



## Framework Convention on Climate Change

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### Report of the in-depth review of the fifth national communication of Poland

Parties included in Annex I to the Convention are requested, in accordance with decision 10/CP.13, to submit a fifth national communication to the secretariat by 1 January 2010. In accordance with decision 8/CMP.3, Parties included in Annex I to the Convention that are also Parties to the Kyoto Protocol shall include in their fifth national communications supplementary information under Article 7, paragraph 2, of the Kyoto Protocol. In accordance with decision 15/CMP.1, these Parties shall start reporting the information under Article 7, paragraph 1, of the Kyoto Protocol with the inventory submission due under the Convention for the first year of the commitment period. This includes supplementary information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol. This report presents the results of the in-depth review of the fifth national communication of Poland conducted by an expert review team in accordance with the relevant provisions of the Convention and Article 8 of the Kyoto Protocol.

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## I. Introduction and summary

### A. Introduction

1. For Poland the Convention entered into force on 26 October 1994 and the Kyoto Protocol on 16 February 2005. Under the Kyoto Protocol, Poland committed itself to reducing its greenhouse gas (GHG) emissions by 6 per cent in relation to the base year<sup>1</sup> (1988) level during the first commitment period from 2008 to 2012.

2. This report covers the in-country in-depth review (IDR) of the fifth national communication (NC5) of Poland, coordinated by the UNFCCC secretariat, in accordance with the guidelines for review under Article 8 of the Kyoto Protocol (decision 22/CMP.1). The review took place from 11 to 16 April 2011 in Warsaw, Poland, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: Mr. Daniel Tutu Benefoh (Ghana), Mr. Naoki Matsuo (Japan), Mr. Ioannis Sempos (Greece) and Ms. Marina Shvangiradze (Georgia). Ms. Shvangiradze and Mr. Matsuo were the lead reviewers. The review was coordinated by Ms. Inkar Kadyrzhanova (UNFCCC secretariat).

3. During the IDR, the expert review team (ERT) examined each section of the NC5. The ERT also evaluated the supplementary information provided by Poland as a part of the NC5 in accordance with Article 7, paragraph 2, of the Kyoto Protocol. In addition, the ERT reviewed the information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol, which was provided by Poland in its 2010 annual submission under Article 7, paragraph 1, of the Kyoto Protocol.

4. In accordance with decision 22/CMP.1, a draft version of this report was communicated to the Government of Poland, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

### B. Summary

5. The ERT noted that Poland's NC5 complies mostly with the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications" (hereinafter referred to as the UNFCCC reporting guidelines). As required by decision 15/CMP.1, supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol<sup>2</sup> is provided in the NC5. Poland considered most of the recommendations provided in the report on the IDR of the fourth national communication (NC4) of Poland.<sup>3</sup> The ERT commended Poland for its improved reporting.

6. The supplementary information on the minimization of adverse impacts referred to in paragraph 3 above was complete and transparent and provided on time. During the review, Poland provided additional relevant information.

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<sup>1</sup> "Base year" refers to the base year under the Kyoto Protocol, which is 1988 for carbon dioxide, methane and nitrous oxide, and 1995 for perfluorocarbons, hydrofluorocarbons and sulphur hexafluoride. The base year emissions include emissions from sectors/source categories listed in Annex A to the Kyoto Protocol.

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

<sup>3</sup> FCCC/IDR.4/POL.

## **2. Completeness**

7. The NC5 covers all sections required by the UNFCCC reporting guidelines, and most of the supplementary information under Article 7, paragraph 2, of the Kyoto Protocol, except for information on the national system (see para. 19 below); the national registry (see paras. 23 and 25 below); the steps taken to promote and/or implement any decisions by the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO) in order to limit or reduce GHG emissions not controlled by the Montreal Protocol from aviation and marine bunker fuels (see para. 61 below); the minimization of adverse effects of policies and measures (PaMs) under Article 2 of the Kyoto Protocol (see para. 75 below); and a description of national legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol also contributes to the conservation of biodiversity and the sustainable use of natural resources (see para. 20 below). The NC5 does not include some information required by the UNFCCC reporting guidelines on PaMs (see paras. 28 and 37 below); the projections and the total effects of PaMs (see paras. 78 and 95 below); and research and systematic observation (see para. 107 below). This missing information was provided to the ERT during the review. The ERT recommends that Poland enhance the completeness of its reporting by providing this missing information in its next national communication.

## **3. Transparency**

8. The ERT acknowledged that Poland's NC5, including supplementary information provided under Article 7, paragraph 2, of the Kyoto Protocol, is well-structured, concise and broadly transparent. The NC5 provides clear information on most aspects of implementation of the Convention and its Kyoto Protocol. The NC5 is structured following the outline contained in the annex to the UNFCCC reporting guidelines and supplementary information submitted under Article 7, paragraph 2, of the Kyoto Protocol is easily identifiable. In the course of the review, the ERT formulated a number of recommendations that could help Poland to further increase the transparency of its reporting with regard to national circumstances (see para. 18 below); PaMs (see paras. 29, 31 and 36 below); projections and the total effects of PaMs (see paras. 80, 82, 91 and 95 below); and education, training and public awareness (see para. 114 below).

## **4. Timeliness**

9. The NC5 was submitted on 16 February 2010, after the deadline of 1 January 2010 mandated by decision 10/CP.13. Poland did not inform the secretariat about its difficulties with the timeliness of its national communication submission in accordance with paragraph 139 of the annex to decision 22/CMP.1. As the national communication was not submitted within six weeks after the due date, the delay was brought to the attention of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP) and the Compliance Committee and made public. The ERT noted with concern the delay in the submission of the NC5.

## **II. Technical assessment of the reviewed elements**

### **A. National circumstances relevant to greenhouse gas emissions and removals, including legislative arrangements and administrative procedures**

10. In its NC5, Poland has provided a concise description of the national circumstances and has elaborated on the framework legislations and key policy documents on climate change. The NC5 also referred to the description of the national system provided in the national inventory report (NIR) of the 2009 annual submission. Further technical assessment of the institutional and legislative arrangements for the coordination and implementation of PaMs is provided in chapter II.B.1 of this report.

#### **1. National circumstances**

11. In its NC5, Poland has provided a description of its national circumstances, and information on how these national circumstances affect GHG emissions and removals in Poland and how changes in national circumstances affect GHG emissions and removals over time. Information was provided on the government structure, population, geography, climate and relevant economic sectors. The ERT noted that the main drivers of emission trends in Poland include macroeconomic restructuring and the reduction of economic activity, the effect of energy efficiency measures and the technological modernization of heavy industry. Table 1 illustrates the national circumstances of the country by providing some indicators relevant to GHG emissions and removals.

12. Poland is a constitutional republic with three branches of authority: the legislative, the executive and the judiciary. The governance system is represented by the Parliament and the President. Executive power rests with the President and the Council of Ministers. The country is divided into 16 provinces (voivodships). Overall responsibility for climate change policymaking lies with the Ministry of Environment. A number of national institutions are involved in the implementation of climate change policy. Implementation of the Kyoto Protocol is underpinned by the Climate Policy Strategy for Greenhouse Gas Emission Reduction in Poland until 2020 (hereinafter referred to as the Climate Policy Strategy) and by the PaMs that have been implemented at the local level, for example in the residential and waste sectors. Further legislative arrangements and administrative procedures, including those for the national system and the national registry, are presented in chapters II.A.2, II.A.3 and II.B of this report.

13. 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.

14. In its NC5, Poland has provided a summary of information on GHG emission trends for the period 1988–2007. This information is broadly consistent with the 2009 annual submission. Summary tables, including trend tables for emissions in carbon dioxide equivalent (CO<sub>2</sub> eq) (given in the common reporting format), are provided in an annex to the NC5. During the review, Poland provided a summary of information on GHG emission trends for the period 1988–2009. The ERT assessed the 2010 annual submission and has reflected the findings in this report.

Table 1  
**Indicators relevant to greenhouse gas emissions and removals for Poland**

	1988	1995	2000	2005	2008	Change 1988– 2000 (%)	Change 2000– 2008 (%)	Change 1988– 2008 (%)
Population (million)	37.86	38.28	38.25	38.16	38.14	1.1	–0.4	0.7
GDP (2000 USD billion using PPP)	311.96	310.63	404.30	470.60	560.54	29.6	38.6	79.7
TPES (Mtoe)	132.26	99.46	89.13	92.37	97.89	–32.6	9.8	–26.0
GDP per capita (2000 USD thousand using PPP)	8.24	8.11	10.56	12.33	14.70	28.2	39.2	78.5
TPES per capita (toe)	3.49	2.60	2.33	2.42	2.57	–33.3	10.2	–26.5
GHG emissions without LULUCF (Tg CO <sub>2</sub> eq)	564.02	440.28	390.21	389.96	397.05	–30.8	1.8	–29.6
GHG emissions with LULUCF (Tg CO <sub>2</sub> eq)	545.52	419.46	365.75	353.74	357.88	–33.0	–2.2	–34.4
CO <sub>2</sub> emissions per capita (Mg CO <sub>2</sub> )	12.43	9.56	8.38	8.37	8.54	–32.5	1.8	–31.3
CO <sub>2</sub> emissions per GDP unit (kg CO <sub>2</sub> per 2000 USD using PPP)	1.69	1.18	0.79	0.68	0.58	–53.0	–26.8	–61.5
GHG emissions per capita (Mg CO <sub>2</sub> eq)	14.90	11.50	10.20	10.22	10.42	–31.5	2.1	–30.1
GHG emissions per GDP unit (kg CO <sub>2</sub> eq per 2000 USD using PPP)	1.81	1.42	0.97	0.83	0.71	–46.6	–26.6	–60.8

*Sources:* (1) GHG emissions data: Poland's 2010 greenhouse gas inventory submission;  
(2) Population, GDP and TPES data: International Energy Agency.

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

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

15. According to the 2010 annual submission, total GHG emissions, excluding emissions and removals from land use, land-use change and forestry (LULUCF), decreased by 29.6 per cent between 1988 and 2008, whereas total GHG emissions, including net emissions and removals from LULUCF, decreased by 34.4 per cent. This was mainly attributed to CO<sub>2</sub> emissions, which decreased by 30.8 per cent over this period.

16. A major part of the emission decreases was experienced between 1988 and 1990, as a result of Poland's transition from a centrally planned to a market economy. The dramatic decrease in emissions experienced between 1988 and 1990 continued until 1992. In 1993, emissions started to rise, peaking in 1996. The following years up to 2002 were characterized by a slow decrease in emissions due to the technological modernization of heavy industry and other sectors. A slight increase in emissions was observed in the period 2006–2007 due to the continued economic development and improvements in living conditions. In 2008, total GHG emissions were 1.1 per cent lower than in 2007. The trend

of total GHG emissions follows the emission trend of CO<sub>2</sub>, which is the main GHG, by share, in Poland.

17. Emission trends for the period 1988–2008 by gas are as follows: CO<sub>2</sub> emissions decreased by 30.8 per cent, methane (CH<sub>4</sub>) emissions decreased by 30.6 per cent and nitrous oxide (N<sub>2</sub>O) emissions decreased by 23.3 per cent. Emissions of fluorinated gases (F-gases) accounted for about 0.07 per cent of total GHG emissions in 1988 and 1.0 per cent in 2008.

