United Nations

Framework Convention on Climate Change

FCCC/IDR.8/BEL–FCCC/TRR.5/BEL

Distr.: General
4 March 2024

English only

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

Parties included in Annex I to the Convention were requested by decision 6/CP.25 to submit their eighth national communication to the secretariat by no later than 31 December 2022. According to decision 15/CMP.1, Parties included in Annex I to the Convention that are also Parties to the Kyoto Protocol are required to include in their national communications supplementary information under Article 7, paragraph 2, of the Kyoto Protocol. This report presents the results of the technical review of the eighth national communication and relevant supplementary information under the Kyoto Protocol of 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".

Developed country Parties were requested by decision 6/CP.25 to submit their fifth biennial report to the secretariat by no later than 31 December 2022. This report presents the results of the technical review of the fifth biennial report of 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".

The review of these submissions took place in Brussels, Belgium, from 20 to 24 November 2023.

Contents

Abbreviations and acronyms

ACTRIS	Aerosol, Clouds and Trace Gases Research Infrastructure
AEA	annual emission allocation
Altius	Atmospheric Limb Tracker for Investigation of the Upcoming Stratosphere
AR	Assessment Report of the Intergovernmental Panel on Climate Change
BIO	Belgian Investment Company for Developing Countries
BR	biennial report
CH_4	methane
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
CTF	common tabular format
EMMOSS	Emission Model for Shipping and Rail
EPM	Energy/Emissions Projection Model
ERT	expert review team
ESD	European Union effort-sharing decision
ESR	European Union effort-sharing regulation
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
ICOS	Integrated Carbon Observation System
IE	included elsewhere
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
LULUCF	land use, land-use change and forestry
N_2O	nitrous oxide
NA	not applicable
NAP	national adaptation plan
NC	national communication
NE	not estimated
NECP	national energy and climate plan
NF_3	nitrogen trifluoride
NIR	national inventory report
NO	not occurring
non-Annex I Party	Party not included in Annex I to the Convention
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"
SF_6	sulfur hexafluoride
TIMES-Wal	The Integrated Market Allocation–Energy Flow Optimization Model System for Wallonia
UNFCCC reporting guidelines on BRs	"UNFCCC biennial reporting guidelines for developed country Parties"

UNFCCC reporting guidelines on NCs	"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications"
WAM	'with additional measures'
WEM	'with measures'
WOM	'without measures'

I. Introduction and summary

A. Introduction

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

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

3. The review was conducted from 20 to 24 November 2023 in Brussels, Belgium, by the following team of nominated experts from the UNFCCC roster of experts: Nicoleta Florentina Datcu (Romania), Traute Koether (Austria), Ben Macfarlane (Ireland), Kakhaberi Mdivani (Georgia), Newton Paciornik (Brazil) and Yannick Aurelien Wabo (Cameroon). Traute Koether and Newton Paciornik were the lead reviewers. The review was coordinated by Andrea Nuesse (secretariat).

B. Summary

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

1. Timeliness

5. The NC8 was submitted on 21 December 2022, before the deadline of 31 December 2022 mandated by decision 6/CP.25.

6. The BR5 was submitted on 21 December 2022, before the deadline of 31 December 2022 mandated by decision 6/CP.25. The CTF tables were also submitted on 21 December 2022.

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

7. Issues and gaps identified by the ERT related to the information reported by Belgium in its NC8 are presented in tables 1–2. In addition, the ERT noted that Belgium did not organize the content of its NC8 entirely in accordance with the outline contained in the appendix to the UNFCCC reporting guidelines on NCs, as mandated by those guidelines (para. 74). The ERT therefore recommends that the Party structure its NC in accordance with the guidelines in order to facilitate the transparency, comparability and consistency of NCs. The information reported, including the supplementary information under the Kyoto Protocol, mostly adheres to the UNFCCC reporting guidelines on NCs. The ERT concludes that the issues of a mandatory nature related to supplementary information under the Kyoto

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

Protocol do not influence the Party's ability to fulfil its commitments for the second commitment period of the Kyoto Protocol.

8. The ERT noted that Belgium made improvements to the reporting in its NC8 compared with that in its NC7, including by addressing some recommendations and encouragements from the previous review report in the areas of PaMs, projections and the total effects of PaMs, financial, technological and capacity-building support, vulnerability assessment, climate change impacts and adaptation measures, and research and systematic observation.

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

Section of NC	*Completeness*	*Transparency*	*Reference to description of recommendation*
Executive summary	Complete	Transparent	–
National circumstances relevant to GHG emissions and removals	Mostly complete	Transparent	Issue 1 in table I.1
GHG inventory	Complete	Transparent	–
PaMs	Mostly complete	Mostly transparent	Issues 2, 4 and 6 in table I.2
Projections and the total effect of PaMs	Complete	Transparent	–
Vulnerability assessment, climate change impacts and adaptation measures	Complete	Transparent	–
Financial resources and transfer of technology	Mostly complete	Mostly transparent	Issues 1–2 and 5–7 in table I.4
Research and systematic observation	Complete	Transparent	–
Education, training and public awareness	Complete	Transparent	–

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

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

Supplementary information under the Kyoto Protocol	*Completeness*	*Transparency*	*Reference to description of recommendation*
National system	Complete	Mostly transparent	Issue 1 in table I.7
National registry	Complete	Transparent	–
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Complete	Transparent	–
PaMs in accordance with Article 2	Mostly complete	Transparent	Issue 2 in table I.7
Domestic and regional programmes and/or arrangements and procedures	Complete	Transparent	–
Information under Article 10[a]	Complete	Transparent	–
Financial resources	Complete	Transparent	–
Minimization of adverse impacts in accordance with Article 3, paragraph 14	Complete	Transparent	–

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

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

9. Issues and gaps identified by the ERT related to the information reported by Belgium in its BR5 are presented in table 3. The information reported mostly adheres to the UNFCCC reporting guidelines on BRs. The ERT notes that issue 1 in table II.2 has been identified in three or more successive reviews.

10. The ERT noted that Belgium made improvements to the reporting in its BR5 compared with that in its BR4, by addressing some recommendations and encouragements from the previous review report in the areas of projections and the provision of financial, technological and capacity-building support to developing country Parties.

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

Section of BR	*Completeness*	*Transparency*	*Reference to description of recommendation*
GHG emissions and removals	Complete	Transparent	–
Quantified economy-wide emission reduction target and related assumptions, conditions and methodologies	Complete	Mostly transparent	Issue 1 in table II.1
Progress in achievement of targets	Complete	Mostly transparent	Issue 1 in table II.2 Issue 1 in table II.3
Provision of support to developing country Parties	Mostly complete	Partially transparent	Issues 1–3 and 5–6 in table II.5

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

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

A. National circumstances relevant to greenhouse gas emissions and removals

1. Technical assessment of the reported information

11. The NC8 contains information on Belgium's institutional structure, population, geography, land use, climate, economic developments, energy, transport, industry, waste, buildings sector, agriculture and forestry. The description of the Party's national circumstances is more detailed than that in the NC7, particularly in the areas of climate, energy and transport, which has increased transparency.

12. Belgium is a federal State composed of three regions, each with its own executive and legislative bodies. Given this unique division of power, the creation of institutional arrangements that ensure consistency in the action of the federal State and its entities has been necessary. The central coordination body with regard to national climate policy is the National Climate Commission, which was established as part of the National System for Policies and Measures and Projections in 2019. The Commission is responsible for establishing, executing, evaluating and reporting on the National Climate Plan and for fulfilling reporting obligations under the Convention and its Kyoto Protocol.

13. Belgium's economy is dominated by the services sector. Belgium's GDP has been increasing since 1990 (apart from a sharp decrease in 2020 due to the coronavirus disease 2019 pandemic). Energy intensity has been decreasing since 1990. The main consumers of primary energy in 2020 were the industrial sector (26.3 per cent), the residential sector (20.8

per cent) and the transport sector (20.4 per cent). Owing to Belgium's location and nature as a transit country, transport is a growing sector and demand for fossil fuels in the sector is rising. Although agricultural land occupies the greater part of Belgium's territory (44.5 per cent), the number of farms has decreased in recent years, giving way to buildings.

2. Assessment of adherence to the reporting guidelines

14. The ERT assessed the information reported in the NC8 of Belgium and identified an issue relating to transparency and thus adherence to the UNFCCC reporting guidelines on NCs. The finding is described in table I.1.

B. Greenhouse gas inventory information[4]

1. Technical assessment of the reported information

15. Belgium reported information in its BR5 and NC8 on its historical GHG emissions and inventory arrangements using GWP values from the AR4. More recent information on GHG emissions was reported in Belgium's 2023 annual submission, which used GWP values from the AR5. Total GHG emissions[5] excluding emissions and removals from LULUCF decreased by 26.4 per cent between 1990 and 2020, while total GHG emissions including net emissions or removals from LULUCF decreased by 25.2 per cent over the same period. Emissions peaked in 1996. The changes in total emissions were driven mainly by factors such as the reduction in the manufacturing of solid fuels due to the closure of six coke plants and the switch from solid fuels (coal) to gaseous fuels (natural gas), an increase in energy efficiency, renewable fuels in electricity production and the manufacturing industries, and the closure of highly energy intensive industrial plants. In contrast to Belgium's consistently increasing GDP, GHG emissions show a decreasing trend (decreasing by 26.7 per cent from 1990 to 2020). The reasons for the decoupling of emissions from GDP are the increasing use of gaseous fuels, higher energy efficiency and a change in the structure of the economy to fewer highly energy intensive industries. In the manufacturing industries, technological improvements have been responsible for a decoupling of the value added and energy consumption, which has also led to emission reductions. A sharp reduction in emissions from the transport sector in 2020 compared with the 2019 level due to the pandemic was followed by an increase in total emissions (excluding emissions and removals from LULUCF) in 2021.

16. Table 4 illustrates the emission trends by sector and by gas for Belgium. The emissions reported in the 2023 annual submission differ from the data reported in CTF table 1 in that values in CTF table 1 were reported using GWP values from the AR4 whereas values in the 2023 annual submission were reported using GWP values from the AR5. In addition, recalculations were performed for the 2023 annual submission, leading to an increase in CO_2 emissions in the residential and commercial sectors due to the optimization of regional energy balances and a reduction in HFC emissions due to a correction in the emissions of a chemical plant. The emissions reported in CTF table 1 are the same as those reported in the 2022 annual submission.

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

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share (%)*	
	1990	*2000*	*2010*	*2020*	*2021*	*1990–2020*	*2020–2021*	*1990*	*2021*
Sector									
1. Energy	103 906.80	106 210.46	99 618.88	78 056.08	82 104.17	–24.9	5.2	71.2	74.0
A1. Energy industries	29 728.26	28 495.94	26 128.80	18 984.02	18 191.20	–36.1	–4.2	20.4	16.4

[4] GHG emission data in this section, which use GWP values from the AR5, are based on Belgium's 2023 annual submission, version 1. All emission data in subsequent chapters are based on Belgium's BR5 CTF tables, which use GWP values from the AR4 unless otherwise noted.

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

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share (%)*	
	1990	*2000*	*2010*	*2020*	*2021*	*1990–2020*	*2020–2021*	*1990*	*2021*
A2. Manufacturing industries and construction	23 527.11	21 653.17	15 956.98	13 317.53	13 994.97	–43.4	5.1	16.1	12.6
A3. Transport	20 925.49	24 986.73	26 707.87	21 671.98	23 860.73	3.6	10.1	14.3	21.5
A4. and A5. Other	28 349.38	30 135.78	29 984.95	23 407.43	25 399.08	–17.4	8.5	19.4	22.9
B. Fugitive emissions from fuels	1 376.56	938.84	840.27	675.12	658.20	–51.0	–2.5	0.9	0.6
C. CO_2 transport and storage	NO	NO	NO	NO	NO	–	–	–	–
2. IPPU	25 505.24	27 665.22	21 665.69	18 380.18	18 182.55	–27.9	–1.1	17.5	16.4
3. Agriculture	11 636.19	10 855.58	9 716.87	9 516.10	9 414.19	–18.2	–1.1	8.0	8.5
4. LULUCF	–2 936.03	–1 686.17	–362.23	–334.90	–324.37	88.6	3.1	NA	NA
5. Waste	4 796.24	4 146.06	2 642.86	1 320.29	1 250.83	–72.5	–5.3	3.3	1.1
6. Other[a]	NO	NO	NO	NO	NO	–	–	–	–
Gas[b]									
CO_2	120 292.80	126 721.54	114 604.11	91 101.39	95 668.08	–24.3	5.0	82.5	86.2
CH_4	12 899.99	11 443.94	9 123.26	7 971.61	7 870.10	–38.2	–1.3	8.8	7.1
N_2O	8 950.48	9 071.03	6 696.47	4 787.46	4 733.21	–46.5	–1.1	6.1	4.3
HFCs	NA, NO	1 088.73	3 015.44	3 111.96	2 397.30	–	–23.0	–	2.2
PFCs	2 034.77	403.25	95.60	184.80	182.00	–90.9	–1.5	1.4	0.2
SF_6	1 666.44	148.83	108.17	107.31	95.79	–93.6	–10.7	1.1	0.1
NF_3	NA, NO	NA, NO	1.24	8.13	5.25	–	–35.5	–	0.0
Total GHG emissions excluding LULUCF	**145 844.47**	**148 877.33**	**133 644.30**	**107 272.65**	**110 951.73**	**–26.4**	**3.4**	**100.0**	**100.0**
Total GHG emissions including LULUCF	**142 908.44**	**147 191.15**	**133 282.06**	**106 937.75**	**110 627.36**	**–25.2**	**3.5**	**NA**	**NA**

Source: GHG emission data: Belgium's 2023 annual submission, version 1.
[a] Emissions and removals reported under the sector other (sector 6) are not included in total GHG emissions.
[b] Emissions by gas without LULUCF. The Party did not report indirect CO_2 emissions.

17. Belgium's national inventory arrangements were reported in its NC8 and BR5 in conjunction with its reporting on the national system under the Kyoto Protocol (see para. 19 below). The Belgian Interregional Environment Agency functions as the national compiler of GHG emission data and is responsible for integrating data from the inventories of the three regions into a national inventory. The emissions inventory of the Walloon Region is compiled by the Walloon Agency for Air and Climate and Brussels Environment is responsible for the compilation of emissions for the Brussels-Capital Region. The changes in these arrangements since the BR4 include the establishment of the Flemish Energy and Climate Agency, which is now responsible for the energy balance of, and for providing information on GHG statistics in, the Flemish Region.

2. Assessment of adherence to the reporting guidelines

18. The ERT assessed the information reported in the NC8 and BR5 of Belgium and recognized that the reporting is complete and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs and the UNFCCC reporting guidelines on BRs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

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

(a) Technical assessment of the reported information

19. Belgium provided in the NC8 a description of how its national system for the estimation of anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol is performing the general and specific functions defined in the annex to decision 19/CMP.1 in conjunction with decisions 3/CMP.11 and 4/CMP.11. The description includes most of the elements mandated by paragraph 30 of the annex to decision 15/CMP.1. The NC8 also contains a reference to the description of the national system provided in the NIR of the 2022 annual submission. The ERT took note of the review of the changes to the national system reflected in the report on the individual review of the 2022 annual submission of Belgium.

(b) Assessment of adherence to the reporting guidelines

20. The ERT assessed the information reported in the NC8 of Belgium and identified an issue relating to transparency, and thus adherence to the reporting guidelines for supplementary information. The finding is described in table I.7.

4. National registry

(a) Technical assessment of the reported information

21. In its NC8 Belgium provided information on how its national registry performs the functions in accordance with the annex to decision 13/CMP.1 in conjunction with decision 3/CMP.11 and the annex to decision 5/CMP.1 and complies with the requirements of the technical standards for data exchange between registry systems. The ERT took note of the review of the changes to the national registry reflected in the report on the individual review of the 2022 annual submission of Belgium.

(b) Assessment of adherence to the reporting guidelines

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

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

1. Technical assessment of the reported information

23. Belgium reported information on its economy-wide emission reduction target in its BR5. For Belgium the Convention entered into force on 16 January 1996. Under the Convention Belgium committed to contributing to the achievement of the joint EU economy-wide emission reduction target of 20 per cent below the 1990 level by 2020.

24. The target for the EU and its member States is formalized in the EU 2020 climate and energy package. The legislative package regulates emissions of CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 using GWP values from the AR4 to aggregate the GHG emissions of the EU until 2020. Emissions and removals from the LULUCF sector are not included in the quantified economy-wide emission reduction target under the Convention.

