COMPLIANCE COMMITTEE **CC/ERT/2015/2**
13 February 2015

Report of the technical review of the sixth national communication of Slovakia

Note by the secretariat

The report of the technical review of the sixth national communication of Slovakia was published on 9 February 2015. For purposes of rule 10, paragraph 2, of the rules of procedure of the Compliance Committee (annex to decision 4/CMP.2, as amended by decisions 4/CMP.4 and 8/CMP.9), the report is considered received by the secretariat on the same date. This report, FCCC/IDR.6/SVK contained in the annex to this note, is being forwarded to the Compliance Committee in accordance with section VI, paragraph 3, of the annex to decision 27/CMP.1.

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Framework Convention on Climate Change

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Report of the technical review of the sixth national communication of Slovakia

Parties included in Annex I to the Convention are requested, in accordance with decision 9/CP.16, to submit a sixth national communication to the secretariat by 1 January 2014. In accordance with decision 7/CMP.8, Parties included in Annex I to the Convention that are also Parties to the Kyoto Protocol shall include in their sixth national communication 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 technical review of the sixth national communication and supplementary information under the Kyoto Protocol of Slovakia conducted by an expert review team in accordance with the "Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention" and the "Guidelines for review under Article 8 of the Kyoto Protocol".

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I. Introduction and summary

A. Introduction

1. For Slovakia the Convention entered into force on 23 November 1994 and the Kyoto Protocol on 16 February 2005. Under the Kyoto Protocol, Slovakia committed itself to reducing its greenhouse gas (GHG) emissions by 8 per cent compared with the base year[1] level during the first commitment period from 2008 to 2012. For the second commitment period of the Kyoto Protocol, from 2013 to 2020, Slovakia committed to reduce its GHG emissions by 20 per cent below the 1990 level.

2. This report covers the centralized technical review of the sixth national communication (NC6) of Slovakia, coordinated by the secretariat, in accordance with the "Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention" (decision 23/CP.19) and the "Guidelines for review under Article 8 of the Kyoto Protocol" (decision 22/CMP.1).

3. The review took place from 5 to 10 May 2014 in Bonn, Germany, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: Ms. Eglantina Bruci (Albania), Mr. Øyvind Christophersen (Norway), Mr. Sorin Deaconu (Romania), Mr. Robert Jeszke (Poland), Mr. Bundit Limmeechokchai (Thailand), Ms. Jenny Mager (Chile), Mr. Erick Masafu (Kenya), Mr. Alexander Storch (Austria), Mr. Daniel Tutu Benefoh (Ghana), Mr. Goran Vukmir (Bosnia and Herzegovina) and Mr. Pavel Zamyslicky (Czech Republic). Ms. Janowska and Mr. Tutu Benefoh were the lead reviewers. The review was coordinated by Mr. Matthew Dudley and Ms. Barbara Muik (secretariat).

4. During the review, the expert review team (ERT) reviewed each section of the NC6. The ERT also reviewed the supplementary information provided by Slovakia as a part of the NC6 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 Slovakia in its 2013 annual submission and previous annual submissions and elaborated further in its 2014 annual submission under Article 7, paragraph 1, of the Kyoto Protocol.

5. In accordance with decisions 23/CP.19 and 22/CMP.1, a draft version of this report was communicated to the Government of Slovakia, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

B. Summary

6. The ERT conducted a technical review of the information reported in the NC6 of Slovakia in accordance with the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC

[1] "Base year" refers to the base year under the Kyoto Protocol, which is 1990 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.

reporting guidelines on national communications" (hereinafter referred to as the UNFCCC reporting guidelines on NCs). The information reported in the NC6 is mostly complete and mostly transparent. As required by decision 15/CMP.1, supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol[2] is provided in the NC6. The supplementary information on the minimization of adverse impacts referred to in paragraph 4 above is mostly complete and transparent.

7. Slovakia considered almost all of the recommendations provided in the report of the in-depth review of its fifth national communication (NC5).[3] The ERT commended Slovakia for its improved reporting. During the review, Slovakia provided further relevant information on policies and measures (PaMs), projections and vulnerability and adaptation.

1. Completeness and transparency of reporting

8. Gaps and issues related to the reported information identified by the ERT are presented in table 1.

2. Timeliness

9. The NC6 was submitted on 2 January 2014, shortly after the deadline of 1 January 2014 mandated by decision 9/CP.16. The ERT noted the delay in the submission of the NC6 and recommends that Slovakia endeavour to submit its next national communication on the due date.

3. Adherence to the reporting guidelines

10. The information reported by Slovakia in its NC6 is mostly in adherence to the UNFCCC reporting guidelines on NCs as per decision 4/CP.5 (see table 1).

[2] Decision 15/CMP.1, annex, chapter II.
[3] FCCC/IDR.5/SVK.

