



United Nations

FCCC/IDR.7/POL



Framework Convention on
Climate Change

Distr.: General
5 February 2019

English only

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

Parties included in Annex I to the Convention were requested by decision 9/CP.16 to submit their seventh national communication to the secretariat by 1 January 2018. According to decision 15/CMP.1, Parties included in Annex I to the Convention that are also Parties to the Kyoto Protocol are required to include in their national communications supplementary information under Article 7, paragraph 2, of the Kyoto Protocol. This report presents the results of the technical review of the seventh national communication and relevant supplementary information under the Kyoto Protocol of Poland, conducted by an expert review team in accordance with the “Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention” and the “Guidelines for review under Article 8 of the Kyoto Protocol”.

GE.19-01658(E)



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Abbreviations and acronyms

| | |
|--|--|
| AEA | annual emission allocation |
| Annex II Party | Party included in Annex II to the Convention |
| BR | biennial report |
| CDM | clean development mechanism |
| CH ₄ | methane |
| CO ₂ | carbon dioxide |
| CO ₂ eq | carbon dioxide equivalent |
| CTF | common tabular format |
| ERT | expert review team |
| ESD | effort-sharing decision |
| EU | European Union |
| EU ETS | European Union Emissions Trading System |
| GDP | gross domestic product |
| GHG | greenhouse gas |
| HFC | hydrofluorocarbon |
| IPPU | industrial processes and product use |
| KOBiZE | National Centre for Emissions Management |
| LULUCF | land use, land-use change and forestry |
| NA | not applicable |
| NC | national communication |
| NE | not estimated |
| NF ₃ | nitrogen trifluoride |
| NO | not occurring |
| non-ETS sectors | sectors not covered by the European Union Emissions Trading System |
| N ₂ O | nitrous oxide |
| PaMs | policies and measures |
| PFC | perfluorocarbon |
| reporting guidelines for supplementary information | “Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol, Part II: Reporting of supplementary information under Article 7, paragraph 2” |
| RES | renewable energy sources |
| SF ₆ | sulfur hexafluoride |
| UNFCCC reporting guidelines on 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’ |

I. Introduction and summary

A. Introduction

1. This is a report on the in-country technical review of the NC7 of Poland. The review was coordinated by the secretariat in accordance with the “Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention”, particularly “Part V: UNFCCC guidelines for the technical review of national communications from Parties included in Annex I to the Convention” (annex to decision 13/CP.20), and the “Guidelines for review under Article 8 of the Kyoto Protocol” (annex to decision 22/CMP.1 and annex I to decision 4/CMP.11).¹

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

3. The review was conducted from 11 to 16 June 2018 in Warsaw by the following team of nominated experts from the UNFCCC roster of experts: Mr. Sabin Guendehou (Benin), Mr. Marco Orsini (Belgium), Ms. Awassada Phongphiphat (Thailand) and Ms. Melanie Sporer (European Union). Mr. Guendehou and Ms. Sporer were the lead reviewers. The review was coordinated by Mr. Davor Vesligaj (UNFCCC secretariat).

B. Summary

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

1. Timeliness

5. The NC7 was submitted on 29 December 2017, before the deadline of 1 January 2018 mandated by decision 9/CP.16.

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

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

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

Table 1

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

| <i>Section of NC</i> | <i>Completeness</i> | <i>Transparency</i> | <i>Reference to description of recommendations</i> | <i>Supplementary information under the Kyoto Protocol</i> | <i>Completeness</i> | <i>Transparency</i> | <i>Reference to description of recommendations</i> |
|--|---------------------|---------------------|--|--|---------------------|---------------------|--|
| Executive summary | Complete | Transparent | | National system | Complete | Transparent | |
| National circumstances | Complete | Mostly transparent | Issue 1 in table 4 | National registry | Complete | Transparent | |
| GHG inventory | Complete | Transparent | | Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 | Complete | Transparent | |
| PaMs | Complete | Mostly transparent | Issues 3 and 8 in table 8 | PaMs in accordance with Article 2 | Complete | Mostly transparent | Issue 9 in table 8 |
| Projections and the total effect of PaMs | Mostly complete | Transparent | Issue 1 in table 14 | Domestic and regional programmes and/or arrangements and procedures | Mostly complete | Transparent | Issue 1 in table 6 |
| Vulnerability assessment, climate change impacts and adaptation measures | Complete | Transparent | | Information under Article 10 ^a | Complete | Transparent | |
| Financial resources and transfer of technology ^b | NA | NA | NA | Financial resources ^c | NA | NA | NA |
| Research and systematic observation | Complete | Transparent | | Minimization of adverse impacts in accordance with Article 3, paragraph 14 | Complete | Transparent | |
| Education, training and public awareness | Complete | Transparent | | | | | |

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

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

^b Poland is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3, 4 and 5, of the Convention.

^c Poland is not an Annex II Party and is therefore not obliged to provide information on financial resources under Article 11 of the Kyoto Protocol, including on “new and additional” resources.

3. Summary of reviewed supplementary information under the Kyoto Protocol

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

Table 2

Overview of supplementary information under the Kyoto Protocol reported by Poland

| <i>Supplementary information</i> | <i>Reference to section of the NC7</i> |
|--|---|
| National system | 3.5 |
| National registry | 3.6 |
| Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 | 4.6.1, 4.9 |
| PaMs in accordance with Article 2 | 4.6 |
| Domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures | 4.2.4 |
| Information under Article 10 | 4.6, 6.7, 6.8, 7.2, 7.3 |
| Financial resources ^a | 7.2, 7.3 |
| Minimization of adverse impacts in accordance with Article 3, paragraph 14 | Reported in the national inventory report of the Party's 2018 annual submission |

^a Reporting on financial resources under the Kyoto Protocol is relevant to Annex II Parties. As Poland is not an Annex II Party, it does not have an obligation to provide information on financial resources under Article 11 of the Kyoto Protocol, including on "new and additional" resources.

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

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

1. National circumstances relevant to greenhouse gas emissions and removals

(a) Technical assessment of the reported information

8. The national circumstances chapter of Poland's NC7 explains the relationship between its emission trends and the development of climate change policy. The changing nature of those circumstances defines the factors that affect climate policy development and has an impact on the implementation of the Convention. The NC7 contains key data on government structure, population, geography, climate, the economy, energy, transportation, industry, waste, building stock and urban structure, agriculture, forestry and other circumstances.

9. The ERT noted that the main drivers affecting GHG emissions and removals comprise the use of the hard coal and lignite which together accounted for 51.2 per cent of the primary energy consumption in 2015; the increase in the share of RES from 10.9 per cent in 2011 to 12.7 per cent in 2015, with solid biofuels contributing 72.2 per cent, followed by wind energy and liquid biofuels (10.8 per cent each); the deployment of energy-efficient technologies and the modernization of insulation and heating systems in houses and buildings; the rapid growth in road transport; the increase in waste segregation and recycling, the reduction of waste disposal on land; and weather conditions.

10. After the economic transformation that started in 1989, of foremost importance to Poland has been economic restructuring and modernization while reducing impact on the environment. Poland's accession to the EU in 2004 boosted economic modernization but also led to greater and more challenging commitments to environmental protection owing to EU-wide environmental and climate policies.

11. The ERT noted that during the period 1990–2016 Poland's population decreased by 0.4 per cent and GDP increased by 153.4 per cent, while GHG emissions per capita and GHG emissions per GDP unit decreased by 15.0 and 66.4 per cent, respectively. Compared with the base-year (1988) level, Poland reduced GHG emissions by about 32 per cent despite its steady economic growth over the past two decades. Table 3 illustrates the national circumstances of Poland by providing some indicators relevant to emissions and removals.

Table 3

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

| <i>Indicator</i> | | | | | | | <i>Change (%)</i> | |
|--|-------------|-------------|-------------|-------------|-------------|------------------|-------------------|--|
| | <i>1990</i> | <i>2000</i> | <i>2010</i> | <i>2015</i> | <i>2016</i> | <i>1990–2016</i> | <i>2015–2016</i> | |
| GDP per capita (thousands 2011 USD using purchasing power parity) | 10.28 | 14.73 | 21.77 | 25.30 | 26.04 | 153.4 | 2.9 | |
| GHG emissions without LULUCF per capita (t CO ₂ eq) | 12.26 | 10.18 | 10.67 | 10.14 | 10.42 | –15.0 | 2.8 | |
| GHG emissions without LULUCF per GDP unit (kg CO ₂ eq per 2011 USD using purchasing power parity) | 1.19 | 0.69 | 0.49 | 0.40 | 0.40 | –66.4 | –0.1 | |

Sources: (1) GHG emission data: Poland's 2018 GHG inventory submission, version 3; (2) population and GDP: World Bank.

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

12. Poland requested flexibility in accordance with Article 4, paragraphs 6 and 10, of the Convention in relation to the base-year definition. In accordance with Article 4, paragraph 6, of the Convention and decision 9/CP.2, Poland, as a Party with an economy in transition, may use 1988 as its base year.

(b) Assessment of adherence to the reporting guidelines

13. The ERT assessed the information reported in the NC7 of Poland and identified issues relating to transparency. The findings are described in table 4.

Table 4

Findings on national circumstances relevant to greenhouse gas emissions and removals from the review of the seventh national communication of Poland

| No. | <i>Reporting requirement, issue type and assessment</i> | <i>Description of the finding with recommendation or encouragement</i> |
|-----|--|--|
| 1 | Reporting requirement specified in paragraph 8 Issue type: transparency Assessment: recommendation | The ERT noted that Poland could further elaborate on how its national circumstances affect GHG emissions and removals, or how its national circumstances and changes therein affect GHG emissions and removals over time. Poland could have explained in more detail in its NC7 the effects on GHG emissions of, for instance, energy prices, population change and GDP growth by key economic sectors (e.g. services, manufacturing and agriculture). During the review, Poland further explained how its national circumstances and changes therein have affected GHG emissions and removals over time, for example how the changes in fossil fuel consumption and the import of electricity affected the GHG emissions of the country in 2013–2015. The ERT reiterates the recommendation made in the previous review report that Poland, in order to improve the transparency of its next NC, further elaborate on how its national circumstances affect GHG emissions and removals, and how its national circumstances and changes therein affect GHG emissions and removals over time. |
| 2 | Reporting requirement specified in paragraph 8 Issue type: completeness Assessment: encouragement | The ERT noted that additional information and factors that best describe national circumstances and their effects on historical trends may be included in the report. During the review, Poland provided additional information on GDP growth rate, electricity imported, electricity prices, GHG intensity of energy production, modes of transport, changes in transport, land-use changes and waste management. The ERT encourages Poland to include in its next NC the additional information provided during the review, such as on energy prices, as well as information on other factors that may affect GHG emissions and removals, for example energy taxes, energy subsidies, energy trade and GDP by sector. |

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

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

(a) Technical assessment of the reported information

14. Total GHG emissions² excluding emissions and removals from LULUCF decreased by 15.3 per cent between 1990 and 2016, whereas total GHG emissions including net emissions or removals from LULUCF decreased by 16.3 per cent over the same period. Table 5 illustrates the emission trends by sector and by gas for Poland.

² In this report, the term “total GHG emissions” refers to the aggregated national GHG emissions expressed in terms of CO₂ eq excluding LULUCF, unless otherwise specified. Values in this paragraph are calculated based on the Party’s 2018 annual submission, version 3.