18. Trends of total GHG emissions were mostly underpinned by emission trends in the energy sector, driven by macroeconomic changes, the technological modernization of heavy industry and energy efficiency improvements in the energy sector. The ERT encourages Poland to report in a more transparent manner on the main drivers of emission trends by sector (in particular for the energy subsectors and the LULUCF sector) in its next national communication. An analysis of the main drivers of GHG emission trends in each sector is provided in chapter II.B of this report. Table 2 provides an overview of GHG emissions by sector from the base year to 2008.

Table 2  
**Greenhouse gas emissions by sector in Poland, 1988–2008**

Sector	GHG emissions (Tg CO <sub>2</sub> eq)							Change (%)		Shares <sup>a</sup> by sector (%)	
	1988	1990	1995	2000	2005	2007	2008	1988–2008	2007–2008	1988	2008
	1. Energy	469.27	368.74	368.74	321.38	316.38	321.27	316.96	–32.5	–1.3	83.2
A1. Energy industries	263.78	229.14	191.54	177.65	180.37	182.74	174.93	–33.7	–4.3	46.8	44.1
A2. Manufacturing industries and construction	55.43	43.25	63.29	47.97	32.47	34.47	32.62	–41.1	–5.4	9.8	8.2
A3. Transport	22.26	25.38	28.98	32.71	36.44	40.26	44.18	98.5	9.7	3.9	11.1
A4.–A5. Other	107.73	54.63	69.02	48.30	52.91	50.62	52.47	–51.3	3.7	19.1	13.2
B. Fugitive emissions	20.07	16.34	15.91	14.74	14.19	13.18	12.74	–36.5	–3.3	3.6	3.2
2. Industrial processes	32.52	23.57	23.04	22.89	28.88	32.91	33.32	2.5	1.2	5.8	8.4
3. Solvent and other product use	1.01	0.63	0.52	0.62	0.69	0.73	0.74	–26.3	1.2	0.2	0.2
4. Agriculture	51.85	50.78	38.01	35.43	34.58	37.13	37.11	–28.4	0.0	9.2	9.3
5. LULUCF	–18.49	–23.05	–20.82	–24.46	–36.22	–42.81	–39.16	111.8	–8.5	–3.3	–9.9
6. Waste	9.37	9.59	9.97	9.89	9.44	9.31	8.91	–4.9	–4.3	1.7	2.2
<b>GHG total with LULUCF</b>	<b>545.52</b>	<b>430.26</b>	<b>419.46</b>	<b>365.75</b>	<b>353.74</b>	<b>358.54</b>	<b>357.88</b>	<b>–34.4</b>	<b>–0.2</b>	<b>NA</b>	<b>NA</b>
<b>GHG total without LULUCF</b>	<b>564.02</b>	<b>453.31</b>	<b>440.28</b>	<b>390.21</b>	<b>389.96</b>	<b>401.35</b>	<b>397.05</b>	<b>–29.6</b>	<b>–1.1</b>	<b>100.0</b>	<b>100.0</b>

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

*Abbreviations:* NA= not applicable, GHG = greenhouse gas, LULUCF = land use, land-use change and forestry.

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

## 2. National system

19. In accordance with decision 15/CMP.1, Poland has provided in its NC5 a brief description of how its national system is performing the general and specific functions defined in the guidelines for national systems under Article 5, paragraph 1, of the Kyoto Protocol (decision 19/CMP.1). The Party also provided a reference to the NIR of the 2009 annual submission, which contains a more detailed description of the national system. The description includes all elements as required by decision 15/CMP.1, except for the contact information for the national entity that has overall responsibility for the national inventory. The ERT recommends that Poland include a complete description of the national system, as required by decision 15/CMP.1, in its next national communication.

20. In its NC5, Poland did not provide the information on national legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraph 3, and 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. During the review, Poland provided this missing information. The main legislative instruments adopted to ensure the conservation of biodiversity and the sustainable use of natural resources are the Forest Act (1991), the Environment Protection Act (2001) and the Nature Protection Act (2004). The ERT recommends that Poland include this information in its next national communication.

21. The Polish national system is regulated by the Act of 17 July 2009 on the System to Manage the Emissions of Greenhouse Gases and Other Substances, which entered into force in October 2009. During the review, Poland provided additional information on the national system and elaborated on the institutional and legislative arrangements and administrative procedures for GHG inventory planning, preparation and management, including quality control/quality assurance and the archiving of inventory data.

22. The ERT took note of the recommendations of the reports of the individual review of the 2009 and 2010 annual submissions of Poland<sup>4</sup> (the 2009 and 2010 annual review reports (ARRs)). During the review, the ERT learned that the Party has made some efforts to address the recommendations of the 2009 ARR, especially those relating to the national system, namely, updating the description of the national system and providing information on the changes to the national system related to legal and institutional arrangements. As the 2010 ARR was published during the review week, the ERT noted that the Party did not have sufficient time to address the recommendations contained therein. The ERT concluded that the national system continues to perform its required functions as set out in decision 19/CMP.1.

## 3. National registry

23. In its NC5, Poland has not included detailed information on the national registry. The Party provided a reference to the 2009 NIR, which contains information on changes to the national registry only. During the review, Poland provided a description of the national registry as well as all documents requested by the ERT, including a description of how the national registry performs the functions defined in the annex to decision 13/CMP.1 and the annex to decision 5/CMP.1 and how it complies with the requirements of the technical standards for data exchange between registry systems. The ERT recommends that Poland

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<sup>4</sup> FCCC/ARR/2009/POL and FCCC/ARR/2010/POL.

include complete information on the description of its national registry, as required by decision 15/CMP.1, in its next national communication.

24. During the review, Poland provided additional information on the measures put in place to minimize the occurrence of discrepant transactions, the security measures employed in the registry to prevent unauthorized manipulations, the measures put in place to protect the registry against security violations, the test procedures related to the performance of the current version of the national registry and the recording of the changes. In response to questions raised by the ERT, Poland provided documents demonstrating how it records the changes related to the national registry and how it maintains these records. The ERT noted that updates of databases and applications, implemented security measures and changes to the national registry software are documented on a regular basis by the registry administrator working at the National Centre for Emission Management (KOBIZE). The ERT recommends that Poland provide a description of how its national registry performs the functions defined in the annex to decision 13/CMP.1 in its next national communication.

25. The ERT took note of the conclusion of the standard independent assessment report (SIAR) that recommended the inclusion, in the NIR of Poland's next annual submission, of detailed information on software updates used by the national registry to minimize the occurrence of discrepant transactions, focusing in particular on the implemented functionalities and on how the recommendations of the SIAR and 2009 ARR are addressed. The ERT also took note of the recommendations of the 2009 and 2010 ARRs related to the national registry. During the review, the ERT learned that the Party has addressed the recommendations from the 2009 ARR and made some efforts to make public the information referred to in paragraphs 46–47 of the annex to decision 13/CMP.1 and to minimize the occurrence of discrepant transactions. New software was implemented and tested in January 2011. The ERT recommends that Poland report this information in its next annual submission and next national communication.

26. The ERT concluded that Poland's national registry continues to perform the functions set out in the annex to decision 13/CMP.1 and the annex to decision 5/CMP.1, and continues to adhere to the technical standards for data exchange between registry systems in accordance with decisions 16/CP.10 and 12/CMP.1.

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

27. As required by the UNFCCC reporting guidelines, Poland has provided in its NC5 comprehensive information on its package of PaMs implemented, adopted and planned in order to fulfil its commitments under the Convention and its Kyoto Protocol. Each sector has its own textual description of the principal PaMs. The NC5 contains a similar set of PaMs to those in the NC4. The ERT noted that Poland has addressed the recommendation of the previous review report to improve the reporting in the NC5 by supplementing the textual description of PaMs with a summary table on PaMs reported by sector and by gas. This represents a notable improvement in the section on PaMs as compared to the NC4.

28. However, the ERT noted that Poland did not provide the following reporting elements required by the UNFCCC reporting guidelines: quantitative estimates of the impacts of individual PaMs or collections of PaMs for all sectors, except for the agriculture sector; and information on how Poland believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals consistent with the objective of the Convention. The ERT also noted that Poland did not provide the following supplementary information under Article 7, paragraph 2, of the Kyoto Protocol: steps taken to promote

and/or implement any decisions by ICAO and IMO in order to limit or reduce GHG emissions not controlled by the Montreal Protocol from aviation and marine bunker fuels; and information on how it strives to implement PaMs under Article 2 of the Kyoto Protocol in such a way as to minimize adverse effects (see para. 75 below). This information was provided to the ERT during the review. The ERT recommends that Poland include the missing required information in its next national communication.

29. In addition, the ERT encourages Poland to provide, in its next national communication, an overview that would facilitate a better understanding of the overall policy framework and relative significance of the PaMs in terms of their emission reduction potential (even if this information is based on some approximate estimates). The ERT further encourages Poland to provide, in its next national communication, a more transparent description of its PaMs, to include the following: a clear explanation of how these PaMs correspond to or support the European Union (EU) Climate and Energy Package; information on the specific national targets adopted, such as the national target specified in the Energy Policy in Poland until 2030 (PEP 2030); and information on the progress made in the implementation of the PaMs (see para. 41 below).

30. The ERT also encourages Poland to define and put in place institutional arrangements for regular monitoring of the impact of individual PaMs using quantitative indicators, to continuously strengthen this process over time, as appropriate, and to implement it across all sectors. Experience and information on the assessment of the impact of projects financed by several existing funds may be utilized and integrated into the future cross-sectoral monitoring system focused on the assessment of the impact of the PaMs (see para. 35 below).

31. The ERT recognizes that the national communication provides an important opportunity to evaluate Poland's PaMs. During the review, the Party provided an analysis of options to reduce GHG emissions by 2030 based on marginal cost curves showing the scale of emission reductions for each PaM and the associated social and economic benefits or costs for Poland.<sup>5</sup> The ERT encourages the Party to undertake further analysis and consider available policy options that could be implemented through sectoral or cross-sectoral measures. Such analysis, aimed at the estimation of emission reductions by PaMs, would enable Poland to further enhance its policy mix and to increase potential co-benefits, such as enhancing national energy security and reducing energy costs.

32. The ERT noted that Poland has not reported in the NC5 the information on how its PaMs are modifying longer-term GHG emission trends. The ERT encourages Poland to provide, in its next national communication, such information as well as an analysis of the impact on its longer-term emission trends of the PaMs aimed at construction of new power plants and upgrade of electricity and heat supply systems (see para. 48 below). As part of such an analysis, Poland may consider the option of attracting foreign direct investments and the potential impact of the risk factors related to coal and lignite mining and construction and operation of nuclear power plants.

33. Poland provided comprehensive information on the PaMs implemented mainly at the national level. The key framework documents that define the environment and energy policy are the National Environmental Policy for 2009–2012 and its 2016 Outlook and PEP 2030 (see para. 46 below). The Climate Policy Strategy was adopted in 2003 prior to Poland's accession to the EU. By now it has become outdated and is no longer appropriate to the current situation; it will be replaced by an updated comprehensive strategy on energy and climate that will be based on the PaMs stemming from the EU Climate and Energy Package.