Table 1
Assessment of completeness and transparency issues of reported information in the sixth national communication of Slovakia[a]

Sections of national communication	*Completeness*	*Transparency*	*Reference to paragraphs*	*Supplementary information under the Kyoto Protocol*	*Completeness*	*Transparency*	*Reference to paragraphs*
Executive summary	Complete	Transparent		National system	Complete	Transparent	
National circumstances	Complete	Transparent		National registry	Complete	Transparent	
Greenhouse gas inventory	Complete	Transparent		Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Complete	Transparent	
Policies and measures (PaMs)	Complete	Mostly transparent	26, 29	PaMs in accordance with Article 2	Complete	Mostly transparent	52
Projections and total effect of PaMs	Mostly complete	Mostly transparent	59, 73	Domestic and regional programmes and/or arrangements and procedures	Mostly complete	Mostly transparent	20, 21, 22
Vulnerability assessment, climate change impacts and adaptation measures	Mostly complete	Mostly transparent	88	Information under Article 10[b]	NA	NA	
Financial resources and transfer of technology[c]	NA	NA		Financial resources[c]	NA	NA	
Research and systematic observation	Mostly complete	Transparent	90	Minimization of adverse impacts in accordance with Article 3, paragraph 14	Complete	Transparent	
Education, training and public awareness	Complete	Transparent					

Abbreviation: *NA = not applicable.*

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

[b] For the purposes of reporting in table 1, this assessment refers to information provided by the Party on the provisions contained in Article 4, paragraphs 3, 5 and 7, of the Convention reported under Article 10 of the Kyoto Protocol, which is relevant for developed country Parties and other developed Parties included in Annex II to the Convention only. Assessment of the information provided by the Party on the other provisions of Article 10 of the Kyoto Protocol is provided under the relevant substantive headings under the Convention, for example research and systematic observation.

[c] Reporting on financial resources under the Kyoto Protocol is relevant for developed country Parties and other developed Parties that are included in Annex II to the Convention (Annex II Parties). As Slovakia is not an Annex II Party, it does not have an obligation to provide information on financial resources under Article 11 of the Kyoto Protocol, including on "new and additional" resources.

II. Technical review of the reported information in the national communication and supplementary information under the Kyoto Protocol

A. Information on greenhouse gas emissions and national circumstances relevant to greenhouse gas emissions and removals, including other elements related to the Kyoto Protocol

1. Information on relevant national circumstances

11. In its NC6, Slovakia has provided a detailed description of the national circumstances and elaborated on the framework legislation and key policy documents on climate change. The climate and energy package that was approved by the EU in 2009 has been incorporated into national legislation and thereby provides the platform to achieve the required level of mitigation to achieve its targets. This platform is enhanced through greater inter-ministerial cooperation and coordination on domestic climate change policy, including with relevant state agencies. Further information on the review of the institutional and legislative arrangements for the coordination and implementation of PaMs is provided in chapter II.B below.

12. According to the NC6, Slovakia's economic growth is being maintained while at the same time total GHG emissions are decreasing, even though there is low population growth. Carbon dioxide (CO_2) emissions (expressed in terms of CO_2 equivalent (CO_2 eq)) per capita have decreased by 38.4 per cent between 1990 and 2011; over the same period the emission intensity of the Slovakian economy (CO_2 eq emissions per unit of gross domestic product (GDP)) declined significantly (59.8 per cent). Table 2 illustrates the national circumstances of Slovakia by providing some indicators relevant to GHG emissions and removals.

Table 2
Indicators relevant to greenhouse gas emissions and removals for Slovakia

	1990	*2000*	*2005*	*2010*	*2011*	*Change 1990–2011 (%)*	*Change 2010–2011 (%)*
Population (million)	2.00	1.99	2.00	2.05	2.05	2.5	0.0
GDP (2005 USD billion using PPP)	32.73	39.31	46.96	51.29	51.59	57.6	0.6
TPES (Mtoe)	5.71	6.41	7.29	7.23	7.25	27.0	0.3
GHG emissions without LULUCF (Mt CO_2 eq)	71.78	49.30	50.60	45.90	45.30	–36.9	–1.3
GHG emissions with LULUCF (Mt CO_2 eq)	61.76	38.58	44.49	38.98	37.83	–38.7	–3.0
GDP per capita (2005 USD thousand using PPP)	16.37	19.75	23.48	25.02	25.17	53.8	0.6
TPES per capita (toe)	2.86	3.22	3.65	3.53	3.54	23.8	0.3
GHG emissions per capita (t CO_2 eq)	35.89	24.77	25.30	22.39	22.10	–38.4	–1.3
GHG emissions per GDP unit (kg CO_2 eq per 2005 USD using PPP)	2.19	1.25	1.08	0.89	0.88	–59.8	–1.1

Sources: (1) GHG emission data: Slovakia's 2013 GHG 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.

2. Information on the greenhouse gas inventory, emissions and trends

13. Slovakia has provided a summary of information on GHG emission trends for the period 1990–2011. This information is fully consistent with the 2013 national GHG inventory submission. Summary tables, including trend tables for emissions in CO_2 eq (given in the common reporting format (CRF) tables), are provided in an annex to the NC6. During the review, the ERT took note of the Party's recently submitted 2014 annual submission, the relevant information from which is reflected in this report.

