contained in document FCCC/IRR/2016/BEL.

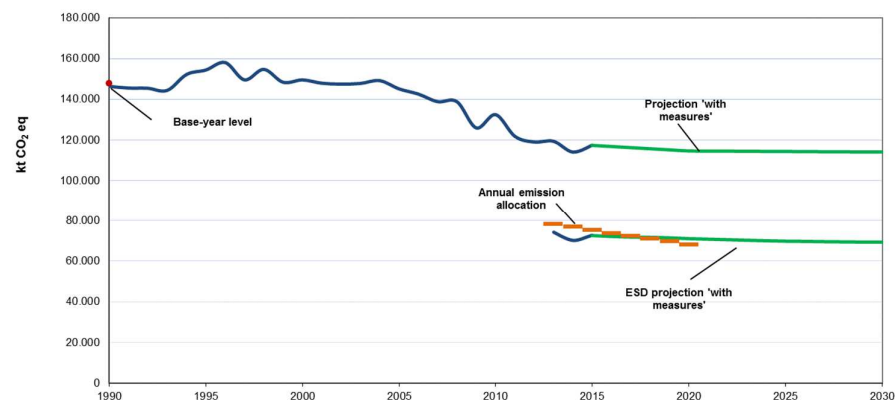
^c The Kyoto Protocol target for the second commitment period (2013–2020) is a joint target of the EU and its 28 member States and Iceland. The target is to reduce emissions by 20 per cent compared with the base-year (1990) level by 2020. The target for non-ETS sectors is 15 per cent below the 2005 level for Belgium under the ESD.

^d The quantified economy-wide emission reduction target under the Convention is a joint target of the EU and its 28 member States. The target is to reduce emissions by 20 per cent compared with the base-year (1990) level by 2020.

^e From Belgium’s BR3 CTF table 6.

^f From Belgium’s NC7 and/or BR3.

Greenhouse gas emission projections reported by Belgium



Sources: (1) data for 1990–2016: Belgium’s 2018 annual inventory submission, version 1.0; total GHG emissions excluding LULUCF; (2) data for 2015–2030: Belgium’s NC7 and BR3; historical ESD sector inventory data for 2014–2016 were provided by the Party during the review.

68. Belgium's total GHG emissions excluding LULUCF in 2020 and 2030 are projected to be 114,677.00 and 114,134.48 kt CO₂ eq, respectively, under the WEM scenario, which represents a decrease of 21.6 and 22.0 per cent, respectively, below the 1990 level. The 2020 projections suggest that Belgium will continue contributing to the achievement of the EU target under the Convention (see para. 25 above).

69. Belgium's target for non-ETS sectors is to reduce its total emissions by 15 per cent below the 2005 level by 2020 (see para. 25 above). Belgium's AEAs, which correspond to its national emission target for non-ETS sectors, change linearly from 78,379.83 kt CO₂ eq in 2013 to 68,247.61 kt CO₂ eq for 2020. According to the projections under the WEM scenario, emissions from non-ETS sectors are estimated to reach 71,038.99 kt CO₂ eq by 2020. The projected level of emissions under the WEM scenario in 2020 is 4.0 per cent higher than the ESD target. The ERT noted that this suggests that Belgium may face challenges in meeting its 2020 target under the WEM scenario. However, owing to emission surpluses that were generated earlier in the 2013–2020 commitment period, when emissions were below AEAs, Belgium's projected cumulative ESD emissions for the entire period 2013–2020 are lower than the cumulative AEAs and thus within its ESD commitment.

70. Belgium presented the WEM scenario by sector for 2020 and 2030, as summarized in table 9.

Table 9

Summary of greenhouse gas emission projections for Belgium presented by sector

Sector	GHG emissions and removals (kt CO ₂ eq)			Change (%)	
	1990	2020	2030	1990–2020	1990–2030
		WEM	WEM	WEM	WEM
Energy (not including transport)	103 484.06	83 797.53	85 498.76	–19.0	–17.4
Transport	20 657.45	27 197.76	29 219.53	31.7	41.4
Industry/industrial processes	26 238.07	19 903.15	18 628.74	–24.1	–29.0
Agriculture	12 248.71	9 620.09	9 057.26	–21.5	–26.1
LULUCF	–2 786.37	–3 729.75	–3 829.75	33.9	37.4
Waste	4 323.34	1 356.24	949.72	–68.6	–78.0
Total GHG emissions without LULUCF	146 294.17	114 677.00	114 134.48	–21.6	–22.0

Source: Belgium's BR3 CTF table 6.

71. According to the projections reported for 2020 under the WEM scenario, the most significant emission reductions are expected to occur in the energy and industrial processes sectors, amounting to projected reductions of 19,686.5 kt CO₂ eq (19.0 per cent) and 6,334.92 kt CO₂ eq (24.1 per cent) between 1990 and 2020, respectively. The pattern of projected emissions reported for 2030 under the same scenario remains the same for all sectors except the energy sector, where emissions are projected to increase slightly again owing to the phase-out of nuclear power, which will be replaced in part by imported natural gas.

72. Belgium presented the WEM scenario by gas for 2020 and 2030, as summarized in table 10.

Table 10

Summary of greenhouse gas emission projections for Belgium presented by gas

Gas	GHG emissions and removals (kt CO ₂ eq)			Change (%)	
	1990	2020	2030	1990–2020	1990–2030
		WEM	WEM	WEM	WEM
CO ₂	120 165.96	98 544.79	100 308.20	–18.0	–16.5
CH ₄	12 223.24	7 373.04	6 539.27	–39.7	–46.5
N ₂ O	10 138.82	5 902.71	5 800.75	–41.8	–42.8

	GHG emissions and removals (kt CO ₂ eq)			Change (%)	
	1990	2020	2030	1990–2020	1990–2030
		WEM	WEM	WEM	WEM
Gas					
HFCs	NA, NO	2 436.53	1 137.53	–	–
PFCs	2 191.05	333.12	333.12	–84.8	–84.8
SF ₆	1 575.10	85.21	14.01	–94.6	–99.1
NF ₃	NA, NO	1.60	1.60	–	–
Total GHG emissions without LULUCF	146 294.17	114 677.00	114 134.48	–21.6	–22.0

Source: Belgium's BR3 CTF table 6.

73. For 2020 the most significant reductions are projected for CO₂ and CH₄ emissions: 21,621.2 kt CO₂ eq (18.0 per cent) and 4,850.2 kt CO₂ eq (39.7 per cent) between 1990 and 2020, respectively.