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<sup>5</sup> An Assessment of Greenhouse Gas Emission Abatement Potential in Poland by 2030. Report carried out by McKinsey & Company, 2009.

34. Given that in 2008 the share of the energy sector amounted to 79.8 per cent of total GHG emissions and the energy intensity of the Polish economy still remained above the EU average by about 30 per cent (0.71 kg CO<sub>2</sub> eq per 2000 USD using purchasing power parity), the energy efficiency PaMs became the most critical ones in the national climate policy and have been designated as a priority in PEP 2030. Energy efficiency also contributes to the achievement of another objective of PEP 2030 – enhancing national energy security.

35. Poland joined the EU in 2004 and from that time on Poland's PaMs have been integrated with the EU Climate and Energy Package. This has been achieved through transposition laws, for example, the Act of 22 December 2004 on Emission Allowance Trading Scheme of Greenhouse Gases and Other Substances. This law sets down the legal basis for participation in the EU emissions trading scheme (EU ETS) (see para. 42 below).

36. In its NC5, Poland has reported that it has a variety of mechanisms to finance climate-friendly projects and activities. The National Fund for Environmental Protection and Water Management, the EcoFund and other national funds as well as EU funds are used to provide grants and credits at a low interest rate and to grant subsidies for projects that reduce GHG emissions through the promotion of combined heat and power (CHP) systems, wider use of renewable energy sources (RES) and promotion of energy efficiency. The National Green Investment Scheme (GIS), funded by the revenues from the sale of assigned amount units, provides a similar type of financial support on a project-by-project basis.

37. The ERT noted that, in its NC5, Poland has not provided an analysis of the costs of PaMs, benefits (including co-benefits) or fiscal impacts of each PaM or collections of PaMs. The ERT noted that such information and assessment would provide insights useful for further improvements and development of new effective PaMs. Therefore, the ERT encourages Poland to undertake such an analysis and to provide this information in its next national communication.

38. The NC5 does not contain information on the assessment of PaMs that could potentially lead to increased levels of GHG emissions. The ERT encourages the Party to consider carrying out such an assessment. Energy market liberalization, sectoral PaMs in coal mining and the restructuring of the industrial sector could be among the PaMs which could potentially lead to increased levels of emissions. The ERT noted that most of the PaMs reported in the NC4 have been continued, except for the PaMs in the agriculture sector that were abolished due to the introduction of the EU Common Agricultural Policy. Table 3 provides a summary of the reported information on the PaMs of Poland.

Table 3  
**Summary of information on policies and measures**

<i>Major policies and measures</i>	<i>Examples/comments</i>
<i>Policy framework and cross-sectoral measures</i>	
Integrated climate change policy	Climate Policy Strategy for Greenhouse Gas Emission Reduction in Poland until 2020 (will be updated); National Environmental Policy for 2009–2012 and its 2016 Outlook
Energy Policy in Poland until 2030 (PEP 2030)	Set an indicative target to reduce energy intensity to 0.70 t CO <sub>2</sub> /MWh by 2030 (0.95 t CO <sub>2</sub> /MWh in 2007)
Energy taxation	Exemptions and relief from fuel and electricity taxes support the promotion of alternative fuels and renewable energy sources (RES) and the reduction of air pollutants; recently introduced environmental fees on

<i>Major policies and measures</i>	<i>Examples/comments</i>
	engine fuels
Emissions trading	The European Union emissions trading scheme (EU ETS) covers large installations with a net thermal input exceeding 20 MW in the energy and industry sectors. The EU ETS national allocation plans have been prepared for 2005–2007 and for 2008–2012.
Financial mechanisms	The National Fund for Environmental Protection and Water Management and other funds, including the National Green Investment Scheme, provide co-financing for the promotion of energy efficiency, RES and other climate-related projects that resulted in emission reductions of 1.8 Mt CO <sub>2</sub> eq in 2007.
Macro-level energy policies	Energy market liberalization (electricity and gas); restructuring of industrial sector; diversification of oil and gas import sources; mining of new coal deposits
Market-based instruments	Tradable certificates systems (with quota obligations) to promote wider use of RES, energy efficiency and combined heat and power (CHP)

*Policies and measures by sector*

*Energy*

Power supply	Development of highly efficient power generation units by replacing coal- and lignite-fired plants that have been in operation for over 30 years; reconstruction of existing and construction of new transmission and distribution networks; introduction of nuclear power plants (first plant planned in/after 2020); research and development work on carbon capture and storage and the use of shale gas for commercial application after 2020
CHP	A tradable certificate scheme has been introduced to promote CHP through the creation of incentives for energy generation companies to purchase electricity produced through cogeneration and to sell it to energy end-users
The Longer-term National Programme for Promotion of Biofuels and Other Renewable Fuels in Poland for 2008–2014	Sets the targets of reaching a 15 per cent share of RES in gross final energy consumption and a 10 per cent share of RES in transport fuels by 2020. The Renewable Energy Action Plan includes such measures as tradable certificates, investment support and guaranteed feed-in tariffs.
Energy efficiency improvements	Energy efficiency is a priority of PEP 2030 that aims to achieve the decoupling of energy and economic growth by 2030 and to reduce energy intensity to the level of the EU-15 (member States of the EU before 2004). The specific targets are to reach energy savings of 9 per cent in the non-ETS sectors by 2016 compared to average energy consumption in the period 2001–2005. The National Energy Efficiency Action Plan 2007 for the non-ETS sectors and the new Act on Energy Efficiency are in place. The key measures are the introduction of tradable certificates and the establishment of the Thermomodernization Fund. The building codes were adopted to promote the improved energy performance of buildings and energy efficient appliances. The new demand-side management technology (e.g. smart grid and metering) is being considered.

*Industry*

<i>Major policies and measures</i>	<i>Examples/comments</i>
Energy efficiency and industrial gas abatement	The EU ETS is a key PaM. The incentives and financing opportunities are provided by several funds to promote CHP, best available technologies and wider coverage by the energy audits. The reduction of N <sub>2</sub> O emissions from nitric acid production is achieved through joint implementation projects.
<i>Transport</i>	
The Longer-term National Programme for Promotion of Biofuels and Other Renewable Fuels in Poland for 2008–2014	Introduces a fuel economy standard and a vehicle tax and supports public awareness campaigns. Several national laws have been transposed from EU regulations, such as the EU directives on vehicle labelling, promotion of cleaner vehicles and biofuels in road transport. The key measures are traffic efficiency improvements, modal shifts in public transportation and the adoption of the best available technology approach.
<i>Agriculture</i>	
The National Strategic Plan for Poland for 2007–2013	Provides support to rural development and includes the measures for energy saving include biogas use, plant biomass harvesting, improved livestock feeding systems, especially for ruminants, improved cattle manure management, the rational use of fertilizers and the afforestation of agricultural land.
<i>Forestry</i>	
The National Programme for Forest Expansion	Sets a target of reaching 33 per cent of forest cover by 2050. It is supported by the incentive schemes for farmers, the protection of forests and the sustainable management of forests (including fire prevention).
<i>Waste</i>	
The National Waste Management Plan	Includes measures related to the reduction of waste, increasing waste reuse, recycling and rules for landfills

## 1. Policy framework and cross-sectoral measures

39. Poland's climate change policy is coordinated by the Ministry of Environment in cooperation with other ministries, especially with the Ministry of Economy and the Ministry of Infrastructure, that are responsible for the planning and implementation of the PaMs in the energy, industry, transport and residential sectors.

40. According to the NC5, the Council of Ministers adopted in 2003 the Climate Policy Strategy and in 2009 it adopted PEP 2030. Poland does not face any difficulties in meeting its Kyoto Protocol target for the first commitment period (see para. 86 below). Currently Poland's climate change policy is being revised to take into account the targets of the EU Climate and Energy Package. Several national legal acts, including those transposed from EU legislation, support the implementation of the climate change sectoral PaMs.

41. The EU Climate and Energy Package adopted in 2008 has set the so-called '20-20-20 targets' for the group of EU-27 (member States of the EU as of 2007), which include: the reduction of GHG emissions by 20 per cent below the 1990 level; the increase of the share of RES to 20 per cent of gross final energy consumption; and the reduction of primary energy consumption by 20 per cent by 2020. These targets are supported by several complementary EU directives transposed into the national legislation of Poland addressing specific climate-related sectors.

42. The EU ETS is the EU-wide cap-and-trade regulatory framework set to reduce CO<sub>2</sub> emissions from energy intensive installations, mainly in the energy supply and industry sectors. It covers 92 per cent of sources of CO<sub>2</sub> emissions in energy industries and 46 per cent of manufacturing industries and construction in 2008. The target for Poland is to reduce emissions by 21 per cent by 2020 compared to the 2005 level. The national allocation plans during the first and second phases of the EU ETS were prepared on the basis of free allocation of the allowances to individual installations covered by the EU ETS. During the third phase of the EU ETS (2013–2020), the plan is prepared on the basis of partial auctioning of allowances. Poland plans to use the revenue from auctioning to finance the measures contributing to energy efficiency and the use of RES and for research purposes.

43. In 2008, the EU effort-sharing decision<sup>6</sup> was taken to reduce emissions from sectors not covered by the EU ETS, such as transport, housing, agriculture and waste, by 2020. For these sectors, a national target was set to limit the emission growth to 14 per cent above the 2005 level by 2020 during 2013–2020.

## 2. Policies and measures in the energy sector

44. Between the base year and 2008, GHG emissions from the energy sector decreased by 32.5 per cent and its share of total GHG emissions (without LULUCF) decreased from 83.2 per cent to 79.8 per cent during this period. The emission trend was mainly driven by the restructuring of the economy and the economic slowdown until 2002, which resulted in reduced demand for domestic coal and lignite, mainly used in the energy supply sector. Since 2002, energy demand has been gradually growing, driven by the economic growth.

45. According to the NC5, measures to improve efficiency in the energy supply are the most significant PaM. Improvements in energy efficiency and diversification of energy sources provide double dividends by contributing to reaching climate change policy objectives and by enhancing national energy security.

46. As reflected in PEP 2030, Poland's energy policy has three main objectives, namely: strengthening national energy security; the mitigation of negative environmental impact; and the development of competitive fuel and energy markets. These objectives will be achieved through the PaMs in the following priority areas: the improvements in energy efficiency; the development of RES; the introduction of nuclear power; and the diversification of external oil and gas supply. Achievement of these objectives could generate multiple co-benefits. Poland has made efforts to harmonize its energy policy objectives that are geared towards ensuring national energy security with EU common policies through the promotion of energy efficiency, the use of RES and energy market liberalization.

47. Poland has introduced several market-based tradable policy instruments that complement the EU ETS and introduce an obligation for energy suppliers to increase the share of RES. These market-based instruments are aimed at increasing the use of renewable electricity, promoting energy efficiency, introducing CHP, increasing the use of biogas, natural gas and coal-bed methane and other measures.