14. Total GHG emissions[4] excluding emissions and removals from land use, land-use change and forestry (LULUCF) decreased by 36.9 per cent between the base year and 2011, whereas total GHG emissions including net emissions or removals from LULUCF decreased by 38.7 per cent over the same period. The decrease in total GHG emissions (excluding LULUCF) is largely caused by decreases in the energy and the agriculture sectors, in the order of 41.5 per cent (22.342.47 Gg CO_2 eq) and 56.2 per cent (4,006.74 Gg CO_2 eq) since the base year, respectively. Corresponding industrial process emissions decreased by 13.6 per cent over the same time period, whereas emissions from transport and the waste sector increased by 27.0 and 104.1 per cent, respectively. A decrease in industrial output and structural changes in the economy has influenced emissions from the energy and industrial processes sectors, and reduced cattle numbers and improved agriculture management practices are key to the agriculture emission trend.

15. GHG emission trends by gas show CO_2 emissions decreasing by 38.0 per cent since the base year. Emissions of methane (CH_4) also decreased, by 6.3 per cent, while emissions of nitrous oxide (N_2O) decreased by 52.6 per cent. Emissions of hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6) increased by 75.8 per cent, largely because of an increase in emissions of fluorinated gases (F-gases). An analysis of the drivers for GHG emission trends in each sector is provided in chapter II.B below. Table 3 provides an overview of GHG emissions by sector from the base year to 2011.

Table 3
Greenhouse gas emissions by sector in Slovakia, 1990–2011

	GHG emissions (kt CO_2 eq)				*Change (%)*		*Share[a] by sector (%)*	
Sector	*1990*	*2000*	*2010*	*2011*	*1990–2011*	*2010–2011*	*1990*	*2011*
1. Energy	53 875.84	35 646.59	31 789.70	31 533.37	–41.5	–0.8	75.1	69.6
A1. Energy industries	16 891.05	11 528.20	9 393.44	9 434.34	–44.1	0.4	23.5	20.8
A2. Manufacturing industries and construction	18 155.18	11 025.18	9 316.40	9 836.21	–48.7	5.6	25.3	21.7
A3. Transport	5 021.75	4 248.97	6 651.90	6 380.02	27.0	–4.1	7.0	14.1

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

Sector	GHG emissions (kt CO_2 eq) 1990	2000	2010	2011	Change (%) 1990–2011	2010–2011	Share[a] by sector (%) 1990	2011
A4.–A5. Other	12 723.07	7 523.54	5 379.73	4 786.12	–62.4	–11.0	17.7	10.6
B. Fugitive emissions	1 084.80	1 320.71	1 048.23	1 096.68	1.1	4.6	1.5	2.4
2. Industrial processes	9 543.26	8 293.99	8 621.23	8 248.22	–13.6	–4.3	13.3	18.2
3. Solvent and other product use	147.15	85.04	164.35	170.54	15.9	3.8	0.2	0.4
4. Agriculture	7 124.26	3 495.99	3 098.29	3 117.52	–56.2	0.6	9.9	6.9
5. LULUCF	–10 019.11	–10 713.89	–6 915.13	–7 467.26	–25.5	8.0	–14.0	–16.5
6. Waste	1 091.33	1 777.04	2 222.79	2 227.32	104.1	0.2	1.5	4.9
GHG total with LULUCF	**61 762.74**	**38 584.76**	**38 981.23**	**37 829.71**	**–38.7**	**–3.0**	**NA**	**NA**
GHG total without LULUCF	**71 781.85**	**49 298.65**	**45 896.36**	**45 296.96**	**–36.9**	**–1.3**	**100.0**	**100.0**

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

[a] 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.

3. National system

16. Slovakia provided in its NC6 a 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 description includes all of the elements required by decision 15/CMP.1. The NC6 also referred to the description of the national system provided in the report mandated by decision 13/CMP.1, submitted in 2006,[5] and the national inventory report of the Party's 2013 annual submission. The ERT took note of the review of the changes to the national system as reflected in the report of the individual review of the annual submission of Slovakia submitted in 2013.[6]

4. National registry

17. In its NC6, Slovakia has provided information on the national registry in accordance with the annex to decision 13/CMP.1 and the annex to decision 5/CMP.1. The ERT took note of the review of the changes to the national registry as reflected in the report of the individual review of the annual submission of Slovakia submitted in 2013.

18. Slovakia described the changes to the national registry, which are due specifically to the centralization of the operations of the European Union Emissions Trading System (EU ETS) in a single European Union registry operated by the European Commission called the Consolidated System of European Union Registries (CSEUR). The CSEUR is a consolidated platform which implements the national registries in a consolidated manner and was developed together with the new EU registry.

[5] Slovakia's initial report under the Kyoto Protocol. The report to facilitate the calculation of the assigned amount pursuant to Article 3, paragraphs 7 and 8, of the Kyoto Protocol, available at <http://unfccc.int/national_reports/initial_reports_under_the_kyoto_protocol/items/3765.php>.

[6] FCCC/ARR/2013/SVK and Corr.1.