Table 5
Greenhouse gas emissions by sector and by gas for Poland for the period 1990–2016

| Sector | GHG emissions (kt CO ₂ eq) | | | | | Change (%) | | Share (%) | |
|---|---------------------------------------|-------------------|-------------------|-------------------|-------------------|--------------|------------|--------------|--------------|
| | 1990 | 2000 | 2010 | 2015 | 2016 | 1990–2016 | 2015–2016 | 1990 | 2016 |
| | 1. Energy | 381 749.15 | 320 680.90 | 338 662.69 | 316 135.92 | 326 536.84 | –14.5 | 3.3 | 81.7 |
| A1. Energy industries | 236 171.41 | 177 070.18 | 173 120.89 | 163 455.49 | 163 207.80 | –30.9 | –0.2 | 50.5 | 41.2 |
| A2. Manufacturing industries and construction | 43 053.37 | 46 202.24 | 29 691.78 | 28 022.57 | 28 509.60 | –33.8 | 1.7 | 9.2 | 7.2 |
| A3. Transport | 20 495.95 | 27 804.91 | 48 171.02 | 46 896.93 | 53 414.67 | 160.6 | 13.9 | 4.4 | 13.5 |
| A4. and A5. Other | 57 097.35 | 48 838.01 | 67 378.77 | 54 850.40 | 58 472.01 | 2.4 | 6.6 | 12.2 | 14.8 |
| B. Fugitive emissions from fuels | 24 931.07 | 20 765.56 | 20 300.22 | 22 910.54 | 22 932.76 | –8.0 | 0.1 | 5.3 | 5.8 |
| C. CO ₂ transport and storage | NO | NO | NO | NO | NO | NA | NA | NA | NA |
| 2. IPPU | 22 693.33 | 23 790.48 | 25 002.33 | 28 535.19 | 28 666.35 | 26.3 | 0.5 | 4.9 | 7.2 |
| 3. Agriculture | 47 155.60 | 31 005.77 | 29 717.72 | 29 546.08 | 30 062.89 | –36.2 | 1.7 | 10.1 | 7.6 |
| 4. LULUCF | –27 603.61 | –32 909.15 | –30 395.35 | –27 229.23 | –27 951.80 | 1.3 | 2.7 | NA | NA |
| 5. Waste | 15 682.37 | 14 128.33 | 12 589.93 | 10 952.68 | 10 557.45 | –32.7 | –3.6 | 3.4 | 2.7 |
| 6. Other | NO | NO | NO | NO | NO | NA | NA | NA | NA |
| <i>Gas^a</i> | | | | | | | | | |
| CO ₂ | 375 810.95 | 316 828.09 | 331 709.98 | 310 526.32 | 321 182.01 | –14.5 | 3.4 | 80.4 | 81.1 |
| CH ₄ | 64 015.00 | 48 677.75 | 47 496.15 | 46 658.80 | 46 109.36 | –28.0 | –1.2 | 13.7 | 11.6 |
| N ₂ O | 27 312.64 | 22 533.39 | 19 707.74 | 18 924.86 | 19 483.88 | –28.7 | 3.0 | 5.8 | 4.9 |
| HFCs | NA, NO | 1 366.50 | 7 006.36 | 8 969.67 | 8 957.35 | NA | –0.1 | NA | 2.3 |
| PFCs | 141.87 | 176.68 | 17.07 | 13.21 | 12.55 | –91.2 | –5.0 | 0.0 | 0.0 |
| SF ₆ | NA, NO | 23.07 | 35.37 | 77.03 | 78.38 | NA | 1.8 | NA | 0.0 |
| NF ₃ | NA, NO | NA, NO | NA, NO | NA, NO | NA, NO | NA | NA | NA | NA |
| Total GHG emissions without LULUCF | 467 280.46 | 389 605.48 | 405 972.67 | 385 169.88 | 395 823.53 | –15.3 | 2.8 | 100.0 | 100.0 |
| Total GHG emissions with LULUCF | 439 676.85 | 356 696.33 | 375 577.32 | 357 940.65 | 367 871.72 | –16.3 | 2.8 | NA | NA |

Source: GHG emission data: Poland's 2018 annual submission, version 3.

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

15. The decrease in total emissions (without LULUCF) of 15.3 per cent between 1990 and 2016 was driven mainly by the decrease in emissions from energy industries and manufacturing industries and construction by 30.9 and 33.8 per cent, respectively. Those reductions were due to the economic restructuring and modernization of energy-intensive industry in the early 1990s after the economic transformation, stricter environmental policy, in particular after Poland's accession to the EU in 2004, and the economic downturn in the late 2000s. Emissions from transport and IPPU increased by 160.6 and 26.3 per cent, respectively, over the same period (see table 5). The ERT noted that if those emissions continue to increase they could potentially undermine Poland's emission reductions in other sectors in the future.

16. Between 1990 and 2016, GHG emissions from the energy sector decreased by 14.5 per cent (55,212.31 kt CO₂ eq), owing to the modernization of energy-intensive industry, the decrease in energy intensity of public power plants, combined heat and power plants and heating plants, the increase in the use of RES and the fuel switch from coal to gas, although

coal is still the main fuel in the total primary energy supply. However, the trend in emissions from fuel combustion shows a significant increase in the transport sector, of 160.6 per cent or 32,918.71 kt CO₂ eq. This is related to the growth in fuel consumption due to the rapidly increasing vehicle numbers since 1990, most prominently after Poland joined the EU in 2004, and the number of imported diesel vehicles from other EU member States which rose significantly.

17. Between 1990 and 2016, GHG emissions from IPPU increased by 26.3 per cent (5,973.02 kt CO₂ eq). A significant drop in emissions in 2008 and 2009 can be attributed to the introduction of abatement technology in nitric acid production. Between 1990 and 2016, GHG emissions from the agriculture sector decreased by 36.2 per cent (17,092.72 kt CO₂ eq), owing mainly to decreased livestock numbers. The LULUCF sector was a net sink of 27,951.80 kt CO₂ eq in Poland in 2016; net GHG removals have increased by 348.19 kt CO₂ eq since 1990. Between 1990 and 2016, GHG emissions from the waste sector decreased by 32.7 per cent (5,124.92 kt CO₂ eq), owing mainly to improved waste management and reduced waste generation.

18. With regard to emission trends by gas, CO₂ emissions decreased significantly over the period 1990–2016 (by 14.5 per cent), owing to the restructuring of the economy towards less energy-intensive industries and the gradual development of a dominant tertiary sector during the transition to a market economy. CH₄ emissions decreased by 28.0 per cent over the same period, while N₂O emissions decreased by 28.7 per cent, owing to reduced fertilizer use in the agriculture sector.

19. The summary information provided on GHG emissions was consistent with the information reported in Poland's 2017 annual submission. During the review, the ERT took note of the Party's 2018 annual submission.

(b) Assessment of adherence to the reporting guidelines

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

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

(a) Technical assessment of the reported information

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

22. During the review, Poland explained in detail the Act of 17 July 2009 on the System to Manage the Emissions of Greenhouse Gases and Other Substances, and the scope of the work carried out by KOBiZE. KOBiZE is responsible for operating the national emissions balancing and forecasting system, including maintaining the national database of GHG emissions and other substances; developing methodologies for estimating emissions and emission factors; preparing reports and projections of air pollutant emissions; operating the national registry of Kyoto Protocol units; keeping a registry of joint implementation projects; and, finally, managing the GHG emission allowance trading system. Poland also elaborated on how KOBiZE compiles the GHG inventory and prepares and submits various emission reports, as well as on how quality assurance and quality control are performed. The ERT took note of the review of the changes to the national system reflected in the report on the individual review of the annual submission of Poland submitted in 2016.

(b) Assessment of adherence to the reporting guidelines

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

4. National registry**(a) Technical assessment of the reported information**

24. In the NC7 Poland provided information on how its national registry performs the functions in accordance with the annex to decision 13/CMP.1 and the annex to decision 5/CMP.1 and complies with the requirements of the technical standards for data exchange between registry systems.

25. Poland reported that KOBiZE functions as the national registry administrator. The Polish registry was consolidated with those of the other EU member States in June 2012 into a single EU registry. The registry database holds information on entities covered by the system, installations, verified emissions, national holding accounts, installation accounts, aircraft operator accounts, personal holding accounts and working accounts. During the review, Poland elaborated on publicly accessible information, security measures and conformity with the data exchange standards. Information on and changes to the national registry are presented annually in the national inventory report. The ERT noted the changes to the national registry reflected in the report on the individual review of the annual submission of Poland submitted in 2016, including the upgrading of the database registry and conformance with technical standards and the security features.

(b) Assessment of adherence to the reporting guidelines

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

B. Information on policies and measures and institutional arrangements**1. Domestic and regional programmes and/or legislative arrangements and procedures related to the Kyoto Protocol****(a) Technical assessment of the reported information**

27. For the second commitment period of the Kyoto Protocol, from 2013 to 2020, Poland committed to contributing to the joint EU effort to reduce GHG emissions by 20 per cent below the base-year level. Key national PaMs of Poland were presented in the NC7 (section 4.6 and table 3 of annex 1).

28. Implementation of the Kyoto Protocol by Poland is underpinned by the Act of 17 July 2009 on the System to Manage the Emissions of Greenhouse Gases and Other Substances. The Act lays down the tasks of KOBiZE, the operating rules for the national system of emissions management, the operating rules for the national registry of Kyoto Protocol units, the rules for trading and management of Kyoto Protocol units, the operating rules for the National Green Investment Scheme, the conditions and principles of the realization of joint implementation projects within the territory of Poland, and the conditions and principles of the realization of joint implementation projects and CDM projects beyond the territory of Poland. Other important acts related to air and climate protection include the Act of 27 April 2001 on Environmental Law, the Act of 20 July 1991 on the Inspectorate for Environmental Protection, the Act of 3 October 2008 on the Provision of Information on the Environment and its Protection, Public Participation in Environmental Protection and Environmental Impact Assessment, and the Act of 12 June 2015 on the Greenhouse Gas Emissions Trading Scheme.

29. Poland's national development goals to be achieved by 2020 and 2030 are directed by the Strategy for Responsible Development, adopted on 14 February 2017 as an amendment

to the National Development Strategy 2020. The aim of the strategy is to develop modalities for raising income while at the same time strengthening social, economic, environmental and territorial cohesion. It addresses, among other concerns, low-carbon measures and building green cities. Regarding Poland's environmental policy, the Strategy for Energy Security and the Environment is the key document, with objectives comprising sustainable management of environmental resources, assurance of a secure and competitive energy supply at the national economy level, and improvement of environmental status. The Europe 2020 Strategy has been implemented through the annually updated National Reform Programmes.

30. The overall responsibility for climate change policymaking in Poland lies with the Ministry of the Environment, which is in charge of preparing and coordinating draft national strategies and monitoring the activities of government administration bodies and inter-institutional working teams in the field of climate policy. A number of national institutions are involved in the implementation of the policy. The following ministries are obligated to implement the sustainable development strategy as well as State environmental policy and climate policy into sectoral policies: the Ministry of Energy, responsible for energy-related policy; the Ministry of Development and Finance, for the development strategy, the socioeconomic development of the country and economic innovation; the Ministry of Agriculture and Rural Development, for the implementation of government policy in the area of agriculture and rural development; the Ministry of Infrastructure and Construction, for transport, construction and housing; and the Ministry of Maritime Economy and Inland Shipping, for maritime economy and inland waterway transport. In addition, the Ministry of the Environment engages research and development institutions, including the Institute of Environmental Protection – National Research Institute, the Forest Research Institute, and the Institute of Meteorology and Water Management – National Research Institute, in accomplishing tasks under the Convention and the Kyoto Protocol. As independent entities, the National Fund for Environmental Protection and Water Management, together with the voivodeship (regional) funds for environmental protection and water management, constitute the system for financing environmental protection in Poland.

31. Poland has legislative arrangements and administrative procedures in place to make information publicly accessible, such as the Act of 17 July 2009 on the System to Manage the Emissions of Greenhouse Gases and Other Substances, whereby KOBiZE, at the Institute of Environmental Protection – National Research Institute, was instructed to carry out that task.

32. Poland has national legislative arrangements and administrative procedures in place that seek to ensure that the implementation of activities under Article 3, paragraph 3, forest management under Article 3, paragraph 4, 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. The Act of 28 September 1991 on Forests defines the principles of preservation, protection and enhancement of forest resources and the principles of forest management in connection with other elements of the environment and the national economy. On the basis of that Act, the State Forestry Policy, adopted on 22 April 1997, further outlines activities and indicates the linkages to forestry in intersectoral and international systems. Forestry policy aims to ensure the sustainability and multifunctionality of forests and the augmentation of forest resources by increasing forest cover and the restitution and rehabilitation of forest ecosystems. The National Programme on Augmentation of Forest Cover, adopted in 1995 and updated in 2003, set targets to increase forest cover to 30 per cent by 2020 and 33 per cent by 2050. The Act of 16 April 2004 on Nature Conservation defines the scope of protection for maintaining or restoring the proper state of protected objects in the Natura 2000 network. Sustainable forest management directly enhances the conservation of biodiversity and the sustainable use of natural resources.

(b) Assessment of adherence to the reporting guidelines

33. The ERT assessed the information reported in the NC7 of Poland and identified an issue relating to completeness. The finding is described in table 6.

Table 6

Findings on domestic and regional programmes and/or legislative arrangements and procedures related to the Kyoto Protocol from the review of the seventh national communication of Poland

| No. | <i>Reporting requirement, issue type and assessment</i> | <i>Description of the finding with recommendation</i> |
|-----|---|---|
| 1 | Reporting requirement specified in paragraph 37 Issue type: completeness Assessment: recommendation | <p>The ERT noted that Poland did not report in its NC7 on the procedures for addressing cases of non-compliance with the implementation of the Kyoto Protocol under domestic law, or on provisions to make information on legislative arrangements and enforcement and administrative procedures publicly accessible.</p> <p>During the review, Poland explained the procedures and referred to the Act of 17 July 2009 on the System to Manage the Emissions of Greenhouse Gases and Other Substances. The ERT found that Poland provided more detailed information on this issue in its NC6 and during the review.</p> <p>The ERT reiterates the recommendation made in the previous review report that Poland, in order to improve the completeness of its reporting, provide information on procedures for addressing cases of non-compliance under domestic law and on provisions to make information on legislative arrangements and enforcement and administrative procedures publicly accessible.</p> |

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

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

(a) Technical assessment of the reported information

34. Poland provided detailed information on its package of PaMs implemented, adopted and planned to fulfil its commitments under the Convention and the Kyoto Protocol. The Party outlined the key national PaMs that have an impact on its commitments to reduce GHG emissions by 2020.