25. The EU-wide targets are primarily implemented through the EU ETS and ESD. The EU ETS covers mainly point emissions sources in the energy, industry and aviation sectors. An EU-wide emission cap was put in place for 2013–2020 for the EU ETS with the goal of reducing emissions by 21 per cent below the 2005 level by 2020. For 2030, a reduction target of 62 per cent below the 2005 level has been set for emissions covered by the EU ETS. The ESD became operational in 2013 and covers sectors outside the EU ETS, including transport (excluding aviation and international maritime transport), residential and commercial

buildings, agriculture, small industry and waste. The ESD is regulated through targets for each member State that add up to a reduction at the EU level of 10 per cent below the 2005 level by 2020. The ESR, the successor to the ESD, was adopted in 2018 and amended in 2023 with the target of reducing emissions covered under the ESR by 40 per cent below the 2005 level by 2030.

26. The EU generally allows its member States to use units from the Kyoto Protocol mechanisms for compliance purposes, subject to a number of restrictions in terms of origin and type of project and up to an established limit. Operators and airline operators can use such units to fulfil their requirements under the EU ETS, and member States can use such units for their national ESD targets, within specific limitations.

27. The European Commission set out its vision for a climate-neutral EU in November 2018, and in December 2019 presented the European Green Deal as a road map with actions for making the EU economy sustainable. The European Council endorsed in December 2019 the objective of making the EU climate-neutral by 2050. As part of the European Green Deal, the 2050 climate-neutrality target was made binding in the first European Climate Law, adopted in 2021. It also increased the ambition of the 2030 emission reduction target to at least 55 per cent below the 1990 level. Member States will set out any increased ambition in the update of their NECPs.

28. Belgium has a national target of reducing its emissions to 15 per cent below the 2005 level by 2020 for ESD sectors. This target has been translated into binding quantified AEAs for 2013–2020. Belgium's AEAs change following a linear path from 74,264.63 kt CO_2 eq in 2013 to 64,904.16 kt CO_2 eq in 2020.[6] Under the ESR, Belgium has a national target of reducing emissions from covered sectors to 35 per cent below the 2005 level by 2030.

29. Belgium also reported on its longer-term target of reaching climate neutrality by 2050 in accordance with the European Climate Law. The target is based on the long-term strategies of the Brussels-Capital Region, the Flemish Region and the Walloon Region, which aim to reduce their emissions by 90, 85 and 95 per cent respectively by 2050 compared with the 1990 level.

2. Assessment of adherence to the reporting guidelines

30. The ERT assessed the information reported in the BR5 of Belgium and identified issues relating to transparency, and thus adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table II.1.

D. Information on policies and measures

1. Technical assessment of the reported information

31. Belgium provided in its NC8 and BR5 information on its PaMs[7] implemented, adopted and planned to fulfil its commitments under the Convention. Belgium's set of PaMs is similar to that previously reported, with a few exceptions. Some PaMs reported as expired continue to produce GHG emission reductions, such as the initiative providing financial support for the rational use of energy and renewable energy systems in the residential sector and the federal green loans scheme.

32. Belgium reported on its policy context and legal and institutional arrangements in place for implementing its commitments and monitoring and evaluating the effectiveness of its PaMs. Belgium also provided information on changes to its institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of progress towards its target. In Belgium, competence for climate change PaMs is divided between the federal State and the Walloon,

[6] According to the EU transaction log.

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

Flemish and Brussels-Capital Regions. Belgium's PaMs are in line with European legislation, including the European Climate Law.

33. The National Climate Commission was established to harmonize and foster synergies among the PaMs implemented by Belgium's federal State and the three regions (see para. 12 above). In 2021, the Belgian National System for Policies and Measures and Projections was updated. The updates were made in the context of the new EU legislation on emission reduction objectives for the medium term (2030) and long term (2050) and they included the addition of various supporting measures across the electricity, industry, building, transport, agriculture and waste sectors. The System ensures the timeliness, transparency, accuracy, consistency, comparability and completeness of the information on PaMs and projections reported by Belgium pursuant to Article 18(1)(a–b) of the EU regulation on the governance of the Energy Union and climate action (regulation 2018/1999). The federal State and the three regions evaluate the progress in implementation of their PaMs in a harmonized way, including by estimating their impact in terms of GHG emission reductions.

34. Belgium's assessment of the economic and social consequences of its response measures indicates that the adverse impacts of climate change will be reduced globally if Belgium takes measures aiming to reduce GHG emissions, such as saving energy and promoting renewable energy sources. The Party states in the NC8 that such measures will also reduce air pollution. However, Belgium noted that the NECP includes many new and/or continuing PaMs that require in-depth evaluation, including with regard to their economic and social consequences.

35. In its reporting on PaMs, Belgium provided the estimated emission reduction impacts for some of its PaMs. Where estimated impacts were not provided, the Party did not supply an explanation specific to individual PaMs. The notation key "IE" was used in reporting the estimated emission reduction impacts of some PaMs. However, it was not apparent to the ERT where the estimated emission reduction impacts of these PaMs were included. During the review, Belgium explained that all the PaMs reported as "IE" are part of two collections of PaMs, and information regarding which policy or measure is included in each collection is reported in the NECP. Belgium provided the ERT with information that clarifies the allocation of the PaMs to the two collections.

36. The Party described its general methodology for estimating the impacts of its PaMs, which comprises a bottom-up approach for estimating the impact of each individual policy or measure. The Party explained during the review that estimated impacts were not provided for some PaMs because of the lack of relevant information. Each region reports on PaMs according to its competence, taking the EU reporting obligations into account. The list of PaMs to be reported is established under regional NECPs and each region must carry out the impact assessment of its PaMs. The Party also mentioned that the Flemish Region has drawn up a progress report, which indicates that all its PaMs have been fully assessed.

37. The key overarching related 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 CO_2 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. The 2021 European Climate Law, which forms part of the European Green Deal, made climate neutrality by 2050 legally binding and raised the EU-wide 2030 emission reduction target to at least 55 per cent compared with the 1990 level. In 2023, the EU adopted several pieces of legislation that were part of the "Fit for 55" package intended to help achieve the new 2030 target. These new laws strengthened both the ESR and the EU ETS 2030 targets, extended the EU ETS to include maritime shipping in 2024 and established the Social Climate Fund to address equitability of mitigation impacts. They also created the EU ETS 2 to cover at the point of distribution most fuel used in sectors not covered by the EU ETS, beginning in 2027.

38. The 2021–2030 EU-wide policies are implemented through the NECPs of EU member States, which should set out national objectives for each of the five dimensions of the Energy Union, namely energy security; the internal energy market; energy efficiency; decarbonization; and research, innovation and competitiveness. The NECPs are periodically

updated to reflect changes to EU policy, such as the implementation of the European Green Deal. Belgium's NECP specifies some of the key measures proposed as being the development of renewable energy sources and the promotion of high-efficiency combined heat and power systems. The main instruments implemented under the plan are green certificate markets. In the IPPU sector, the major instrument for reducing GHG emissions remains the EU ETS, which is considered the most effective way to reduce emissions from a cost perspective. In addition to the key measures set out in the NECP, the federal Government, acting as a separate entity from the regional governments, has identified a set of new federal PaMs. These include positive mobility allocations, incentives for electric bicycles and energy saving in railways, and the implementation of new EU legislative instruments in the field of product policy and F-gases.

39. Belgium introduced national-level policies and implemented EU-level procedures to achieve its targets under the ESD, the ESR and domestic emission reduction targets. The key policies reported are the promotion of offshore wind, the promotion of biofuels, the F-gas action plan, the Ecodesign initiative for the promotion of energy-efficient electrical appliances, the Clean Power for Transport plan, the scheme to stimulate renovation of residential and non-residential buildings, the Walloon Renovation Strategy and the FAST Vision initiative for mobility in the Walloon Region. The mitigation effect of Ecodesign is the most significant. Other policies that have delivered significant emission reductions are federal green loans and fiscal support for energy efficiency investments in industry. The ERT identified FAST Vision as a mitigation action of particular interest because of its multipronged approach to reducing emissions in the transport sector – namely, facilitating a modal shift, managing or reducing demand, improving the energy efficiency of vehicles and increasing electrification of the sector.

40. Belgium highlighted the domestic mitigation actions that are under development, such as those being planned or revised to align with the more ambitious 2030 target of the EU to reduce domestic emissions by at least 55 per cent compared with the 1990 level. Among the mitigation actions that provide a foundation for significant additional action are measures concerning energy production; more specifically, those concerned with enhancing the development of renewable energy sources. The main instruments implemented are green certificate markets. For renewable energy sources, the Flemish Region uses subsidies to promote onshore solar and wind energy, and the federal Government supports offshore wind farms and biofuel blends. Renewable energy development will also continue through the EU ETS and the carbon price, which includes the price for electricity production. Table 5 provides a summary of the reported information on the PaMs of Belgium.

Table 5
Summary of information on policies and measures reported by Belgium

Sector	*Key PaMs*[a]	*Estimated mitigation impact in 2020 (kt CO_2 eq)*	*Estimated mitigation impact in 2030 (kt CO_2 eq)*
Policy framework and cross-sectoral measures	Federal green loans	1 256	1 216
Energy			
Energy efficiency	Walloon Renovation Strategy	NE	2 875
Energy supply and renewable energy	Promotion of offshore wind (federal)	2 671	4 330
Transport	Promoting biofuels (federal)	1 995	1 759.21
	FAST Vision (Walloon Region)	NE	4 513
IPPU	F-gas action plan (federal)	1 549	3 117
Agriculture	Covenant Enteric Emissions (Flemish Region)	NE	527

Note: The estimated mitigation impacts are estimates of emissions of CO_2 eq avoided in a given year as a result of the implementation of mitigation actions.

[a] Names of PaMs reproduced as reported in Belgium's CTF table 3.

2. Assessment of adherence to the reporting guidelines

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

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

(a) Technical assessment of the reported information

42. In its NC8, Belgium reported that the implementation of the Kyoto Protocol is underpinned by the Cooperation Agreement of 14 November 2002 between the federal State, the Brussels-Capital Region, the Flemish Region and the Walloon Region. The overall responsibility for climate change policymaking lies with the National Climate Commission (see para. 12 above).

43. 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 (see paras. 23–25 above).

44. The Party has arrangements and enforcement procedures to meet its commitments under the Kyoto Protocol, including procedures for addressing non-compliance. These include a burden-sharing agreement, a mechanism for raising awareness of climate responsibility among the regions for the buildings sector, and the substitution right for international obligations under the Convention and its Kyoto Protocol.

45. Belgium has provisions in place to make information on legislative arrangements and administrative procedures related to compliance and enforcement publicly accessible; these were established by a regulation transposing the EU directive on public access to environment information (directive 2003/4/EC).

46. Belgium has national legislative arrangements and administrative procedures in place that seek to ensure that the implementation of activities under Article 3, paragraph 3, and any elected activities under Article 3, paragraph 4, of the Kyoto Protocol also contributes to the conservation of biodiversity and the sustainable use of natural resources. In the Walloon Region, the Forest Code introduced restrictions in favour of forest conservation and the maintenance of ligneous materials and carbon; in the Flemish Region, the focus is on the qualitative and quantitative dimensions of forests and on the integration of biodiversity constraints into forest management; and in the Brussels-Capital Region, forest management aims to ensure ecological stability.

(b) Assessment of adherence to the reporting guidelines

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

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

(a) Technical assessment of the reported information

48. In the NC8, Belgium reported information on its PaMs (chap. 4.3). However, it did not include information on how its PaMs contribute to sustainable development and how it collaborates with other Parties on achieving this objective, in accordance with Article 2, paragraph 1, of the Kyoto Protocol.

49. The NC8 includes information on how Belgium promotes and implements the decisions of the International Civil Aviation Organization and the International Maritime Organization to limit emissions from aviation and marine bunker fuels. As an EU member

State, Belgium's climate policies for international aviation include limiting CO_2 emissions from flights, introducing technical measures and standards to limit fuel consumption by aircraft and taking steps to discourage short flights. For maritime transport, measures include obligations under the measurement, reporting and verification framework for ships calling at ports in the European Economic Area and the inclusion of emissions from international shipping in the EU ETS.

50. In the NC8 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. Further information was reported in the 2022 annual submission. Belgium reported on how its actions aim to reduce GHG emissions by means of saving energy and promoting renewable energy sources. Belgium has abolished subsidies supporting the use of coal and other fossil fuels, which has the additional benefit of positively impacting health in the long term. The Party reported information on what it prioritized in implementing its commitments under Article 3, paragraph 14, including an evaluation of how its agricultural policies and the promotion of biofuels could create pressure on food prices and on land and forest management, especially in developing countries.

(b) Assessment of adherence to the reporting guidelines

51. The ERT assessed the information reported in the NC8 of Belgium and identified an issue relating to completeness, and thus adherence to the reporting guidelines for supplementary information. The finding is described in table I.7.

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

1. Technical assessment of the reported information

52. Belgium reported in its BR5 that it did not use units from market-based mechanisms to meet its commitment under the ESD. It reported in CTF tables 4 and 4(b) that it did not use any units from market-based mechanisms in 2019 or 2020. Given that the contribution of LULUCF activities is not included in the joint EU target under the Convention, reporting thereon is not applicable to Belgium. Table 6 illustrates Belgium's ESD emissions and use of units from market-based mechanisms for achieving its ESD target.

Table 6
Summary of information on emissions covered by the European Union effort-sharing decision annual emission allocation and use of units from market-based mechanisms by Belgium
(kt CO_2 eq)

Year	*ESD emissions*	*AEA*	*Use of units from market-based mechanisms*	*AEAs transferred to (–) or from (+) other Parties*	*Annual AEA surplus/deficit*	*Cumulative AEA surplus/deficit*
2013	74 264.63	78 379.83	–	–	4 115.19	4 115.19
2014	70 054.91	76 850.89	–	–	6 795.98	10 911.18
2015	72 719.52	75 321.96	–	–	2 602.44	13 513.62
2016	74 063.15	73 793.03	–	–	–270.12	13 243.50
2017	70 824.56	72 487.35	–	–	1 662.79	14 906.29
2018	74 253.86	71 074.10	–	–	–3 179.76	11 726.53
2019	72 013.55	69 660.86	–	–	–2 352.70	9 373.83
2020	64 904.16	68 247.61	–	–	3 343.45	12 717.28

Sources: Belgium's BR5 and BR5 CTF table 4(b) and EU transaction log (AEAs), which use GWP values from the AR4.
Note: For a given year, a positive number (surplus) indicates that annual or cumulative ESD emissions were lower than the corresponding AEA or cumulative AEAs, while a negative number (deficit) indicates that annual or cumulative ESD emissions were higher than the corresponding AEA or cumulative AEAs.

2. Assessment of adherence to the reporting guidelines

53. The ERT assessed the information reported in the BR5 of Belgium and identified an issue relating to transparency, and thus adherence to the UNFCCC reporting guidelines on BRs. The finding is described in table II.3.

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

54. In assessing the Party's contribution towards achievement of the 2020 joint EU target on the basis of the information reported in its BR5, the ERT noted that, under the EU 2020 climate and energy package, Belgium committed to reducing its emissions under the ESD to 15 per cent below the 2005 level by 2020 (see para. 28 above). This target has been translated into binding quantified AEAs for 2013–2020. In 2020 Belgium's ESD emissions were 4.9 per cent (3,343.45 kt CO_2 eq) below the AEA. Belgium has a cumulative surplus of 12,717.28 kt CO_2 eq with respect to its AEAs between 2013 and 2020. The ERT noted that the Party did not make use of units from market-based mechanisms in all years from 2013 to 2020.

55. The ERT noted that the Party reported that the total GHG emissions excluding LULUCF of the EU and including the use of units from market-based mechanisms do not exceed the emission level corresponding to the target in 2020, and thus that the EU has achieved its joint target. See the report on the technical review of the BR5 of the EU for further details. Therefore, the ERT concluded that, on the basis of the information reported in the BR5 and provided during the review, Belgium has met its 2020 commitment under the Convention through its contribution to achieving the joint EU target.

56. The ERT noted that the Party's ESD emissions for 2016, 2018 and 2019 exceed the AEA for those years. The ERT noted that, to achieve its target under the ESD, Belgium used its surplus AEAs from other years under the flexibility allowed under the ESD.

F. Projections

1. Projections overview, methodology and results

(a) Technical assessment of the reported information

57. Belgium reported in its BR5 and NC8 updated projections for 2025–2040 relative to actual inventory data for 2020 under the WEM scenario, using GWP values from the AR4. The WEM scenario reported by Belgium includes PaMs implemented and adopted until 2020.