48. **Energy supply.** In 2008, the energy industries sector contributed 44.1 per cent of total GHG emissions. This sector is therefore the largest CO<sub>2</sub>-emitting sector and presents the most significant emission reduction opportunities. Indigenous hard coal and lignite fossil resources are the dominant primary energy sources (amounting to 94 per cent in

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<sup>6</sup> Decision No. 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020.

2008). An essential feature of the electricity generation sector is its outdated physical infrastructure. In over half the power plants that are mostly coal- or lignite-fired the infrastructure is over 30 years old and approaching the end of its technical lifetime. This is also the case for the heating supply infrastructure. In addition, the electricity and heat transmission and distribution networks suffer from the same problems and incur high energy and heat losses as a result.

49. Recently, Poland has made efforts to strengthen its energy supply system by building new, highly efficient power plants; these are mainly fuelled by indigenous coal or lignite, while some use a CHP system based on natural gas. In addition, Poland plans to diversify its energy sources by introducing nuclear power plants in the early 2020s, increasing the number of renewable power plants (mainly wind, biomass and biogas) and renovating and constructing new power and heat grid systems.

50. Some new technologies and sources, such as carbon capture and storage and shale gas, are expected to contribute to both increasing emission reductions and ensuring energy security. However, more than a decade of research is needed before the technologies can become commercially viable.

51. **Renewable energy sources.** Currently, RES (mostly biomass) are used mainly for heating (90 per cent) and much less for electricity generation (8 per cent) and transportation (2 per cent). The promotion of RES is supported by the Renewable Energy Action Plan (2010), which identifies the measures needed to meet the target of a 15 per cent share of RES in gross final energy consumption by 2020. Wind energy (including offshore wind), biomass and biogas will be the main RES with an incremental capacity that could be used during the 2010s and beyond.

52. Another target in the context of renewable energy is set to increase the share of biofuels to 10 per cent of transport fuels by 2020. It is implemented through the Act on Biocomponents and Liquid Biofuels of 25 August 2006 and the Long-term Programme for Promotion of Biofuels and Other Renewable Fuels for 2008–2014. To help achieve the target, tax and excise duty exemptions have been put in place as a demand-side management measure.

53. A tradable green certificate system with obligatory quotas for electricity suppliers is a successful instrument that was introduced in 2005 aimed at increasing the use of renewable electricity. The target for the share of renewable electricity in total electricity supply has been set at 5.1 per cent in 2007 and 12.9 per cent in 2017. The Ministry of Economy monitors the effectiveness of the system. In addition, a guaranteed price and other preferential treatment, especially funding mechanisms such as loans and grants, have contributed to the promotion of electricity production from RES. A similar type of obligatory quota system has been introduced in the district heating system. Several other tradable certificate systems have been introduced (e.g. for promotion of biogas).

54. **Energy efficiency.** Poland has several indicative targets on energy efficiency. In accordance with the EU directive on energy efficiency,<sup>7</sup> the target for Poland is to achieve 9 per cent of energy savings for the non-ETS sectors by 2016 compared to the average gross energy consumption during 2001–2005. The measures to reach this objective have been adopted in the National Energy Efficiency Action Plan and the new Act on Energy Efficiency, which was adopted during the review in 2011. PEP 2030 also has set two general objectives: reducing the energy intensity of the economy to the level of the EU-15 (member States of the EU before 2004) average and decoupling energy and economic growth by 2030. Energy efficiency is the highest priority in PEP 2030.

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<sup>7</sup> Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services.

55. The new and cross-cutting policy instruments, such as the white certificates system for energy efficiency (with an obligation for energy suppliers), will start functioning as the result of adoption of the new Act on Energy Efficiency. White certificates will be awarded as confirmation of reductions in electricity consumption and in transmission and distribution losses as well as of improvements in electricity production performance. Enterprises that sell electricity, heat and natural gas will be obliged to receive and redeem a certain number of certificates that correspond to the implemented energy efficiency measures. White certificates should directly stimulate companies and enterprises to improve energy efficiency and to increase public awareness. This system will lead to the implementation of energy-saving technological solutions, rational energy management and optimized energy use; all of which will result in cost savings.

56. **Residential and commercial sectors.** As pointed out in the McKinsey & Company report on Poland,<sup>8</sup> there is a variety of high cost options in the residential and commercial sectors that would generate positive economic returns over their life cycle. In these sectors, the reduction of heat losses is a key policy objective, as the losses are significant and the share of thermal energy in final energy consumption is high in Poland (over 80 per cent).

57. As was reported in the NC5, the building codes and minimum energy performance standards for new and refurbished buildings have been introduced; however, their effectiveness is impaired by weak policy enforcement mechanisms. The Thermomodernization Fund has successfully provided financial support for upgrading the heating systems in existing buildings (16,000 investment projects were financed during the period 1999–2009). A smart metering approach is planned to be introduced by 2017 as a new technology for demand-side management of the smart grid, an electric grid system that predicts and responds to the needs of connected electric energy users. Energy efficiency standards have also been set for domestic electrical appliances.

58. **Transport sector.** Between 1988 and 2008, emissions from the transport sector increased by 98.5 per cent and its share of total GHG emissions (without LULUCF) increased from 3.9 per cent to 11.1 per cent over the same period. It is the most rapidly growing sector, with a growth rate of around 7 per cent/year, and it presents a significant challenge in terms of limiting emissions growth. As in most of other EU member States, the transport sector is characterized by growing road transportation, especially by an increasing number of private passenger cars, shifts from rail and other public transport modes and a growing demand for personal mobility.

59. In its NC5, Poland has reported that the national transport policy is harmonized with EU legislation. Poland has reported on the PaMs implemented to improve railway traffic management in order to encourage modal shifts from road to railway transportation and to enhance the energy efficiency of railway transport. In the public transport sector, Poland has introduced PaMs related to integrated public transport management and improved urban mobility. Poland has transposed a number of EU regulations, such as the EU directives on vehicle labelling,<sup>9</sup> the promotion of cleaner vehicles<sup>10</sup> and the promotion of biofuels in road transport,<sup>11</sup> and has implemented regional programmes, such as the Marco

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<sup>8</sup> An Assessment of Greenhouse Gas Emission Abatement Potential in Poland by 2030. Report carried out by McKinsey & Company, 2009.

<sup>9</sup> Directive 2010/30/EU of the European Parliament and of the Council of 19 May 2010 on the indication by labelling and standard product information of the consumption of energy and other resources of energy-related products.

<sup>10</sup> Directive 2009/33/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of clean and energy-efficient road transport vehicles.

<sup>11</sup> Directive 2003/30/EC of the European Parliament and of the Council of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport.

Polo II programme and the greening transport package. Measures have also been introduced in the following areas: improvements to the transportation system and infrastructure, including intermodal shifts; fiscal measures, such as a fuel tax and vehicle tax; measures related to technological upgrades, such as fuel economy standards and the adoption of the best available technology (BAT) approach; and public awareness-raising measures, including speed limits and public campaigns.

60. During the review, Poland provided the ERT with the results of its long-term sectoral development forecasts for 2030, which projected motorization indicators, demand for cargo and passenger transport and CO<sub>2</sub> emissions from transport. According to these forecasts, the emission reduction potential varies from 12 per cent to 27 per cent by 2030 under different sectoral development scenarios. It appears clear from the forecasts that the emissions from this sector will drive the emissions from the non-ETS sectors by 2020 and beyond and that additional effective PaMs are needed to limit the growth in emissions.

61. The ERT noted with concern that Poland has not provided information in its NC5 on its PaMs with respect to aviation and marine bunker fuels and on the steps it has taken to promote and implement any decisions by ICAO and IMO in order to limit or reduce emissions of GHGs not controlled by the Montreal Protocol from aviation and marine bunker fuels (see para. 28 above).

62. **Industrial sector.** In Poland, the manufacturing industries and construction sector is energy-intensive, especially when compared to other European countries. Among others, the coal mining, chemical, iron and steel, cement and food industries are the main GHG-emitting industries. The large industrial enterprises are covered by the EU ETS.

63. In its NC5, Poland has reported on the sectoral mitigation priorities, which include: upgrading to BAT; the promotion of energy-efficient technological solutions for emission reductions; research and development in the area of new materials and energy-saving technologies; and technological modernization in the iron and steel industry. These priorities are included in the State Development Strategy for the period 2007–2015. In addition to these policies, Poland reported on the tradable certificates systems that were introduced in 2007 to promote the use of CHP and energy efficiency in this sector. The National Fund for Environmental Protection and Water Management and other funds provide ‘soft’ loans for investment in technological modernization and for the introduction of the BAT approach to energy efficiency as well as for the co-financing of the costs of energy audits. The GIS is also used to provide funding for policies, projects and activities in this sector.

### 3. Policies and measures in other sectors

64. Between the base year and 2008, GHG emissions from industrial processes (including solvent and other product use), agriculture and waste decreased by 18.1 per cent, mainly driven by the decrease in the agriculture (28.4 per cent) and the solvent and other product use (26.3 per cent) sectors. The main drivers of emissions are a reduction in the livestock population, a reduction of N<sub>2</sub>O emissions from agricultural soils and a reduction in industrial production.

65. **Industrial processes.** Between 1988 and 2008, emissions from the industrial processes sector decreased by 2.5 per cent, whereas this sector’s share of total GHG emissions increased from 5.8 per cent to 8.4 per cent over the same period. As reported in the NC5, the national policies in this sector focused on the restructuring and modernization of industry, the privatization of business entities, the enhancement of economic and financial performance and the promotion of cost-effective economic activity.

66. In its NC5, Poland has provided limited information on the PaMs regulating the use of F-gases. During the review, Poland informed the ERT that a new legal act on F-gases

will be adopted by the end of 2011 transposing the EU regulation on F-gases<sup>12</sup> and the EU directive on mobile air-conditioning.<sup>13</sup> According to this new act, a certification, reporting and monitoring system will soon be established and supported by the central register of operators of F-gases.

67. **Agriculture.** Between 1988 and 2008, emissions from the agriculture sector decreased by 28.4 per cent, but the sector's share of total GHG emissions (without LULUCF) remained stable, increasing from 9.2 per cent to 9.3 per cent. According to the information received during the review, the main drivers of emissions in this sector are a reduction in the livestock population, especially that of sheep, a decrease in the use of nitrogen fertilizers, and a reduction in the areas of nitrogen-fixing crops and cultivated histosols.

68. In its NC5, Poland has reported on the National Strategic Plan for the period 2007–2013, which has been prepared based on the EU regulation on support for rural development<sup>14</sup> and has set the basis for the implementation of the Rural Development Programme. The PaMs in this sector are split between organizational (the rational use of fertilizers, the modernization of farms, the use of RES, etc.), economic (subsidies to farmers for carbon-fixing plants) and research and development (the optimization of fuel use, harvesting techniques, harvesting plant biomass, sustainable manure management and underground waste use for meadows and pastures) measures. During the review, Poland informed the ERT that a notable reduction in N<sub>2</sub>O emissions from nitric acid used in fertilizer production had resulted from the implementation of joint implementation (JI) projects.