35. The PaMs were reported by sector but not organized by gas. They are similar to those previously reported, except the Clean Transport Package, the Urban Building Code and the National Waste Management Plan 2022.

36. Poland reported on its policy context and legal and institutional arrangements in place to implement its commitments and monitor and evaluate the effectiveness of its PaMs. According to the Act of 17 July 2009 on the System to Manage the Emissions of Greenhouse Gases and Other Substances, KOBiZE is responsible for monitoring climate policy measures, preparing analyses, reviews and evaluations of policy implementation and developing tools to support the achievement of the goals of the emissions management system by modelling economic, financial and social impacts of climate policy.

37. Poland did not provide information on changes to its institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress made towards its target.

38. Poland gave priority to implementing the PaMs that make the most significant contribution to its emission reduction efforts. It did not provide information on how it believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals in accordance with the objective of the Convention, but it reported on how it periodically updates its PaMs to reduce greater levels of emissions and on the PaMs that have been discontinued since the previous submission.

39. Some PaMs are deferred to the regional and local level, such as the Urban Building Code and the National Waste Management Plan 2022. Some details on the role of regional and local authorities in the definition and implementation of PaMs were provided in the NC7.

40. The key overarching cross-sectoral policy in the EU is the 2020 climate and energy package, adopted in 2009, which includes the revised EU ETS directive,³ the ESD⁴ and the directives on renewable energy⁵ and carbon capture and storage.⁶ The package is complemented by two further legislative acts: the regulation on the 2020 targets for CO₂ emissions from cars⁷ and the directive on fuel quality.⁸ The regulation on the 2020 targets for CO₂ emissions from vans was adopted in 2011⁹ and the energy efficiency directive in 2012.¹⁰ These legislative acts are crucial for attaining the EU-wide emission reduction target by 2020 and are supplemented by two general programmes for environmental conservation, namely the 7th Environment Action Programme and the clean air policy package.

41. The EU ETS is a cap-and-trade system that operates in all 28 EU member States as well as in three non-EU countries (Iceland, Liechtenstein and Norway). It covers approximately 11,000 energy-intensive installations (mainly large point emissions sources such as thermal power plants, oil refineries and industrial facilities), which produce 40–45 per cent of the total GHG emissions of the EU. It is expected that the EU ETS 2020 target (a 21 per cent emission reduction below the 2005 level) will be achieved for the sectors covered. The third phase of the EU ETS started in 2013. Aviation activities were included in 2012 and the EU ETS now includes slightly over 500 aircraft operators flying within the European Economic Area in addition to stationary installations. Moreover, in addition to CO₂ emissions, the EU ETS in its third phase covers N₂O emissions from certain chemical industries (all nitric, adipic and glyoxylic acid production) and PFC emissions from aluminium production.

42. In the third trading period (2013–2020), substantial changes were made to the rules for the allocation of allowances. The allocation of free emission allowances was restricted to installations that do not generate electricity. The exception to this rule is the allocation of emission allowances under Article 10(c) of the EU ETS directive (2003/87/EC). Poland is one of the countries that meet the criteria for derogation under Article 10(c) and it can grant allowances to electricity producers. The total amount of EU emission allowances granted to Poland under Article 10(c) derogation is approximately 404.65 million (the maximum number of free emission allowances for seven years).

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

44. Poland reported on its own planned strategic initiatives with a longer time-horizon than 2020. During the review, Poland presented the main elements of its Energy Policy of Poland until 2050 initiative, which was first published in 2015 and is currently under revision. The initiative mainly targets energy security, alongside the competitiveness of the economy, increasing energy efficiency and mitigating negative impacts on the environment. The ERT noted that Poland stressed that all targets are to be met preferably by making use of internal energy assets. According to the initiative, Poland should progress towards a reduction in GHG emissions of 30 per cent by 2030 and 50 per cent by 2050 compared with the 2005 level. A 21 per cent share of RES in final energy consumption is foreseen by 2030. The share of coal in the production of electricity should decrease to 60 per cent by 2031 and 50 per cent by 2050. New nuclear power plant should be operational in 2031.

45. Among the mitigation actions that are critical for Poland's contribution to attaining the EU-wide 2020 emission reduction target are the actions affecting emissions from non-ETS sectors.

³ Directive 2009/29/EC amending directive 2003/87/EC.

⁴ Decision 406/2009/EC.

⁵ Directive 2009/28/EC.

⁶ Directive 2009/31/EC.

⁷ Regulation (EC) 443/2009.

⁸ Directive 2009/30/EC.

⁹ Regulation (EC) 510/2011.

¹⁰ Directive 2012/27/EU.

46. Poland introduced an array of national-level policies to achieve its targets under the ESD and domestic emission reduction targets. The key policies reported are those undertaken under the National Energy Efficiency Action Plan for Poland 2014 (e.g. a white certificate scheme and energy performance certificates for new and expanded buildings), the promotion of renewable energy (e.g. through a green certificate scheme and a minimum required share of biofuels in final energy consumption in transport) and the different packages of measures in the transport sector (road transport, rail transport, maritime transport, etc.).

47. Among the measures for which an evaluation of the expected reduction in GHG emissions was presented, the mitigation effect of renewable energy related measures (i.e. enhancing the use of RES, including biofuels) is the most significant, with an estimated reduction of 35,396.00 kt CO₂ eq in 2020. Other policies expected to deliver significant emission reductions are the National Energy Efficiency Action Plan for Poland 2014, with an estimated reduction of 16,026.00 kt CO₂ eq, and the National Waste Management Plan 2022, with an estimated reduction of 4,345.00 kt CO₂ eq, both in 2020.

48. In its NC7 Poland provided information on a variety of mechanisms to finance the implementation of mitigation actions. The National Fund for Environmental Protection and Water Management is the governmental agency that has managed public local and EU funds in the environmental protection sector since 1989. The Fund is also the operator of the National Green Investment Scheme and is thus responsible for managing the greening programme in its priority areas of promotion of energy efficiency, wider use of RES (including the necessary grid infrastructure) and sustainable development of urban transport. Support is provided through grants, loans, subsidies and investments. In addition, there are 16 voivodeship funds for environmental protection and water management in Poland that provide loans and grants for projects and are funded via payments arising from environmental charges and fines.

49. Poland highlighted the domestic mitigation actions that are under development, such as the Urban Building Code and the Clean Transport Package. Some mitigation actions have not yet been fully implemented and contain provisions that are still in the planning stage, such as the different packages for transport. Given that the projections show that Poland is on track to achieve its 2020 EU targets by means of existing mitigation actions alone, the planned actions are not critical for Poland to attain its 2020 emission reduction target. Table 7 provides a summary of the reported information on the PaMs of Poland.

50. As a member State of the EU, Poland monitors its progress towards achieving its emission target in accordance with the European Parliament and European Council monitoring mechanism regulation (525/2013) (repealing EU decision 280/2004/EC).

Table 7

Summary of information on policies and measures reported by Poland

| <i>Sector</i> | <i>Key PaMs</i> | <i>Estimate of mitigation impact by 2020 (kt CO₂ eq)</i> |
|--|--|---|
| Policy framework and cross-sectoral measures | EU ETS | 20 344 |
| | ESD | 12 111 |
| Energy | | |
| Transport | Clean Transport Package | NE |
| | Package for road transport | NE |
| Renewable energy | Enhancing the use of RES, including biofuels | 35 396 |
| Energy efficiency | National Energy Efficiency Action Plan for Poland 2014 | 16 026 |

| <i>Sector</i> | <i>Key PaMs</i> | <i>Estimate of mitigation impact by 2020 (kt CO₂ eq)</i> |
|---------------|---|---|
| IPPU | Use of fluorinated GHGs | NE |
| Agriculture | Rationalization of the use of fertilizers, including nitrogen fertilizers | NE |
| LULUCF | Afforestation of agricultural and non-agricultural land | 1 436 |
| Waste | National Waste Management Plan 2022 | 4 345 |

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

(b) Policies and measures in the energy sector

51. In 2015, final energy consumption in Poland was approximately 61 Mtoe, 5.17 per cent higher than in 2005. The most significant energy carriers in 2015 were petroleum-derived fuels, which accounted for 32 per cent of the total, coal and lignite, which accounted for 18 per cent, and gas, which accounted for 14 per cent. While oil and gas remained stable over the period 2005–2015, the share of coal and lignite decreased by 14.3 per cent in the same period (from 21 per cent in 2005 to 18 per cent in 2015). While coal and lignite are produced in Poland, domestic production of gas covers approximately 40 per cent of the national gas demand, the rest being imported from the Russian Federation and Ukraine; while oil production in Poland is negligible, with crude oil being imported from the Russian Federation, the Middle East and the North Sea.

52. **Energy supply.** The main target of the Energy Policy of Poland until 2050 initiative is to achieve energy security, alongside competitiveness of the State economy, increasing energy efficiency and, a high priority, mitigating negative impacts on the environment. All those targets are to be obtained preferably by making use of internal energy resources.

53. The main changes foreseen for energy supply in Poland are increasing the use of RES including biofuels in the transport sector, the entry into operation of nuclear power plants and the reduction of coal use in electricity production. According to the information provided in the NC7 and discussions during the review, the entry into operation of the nuclear power plants has been delayed to after 2030.

54. **Renewable energy sources.** The share of RES in total primary energy consumption was 12.7 per cent in 2015. Biomass accounts for the majority of RES (72.22 per cent), followed by liquid biofuels (10.78 per cent) and wind energy (10.76 per cent). The RES policy in Poland builds upon the national action plan for energy from renewable sources, which identifies the measures to be taken to achieve a national overall share of RES of 15 per cent of gross final energy consumption. With regard to RES used in transport, the minimum required contribution of biocomponents to transport fuels was determined in the Regulation of the Council of Ministers on National Indicative Targets for 2013–2018. According to Poland, these measures should lead to the avoidance of 35,396.00 kt CO₂ eq emissions in 2020.

55. **Energy efficiency.** The energy intensity of the Polish economy has been decreasing since 1989 but it remains higher than the EU average. The main legislation on energy efficiency is the National Energy Efficiency Action Plan for Poland 2014, which covers an array of measures targeting different users in different sectors of the economy. The estimated impact of the measures is a 16,026.00 kt CO₂ eq emission reduction by 2020.

56. **Residential and commercial sectors.** The main PaM affecting the residential and commercial sectors is derived from the EU legislation on the energy performance of buildings (directive 2010/31/EU). By 31 December 2020, all new buildings should be nearly net zero energy buildings. Furthermore, Poland adopted in 2015 a national plan to increase the number of low-energy buildings, defining low-energy buildings and actions for the administration to

promote low-energy buildings and to increase the share of renewable energy use in new and existing buildings.

57. The ERT noted that PaMs in this sector largely affect local authorities, which play the largest role in territorial planning and construction, and that the planned measure to replace inefficient heating systems in the residential sector with the latest available technologies could have a strong impact on the reduction of emissions from the sector.

58. The Urban Building Code (in the planning stage at the time of the review) represents the new framework for establishing a spatial policy favouring the reduction of emissions and adaptation to the effects of climate change by introducing spatial management principles to counteract the effects of climate change.

59. **Transport sector.** The Transport Development Strategy by 2020 (with perspective to 2030) sets out the objectives and direction of transport policy in Poland and includes provisions for reducing the environmental impact of transport, including reducing emissions. The ERT noted that Poland recognizes that economic growth will increase demand for transport significantly in the medium term. During the review, the Party described a projected increase in emissions from the transport sector of 52 per cent by 2030 with respect to 2005. Poland also explained that it foresees a stabilization of transport demand from 2040 onward. Transport measures were organized in the NC7 under several packages for each transport mode.

60. The package for road transport includes the modernization and construction of road infrastructure in order to abate road traffic, the improvement of energy efficiency and reduction of road vehicle emissions, the promotion of public transport, measures for optimal traffic management, behavioural measures addressing drivers, and measures supporting the development of cycling.

61. The package for rail transport aims at increasing the competitiveness of this transport mode with respect to road transport. It includes the modernization of railway infrastructure and rolling stock for passenger and freight transport, the promotion of public rail transport and the modernization of traffic management systems.

62. The packages for domestic and international aviation include the improvement of operational efficiency, certificates for aircraft and optimization of flights and the modernization of the fleet.

63. The package for inland waterway transport aims to transfer road and air merchandise transport to inland waterway transport through the modernization of waterways and of the inland navigation fleet, as well as the introduction of stricter requirements for pollutant emissions.

64. The package for maritime shipping introduces fuel requirements and an energy efficiency indicator and aims at developing and modernizing harbour infrastructure, including intermodal infrastructure and access to the harbour from land and sea.

65. A very recent response measure of Poland is the Clean Transport Package, endorsed at the beginning of 2017, which introduced three initiatives for the decarbonization of the transport sector: the Electromobility Development Plan in Poland (areas and stages of electromobility development, with the proposal of intervention tools), the national framework for alternative fuel infrastructure development (objectives and tools for infrastructure development) and the establishment of the Low-Carbon Transport Fund (a financial instrument supporting producers and purchasers of vehicles powered by alternative fuels).