74. For 2030 the most significant reductions are projected for CO₂ and CH₄ emissions: 19,857.8 kt CO₂ eq (16.5 per cent) and 5,683.97 kt CO₂ eq (46.5 per cent) between 1990 and 2030, respectively. The most notable change is the trend of increasing CO₂ emissions between 2020 and 2030. During the review, Belgium explained that this projected reversal is due to the phasing out of nuclear power.

75. The NC reports no major changes in the methodology or assumptions since the NC6. Several of the assumptions used in both the NC6 and the NC7 have been updated, such as the base year, demographic projection, livestock numbers and the timetable for nuclear phase-out. The updating of assumptions has not led to significant changes in the projections.

(d) Assessment of adherence to the reporting guidelines

76. The ERT assessed the information reported in the NC7 of Belgium and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 11.

Table 11

Findings on greenhouse gas emission projections reported in the seventh national communication of Belgium

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement ^a specified in paragraph 28 Issue type: completeness Assessment: encouragement	The Party did not report a WAM or a WOM projection scenario in its NC7. Belgium explained in the NC7 that, owing to national circumstances and the political situation, it had not been possible to complete the development of planned additional PaMs in time for inclusion in the submission. The absence of a WAM projection makes it difficult to assess whether Belgium is planning additional actions to reach its targets. During the review, Belgium provided information on a WAM scenario it developed in 2018 to submit to the EU as part of the draft NECP 2030. This WAM included several PaMs developed in 2017–2018 which are expected to have effects, in particular on the transport and residential sectors. Belgium indicated that the information in this scenario would be included in its NC8. The ERT encourages Belgium to include in its next NC a WAM and a WOM scenario. It notes that Belgium could use a more recent starting date for the WOM scenario to potentially decrease complexity.
2	Reporting requirement ^a specified in paragraph 30 Issue type: transparency	The Party reported a sensitivity analysis for individual assumptions (degree days and electricity imports) and their impacts on certain sectors, but did not report the results in the context of the WEM scenario.

No.	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation or encouragement</i>
	<p>Assessment: encouragement</p>	<p>During the review, Belgium explained that no quantitative sensitivity analysis of the WEM projection had been presented, but that such information could be provided in future NCs.</p> <p>The ERT encourages Belgium to report in its next NC sensitivity analyses for any of the projections it reports. The ERT notes that the information can be provided in an illustration.</p>
3	<p>Reporting requirement^a specified in paragraph 32</p> <p>Issue type: transparency</p> <p>Assessment: encouragement</p>	<p>The Party reported the starting year and base year for all projections in its NC7, but it is not clear why the starting year and base year are not consistent across projections. While an introductory paragraph in the NC7 states that 2014 is the base year for projections, 2015 or 2020 appears to be used in several tables (e.g. 5.16, 5.18 and 5.20).</p> <p>During the review, Belgium provided clarifying information on its use of starting and base year for individual projections, indicating that 2014 was the base year for projections, but that 2015 data presented were projections for HERMES modelling and inventory data in other cases.</p> <p>The ERT encourages Belgium to use the latest year for which inventory data are available in the NC as a starting point for the WEM and WAM scenarios. The ERT notes that Belgium should in any case include in its next NC a clear explanation of the relevant starting and base years selected for the projections for all tables and graphs.</p>
4	<p>Reporting requirement^a specified in paragraph 35</p> <p>Issue type: completeness</p> <p>Assessment: encouragement</p>	<p>The Party did not report information on indirect GHGs as part of the projections in its NC7.</p> <p>During the review, Belgium confirmed that no information on indirect GHGs was included in the NC7 and that the modelling did not include indirect gases.</p> <p>The ERT encourages Belgium to include in its next NC information on indirect GHGs.</p>
5	<p>Reporting requirement^a specified in paragraph 36</p> <p>Issue type: transparency</p> <p>Assessment: recommendation</p>	<p>The Party did not consistently report projections of GHG emissions related to fuel sold to aircraft engaged in international transport separately across the relevant tables in the NC, and it is not clear in the NC7 whether emissions from international aviation are included in the totals in individual tables. Emissions from international aviation are listed separately in CTF table 6(a).</p> <p>During the review, Belgium clarified that international aviation was not included in the totals.</p> <p>The ERT recommends that Belgium report in its next NC, to the extent possible, emission projections related to fuel sold to aircraft engaged in international transport separately, not included in the totals and consistently in all relevant tables.</p>
6	<p>Reporting requirement^a specified in paragraph 46</p> <p>Issue type: transparency</p> <p>Assessment: encouragement</p>	<p>The Party reported qualitative and quantitative discussion of the sensitivity of the projections to degree days and import of electricity. However, numerous other underlying assumptions, such as future developments in population and number of households, are included in CTF table 5. The ERT notes that there is no qualitative or quantitative discussion in the NC7 on the sensitivity of the projections to all of these other assumptions.</p> <p>During the review, Belgium clarified that net import of electricity and degree days are considered the most important underlying assumptions and that therefore these were chosen for the qualitative explanation of sensitivity in section 5.1.8.</p> <p>The ERT encourages Belgium to provide in future NCs a qualitative, and where possible a quantitative, discussion on the sensitivity of projections to the underlying assumptions.</p>
7	<p>Reporting requirement^a specified in paragraph 47</p>	<p>The Party reported general projection assumptions concerning emission factors, GWP, climate assumptions (degree days), demographic evolution and CO₂ prices. The Party did not report on variables such as GDP, tax levels and international fuel</p>

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
	Issue type: transparency	prices. Some of the reported qualitative information is presented in a CTF table, similar to table 2 of the UNFCCC reporting guidelines on NCs.
	Assessment: encouragement	During the review, Belgium clarified that GDP is only indirectly relevant for the modelling of projections and that the key underlying assumptions with direct impact are degree days and import of electricity. The ERT encourages Belgium to report in its next NC information on key underlying assumptions and variables, using table 2 and maintaining consistency between the textual and tabular information. The ERT notes that it would enhance reporting transparency if Belgium were to clearly explain the significance of the various assumptions and variables.

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

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

2. Assessment of the total effect of policies and measures

(a) Technical assessment of the reported information

77. In the NC7 Belgium presented the estimated and expected total effect of implemented and adopted PaMs by adding up available estimates for implemented PaMs. Estimates were available for half of the PaMs included in the WEM projection. For the remaining PaMs, the effect was assumed to be zero. Information is presented in terms of GHG emissions prevented, by gas (on a CO₂ eq basis), in 2020, 2025 and 2030. The NC7 also presented relevant information on factors and activities for each sector for 2014–2030.