69. **LULUCF.** Between 1988 and 2008, net removals from the LULUCF sector in Poland increased by 111.8 per cent. The sector is a net sink of 39.2 Tg CO<sub>2</sub> eq and its carbon sequestration capacity was equal to 9.9 per cent of total GHG emissions in 2008.

70. In its NC5, Poland has reported on existing PaMs aimed at the protection of forests, the sustainable management and use of forests, fire prevention and afforestation. Poland's approach to forest management limits the enlargement of standing timber stocks to 50–60 per cent of the annual biomass and also includes the afforestation of non-forest land (abandoned agricultural land) and reforestation. According to the NC5, under the National Programme for Forest Expansion (approved in 1995 and updated in 2003), Poland has adopted plans to increase forest cover from 28 per cent to 30 per cent by 2020 and to 33 per cent by 2050, reinstate and rehabilitate forest ecosystems and regenerate devastated and neglected tree stands in private forests.

71. During the review, Poland provided additional information on the objectives of the ongoing Programme for Forest Expansion aimed at increasing the overall timber volume, carbon storage capacity and amount of biomass used for commercial purposes. Forest harvesting is based on a ratio of total annual harvest to total annual increment that is kept at the level of 55 per cent. Poland reported an upward trend in forest harvesting during the period 1988–2009 with a peak in 2007.

72. **Waste management.** Between 1988 and 2008, emissions from the waste sector decreased by 8.9 per cent and its share increased from 1.7 per cent to 2.2 per cent of total GHG emissions. The emission trend was fairly stable, compared to the other sectors, throughout the reported period.

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<sup>12</sup> Regulation (EC) No. 842/2006 of the European Parliament and of the Council of 17 May 2006 on certain fluorinated greenhouse gases.

<sup>13</sup> Directive 2006/40/EC of the European Parliament and of the Council of 17 May 2006 relating to emissions from air-conditioning systems in motor vehicles.

<sup>14</sup> Council regulation (EC) No. 1698/2005 of 20 September 2005 on support for rural development by the European Agricultural Fund for Rural Development.

73. According to the NC5, the key policy document in this sector is the National Waste Management Plan for the period 2007–2010. During the review, the ERT learned that in 2010 a new waste management plan had been adopted for the period 2011–2018. The objective of the new plan is to strengthen the waste management system by preventing and minimizing waste generation and promoting rational waste use. The national policy framework is harmonized with the EU directive on waste<sup>15</sup> through the new Act on Waste that is under discussion. Important elements of the newly adopted policy documents in the context of climate change mitigation include waste reduction, the introduction of new waste management practices, increasing waste reuse and recycling, and new regulations on waste landfills.

#### **4. Minimization of adverse effects in accordance with Article 2, paragraph 3, of the Kyoto Protocol**

74. In its NC5, Poland did not report information on how it strives to implement PaMs under Article 2 of the Kyoto Protocol in such a way as to minimize adverse effects, including the adverse effects of climate change and effects on international trade and social, environmental and economic impacts, on other Parties, especially developing country Parties. Further information on how Poland strives to implement its commitments under Article 3, paragraph 1, in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties, as reported in the 2010 annual submission, is presented in chapter II.I of this report.

75. During the review, Poland provided some limited information on this issue. The Party informed the ERT that it strives to ensure national energy security and reduce reliance on fossil fuel resources imported from other Parties. Poland has developed and utilized clean coal technologies for many years. The ERT notes that, by promoting the transfer of such technologies and practices, Poland can contribute to the modernization of the coal mining industries in developing country Parties that heavily rely on the use of coal resources. The ERT also notes that Poland has used many effective economic policy instruments to promote energy efficiency, such as funding and tradable certificates with obligatory quotas for energy suppliers, which could result in the minimization of adverse impacts and be shared with developing country Parties. In addition, Poland has extensive experience in the promotion of biogas technology in the agriculture sector. The ERT recommends that Poland continue exploring the effects of its PaMs and report in its next national communication on how it strives to implement PaMs in such a way as to minimize adverse effects.

### **C. Projections and the total effect of policies and measures, and supplementarity relating to the Kyoto Protocol mechanisms**

76. The emission projections are prepared by KOBIZE on a biannual basis for all sectors of the economy. The ERT commends Poland for improving the structure and enriching the content of the projections section of the NC5 compared to the NC4. The ERT also commends Poland for the prompt and effective response to the request for additional information during the review. However, the ERT encourages Poland to explore opportunities to improve the reporting on projections by using the information and activity data (AD) available at the various agencies and institutes involved in the preparation of the national GHG inventory. Poland explained during the review that one of the main aims of the recent Act of 17 July 2009 on the System to Manage the Emissions of Greenhouse Gases and Other Substances is to contribute to this purpose.

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<sup>15</sup> Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste.

## 1. Projections overview, methodology and key assumptions

77. The GHG emission projections reported by Poland in the NC5 include a ‘with measures’ scenario for the years 2015, 2020 and 2030. The projections are presented on a sectoral basis and on a gas-by-gas basis for the following GHGs: CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O. The projections for perfluorocarbons, hydrofluorocarbons and sulphur hexafluoride have been reported, but not on a sectoral basis. In addition, the projections have been provided in an aggregated format for each sector as well as for the national total. In the NC5, the emission projections have been provided for the activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol but not for the whole LULUCF sector. The ERT notes that Poland did not include ‘without measures’ or ‘with additional measures’ scenarios.

78. The ERT notes that, in its NC5, Poland did not provide the following reporting elements required by the UNFCCC reporting guidelines: emission projections for 2010; emission projections for the LULUCF sector; and emission projections related to fuel sold to ships and aircraft engaged in international transport (which should be reported separately and not included in the totals). The sectors used in the section on projections do not fully correspond to the sectors used in the section on PaMs. However, during the review, the missing emission projections for 2010 and for the LULUCF sector were provided, along with the updated emission projections for the activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol. The ERT reiterates the recommendation of the previous review report that Poland include in its next national communication the projections related to fuel sold to ships and aircraft engaged in international transport reported separately and not included in the totals. In addition, the ERT strongly recommends that Poland report the complete information on the projections for all sectors and for all gases and include the information provided during the review in its next national communication.

79. The ERT further notes that Poland did not provide projections in the NC5 of the following indirect GHGs: carbon monoxide, nitrogen oxides, non-methane volatile organic compounds and sulphur dioxide. However, this information was provided to the ERT during the review. The ERT therefore encourages Poland to include this information in its next national communication.

80. The ‘with measures’ scenario referred to in the NC5 as the ‘PEP’09’ scenario is referenced to 2007. It includes the effects of the full implementation of existing and adopted PaMs as well as the assumption that the targets for RES will be met according to the EU Climate and Energy Package (i.e. 15 per cent RES in gross final energy consumption by 2020 and 10 per cent of biofuels in transport fuels by 2020). This scenario also takes into account the present global economic downturn. The ERT notes that it is not clear which PaMs from those included in the table in annex III to the NC5 are included in the ‘with measures’ scenario. The ERT recommends that Poland present this information more transparently in its next national communication and reiterates a recommendation of the previous review report that Poland establish a clear link between the PaMs and their quantified effects, on the one hand, and the total effect of PaMs as reflected in the projection scenarios, on the other hand. The ERT also encourages Poland to develop a ‘with additional measures’ scenario in order to include the effect of planned PaMs and to report on such a scenario in its next national communication.

81. KOBIZE is the unit of the Institute of Environmental Protection, a national research institute, that compiles the GHG emission projections based on the projections of AD prepared by the relevant ministries and national institutes. The methodology used for the preparation of the projections is broadly the same as in the NC4. Two different approaches were followed. In the energy sector, the projections of AD are obtained by the use of the following models: MAED, BALANCE and WASP IV. In the non-energy sectors, the projections of AD were provided mainly by the Ministry of Economy and the Ministry of Agriculture and Rural Development and were also taken from the National Waste

Management Plan. These data were based on the observed emission trends and expert judgment on future emission trends. The projections of AD were used as the basis for GHG emission projections and the procedure for preparing the projections is well documented. The ERT encourages Poland to include, in its next national communication, the information presented during the review related to the energy models, on the one hand, and the assumptions and models used for projecting the AD in the non-energy sectors, on the other hand, in order to improve the transparency of its reporting.

82. In its NC5, Poland has reported information on the key assumptions used for the energy projections, such as growth of gross domestic product (GDP) (which was updated to take into account the recent global economic developments), gross value added per sector of the economy and the national RES targets. During the review, additional key assumptions were presented, such as those on tax levels, international fuel prices, CO<sub>2</sub> prices for each phase of the EU ETS and electricity imports and exports. The ERT commends Poland for the application of the advanced models and the use of detailed emission factors for the projections, but also encourages Poland to include a detailed analysis of the key assumptions used for the projections in its next national communication. Further, the ERT encourages Poland to include information on the changes to the key assumptions between the current and the previous national communications and how these changes affect the emission projections.

83. Although the RES targets considered in the emission projections were transparently explained, the information on the assumptions and targets for energy efficiency improvements was not. The ERT encourages Poland to present this information in a transparent way in its next national communication. The ERT noted some inconsistencies in the time series of emissions from the energy, industrial processes and waste sectors. These inconsistencies hinder the understanding of the past emission trends. Therefore the ERT encourages Poland to address the issue of consistency of the emission time series in its next national communication.

84. Poland has reported a sensitivity analysis for the first time in the NC5. Four scenarios were analysed covering the energy and agriculture sectors and referring to the year 2030. The projected emissions fall within a range of about  $\pm 4$  per cent of the projections under the 'with measures' scenario. The ERT commends Poland for improving its reporting by providing a sensitivity analysis. However, the ERT encourages Poland to prepare and report in its next national communication the sensitivity scenarios dealing with the impact of assumptions related to uncertainty of the macroeconomic data, such as GDP, fuel prices and CO<sub>2</sub> prices, by using, for example, the relevant scenarios prepared by the Ministry of Economy in the preparation of PEP 2030.

## 2. Results of projections

85. Poland's Kyoto Protocol base year emissions are equal to 563.44 Tg CO<sub>2</sub> eq, as was established during the initial review.<sup>16</sup> Poland committed to a 6 per cent emission reduction in relation to the base year (1988) level during the Kyoto Protocol first commitment period (2008–2012). This yields a target of 529.64 Tg CO<sub>2</sub> eq of average annual emissions for the first commitment period.

86. Poland is on track to exceed this target by domestic efforts alone. According to the 2010 annual submission, in 2008, Poland's total GHG emissions (without LULUCF) amounted to 397.05 Tg CO<sub>2</sub> eq or 29.6 per cent below the base year level, and 25.0 per cent below the Kyoto Protocol target.

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<sup>16</sup> FCCC/IRR/2007/POL.

87. Under the ‘with measures’ scenario presented during the review, in 2010 Poland’s total GHG emissions (without LULUCF) are 376.43 Tg CO<sub>2</sub> eq or 28.9 per cent below the Kyoto Protocol target. Under the ‘with measures’ scenario presented during the review, in 2020 Poland’s total GHG emissions (without LULUCF) are projected to amount to 363.39 Tg CO<sub>2</sub> eq or 35.5 per cent below the base year level. According to the information provided during the review, the activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol are expected to provide removal units of about 40 Tg CO<sub>2</sub> eq cumulatively during the Kyoto Protocol first commitment period.