66. The NC7 includes information on how Poland 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. In particular, with regard to aviation, Poland put forward measures such as improved operational efficiency, aircraft certificates and flight optimization. With regard to maritime shipping, Poland has transposed the requirements of the International Convention for the Prevention of Pollution from Ships (such as the energy efficiency design index for new ships, and the ship energy efficiency management plan) into national law.

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

67. **Industrial processes.** The only measure reported in the NC7 for IPPU is related to the use of fluorinated GHGs based on the EU implementing regulation 517/2014. The measure includes an innovative system to manage data on fluorinated gases based on the Central Register of Equipment Operators and Database of Reports managed by the Ozone Layer and Climate Protection Unit of the Industrial Chemistry Research Institute in Warsaw. The ERT noted that this measure could be put forward as an innovative measure effectively replicable by other Parties.

68. **Agriculture.** The European Agricultural Fund for Rural Development is the overarching EU framework for agricultural policy in Poland, including environmental protection and climate-related measures. The strategy for sustainable rural development, agriculture and fisheries for 2012–2020 defines a long-term vision for rural development and the fisheries sector in Poland. The instrument for the operationalization of agricultural policy is the National Strategic Plan for Rural Development.

69. The main measures implemented in this sector in Poland include the reduction of the use of fertilizers (rationalization of the use of fertilizers, including nitrogen fertilizers), the protection of soil through an array of measures (sustainable management of agricultural land, support for adaptation and reduction measures in agricultural holdings), support for organic farming (sustainable management of agricultural land, support for adaptation and reduction measures in agricultural holdings) and the reduction of emissions from livestock manure (improvement of monogastric livestock systems, reduction of CH₄ emissions from livestock, elimination of gaseous pollutants emitted from livestock buildings). The ERT noted that afforestation of agricultural and non-agricultural land, estimated to avoid 1,435.79 kt CO₂ eq by 2020, and restoring the forest production potential destroyed by disasters and implementing preventive measures are included in the NC7 under the agriculture sector and not the LULUCF or forestry sector.

70. **LULUCF and forestry.** The LULUCF sector was a net sink of 28,844.99 kt CO₂ eq in Poland in 2015 and net GHG removals have increased by 3,114.54 kt CO₂ eq since 1990 (by 12,038.16 kt CO₂ eq since the base year (1988)). This trend was driven mainly by the afforestation programme of the Polish State Forests organization. Forestry policy in Poland aims at ensuring the sustainability and multifunctionality of forests and at increasing forest resources. The main PaMs in the forestry sector are related to the rationalization of forest management, incentives and actions supporting afforestation, and the protection of the ecological stability of forests. The State Forestry Policy places strong emphasis on afforestation, with the objective of increasing national forest cover to 30 per cent by 2020 and 33 per cent by 2050 gradually through afforestation of unprofitable land for agriculture, and the achievement of a spatially optimal forest structure by protecting and exploiting the productive potential of habitats.

71. **Waste management.** The National Waste Management Plan 2022 is the main strategic document setting out the direction of the waste management sector. It contains objectives and directions for waste management and detailed measures to achieve those objectives in line with the waste hierarchy laid down in the EU waste framework directive. Poland set a target to reach by 2020 a level of recycling and reuse of the four fractions (paper, metals, plastics and glass) of at least 50 per cent by weight. By 2020, the amount of biodegradable municipal waste should be reduced so that less than 35 per cent by mass of the waste generated in 1995 is stored. Targets for recovery and recycling of packaging waste were set at 60 and 56 per cent, respectively. To reach those targets Poland put forward measures such as promoting waste and waste-free technologies, environmentally friendly waste processing (e.g. recycling), raising fees for storing waste containing biodegradable fractions, increasing recycling, preparing for reuse and recovery by other methods and reducing the amount of biodegradable municipal waste transferred to landfill. Overall, the National Waste Management Plan 2022 is foreseen to achieve emission reductions of 4,345.00 kt CO₂ eq by 2020. The ERT noted that in CTF table 3 an emission reduction value for 2020 was not reported, but it was included in table 3 in annex 1 to the NC7. The ERT also noted that the National Waste Management Plan 2022 was not flagged in the NC7 as included under the WEM scenario but during the review it was explained as such.

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

72. In the NC7 Poland reported limited 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. Poland reported on its provision of aid for climate change activities in developing countries, including projects related to climate change, environmental protection and energy. In particular, the NC7 describes Poland’s allocation of funds to promote technological development in developing countries. An example is the GreenEvo – Green Technology Accelerator project, which aims to create favourable conditions for the dissemination of environmental protection technologies.

73. In Poland, policies, strategies, plans and programmes in all fields of the economy that may have a significant environmental impact must undergo a strategic environmental assessment (per the Act of 3 October 2008 on the Provision of Information on the Environment and its Protection, Public Participation in Environmental Protection and Environmental Impact Assessment), which includes assessment of the possibility of transboundary impact, which the authority is obliged by law to monitor. Poland pointed out during the review that for PaMs based on EU legislation the European Commission prepares extensive impact assessments, including of transboundary effects.

(e) Assessment of adherence to the reporting guidelines

74. The ERT assessed the information reported in the NC7 of Poland and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 8.

Table 8

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

| No. | <i>Reporting requirement, issue type and assessment</i> | <i>Description of the finding with recommendation or encouragement</i> |
|-----|---|--|
| 1 | Reporting requirement ^a specified in paragraph 14 Issue type: completeness Assessment: encouragement | The ERT noted that in the description of the PaMs included in the NC7 Poland did not indicate the innovative character of its actions or, in particular, if any PaMs would be effectively replicable by other Parties. During the review, some PaMs were revealed as innovative and effectively replicable, such as the holistic approach of the National Fund for Environmental Protection and Water Management in financing green projects, the registry used for data collection and compliance with the regulation on fluorinated gases, and the registry used for compiling information on the energy performance of buildings and heating systems data for buildings. The ERT noted that such information was not provided in the NC6 either, and encourages Poland to clearly indicate any PaMs that are innovative and/or effectively replicable by other Parties. |
| 2 | Reporting requirement ^a specified in paragraph 16 Issue type: completeness Assessment: encouragement | The ERT noted that Poland did not provide information on policies and practices that encourage activities that lead to greater levels of anthropogenic GHG emissions than would otherwise occur. During the review, several examples of policies that could indirectly increase GHG emissions were pointed out. The ERT reiterates the encouragement made in the previous review report that Poland report on policies and practices that encourage activities that lead to greater levels of anthropogenic GHG emissions than would otherwise occur. |
| 3 | Reporting requirement ^a specified in paragraph 17 | The ERT noted that Poland’s NC7 presents mitigation actions and the GHGs that they affect organized by sector but not by gas. |

| No. | <i>Reporting requirement, issue type and assessment</i> | <i>Description of the finding with recommendation or encouragement</i> |
|-----|---|--|
| 4 | <p>Issue type: transparency</p> <p>Assessment: recommendation</p> <p>Reporting requirement^a specified in paragraph 21</p> <p>Issue type: transparency</p> <p>Assessment: encouragement</p> | <p>During the review this point was raised and some ways to include a presentation by gas were discussed.</p> <p>The ERT reiterates the recommendation made in the previous review report that Poland enhance the transparency of its reporting by organizing the reporting of mitigation actions by gas, for example by organizing mitigation actions first by sector and then by GHG affected.</p> <p>The ERT noted that Poland included only limited information on how progress of PaMs to mitigate GHG emissions is monitored and evaluated over time.</p> <p>During the review, Poland further described the role of KOBiZE in evaluating PaMs and following up on emission reductions was illustrated in more detail.</p> <p>The ERT reiterates the encouragement made in the previous review report that Poland increase the transparency of its reporting by providing a description of the monitoring and evaluation of the progress of PaMs, by, for example, including a separate section in the next NC specifically on this issue.</p> |
| 5 | <p>Reporting requirement^a specified in paragraph 23</p> <p>Issue type: transparency</p> <p>Assessment: encouragement</p> | <p>The ERT noted that Poland did not include in the NC7 an evaluation of emission reductions for all PaMs. The ERT also noted that Poland did not report in the NC7 estimates of mitigation impact for some measures that were evaluated in the NC6 (for example, the package for road transport).</p> <p>During the review, Poland explained that for some policies it was not possible to update the estimates in due time. The ERT noted that Poland could have reported the previous estimates (with the appropriate caveat) or explained the reasons for not reporting the estimates of mitigation impact.</p> <p>The ERT reiterates the encouragement made in the previous review report that Poland report quantitative estimated of the impacts of individual PaMs or collections of PaMs or to clearly explain why this may not be possible due to its national circumstances.</p> |
| 6 | <p>Reporting requirement^a specified in paragraph 23</p> <p>Issue type: transparency</p> <p>Assessment: encouragement</p> | <p>The ERT noted that Poland's NC7 presents the emission reduction potential of several PaMs for 2020 but the estimation methods were not reported.</p> <p>The ERT reiterates the encouragement made in the previous review report that Poland add a brief description of the methods used for evaluating emission reductions in order to enhance the transparency of its reporting.</p> |
| 7 | <p>Reporting requirement^a specified in paragraph 24</p> <p>Issue type: transparency</p> <p>Assessment: encouragement</p> | <p>The ERT noted that Poland included in the NC7 only limited information on the costs of PaMs, mainly indirectly through the description of PaMs' financing mechanisms. Furthermore, very little information was provided on non-GHG mitigation benefits of PaMs, such as health benefits, and how the policy or measure interacts with other PaMs at the national level.</p> <p>During the review, Poland made reference to impact assessments conducted at the EU level for PaMs related to EU legislation and to impact assessments conducted at the country level for several measures, although these were only qualitative assessments.</p> <p>The ERT reiterates the encouragement made in the previous review report that Poland report information on the cost, benefits and interactions of PaMs.</p> |
| 8 | <p>Reporting requirement^a specified in paragraph 25</p> <p>Issue type: transparency</p> <p>Assessment: recommendation</p> | <p>The ERT noted that Poland reported on how it believes its future PaMs could modify longer-term trends in anthropogenic GHG emissions and removals (consistent with the objective of the Convention) but did not provide clear information on how its currently reported PAMs modify longer-term trends. Poland reported some information on the effect of PaMs on long-term emission trends based on the results of studies conducted by McKinsey & Company and the Institute for Structural Research, which assessed the mitigation potential of various PaMs by 2030 and 2050, respectively. The report compiled by the Institute for Structural Research concluded that GHG emissions in Poland could be reduced by 55 per cent by 2050 at</p> |

| No. | Reporting requirement, issue type and assessment | Description of the finding with recommendation or encouragement |
|-----|--|--|
| 9 | <p>Reporting requirement^b specified in paragraph 36</p> <p>Issue type: transparency</p> <p>Assessment: recommendation</p> | <p>negative cost through the implementation of a range of PaMs. The ERT noted that this information relates to PaMs that could be implemented by Poland but not to how Poland believes the reported PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals in accordance with the objective of the Convention. Thus, the information does not sufficiently fulfil the relevant requirement of the UNFCCC reporting guidelines on NCs.</p> <p>During the review, the ERT pointed out that the information presented in chapter 5.4.3 of the NC7 (assessment of the aggregate effect of PaMs) could also be used as a basis for reporting on PaMs modifying longer-term trends in anthropogenic GHG emissions and removals as in fact, the figures provided are an evaluation of PaMs' impact on the longer-term trends presented in the report.</p> <p>The ERT reiterates the recommendation made in the previous review report that Poland provide in its next NC information on the impact of its PaMs on long-term GHG emission trends.</p> <p>The ERT noted that in the NC7 Poland reported limited 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. Poland reported on its provision of aid for climate change activities in developing countries, but not on specific measures to minimize the effects of the PaMs implemented.</p> <p>During the review Poland explained that policies, strategies, plans and programmes in all fields of the economy that may have a significant environmental impact must undergo a strategic environmental assessment (per the Act of 3 October 2008 on the Provision of Information on the Environment and its Protection, Public Participation in Environmental Protection and Environmental Impact Assessment), which includes assessment of the possibility of transboundary impact, which the authority is obliged by law to monitor. Poland pointed out that for PaMs based on EU legislation the European Commission prepares extensive impact assessments, including of transboundary effects.</p> <p>The ERT reiterates the recommendation made in the previous review report that Poland report 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, effects on international trade, and social, environmental and economic impacts on other Parties, especially developing country Parties.</p> |

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

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

^b Paragraph number listed under reporting requirement refers to the relevant paragraph of the reporting guidelines for supplementary information.

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

1. Projections overview, methodology and results

(a) Technical assessment of the reported information

75. Poland reported updated projections for 2020, 2025, 2030, 2035 and 2040 relative to actual inventory data for 2015 under the WEM scenario. The WEM scenario reported by Poland includes implemented and adopted PaMs. During the review, the ERT took note of an updated data set for 2016–2019 for sectors under the ESD.