78. Belgium reported that the total estimated effect of its adopted and implemented PaMs is 36,697.81 kt CO₂ eq in 2020 based on a simple addition of the estimates provided for some PaMs listed in CTF table 3. The way the total effect of PaMs was reported makes it impossible to determine which sector will deliver the largest emission reductions. However, from the sectoral WEM projections reported in CTF table 6(a), it appears that the energy and LULUCF sectors will exhibit the largest absolute decrease in emissions (or increase in removals) between 2015 and 2020. During the review, Belgium informed the ERT that historical values as well as projected values for removals on forest land would be revised downwards (resulting in lower removal levels) owing to new insights and the preparation of the forest reference level for 2021–2025 under the EU LULUCF regulation. Belgium confirmed its intention to adapt the values for the historical years in the next versions of its NC and BR. Table 12 provides an overview of the total effect of PaMs as reported by Belgium.

Table 12

Projected effects of Belgium's planned, implemented and adopted policies and measures by 2020 and 2030

Sector	2020		2030	
	Effect of implemented and adopted measures (kt CO ₂ eq)	Effect of planned measures (kt CO ₂ eq)	Effect of implemented and adopted measures (kt CO ₂ eq)	Effect of planned measures (kt CO ₂ eq)
Energy (without transport)	23 550.27	N/A	N/A	N/A
Transport	3 948.79	N/A	N/A	N/A
Industrial processes	5 009.21	N/A	N/A	N/A
Agriculture	N/A	N/A	N/A	N/A
Land-use change and forestry	N/A	N/A	N/A	N/A
Waste management	N/A	N/A	N/A	N/A
Unknown (reported as 'varia')	4 189.54	N/A	N/A	N/A
Total	36 697.81	N/A	N/A	N/A

Source: Table B in annex 2 to Belgium's NC7.

Note: The total effect of implemented and adopted PaMs is defined as the sum of the estimated effects of each individual PaM with respect to a reference situation without it.

(b) Assessment of adherence to the reporting guidelines

79. The ERT assessed the information reported in the NC7 of Belgium and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 13.

Table 13

Findings on the assessment of the total effect of policies and measures from the review of the seventh national communication of Belgium

No.	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation or encouragement</i>
1	Reporting requirement specified in paragraph 40 Issue type: completeness Assessment: recommendation	The Party reported an estimate of the total effect of its PaMs, in accordance with the WEM definition, in its NC7 for 2020, 2025 and 2030. The Party did not report on the total effects for 1995 or 2000. The ERT notes that in its NC6, Belgium provided one estimate of the historical effect of implemented measures. During the review, Belgium explained that producing historical estimates of the total effects of PaMs had not been a priority for the NC7, but indicated that it planned to include that information in its next submission. The ERT recommends that Belgium present the effects of its PaMs in terms of GHG emissions avoided or sequestered by gas in 1995 and 2000.
2	Reporting requirement specified in paragraph 41 Issue type: transparency Assessment: encouragement	In the NC7 it is not clear which PaMs from CTF table 3 have been taken into account for the estimation of the total effects of PaMs or how they were selected. Table B lists PaMs to reduce industrial process emissions and gives an estimate of their effect in 2020. However, for all but one of the industrial process measures in CTF table 3, there is no estimation of effects. Furthermore, CTF table 3 reports that some of the PaMs (IP-B01 and IP-B02) expired in 2013. The ERT finds that the information provided is not clear concerning the extent to which the PaMs, including expired measures, have been included in an estimate of effects. During the review, Belgium clarified that all PaMs that include an estimated effect for 2020, 2025 and 2030 in CTF table 3 were used to calculate the aggregated effects of PaMs. Belgium also provided substantial information on exactly which PaMs from CTF table 3 were included in each cluster in table B, and therefore included in the estimate of total effects. The Party also explained that the expired PaMs all related to industrial actors that had been included in the EU ETS since the launch of its third phase in 2013 and were therefore no longer subject to federal or regional action. It had thus not been possible to estimate the effects of those PaMs. The ERT encourages Belgium, in order to increase transparency when aggregating the individual effects of PaMs to arrive at a total, to clearly specify which PaMs have been included and to provide clear explanations for any expired PaMs included. The ERT notes that the information reported should be consistent with the information provided in CTF table 3 and that the Party could, for example, apply a notation and identification key to help link all PaMs to clusters and sectors.

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

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

(a) Technical assessment of the reported information

80. In the NC7 Belgium provided information on how its use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action. The ERT noted that Belgium does not plan to use the market-based mechanisms to meet its Kyoto Protocol target. However, some credits were carried over from the first commitment period to the second and are available if needed.

81. In general, a limited number of international credits may be used to achieve the targets under the EU ETS and in non-ETS sectors. Under the EU ETS, the use of international credits is capped (up to 50 per cent of the reduction required from EU ETS sectors by 2020). Quality standards also apply to the use of international credits in the EU ETS, including a ban on credits from LULUCF projects and certain industrial gas projects. In non-ETS sectors, the annual use of international credits is limited to up to 3 per cent of each member State's ESD emissions in 2005, with a limited number of member States (including Belgium) being permitted to use an additional 1 per cent from projects in the least developed countries or small island developing States, subject to certain conditions.

(b) Assessment of adherence to the reporting guidelines

82. The ERT assessed the information reported in the NC7 of Belgium and recognized that the reporting is complete, transparent and adhering to the reporting guidelines for supplementary information. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

D. Provision of financial and technological support to developing country Parties, including information under Articles 10 and 11 of the Kyoto Protocol

1. Financial resources, including under Article 11 of the Kyoto Protocol

(a) Technical assessment of the reported information

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

84. Belgium indicated what "new and additional" financial resources it has provided and clarified how it has determined such resources as being "new and additional". During the review, Belgium explained that its definition of "new and additional" should be considered in the context of the absence of an internationally agreed definition. In its BR3 (NC7, annex 2), Belgium described "new and additional" support as that in any of the following categories: contributions in line with Article 4, paragraph 3, of the Convention; contributions which would not have existed without the financial commitments resulting from the Copenhagen Accord; funding that is in addition to the annual budget for bilateral development cooperation; funding pertaining only to the climate-specific or climate-relevant part of a project and programme; funding for climate-related projects in developing countries additional to that in the previous reporting period; and contributions coming from the proceeds of the auctioning of GHG emission allowances.

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

86. With regard to the most recent financial contributions aimed at enhancing the implementation of the Convention by developing countries, Belgium reported that its climate finance has been allocated on the basis of programmes primarily in the agriculture and livestock, energy, and water and sanitation sectors. Examples of these projects include an initiative in Algeria to support the implementation of integrated waste management by strengthening waste prevention, reuse and recycling, and a project in Peru to assist local governments in maintaining traditional water management practices, restoring ecosystems and protecting biodiversity. The Belgian Investment Company for Development Cooperation plays a key role in deploying funds, as do the regional governments. Table 14 includes some

of the information reported by Belgium on its provision of financial support. Its total financial support declined by 12 per cent over the four-year reporting period since the NC6, with a total of EUR 371.4 million reported in NC6 and EUR 325.5 million in NC7.