88. During the review, Poland provided a ‘without measures’ scenario, referred to as ‘business as usual’. According to this scenario, total GHG emissions (without LULUCF) are projected to be 380.96 Tg CO<sub>2</sub> eq in 2010, 401.34 Tg CO<sub>2</sub> eq in 2015 and 428.59 Tg CO<sub>2</sub> eq in 2020. The key results of Poland’s GHG emission projections are provided in table 4 and the emission trends are illustrated in the figure below.

Table 4  
**Summary of greenhouse gas emission projections for Poland**

	<i>Greenhouse gas emissions (Tg CO<sub>2</sub> eq per year)</i>	<i>Changes in relation to base year level (%)</i>	<i>Changes in relation to 1990 level (%)</i>
Inventory data 1990 <sup>a</sup>	453.31	-19.5	-
Inventory data 2008 <sup>a</sup>	397.05	-29.6	-12.4
Kyoto Protocol base year <sup>b</sup>	563.44	-	+24.3
Kyoto Protocol target <sup>b</sup>	529.64	-6.0	+16.8
<i>Projections in the NC5:</i>			
‘With measures’ projections for 2015 <sup>c</sup>	377.60	-33.0	-16.7
‘With measures’ projections for 2020 <sup>c</sup>	366.03	-35.0	-19.3
<i>Updated projections 2011:</i>			
‘Without measures’ projections for 2010 <sup>d</sup>	380.96	-32.4	-16.0
‘Without measures’ projections for 2020 <sup>d</sup>	428.59	-24.0	-5.5
‘With measures’ projections for 2010 <sup>d</sup>	376.43	-33.2	-17.0
‘With measures’ projections for 2020 <sup>d</sup>	363.39	-35.5	-19.8

*Abbreviation:* NC5 = fifth national communication

<sup>a</sup> *Data source:* Poland’s 2010 greenhouse gas (GHG) inventory submission; the emissions are without land use, land-use change and forestry (LULUCF).

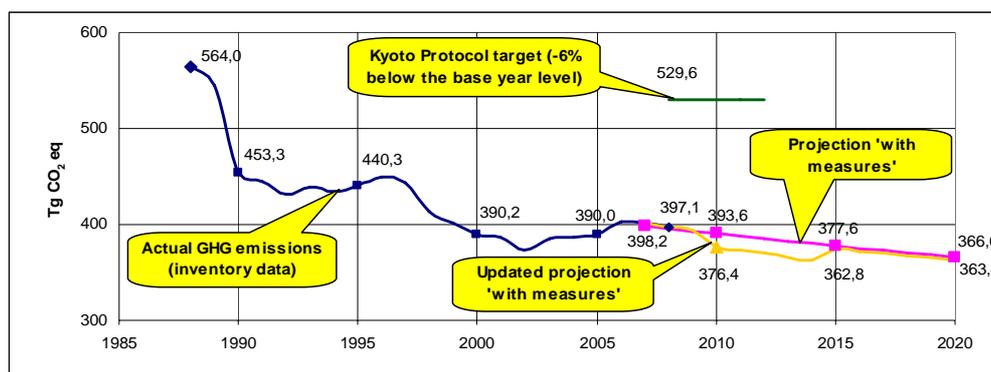
<sup>b</sup> *Data source:* Based on the initial review report contained in document FCCC/IRR/2007/POL.

<sup>c</sup> *Data source:* Poland’s fifth national communication.

<sup>d</sup> *Data source:* Updated projections provided by the Party during the in-depth review; the projections are for GHG emissions without LULUCF.

*Sources:* (1) Data for the period 1988–2008: Poland’s 2010 greenhouse gas (GHG) inventory submission (the emissions are without land use, land-use change and forestry (LULUCF)); (2) Data for the period 2007–2020: Poland’s fifth national communication (the emissions are without LULUCF) and the updated projections provided by the Party during the review.

## Greenhouse gas emission projections



89. Under the 'with measures' scenario reported by gas in the NC5, between the base year and 2020, CO<sub>2</sub> emissions are expected to decrease by 37.2 per cent, CH<sub>4</sub> emissions by 32.5 per cent, N<sub>2</sub>O emissions by 22.1 per cent and F-gases by 2.0 per cent. The relative contribution of each gas to total GHG emissions (in CO<sub>2</sub> eq) in 2015 and 2020 is almost constant over time: 81 per cent and 82 per cent for CO<sub>2</sub>; 9 per cent and 10 per cent for CH<sub>4</sub>; 8 per cent and 9 per cent for N<sub>2</sub>O; and 1 per cent and 1 per cent for F-gases, respectively.

90. The projections reported in the NC5 were the most recent projections available at the time of the review, with the exception of the updated sectoral projections for the industrial processes and LULUCF sectors that were presented during the review. The emission projections for the industrial processes sector were modified by Poland to take into account the updated AD concerning clinker production and the updated N<sub>2</sub>O emission factor related to nitric acid production. The projections for the LULUCF sector presented during the review indicate a steep decreasing trend in the carbon sink capacity due to increased harvesting; this projected trend does not follow the historical emission trends for the period 1988–2007. Poland informed the ERT that the projections for the LULUCF sector are still tentative and will be finalized by 2012.

91. The ERT notes that: the projections for the industrial processes sector are based on limited AD; the projections for the transport sector are underestimated compared to the latest actual emissions data for 2009 that were presented during the review; the projected increasing emission trend until 2020 in the waste sector is not in line with the observed decreasing emission trend for the period 2000–2009. The ERT encourages the Party to address these issues and improve the methodology used for preparation of the projections in its next national communication.

92. Poland informed the ERT that an Ordinance of the Council of Ministers on changes to the projections of AD is under preparation; once it is adopted, it will enable the inventory team to collect updated input data for emission projections. The ERT commends Poland for its efforts to update the emission projections and encourages the Party to report the most updated and accurate projections in its next national communication.

93. During the review, Poland provided the ERT with the initial assessment of its compliance with the 2020 target for the non-ETS sectors in accordance with the EU effort-sharing decision, which shows that this target will be achieved under the 'with measures' scenario. The ERT encourages Poland to include information on meeting the national long-term targets in its next national communication.

**3. Total effect of policies and measures**

94. The ERT notes that, in its NC5, Poland has not reported the total effect of its PaMs, in accordance with the ‘with measures’ scenario definition, compared to a situation without such PaMs, presented in terms of GHG emissions avoided or sequestered, by gas (on a CO<sub>2</sub> eq basis). This information cannot be assessed on the basis of the section on PaMs, since the expected effect of individual PaMs was not reported in the NC5 for all PaMs, although some limited information was provided in the NC5.

95. However, during the review, Poland provided the ERT with the estimated total effect of implemented and adopted PaMs, which was estimated at 4.53 Tg CO<sub>2</sub> eq in 2010, 27.19 Tg CO<sub>2</sub> eq in 2015 and 65.21 Tg CO<sub>2</sub> eq in 2020. Poland calculated the total effect of implemented and adopted PaMs by taking the difference between the ‘with measures’ scenario and a ‘business as usual’ scenario provided during the review (see para. 88 above). The ERT reiterates the recommendation of the previous review report that Poland include, in its next national communication, the total effect of implemented and adopted PaMs and present this information in terms of GHG emissions avoided or sequestered, by gas and by year. The ERT also encourages Poland to report the total effect of planned PaMs in its next national communication (see para. 80 above).

96. According to the information provided during the review, the PaMs implemented in the energy sector will deliver the largest emission reductions, estimated at 3.96 Tg CO<sub>2</sub> eq in 2010, 23.75 Tg CO<sub>2</sub> eq in 2015 and 62.57 Tg CO<sub>2</sub> eq in 2020. The PaMs implemented in the industrial processes sector are projected to result in emission reductions of 0.57 Tg CO<sub>2</sub> eq in 2010, 3.44 Tg CO<sub>2</sub> eq in 2015 and 2.64 Tg CO<sub>2</sub> eq in 2020. No information about the effect of the PaMs in other sectors was provided during the review. The ERT encourages Poland to report the effect of PaMs in all sectors in its next national communication. Table 5 provides an overview of the total effect of implemented and adopted PaMs as reported by Poland during the review.

Table 5  
**Projected effects of implemented and adopted policies and measures in 2010 and 2020**

Sector	<i>Effect of implemented and adopted measures (Tg CO<sub>2</sub> eq)</i>	<i>Relative value (% of 1990 emissions)</i>	<i>Effect of implemented and adopted measures (Tg CO<sub>2</sub> eq)</i>	<i>Relative value (% of 1990 emissions)</i>
	2010		2020	
Energy	3.96	1.1	62.57	17.0
Industrial processes	0.57	2.4	2.64	11.2
<b>Total</b>	<b>4.53</b>	<b>1.0</b>	<b>65.21</b>	<b>14.4</b>

Source: Information provided during the review.

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

97. During the review, Poland informed the ERT that it expects to achieve its Kyoto Protocol target during the first commitment period by domestic action alone. Poland also noted that the Government does not plan to use emission reduction units (ERUs) from JI or certified emission reduction units from the clean development mechanism to meet this target. However, Poland reported that JI and emissions trading under Article 17 (through the GIS) will contribute to further emission reductions (at the government level). The ERT therefore concludes that Poland’s use of the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol fulfils the condition of supplementarity.

98. In its NC5, Poland has reported that the institutional arrangements in place to coordinate activities related to participation in the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol were established by the provisions of the Act of 17 July 2009 on the System to Manage the Emissions of Greenhouse Gases and Other Substances. As explained by Poland during the review, at the time of the review, 17 JI projects had been approved, with anticipated 17.8 million ERUs. With regard to the GIS, 151 applications for projects funded under the GIS have been submitted so far, of which 34 applications have already been approved. The implementation of these projects will start in 2011 and their anticipated effect on emission reductions is estimated at 750 kt CO<sub>2</sub> eq/year. The ERT commends Poland for the institutional arrangements put in place to coordinate and promote activities related to JI and the GIS. However, the ERT encourages Poland to include the more detailed information provided during the review on the use of these mechanisms in its next national communication.

99. During the review, Poland pointed out that, in accordance with the EU linking directive,<sup>17</sup> companies that are under the EU ETS can meet their emission reduction targets by offsetting their emissions through the acquisition of emission allowances from the market. Poland's companies can use up to about 20 Mt CO<sub>2</sub> eq/year (a total of 100 Mt CO<sub>2</sub> eq for the period 2008–2012) of carbon credits, which corresponds to 10 per cent<sup>18</sup> of their annual cap.

#### **D. Vulnerability assessment, climate change impacts and adaptation measures**

100. In its NC5, Poland has reported the required information on the expected impacts of climate change in the country and the action to be taken to implement Article 4, paragraph 1(b) and (e), of the Convention with regard to adaptation. Poland identified the following four sectors as the most vulnerable: agriculture, coastal zones, water resources and forestry. These sectors are highly sensitive to climate variability and weather extremes. However, the background information on the reasons and basis for selecting these sectors for the climate change impact assessment has not been clearly provided by the Party. Table 6 summarizes the information on vulnerability and adaptation to climate change presented in the NC5.