76. The ERT noted that Poland increased the transparency of its reporting by explicitly stating which PaMs are included in the WEM scenario. The Party provided a definition of

the WEM scenario, which, according to the NC7, includes policies such as the EU ETS, enhancing the use of RES (to a share of 12 per cent of final energy consumption by 2020), the nuclear power programme (to be launched in 2025), the National Energy Efficiency Action Plan for Poland 2014 and different packages of measures in the transport sector.

77. The projections are presented on a sectoral basis, using the same sectoral categories as those used in the reporting on mitigation actions, and on a gas-by-gas basis for CO₂, CH₄, N₂O, PFCs, HFCs and SF₆ (treating PFCs and HFCs collectively in each case) as well as NF₃ (which is, however, not occurring) for 1990–2040. The projections are also provided in an aggregated format for each sector as well as for a Party total using global warming potential values from the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.

78. Emission projections related to fuel sold to ships and aircraft engaged in international transport were reported separately and not included in the totals. Poland reported in detail on factors and activities affecting emissions for each sector.

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

79. The methodology used for the preparation of the projections is almost identical to that used for the preparation of the emission projections for the NC6. During the review, Poland explained the methodological changes made since the NC6 and BR2, including a change in the models used to develop the forecasts for fuel combustion and electricity generation. The WISE Microfoundations-based Energy and Emission Projection model and WISE Polish Energy Sector Simulation Analytics toolbox replaced the Model for Analysis of Energy Demand end-use model that was used for the NC6 to generate projections of energy demand.

80. During the review, at the request of the ERT, Poland presented the status of development of a new modelling framework (Centre for Climate and Energy Analyses, or CAKE), including a large-scale computable general equilibrium model (called PLACE) as a core model and sectoral models for energy, transport and agriculture as satellite models. The development is expected to be finalized in 2020.

81. To prepare its projections, Poland relied on key underlying assumptions of the following: population trends, GDP growth rate, energy consumption, electricity production, cattle production, municipal solid waste generation and clinker production, among others. The variables and assumptions were reported in CTF table 5.

82. The assumptions were updated on the basis of the most recent economic developments known at the time of the preparation of the projections. The structure of the Polish economy is expected to gradually become similar to the structure of Western European economies, while retaining a relatively large role for industry and construction; consequently, the energy demand of the manufacturing sector will remain high. It is assumed that the primary energy demand of households will drop up until 2040 owing to the increased energy efficiency of buildings and appliances. The transport sector is assumed to benefit from the increase in fuel efficiency of heavy-goods vehicles and passenger cars and also from the promotion of hybrid cars. However, freight transport will further develop and is expected to level out some of the efficiency gains, leading to crude oil demand at the current level in 2030. Coal-fired power plants are assumed to remain the main source of electricity over the entire forecast period. Narrowing the expected gap between electricity production and demand will require investment in low-carbon technologies. Economy-wide, the importance of the agriculture sector is assumed to decrease and the share of services assumed to increase.

83. The main sources of assumptions for the projections were a 2013 forecast of fuel and energy demand until 2050 and the related 2014 analysis for assessing the effect of EU climate and energy policy on Poland's energy policy. For GHG emissions from road transport, prognostic assumptions were taken from a 2017 expert forecast of changes in the activity of the road transport sector. The National Waste Management Plan 2022 and the voivodeship waste management plans provided forecast quantities of generated, solid and incinerated waste.

(c) Results of projections

84. The projected emission levels under different scenarios and information on the Kyoto Protocol target and the quantified economy-wide emission reduction target are presented in table 9 and the figure below.

Table 9

Summary of greenhouse gas emission projections for Poland

| | <i>GHG emissions (kt CO₂ eq per year)</i> | <i>Changes in relation to base-year^a level (%)</i> | <i>Changes in relation to 1990 level (%)</i> |
|--|--|---|--|
| Kyoto Protocol base year ^b | 580 020.01 | NA | |
| Quantified emission limitation or reduction commitment under the Kyoto Protocol (2013–2020) ^c | Not available yet | NA | –20.0 |
| Quantified economy-wide emission reduction target under the Convention ^d | Not available yet | NA | –20.0 |
| Inventory data 1990 ^e | 467 881 | NA | NA |
| Inventory data 2015 ^e | 385 843 | –17.5 | –17.5 |
| WEM projections for 2020 ^f | 387 993 | –17.1 | –17.1 |
| WEM projections for 2030 ^f | 360 933 | –22.9 | –22.9 |

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

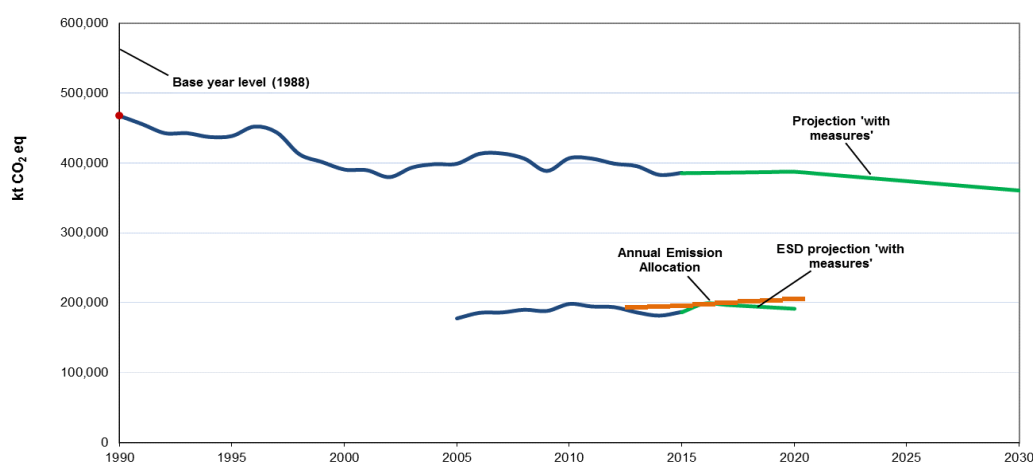
^b The Kyoto Protocol base-year level of emissions is provided in the initial review report, contained in document FCCC/IRR/2016/POL.

^c The Kyoto Protocol target for the second commitment period (2013–2020) is a joint target of the EU and its 28 member States and Iceland. The target is to reduce emissions by 20 per cent compared with the base-year (1990) level by 2020. The target for non-ETS sectors is +14 per cent for Poland under the ESD. The value presented in this line is based on annex II to European Commission decision 2013/162/EU and as adjusted by Commission implementing decision 2013/634/EU that established the assigned amount for the EU member States and divided by eight years to calculate the annual emission level.

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

^e From Poland’s BR3 CTF table 6.

^f From Poland’s NC7 and/or BR3.

Greenhouse gas emission projections reported by Poland

Sources: (1) data for the years 1990–2015: Poland’s 2017 annual inventory submission, version 1.0; total GHG emissions excluding LULUCF; (2) data for the years 2015–2030: Poland’s NC7 and BR3; total GHG emissions excluding LULUCF. During the review, Poland provided an updated projected data set for non-ETS sector emissions between 2016 and 2019.

85. Poland's total GHG emissions excluding LULUCF in 2020 and 2030 are projected to be 387,993.25 and 360,933.03 kt CO₂ eq, respectively, under the WEM scenario, which represents a decrease of 17.1 and 22.9 per cent, respectively, below the 1990 level. The 2020 projections suggest that Poland is expecting to continue contributing to the achievement of the EU target under the Convention.

86. Poland's target for sectors under the ESD is to limit its emission growth to 14 per cent above the 2005 level by 2020. Poland's AEAs, which correspond to its national emission target for sectors under the ESD, change linearly from 193,642.82 kt CO₂ eq in 2013 to 205,181.20 kt CO₂ eq for 2020. According to the projections under the WEM scenario, emissions from sectors under the ESD are estimated to reach 191,701.73 kt CO₂ eq by 2020. The projected level of emissions under the WEM scenario is 7.03 per cent below the AEAs for 2020. The ERT noted that this suggests that Poland expects to meet its 2020 target under the WEM scenario.

87. In 2015, Poland's GHG emissions under the ESD were below its national annual emission target (i.e. AEAs for 2015). According to updated ESD data for 2016–2019 provided by Poland during the review, the ERT noted that in 2016 emissions increased slightly above the level of the target trajectory (i.e. AEAs for 2016). Poland explained that the update between 2016 and 2019 was a result of adjusted data in the national energy balance with regard to fuel consumption for road transport between 2015 and 2016. The ERT notes that Poland may not fully achieve the significant surplus by 2020 expected under the WEM scenario. The ERT further noted that the WEM scenario was developed on the basis of 2015 inventory data and has not yet been updated considering the adjustments made for 2016 and 2019.

88. Poland presented the WEM scenario by sector for 2020 and 2030, as summarized in table 10.

Table 10

Summary of greenhouse gas emission projections for Poland presented by sector

| Sector | GHG emissions and removals (kt CO ₂ eq) | | | | | Change (%) | | | | |
|---|--|----------------|-----|----------------|------|--------------|-----------|--------------|-----------|--|
| | 1990 | 2020 | | | 2030 | | 1990–2020 | | 1990–2030 | |
| | | WEM | WAM | WEM | WAM | WEM | WAM | WEM | WAM | |
| Energy (not including transport) | 361 504 | 262 018 | – | 228 114 | – | –27.5 | – | –36.9 | – | |
| Transport | 20 497 | 53 843 | – | 56 792 | – | 162.7 | – | 177.1 | – | |
| Industry/industrial processes | 22 693 | 29 181 | – | 31 903 | – | 28.6 | – | 40.6 | – | |
| Agriculture | 47 156 | 31 029 | – | 32 320 | – | –34.2 | – | –31.5 | – | |
| LULUCF | –25 730 | –21 820 | – | –13 796 | – | –15.2 | – | –46.4 | – | |
| Waste | 16 031 | 11 922 | – | 11 803 | – | –25.6 | – | –26.4 | – | |
| Total GHG emissions without LULUCF | 467 881 | 387 993 | – | 360 933 | – | –17.1 | – | –22.9 | – | |

Source: Poland's BR3 CTF table 6.

89. According to the projections reported for 2020 under the WEM scenario, the most significant emission reductions are expected to occur in the sector energy (excluding transport), followed by agriculture, amounting to projected reductions of 99,486.00 kt CO₂ eq (27.5 per cent) and 16,127.00 kt CO₂ eq (34.2 per cent) between 1990 and 2020, respectively. Conversely, GHG emissions from transport are projected to increase by 33,356 kt CO₂ eq or 162.7 per cent. Industry and industrial process emissions are estimated to be 6,488 kt CO₂ eq or 28.6 per cent higher in 2020 than in 1990.

90. The pattern of projected emissions reported for 2030 under the same scenario remains the same. The main emission reductions between 2020 and 2030 are foreseen to occur in the

energy sector (without transport), amounting to 133,390.00 kt CO₂ eq or 36.9 per cent by 2030 in comparison with the 1990 level, while emissions from the transport sector are expected to increase by 36,295 kt CO₂ eq or 177.1 per cent above the 1990 level. The emission decrease in the energy sector without transport will be driven mainly by the changes in the energy mix and energy demand; in particular, the reduction of the combined share of coal and lignite used for primary energy, from 50.0 per cent in 2020 to 39.4 per cent in 2030, as well as the increase in the share of RES in final energy consumption, from 12 per cent in 2020 to 14 per cent in 2030, and the launch of the nuclear programme in 2025.

91. The ERT noted that Poland's nuclear programme was planned to be launched in 2020 according to its NC6, 2025 according to its NC7 and 2031 according to a presentation made during the review providing additional information on the latest update of Poland's energy policy until 2050. Poland explained that delays on the implementation of the programme are not yet reflected in the energy projections

92. Poland presented the WEM scenario by gas for 2020 and 2030, as summarized in table 11.

Table 11

Summary of greenhouse gas emission projections for Poland presented by gas

| Gas | GHG emissions and removals (kt CO ₂ eq) | | | | | Change (%) | | | |
|---|--|----------------|----------|----------------|----------|--------------|----------|--------------|----------|
| | 2020 | | 2030 | | | 1990–2020 | | 1990–2030 | |
| | 1990 | WEM | WAM | WEM | WAM | WEM | WAM | WEM | WAM |
| CO ₂ | 376 040 | 314 092 | – | 286 338 | – | –16.5 | – | –23.9 | – |
| CH ₄ | 64 387 | 45 428 | – | 44 641 | – | –29.4 | – | –30.7 | – |
| N ₂ O | 27 313 | 20 320 | – | 20 929 | – | –25.6 | – | –23.4 | – |
| HFCs | 0 | 8 095 | – | 8 962 | – | NA | – | NA | – |
| PFCs | 142 | 12 | – | 10 | – | –91.9 | – | –92.9 | – |
| SF ₆ | 0 | 47 | – | 53 | – | NA | – | NA | – |
| NF ₃ | 0 | 0 | – | 0 | – | NA | – | NA | – |
| Total GHG emissions without LULUCF | 467 881 | 387 993 | – | 360 933 | – | –17.1 | – | –22.9 | – |

Source: Poland's BR3 CTF table 6.