58. In addition to the WEM scenario, Belgium reported the WAM scenario. Belgium did not report the WOM scenario, explaining during the review that constructing such a scenario, given the country's long history of climate policy, would entail considerable difficulties while providing relatively few policy insights. The WAM scenario includes planned PaMs. Belgium provided a definition of its scenarios, explaining that its WEM scenario includes policies such as improved energy performance of buildings and increased natural gas use in electricity generation due to the phase-out of nuclear energy, while its WAM scenario includes policies such as more ambitious offshore wind capacity after 2025, further measures to reduce the number of vehicle kilometres travelled, and increased use of renewable heat sources such as heat pumps. The definitions indicate that the scenarios were prepared in accordance with the UNFCCC reporting guidelines on BRs.

59. The projections are presented on a sectoral basis, using the same sectoral categories as those used in the reporting on mitigation actions, and on a gas-by-gas basis for CO_2, CH_4, N_2O, PFCs, HFCs and SF_6 (treating PFCs and HFCs collectively in each case) as well as NF_3 for 2025–2040. The projections are also provided in an aggregated format for each sector and for a Party total using GWP values from the AR4. Belgium reported on factors and activities affecting emissions for each sector, including number of households, livestock populations, electricity demand and projected fuel shares in total gross electricity production.

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

60. The methodology used for the preparation of the projections is different from that used for the preparation of the emission projections for the NC7. Belgium provided information on changes since the submission of its NC7 in the assumptions, methodologies, models and approaches used for the projection scenarios, including changes in values of underlying assumptions such as heating degree days, population trends and livestock numbers. Furthermore, to prepare the projections reported in the NC8, the Walloon Region used the newly developed TIMES-Wal model for the first time for its WEM scenario, replacing EPM (EPM was still used for the calculation of the Walloon Region's WAM scenario owing to time constraints).

61. To prepare its projections, Belgium relied on key underlying assumptions relating to population, number of households, household size, number of heating degree days, electricity imports and populations of certain livestock. The assumptions were updated on the basis of the most recent economic developments known at the time of the preparation of the projections. From 2020, the population is projected to increase from 11.5 million to 12.3 million by 2040, while household size is expected to decrease from 2.30 inhabitants per household to 2.22 in 2040, resulting in the number of households increasing from 4.99 to 5.56 million. On the basis of more recent climate assumptions, the number of heating degree days was updated from 1,807 in the NC7/BR3 and 1,870 in the BR4 to 1,821 in the NC8/BR5 across the time series. Regarding electricity imports, there is an anticipated increasing trend in transboundary imports for both the WEM and the WAM scenario as a direct consequence of the planned phase-out of nuclear power stations, with capacity dependent on new cross-border transportation capacities, commercial opportunities and the location of new production plants.

62. Sensitivity analyses were conducted for two important assumptions: electricity imports and heating degree days. The results of the analyses showed that reduced electricity imports would create increased energy demand to be met by domestic natural gas consumption, leading to a corresponding cumulative increase in emissions of 6.7 Mt CO_2 eq in the WEM scenario and 7.8 Mt CO_2 eq in the WAM scenario by 2040. A scenario that includes increased imported electricity (an additional 20 TWh from 2020 to 2040) indicated that cumulative reductions of up to 6.6 and 5.7 Mt CO_2 eq could be achieved under the WEM and WAM scenarios respectively. In addition, sensitivity analyses for the number of heating degree days showed that warmer winters could incur lower heating demands, causing cumulative decreases in emissions by 2040 of 12.7 and 6.1 Mt CO_2 eq in the WEM and WAM scenarios respectively, while colder winters could see increases of 8.7 and 6.6 Mt CO_2 eq in the WEM and WAM scenarios respectively.

(c) Results of projections

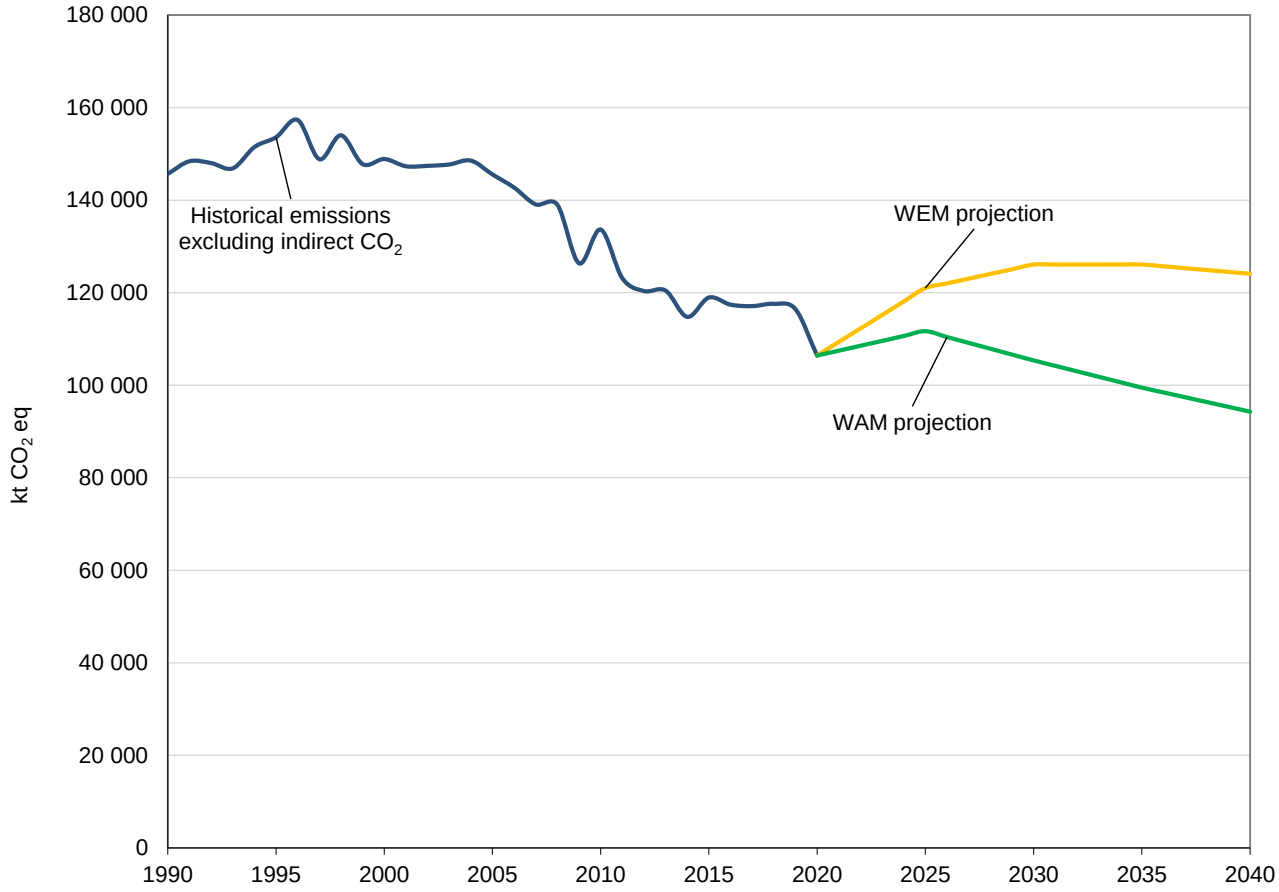
63. The projected emission levels under different scenarios are presented in table 7 and Figure 1.

Table 7
Summary of greenhouse gas emission projections for Belgium

	GHG emissions (kt CO_2 eq/year)	*Change in relation to 1990 level (%)*	*Change in relation to 2020 level (%)*
Inventory data 1990	145 686.76	NA	NA
Inventory data 2020	106 433.26	–25.7	NA
WEM projections for 2030	126 081.72	–13.5	18.5
WAM projections for 2030	105 386.66	–27.7	–1.0
WEM projections for 2040	124 100.00	–14.8	16.6
WAM projections for 2040	94 300.00	–35.3	–11.4

Sources: Belgium's NC8 and BR5 CTF table 6, which use GWP values from the AR4.
Note: The projections are of GHG emissions excluding LULUCF and excluding indirect CO_2.

Figure 1
Greenhouse gas emission projections reported by Belgium

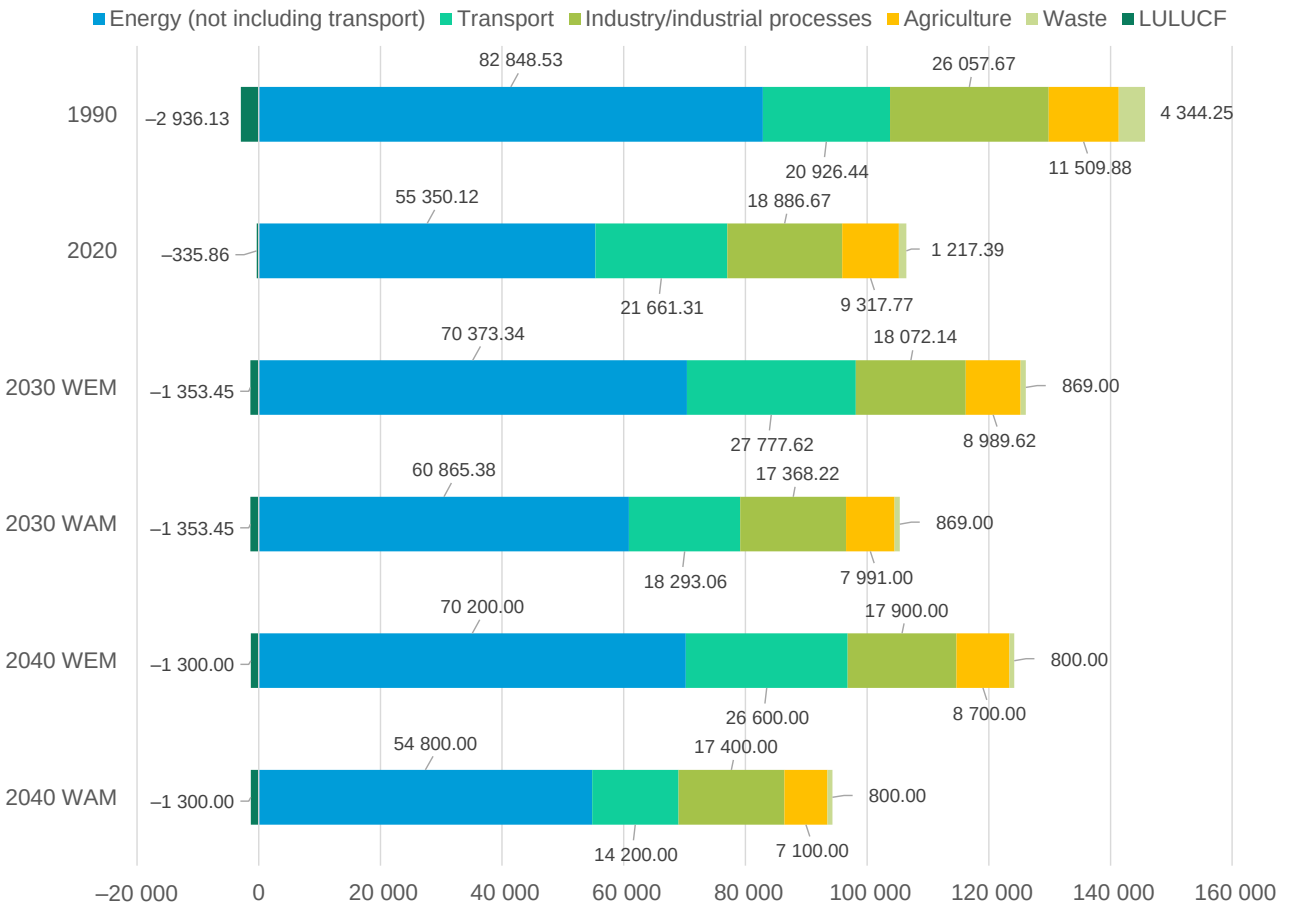


Sources: Belgium's NC8 and BR5 CTF tables 1 and 6 (total GHG emissions), which use GWP values from the AR4.

64. Belgium's total GHG emissions excluding LULUCF are projected under the WEM scenario to decrease by 13.5 and 14.8 per cent below the 1990 level in 2030 and 2040 respectively. When including LULUCF, total GHG emissions are projected under the WEM scenario to decrease by 12.6 and 13.9 per cent below the 1990 level in 2030 and 2040 respectively. Under the WAM scenario, emissions in 2030 and 2040 are projected to be lower than those in 1990 by 27.7 and 35.3 per cent respectively excluding LULUCF and by 27.1 and 34.9 per cent respectively including LULUCF. The ERT noted that although under both the WEM and the WAM scenario emissions are reduced by 2030 and 2040 in relation to the base year (1990), emissions under the WEM scenario increase by 18.5 and 16.6 per cent in 2030 and 2040 respectively compared with the figures reported in the 2020 GHG annual submission.

65. Belgium presented the WEM and WAM scenarios by sector for 2030 and 2040, as summarized in figure 2 and table 8.

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



Sources: Belgium's NC8 and BR5 CTF table 6, which use GWP values from the AR4.

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

	GHG emissions and removals (kt CO_2 eq)					*Change (%)*			
		2030		*2040*		*1990–2030*		*1990–2040*	
Sector	*1990*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*
Energy (not including transport)	82 848.53	70 373.34	60 865.38	70 200.00	54 800.00	–15.1	–26.5	–15.3	–33.9
Transport	20 926.44	27 777.62	18 293.06	26 600.00	14 200.00	32.7	–12.6	27.1	–32.1
Industry/ industrial processes	26 057.67	18 072.14	17 368.22	17 900.00	17 400.00	–30.6	–33.3	–31.3	–33.2
Agriculture	11 509.88	8 989.62	7 991.00	8 700.00	7 100.00	–21.9	–30.6	–24.4	–38.3
LULUCF	–2 936.13	–1 353.45	–1 353.45	–1 300.00	–1 300.00	–53.9	–53.9	–55.7	–55.7
Waste	4 344.25	869.00	869.00	800.00	800.00	–80.0	–80.0	–81.6	–81.6
Other[a]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total GHG emissions excluding LULUCF	**145 686.76**	**126 081.72**	**105 386.66**	**124 100.00**	**94 300.00**	**–13.5**	**–27.7**	**–14.8**	**–35.3**

Sources: Belgium's NC8 and BR5 CTF table 6, which use GWP values from the AR4.
[a] Belgium reported emissions from bunker fuels under the sector other but for comparability to other reports, these emissions have been excluded from this table.

66. Projections under the WEM scenario are presented by sector for 2025, 2030, 2035 and 2040. According to the projections reported for 2030 under the WEM scenario, the most significant absolute emission reductions are expected to occur in the energy sector, amounting to projected reductions of 15.1 per cent between 1990 and 2030. However, importantly for energy industries within the energy sector, emissions are projected to increase by approximately 60 per cent from 2020 to 2030 owing to the phase-out of nuclear power and the expected use of natural gas in power stations to meet projected energy demands. In addition, transport sector emissions are projected to increase by 28 per cent, from 21.7 Mt CO_2 eq in 2020 to 27.8 Mt CO_2 eq in 2030, driven by increasing total vehicle kilometres travelled in conjunction with the expected continued dominance of internal combustion engines in the national fleet. The pattern of projected emissions reported for 2040 under the same scenario is largely the same except for the energy industries and transport sectors. In energy industries, a stagnation in emissions is observed, from 30.4 Mt CO_2 eq in 2030 to 30.9 Mt CO_2 eq in 2040, as natural gas consumption in electricity production decreases from 67 to 64 per cent, made up for by renewables. In the transport sector, emissions decrease from 27.8 Mt CO_2 eq in 2030 to 26.6 Mt CO_2 eq in 2040 owing to a modal shift to public transport and electrification of the Belgian vehicle fleet.

67. Projections under the WAM scenario are presented by sector for 2025, 2030, 2035 and 2040. According to the projections reported for 2030 under the WAM scenario, the most significant absolute emission reductions are also expected to occur in the energy sector, amounting to projected reductions of 26.5 per cent between 1990 and 2030. The pattern of projected emissions reported for 2040 under the same scenario is largely the same but with a significant increase in emission reductions in transport of 22.4 per cent from 2030 to 2040 due to ambitious measures to reduce vehicle kilometres travelled, electrify the Belgian vehicle fleet and increase the share of biofuels in transport fuels.