Table 14

Summary of information on provision of financial support by Belgium in 2013–2016

(Millions of United States dollars)

<i>Allocation channel of public financial support</i>	<i>Year of disbursement</i>			
	<i>2013</i>	<i>2014</i>	<i>2015</i>	<i>2016</i>
Official development assistance	2 656.72	2 868.47	2 052.6	2 182.37
Climate-specific contributions through multilateral channels, including:	46.07	73.38	8.01	59.31
Global Environment Facility	—	—	—	—
LDCF	15.94	15.92	—	16.59
Special Climate Change Fund	15.94	—	—	—
Adaptation Fund	3.32	1.33	1.94	10.79
Green Climate Fund	0.66	53.85	5.94	28.49
Trust Fund for Supplementary Activities	67.91	0.11	0.10	0.07
United Nations bodies	5.81	4.26	—	0.004
Other	7.97	2.11	0.04	3.39
Climate-specific contributions through bilateral, regional and other channels	61.56	54.59	44.18	52.31

Sources: (1) Query Wizard for International Development Statistics, available at <http://stats.oecd.org/qwids/>; (2) BR3 CTF tables; (3) updated BR2 finance tables.

(b) Assessment of adherence to the reporting guidelines

87. The ERT assessed the information reported in the NC7 of Belgium and recognized that the reporting is complete, transparent and adhering to the UNFCCC reporting guidelines on NCs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

2. Technology development and transfer, including information under Article 10 of the Kyoto Protocol**(a) Technical assessment of the reported information**

88. Belgium provided information on steps, measures and activities related to technology transfer, access and deployment benefiting developing countries, including information on activities undertaken by the public and private sectors. Belgium provided examples of support provided for the deployment and enhancement of the endogenous capacities and technologies of non-Annex I Parties.

89. The ERT noted that Belgium reported on its programmes as well as successes and failures relating to technology transfer, in particular on measures taken to promote, facilitate and finance the transfer and deployment of climate-friendly technologies. For example, a project to rehabilitate school buildings in the State of Palestine applied design practices to help school buildings stay warmer in winter and cooler in summer, thus allowing them to stay open year-round. Training local building companies in these practices was an integral part of the project. Another project, which sought to improve the energy efficiency of cookstoves in Benin, had substantial local participation and involved the transfer of more efficient technology; the project resulted in the proliferation of stoves that use 50 per cent less wood than the traditional stoves they replaced.

90. Belgium provided information in its descriptions of its projects related to technology transfer on steps taken to promote, facilitate and finance the transfer of technology to developing countries and to build their capacity in order to facilitate implementation of

Article 10 of the Kyoto Protocol. The Party also reported that it has responded to the existing and emerging capacity-building needs of non-Annex I Parties through academic and other partnerships, such as the Academic Research Platforms for Policy Support and the Flemish Water for Development Partnership project, which works with NGOs, public water companies and private firms. During the review, Belgium explained that its bilateral cooperation programmes address the existing and emerging capacity-building needs of non-Annex I Parties, because the programmes are established in consultation with partner countries and always include a strong capacity-building component.

(b) Assessment of adherence to the reporting guidelines

91. The ERT assessed the information reported in the NC7 of Belgium and recognized that the reporting is complete, transparent and adhering to the UNFCCC reporting guidelines on NCs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

E. Vulnerability assessment, climate change impacts and adaptation measures

1. Technical assessment of the reported information

92. In the NC7 Belgium provided the required information on the expected impacts of climate change in the country; the adaptation policies covering regional, sectoral and cross-sectoral vulnerabilities and considerations; and an outline of the action taken to implement Article 4, paragraph 1(b) and (e), of the Convention with regard to adaptation. Belgium provided a description of climate change vulnerability and impacts on agriculture, coastal areas, fisheries, land planning and infrastructure, forests, biodiversity, energy, industry and services, water resources and management, health and tourism. The most harmful climate effects for Belgium are expected to come from a hotter climate, a magnification of precipitation seasonality (increased rainfall in winter and decreased in summer), the increased frequency and intensity of extreme events such as heatwaves and heavy thunderstorms in summer, a rise in sea level at the Belgian coast and more frequent low river flows in summer.

93. In the NC7, Belgium presented updated information on the implementation of adaptation measures included in the NC6, as well as new adaptation measures. Belgium has implemented or continued to implement adaptation measures relating to spatial planning, and water and flood management; the coastal area, including the coastal safety master plan; the national biodiversity strategy; climatic agri-environmental activities; heat and ozone planning and monitoring; and the development of recommendations for policymakers and a good practice guide for forest managers in respect of climate change.

94. In the NC7 Belgium indicates that adaptation plans were developed taking into account the EU guidelines on developing strategies, which are a component of the EU strategy on adaptation to climate change. The EU guidelines refer to, inter alia, *Handbook on Methods for Climate Change Impacts Assessment and Adaptation Strategies* (United Nations Environment Programme and Vrije Universiteit Amsterdam Institute for Environmental Studies, 1998) and the *IPCC Technical Guidelines for Assessing Climate Change Impacts and Adaptation* (IPCC, 1994). Belgium indicated that adaptation studies and plans were written in the spirit of the IPCC technical guidelines even if they do not explicitly refer to them.

95. Belgium has made significant progress in the field of adaptation since its NC6. The regional and federal governments have adopted adaptation plans, and a NAP for 2017–2020 was adopted in 2017. During the review, Belgium provided information on these plans. The NAP identifies specific measures that need to be taken at the national level in order to strengthen cooperation and develop synergies on adaptation between the different levels of government. The plan addresses six sectors and cross-cutting issues: biodiversity, crisis management, energy, health, research and international cooperation. In addition, some provincial and local governments are developing adaptation plans. Belgium also explained

during the review the progress made since the submission of the NC7 in implementing its NAP, and highlighted the recent completion of a midterm evaluation on national actions.

96. Belgium supports research programmes to improve understanding of the effects of climate change and appropriate adaptation measures. In the NC7, Belgium highlighted different projects focused on making projections and studies to assess the impact of climate change on agriculture, urban heat stress and the urban environment; monitor exotic and endemic species of mosquitoes; increase knowledge of coastal processes both landward and seaward of the shoreline; and analyse the adaptive capacity of tree species under different climate scenarios. Table 15 summarizes the information on vulnerability and adaptation to climate change presented in the NC7 of Belgium.