93. For 2020 the most significant reductions are projected for CO₂ emissions, by 61,948.00 kt CO₂ eq (16.5 per cent) between 1990 and 2020, followed by CH₄ and N₂O emissions with reductions of 18,959 kt CO₂ eq (29.4 per cent) and 6,993 kt CO₂ eq (25.6 per cent), respectively. Reductions in CO₂ are expected to reach 23.9 per cent or 89,702 kt CO₂ eq by 2030 compared with the 1990 level.

(d) Assessment of adherence to the reporting guidelines

94. The ERT assessed the information reported in the NC7 of Poland and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 12.

Table 12

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

| No. | <i>Reporting requirement, issue type and assessment</i> | <i>Description of the finding with recommendation or encouragement</i> |
|-----|--|---|
| 1 | Reporting requirement specified in paragraph 28 Issue type: completeness Assessment: encouragement | The NC7 did not include a WAM or a ‘without measures’ scenario in addition to the WEM scenario. During the review, Poland explained that according to the latest projections Poland would be able to meet its 2020 target with existing measures and therefore did not provide a WAM scenario. The ERT reiterates the encouragement made in the previous review report for Poland to provide a WAM and ‘without measures’ scenario or clearly explain in its next submission why such scenarios were not developed. |
| 2 | Reporting requirement specified in paragraph 35 Issue: completeness Assessment: encouragement | The NC7 did not include emission projections for indirect GHGs such as carbon monoxide, nitrogen oxides, non-methane volatile organic compounds or sulfur oxides. During the review, the Party explained that such emission projections were developed and reported under the national emission ceiling directive. The ERT reiterates the encouragement made in the previous review report that Poland increase the completeness of its reporting by providing in the NC emission projections for indirect GHGs. |
| 3 | Reporting requirement specified in paragraph 43 Issue type: completeness Assessment: encouragement | The NC7 did not include, for each model and forecasting approach, the type (e.g. top-down model, bottom-up model, accounting model or expert judgment) and its main characteristics (e.g. original purpose of the model, strengths and weaknesses of the approach, how the approach accounts for potential overlaps or synergies that may exist between different PaMs). During the review, Poland provided additional information, elaborating on the methodology used for estimating future GHG emissions on the basis of official forecasts of activity data provided by relevant ministries and emission factors consistent with the sectoral methodologies used in the national GHG inventory. The ERT reiterates the encouragement made in the previous review report that Poland enhance the completeness and transparency of its reporting by providing additional relevant information in its next submission. |
| 4 | Reporting requirement specified in paragraph 30 Issue type: completeness Assessment: encouragement | The NC7 did not include a sensitivity analysis for the projections. During the review, Poland explained that a comprehensive sensitivity analysis exploring four different policy scenarios had been developed for the NC6. An update of the study was not available and a sensitivity analysis was therefore not reported in Poland’s NC7. The ERT reiterates the encouragement made in the previous review report that Poland improve the completeness of its reporting by providing a sensitivity analysis in its next submission. |

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

2. Assessment of the total effect of policies and measures

(a) Technical assessment of the reported information

95. The ERT noted that in its NC7 Poland presented an approximate total effect of its implemented and adopted PaMs. Information was presented in terms of GHG emission reductions in 2010, 2020, 2030 and 2040.

96. During the review, Poland explained in more detail the methodology used to assess the aggregate effect of its implemented and adopted PaMs. The total emission reduction

observed between the base year (1988) and 2010 was used as an approximate baseline to calculate the aggregate reduction effects for 2020, 2030 and 2040. 2010 was considered an appropriate baseline since many currently implemented and adopted PaMs aimed at improving energy efficiency, increasing the use of RES, diversifying fuel structure in the energy sector and implementing modern technologies were expected to gain momentum after 2010.

97. Poland reported that the total estimated effect in 2020 of its adopted and implemented PaMs is 18,979.90 kt CO₂ eq. Sectoral details were not presented. Table 13 provides an overview of the total effect of PaMs as reported by Poland. The ERT noted that Poland meeting its targets will depend largely on the effects of PaMs targeting emissions from the energy sector.

Table 13
Projected effects of Poland's planned, implemented and adopted policies and measures by 2020 and 2030

| Sector | 2020 | | 2030 | |
|------------------------------|--|--|--|--|
| | Effect of implemented and adopted measures (kt CO ₂ eq) | Effect of planned measures (kt CO ₂ eq) | Effect of implemented and adopted measures (kt CO ₂ eq) | Effect of planned measures (kt CO ₂ eq) |
| Energy (without transport) | – | – | – | – |
| Transport | – | – | – | – |
| Industrial processes | – | – | – | – |
| Agriculture | – | – | – | – |
| Land-use change and forestry | – | – | – | – |
| Waste management | – | – | – | – |
| Total | 18 980 | NE | 46 040 | NE |

Source: Poland's NC7 and additional information provided during the review.

Note: The total effect of implemented and adopted PaMs by 2020 is defined as the emission reduction effect compared with the 2010 baseline (i.e. zero). The effect by 2030 is the cumulative effect of implemented and adopted PaMs by 2020 and 2030.

(b) Assessment of adherence to the reporting guidelines

98. The ERT assessed the information reported in the NC7 of Poland and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 14.

Table 14
Findings on the assessment of the total effect of policies and measures from the review of the seventh national communication of Poland

| No. | Reporting requirement, issue type and assessment | Description of the finding with recommendation or encouragement |
|-----|---|---|
| 1 | Reporting requirement specified in paragraph 40 Issue type: completeness Assessment: recommendation | The NC7 did not include information on the GHG emissions avoided or sequestered by gas (on a CO ₂ eq basis) for 1995 and 2000 as required (not cumulative savings). The aggregated reduction of GHG emissions in 2010, 2020, 2030 and 2040 in comparison to the base year and 2010 were illustrated as height of bars in a chart, but the actual values were not provided. During the review the ERT took note of a summary table of the estimated values for the total aggregated effects. The ERT recommends that Poland in its next submission provide estimates of the total effect of its PaMs by gas (on a CO ₂ eq basis) for 1995 and 2000 in accordance with the 'with measures' definition, compared with a situation without such PaMs. |

| No. | Reporting requirement, issue type and assessment | Description of the finding with recommendation or encouragement |
|-----|--|--|
| 2 | Reporting requirement specified in paragraph 40 Issue type: completeness Assessment: encouragement | The NC7 did not include information on the GHG emissions avoided or sequestered by gas (on a CO ₂ eq basis) for 2005, 2010, 2015 and 2020 (not cumulative savings). The aggregated reduction of GHG emissions in 2010, 2020, 2030 and 2040 in comparison with the base year and 2010 were illustrated as height of bars in a chart, but the actual values were not provided. During the review, the ERT took note of a summary table of the estimated values for the total aggregated effects. The ERT encourages Poland in its next submission to provide estimates of the total effect of its PaMs by gas (on a CO ₂ eq basis) for 2005, 2010, 2015 and 2020 in accordance with the ‘with measures’ definition, compared with a situation without such PaMs. |
| 3 | Reporting requirement specified in paragraph 41 Issue type: transparency Assessment: encouragement | The NC7 did not include sufficiently clear information on the methodology used to estimate the total effect of PaMs to allow the ERT to obtain a basic understanding of the approach. Information about the assumed base year and why this base year was chosen was missing. During the review, Poland explained in more detail the methodology used to assess the aggregate effect of its implemented and adopted PaMs. The ERT encourages Poland to enhance the transparency of the information reported on the methodology used to estimate the total effect of the reported PaMs. |

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

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

(a) **Technical assessment of the reported information**

99. In the NC7 Poland provided information on how its use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action, although it did not elaborate on supplementarity as such. The ERT noted that Poland does not plan to use the market-based mechanisms to meet its Kyoto Protocol target.

100. The emission reductions due to the EU ETS are considered as being due to domestic action, except for purchases of certified emission reductions and emission reduction units. The Act of 17 July 2009 on the System to Manage the Emissions of Greenhouse Gases and Other Substances enables Poland to use three mechanisms: joint implementation, the CDM and emissions trading. There were 38 joint implementation projects approved in Poland, which generated 21.1 Mt verified GHG emission reductions by 2012. No joint implementation project has been approved since 2012 owing to the delay in the entry into force of the Doha Amendment.

101. Poland, despite having principles and procedures for the implementation of CDM projects, has not implemented any such projects. Poland meets the requirements with no objection from the Compliance Committee enforcement branch for emissions trading and has been actively involved in the EU ETS. For the period 2013–2020, EU ETS legislation specifies the maximum quantity of eligible international credits that each installation can use. Installations that were already within the scope of the EU ETS in the period 2008–2012 may use credits in the period 2008–2020 up to a limit of 11 per cent of their allocation for 2008–2012. The number of Polish installations and aircraft operators participating in the EU ETS in 2016 was 727 and 5, respectively, resulting in total GHG emissions of 198,801,672 t CO₂ eq (198,051,726 t CO₂ eq from installations and 749,946 t CO₂ eq from aviation).

(b) **Assessment of adherence to the reporting guidelines**

102. The ERT assessed the information reported in the NC7 of Poland and recognized that the reporting on supplementarity relating to the mechanisms pursuant to Articles 6, 12 and

17 of the Kyoto Protocol is complete and transparent. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

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

103. Poland is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3, 4 and 5, of the Convention. However, Poland provided information in the NC7 on its provision of support to developing country Parties. The ERT commends Poland for reporting such information and suggests that it continue to do so in future NCs.

104. Poland is carrying out a number of supporting activities, recognizing and understanding the need to support sustainable development in developing countries and transition economies. As an EU member State, the majority of aid is allocated through contributions to the EU general budget. Poland's financial contribution to climate change related activities in this reporting period amounted to approximately EUR 14.7 million, aiming at scientific and technology research, building resilience to natural disasters, dissemination of innovative energy-efficient technologies and development of renewable energy sources.

E. Vulnerability assessment, climate change impacts and adaptation measures

1. Technical assessment of the reported information

105. In the NC7 Poland provided the required information on the expected impacts of climate change in the country; the adaptation policies covering regional, sectoral and cross-sectoral vulnerabilities and considerations; and an outline of the action taken to implement Article 4, paragraph 1(b) and (e), of the Convention with regard to adaptation. The Party provided a description of climate change vulnerability and impacts in relation to water resources, agriculture, forestry, biodiversity and ecosystems, health, coastal zones, construction industry, transport, power engineering (energy sector), spatial management, and cities and towns. It highlighted the adaptation response actions taken and planned at different levels of government, in response to a recommendation made in the previous review report; however, the status of the majority of the adaptation measures was not clearly reported in the NC7.

106. In the previous review report Poland was encouraged to provide more transparent information on why and how the above-mentioned sectors were identified as vulnerable to climate change. In its NC7 Poland reported the major climate risks (floods, drought, heat, frost, storms, sea level rise and strong winds) observed in the country and the vulnerability of the socioeconomic sectors to those risks. In response to a question raised by the ERT with regard to the approach used to assess vulnerability, Poland clarified that the identification of the most vulnerable sectors was based on the review of available literature and sectoral documents, as well as responses to surveys sent to non-governmental organizations, universities and individual experts with the objective of identifying the sectors of interest to the population.

107. Poland also clarified, during the review, that for the vulnerability assessment general and regional climate models were used as well as scenario A1B from the Intergovernmental Panel on Climate Change Special Report on Emissions Scenarios. The regional models used were RM5.1, DMI-HIRHAM5, MPI-M-REMO, KNMI-RACMO2, SMHIRCA and METO-HC-HadRM3Q0, and the global models used included ARPEGE, ECHAM5, BCM and HadCM3Q0. Poland provided references to studies conducted on vulnerability in several sectors such as agriculture, forestry, biodiversity and ecosystems, health, construction industry, transport, energy, spatial management, and cities and towns.

108. Impetus has been given to addressing adaptation matters with the adoption of a number of policies, plans and programmes, such as the National Adaptation Strategy, National Environmental Policy, Responsible Development Strategy (by the Council of Ministers of 14 February 2017), KLIMADA, ADAPTCITY for the city of Warsaw, city adaptation plans for 44 other cities, RADOMKLIMA, and LCAgri, which provided further direction and priorities to government agencies on enhancing preparedness for climate change. The Ministry of the Environment is the national entity that coordinates the country's climate change adaptation policy. In addition, a permanent working group on adaptation to climate change, called ENEMA-MA, was established, led by the Ministry of the Environment and involving representatives of several national entities, with a clear mandate to, among other things, support the implementation, monitoring and reporting of adaptation measures at the regional and local level. Table 15 summarizes the information on vulnerability and adaptation to climate change presented in the NC7 of Poland.