68. Belgium presented the WEM and WAM scenarios by gas for 2030 and 2040, as summarized in table 9.

Table 9
Summary of greenhouse gas emission projections for Belgium presented by gas

	GHG emissions and removals (kt CO_2 eq)					*Change (%)*			
		2030		*2040*		*1990–2030*		*1990–2040*	
Gas[a]	*1990*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*
CO_2	120 292.64	112 719.58	93 829.52	111 600.00	83 900.00	–6.3	–22.0	–7.2	–30.3
CH_4	11 517.60	6 533.32	5 740.31	6 200.00	5 000.00	–43.3	–50.2	–46.2	–56.6
N_2O	10 063.17	5 497.02	4 816.45	5 400.00	4 500.00	–45.4	–52.1	–46.3	–55.3
HFCs	NA, NO	1 235.60	903.48	1 000.00[b]	900.00[b]	NA	NA	–73.8[b]	–76.4[b]
PFCs	2 191.05	96.20	96.90	IE	IE	–95.6	–95.6	IE	IE
SF_6	1 622.30	0.00	0.00	IE	IE	–100.0	–100.0	IE	IE
NF_3	NA, NO	0.00	0.00	IE	IE	NA	NA	IE	IE
Total GHG emissions without LULUCF	**145 686.76**	**126 081.72**	**105 386.66**	**124 100.00**	**94 300.00**	**–13.5**	**–27.7**	**–14.8**	**–35.3**

Sources: Belgium's NC8 and BR5 CTF table 6, which use GWP values from the AR4.
[a] Belgium did not include indirect CO_2 emissions in its projections.
[b] Combined amount for all F-gases.

69. During the review, Belgium presented updated WEM and WAM scenarios to 2050, which were created for its 2023 submission pursuant to Article 18(1)(b) of the EU regulation on the governance of the Energy Union and climate action (regulation 2018/1999) and which took into account new policy developments. Under the WEM scenario, such developments included further expansion of offshore wind capacity (from 2,261 to 5,411 MW), extended closure dates of two nuclear power plants (from 2025 to 2036) and the approval of a number of previous WAM transport measures for inclusion in the updated WEM scenario. For the WAM scenario, 2040 offshore wind capacity was increased (from 4,011 to 8,000 MW) and carbon capture and storage was introduced in the Party's IPPU projections, with cumulative

emission savings of 5 Mt CO_2 eq expected by 2030. Compared with the total 2005 emissions excluding LULUCF, by 2025, 2030 and 2040, the WEM scenario developments result in reductions of 23, 27 and 29 per cent and the WAM scenario developments in reductions of 27, 43 and 72 per cent.

(d) Assessment of adherence to the reporting guidelines

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

2. Assessment of the total effect of policies and measures

(a) Technical assessment of the reported information

71. In its NC8 Belgium presented the estimated and expected total effect of implemented and adopted PaMs. Information is presented in terms of GHG emissions avoided or sequestered, by gas (on a CO_2 eq basis), in 2025, 2030, 2035 and 2040. It also presented relevant information on factors and activities for each sector for 1990–2040.

72. Belgium reported that the total estimated effect of its implemented and adopted PaMs is 17,600 kt CO_2 eq in 2025, 20,700 kt CO_2 eq in 2030, 20,000 kt CO_2 eq in 2035 and 18,600 kt CO_2 eq in 2040. According to the information reported in its NC8, PaMs implemented in the energy sector will deliver the largest emission reductions. The additional estimated effect of Belgium's planned PaMs is 5,400 kt CO_2 eq in 2025, 10,904 kt CO_2 eq in 2030, 18,500 kt CO_2 eq in 2035 and 19,706 kt CO_2 eq in 2040. Table 10 provides an overview of the total effect of PaMs as reported by Belgium.

Table 10
Projected effects of Belgium's planned, implemented and adopted policies and measures in 2030 and 2040
(kt CO_2 eq)

	2030		*2040*	
Sector	*Effect of implemented and adopted measures*	*Effect of planned measures*	*Effect of implemented and adopted measures*	*Effect of planned measures*
Energy (without transport)	18 352.25	5 604.20	16 277.84	1 1034.10
Transport	9.97	4128.00	7.61	7 212.00
Industry/industrial processes	1 796.00	373.00	1 559.00	373.00
Agriculture	527.00	469.00	767.00	757.00
Land-use change and forestry	NA	NA	NA	NA
Waste management	330.00	330.00	330.00	330.00
Total	**21 015.22**	**10 904.20**	**18 941.45**	**19706.10**

Sources: Belgium's NC8, BR5 and data provided by the Party during the review, which use GWP values from the AR4.
Note: The total effect of implemented and adopted PaMs is defined as the sum of individual effects; the total effect of planned PaMs is defined as the difference between the WEM and the WAM scenarios.

(b) Assessment of adherence to the reporting guidelines

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

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

(a) Technical assessment of the reported information

74. In the NC8 Belgium reported that it does not plan to use market-based mechanisms to meet its Kyoto Protocol target. The ERT notes that reporting on the supplementarity of such mechanisms is therefore not relevant for Belgium.

(b) Assessment of adherence to the reporting guidelines

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

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

1. Technical assessment of the reported information

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

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

77. Belgium has provided support that it considers to be "new and additional". The Party reported the challenge of providing a clear-cut definition of "new and additional" in the absence of an internationally agreed definition of the concept but emphasized the importance of transparency in its use of reporting methodologies applied to identifying resources as "new and additional". As such, it considers "new and additional" support as being that which is in line with the provisions in Article 4, paragraph 3, of the Convention, contributions that would not have been made without the financial commitments stemming from the Copenhagen Accord, budget lines on top of the annual budget for bilateral development cooperation, only the climate-specific or climate-relevant part of projects and programmes, only climate-related projects in developing countries additional to the previous reporting period, or contributions from the revenues obtained from auctioning GHG emission allowances.

78. Belgium reported on the support that it has provided to non-Annex I Parties, distinguishing between support for mitigation and adaptation activities and identifying the capacity-building elements of such support. Belgium uses the Organisation for Economic Cooperation and Development Rio markers to identify mitigation and adaptation relevant programmes and projects in its portfolio.

79. Belgium's national approach to tracking the provision of support, including information on indicators, delivery mechanisms used and allocation channels tracked, is aligned with the Rio markers. All Rio markers (climate, biodiversity and desertification) are taken into consideration in the Party's determination of the coefficients used to estimate the amount of the project budget that can be considered climate finance. In its approach, Belgium takes care to avoid double counting by ensuring that the sum of coefficients for each project never exceeds 100 per cent.

80. Belgium's methodology and underlying assumptions used for collecting and reporting information on financial support, including underlying assumptions and/or indicators, are based on the Rio markers, which are applied to Belgium's project and programme portfolio (see paras. 78–79 above). In addition, and to improve transparency, Belgium reports on its climate finance through other channels, for example publicly available databases and websites of the Flanders Department of Foreign Affairs, the Walloon Agency for Air and Climate, Brussels Environment and the federal Government. The programmes and projects under bilateral cooperation (listed in CTF table 7(b), as referenced in the NC8) are monitored using the respective programme or project assessment practices.

(b) Financial resources

81. Belgium reported in its NC8 and BR5 information on its provision of financial support to non-Annex I Parties as required under the Convention, including on financial support committed and disbursed, allocation channels and annual contributions. A cooperation agreement between the federal Government and the three regions on the internal burden-sharing of national climate and energy objectives for 2013–2020 allowed Belgium to meet its EU and international climate and energy policy commitments by 2020. The federal portion of Belgian climate finance is mostly funded through the budget for development cooperation. The Law on Development Cooperation of 19 March 2013 established Belgium's international cooperation goals and priorities. This law states that Belgium must strive for sustainable and inclusive economic development and poverty alleviation in its development cooperation initiatives and activities. Furthermore, the law prioritizes environmental and natural resource conservation, particularly the battle against climate change, desertification and global deforestation. A separate coalition agreement of the Flemish Government (2019–2024) states that the Government will continue to highlight global climate ambition by providing international climate finance, ideally through projects that involve Flemish organizations.

82. Belgium described how it seeks to ensure that the resources it provides to non-Annex I Parties effectively address their adaptation and mitigation needs. Belgium is focused mainly on the adaptation needs of the least developed countries. Bilateral programme and project portfolios are negotiated with partner countries to ensure that assistance fits their requirements and reflects their objectives. To assess effectiveness, all programmes and projects have evaluation mechanisms and results frameworks. According to an assessment conducted by the Special Evaluation Office of the Belgian Development Cooperation, actions funded by Belgian federal climate finance match the demands of partner countries and their populations. Table 11 summarizes the information reported by Belgium on its provision of financial support.

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

Allocation channel of public financial support	*Disbursement in 2019–2020*
Official development assistance	4 584.04
Climate-specific contributions through multilateral channels, including:	101.51
Least Developed Countries Fund	25.75
Adaptation Fund	8.82
Green Climate Fund	29.14
Trust Fund for Supplementary Activities	0.11
Other multinational climate change funds	31.55
Financial institutions, including regional development banks	3.75
United Nations bodies	2.40
Climate-specific contributions through bilateral, regional and other channels	133.82

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

83. Belgium's climate-specific public financial support[8] totalled USD 235.33 million in 2019–2020, representing an increase of 10.2 per cent since the BR4 (2017–2018).[9] With regard to future financial pledges aimed at enhancing the implementation of the Convention by developing countries, Belgium has committed to providing EUR 450 million (equivalent to USD 513.7 million[10]) for 2021–2026.

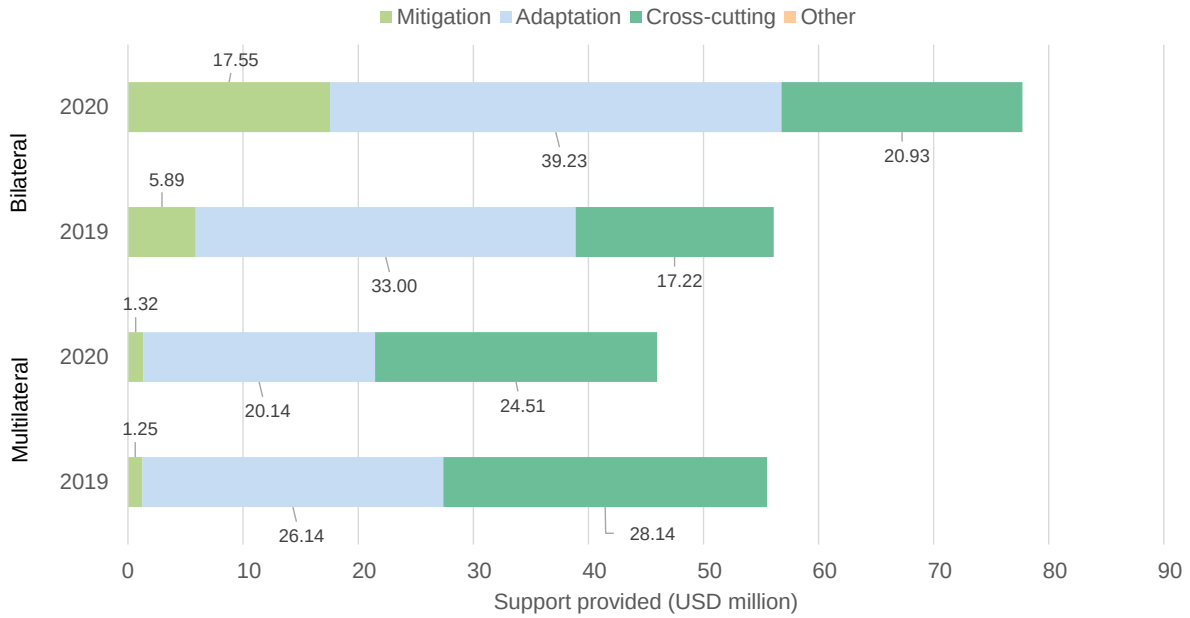
[8] For the remainder of this chapter, the term "financial support" means climate-specific financial support, unless otherwise noted.

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

[10] Based on the 2020 conversion rate applied by Belgium in CTF tables 7(a)–(b).

84. Belgium contributed through multilateral channels USD 101.51 million in 2019–2020. The contributions were made to specialized multilateral climate change funds, such as the Least Developed Countries Fund, the Adaptation Fund, the Green Climate Fund and the Trust Fund for Supplementary Activities, as well as other multilateral climate change funds, financial institutions and United Nations bodies. Belgium's public financial support through multilateral channels has more than doubled since the BR4. Information on financial support from the public sector provided through multilateral and bilateral channels and the allocation of that support by target area is presented in figure 3 and table 12.

Figure 3
Provision of support by Belgium in 2019–2020



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

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

Allocation channel of public financial support	*Amount disbursed in 2019–2020*[a]	*Amount disbursed in 2017–2018*[a]	*Change (%)*[b]	*Share of total (2019–2020) (%)*
Detailed information by type of channel				
Multilateral channels				
Mitigation	2.57	3.14	–18.2	2.5
Adaptation	46.28	43.06	7.5	45.6
Cross-cutting	52.65	0.29	18 075.8	51.9
Other	0.00	0.03	–100.0	0.0
Total multilateral	**101.51**	**46.52**	**118.2**	**100.0**
Bilateral channels				
Mitigation	23.44	24.74	–5.2	17.5
Adaptation	72.23	93.92	–23.1	54.0
Cross-cutting	38.15	48.38	–21.1	28.5
Other	0.00	0.00	0.0	0.0
Total bilateral	**133.82**	**167.03**	**–19.9**	**100.0**
Total multilateral and bilateral	**235.32**	**213.55**	**10.2**	**100.0**

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

[a] Note that the sum of the individual values might not add up to the total due to rounding.

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

85. The Party reported detailed information on the total financial support provided though bilateral (USD 133.82 million) channels in 2019–2020. During the reporting period, Belgium placed a particular focus on Africa and the least developed countries, to which it allocated USD 92.0 million.

86. The NC8 and the BR5 provide information on the types, sectors and instruments of support provided. The information reported shows that in 2019–2020 the average shares of bilateral financial support allocated to mitigation, adaptation and cross-cutting projects were 17.5, 54.0 and 28.5 per cent respectively. In 2019–2020, the majority of financial contributions through bilateral channels were allocated to the agriculture, forestry, fishing, energy, water and sanitation, and cross-cutting sectors. The ERT noted that the grants provided in 2019–2020 accounted for all of the bilateral financial support, except for one project in 2020.

87. Belgium explained that private finance is mainly mobilized for exporting technologies and services in the energy sector. It also reported on how it uses public funds to promote private sector financial support for developing countries to increase mitigation and adaptation efforts in developing countries, namely, by providing loan and equity financing to the following funds: Argan Infrastructure Fund, Frontier Energy II, Interact Climate Change Facility, MGM Sustainable Energy Fund II and Renewable Energy Asia Fund II. An important actor in providing funds for climate investments is BIO, which is wholly owned by the Belgian Government. In 2019–2020, BIO received an additional capital contribution of EUR 50 million for climate projects. The BIO active portfolio in the renewable energy sector totalled EUR 190 million in the reporting period, resulting from previous and new loan and equity commitments to investments in solar, wind and geothermal energy, hydropower and energy efficiency. Belgium highlighted its success stories in its reporting on private finance flows leveraged by bilateral climate finance for mitigation activities in non-Annex I Parties, which is due to the established practice of reporting by BIO.

88. Belgium's support includes the provision of funding to CGIAR, which provides essential resources for the agriculture sector through its 15 research centres. Agricultural research is critical for ensuring food and nutrition security in vulnerable nations and improving farmer livelihoods. Through research and innovation, CGIAR aims to contribute to implementing all NAPs and nationally determined contributions; to equipping 500 million small-scale producers with climate adaptation solutions available through national innovation systems so that they become more resilient to climate shocks; and to turning agriculture and forest systems into net carbon sinks by 2050.

(c) Technology development and transfer

89. Belgium reported on its measures and activities related to technology transfer, access and deployment benefiting developing countries, including activities undertaken by the public and private sector. Examples of support provided for the deployment and enhancement of the endogenous capacities and technologies of non-Annex I Parties include a solid waste management mitigation project in Guinea, which involves setting up collection points using a geographical information system, pilot projects related to wet and dry sorting at source and a pilot waste-sorting centre, all of which enhance endogenous capacities.