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

19. Slovakia has reported in its NC6 mostly complete and partially transparent information on domestic and regional programmes and/or legislative arrangements and procedures related to the Kyoto Protocol. The NC6 does not include, or only partly includes: (1) a description of 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 contribute to the conservation of biodiversity and the sustainable use of natural resources; and (2) some information required by the guidelines on publicly accessible information regarding legislative arrangements, enforcement and administrative procedures.

20. During the review, Slovakia provided additional information, elaborating on 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 contribute to the conservation of biodiversity and sustainable use of natural resources. Slovakia also provided additional information regarding access to public information on the fulfilment of its commitments under the Kyoto Protocol, including annual reports that contain information on current progress in the areas of climate change, legislative arrangements and procedures, and actions taken in the last year. The ERT recommends that the Party report this information in its next national communication.

21. Slovakia confirmed the information presented in its NC6, stating that its national system includes the institutional and legal arrangements necessary for reporting on land use, land-use change and forestry activities under the Kyoto Protocol. Slovakia explained that the Ministry of Agriculture and Rural Development is responsible for the implementation of such activities and delegates technical questions in terms of its commitments under Article 3, paragraph 3, of the Kyoto Protocol to the National Forest Centre. The National Forest Centre is included in the National Inventory System of Slovakia under Article 3, paragraph 3, of the Kyoto Protocol, which is managed by the National Forest Centre under the Ministry of Agriculture and Rural Development. The ERT recommends that the Party include this information in its next NC submission to improve transparency.

22. The Party also provided additional clarification of competencies in the policymaking process of the High Level Committee for the Coordination of Climate Change Policy and additional information on the strategies mentioned in the NC6, namely the National Sustainable Development Strategy of the Slovak Republic and the National Strategy to Protect Biodiversity in Slovakia. The ERT also recommends that the Party include this information in its next NC submission to improve transparency.

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

23. Slovakia has provided in its NC6 comprehensive information on its package of PaMs implemented, adopted and planned in order to fulfil its commitments under the Convention and its Kyoto Protocol.

1. Policies and measures related to implementation of commitments under the Convention

24. Slovakia reported on its PaMs adopted, implemented and elaborated in achieving its commitments under the Convention. It provided information on PaMs by sector and by gas and a description of the principal PaMs. The NC6 contains, in general, a similar set of

PaMs to those in the NC5. The NC6 does not include some information required by the UNFCCC reporting guidelines on NCs regarding PaMs adopted and planned, or summary tables on PaMs by sector with detailed information on each of them. Such information can only be found in the Party's first biennial report (BR1), to which the NC6 refers in this respect.

25. Slovakia also provided information on how it believes that its PaMs are modifying the long-term trends in anthropogenic GHG emissions and removals. However, this information can only be found in the Party's BR1, to which the NC6 refers in this respect.

26. In order to improve transparency and the internal consistency of the reported information on PaMs for each sector, the ERT recommends that Slovakia provide all the required information, especially on sectoral PaMs, in its national communication or provide a clear reference to the chapters in the relevant biennial report.

27. The main PaMs result from EU policies, namely Europe 2020, Roadmap 2050, the 7th Environment Action Programme and the climate and energy package adopted in 2008, which consists of several instruments, from which for Slovakia the principal cross-sectoral policy is the EU ETS. During the review, Slovakia presented additional information on its domestic green investment scheme, set up to invest funds obtained by the Government of Slovakia through the sale of assigned amount units (AAUs) under the rules of the Kyoto Protocol.

28. Slovakia has not reported on specific PaMs that are no longer in place compared with those reported in its NC5. During the review, Slovakia explained that none of the PaMs that have a significant effect on GHG emission reduction have been cancelled without replacement. Relevant policies are still valid and have only been amended by several acts. Slovakia explained that Act No. 572/2004 Coll. on Emission Trading and its previous amendments has been fully replaced by Act No. 414/2012 Coll. on Emission Trading and its amendments. The ERT encourages Slovakia to incorporate the clarification provided regarding such PaMs in its next national communication.

29. The NC6 does not include some information required by the UNFCCC reporting guidelines on NCs regarding the organization of the reporting on PaMs. Slovakia provided information on PaMs in the transport sector in the joint section of its NC6 on the energy and transport sectors. During the review, Slovakia explained that detailed information presented in its BR1 reflects an individual approach to reporting on energy and transport. However, the ERT recommends that Slovakia report information on transport PaMs separately from energy in its next national communication.

2. Policy framework and cross-sectoral measures

30. The climate and energy policy of Slovakia is driven by EU policies and legislation, which provide the legal framework for climate change policy in Slovakia. The main domestic sectoral policies in Slovakia are the National Action Plan for Biomass Use, the National Renewable Energy Action Plan, the Energy Security Strategy, the Action Plan for Energy Efficiency and the Concept on Energy Efficiency in Buildings.

31. Some of the PaMs are deferred to the regional and local levels. Slovakia has only provided information on national PaMs that are implemented at the national and regional levels. Table 4 provides a summary of the reported information on the PaMs of Slovakia. During the review, Slovakia explained that the presented list and categories of PaMs relate to all significant PaMs that have been planned and adopted at the national level. Regional (district offices) and local authorities (municipalities) are an official part of the national legal framework for the implementation of some specific PaMs, for example related to waste treatment, air quality, the EU ETS, etc.