Table 6  
**Summary of information on vulnerability and adaptation to climate change**

<i>Vulnerable area</i>	<i>Examples/comments/adaptation measures reported</i>
Agriculture	<p><i>Vulnerability:</i> Diverse impacts, including positive effects owing to an extended period of agricultural productivity, a greater potential for thermophilous crop yields, shorter crop ripening periods and increased net primary production; and negative effects owing to reduced yields resulting from the increased prevalence of pests and diseases; the inhibition of germinating processes as a result of the temperature rise; reduced soil moisture and an increased cost of animal production; drought; and expected shortages of water for agriculture</p> <p><i>Adaptation:</i> Changes in plant cultivation; modifications in agrotechnology practices; changes in the selection of plant species grown and places of</p>

<sup>17</sup> Directive 2004/101/EC of the European Parliament and of the Council of 27 October 2004 amending Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms.

<sup>18</sup> Approved JI/clean development mechanism limit (per cent of allocation) according to the approved EU ETS national allocation plan.

<i>Vulnerable area</i>	<i>Examples/comments/adaptation measures reported</i>
	cultivation; implementation of the regional programme for adaptation of agriculture in north-eastern Poland, with guidelines on good agricultural practices under changing climate conditions; and the development of a water management strategy in the agriculture sector
Coastal zones	<i>Vulnerability:</i> Potential sea level rise and floods, increased frequency and intensity of storms, drought spells, increase in rainfall and sea temperatures <i>Adaptation:</i> Building, reconstruction and maintenance of a system to protect coastal areas against flooding through integrated coastal zone management under the sea coast protection programme for 2004–2023; monitoring of the sea coast; modernization of hard coastal defenses; artificial nourishment of beaches; modernization of bank strengthening or conservation of the flood embankment
Forests	<i>Vulnerability:</i> Changes in the biotic environment; limited capabilities for retaining groundwater and mitigating extreme surface water flows; soil degradation and erosion; reduction in genetic resources of flora and fauna; losses of biodiversity and natural landscape <i>Adaptation:</i> Development and implementation of a strategy to facilitate adaptation to climate change in the forestry sector
Water resources	<i>Vulnerability:</i> Changes in the water balance (outflow and evaporation); changes in inland water quality; increased frequency of extreme hydrological events (droughts and floods) <i>Adaptation:</i> Monitoring of changes in the water balance; scientific research aimed at predicting potential changes in the water balance and changes in the biological, chemical and physical characteristics of aquatic ecosystems; enhancement of the effectiveness of protection against the effects of floods and drought; implementation of multi-functional retention reservoirs; development of small water retention reservoirs as well as the building of new retention reservoirs of broader regional value

101. In the NC5, the assessment of climate change impacts focuses on ecosystems related to the agriculture, water resources, coastal zone and forestry sectors, as in the NC4. The ERT notes that the time frame for the scenarios and the assessment of the impact on socio-economic systems has not been provided. However, during the review, the Party informed the ERT about the recently launched research programmes in Poland, which deal with more comprehensive assessments of climate change impacts. The ERT commends the Party for this effort and encourages Poland to include, as far as practical, a description of an integrated assessment of climate change impacts in its next national communication.

102. The Party provided information on targeted response measures aimed at enhancing adaptation to climate change, in particular in the agriculture and coastal zone sectors, and at facilitating the implementation of Article 4, paragraph 1, of the Convention. During the review, Poland further informed the ERT that a national adaptation strategy is being developed and its implementation will start in 2013.

103. Information on Poland's cooperation with Parties not included in Annex I to the Convention in preparing for adaptation is not transparently reported in the NC5. However, during the review, the ERT noted Poland's efforts to support developing countries through its international development cooperation agenda at both the bilateral and the multilateral levels.

## **E. Financial resources and transfer of technology, including information under Articles 10 and 11 of the Kyoto Protocol**

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

104. As Poland is not included in Annex II to the Convention, the Party did not provide specific detailed information on measures taken in accordance with Article 4, paragraphs 3, 4 and 5, of the Convention. However, the ERT recognizes the efforts made by Poland to provide support to developing countries through its international development cooperation agenda. During the review, the ERT received additional information on ‘new and additional’ financial resources, which has been reported in the Party’s 2011 annual submission. Poland allocated USD 3.2 million as part of its fast-start financing to support the bilateral projects in Afghanistan, Belarus, China, Georgia and Ukraine.

### **2. Activities related to transfer of technology, including information under Article 10 of the Kyoto Protocol**

105. In its NC5, Poland has reported information on the transfer of technology to developing country Parties as part of its international development cooperation agenda. During the review, the Party provided additional information on the GreenEvo initiative. The ERT recognizes the potential positive impacts of the GreenEvo initiative on facilitating access by developing countries to technologies.

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

106. Poland has provided information on its actions relating to research and systematic observation and has addressed both domestic and international activities, including in association with the Global Climate Observing System (GCOS), the World Climate Programme (WCP), the International Geosphere–Biosphere Programme, the European Global Ocean Observing System (EuroGOOS) and the Intergovernmental Panel on Climate Change (IPCC). Poland has provided a summary of information on GCOS activities. During the review, Poland informed the ERT about data availability and exchange in the implementation of GCOS activities.

107. The NC5 does not specifically reflect information on actions taken to support related capacity-building in developing countries. However, during the review, Poland informed the ERT about various initiatives under its international development cooperation agenda to support capacity-building activities in developing countries. The ERT also took note of the fact that Poland is an economy in transition and may require additional capacity-strengthening. Notwithstanding, the ERT recommends that Poland provide, to the extent possible, information in its next national communication on actions taken to support capacity-building in developing countries for research and systematic observation.

108. Poland has provided extensive information on funding and funding needs for research in the following areas: the National Framework Programme; climate policy; and fields of research activity. A number of institutions and research organizations in Poland are engaged in research on climate change. Key research activities are focused on historical research on climate change, modelling climatic processes, the development of climate change scenarios, and climate change impact assessment. Socio-economic analysis and research and development on mitigation and adaptation technologies have been reported as future priorities. Detailed information is provided in the NC5 on Poland’s activities with respect to meteorological and atmospheric observation, ocean observation, terrestrial observation, space-based observation programmes and the monitoring of GHGs. The ERT

commends Poland for improving the transparency of its reporting on research and systematic observation.

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

109. In its NC5, Poland has reported on its activities relating to education, training and public awareness, as required by the UNFCCC reporting guidelines. The information reported in the NC5 is more detailed compared to the NC4 and the ERT commends the Party for this effort.

110. The Party provided comprehensive information on its education policy on climate change and the environment as well as on formal and informal training. In 2003, the Ministry of National Education issued a directive on mandatory education on the environment and climate change from nursery school level to higher levels of education. The national legislation provides broad opportunities for environmental education, which are laid down in the Act on Environmental Protection Law, the National Environmental Education Strategy and the Climate Policy Strategy. A broad spectrum of environmental topics is also covered both by state high schools and universities and by private high schools in Poland as part of their courses on hazards to the environment, including climate change.

111. The Ministry of Environment has implemented a programme to raise the qualifications of environmental personnel, including a Training Centre for Environmental and Water Management Personnel. Ministerial research institutes also undertake educational activities, mainly through the training of graduate students and actions for post-secondary school and high school students.

112. The Ministry of Environment disseminates information on environmental protection and water management through the mass media to the general public and also facilitates free public access to information on climate change via a web portal. Promotional and information campaigns, such as European mobility week, exhibitions during the fourteenth session of the Conference of the Parties and the clean business programme have been reported in the NC5. Poland has also provided information on its participation in international environmental protection programmes such as the Global Learning and Observations to Benefit the Environment programme involving 20,000 schools from 110 countries and the Baltic Sea Project of the United Nations Educational, Scientific and Cultural Organization involving a network of schools in the Baltic States. Other international organizations, embassies and cultural representatives in Poland are also engaged in various climate change programmes. An example of this is the “Zero carbon city” programme and information campaign on environmentally friendly energy.

113. In Poland, significant attention is paid to financing international environmental education programmes. Poland has provided assistance to graduate, postgraduate and doctoral studies as well as post-doctoral programmes for participants from over 90 countries. The NC5 provides information on awareness raising activities undertaken by non-governmental organizations (NGOs) and various climate related actions carried out by a number of public bodies and NGOs.

114. Information on public consultation and public participation, especially in the process of preparation of the national communication, is not clearly discernable in the NC5. However, during the review, the ERT noted the Party’s efforts to ensure wider stakeholder consultation across various constituencies. The ERT therefore encourages the Party to provide in its next national communication more concise information on the engagement of stakeholders in preparation of the national communication, highlighting the relevant procedure, format and priorities.

## H. Evaluation of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol

115. Poland has provided most of the supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol in its NC5. The supplementary information is placed in different sections of the NC5 and the 2009 NIR. Table 7 provides an overview of supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol as well as references to the NC5 sections in which this information is provided.

116. Poland has not reported the following elements of the supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol: contact information for the national entity that has overall responsibility for the national inventory; a description of the national registry; information on steps taken to promote and/or implement any decisions by ICAO and IMO in order to limit or reduce emissions of GHGs not controlled by the Montreal Protocol from aviation and marine bunker fuels; information on the efforts Poland is making to implement PaMs in such a way as to minimize adverse effects, including the effects of climate change, effects on international trade, and social, environmental and economic impacts, on other Parties, particularly those identified in Article 4, paragraphs 8 and 9, of the Convention; and a description of national legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol also contributes to the conservation of biodiversity and the sustainable use of natural resources. However, the information on the efforts Poland is making to implement PaMs in such a way as to minimize adverse effects and a description of national legislative arrangements and administrative procedures were provided during the review. The technical assessment of the information reported under Article 7, paragraph 2, of the Kyoto Protocol is contained in the relevant sections of this report. The ERT recommends that Poland include these reporting elements in its next national communication.

Table 7

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

<i>Supplementary information</i>	<i>Reference</i>
National registry	NIR 2009, annex 4
National system	NIR 2009, pages 9–13
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol	NC5, chapter 4
Policies and measures in accordance with Article 2	NC5, chapter 4
Domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures	NC5, chapters 2 and 4
Information under Article 10 <sup>a</sup>	NC5, chapters 3, 4, 6, 7, 8 and 9 and NIR 2009
Financial resources <sup>a</sup>	NC5, chapter 7

<sup>a</sup> As a country with an economy in transition, Poland does not have to report on the implementation of Article 11 of the Kyoto Protocol, including on the provision of “new and additional” financial resources.

*Abbreviations:* NC5 = fifth national communication, NIR = national inventory report.

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

117. Poland reported the information requested in section H. Minimization of adverse impacts in accordance with Article 3, paragraph 14, of the annex to decision 15/CMP.1 as a part of its 2010 annual submission. During the review, Poland provided the ERT with the additional information on how it strives to implement its commitments under Article 3, paragraph 1, of the Kyoto Protocol in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties, particularly those identified in Article 4, paragraphs 8 and 9, of the Convention. The ERT considers the reported information to be transparent and complete. However, the ERT recommends that Poland continue exploring the impacts and provide further information, in its next annual submission, on how it strives to implement its commitments under Article 3, paragraph 14, of the Kyoto Protocol. Furthermore, the ERT encourages Poland to provide information on how it gives priority in implementing its commitments under Article 3, paragraph 14, of the Kyoto Protocol.