90. Belgium focused the provision of its technology transfer support on the following recipient countries: Benin, Burkina Faso, Burundi, Cameroon, Democratic Republic of the Congo, Guinea, Kenya, Madagascar, Mali, Mozambique, Niger, Philippines, Rwanda, Senegal, Solomon Islands, State of Palestine and United Republic of Tanzania. The Party's geographical priority is Africa. The target areas for this support encompassed both mitigation and adaptation efforts, covering a diverse range of measures. Notable measures were the measures implemented under the Finexpo innovation instrument for small and medium-sized enterprises and the Belgian contribution to the electricity access roll-out programme. Other notable measures related to promoting renewable energy for rural development, implementing ecologically sustainable school initiatives, rehabilitating hydroelectric power plants, supporting hydrological and meteorological monitoring stations, optimizing domestic waste collection systems, promoting smart agriculture, and developing smart innovation for and supporting the livestock value chain. These measures were strategically focused on

sectors critical to sustainable development, namely energy, water and sanitation, disaster risk reduction and prevention, infrastructure and built environment, waste management, agriculture (food) and land use, signifying Belgium's diverse engagement in advancing technology transfer across multiple sectors and areas of need in recipient countries, primarily those in Africa.

91. Since its last NC and BR, Belgium has implemented additional measures and activities such as the local production of earth bricks in Burundi to partially substitute imported cement as construction material. Belgium also described success stories in relation to technology transfer, and in particular measures taken to promote, facilitate and finance the transfer and deployment of climate-friendly technologies.

92. Belgium acknowledged the challenges in promoting climate-friendly technology transfer to developing nations and emphasized the complexities faced in financing, capacity-building related to and customization of adaptation technologies. The Party has explored various approaches to promoting climate-friendly technology transfer, including public–private collaboration, but encountered constraints in financial resources and skills development. Lessons learned in technology adaptation highlight the significance of collaborative partnerships, capacity enhancement and flexibility. In its reporting in the BR5 on the installation of connected, autonomous and upgradable solar power stations and training of staff in Cameroon, the Party emphasized how project management led to successes as well as challenges linked to tailoring technologies to suit the specific socioeconomic and environmental contexts of recipient nations. The tailoring of technologies to suit local conditions proved intricate and time-consuming; however, it noted that owing to political considerations, it is not prudent to report on failures in international cooperation.

(d) Capacity-building

93. Belgium reported on its capacity-building support for mitigation, adaptation and technology that responds to the existing and emerging needs identified by non-Annex I Parties. It described individual measures and activities related to capacity-building support in textual and tabular format.

94. Belgium has supported climate-related capacity development activities relating to adaptation and mitigation, as well as cross-cutting activities, with many projects focused on water or energy. Since the BR4, the focus of support has remained the same. Belgium's support aimed to respond to the existing and emerging capacity-building needs of non-Annex I Parties by following the principles of multilateral and bilateral cooperation, and impact assessment and monitoring. The Party has established the Academic Research Platforms for Policy Support, which provide policy support for development cooperation based on high-quality academic research, and regional cooperation between the Flemish Water for Development Partnership and local governments in non-Annex I Parties. In addition, Belgium reported that capacity-building is always an essential component of any bilateral programme or project and indicated that the information presented in CTF table 9 represents specific examples of capacity-building related to mitigation and adaptation.

95. Examples of successful projects include the capacity-building support provided for disaster risk reduction in Southern Africa (Malawi and Mozambique). Belgium, through Red Cross Flanders, has supported local Red Cross Societies and other stakeholders in preparing for and responding to natural disasters caused by climate change.

2. Assessment of adherence to the reporting guidelines

96. The ERT assessed the information reported in the NC8 and BR5 of Belgium and identified issues relating to completeness and transparency, and thus adherence to the UNFCCC reporting guidelines on NCs and the UNFCCC reporting guidelines on BRs. The findings are described in tables I.4 and II.5.

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

(a) Technical assessment of the reported information

97. In its NC8 Belgium reported its activities, actions and programmes undertaken in fulfilment of its commitments under Article 10 of the Kyoto Protocol. Belgium provided information on steps taken to promote, facilitate and finance the transfer of technology to developing countries and to build their capacity in order to facilitate implementation of Article 10 of the Kyoto Protocol (see para. 78 above). Belgium described how it seeks to ensure that the resources it provides to non-Annex I Parties effectively address their adaptation and mitigation needs (see para. 82 above).

98. Belgium provided information on its implementation of Article 11 of the Kyoto Protocol, including on its provision of EUR 63.6 million in 2017–2020 to the Global Environment Facility in accordance with its commitment to provide "new and additional" financial resources to meet the agreed full costs incurred by developing country Parties in complying with their obligations under Article 12 of the Convention. The Party described how its contributions are "new and additional" (see para. 77 above).

99. Belgium reported on its financial contributions to the Adaptation Fund, which consisted of EUR 18.4 million in 2017–2020.

(b) Assessment of adherence to the reporting guidelines

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

H. Vulnerability assessment, climate change impacts and adaptation measures

1. Technical assessment of the reported information

101. In its NC8 Belgium provided information on the expected impacts of climate change in the country; the adaptation policies covering regional, sectoral and cross-sectoral vulnerabilities and considerations; and an outline of the action taken to implement Article 4, paragraph 1(b) and (e), of the Convention with regard to adaptation. Belgium provided a description of climate change vulnerability and impacts on agriculture, biodiversity, coastal areas, energy, fisheries, forests, human health, industry and services, land planning and infrastructure, transport, tourism, and water resources and management, and highlighted the adaptation response actions taken and planned at different levels of government. The climate in Belgium is expected to change significantly in the coming decades. The consequences are warmer and wetter winters, drier and considerably hotter summers, reinforcement of precipitation seasonality, extreme weather events with far-reaching impacts (particularly heatwaves and floods), changes in biodiversity and a rise in sea level.

102. Belgium has addressed adaptation matters through the adoption of the National Adaptation Strategy in 2010 and the NAP (for 2017–2020) in 2017. At the federal Government level, Belgium adopted the document "Towards a climate resilient society by 2050: federal adaptation measures 2023–2026", a coherent list of federal adaptation measures, which provided further direction to federal agencies on enhancing preparedness for climate change. The Flemish Government has addressed adaptation matters through the adoption of the Flemish Climate Policy Plan 2013–2020; the Blue Deal 2020, which is part of the Flemish Recovery Plan; and the Flemish Adaptation Plan (adopted in 2022). The Government of the Brussels-Capital Region has addressed adaptation matters through the adoption of the Integrated Air, Climate and Energy Plan for 2023–2027, the Water Management Plan 2022–2027 and the Sonian Forest Management Plan for 2019–2043. The Walloon Region Government has addressed adaptation matters through the adoption of the

Air Climate Energy Plan for 2016–2022 and for 2030. Table 13 summarizes the information on vulnerability and adaptation to climate change presented in the NC8 of Belgium.

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

Vulnerable area	*Examples/comments/adaptation measures reported*
Agriculture	Vulnerability: erosion and loss of soils due to heavy rain; variability of crop production and breeding because of an increase in the frequency of extreme events; pressure due to increased risk from diseases, parasites, weeds and invasions; and increase in water needs and risk of water stress.
	Adaptation: publication of good practice guidance to avoid soil erosion, mudflows and floods in agricultural and rural areas by the dedicated Integrated Management Soil Erosion Runoff research and technical unit for the Walloon Region; and research into climate-adaptive agriculture by the Flemish Centre of Expertise on Agriculture and Climate.
Biodiversity	Vulnerability: effects on already vulnerable areas (peatlands, etc.); changes in distribution areas; increase in invasions; and phenological changes.
	Adaptation: guidelines for adaptive nature management in the Flemish Region; mainstreaming of adaptation in the National Biodiversity Strategy; mainstreaming of climate change in the programme of measures (2015) to achieve good environmental status of marine waters (2020); and the Flemish plan on forest expansion 2021, which includes the aim to create 10,000 ha extra forests by 2030.
Coastal areas	Vulnerability: increased risks of natural coastal defences (mostly sand dunes) being broken; increased risks of human-made coastal defences (dykes, wave-breakers) being broken; increased risks of higher storm-related flooding; damage caused by changes to wind patterns and wave height; and reduction of the upper layer of fresh water in polders (salt intrusion), affecting natural systems and infrastructure.
	Adaptation: implementation of the coastal safety master plan (ongoing); coastal defence allowing for the coast's natural dynamics; and development of a coastal vision with a long-term approach to protect the coastal region by the Flemish Government.
Fisheries	Vulnerability: change in the quantity and distribution of marine species, including commercial fish stocks; appearance of new commercial species (migration from south to north); appearance of new harmful species; and increased vulnerability of the highly specialized fishery sector.
	Adaptation: research on and monitoring of the effects of climate change on the fish populations (by the Flanders Research Institute for Agriculture, Fisheries and Food).
Forests	Vulnerability: modification of the range of forest species, which is harmful to wood production; more frequent invasions; increased damage due to climatic variations (fire, storm, droughts), including increasing frequency of such outbreaks; increased growth followed by limited growth due to reduced soil fertility and drought; and changes in phenology.
	Adaptation: observatory and permanent inventory of the health of the Sonian Forest woodland area (monitoring changes in beech trees); greater diversification of the species of the Sonian Forest (Sonian Forest Management Plan for 2019–2043); and development of a Regional Forestry Programme, in the context of a strategy focusing on the development and management of the wooded heritage of the Walloon Region.
Human health	Vulnerability: increase in mortality due to heatwaves and disease linked to food contamination; increase in respiratory diseases and allergies related to higher pollen levels; respiratory risks due to poor air quality in winter; increase in diseases linked to water contamination; and increase in vector-borne diseases.
	Adaptation: adaptation of sensitive infrastructure (hospitals, crèches, etc.) located in flood-prone areas (water management plan); a study on the impact of climate change on the health-care system in Belgium; Flemish action plan on heat; and monitoring of ticks, exotic mosquitoes and airborne allergens.
Industry and services	Vulnerability: impact on production processes from water shortages, insufficient cooling capability, direct damage (flooding, high winds, etc.) and indirect damage (supply problems); and more frequent and/or intensive weather-related disasters challenging insurance systems.

Vulnerable area	*Examples/comments/adaptation measures reported*
	Adaptation: the Dutch–Flemish project 2BE Connect on biodiversity in business parks; and the Flanders Green Deal on businesses and biodiversity.
Land planning and Infrastructure	Vulnerability: increased flood risk; risk of disruption to waterway transport; impacts of heatwaves and their amplification by heat islands; damage to infrastructure due to high temperatures; and shrinking and swelling of clay soils.
	Adaptation: adoption of climate change adaptation measures for infrastructure and the urban environment; studies on the impact of climate change on urban heat stress and the urban environment performed in the context of the CORDEX.be initiative; mapping of 'islands of freshness' in the Brussels-Capital Region; mapping of urban heat islands in the Flemish Region (Flanders Environment and Nature Report of the Flanders Environment Agency); online support tools for the design of sustainable neighbourhoods in the Brussels-Capital Region; the Good Soil strategy for the Brussels-Capital Region; promotion of the use of schoolyards as green hubs for neighbourhoods to counter the urban heat island effect in the Brussels-Capital Region (Operation Re-Creation); the Clearing House project (2021–2023) bringing together 26 partners in Europe and China; and promotion of the "Adapte ta commune" tool (for municipalities in the Walloon Region).
Transport	Vulnerability: risk of disruption to waterway transport and damage to infrastructure due to high temperatures; and risk of disruption to road and rail transport and damage to infrastructure due to extreme events such as snow, frost, storms or heatwaves.
	Adaptation: identification of transport infrastructure located in flood hazard zones on regional flood risk maps; taking into account adaptation to climate change in Belgium's air safety plan (extreme weather conditions); and mapping of railway vulnerabilities (drainage, fallen trees) and taking into account the expected effects of climate change in the long-term planning of railways.
Water resources and management	Vulnerability: pollution of groundwater from leaching; decreased surface water quality; variation in river flows leading to pollution; and reduction of groundwater in summer.
	Adaptation: widespread information campaign to encourage water savings; specific measures (including nature-based solutions) to protect Belgium against severe droughts (Flemish Blue Deal 2020, development of new water management plan for the Brussels-Capital Region, Walloon Integrated Drought Strategy (2022)); the new concept of "Integrated rainwater management" for rainwater management in the Brussels-Capital Region; new regional plans for a flood risk prevention and management framework; and creation of the Special Commission for Reconstruction in Walloon Region, as a response to the floods in the Walloon Region in July 2021, to coordinate relevant studies and actions.

103. Belgium provided a detailed description of international adaptation activities, for example the development cooperation of the Flemish Government, which is mainly targeted at Southern Africa and focuses on building resilience to climate in the sectors of agriculture, job creation, disaster prevention and health. Bilateral cooperation on adaptation was provided for 11 projects in the global South, including in Bolivia (Plurinational State of), Colombia, the Democratic Republic of the Congo, Ecuador and Lesotho. These projects set out to achieve the international climate goals but also try to link to other policy fields such as biodiversity, energy, health, water, research, agriculture, technology and forestry.

104. In addition, Belgium provided information on its collaboration with neighbouring countries through Benelux cooperation activities. The Benelux countries identified their transboundary climate change issues and common adaptation policies on themes such as health, transport, energy and crisis management in relation to climate change.

2. Assessment of adherence to the reporting guidelines

105. The ERT assessed the information reported in the NC8 of Belgium and identified an issue relating to transparency, and thus adherence 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.

I. Research and systematic observation

1. Technical assessment of the reported information

106. In its NC8 Belgium provided information on its funding relating to research and systematic observation and both domestic and international activities, including contributions to the World Climate Programme, the Global Climate Observing System and the Intergovernmental Panel on Climate Change.

107. Belgium has implemented and planned international and domestic policies and programmes on climate change research, systematic observation and climate modelling that aim to advance capabilities to predict and observe the physical, chemical, biological and human components of the Earth's system over space and time. Belgium's research priorities are framed as being part of the global coordinated effort and are heavily influenced by the international and European policy contexts. This research investigates the past (using historical data) and future (using models) causes of climate change. Strategic research seeks to observe, comprehend and predict the consequences and risks of climate change, such as how rising global temperatures affect sea level rise, biodiversity, forests, agricultural output and water availability. Thematic calls for proposals for research funding (issued at the federal level) aim to increase Belgian scientific capacity in order to develop information, tools and knowledge products to assist the Belgian Government in meeting its national and international climate-related political commitments.

108. In terms of activities related to systematic observation, Belgium reported on national plans, programmes and support for ground- and space-based climate observing systems, including satellite and non-satellite climate observation. Belgium also reported on challenges related to the maintenance of a consistent and comprehensive observation system. Belgium is the principal stakeholder in the Altius mission, which is part of the European Space Agency's Earth Watch programme. The scientific goals of the Altius mission are to monitor the evolution of the stratospheric ozone layer at all latitudes (including the polar regions) and to measure other variables relevant to stratospheric chemistry and/or climate forcing (nitrogen dioxide, water, bromine oxide, chlorine dioxide, nitrate, aerosols and temperature).

109. The NC8 reflects actions taken to support capacity-building and the establishment and maintenance of observation systems and related data and monitoring systems in developing countries. Belgium provided funding for scientists from developing countries working on global climate change research. Belgium has been monitoring the vertical profile of ozone concentrations at Uccle, the site of Belgium's national weather station, since 1969, with financial backing from the Solar-Terrestrial Centre of Excellence. Belgium also aims to launch ozone sensors from Abuja, Nigeria, twice a month, beginning in the third quarter of 2022, in conjunction with Nigeria's National Space Research and Development Agency. Belgium is responsible for the data quality of the entire ozonesonde network, in partnership with the Panel for the Assessment of Standard Operating Procedures for Ozonesondes, in its capacity as the Quality Assurance-Science Activity Centre for Ozone Profiles of the World Meteorological Organization's Global Atmosphere Watch Programme.

2. Assessment of adherence to the reporting guidelines

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

J. Education, training and public awareness

1. Technical assessment of the reported information

111. In its NC8 Belgium provided information on its actions relating to education, training and public awareness at the national and international level. The Party provided extensive information on the general policy on education, training and public awareness; primary, secondary and higher education; public information campaigns; training programmes; education materials; resource or information centres; the involvement of the public and non-

governmental organizations; and its participation in international activities. The 24 activities that Belgium launched across the country are split into three categories: educational projects (mainly aimed at primary and secondary schools), higher education projects, and international cooperation and education projects in countries in the global South. The federal authority with overall responsibility for communicating information on climate change for education, training and awareness-raising purposes is the Climate Change Service of the Federal Public Service Health, Food Chain Safety and Environment. Specific activities in this area include communication campaigns targeted to the general public, training targeted to practitioners and initiatives in the education sector. Examples of the many regional-level education, training and public awareness activities include the "ik BENOveer" ("I renovate better") campaign, the aim of which is to encourage energy renovations in existing residential buildings (Flemish Region); training sessions for teachers on climate issues (Brussels-Capital Region); and the Foundation for Future Generations, which supports masters students at the start of their professional life in developing low-carbon economy initiatives (Walloon Region). In its NC8 the Party also underlined the establishment of Academic Research Platforms for Policy Support, which provide policy support for development cooperation based on high-quality academic research.