32. Slovakia has implemented PaMs in all sectors, most of which are linked to the 2020 EU climate and energy targets and EU policies. The EU ETS was reported as one of the most effective cross-sectoral policies. Under the EU climate and energy package, the target of a 20 per cent emission reduction by 2020 compared with the base year level will be met by the EU and its member States through a 21 per cent reduction, from the 2005 level, in GHG emissions from installations under the EU ETS (namely, power generation and energy-intensive industries) and a 10 per cent reduction, compared with 2005, in GHG emissions in the sectors not included in the EU ETS (non-ETS) (excluding LULUCF). The EU ETS covers about 40 per cent of EU emissions. Slovakia has established a positive limit for the increase in GHG emissions in sectors outside the EU ETS (up to 13 per cent by 2020, compared with 2005). The ERT noted that the Party did not include in its NC6 projections of GHG emissions data split into EU ETS and non-ETS (see para. 68 below). The main PaMs are: the National Renewable Energy Action Plan, aimed at increasing the share of renewable energy sources (RES) in electricity generation; the National Action Plan for Biomass Use, aimed at increasing the share of overall energy demand met by biomass; and the Action Plan for Energy Efficiency, aimed at increasing energy efficiency across the relevant sectors and areas with proposed financial and legal tools.

Table 4
Summary of information on policies and measures reported by Slovakia

Sectors affected	*List of key policies and measures*	*Estimate of mitigation impact (kt CO_2 eq)*
Policy framework and cross-sectoral measures	Act No. 414/2012 Coll. on Emission Trading and its amendments	221.1
Energy	Act No. 258/2011Coll. on Carbon Dioxide Capture and Geological Storage in the Geological Environment	1 646.5
Energy supply	National Action Plan for Biomass Use, Government Resolution No. 130/2008	1 865.4
	National Energy Security Strategy	
Renewable energy	National Renewable Energy Action Plan, Government Resolution No. 677/2010	950.4
Energy efficiency	Conception of Energy Efficiency of Buildings, Government Resolution No. 384/2008	760.15
Residential and commercial sectors	As above	
Transport	Government Regulation No. 242/2008 Coll. amending Government Regulation No. 583/2006 Coll. on technical requirements for reduction of emissions of pollutants from compression ignition engines and standard ignition engines driven by natural gas or liquefied petroleum gas	104.1
	Act No. 158/2011 on Support for Energy-Saving and Environmental Vehicles	536.7
Industrial sectors	Act No. 414/2012 Coll. on Emission Trading and its amendments	788.7

Sectors affected	*List of key policies and measures*	*Estimate of mitigation impact (kt CO_2 eq)*
Agriculture	EU Common Agricultural Policy Government Ordinance No. 488/2010 Coll. on conditions for granting subsidies in agriculture through direct payments	531.3
Forestry	The Rural Development Programme for 2014–2020	243.3
Waste management	Act No. 409/2006 – complete text of Act No. 223/2001 on Waste	403.9

3. Policies and measures in the energy sector

33. Between 1990 and 2011, GHG emissions from the energy sector decreased by 41.5 per cent (22,342.47 kt CO_2 eq). The key drivers for the decrease are the structural changes in Slovakia's economy, switching from the use of coal as a fuel and the adoption of legislation on the regulation of air pollution. The trend in GHG emissions from fuel combustion showed a notable increase in transport (27.0 per cent) and a decrease in energy use in other sectors (62.4 per cent). During the period 1990–2011, the most significant emission decreases occurred in the sector other (62.4 per cent), in manufacturing industries and construction (48.7 per cent), caused by the same key drivers as above, but also by improved energy efficiency in buildings, appliances and equipment, and in agriculture (56.2 per cent), owing to the decreasing trend in cattle numbers.

34. Slovakia reported that one of the biggest mitigation effects in the energy sector is estimated to result from the implementation of carbon dioxide capture and storage in the geological environment. However, given that carbon dioxide capture and storage technology is not commercially implemented and very expensive, the ERT considers that its effect by 2020 seems to have been rather overestimated. The ERT encourages Slovakia to elaborate on the methodology used to assess the effects of carbon capture and storage technologies.

35. ***Energy supply***. Slovakia has a balanced proportion of nuclear fuel, fossil fuels and renewable resources in its gross inland energy consumption. Final energy consumption is dominated by fossil fuels, with the following shares in 2011: natural gas, 26 per cent; coal, 22 per cent; nuclear fuel, 22 per cent; oil, 21 per cent; and RES, including hydropower, 9 per cent. However, without large hydropower sources, the share of RES drops to approximately 6 per cent. Energy development in Slovakia is driven mainly to optimize the energy mix in terms of energy security, with the primary focus on gas and nuclear power.