Table 15

Summary of information on vulnerability and adaptation to climate change reported by Belgium

<i>Vulnerable area</i>	<i>Examples/comments/adaptation measures reported</i>
Agriculture and food security	<p><i>Vulnerability:</i> erosion and loss of soils due to heavy rain; variability of crop production and breeding because of increase in the frequency of extreme events; increased risk from diseases, parasites, weeds and invasions; increase in water needs and risk of water stress</p> <p><i>Adaptation:</i> development of new climatic agri-environmental measures to take into account climate change challenges; establishment of a research and technical information centre for soil erosion in the Walloon Region; development of an inventory of opportunities for adaptation in agriculture and horticulture and a related information campaign in the Flemish Region</p>
Biodiversity and natural ecosystems	<p><i>Vulnerability:</i> added pressure on already vulnerable areas; changes in distribution of species; increases in invasive species</p> <p><i>Adaptation:</i> development of a network of protected areas (Natura 2000); bioclimatic classification of species; monitoring of the effects of climate change on biodiversity, including an exploratory study on climate change effects on birds, a study to update the published average bloom dates of fruit trees, and a follow-up study on phenological indicators; mainstreaming of adaptation in the national biodiversity strategy; mainstreaming of climate change in the programme of measures to achieve good environmental status of marine waters, part of Belgium's implementation of the European Marine Strategy Framework Directive</p>
Coastal zones	<p><i>Vulnerability:</i> increase of risks of higher storm-related flooding; risks of breaking of manmade coastal defences; risks of breaking of natural coastal defences (mostly sand and dunes); reduction of the upper layer of freshwater in polders (salt intrusion), affecting natural systems and infrastructure; damage caused by changes to wind patterns and wave height</p> <p><i>Adaptation:</i> development of a coastal safety master plan; development of a coastal defence system that takes into account the coast's natural dynamic; Climate Resilient Coast project (2015–2019) aiming to increase the knowledge of coastal processes both landward and seaward of the shoreline</p>
Energy	<p><i>Vulnerability:</i> increased risks to the electric distribution network; integrity and capacity of transport installations; increased difficulty with cooling in nuclear plants</p> <p><i>Adaptation:</i> promotion of sustainable energy generation methods independent of the availability of water resources; promotion of building insulation</p>
Fisheries	<p><i>Vulnerability:</i> increased vulnerability of the highly specialized fishery sector; appearance of new harmful species; changes in the quantity and distribution of marine species, including commercial fish stocks</p> <p><i>Adaptation:</i> research and monitoring of the effects of climate change on the fish populations</p>
Forests	<p><i>Vulnerability:</i> modification of the range of forest species (harmful to wood production); frost damage; increase in the frequency of outbreaks of resulting climatic variations (fire, storms and droughts) and damage resulting from them</p> <p><i>Adaptation:</i> measures concerning the diversification of species and conservation of ecosystems that are relatively unaffected; monitoring of forest health; exchange of</p>

<i>Vulnerable area</i>	<i>Examples/comments/adaptation measures reported</i>
	information with France on diseases for the purposes of concerted management at the interregional level; development of recommendations for policymakers and a good practice guide for forest managers to consider climate change
Human health	<p><i>Vulnerability:</i> increase in mortality due to heatwaves and disease linked to food contamination; increase in respiratory diseases and allergies; sanitary risks due to poor air quality; increase in diseases linked to water contamination</p> <p><i>Adaptation:</i> development of new versions of federal and regional heat and air quality plans with explicit reference to climate change as one of the main risk factors; launch of a new National Medical Intervention Plan that takes into account all natural and manmade disasters; large surveillance system of air allergens and pollutants; programme to establish a monitoring plan of exotic mosquitoes; systems of identification and surveillance of infectious and vector-borne diseases that can be linked to climate change; establishment of a national platform for information exchange and cooperation regarding foodborne diseases; ongoing work on the short-term effects of atmospheric pollution and climate on mortality in Belgium and on modelling the impact of temperature on the epidemiological evolution of infectious diseases; launch of a call for the development of e-training modules for medical doctors and specialists on the impact of climate change on health</p>
Industry	<p><i>Vulnerability:</i> risks to production processes from water shortages or insufficient cooling capability; supply chain and logistical disruptions from extreme weather events</p> <p><i>Adaptation:</i> research into new approaches through the Flemish Government's New Industrial Policy; availability of flood maps</p>
Infrastructure and transport	<p><i>Vulnerability:</i> increase in flood risk; risk of disruption to transport by waterways; impact of heatwaves and amplification by heat islands; damage to infrastructure due to high temperatures</p> <p><i>Adaptation:</i> adoption of climate change adaptation measures for infrastructure and the urban environment; development of the project "Future cities – urban networks to face climate change"; mapping of green spaces in the Brussels-Capital Region and mapping of urban heat islands in the Flemish Region; modelling and mapping to better understand rail network vulnerabilities; a North Sea disaster prevention and management plan; extreme weather planning for transport managers</p>
Tourism	<p><i>Vulnerability:</i> increased risks for water-based recreation during dry summers; increased need for cooling of buildings</p> <p><i>Adaptation:</i> involvement of tourism agency in flood control planning; cooperation agreement between tourism agency and maritime services and coast agency</p>
Water resources	<p><i>Vulnerability:</i> pollution of groundwater from leaching; decrease in surface water quality; variation in river flows leading to pollution</p> <p><i>Adaptation:</i> development of flood risk prevention and management frameworks (regional plans); updating the section on floods of the national emergency plan for natural disasters; inclusion of cover for floods in household insurance policies; development of technical specifications for construction linked to watercourses</p>

97. Belgium provided a detailed description of international adaptation activities, including development cooperation with countries in the south, including the research platform KLIMOS, a consortium of several Belgian universities with a network of universities in developing countries. Belgian development cooperation activities also included various capacity-building initiatives. Belgium supports international agricultural research, including through the Consultative Group on International Agricultural Research. During the review, Belgium provided information on bilateral cooperation on adaptation with developing countries, including the Democratic Republic of the Congo, Burundi and the State of Palestine, as part of its reporting on financial resources and technology transfer. An example of this type of project is one in South Africa that sought to improve the management of regional water resources at the national, provincial and district level in order to promote poverty reduction through the sustainable development and use of surface water and

groundwater. Belgium also provided information on its collaboration with neighbouring countries through Benelux cooperation activities. This group of countries identified their transboundary climate change issues and adaptation policies, which were detailed in the report “Climate change adaptation in Benelux 2015–2016”.

2. Assessment of adherence to the reporting guidelines

98. The ERT assessed the information reported in the NC7 of Belgium and identified an issue relating to transparency and adherence to the UNFCCC reporting guidelines on NCs. The finding is described in table 16.