2. Assessment of adherence to the reporting guidelines

112. The ERT assessed the information reported in the NC8 of Belgium and identified an issue relating to completeness, and thus adherence to the UNFCCC reporting guidelines on NCs. The finding is described in table I.6.

III. Conclusions and recommendations

113. The ERT conducted a technical review of the information reported in the NC8 of Belgium in accordance with the UNFCCC reporting guidelines on NCs. The ERT concluded that the reported information mostly adheres to the UNFCCC reporting guidelines on NCs and that the NC8 provides an overview of the national climate policy of Belgium. However, Belgium did not organize the content of its NC8 entirely in accordance with the outline contained in the annex to the UNFCCC reporting guidelines on NCs (see recommendation in para. 7 above).

114. The information provided in the NC8 includes most elements of the supplementary information under Article 7, paragraph 2, of the Kyoto Protocol. Belgium reported on the national system, the national registry, supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol, domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures, information under Article 10 of the Kyoto Protocol, and financial resources provided to developing country Parties, but it did not report on PaMs in accordance with Article 2 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 2022 annual submission.

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

116. In its NC8 Belgium reported on its key national circumstances related to GHG emissions and removals, including on the particular institutional structure arising from its three regional governments, leading to the need to create a means of ensuring consistency in their actions. Belgium's economy is dominated by the services sector and its GDP has been increasing since 1990, apart from a decrease in 2020 due to the coronavirus disease 2019 pandemic.

117. Belgium's total GHG emissions excluding LULUCF were estimated to be 26.4 per cent below its 1990 level, using GWP values from the AR5. Emissions peaked in 1996. Emissions, excluding emissions and removals from LULUCF, in 2021 increased by 3.4 per cent compared with the 2020 level. The changes in total emissions were driven mainly by factors such as the replacement of solid fuels by natural gas, an increase in energy efficiency, renewable fuels in electricity production and the manufacturing industries, and the closure of highly energy intensive industrial plants.

118. As reported in the BR5, under the Convention Belgium committed to contributing to the achievement of the joint EU quantified economy-wide target of a 20 per cent reduction in emissions below the 1990 level by 2020. The target covers all sectors and CO_2, CH_4, N_2O, HFCs, PFCs and SF_6, expressed using GWP values from the AR4. Emissions and removals from the LULUCF sector are not included. Under the ESD Belgium has a target of reducing its emissions by 15 per cent below the 2005 level by 2020.

119. The EU has a joint 2030 emission reduction target of at least 55 per cent below the 1990 level. This will be primarily implemented through the EU ETS and ESR, which have targets to reduce emissions by 2030 by 62 and 40 per cent respectively compared with the 2005 level. Under the ESR, Belgium has a national target of reducing emissions from covered sectors to 35 per cent below the 2005 level by 2030. Belgium also reported on its longer-term target of reaching climate neutrality by 2050 in accordance with the European Climate Law. The target is based on long-term strategies of the Brussels-Capital Region, the Flemish Region and the Walloon Region, which aim to reduce their emissions by 90, 85 and 95 per cent respectively by 2050 compared with the 1990 level.

120. The ERT noted that the total GHG emissions of the EU excluding LULUCF do not exceed the emission level corresponding to the target in 2020, and thus that the EU has achieved its joint target. The ERT therefore concluded that Belgium has met its 2020 commitment under the Convention through its contribution to achieving the joint target of the EU. See the report on the technical review of the BR5 of the EU for further details. The ERT noted that the Party met its ESD target because its total ESD emissions for 2013–2020 do not exceed the sum of its AEAs for that period.

121. The GHG emission projections provided by Belgium in its NC8 and BR5 correspond to the WEM and WAM scenarios. Under the WEM scenario, emissions in 2030 are projected to be 13.5 per cent below the 1990 level and 18.5 per cent above the 2020 level. Under the WAM scenario, emissions in 2030 are projected to be 27.7 per cent below the 1990 level and 1.0 cent below the 2020 level.

122. Belgium's main policy framework relating to energy and climate change is the NECP. The Party described the mitigation actions that it has implemented to help it achieve its 2020 and longer-term targets, which include energy efficiency, renewable energy, building renovation and transport actions.

123. Belgium continued to provide climate financing to developing countries in line with its Law on Development Cooperation (2013). It has increased its contributions by 10.2 per cent since the BR4; its public financial support in 2019–2020 totalled USD 235.33 million. For those years, Belgium provided more support for adaptation. The biggest share of support went to projects and programmes in the agriculture, forestry, fishery, energy, and water and sanitation sectors. An example of this support is provision of funding to CGIAR in the agriculture sector.

124. Belgium continued to provide support for technology development and transfer and capacity-building. Priority for technological support was given to projects and programmes in mitigation and adaptation in Benin, Burkina Faso, Burundi, Cameroon, the Democratic Republic of the Congo, Guinea, Kenya, Madagascar, Mali, Mozambique, the Niger, the Philippines, Rwanda, Senegal, Solomon Islands, the State of Palestine and the United Republic of Tanzania. Over time, the focus has remained the same. Priority for capacity-building support was given to projects and programmes in mitigation and adaptation in Africa and Viet Nam. Over time, the focus has remained the same.

125. In its NC8 Belgium provided information on the expected impacts of climate change in the country; the adaptation policies covering federal, regional, local, 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 reported on climate change vulnerability and various adaptation measures focused on 12 areas of action. Belgium cooperates at the local, regional, federal and international level to enhance adaptation action, including bilateral cooperation with developing countries.

126. In its NC8 Belgium provided information on its activities relating to research and systematic observation. Fundamental research is primarily conducted through pan-European and global networks and priorities are set in the European and international policy contexts. Strategic research seeks to observe, comprehend and predict the consequences and risks of climate change, such as how rising global temperatures affect sea level rise, biodiversity, forests, agricultural output and water availability. With regard to systematic observation, Belgium is the principal stakeholder in the European Altius mission.

127. In its NC8 Belgium provided information on its actions relating to education, training and public awareness. Belgium launched activities across the country, split into three categories: educational projects (mainly aimed at primary and secondary schools), higher education projects, and international cooperation and education projects in countries in the global South. An example of the many regional-level education, training and public awareness activities is the "ik BENOveer" ("I renovate better") campaign.

128. 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 in its next NC:

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

(i) Including a description of the national circumstances of its LULUCF sector and how these national circumstances affect the trends in GHG emissions and removals (see issue 1 in table I.1);

(ii) Providing a description of the special circumstances of the collections of PaMs with regard to the starting year of implementation (see issue 2 in table I.2);

(iii) Including an explanation of how its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals (see issue 6 in table I.2);

(iv) Providing information on the tracking of the allocation channels of the provision of financial, technological and capacity-building support to non-Annex I Parties (see issue 1 in table I.4);

(v) Including information on the assessment of any economic and social consequences of response measures (see issue 2 in table I.4).

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

(i) Structuring the NC in accordance with the outline contained in the annex to the UNFCCC reporting guidelines on NCs (see para. 7 above);

(ii) Providing an explanation of which individually listed PaMs (reported as "IE") in CTF table 3 the collections of PaMs encompass, and explain why, in some cases, the estimated impact of emission reductions could not be quantified (reported as "NE") (see issue 4 in table I.2);

(iii) Using table 9 of the UNFCCC reporting guidelines on NCs to report on success and failure stories in technology transfer (see issue 5 in table I.4);

(iv) Clearly identifying which technology transfer and development measures and activities – or their specific elements – have been implemented or planned since the previous submission (see issue 6 in table I.4);

(v) Explaining how the existing and emerging capacity-building needs were identified by non-Annex I Parties to ensure that the support provided responds to these needs (see issue 7 in table I.4).

129. In the course of the review of Belgium's NC8, the ERT formulated the following recommendations relating to adherence to the reporting guidelines for supplementary information:

(a) To improve the completeness of its reporting by reporting on how its PaMs promote sustainable development and on its collaboration with other Parties, in accordance with the requirements of Article 2, paragraph 1, of the Kyoto Protocol (see issue 2 in table I.7);

(b) To improve the transparency of its reporting by including information on the process of data collection and aggregation, including on the process of consolidation between the regional and federal level, or providing a reference indicating where this information is reported in its NIR (see issue 1 in table I.7).

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

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

(i) Including information on the tracking of the allocation channels (see issue 1 in table II.5);

(ii) Including information on the assessment of any economic and social consequences of response measures (see issue 2 in table II.5);

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

(i) Fully describing the quantified economy-wide reduction target in the submission itself instead of referring to previous submissions (see issue 1 in table II.1);

(ii) Including in the footnotes to CTF table 3 information on where the effects of the PaMs are included for those PaMs whose effect is reported as "IE" (see issue 1 in table II.2);

(iii) Including more information on the process of establishing its AEAs and providing the data necessary to calculate their verified emissions covered by the ESD (see issue 1 in table II.3);

(iv) Including information on how overlapping with the previous reporting periods is avoided when reporting on support provided to developing country Parties (see issue 3 in table II.5);

(v) Identifying which measures and activities related to technology transfer – or their specific elements – have been implemented or planned since its previous submission (see issue 5 in table II.5);

(vi) Including an explanation of how the existing and emerging capacity-building needs were identified by non-Annex I Parties to ensure that the support provided responds to these needs (see issue 6 in table II.5).

Annex I

Assessment of adherence to the reporting guidelines for the eighth national communication of Belgium

Tables I.1–I.7 summarize the ERT assessment of adherence to the UNFCCC reporting guidelines on NCs for Belgium's NC8.

Table I.1
Findings on national circumstances relevant to greenhouse gas emissions and removals from the review of the eighth 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 3 Issue type: completeness Assessment: recommendation	The Party reported in chapter 2 of its NC8 a description of its national circumstances. However, it provided little information about its LULUCF sector and did not describe how the national circumstances and changes therein affect GHG emissions and removals for that sector over time. During the review, Belgium provided detailed information on the national circumstances of the LULUCF sector and explained the related trends of GHG emissions and removals. The ERT recommends that Belgium include in its next NC a description of the national circumstances of its LULUCF sector and how these national circumstances affect the trends of GHG emissions and removals.

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

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

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 10 Issue type: completeness Assessment: encouragement	Belgium did not report information related to its PaMs that are innovative and/or effectively replicable by other Parties. During the review, Belgium explained that it considers most of the PaMs implemented under its various plans to be replicable a priori by any country. Furthermore, Belgium stated that its NECP has a section dedicated to "Research, innovation and competitivity", which includes a number of innovative PaMs. These measures, however, have more of a supporting or facilitating role than other measures that fall under the policy domain of energy or transport, or are cross-cutting, which is why they are not included specifically in the chapter on PaMs. The ERT encourages the Party to improve the completeness of its reporting by providing information on PaMs that are innovative and/or effectively replicable by other Parties in its next NC.
2	Reporting requirement specified in paragraph 19 Issue type: completeness Assessment: recommendation	The Party did not report the starting year of implementation for two implemented PaMs (Walloon Renovation Strategy and FAST Vision) in CTF table 3, referenced in the NC8. During the review, Belgium explained that these two PaMs are collections of individual PaMs, also included in CTF table 3, with different starting years of implementation, which is why no definite starting year of implementation could be reported for them. The ERT recommends that the Party improve the completeness of its reporting by providing an explanation describing the special circumstances of the collections of PaMs that prevent the Party reporting a starting year of implementation. This information could be included in the NC itself or as a custom footnote in the accompanying table.
3	Reporting requirement specified in paragraph 19	The Party reported a number of planned PaMs with starting year of implementation in 2020 and 2021 in CTF table 3, referenced in NC8. During the review, Belgium explained that the starting year of implementation for these PaMs was expected to be as originally reported in the current NECP (i.e. 2019) but the PaMs were not implemented in the timeline envisaged. However, this information has

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
	Issue type: transparency	not been revised as the updated NECP containing the revised starting year has not yet been officially adopted.
	Assessment: encouragement	The ERT encourages the Party to improve the transparency of its reporting by ensuring that the starting year of implementation of its PaMs is consistent and in line with the most up-to-date information.
4	Reporting requirement specified in paragraph 20	The Party reported quantitative estimates of the impacts on GHG emissions as "NE" or "IE" for the majority of the PaMs in CTF table 3, referenced in the NC8. However, the ERT noted that it was not clear where information on the impact of PaMs reported as "IE" was included. Furthermore, no explanation was provided as to why the PaMs reported as "NE" were not estimated quantitatively.
	Issue type: transparency	During the review, Belgium explained that the Walloon Region did not report quantitative estimates for individual measures but provided estimates for collections of PaMs at the sectoral level. All the PaMs where "IE" is used for reporting the quantitative estimates of the impacts on GHG emissions are part of the two collections of PaMs of the Walloon Region. Information on where specific PaMs are included in their respective collections of PaMs is contained in the reporting for the NECP. Furthermore, the Party explained that sufficient information was not available for the majority of its PaMs, which is why no estimation could be made and "NE" was reported.
	Assessment: recommendation	The ERT recommends that the Party improve the transparency of its reporting by providing clear information on which individual PaMs are included in the collections of PaMs in its next NC. Furthermore, the ERT reiterates the recommendation from the previous review report for the Party to include the reason that quantification of the impacts is not possible.
5	Reporting requirement specified in paragraph 21	Belgium did not report information on the costs of each policy or measure, on non-GHG mitigation benefits or on the interaction of PaMs at the national level.
	Issue type: completeness	During the review, Belgium explained that limited information regarding the costs are available in the NECP progress report. Furthermore, Belgium explained that the federal State and the three regions mostly determine their own PaMs and that an administrative steering committee is taking on a coordinating role between the different levels of government.
	Assessment: encouragement	The ERT reiterates the encouragement from the previous review report for the Party to improve the completeness of its reporting by providing information on the cost of PaMs, the non-GHG mitigation benefits of PaMs and the interaction of PaMs at the national level in its next NC.
6	Reporting requirement specified in paragraph 22	The Party did not report information on how its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals consistent with the objective of the Convention.
	Issue type: completeness	During the review, Belgium explained that in the absence of a quantitative assessment of its PaMs, only the projections in the WAM scenario give an idea of the expected future trends. In line with the EU regulation on the governance of the Energy Union and climate action (regulation 2018/1999), and as included in the latest NECP progress report, Belgium can revise its long-term strategy in 2025. In the same report, an attempt was made to link PaMs to Belgium's long-term strategy, if they could be considered as contributing to it in terms of decarbonization, energy efficiency, renewables, etc.
	Assessment: recommendation	The ERT recommends that Belgium improve the completeness of its reporting by explaining in its next NC how its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals consistent with the objective of the Convention.