Table 15
Summary of information on vulnerability and adaptation to climate change reported by Poland

| <i>Vulnerable area</i> | <i>Examples/comments/adaptation measures reported</i> |
|------------------------|---|
| Water resources | <p><i>Vulnerability:</i> limited water resources; increased susceptibility to droughts and floods; increase in precipitation and evaporation; increase in water temperature of rivers; falling trend in snowfall; change in the water balance; risk of water shortage.</p> <p><i>Adaptation:</i> implementation of flood risk management plans for rivers; development and implementation of drought mitigation plan; development of water landscapes that support water retention; development of flood protection infrastructure; rainwater management in urban areas through various forms of retention and development of green infrastructure; education of local communities about the risks of flooding; use of early warning systems and special types of insurance to cover damage.</p> |
| Infrastructure | <p><i>Vulnerability:</i> vulnerability of residential buildings in urban and rural areas to floods, inundation, snowfall, landslides and wind; vulnerability of road and rail infrastructure to rain, floods and wind; vulnerability of airports to wind gusts and ice; vulnerability of inland water transport to floods; historical sites and monuments vulnerable to frequent and severe rainfall, wind and floods.</p> <p><i>Adaptation:</i> enhancement of the capacity of the rainwater collection network by increasing the diameter of the pipes and expanding the network; modernization of water supply and wastewater collection infrastructure; improvement of urban greenery and enhancement of the capacity of urban vegetation to mitigate the impact of high temperatures; creation of retention gardens; greening of building roofs, walls and courtyards and compensatory planting to reduce urban heat and improve the comfort of residents; protection of buildings against tornadoes and hurricanes; improvement of heating, ventilation and air conditioning systems in building; taking into account climate change adaptation when constructing new infrastructures.</p> |
| Agriculture | <p><i>Vulnerability:</i> increase in water needs for agriculture; changes in precipitation patterns; increase in precipitation and evaporation, affecting water availability; positive effects of temperature rise on thermophilous plants; higher temperatures in late winter and early spring, favourable to early sowing and a longer growing season; high temperatures oblige livestock to stay inside, increasing power consumption and water demand; reduction in production of dairy cows and decrease in milk production; higher risks for plants and livestock due to the appearance of new diseases and pests.</p> <p><i>Adaptation:</i> artificial irrigation; use of in-house refrigeration systems for animals; support programme for family farms and improvement of water management in agriculture under conditions of periodic surplus water; management of local water resources through retention of water in soils, protection of water quality, creation of landscapes that support the retention of natural water and prevention of floods and droughts; programmes to support plant breeding; agricultural insurance to cover risk of unfavourable weather conditions.</p> |
| Human health | <p><i>Vulnerability:</i> risk of death or disease during heatwaves; vulnerability of elderly, people with specific diseases and children; more deaths during coldwaves; development of certain bacteria and pathogenic microorganisms in water.</p> <p><i>Adaptation:</i> early warning system to provide assistance to vulnerable people during heat- and coldwaves; equipment of hospitals, nursing homes and kindergartens with air</p> |

| Vulnerable area | Examples/comments/adaptation measures reported |
|-------------------------------------|--|
| Forests | <p>conditioners in summer against thermal stress (see also adaptation measures for infrastructure above).</p> <p><i>Vulnerability:</i> shift of the ecological optimum to north-eastern Poland; increase in outbreaks of invasive species; changes in the biotic environment; loss of species in mountain ecosystems; soil degradation and erosion; reduction in genetic resources of flora and fauna; loss of biodiversity and natural landscape; changes in the natural limits of the range of the main tree species; severe drought; hurricanes; increase in insects and fungi; comprehensive project to adapt forest to climate change by 2020 aiming to prevent the occurrence or minimize negative effects of events including drought, fires and floods through the development of small retention systems, the prevention of excessive soil erosion, and strengthening the resilience of forest ecosystems.</p> <p><i>Adaptation:</i> promotion of species that are less susceptible and better adapted to climate change; breeding of mixed stands; planting of species resistant to climate change in specific regions; anticipation of threats and promotion of effective pest control; increase of forest cover in the country; between 1998 and 2015, a large number of dams built to prevent floods and droughts in forest ecosystems; since 2016 the State Forests National Forest Holding has been implementing a project on fire protection in forests.</p> |
| Biodiversity and natural ecosystems | <p><i>Vulnerability:</i> degradation of wetlands; intensification of migration of animal species; vulnerability of marine and coastal habitats; vulnerability of plant species connected with water and wet habitats; endangered plants; vulnerability of bird species, especially those connected ecologically with river valleys, marshlands and peatbogs; vulnerability of swamp forests because of lowering of groundwater; changes in range, size and reproduction parameters of tree and animal species; disappearance of small water reservoirs and rivers.</p> <p><i>Adaptation:</i> maintenance of wetlands; conservation of biodiversity and ecosystems (see also adaptation measures for forests above).</p> |
| Coastal zones | <p><i>Vulnerability:</i> potential sea level rise and floods; increased frequency and intensity of storm floods and surges; coastal erosion; disturbance of ecosystems of national parks of unique natural value; loss related to the ecology of the Baltic Sea, disappearance of certain fish species; loss of biodiversity; disturbance of tourism.</p> <p><i>Adaptation:</i> 2012–2015 programme for the protection of seashore to reduce existing and future risks associated with sea level flood (see also adaptation measures for biodiversity and natural ecosystems above).</p> |
| Transport | <p><i>Vulnerability:</i> road infrastructure and railways particularly vulnerable to strong winds, snowfall, heavy rains and frost; heavy rains and snow and higher air temperature affect aviation; low temperatures result in equipment failure; damage to road surface.</p> <p><i>Adaptation:</i> clear definition of a system of clearance of bridges and culverts; design of a vertical alignment of roads approaching bridges; consideration of the problems of landslides and the issues of drainage of transport surfaces, underpasses, tunnels and underground stations.</p> |

109. Poland did not provide in its NC7 a description of international adaptation activities, in particular information on bilateral cooperation with developing countries on adaptation. In response to a question raised by the ERT, Poland clarified that at the moment it is not involved in any bilateral cooperation with developing countries on adaptation. However, Poland confirmed that its official development assistance programme for 2016–2020 includes providing support for strengthening the disaster prevention capability of developing countries, especially in the African countries of Ethiopia, Kenya, Senegal and the United Republic of Tanzania.

2. Assessment of adherence to the reporting guidelines

110. The ERT assessed the information reported in the NC7 of Poland and identified an issue relating to transparency. The finding is described in table 16.

Table 16

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

| No. | <i>Reporting requirement, issue type and assessment</i> | <i>Description of the finding with recommendation or encouragement</i> |
|-----|--|---|
| 1 | Reporting requirement specified in paragraph 49 Issue type: transparency Assessment: encouragement | The ERT identified that Poland provided limited information on specific results of scientific research on vulnerability assessment and adaptation. For example, the approach and the models used to assess vulnerability were not included in the NC7. In response to questions raised by the ERT during the review, Poland provided additional information on the specific results of scientific research in the field of vulnerability assessment and adaptation. The ERT encourages Poland to include in its next NC specific results of scientific research on vulnerability assessment and adaptation. The ERT noted that it would be useful for Poland to also include information on criteria, climate models, scenarios and approaches, as well as references to scientific materials used for the vulnerability assessment and to reorganize the structure of the relevant sections, in its next 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, transparent and adhering to the UNFCCC reporting guidelines on NCs.

F. Research and systematic observation**1. Technical assessment of the reported information**

111. Poland provided information on its general policy and funding relating to research and systematic observation and both domestic and international activities, including its contributions to the World Climate Programme, Future Earth, which is an extension of the International Geosphere–Biosphere Programme, Global Climate Observing System, Biosphere Aspects of the Hydrological Cycle, Global Change and Terrestrial Ecosystems, International Global Atmospheric Chemistry, Past Global Changes, Surface Ocean Lower Atmosphere Study, Future Earth Coasts and Intergovernmental Panel on Climate Change.

112. Poland has a national science policy that defines its research priorities. The Ministry of Science and Higher Education is responsible for scientific policy in Poland, while the National Science Centre, which supports basic research, and the National Centre for Research and Development, supporting applied research, are the key institutions for research funding in Poland. Economy and climate change and adaptation to climate change are among the research priority areas reported by the Party. The National Framework Programme adopted on 22 September 2005, the National Research and Development Programme, the Act of 30 April 2010 on Science Financing, and the National Research Programme are the main instruments governing research in general and climate change in particular in Poland. The Party reported on programmes implemented to address national concerns such as GHG mitigation and adaptation to climate change. Budget allocated to science increased by 23 per cent between 1991 and 2016. With regard to systematic observation, Poland reported on the arrangements in place for meteorological observation systems, ocean observation systems, Earth surface observation systems, satellite climate monitoring systems and the monitoring of GHGs.

113. Poland 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. The Party reported extensive information on research studies, including studies on the climate system and processes (e.g. research on climate change in the past, research on the climatology of air pollutants and GHGs, research on high-latitude climate, oceanology research), modelling and forecasting, research on climate change impacts on natural environment, socioeconomic analysis, and research and development programmes on mitigation and adaptation. The ERT commends Poland for the extensive information provided.

114. In terms of activities related to systematic observation, Poland reported on national plans, programmes and support for ground- and space-based climate observing systems, including satellite and non-satellite climate observation. The Party's systematic observation includes meteorological observation systems (a network of 1,777 measurement stations distributed across the country), ocean observation systems, Earth surface observation systems and satellite climate monitoring systems.

115. In its NC7 Poland highlighted that it has not been directly engaged in supporting projects aimed at maintaining, developing or launching surveillance systems, databases or monitoring systems implemented in developing countries. In response to a question raised by the ERT during the review, Poland clarified that it is still a beneficiary of the observing systems described above and as such does not provide support to developing countries for establishing and maintaining observing systems (the only planned provision of support to developing countries reported by Poland is referred to in para. 109 above).

2. Assessment of adherence to the reporting guidelines

116. The ERT assessed the information reported in the NC7 of Poland and identified issues relating to completeness. The findings are described in table 17.

Table 17

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

| No. | <i>Reporting requirement, issue type and assessment</i> | <i>Description of the finding with recommendation or encouragement</i> |
|-----|--|--|
| 1 | Reporting requirement specified in paragraph 62 Issue type: completeness Assessment: encouragement | <p>Poland did not report in its NC7 on opportunities for and barriers to free and open international exchange of data and information or action taken to overcome such barriers.</p> <p>During the review, Poland clarified that the country participates, at the international level, in the exchange of meteorological and hydrological data from 62 synoptic stations, in Poland, through the Global Telecommunications System. Encrypted data are sent according to the SYNOP key every hour. Also, on the basis of detailed international agreements, data are exchanged with neighbouring countries.</p> <p>Poland highlighted that by law access to the meteorological and hydrological data is free of charge, except for commercial applications, which require appropriate contracts defining contribution to the costs of maintaining the observation network.</p> <p>A key action taken by the Polish Government with regard to the removal of barriers to the use of data was the adoption of the Act of 25 February 2016 on the Use of Public Sector Information (Journal of Laws of the Republic of Poland of 2016, item 352, as amended). Poland reported that there are still barriers to overcome, such as the long-term funding programme for maintenance, data collection and management activities, and the clear definition of roles and responsibilities for research and systematic observation.</p> <p>The ERT encourages Poland to report on opportunities for and barriers to free and open international exchange of data and information and action taken to overcome such barriers with regard to systematic observation in its next NC.</p> |
| 2 | Reporting requirement specified in paragraph 64 Issue type: completeness Assessment: encouragement | <p>Poland did not provide in its NC7 summary information on the long-term continuity of data, data quality control and availability, or exchange and archiving of data concerning research and systematic observation.</p> <p>During the review, Poland clarified that the long-term continuity of data would be affected by the lack of long-term funding of the research and systematic observation system. It also clarified that the quality control of observations consists of data control in situ and at the data centres. As a result of quality control activities, applied in real time and delayed, some data can be corrected or flagged. Quality control is also performed before archiving. Meteorological and hydrological data are published online (e.g. www.pogodynka.pl) and archived on the website of the Institute of Meteorology and Water Management – National Research Institute (www.imgw.pl) along with the terms of use. They are also available in the archives of the World Meteorological Organization (http://worldweather.wmo.int) and the National Oceanic and Atmosphere Administration (https://www.ncdc.noaa.gov/). Five regional Global Atmosphere Watch stations are operational in Poland (Łeba, Puszcza</p> |

| <i>No. Reporting requirement, issue type and assessment</i> | <i>Description of the finding with recommendation or encouragement</i> |
|---|--|
| | <p>Borecka, Legionowo, Jarczew and Sniezka) and the data collected are sent to the network and accessible (https://gawsis.meteoswiss.ch). CO₂ atmospheric concentration data from Kasprowy Wierch measurement station are sent to the Global Greenhouse Gas Reference Network (https://www.esrl.noaa.gov/). Baltic Sea monitoring data are collected in the oceanographic database and sent to the European Environment Agency, the Helsinki Commission and the International Council for the Exploration of the Sea.</p> <p>The ERT encourages Poland to provide in its next NC summary information on the long-term continuity of data, data quality control and availability, and the exchange and archiving of data with regard to research and systematic observation.</p> |

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

G. Education, training and public awareness

1. Technical assessment of the reported information

117. In the NC7 Poland provided information on its actions relating to education, training and public awareness at the domestic and international level. The Party provided 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.