Table 16

Findings on vulnerability assessment, climate change impacts and adaptation measures from the review of the seventh national communication of Belgium

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 49 Issue type: transparency Assessment: recommendation	<p>In chapter 6 of its NC7, Belgium provided information on regional cooperation but did not provide information on its cooperation on the development of integrated plans for water resources, agriculture and the protection and rehabilitation of areas, including with developing countries, particularly in Africa, affected by drought and desertification, as well as floods. However, this information was included in chapter 7 and annex 4 (financial resources and technology transfer).</p> <p>During the review, Belgium acknowledged that some relevant information was provided in chapter 7 of its NC7, namely on projects related to agriculture and adaptation in the Democratic Republic of the Congo and Burundi. Other similar projects were reported in CTF tables 8 and 9.</p> <p>The ERT recommends that Belgium include in chapter 6 of its next NC, either directly or by reference, information on its cooperation on the development of integrated plans for water resources, agriculture and the protection and rehabilitation of areas, including with developing countries, particularly in Africa, affected by drought and desertification, as well as floods, or clarify if these cooperation areas are beyond specific national and regional development priorities and objectives.</p>

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

F. Research and systematic observation

1. Technical assessment of the reported information

99. Belgium provided information on its general policy and funding relating to research and systematic observation for both domestic and international activities, including contributions to the Global Climate Observing System, the Integrated Carbon Observation System, the European Space Agency and the IPCC. Belgium launched a reform of its federal science policy in 2014, which sets out major changes at the institutional level, but is yet to be implemented. Belgium also identified opportunities for the free and open international exchange of data and information. However, it did not identify the barriers to such exchanges. During the review, Belgium explained that it does not carry out any analysis of barriers, but that a similar analysis has been conducted with respect to biodiversity, and noted that the information could be useful for an analysis in the context of climate change. The Party mentioned barriers such as financing, proprietary rights to data and a lack of willingness to share data, which are similar to the barriers mentioned in the review of the NC6.

100. Belgium has implemented and planned international and domestic policies and programmes on climate change research, systematic observation and climate modelling that aim to advance the capacity to predict and observe the physical, chemical, biological and human components of the Earth's system spatially and over time. Belgium takes an active

part in the development of climate-relevant distributed research infrastructures, such as the Integrated Carbon Observation System, Analysis and Experimentation on Ecosystems and LifeWatch. BELSPO is a funding agency that supports different initiatives, such as the Spurring Innovations for Forest Ecosystem Services project, which is under the framework of the EU Horizon 2020 programme to expand and deepen knowledge to support climate change adaptation and mitigation in Africa and Latin America. The Belgium Biodiversity platform, another initiative of BELSPO, is a key player in promoting research to support nature-based solutions at the local, national, European and international level. BELSPO also participated in the Network of the European Union, Latin America and the Caribbean Countries on Joint Innovation and Research Activities. Belgium highlighted several projects funded through its various bilateral agreements, including a project with China focused on oceans in the climate system and a project with Viet Nam on climate and disaster resilience.

101. With respect to domestic research activities, Belgian universities are engaged with many areas of climate science, in particular through the observation and monitoring of research infrastructure activities. Belgium reported during the review that there had been no progress on the Belgian Excellence Centre for Climate road map mentioned in the NC6 in the context of a feasibility study, as the initiative was not adopted by the Secretaries of State in charge of science policy.

102. Belgium reported on its activities related to systematic observation, including national plans, programmes and support for ground- and space-based climate observing systems, such as satellite and non-satellite climate observation systems. The Party also reported on challenges related to the maintenance of a consistent and comprehensive observation system. The Royal Meteorological Institute of Belgium published an online climate atlas in 2015 that is supplemented by a fact sheet on each Belgian municipality summarizing the local climate. With respect to ground-based remote sensing for climate studies, the Royal Meteorological Institute has been investigating methods to use archived observations from weather radar and the Belgian lightning detection system to derive statistics on rainfall amounts, convective storms and hail falls. A new weather radar in the eastern side of the Flemish Region became operational in 2016 and provides data within a 120 km radius every five minutes. The radar composite image generated covers the Flemish Region, provides detailed information on the hydrological data management system and also feeds into hydrological forecasting models.

103. In 2017 the Royal Meteorological Institute completed the installation of its automatic Lidar-Ceilometer network for monitoring air pollution dispersion and aerosol clouds, such as volcanic ash, in Belgium. The Party also has a ground-based global navigation satellite system network, which consists of six stations. Terrestrial ecosystems are assessed via satellite monitoring. Belgium built a small satellite mission to avoid a gap in the vegetation monitoring series when existing satellites were discontinued prior to the installation of the planned replacements by the European Space Agency. Belgium is involved with the Integrated Carbon Observation System and hosts stations in its ecosystem, ocean and atmospheric observation networks.

104. The NC7 described actions taken to support capacity-building and the establishment and maintenance of observation systems and related data and monitoring systems in developing countries. Belgium provided funding for scientists from developing countries working on global climate change research. During the review, the Party provided details on the actions taken to support capacity-building and the establishment and maintenance of observation systems and related data and monitoring systems in developing countries. Belgium provided information about its support for the LDCF. Through several implementing agencies, such as the United Nations Development Programme and the United Nations Environment Programme, the LDCF co-finances the strengthening and development of climate information and early warning systems, among other activities to support climate adaptation in the least developed countries. Belgium described a joint project with Ghent University to build meteorological monitoring towers in the Democratic Republic of the Congo and a collaborative project between the Royal Belgian Institute for Space Aeronomy and the University of Burundi to establish a monitoring station to aid in the study of African emissions.

2. Assessment of adherence to the reporting guidelines

105. The ERT assessed the information reported in the NC7 of Belgium and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 17.

Table 17

Findings on research and systematic observation from the review of the seventh national communication of Belgium

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 62 Issue type: completeness Assessment: encouragement	The Party did not report in its NC7 information about barriers to the free and open international exchange of data and information and actions taken to overcome those barriers. During the review, Belgium explained that it does not undertake an analysis of barriers to the exchange of data and information. However, the Party mentioned barriers such as financing, proprietary rights to data and a lack of willingness to share data. The ERT encourages the Party to include in the next NC information about barriers to the free and open international exchange of data and information, and actions taken overcome such barriers.
2	Reporting requirement specified in paragraph 64 Issue type: transparency Assessment: encouragement	Belgium provided information about support for developing countries in chapter 7 (financial resources and technology transfer) of its NC but did not provide information in chapter 8 (research and systematic observation) on the exchange and archiving of data in the area of support to developing countries to establish and maintain observing systems, and related data and monitoring systems. During the review, Belgium provided information on its support to developing countries to establish and maintain observing systems, and related data and monitoring systems. The ERT encourages the Party to include in chapter 8 of its next NC, directly or via reference, information on the exchange and archiving of data in the area of support to developing countries to establish and maintain observing systems, and related data and monitoring systems.