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

Table I.3
Findings on projections including aggregate effects of policies and measures reported in the eighth 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 25 Issue type: completeness Assessment: encouragement	Belgium did not report a WOM scenario in its NC8. During the review, Belgium clarified that a WOM scenario was not reported because of difficulties in constructing such a scenario given its long history of climate policy. The Party indicated that it has no plans to develop a WOM scenario in the near future. The ERT reiterates the encouragement from the previous review report for the Party to improve the completeness of its reporting by including a WOM scenario in its next NC, or to provide an explanation in the NC as to why developing such a scenario is not appropriate given the national circumstances.
2	Reporting requirement specified in paragraph 27 Issue type: transparency Assessment: encouragement	Belgium reported sensitivity analysis of two important parameters (number of degree days and imported electricity) in its NC8. However, the Party did not provide sufficient information on its methodologies in its description of how it carried out its sensitivity analysis. During the review, Belgium provided further information on how it carried out its sensitivity analysis, including how the different electricity import scenarios were accounted for within energy models and that adjusted degree days within the residential sector were calculated by summing the results for the three regions obtained using their own regional models within Belgian sensitivity scenarios. The ERT encourages the Party to improve the transparency of its reporting by including a brief description of the methodologies used to carry out its sensitivity analysis in its next NC, describing in sufficient detail which regional models are used to vary key parameters.
3	Reporting requirement specified in paragraph 32 Issue type: completeness Assessment: encouragement	The Party did not provide projections of indirect GHGs in its NC8. During the review, Belgium clarified that projections of indirect GHGs are available from some projection models but a consistent set of projections is lacking as not all modelling assumptions for indirect GHGs were aligned in time for the submission of its NC8. The ERT reiterates the encouragement from the previous review report for Belgium to improve the completeness of its reporting by including in its next NC projections of the indirect GHGs carbon monoxide, nitrogen oxides, non-methane volatile organic compounds and sulfur oxides.
4	Reporting requirement specified in paragraph 39 Issue type: transparency Assessment: encouragement	The Party reported information on the majority of its regional models and approaches to allow the reader to obtain a basic understanding of them. However, in some instances Belgium did not describe its methodology in sufficient detail in its NC, including its projections for international aviation and navigation, as well as the role of the Walloon Region's EPM in the calculation of the Party's WAM scenario. During the review, Belgium provided further information on multiple sectors for all regions, describing in sufficient detail the models and/or approaches used, as well as its construction of the Walloon Region's WAM scenario through the use of EPM. The ERT encourages Belgium to improve the transparency of its reporting by providing sufficient information in its next NC, including on its modelling approaches to international aviation and navigation, to allow the reader to obtain a basic understanding of the models and/or approaches used to project GHG emissions and removals and estimate the total effects of PaMs under its projection scenarios.
5	Reporting requirement specified in paragraph 40 Issue type: completeness Assessment: encouragement	The Party provided descriptions of the majority of the models used for its projections but not of an important model used in the creation of the Walloon Region's WAM scenario (EPM) or one of the models used for the Party's off-road and navigation projections (EMMOSS). During the review, Belgium provided further information on these models, clarifying that the Walloon Region is currently transitioning to a new energy model (from EPM to TIMES-Wal) to be used in the creation of its WEM scenario.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
		The ERT encourages the Party to improve the completeness of its reporting by providing in its next NC descriptions of all models used for projections, including information on the type of model used, its characteristics and the sectors for which the model was used.
6	Reporting requirement specified in paragraph 40 Issue type: transparency Assessment: encouragement	The ERT noted that, while Belgium projected increased heat pump use in multiple sectors under its WAM scenario (and not under its WEM scenario), this was not reflected in the projections. During the review, the Party provided information on the underlying assumptions for its F-gas modelling and explained that the number of heat pumps sold was considered to be the same under the WEM and WAM scenarios, which is not aligned with its current PaMs. The ERT encourages Belgium to improve the transparency of its reporting by providing in its next NC a description of how the model or approach used for preparing projections accounts for any overlaps or synergies between different PaMs.
7	Reporting requirement specified in paragraph 41 Issue type: completeness Assessment: encouragement	The Party reported references to documents containing more detailed information regarding the majority of the models described in its NC8 but not for an important model used in the creation of the Walloon Region's WAM scenario (EPM) or one of the models used for the Party's off-road and navigation projections (EMMOSS). During the review, Belgium provided descriptions for both models, including references to documents containing more detailed information. The ERT reiterates the encouragement from the previous review report for Belgium to improve the completeness of its reporting by including in its next NC references to documents containing more detailed information related to the models and approaches used for its projection scenarios.
8	Reporting requirement specified in paragraph 43 Issue type: transparency Assessment: encouragement	The Party reported a qualitative and quantitative discussion of the sensitivity of the projections to degree days and import of electricity. However, the effects of varying these key parameters were discussed only in the context of national total GHG emissions, not on a sectoral basis, and thus it was not transparent where the variation in the underlying assumptions was causing changes within the Party's sectors specifically. During the review, Belgium provided a sectoral breakdown of the results of its sensitivity analyses, allowing for transparent comparison at the sectoral level between its baseline emissions and those presented under the scenarios. The ERT reiterates the encouragement from the previous review report for Belgium to improve the transparency of its reporting by providing qualitative, and where possible quantitative, information on the sensitivity of the projections to underlying assumptions in its next NC, namely by providing transparent information on the sectors for which sensitivity analyses were performed and the sensitivity of sectoral projections to the factors considered.

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

Table I.4
Findings on financial, technological and capacity-building support from the review of the eighth national communication of 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: completeness Assessment: recommendation	The ERT took note of the information provided in the NC8 (chap. 7.6, p.113) and CTF table 7, 7(a) and 7(b), referenced in the NC8, on the methodological approach used by the Party for tracking the provision of financial, technological and capacity-building support to non-Annex I Parties, where all the Rio markers were taken into consideration in determining the coefficients used to estimate the amount of the project budget that can be considered climate finance. However, the ERT also noted that the description provided does not include information on the tracking of allocation channels. During the review, Belgium explained that for multilateral channels it considers the allocation channels to be the same as the delivery mechanism because the multilateral funds to which Belgium provides support are also responsible for delivering these funds.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
		Regarding bilateral channels, information on tracking the allocation channels is collected on the basis of project implementation requirements. The ERT recommends that Belgium include in the next NC information on the allocation channels tracked.
2	Reporting requirement specified in paragraph 52 Issue type: completeness Assessment: recommendation	The ERT took note of the information provided in the NC8 (chap. 7, pp.106–114) and CTF table 7, 7(a) and 7(b), referenced in the NC8, on financial support disbursed and committed for the purpose of assisting non-Annex I Parties in mitigating GHG emissions and adapting to the adverse effects of climate change. However, the ERT noted that the description does not include information on the financial support provided to non-Annex I Parties for adapting to any economic or social consequences of response measures. During the review, Belgium explained that the majority of multilateral funding comes from Belgium's federal development cooperation budget, which has sustainable development and poverty alleviation as its most important goals. Belgium's contributions to bilateral projects, mainly directed towards African partner countries and the least developed countries, includes disbursements in the context of an agreed partnership programme with a partner country. In the context of these partnership agreements, Belgium did not receive a demand for specific support to tackle the adverse effects of response measures. As the provision of assistance for adapting to any economic or social consequences of response measures does not feature within the multilateral channels or bilateral agreements, Belgium does not place a specific focus on this matter. The ERT recommends that Belgium include in the next NC information on the provision of assistance to non-Annex I Parties for adapting to any economic or social consequences of response measures.
3	Reporting requirement specified in paragraph 55 Issue type: transparency Assessment: encouragement	The Party provided information on the role of BIO in the provision of climate finance in Belgium in order to leverage private finance flows. BIO received EUR 50 million to invest in climate-related projects (NC8 p.111), but Belgium did not state the source of the funding. During the review, Belgium explained that BIO is a private company whose capital is held by the federal State and that the climate finance provided to BIO is therefore a capital investment by the federal State. The ERT reiterates the encouragement from the previous review report for Belgium to improve the transparency of its reporting on private finance flows leveraged by bilateral climate finance towards mitigation and adaptation activities in non-Annex I Parties by clearly describing the role of BIO in Belgium's provision of climate finance to leverage private finance flows and by indicating the source of the funding of BIO in the next NC.
4	Reporting requirement specified in paragraph 55 Issue type: completeness Assessment: encouragement	The Party reported that it supports the efforts of developing countries to implement low-emission, climate-resilient projects and programmes by mobilizing, through public means, private investments for climate-related projects in developing countries. Furthermore, the Party provided an example concerning the work of BIO relating to the private finance flows leveraged by bilateral climate finance (NC8 p.111). However, it did not report on private finance flows leveraged by bilateral climate finance. During the review, Belgium explained that it is in the process of improving the tracking of private financing by BIO and other actors in order to avoid double counting between co-investors. The ERT encourages Belgium to improve the completeness of its reporting by providing information on private finance flows leveraged by bilateral climate finance in the next NC.
5	Reporting requirement specified in paragraph 57 Issue type: transparency Assessment: recommendation	The Party reported activities related to technology transfer, including success stories, in its NC8 (annex 4). However, the information on success stories was provided in the textual part of the report, not using table 9 of the UNFCCC reporting guidelines on NCs. During the review, Belgium explained that the main reason for providing information on success stories in textual format instead of tabular format is that more detailed information, including figures, can be given on the success factors of the selected projects or programmes. Belgium indicated that in future NCs it will more clearly refer to the relevant information in the annexes.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
		The ERT recommends that Belgium improve the transparency of its reporting by providing information on success and failure stories using table 9 of the UNFCCC reporting guidelines on NCs in its next NC.
6	Reporting requirement specified in paragraph 58 Issue type: transparency Assessment: recommendation	The Party reported in textual and tabular format information on measures and activities related to technology transfer. However, some of these measures and activities were reported in the previous NC as implemented and no explanation was provided for the repeated inclusion of the same implemented measures. During the review, Belgium explained that certain projects listed span multiple years and continue across reporting periods. The status of all measures and activities is marked as "implemented" in column 7 of CTF table 8, referenced in the NCs, including those under implementation during the reporting period. The ERT recommends that Belgium improve the transparency of its reporting by clearly identifying which measures and activities – or their specific elements – have been implemented or planned since its previous NC. The ERT notes that this transparency could be achieved by including specific references or custom footnotes for the listed measures in table 10 of the UNFCCC reporting guidelines on NCs.
7	Reporting requirement specified in paragraph 59 Issue type: transparency Assessment: recommendation	The Party reported information on how it has provided capacity-building support that responds to existing and emerging capacity-building needs in the areas of mitigation, adaptation and technology development and transfer in its NC8. However, the reporting lacks explicit information on how the Party identified the existing and emerging capacity-building needs of non-Annex I Parties. During the review, Belgium explained its approach to determining the needs of partner countries, particularly focusing on adaptation needs in the least developed countries. Belgium further explained that a large part of its climate finance is channelled by mainstreaming climate change and taking into account climate risks, vulnerabilities and opportunities in its broader portfolio of bilateral programmes and projects. Such portfolios are negotiated with the partner country on the basis of dialogue, accountability and ownership by both parties. The ERT reiterates the recommendation from the previous review report for Belgium to improve the transparency of its reporting by explaining in its next NC how the existing and emerging capacity-building needs of non-Annex I Parties were identified to ensure that the support provided responds to those needs.

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

Table I.5
Findings on research and systematic observation from the review of the eighth 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 64 Issue type: completeness Assessment: encouragement	Belgium reported in its NC8 that it encourages solution-oriented and policy-driven research that involves both scientific and policy experts. However, the Party did not provide information on the policy that guides the country's overall efforts in research and systematic observation. During the review, the Party indicated that Belgium's research priorities are framed as being part of the worldwide coordinated effort and are to a large extent shaped by the international and European policy contexts. Thematic calls for proposals for research funding (launched at the federal level) intend to mobilize Belgian scientific expertise to produce knowledge products and tools to support the Belgian Government in fulfilling its national and international climate-related political commitments. The European Green Deal, the European Climate Law, the European Strategy for Adaptation to Climate Change and the AR6 are the main policy documents for which calls for proposals to contribute to drafting are issued. The ERT encourages Belgium to improve the completeness of its reporting by clearly describing in its next NC its general policy on research and systematic observation.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
2	Reporting requirement specified in paragraph 65 Issue type: completeness Assessment: encouragement	Belgium provided information about international research data exchange in its NC8 (chap. 8, pp.115–130). However, information on barriers to free and open international data and information exchange, as well as on activities carried out to eliminate such barriers, was not reported. During the review, Belgium explained that barriers and challenges to open data are raised and tackled in a coordinated effort at the European and international level. In order to facilitate the reporting of data use, the following mechanisms have to be considered: the provision of recommended citations, including a direct object identifier or unique handle, for both single and aggregated data set downloads on the ICOS Carbon Portal; a means to ensure that the citation of individual original data sets is possible in data product aggregates from ICOS and other systems; and the establishment of tracking mechanisms to identify data citation in scientific publications and provision of means for voluntary identification of citations by users. The ERT reiterates the encouragement from the previous review report for Belgium to improve the completeness of its reporting by providing in its next NC clear information on barriers to free and open international data and information exchange and on action taken to overcome such barriers.
3	Reporting requirement specified in paragraph 67 Issue type: completeness Assessment: encouragement	The Party reported that it contributes to the ground-based monitoring of many atmospheric constituents. Furthermore, Belgium provided information on the use of relevant data, including the exchange of information with relevant organizations. However, summary information on data quality control and archiving of atmospheric constituents was not reported. During the review, Belgium provided information on data quality control and archiving. Quality control is carried out by the ICOS and ACTRIS consortiums. The ICOS Carbon Portal provides long-term archiving of ICOS data products, guaranteeing their safe storage, future access and easy reuse. ICOS has created a transparent, documented and reproducible process throughout the data life cycle – from measurements at the station via the ICOS Carbon Portal to the user. Belgium follows international developments in findable, accessible, interoperable and reusable ('FAIR') data management to build interoperable systems and make ICOS data freely available in a transparent way. The ACTRIS Data Centre provides scientists and other user groups with free and open access to all ACTRIS data, as well as access to innovative and mature data products and tools for quality assurance, data analysis and research. The ERT encourages that Belgium improve the completeness of its reporting by providing in its next NC summary information on systems for quality control and archiving of data on atmospheric constituents.

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

Table I.6
Findings on education, training and public awareness from the review of the eighth 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 68 Issue type: completeness Assessment: encouragement	The Party did not report in its NC8 information regarding the extent of public participation in the preparation or domestic review of the NC. During the review, Belgium explained that it held a round table in November 2022 with the Federal Council for Sustainable Development, which is made up of representatives of various societal groups (environmental organizations, development cooperation organizations, consumer, worker and employer organizations, youth organizations and the scientific community) and presented the content of the NC8 and BR5. The Council's feedback was invited and considered in finalizing the reports. The ERT encourages Belgium to improve the completeness of its reporting by including information on the extent of public participation in the preparation or domestic review of the NC.

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

Table I.7
Findings on minimization of adverse impacts and supplementary information related to the Kyoto Protocol reported in the eighth national communication of Belgium

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation*
1	Reporting requirement specified in paragraph 30 Issue type: transparency Assessment: recommendation	The Party did not provide in its NC8 a transparent description of the process for collecting activity data as required by paragraph 30(c) of the UNFCCC reporting guidelines on NCs, indicating that detailed information regarding legal arrangements and inventory preparation could be found in the NIR (chaps. 1.2, 1.3 and 12), as reported in its NC7. During the review, Belgium acknowledged that, in order to improve transparency, references to chapters 1.4 (brief general description of methodologies and data sources used) and 3.2.5 (country-specific issues) of the NIR would need to be included. The ERT agreed that the information in these chapters provides transparency on the process of data collection and aggregation that includes the process of consolidation between the regional and federal level. The ERT reiterates the recommendation from the previous review report for Belgium to include in its next NC information on the process of data collection and aggregation that includes the process of consolidation between the regional and federal level, or to provide a reference indicating where that information is reported in its NIR. The ERT concludes that this potential problem of a mandatory nature does not influence the Party's ability to fulfil its commitments for the second commitment period of the Kyoto Protocol.
2	Reporting requirement specified in paragraph 34 Issue type: completeness Assessment: recommendation	The Party did not report in its NC8 on how its PaMs, including in cooperation with other Parties, promote sustainable development. In annex 1 to the NC8 Belgium referred to chapter 4.3 of the NC8 for this information. However, chapter 4.3 of the NC8 presents only a summary of its PaMs included in CTF table 3 without describing how these PaMs contribute to the requirements of Article 2, paragraph 1, of the Kyoto Protocol. During the review, Belgium provided information on its PaMs that promote sustainable development in the areas of energy efficiency, promotion of sustainable forest management practices, sustainable forms of agriculture, fiscal incentives, mobility plans and waste management. Belgium also provided information on its collaboration with other Parties, including as part of Benelux and experience transfer programmes with developing countries. The ERT recommends that Belgium report in its next NC on how its PaMs promote sustainable development and information on its collaboration with other Parties, in accordance with the requirements of Article 2, paragraph 1, of the Kyoto Protocol, in order to increase completeness. The ERT concludes that this potential problem of a mandatory nature does not influence the Party's ability to fulfil its commitments for the second commitment period of the Kyoto Protocol.

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

Annex II

Assessment of adherence to the reporting guidelines for the fifth biennial report of Belgium

The BR5 of Belgium is the final BR under the measurement, reporting and verification system established under the Convention.[1] Nevertheless, ERTs continue to provide recommendations and encouragements to the Parties on completeness, transparency and adherence to the UNFCCC reporting guidelines on BRs. Parties may find these recommendations and encouragements relevant, as appropriate, when preparing their initial biennial transparency report under the enhanced transparency framework of the Paris Agreement. Tables II.1–II.5 summarize the ERT assessment of adherence to the UNFCCC reporting guidelines on BRs for Belgium's BR5.