36. According to the NC6, gross inland energy consumption decreased by 12 per cent between 2001 and 2011, with this long-term downward trend in total energy demand largely driven by industrial restructuring undertaken in the 1990s, but also through energy efficiency measures incorporating modern production technologies with lower energy consumption, household energy efficiency, and the 2008 global economic crisis. This is also reflected in the reported energy intensity (ratio of gross domestic consumption and GDP), which declined by 45 per cent over the same period.

37. ***Renewable energy sources***. In its NC6, Slovakia has reported several regulatory measures and strategic targets for the promotion of the use of RES in transport and for electricity production. It adopted the National Renewable Energy Action Plan with the aim of increasing the share of RES in electricity generation, namely the implementation of wind, photovoltaic and geothermal electricity sources. In order to increase the existing 4 per cent share of overall energy demand met by biomass, Slovakia also adopted the

National Action Plan for Biomass Use. The energy potential of agricultural biomass is estimated at 20.4 per cent of annual energy consumption in Slovakia.

38. ***Energy efficiency***. Slovakia adopted the Action Plan for Energy Efficiency (2011), which introduces the second phase of the plan and evaluates the outcome of the previous phase. The updated action plan includes existing as well as new measures to increase energy efficiency across the relevant sectors and areas with proposed financial and legal tools. The plan identifies the public sector and buildings as the key sectors for Slovakia to apply energy-saving measures with reasonable costs. Another document that influences energy efficiency policy in Slovakia is the National Energy Security Strategy, which defines the basic framework and principles for the development of electric and thermal power plants, the use of oil, gas and coal, and the support and utilization of RES.

39. ***Residential and commercial sectors***. Most regulations are driven by EU internal policies, such as on the energy performance of buildings, energy services, eco-design and energy labelling, and result from their implementation at the member State level. In 2013, Slovakia signed an agreement with the European Bank for Reconstruction and Development and Spain regarding selling 7 million AAUs. The revenue will be used for industrial energy efficiency projects, renewable energy projects and residential energy efficiency projects under the SlovSEFF Greening Programme.

40. ***Transport sector***. Emissions from the transport sector increased by 27.0 per cent between 1990 and 2011. While between 2010 and 2011 there was a 4.1 per cent decrease in such emissions, it is expected that emissions from transport will further increase, owing mainly to the continuous increase in the number of cars. The transport sector contributed 14.1 per cent of the Party's total GHG emissions in 2011, compared with only 7 per cent in 1990. Being a significant source of emissions, it has an 8.0 per cent share in the total GDP of Slovakia. The number of cars in Slovakia is increasing continuously, reaching a total of 1,749,271 in 2011, which is an increase of 315,345 cars from 2007. From 2010 to 2011 there was a 6.5 per cent increase in the use of public transport and a 2 per cent increase in the use of rail transport. In its NC6, Slovakia reported that the Government introduced regulations on supporting energy-saving and environmental vehicles and technical requirements for the reduction of emissions of pollutants from gas engines. The greater availability of compressed natural gas at stations and the implementation of the EURO6 tailpipe emission standards are planned from 2015.

41. ***Industrial sector***. The share of industry in the Slovak GDP decreased from 25.7 per cent in 2000 to 25.5 per cent in 2012, which is largely a result of the stabilization of Slovak industry after significant changes were introduced following accession to the EU. The trend in the final energy consumption in this sector is characterized by a decrease in the total energy consumption. The main branches of the industrial sector, which contribute the most to fuel and energy consumption, are as follows: metallurgy, 32 per cent; energy industry, 32 per cent; chemical industry, 11 per cent; and pharmaceutical industry, 11 per cent. Most of the industrial sector is covered by the EU ETS, which is the main mechanism for controlling the emissions from this sector.

4. Policies and measures in other sectors

42. Between 1990 and 2011, GHG emissions from industrial processes (including solvent and other product use), agriculture and waste decreased by 23.1 per cent (4,142.40 kt CO_2 eq), mainly owing to the declining number of animals and the decline in the use of fertilizers in agriculture.

43. ***Industrial processes***. Between 1990 and 2011, GHG emissions from the industrial processes sector decreased by 13.6 per cent (1,295.00 kt CO_2 eq), mainly caused by the reconstruction of the economy after the 1990s, and the implementation in 2013 of amendments relating to Act No. 414/2012 Coll. On Emissions Trading in relation to nitric

acid production, aluminium production regulation of certain F-gases and emissions from motor vehicle air-conditioning systems.

44. ***Agriculture***. Between 1990 and 2011, GHG emissions from the agriculture sector decreased by 56.2 per cent (4,006.74 kt CO_2 eq), mainly owing to the declining number of animals and a decline in the use of fertilizers owing to the shift in the structure of economy.

45. Slovakia has implemented the EU Common Agricultural Policy ("Agricultural Market and Income Support" and the "Rural Development Policy"), requiring the following: the monitoring of CH_4 emissions from cattle, agricultural activities and the associated GHG emissions; the determination of CO_2 emission reductions associated with energy intensity; and the quantification of the impacts of biomass subsidies on agricultural crops.

46. ***LULUCF***. The LULUCF sector was a net sink of 7,467.26 kt CO_2 eq in 2011 and net GHG removals have decreased by 25.5 per cent since 1990. The historically stable emission trend was disrupted in 2004 by a wind calamity in the High Tatras, which resulted in the increased harvest of wood damaged by the event, more pests and a decrease in the total sink volume by half.