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

G. Education, training and public awareness

1. Technical assessment of the reported information

106. In the NC7 Belgium provided information on its actions relating to education, training and public awareness at the domestic and international level. The Party provided information on general education policies; primary, secondary and higher education; public information campaigns; training programmes; education materials; resource or information centres; the involvement of public organizations and NGOs; and its participation in international activities.

107. The Party provided information on its various activities to raise public awareness, which depend on different actors from a number of spheres: federal authorities, regional authorities, provincial authorities, the language communities, NGOs, universities and institutes. Few of the activities relate solely or specifically to global warming, although there are many actions that focus on other thematic issues that have a clear link to climate change, such as energy-saving initiatives, energy-efficient buildings, environmentally friendly mobility, and environmental and sustainable development. During the review, Belgium provided detailed information on the topics and target groups reached by its awareness-raising activities in a clear table. The ERT suggests that the Party include in its next NC a table that summarizes the entities that organize and fund activities (authorities, NGOs, etc.).

108. In Belgium, education falls under the jurisdiction of the three communities (French-, Flemish- and German-speaking communities). In the public primary and secondary education system, the topic of climate change is generally treated as a cross-cutting issue and is incorporated into programmes related to nature and the environment or sustainable development. The education-linked activities are carried out by a wide range of actors in collaboration with government authorities, with government funding. Educational projects in schools focus on children and adolescents. Higher education is also an important arena for action, and some activities concern training of teachers on climate change related topics. Belgium also provided information about its international cooperation and training activities in developing countries. An example is the support provided to francophone African countries to build their capacity related to their GHG inventories, nationally appropriate mitigation actions and intended nationally determined contributions.

109. During the review, Belgium provided information on its more than 50 awareness-raising, education and training activities. For example, a new initiative called “Sunshine Map” shows homeowners whether they may potentially benefit from installing solar panels on their property. Belgium also has programmes that raise awareness for both consumers and professionals with respect to efficient building techniques, including models of exemplary buildings, energy audits and sustainable buildings advisers. Activities promoting environmentally friendly mobility include a campaign to boost cycling and programmes to promote electric vehicles. The Party developed an interactive educational web tool that aims to encourage discussion among citizens, in particular secondary school students, of ways they can contribute to the transformation to a low-carbon society by 2050. With regard to capacity-building activities in developing countries, Belgium organized events on climate finance and the formulation of nationally appropriate mitigation actions.

110. During the review, Belgium described the process by which it had solicited public input during the drafting its NC7. It also provided the ERT with a 16-page summary version of its NC7 that it prepared specifically for more general audiences. The ERT notes the value of this document as a model for other Parties.

2. Assessment of adherence to the reporting guidelines

111. The ERT assessed the information reported in the NC7 of Belgium and recognized that the reporting is complete, transparent and adhering to the UNFCCC reporting guidelines on NCs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

III. Conclusions and recommendations

112. The ERT conducted a technical review of the information reported in the NC7 of Belgium in accordance with the UNFCCC reporting guidelines on NCs. The ERT concludes that the reported information mostly adheres to the UNFCCC reporting guidelines on NCs and that the NC7 provides an overview of the national climate policy of Belgium.

113. The information provided in the NC7 includes all elements of the supplementary information under Article 7 of the Kyoto Protocol. Supplementary information under Article 7, paragraph 1, of the Kyoto Protocol on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol was provided by Belgium in its 2018 annual submission.

114. Belgium’s total GHG emissions excluding LULUCF covered by its quantified economy-wide emission reduction target were estimated to be 19.7 per cent below its 1990 level, whereas total GHG emissions including LULUCF were 19.2 per cent below its 1990 level in 2016. Emission decreases were driven by the closure of coke plants, fuel switching from coal to natural gas and an increase in the use of renewables. Those factors outweighed increased emissions from transport.

115. Belgium’s main policy framework relating to energy and climate change is the NCP 2012; the new NECP 2030 is currently under review by the EU. Key legislation or other arrangements supporting Belgium’s climate change goals includes the cooperation agreement

of 14 November 2002 that established the National Climate Commission, the burden-sharing agreement for 2013–2020 and the substitution right for international obligations. The mitigation actions with the most significant mitigation impact are environmentally friendly energy production, energy efficiency and conservation efforts in buildings, energy efficiency efforts in industry, reducing F-gas emissions, reducing N₂O emissions in industrial processes, promoting biofuels, promoting the intermodality of transport means and promoting energy-efficient electrical appliances.

116. The GHG emission projections provided by Belgium include those under the WEM scenario. In the provided scenario, emissions are projected to be 21.6 per cent below the 1990 level in 2020 and 22.0 per cent below the 1990 level in 2030. For non-ETS sectors, the provided scenarios are projected to be 4.0 per cent above the AEAs for 2020. On the basis of the reported information, the ERT concludes that Belgium may face challenges in achieving its 2020 target for non-ETS sectors.

117. The projections indicate that Belgium is not on track to meet its 2020 Kyoto Protocol target for the second commitment period (ESD contribution equivalent to a 15 per cent reduction below the 2005 level by 2020, as part of the joint EU target of 20 per cent below the 1990 level by 2020) under the WEM scenario. However, owing to emission surpluses that were generated earlier in the 2013–2020 commitment period, when emissions were below AEAs, Belgium's projected cumulative ESD emissions for the entire period 2013–2020 are lower than the cumulative AEAs and thus within its ESD commitment.

118. The NC7 contains information on how the Party's use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action. Belgium is not planning to make use of the Kyoto Protocol mechanisms to meet its Kyoto Protocol target for the second commitment period.

119. Belgium continued to provide climate financing to developing countries in line with its commitment to contribute EUR 50 million annually in the period 2016–2020. The Belgian Investment Company for Development Cooperation and regional governments play a key role in the deployment of funds. Belgium also contributes to global multilateral funds, such as the Clean Technology Fund, the LDCF and the Special Climate Change Fund. Since the submission of its NC6 Belgium has reduced its financial support by 12 per cent. Its public financial support in 2015 and 2016 totalled USD 52.2 million and USD 111.6 million per year, respectively. For those years, Belgium's support provided for mitigation action was lower than its support provided for adaptation. The biggest share of financial support went to projects in the agriculture sector, followed by the water and sanitation sector. Belgium's activities related to technology transfer to developing countries were mostly focused on the energy sector, including renewable electricity generation, biofuels, and end-use efficiency in buildings and cookstoves.