118. The 2010 NIR and the additional information provided during the review presented several initiatives of Poland aimed at minimizing adverse impacts, including its efforts to develop clean and advanced technologies, such as coal gasification and liquefaction, in order to use its domestic coal and lignite resources. Poland, as an EU member State, has participated in actions to minimize the adverse impacts related to international trade, for example, a general tariff preference for accessing the EU market for developing countries and liberalization of the trade in environmental goods and services.

## **III. Conclusions and recommendations**

119. The ERT concludes that the NC5 generally provides a good overview of the national climate policy of Poland. The information provided in the NC5 includes most mandatory information under the UNFCCC reporting guidelines, except for: the mitigation effects of PaMs; emission projections related to fuel sold to ships and aircraft engaged in international transport; the total effect of PaMs; capacity-building in developing countries for research and systematic observation. It also includes most of the elements of the supplementary information under Article 7 of the Kyoto Protocol, except for information on: the national system; the national registry; steps taken to promote and/or implement any decisions by ICAO and IMO in order to limit or reduce emissions of GHGs not controlled by the Montreal Protocol from aviation and marine bunker fuels; the minimization of the adverse effects of PaMs under Article 2 of the Kyoto Protocol; and a description of national legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol also contributes to the conservation of biodiversity and the sustainable use of natural resources. During the review, Poland provided the additional missing information.

120. Poland's total GHG emissions for 2008 were estimated to be 29.6 per cent below its 1988 level, excluding LULUCF, and 34.4 per cent below, including LULUCF. The emissions decrease was driven by the restructuring of economy, improvements in energy efficiency and the modernization of heavy industry. A slight increase in emissions has been observed since 2006 due to the continued economic development and improvements in living conditions.

121. In its NC5, Poland has reported the emission projections for the years 2015, 2020 and 2030 under the 'with measures' scenario. During the review, Poland provided the ERT with the updated 'with measures' scenario. According to this updated scenario, Poland's total GHG emissions in 2010 are estimated at 376.43 Tg CO<sub>2</sub> eq or 28.9 per cent below the

Kyoto Protocol target, whereas total GHG emissions in 2020 are projected at 363.39 Tg CO<sub>2</sub> eq or 31.4 per cent below the Kyoto Protocol target. The projections indicate that Poland can meet its Kyoto Protocol target (which is a 6 per cent reduction in emissions below the base year level), and emissions are not expected to exceed the Kyoto Protocol target even by 2020.

122. The NC5 contains information on how Poland's use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action. Poland reported during the review that it expects to achieve its Kyoto Protocol target during the first commitment period by domestic action alone. However, the Party reported that JI and emissions trading under Article 17 (through the GIS) will contribute to further emission reductions at the national level.

123. Poland's PaMs are in line with the EU Climate and Energy Package and its '20-20-20' targets. Currently, Poland's climate change policy framework is based on the Climate Policy Strategy, PEP 2030, the National Energy Efficiency Action Plan, the Renewable Energy Action Plan, the Act on Energy Efficiency and several legal acts addressing sectoral priorities. This framework will be further strengthened by a new climate change policy and a new Act on Energy Efficiency. Many of the PaMs generate multiple co-benefits addressing the Party's climate, energy and environment policy objectives. Poland introduced several market-based tradable policy instruments that complement the EU ETS and promote the wider use of RES and CHP and promote energy efficiency.

124. Although Poland is not included in Annex II to the Convention, it has nevertheless provided information on support to developing country Parties through its international development cooperation agenda, with a focus on technology transfer.

125. Poland has provided information on the expected impacts of climate change and actions to be taken with regard to adaptation. Poland identified the following four sectors as the most vulnerable: agriculture, coastal zones, water resources and forestry. These sectors are highly sensitive to climate variability and weather extremes. The Party reported on targeted response measures aimed at enhancing adaptation to climate change, in particular in the agriculture and coastal zone sectors. A national adaptation strategy is being developed and its implementation will start in 2013.

126. The Party has provided comprehensive information on its education policy on climate change and the environment as well as on formal and informal training. In 2003, the Ministry of National Education issued a directive on mandatory education on the environment and climate change from primary school level to higher levels of education. The Act on Environmental Protection Law, the National Environmental Education Strategy and the Climate Policy Strategy underpin Poland's actions on education, training and public awareness on climate change.

127. Poland has provided information on its actions relating to research and systematic observation and has addressed both domestic and international activities, including in association with WCP, GCOS, EuroGOOS and IPCC.

128. The ERT concluded that Poland's national system continues to perform its required functions as set out in decision 19/CMP.1; and that the national registry continues to perform the functions set out in decision 13/CMP.1 and decision 5/CMP.1, and continues to adhere to the technical standards for data exchange between registry systems in accordance with relevant CMP decisions. The ERT noted that updates of databases and applications, implemented security measures and changes to the national registry software are documented on a regular basis by nominated responsible persons.

129. 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 provided by the Party in its 2009 and 2010 annual submissions is complete and transparent. The ERT encourages Poland to further enhance the reporting on Article 3, paragraph 14, including by indicating how it gives priority to the action taken in implementing its commitments under Article 3.

130. In the course of the IDR, the ERT formulated several recommendations relating to the completeness and transparency of Poland's reporting under the Convention and its Kyoto Protocol. The key recommendations<sup>19</sup> are that Poland:

- (a) Improve the completeness of its reporting by including in its next national communication the following:
  - (i) A description of the national system, in accordance with decision 15/CMP.1;
  - (ii) A description of the national registry, in accordance with decision 15/CMP.1;
  - (iii) Quantitative estimates of the impacts of individual PaMs or collections of PaMs for all sectors, except for the PaMs in the agriculture sector;
  - (iv) An assessment of how Poland believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals consistent with the objective of the Convention;
  - (v) Information on the steps taken to promote and/or implement any decisions by ICAO and IMO in order to limit or reduce emissions of GHGs not controlled by the Montreal Protocol from aviation and marine bunker fuels;
  - (vi) Information on the implementation of 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;
  - (vii) Emission projections for the LULUCF sector;
  - (viii) Emission projections related to fuel sold to ships and aircraft engaged in international transport, reported separately and not included in the totals;
  - (ix) Information on the expected and estimated total effect of implemented and adopted PaMs, presented in terms of GHG emissions avoided or sequestered, by gas (on a CO<sub>2</sub> eq basis) and by year;
  - (x) Information on the national legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraph 3, and 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;
  - (xi) Information on the actions taken to support capacity-building in developing countries on research and systematic observation, as far as possible;
- (b) Improve the transparency of reporting by providing:
  - (i) A clear definition of the 'with measures' scenario and the PaMs included in the scenario as well as their expected and estimated effects;
  - (ii) A clear explanation of the total effect of PaMs implemented, adopted and planned and the link between the effects of individual PaMs and total effect of PaMs;

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<sup>19</sup> The recommendations are given in full in the relevant sections of this report.

(c) Improve the timeliness of its reporting by submitting its next national communication by the deadline;

(d) Provide further information, in its next annual submission, on how it strives to implement its commitments under Article 3, paragraph 1, of the Kyoto Protocol in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties, particularly those identified in Article 4, paragraphs 8 and 9, of the Convention.

131. The ERT encourages Poland to undertake a number of improvements regarding transparency and completeness of reporting; the most important of these are that the Party:

(a) Provide more detailed information on the main drivers of emission trends by sector (in particular for the energy subsectors and the LULUCF sector) and highlight their role in emission projections;

(b) Provide a more transparent description of its PaMs with a clear explanation of how these PaMs correspond to or support the EU Climate and Energy Package, specific national targets adopted and the progress made in their implementation;

(c) Undertake an analysis of the costs and co-benefits of as well as the barriers to the implementation of PaMs and the fiscal impacts of each PaM or collections of PaMs;

(d) Improve its reporting on projections by using the more detailed information and AD available at the various agencies and institutes involved in the preparation of the national GHG inventory;

(e) Develop a 'with additional measures' scenario of emission projections in order to estimate the effect of planned PaMs.

#### **IV. Questions of implementation**

132. During the review, the ERT assessed the NC5, including supplementary information provided under Article 7, paragraph 2, of the Kyoto Protocol and reviewed information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol, with regard to timeliness, completeness and transparency. No question of implementation was raised by the ERT during the review.

## Annex

### Documents and information used during the review

#### A. Reference documents

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

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

“Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol”. Decision 15/CMP.1. Available at <<http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf#page=54>>.

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

FCCC/SBI/2007/INF.6. Compilation and synthesis of fourth national communications. Available at <<http://unfccc.int/resource/docs/2007/sbi/eng/inf06.pdf>>.

FCCC/SBI/2007/INF.6/Add.1. Compilation and synthesis of fourth national communications. Addendum. Policies, measures, past and projected future greenhouse gas emission trends of Parties included in Annex I to the Convention. Available at <<http://unfccc.int/resource/docs/2007/sbi/eng/inf06a01.pdf>>.

FCCC/SBI/2007/INF.6/Add.2. Compilation and synthesis of fourth national communications. Addendum. Financial resources, technology transfer, vulnerability, adaptation and other issues relating to the implementation of the Convention by Parties included in Annex I to the Convention. Available at <<http://unfccc.int/resource/docs/2007/sbi/eng/inf06a02.pdf>>.

FCCC/SBI/2007/INF.7. Compilation and synthesis of supplementary information incorporated in fourth national communications submitted in accordance with Article 7, paragraph 2, of the Kyoto Protocol. Available at <<http://unfccc.int/resource/docs/2007/sbi/eng/inf07.pdf>>.

FCCC/ARR/2009/POL. Report of the individual review of the greenhouse gas inventory of Poland submitted in 2009. Available at <<http://unfccc.int/resource/docs/2010/arr/pol.pdf>>.

FCCC/IRR/2007/POL. Report of the review of the initial report of Poland. Available at <<http://unfccc.int/resource/docs/2007/irr/pol.pdf>>.

FCCC/IDR.4/POL. Report on the in-depth review of the fourth national communication of Poland. Available at <<http://unfccc.int/resource/docs/2009/idr/pol04.pdf>>.

Fourth national communication of Poland. Available at <<http://unfccc.int/resource/docs/natc/polnc4.pdf>>.

2009 greenhouse gases inventory submission of Poland. Available at <[http://unfccc.int/national\\_reports/annex\\_i\\_ghg\\_inventories/national\\_inventories\\_submissions/items/4771.php](http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/4771.php)>.

2010 greenhouse gases inventory submission of Poland. Available at  
<[http://unfccc.int/national\\_reports/annex\\_i\\_ghg\\_inventories/national\\_inventories\\_submissions/items/5270.php](http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/5270.php)>.

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

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

*An Assessment of Greenhouse Gas Emission Abatement Potential in Poland by 2030. Report carried out by McKinsey & Company. 2009*

*Transition to a Low Emissions Economy in Poland. Report by the World Bank. 2011*

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