118. The national policy on education, training and public awareness for climate change is described in most strategic documents addressing environmental protection, including the Second Environmental Policy; Poland 2025: the long-term strategy for sustainable development; Poland’s climate policy; the National Strategy for Environmental Education (agreement between the Ministry of National Education and the Ministry of the Environment); and the Act of 27 April 2001 on Environmental Protection Law. The Ministry of National Education and the Ministry of the Environment are the two national entities leading the policy on education, training and public awareness for climate change in Poland. The Party reported that the Ministry of Foreign Affairs implements development education, which addresses global climate issues, including capacity-building for adaptation to climate change in developing countries. The strategic documents recognize the need for education, training and public awareness on climate-related issues and recommend nationwide public campaigns, the inclusion of environmental education in school curricula, access to environmental information, the promotion of sustainable development principles, and cooperation with the media.

119. Poland reported extensive information on education in the context of its Act of 1966 on the Education System, which stipulates, among other things, that the education system should ensure the dissemination of knowledge on the principles of sustainable development, among children and youth, and on the development of attitudes conducive to its implementation at the local, national and global level. In 2012–2015, children in kindergarten were taught how to keep order in their immediate environment and protect plants and animals; in primary schools, pupils were provided with knowledge on nature, the role of animals in an ecosystem, nature conservation, saving water, the protection of animals and plants, and damage to nature caused by human activities; and in higher education, ecological topics such as nature, biology, geography, chemistry and physics were included in the curricula and the students carried out observations and experiments to detect pollution of their environment. Poland reported that several universities offer relevant postgraduate studies, such as the Postgraduate School of Biofuels and Renewable Energy Sources at the Faculty of Earth Sciences of the University of Szczecin. The Copernicus Science Centre places great emphasis on scientific demonstrations to explain events, including those related to global climate change and RES. The Centre, together with Polish radio, organizes popular scientific events

called science picnics under the auspices of the Ministry of Science and Higher Education. The picnics, which are open-air events, are opportunities for universities and students to present various scientific demonstrations related to climate studies. In 2012 the topic of the 16th science picnic was energy and the topic of the 21st picnic in 2017 was Earth and how we should care for it.

120. Poland reported that training courses have been organized by companies for their staff on environmental quality standards (e.g. of the International Organization for Standardization); while several academic centres and non-governmental organizations provide training courses on environmental impact assessment, access to environmental information, air protection, mitigation and adaptation to climate change to representatives of government and local authorities.

121. Poland reported that radio, television, Internet and social media have been used to disseminate environment- and climate-related information, such as on the impact of air pollution on health, and to raise awareness of and promote public transportation and cycling. The celebration of World Earth Day is always an opportunity for the Ministry of the Environment to address issues such as low emissions and protection of the environment.

122. Poland has also been involved in international programmes, such as the Global Learning and Observations to Benefit the Environment Program, the Baltic Sea Project and the United Nations Educational, Scientific and Cultural Organization Associated Schools Network.

2. Assessment of adherence to the reporting guidelines

123. The ERT assessed the information reported in the NC7 of Poland and identified an issue relating to completeness. The finding is described in table 18.

Table 18

Findings on education, training and public awareness from the review of the seventh national communication of Poland

| No. | Reporting requirement, issue type and assessment | Description of the finding with recommendation or encouragement |
|-----|--|---|
| 1 | Reporting requirement specified in paragraph 65 Issue type: completeness Assessment: encouragement | Poland did not report on the extent of public participation in the preparation or domestic review of the NC7, as encouraged in the previous review report. During the review, Poland clarified that non-governmental organizations and businesses are involved in the process and can provide comments. The ERT reiterates the encouragement made in the previous review report for Poland to report 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, transparent and adhering to the UNFCCC reporting guidelines on NCs.

III. Conclusions and recommendations

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

125. The information provided in the NC7 includes most of the elements of the supplementary information under Article 7 of the Kyoto Protocol, with the exception of information on PaMs in accordance with Article 2 of the Kyoto Protocol and domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures. 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 Poland in its 2018 annual submission.

126. Poland's total GHG emissions excluding LULUCF covered by its quantified economy-wide emission reduction target were estimated to be 15.3 per cent below its 1990 level, whereas total GHG emissions including LULUCF were 16.3 per cent below its 1990 level, in 2016. Emission decreases were driven by the economic restructuring and modernization of industry after the economic transformation in the early 1990s and the gradual development of a dominant tertiary sector during the transition to a market economy. Additionally, measures were taken to increase energy efficiency and the share of RES in the energy mix, yet coal remains the main fuel in Poland's total primary energy supply. Emissions from transport show a significant increase of 160.6 per cent since 1990 related to growing fuel consumption due to rapidly increasing vehicle numbers, with a notable rise in diesel vehicles after Poland's accession to the EU in 2004. The ERT noted that if the emissions due to the growing transport demand as well as from the industry and construction sector, which retains its large role in Poland's economy, continue to increase, they could potentially undermine Poland's emission reductions in other sectors in the future.

127. Poland's main policy framework relating to energy and climate change is the Energy Policy of Poland until 2050 initiative, which was first published in 2015 and is currently under revision. Poland introduced an array of national-level policies to achieve its targets under the ESD and domestic emission reduction targets. The key policies reported are those undertaken under the National Energy Efficiency Action Plan for Poland 2014 (e.g. a white certificate scheme and energy performance certificates for new and expanded buildings), the promotion of renewable energy (e.g. through a green certificate scheme and a minimum required share of biofuels in transport fuel) and the different packages of measures in the transport sector. Poland has also established a variety of mechanisms to finance the implementation of mitigation actions, mainly channelled through the National Fund for Environmental Protection and Water Management. The mitigation actions with the most significant mitigation impact are the implementation of the EU ETS in Poland, the actions included in the National Energy Efficiency Action Plan for Poland 2014 and the promotion of RES.

128. The GHG emission projections provided by Poland include those under the WEM scenario. In the WEM scenario, emissions are projected to be 17.1 per cent below the 1990 level in 2020. On the basis of the reported information, the ERT concludes that Poland expects to meet its 2020 target under the WEM scenario.

129. In 2015 Poland's GHG emissions from sectors under the ESD were below its national annual emission target. However, the ERT noted that in 2016 those emissions increased slightly above the level of the target trajectory owing to the statistical adjustments of fuel consumption for road transport between 2015 and 2016, and that Poland may not fully achieve the significant surplus by 2020 expected under the WEM scenario developed on the basis of 2015 inventory data.

130. The Party's quantified economy-wide emission reduction target under the Convention is a joint target of the EU and its 28 member States to reduce emissions by 20 per cent compared with the base-year (1990) level by 2020. Under the ESD, Poland's target is to limit its emission growth to 14 per cent above the 2005 level by 2020. Its AEAs, which correspond to its national emission target under the ESD, change linearly from 193,642.82 kt CO₂ eq in 2013 to 205,181.20 kt CO₂ eq in 2020. Poland is expecting to significantly exceed its ESD target by 2020. On the basis of the reported information, the ERT concludes that Poland expects to meet its target for non-ETS sectors.

131. The NC7 contains information on how the Party's use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action, although it did not elaborate on supplementarity as such. Poland is not planning to make use of the Kyoto Protocol mechanisms to meet its Kyoto Protocol target.

132. Although Poland is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3, 4 and 5, of the Convention, it provided information on its provision of support to developing country Parties. As an EU member State, the majority of aid is allocated through contributions to the EU general budget. Poland's financial contribution to climate change related activities in this reporting period amounted to approximately EUR 14.7 million, aiming at scientific and technology research,

building resilience to natural disasters, dissemination of innovative energy-efficient technologies and development of renewable energy sources. The ERT commends Poland for reporting such information and suggests that it continue to do so in future NCs.

133. Poland provided the required information on the expected impacts of climate change in the country; 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. Poland provided a description of climate change vulnerability and impacts in relation to water resources, agriculture, forestry, biodiversity and ecosystems, health, coastal zones, construction industry, transport, power engineering (energy sector), spatial management, and cities and towns. It highlighted the adaptation response actions taken and planned at different levels of government, in response to a recommendation made in the previous review report. Impetus has been given to addressing adaptation matters with the adoption of a number of policies, plans and programmes.

134. Poland provided information on its general policy and funding relating to research and systematic observation and both domestic and international activities, including its contributions to the World Climate Programme, Future Earth, which is an extension of the International Geosphere–Biosphere Programme, Global Climate Observing System, Biosphere Aspects of the Hydrological Cycle, Global Change and Terrestrial Ecosystems, International Global Atmospheric Chemistry, Past Global Changes, Surface Ocean Lower Atmosphere Study, Future Earth Coasts and Intergovernmental Panel on Climate Change. Poland 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. Poland reported extensive information on research studies, including studies on the climate system and processes (e.g. research on climate change in the past, research on climatology of air pollutants and GHGs, research on high-latitude climate, oceanology research), modelling and forecasting, research on climate change impacts on natural environment, socioeconomic analysis, and research and development programmes on mitigation and adaptation.

135. Poland provided information on its actions relating to education, training and public awareness at the domestic and international level. The Party provided 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.

136. In the course of the review, the ERT formulated the following recommendations for Poland to improve its adherence to the UNFCCC reporting guidelines on NCs and its reporting of supplementary information under the Kyoto Protocol:¹¹

- (a) To improve the completeness of its reporting by:
 - (i) Providing information on procedures for addressing cases of non-compliance under domestic law and on provisions to make information on legislative arrangements and enforcement and administrative procedures publicly accessible (see table 6, issue 1);
 - (ii) Providing estimates of the total effect of its PaMs by gas (on a CO₂ eq basis) for 1995 and 2000 in accordance with the 'with measures' definition, compared with a situation without such PaMs (see table 14, issue 1);
- (b) To improve the transparency of its reporting by:
 - (i) Providing more detailed information on how its national circumstances affect GHG emissions and removals, and how the national circumstances and changes therein affect GHG emissions and removals over time (see table 4, issue 1);

¹¹ The recommendations are given in full in the relevant sections of this report.

- (ii) Organizing the reporting of mitigation actions by gas, for example by organizing mitigation actions first by sector and then by GHG affected (see table 8, issue 3);
- (iii) Providing information on the impact of its PaMs on long-term GHG emission trends (see table 8, issue 8);
- (iv) Providing 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, effects on international trade, and social, environmental and economic impacts on other Parties, especially developing country Parties (see table 8, issue 9).

IV. Questions of implementation

137. During the review the ERT assessed the NC7, including the supplementary information provided under Article 7, paragraph 2, of the Kyoto Protocol, and the information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol with regard to timeliness, completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. No questions of implementation were raised by the ERT during the review.

Annex

Documents and information used during the review

A. Reference documents

2017 GHG inventory submission of Poland. Available at

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

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<https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/national-inventory-submissions-2018>.

BR3 of Poland. Available at [http://unfccc.int/files/national_reports/non-](http://unfccc.int/files/national_reports/non-annex_i_parties/biennial_update_reports/application/pdf/8193245_poland-br3-nc7-1-nc7-br3_poland.pdf)

[annex_i_parties/biennial_update_reports/application/pdf/8193245_poland-br3-nc7-1-nc7-br3_poland.pdf](http://unfccc.int/files/national_reports/non-annex_i_parties/biennial_update_reports/application/pdf/8193245_poland-br3-nc7-1-nc7-br3_poland.pdf).

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[meetings/transparency-and-reporting/reporting-and-review-under-the-convention/national-communications-and-biennial-reports-annex-i-parties/third-biennial-reports-annex-i](https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/national-communications-and-biennial-reports-annex-i-parties/third-biennial-reports-annex-i).

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<http://unfccc.int/resource/docs/2013/cop19/eng/10a03.pdf>.

“Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications”.

FCCC/CP/1999/7. Available at <http://unfccc.int/resource/docs/cop5/07.pdf>.

“Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol”. Annex to decision 15/CMP.1. Available at

<http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf>.

“Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol”. Annex III to decision 3/CMP.11. Available at

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

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

“Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention”. Annex to decision 13/CP.20. Available at

<http://unfccc.int/resource/docs/2014/cop20/eng/10a03.pdf>.

NC7 of Poland. Available at [http://unfccc.int/files/national_reports/non-](http://unfccc.int/files/national_reports/non-annex_i_parties/biennial_update_reports/application/pdf/8193245_poland-br3-nc7-1-nc7-br3_poland.pdf)

[annex_i_parties/biennial_update_reports/application/pdf/8193245_poland-br3-nc7-1-nc7-br3_poland.pdf](http://unfccc.int/files/national_reports/non-annex_i_parties/biennial_update_reports/application/pdf/8193245_poland-br3-nc7-1-nc7-br3_poland.pdf).

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Report on the technical review of the sixth national communication of Poland.
FCCC/IDR.6/POL. Available at
<https://unfccc.int/sites/default/files/resource/docs/2015/idr/pol06.pdf>.

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

B. Additional information provided by the Party

Responses to questions during the review were received from Ms. Sylwia
Waśniewska (KOBiZE), including additional material.