120. Belgium has developed new climate projections and defined the main impacts on the country: a hotter climate, a magnification of the precipitation seasonality, more extreme events, a fall in the average summer precipitation and a rise in the sea level. The federal and regional governments have each adopted their own adaptation plan. In addition, the NAP of Belgium complements the regional and federal plans by identifying specific measures that need to be taken at the national level in order to strengthen cooperation and develop synergies between different entities on adaptation. Belgium reported important advances in the implementation of adaptation measures for different sectors vulnerable to climate change.

121. Belgium provided information on its general policy on research funding, international activities and domestic research actions and relevant activities. Belgium launched a reform of its federal science policy in 2014 that sets out major changes at the institutional level but is yet to be implemented. Belgium reported research activities at the federal and regional level, which include the active participation of universities. The Party also reported its activities relating to systematic observation and new developments concerning systematic climate observation.

122. Belgium provided information on its activities, policies and actions related to education, training and public awareness carried out domestically. The Party provided information on its various activities to raise public awareness which depend on different actors from a number of spheres: federal authorities, regional authorities, provincial

authorities, the language communities, NGOs, universities and institutes. Few of the activities relate solely to global warming. However, there are many actions that focus on thematic issues with a clear link to climate change. Belgium also reported information about different campaigns and educational training programmes that target children and adolescents in particular.

123. In the course of the review, the ERT formulated the following recommendations for Belgium to improve its adherence to the UNFCCC reporting guidelines on NCs and its reporting of supplementary information under the Kyoto Protocol:⁷

- (a) To improve the completeness of its reporting by presenting the effects of its PaMs in terms of GHG emissions avoided or sequestered by gas in 1995 and 2000 (see issue 1 in table 13);
- (b) To improve the transparency of its reporting by:
 - (i) Providing information on the process of data collection and aggregation for its national system that includes the process of consolidation between the regional and federal level (see issue 1 in table 5);
 - (ii) Organizing information on its PaMs by sector, subdivided by GHG (see issue 1 in table 7);
 - (iii) Consistently reporting throughout all projections tables emission projections related to fuel sold to aircraft engaged in international transport, to the extent possible, separately and not included in the totals (see issue 5 in table 11);
 - (iv) Including in chapter 6 of its next NC, instead of chapter 7, either directly or by reference, information on its cooperation on the development of integrated plans for water resources, agriculture and the protection and rehabilitation of areas affected by drought and desertification, as well as floods (see issue 1 in table 16).

IV. Questions of implementation

124. During the review, the ERT assessed the NC7, including the supplementary information provided under Article 7, paragraph 2, of the Kyoto Protocol, and the information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol with regard to timeliness, completeness and transparency. No question of implementation was raised by the ERT during the review.

⁷ The recommendations are given in full in the relevant sections of this report.

Annex

Documents and information used during the review

A. Reference documents

2017 GHG inventory submission of Belgium. Available at https://unfccc.int/files/national_reports/annex_i_ghg_inventories/national_inventories_submissions/application/zip/bel-2017-nir-13apr17.zip.

2018 GHG inventory submission of Belgium. Available at <https://unfccc.int/sites/default/files/resource/bel-2018-nir-28sep18.zip>.

Additional information submitted by Belgium with its 2018 GHG inventory. Available at <https://unfccc.int/sites/default/files/resource/bel-2018-nir-addinfo-28sep18.zip>.

BR3 of Belgium. Available at http://unfccc.int/files/national_reports/annex_i_natcom/application/pdf/7319685_belgium-nc7-br3-1-nc7_en_lr.pdf.

BR3 CTF tables of Belgium. Available at http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/vnd.openxmlformats-officedocument.spreadsheetml.sheet/7319685_belgium-nc7-br3-1-bel_2018_v1.0.xlsx.

Climact. 2019. *Fossil Fuel Subsidies: Hidden Impediments on Belgian Climate Objectives*. World Wide Fund for Nature Belgium. Available at <https://wwf.be/assets/IMAGES-2/CAMPAGNES/ELECTIONS2019/FF-report/WWF-fossil-fuels-final-report.pdf>.

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

“Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories”. Annex to decision 24/CP.19. Available at <http://unfccc.int/resource/docs/2013/cop19/eng/10a03.pdf>.

“Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications”. FCCC/CP/1999/7. Available at <http://unfccc.int/resource/docs/cop5/07.pdf>.

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

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

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

IPCC. 1994. *IPCC Technical Guidelines for Assessing Climate Change Impacts and Adaptations*. T Carter, M Parry, H Harasawa, et al. (eds.). London and Tsukuba, Japan: University College London and Center for Global Environmental Research National Institute for Environmental Studies. Available at <https://www.ipcc.ch/site/assets/uploads/2018/03/ipcc-technical-guidelines-1994n-1.pdf>.

NC7 of Belgium. Available at http://unfccc.int/files/national_reports/annex_i_natcom/application/pdf/7319685_belgium-nc7-br3-1-nc7_en_lr.pdf.

Report on the individual review of the annual submission of Belgium submitted in 2016. FCCC/ARR/2016/BEL. Available at <https://unfccc.int/resource/docs/2017/arr/bel.pdf>.

Report on the review of the report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol of Belgium. FCCC/IRR/2016/BEL. Available at <https://unfccc.int/resource/docs/2017/irr/bel.pdf>.

Report of the technical review of the BR2 of Belgium. FCCC/TRR.2/BEL. Available at <https://unfccc.int/sites/default/files/resource/docs/2016/trr/bel.pdf>.

Report on the technical review of the NC6 of Belgium. FCCC/IDR.6/BEL. Available at <https://unfccc.int/sites/default/files/resource/docs/2015/idr/bel06.pdf>.

Revisions to the guidelines for review under Article 8 of the Kyoto Protocol. Annex I to decision 4/CMP.11. Available at <http://unfccc.int/resource/docs/2015/cmp11/eng/08a01.pdf>.

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

United Nations Environment Programme and Vrije Universiteit Amsterdam Institute for Environmental Studies. 1998. *Handbook on Methods for Climate Change Impact Assessment and Adaptation Strategies*. JM Balbus, B Baker, M Brody, et al. (eds.).

B. Additional information provided by the Party

Responses to questions during the review were received from Ms. Claire Collin (Federal Public Service Health, Food Chain Safety and Environment), including additional material. The following document¹ was provided by Belgium:

Trinomics B.V. 2015. *Promoting private sector actions in the fight against climate change in Belgium and abroad*. Available at https://www.climat.be/files/4314/5873/7318/private_climate_finance_report.pdf.

¹ Reproduced as received from the Party.