Table II.1
Findings on the quantified economy-wide emission reduction target from the review of the fifth biennial report of Belgium

No.	*Reporting requirement and issue type*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 4 Issue type: transparency Assessment: recommendation	The Party reported its quantified economy-wide emission reduction target in its BR5 but the description is limited and refers to the BR4 for more detailed information. Furthermore, the ERT found that some of the information provided in the BR5 differs from the information provided in chapter 3.2 of the BR4 (on EU target compliance architecture), making it difficult to determine which information provided in the BR4 still applies. During the review, Belgium clarified that both its EU target under the Convention and the EU target compliance architecture reported in the BR4 still apply, with the exception of the "Beyond 2020" section, which has been updated in the BR5. The ERT concluded that the general reference to previous submissions introduced inconsistencies and reduced the transparency of the BR5. The ERT recommends that Belgium fully describe its quantified economy-wide emission reduction target in the current submission, instead of making references to previous submissions, with a view to increasing the consistency and transparency of its reporting.

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

Table II.2
Findings on mitigation actions and their effects from the review of the fifth biennial report of Belgium

No.	*Reporting requirement and issue type*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in CTF table 3 Issue type: transparency Assessment: recommendation	In CTF table 3, Belgium reported the quantitative estimate of the impact of individual measures or collections of PaMs (on a sectoral level) as "IE" for some of the PaMs for the Walloon Region. However, Belgium did not indicate where the impacts of these PaMs were included. Furthermore, no explanation was provided as to why the impacts of PaMs reported as "NE" were not estimated quantitatively. During the review, Belgium explained that the Walloon Region did not report quantitative estimates for individual measures but provided estimates for collections of PaMs at a sectoral level. All the PaMs for which "IE" was used for reporting the quantitative estimates of the impacts on GHG emissions are part of the two collections

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

No.	*Reporting requirement and issue type*	*Description of the finding with recommendation or encouragement*
		of PaMs of the Walloon Region. Information on which policy or measure is included in the respective collection is contained in the reporting for the NECP. Furthermore, the Party explained that sufficient information on impacts was not available for the majority of its PaMs, which is why estimations could not be made and "NE" was reported instead. The ERT reiterates the recommendation from the previous review report for the Party to improve the transparency of its reporting by (1) clarifying in the footnotes to CTF table 3 where the impacts of the PaMs are included for those PaMs whose impact is reported as "IE" and (2) including an explanation as to why quantification of the estimated impact was not possible for those PaMs for which "NE" was reported.
2	Reporting requirement specified in paragraph 24 Issue type: transparency Assessment: encouragement	The Party reported in its BR5 some information on progress in establishing national rules for taking local action against domestic non-compliance. However, instead of including a complete description of progress, Belgium referenced some information previously reported (in the BR4 and NC7). The ERT noted that this approach hinders transparency. During the review, Belgium clarified that references are provided in the BR5. The ERT concluded that references to previous reports are not sufficient to ensure transparency. The ERT encourages Belgium to include complete descriptions of progress in establishing rules for taking local action against domestic non-compliance, even if information has been included in previous reports, in order to increase transparency.

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

Table II.3
Findings on estimates of emission reductions and removals and on the use of units from market-based mechanisms and land use, land-use change and forestry from the review of the fifth biennial report of Belgium

No.	*Reporting requirement and issue type*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 10 Issue type: transparency Assessment: recommendation	The Party reported information on progress in the achievement of its quantified economy-wide emission reduction target in its BR5. However, the information provided does not allow for a full understanding of how the AEAs have been established and how the ESD verified emissions have been calculated. During the review, Belgium provided information on how its AEAs were established and updated, and the values of the verified emissions from stationary installations (EU ETS), thus allowing for the reproduction of the reported results. The ERT recommends that Belgium improve the transparency of its reporting of progress in achieving its quantified economy-wide emission reduction target by including more information on the process of establishing its AEAs and providing the data necessary to calculate its verified emissions under the ESD.

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

Table II.4
Findings on projections reported in the fifth biennial report of Belgium

No.	*Reporting requirement and issue type*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement[a] specified in paragraph 25 Issue type: completeness Assessment: encouragement	Belgium did not report a WOM scenario in its BR5. During the review, Belgium clarified that a WOM scenario was not reported because of difficulties in constructing such a scenario given its long history of climate policy. The Party indicated that it has no plans to develop a WOM scenario in the near future. The ERT reiterates the encouragement from the previous review report for the Party to improve the completeness of its reporting by including a WOM scenario in its next

No.	*Reporting requirement and issue type*	*Description of the finding with recommendation or encouragement*
		submission, or to provide an explanation as to why developing such a scenario is not appropriate given the national circumstances.
2	Reporting requirement specified in paragraph 27 Issue type: transparency Assessment: encouragement	Belgium reported a sensitivity analysis of two important parameters (number of degree days and imported electricity). However, the Party did not provide sufficient information on its methodologies in its description of how it carried out the sensitivity analysis. During the review, Belgium provided further information on how it carried out the sensitivity analysis, including how the different electricity import scenarios were accounted for by energy models and how adjusted degree days for the residential sector were calculated (namely, as summed results of the three regions using their own regional models). The ERT encourages the Party to improve the transparency of its reporting by including in its next submission a brief description of the methodologies used to carry out its sensitivity analysis, including sufficient detail on which regional models are used to vary key parameters.
3	Reporting requirement specified in paragraph 32 Issue type: completeness Assessment: encouragement	The Party did not provide projections of indirect GHGs in its BR5. During the review, Belgium clarified that projections of indirect GHGs are available from some projection models but a consistent set of projections is lacking as not all modelling assumptions for indirect GHGs were aligned in time for the submission of its BR5. The ERT reiterates the encouragement from the previous review report for Belgium to improve the completeness of its reporting by including in its next submission projections of the indirect GHGs carbon monoxide, nitrogen oxides, non-methane volatile organic compounds and sulfur oxides.
4	Reporting requirement specified in paragraph 39 Issue type: transparency Assessment: encouragement	The Party reported in its BR5 information on the majority of its regional models and/or approaches to allow the reader to obtain a basic understanding of them. However, in some instances Belgium did not describe its methodology in sufficient detail, including the methodology for preparing its projections for international aviation and navigation and the role of the Walloon Region's EPM in preparing the Party's WAM scenario projections. During the review, Belgium provided further information on several sectors for all regions, describing in sufficient detail the models and/or approaches used, as well as information on construction of the Walloon Region's WAM scenario using EPM. The ERT encourages Belgium to improve the transparency of its by providing sufficient information in its next submission to allow the reader to obtain a basic understanding of models and/or approaches used to project GHG emissions and removals, including for international aviation and navigation, and to estimate the total effects of PaMs under its projection scenarios.
5	Reporting requirement specified in paragraph 40 Issue type: completeness Assessment: encouragement	The Party provided a description of the majority of the models used for its projections but not of a key model used in preparing the Walloon Region's WAM scenario (EPM) and one of the models used in preparing the Party's off-road and navigation projections (EMMOSS). During the review, Belgium provided further information on these two models, clarifying that the Walloon Region is currently transitioning to the use of a new energy model for preparing its WEM scenario (from EPM to TIMES-Wal). The ERT encourages the Party to improve the completeness of its reporting by providing in its next submission a description of all models used for preparing projections, including information on the type of model used, its characteristics and the sectors for which the model was used.
6	Reporting requirement specified in paragraph 40 Issue type: transparency Assessment: encouragement	The ERT noted that, while Belgium projected increased heat pump use in multiple sectors under its WAM scenario (and not under its WEM scenario), this was not reflected in the projections. During the review, the Party provided information on the underlying assumptions for its F-gas modelling and explained that the number of heat pumps sold was considered to be the same under the WEM and WAM scenarios, which is not aligned with its current PaMs.

No.	Reporting requirement and issue type	Description of the finding with recommendation or encouragement
		The ERT encourages Belgium to improve the transparency of its reporting by providing in its next submission a description of how the model or approach used accounts for any overlaps or synergies between different PaMs.
7	Reporting requirement specified in paragraph 41 Issue type: completeness Assessment: encouragement	The Party reported references to documents containing more detailed information regarding the majority of the models described in its BR5 but not for an important model used in the creation of the Walloon Region's WAM scenario (EPM) or one of the models used for the Party's off-road and navigation projections (EMMOSS). During the review, Belgium provided descriptions for both models, including references to documents containing more detailed information. The ERT reiterates the encouragement from the previous review report for Belgium to improve the completeness of its reporting by including in its next submission references to documents containing more detailed information related to the models and approaches used for its projection scenarios.
8	Reporting requirement specified in paragraph 43 Issue type: transparency Assessment: encouragement	The Party reported a qualitative and quantitative discussion of the sensitivity of the projections to degree days and import of electricity. However, the effects of varying these key parameters were discussed only in the context of national total GHG emissions, not on a sectoral basis, and thus it was not transparent where the variation in the underlying assumptions was causing changes within the Party's sectors specifically. During the review, Belgium provided a sectoral breakdown of the results of its sensitivity analyses, allowing for transparent comparison at the sectoral level between its baseline emissions and those presented under the scenarios. The ERT encourages Belgium to improve the transparency of its reporting by providing qualitative, and where possible quantitative, information on the sensitivity of the projections to underlying assumptions in its next submission, namely by providing transparent information on the sectors for which sensitivity analyses were performed and the sensitivity of sectoral projections to the factors considered.

Note: The reporting on the requirements not included in this table is considered to be complete and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs and on BRs. Items listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs, as per para. 11 of the UNFCCC reporting guidelines on BRs.

Table II.5
Findings on provision of financial, technological and capacity-building support to developing country Parties from the review of the fifth biennial report of Belgium

No.	Reporting requirement and issue type	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 14 Issue type: completeness Assessment: recommendation	The ERT took note of the information provided in the BR5 (chap. 7.6, p.113) and CTF table 7, 7(a) and 7(b), referenced in the BR5, on the Party's methodological approach to tracking the provision of financial, technological and capacity-building support to non-Annex I Parties, where all the Rio markers are taken into consideration in determining the coefficients used to estimate the amount of the project budget that can be considered climate finance. However, the ERT noted that the description provided does not include information on tracking of allocation channels. During the review, Belgium explained that for multilateral channels it considers the allocation channels to be the same as the delivery mechanism because the multilateral funds to which Belgium provides support are also responsible for delivering these funds. Regarding bilateral channels, information on tracking the allocation channels is collected on the basis of project implementation requirements. The ERT recommends that Belgium improve the transparency of its reporting by including information on the allocation channels tracked.
2	Reporting requirement specified in paragraph 17 Issue type: completeness Assessment: recommendation	The ERT took note of the information provided the BR5 (chap. 7, pp.106–114) and CTF table 7, 7(a) and 7(b) on financial support disbursed and committed for the purpose of assisting non-Annex I Parties in mitigating GHG emissions and adapting to the adverse effects of climate change. However, the ERT noted that the description does not include information on the financial support provided to non-Annex I Parties for adapting to any economic or social consequences of response measures.

No.	*Reporting requirement and issue type*	*Description of the finding with recommendation or encouragement*
		During the review, Belgium explained that the majority of multilateral funding comes from Belgium's federal development cooperation budget, which has sustainable development and poverty alleviation as its most important goals. Belgium's contributions to bilateral projects, mainly directed towards African partner countries and the least developed countries, includes disbursements in the context of an agreed partnership programme with a partner country. In the context of these partnership agreements Belgium did not receive a demand for specific support to tackle the adverse effects of response measures. As the provision of assistance for adapting to any economic and social consequence of response measures does not feature in the multilateral channels and the bilateral agreements, Belgium does not place a specific focus on this matter. The ERT recommends that Belgium include in the next submission information on the provision of assistance to non-Annex I Parties to adapt to any economic and social consequences of response measures.
3	Reporting requirement specified in paragraph 17 Issue type: transparency Assessment: recommendation	The Party reported in its BR5 (p.106) that in 2019–2020 it provided EUR 208 million to developing country Parties. In addition, the CTF table 7, 7(a) and 7(b) provides information on annual financial support by allocation channels. However, the BR5 does not include information on how overlapping with the previous reporting periods is avoided as required by the UNFCCC reporting guidelines on BRs, paragraph 17. During the review, Belgium clarified that the contribution is reported only in the year of the start of the commitment. For support disbursed, only contributions being disbursed in that calendar year are being reported. The ERT recommends that Belgium improve the transparency of its reporting by including information on how overlapping with the previous reporting periods is avoided when reporting on the provision of support to developing country Parties.
4	Reporting requirement specified in paragraph 19 Issue type: transparency Assessment: encouragement	The Party provided information on the role of BIO in the provision of climate finance in Belgium in order to leverage private finance flows. Furthermore, BIO received EUR 50 million to invest in climate-related projects (BR5, pp.111 and 162), but Belgium did not state the source of the funding. During the review, Belgium explained that BIO is a private company whose capital is held by the federal State and that the climate finance provided to BIO is therefore a capital investment by the federal State. The ERT reiterates the encouragement from the previous review report for Belgium to improve the transparency of its reporting on private finance flows leveraged by bilateral climate finance towards mitigation and adaptation activities in non-Annex I Parties by clearly describing the role of BIO in Belgium's provision of climate finance to leverage private finance flows and by indicating the source of the funding of BIO in its next submission.
5	Reporting requirement specified in paragraph 22 Issue type: transparency Assessment: recommendation	The Party reported in textual and tabular format information on measures and activities related to technology transfer. However, the majority of these measures and activities were reported in the previous submission as implemented and no explanation was provided for the repeated inclusion of the same implemented measures. During the review, Belgium explained that certain projects listed span multiple years and continue across reporting periods, hence their appearance in both the BR4 and the BR5. The Party also provided information on the measures and activities in Guinea reported in the BR5 (Optimisation of domestic waste collection system) are distinct from those reported in the BR4 (Solid waste management). The status of all measures and activities is marked as "implemented" in column 7 of CTF table 8, including those currently under implementation during the reporting period. The ERT recommends that Belgium improve the transparency of its reporting by clearly identifying which measures and activities – or their specific elements – related to technology transfer have been implemented or planned since its previous submission. The ERT notes that this transparency could be achieved by including specific references or custom footnotes within the listed measures in CTF table 8.
6	Reporting requirement specified in paragraph 23	The Party reported information on how it has provided capacity-building support that responds to the existing and emerging capacity-building needs in the areas of mitigation, adaptation and technology development and transfer in its BR5. However, the report

No.	*Reporting requirement and issue type*	*Description of the finding with recommendation or encouragement*
	Issue type: transparency Assessment: recommendation	lacks explicit information on how the Party identified the existing and emerging capacity-building needs of non-Annex I Parties, as required by the UNFCCC reporting guidelines on BRs. During the review, Belgium explained its approach to determining the needs of partner countries, particularly focusing on adaptation needs in the least developed countries. Belgium further explained that a large part of its climate finance is also channelled by mainstreaming climate change and taking into account climate risks, vulnerabilities and opportunities into its broader portfolio of bilateral programmes and projects. These portfolios are negotiated with the partner country on the basis of dialogue, accountability and ownership by both parties. The ERT reiterates the recommendation from the previous review report for Belgium to improve the transparency of its reporting by including an explanation of how the existing and emerging capacity-building needs were identified by non-Annex I Parties to ensure that the support provided responds to these needs.

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

Annex III

Documents and information used during the review

A. Reference documents

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

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

BR4 of Belgium. Available at https://unfccc.int/BR4.

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

BR5 of Belgium. Available at https://unfccc.int/documents/624703.

BR5 of the EU. Available at https://unfccc.int/BR5.

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

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

European Green Deal. European Commission document COM(2019) 640 final. Available at https://ec.europa.eu/info/files/communication-european-green-deal_en.

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

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

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

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

NECP of Belgium. Available at https://www.nationalenergyclimateplan.be/en.

NC8 of Belgium. Available at https://unfccc.int/NC8.

NC8 of the EU. Available at https://unfccc.int/NC8.

Report on the individual review of the annual submission of Belgium submitted in 2022. FCCC/ARR/2022/BEL. Available at https://unfccc.int/documents/627832.

Report on the technical review of the BR4 of Belgium. FCCC/TRR.4/BEL. Available at https://unfccc.int/documents/268066.

Report on the technical review of the NC8 and the technical review of the BR5 of the EU. FCCC/IDR.8/EU–FCCC/TRR.5/EU. Available at https://unfccc.int/documents/630393.

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

B. Additional information provided by the Party

Responses to questions during the review were received from Laurence de Clock (Belgian Federal Public Service Health, Food Chain Safety and Environment), including additional material.