47. Slovakia reported on its Rural Development Programme for 2014–2020, which includes financial support for identified priorities in rural development that will provide positive environmental impacts and, importantly, contribute towards sustainable development.

48. ***Waste management***. Between 1990 and 2011, GHG emissions from the waste sector increased by 104.1 per cent (1,136.00 kt CO_2 eq), mainly as a result of increased CH_4 emissions from solid waste disposal sites.

49. PaMs in the waste sector (Act No. 409/2006 and Act No. 223/2001 Coll.) are intended to meet the EU targets for diverting waste from landfill and to explore alternative waste treatment.

5. Policies and measures related to implementation of commitments under the Kyoto Protocol

50. Slovakia reported on its package of PaMs adopted, implemented and elaborated in achieving its commitments under the Kyoto Protocol.

51. The NC6 does not include some information required by the UNFCCC reporting guidelines on NCs, including identifying the steps that the Party has taken to promote and/or implement any decisions of 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.

52. During the review, Slovakia provided additional information, elaborating on international water transportation, reported only for Danube river transit, and that IMO decisions are not relevant to Slovakia because of national circumstances. Regarding information on the implementation of decisions of ICAO, Slovakia refers in its NC6 to the BR1 of the EU. The ERT recommends that Slovakia enhance the transparency of its reporting by including in its next NC information on how it promotes and implements the decisions of ICAO to limit emissions from aviation, and provide an explanation as to why IMO decisions are not relevant to Slovakia because of national circumstances.

53. In its NC6, Slovakia reported information on how it strives to implement PaMs under Article 2 of the Kyoto Protocol in such a way as to minimize adverse effects, including the adverse effects of climate change and effects on international trade and social, environmental and economic impacts, on other Parties, especially developing country

Parties. Further information on how Slovakia 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, as reported in the Party's 2013 annual submission, is presented in chapter III.B below.

54. The Party underlined the adverse effects of climate change, effects on international trade and social, environmental and economic impacts on other Parties in its NC6, but did not report on any impacts on developing country Parties. In order to improve transparency, the ERT encourages Slovakia to provide more information on such an assessment in its next national communication.

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

55. In its NC6, Slovakia has reported projections on a sectoral and gas-by-gas basis under three scenarios, namely 'with measures', 'with additional measures' and 'without measures'. The year 2010 is used as the reference year for the projections. Slovakia linked the projections with version 1.5 of its 2012 GHG inventory submission; additionally, the key parameters considered include GDP, GDP growth rate, population, population growth rate, international fuel (oil, gas, coal) import prices and carbon price in the EU ETS.

1. Projections overview, methodology and key assumptions

56. The GHG emission projections provided by Slovakia in its NC6 include a 'with measures', 'with additional measures' and 'without measures' scenario for 2015, 2020, 2025 and 2030, presented relative to GHG inventory data for 1990, 1995, 2000, 2005 and 2010. Projections are presented on a sectoral basis, using mostly the same sectoral categories as used in the PaMs section, and on a gas-by-gas basis for the following GHGs: CO_2, CH_4, N_2O, PFCs, HFCs and SF_6 (treating PFCs and HFCs individually in each case). Projections are also provided in an aggregated format for each sector as well as for a national total, using global warming potential values. Emission projections related to fuel sold to ships and aircraft engaged in international transport were reported separately and were not included in the totals.

57. The ERT noted that, according to data presented in section BR1-5.2 of the Party's BR1, as referenced in its NC6, and the statement in section BR1-5.1.1 of the BR1, the reference year for projections is 2010, a year for which emissions and removals were estimated and reported in the national GHG inventory. The ERT also noted that in table 3.1 of the Party's NC6 national GHG inventory emission data associated with the period 1990–2011 were presented. During the review, Slovakia stated that, at the time of preparing the projections data, it was not possible to finalize data for 2011 for the national GHG inventory and, therefore, data for 2010 from the latest reviewed GHG inventory were selected. The ERT encourages Slovakia to use as the reference year for the projections in its national communication the latest year for which inventory data are available.

58. As referenced in the NC6, in table BR1-5.4 in the main text of the Party's BR1, the values for the total with LULUCF and total without LULUCF parameters for 2010 are different from those reported in the 2013 and 2014 national GHG inventory submissions, biennial report common tabular format (BR CTF) table 1 and BR CTF table 6(a). Additionally, the emission and removal data associated with the energy, industrial processes, solvent and other product use, LULUCF and waste sectors (reported in the NC6, in table BR1–5.4) are different from the corresponding values presented in the 2013 and 2014 national GHG inventory submissions. During the review, Slovakia explained that data

for 2010, the reference year, were used from version 1.5 of the Party's 2012 annual inventory submission. The ERT encourages Slovakia to use, for its next national communication, inventory data consistent with related data in the national GHG inventory from which data were collected and in the BR CTF tables.

59. The projections are presented on a sectoral basis, generally using the same sectoral categories as used in the PaMs section; however, projections are presented also for the solvent and other product use sector, for which PaMs are not presented in the Party's NC6 or, as referenced in the NC6, in its BR1. During the review, Slovakia informed the ERT that the projections for the solvent and other product use sector were influenced by the same PaMs and drivers as the projections prepared for the industrial processes sector and that no specific PaMs are being implemented or planned with respect to the solvent and other product use sector. The ERT recommends that Slovakia include in its next national communication the information provided during the review and use the same sectoral categories in both the PaMs section and the projections section, in order to increase the transparency of its reporting.

60. In the NC6, the 'with measures' scenario reflects all measures implemented and adopted after 2010 and with an expected impact up to 2030. The 'with additional measures' scenario includes the PaMs under the 'with measures' scenario and additional measures officially planned to be adopted in the period up to 2030. Additionally, the 'without measures' scenario encompasses the measures adopted between 2000 and 2010.

61. Information on the projection methodologies used was partially provided in a clear and transparent manner in the Party's NC6. For the energy and industrial processes sectors, Slovakia used a model designed for assessing energy supply strategy alternatives and their general environmental impacts (MESSAGE) developed by the International Institute for Applied Systems Analysis. For the transport subsector, the Party used the TREMOVE model, which was designed to study the effects of different transport and environment policies on emissions from transport; additionally, for the road transport category, the COPERT IV model was used, a model used to calculate GHG and air pollutant emissions.

62. The ERT noted that the NC6 stated that expert software tools were used for preparing the projections for the solvent and other product use, agriculture, LULUCF and waste sectors, but no description of the software and associated methodology has been provided. During the review, Slovakia provided a description of the software and methodology used. The ERT encourages Slovakia to include in its next national communication detailed information on all of the methodologies used for calculating the projections.

63. The ERT noted the encouragement in the previous review report for the Party to provide information on changes in the methodologies used. The ERT commends Slovakia for the inclusion in its NC6 of information on changes in the methodologies used.

64. Slovakia used a number of key parameters and assumptions relevant to both the macroeconomic and sector-specific level when calculating the projections. Key parameters and assumptions were updated following the recent economic developments in the country and include, for example: GDP, gross value added, population, international fuel prices, carbon prices in the EU ETS, total kilometres travelled by passenger cars and road freight transport, number of dwellings and livestock numbers, which is in line with the UNFCCC reporting guidelines on NCs.

65. A sensitivity analysis to estimate the impact of drivers and PaMs on emission levels was conducted for the energy sector with outcomes reported in the NC6. The analysis focused on the effect of using different assumptions on the ratio of biomass and natural gas fuel prices, and the ratio of investment costs for new boilers for biomass combustion to the level of CO_2 emissions. For the ratio of biomass and natural gas fuel prices, the analysis

showed that a reduction in CO_2 emissions of almost 8 per cent can be achieved at a maximum biomass and natural gas fuel price ratio of 0.7, a higher value for the ratio being inefficient from the economic and environmental perspective. For the ratio of investment costs for new boilers for biomass combustion, the analysis showed that a reduction in CO_2 emissions of almost 8 per cent can be achieved by increasing the investment costs by a maximum of 72 per cent; increasing further the investment costs does not result in an additional emission reduction.

2. Results of projections

66. The Kyoto Protocol target for the first commitment period for Slovakia is to reduce its level of total GHG emissions by 8 per cent below the 1990 level, which is equal to the level of 66,286.7 kt CO_2 eq on average per year during the period 2008–2012. According to the projections presented in its NC6, Slovakia will meet its Kyoto Protocol target for the first commitment period under all three reported scenarios without using the Kyoto Protocol flexible mechanisms or accounting for activities under Article 3, paragraph 3, of the Kyoto Protocol.

67. For the second commitment period of the Kyoto Protocol (2013–2020), Slovakia is committed to contribute to the joint target of the EU and its member States to reduce the total GHG emissions level excluding LULUCF by 20 per cent below 1990 level. The EU and its member States also presented a conditional 30 per cent emission reduction target.[7] The exact number of certified emission reductions (CERs) and emission reduction units (ERUs) that can be used during the period 2013–2020 will be determined following the availability of final data on the use of those units in the first commitment period. The amount of AAUs for the second commitment period has not yet been determined. The EU expects to achieve its emission reduction target with the implementation of the EU Emissions Trading System directive (directive 2003/87/EC) and the EU effort-sharing decision (decision 406/2009/EC).

68. Slovakia's longer-term target for the non-ETS sectors is an emissions increase of no more than 13 per cent by 2020 relative to 2005 levels. The NC6 did not contain separate projections for the non-ETS sectors. However, according to the projections presented in the NC6, total emissions in 2020 (without LULUCF) will amount to 44,492.44 kt CO_2 eq in the 'with measures' scenario, representing a 12.1 per cent decrease compared with the 2005 level. In the 'with additional measures' scenario, emissions in 2020 (without LULUCF) will amount to 42,294.78 kt CO_2 eq in 2020, representing a 16.4 per cent decrease compared with the 2005 level. The ERT noted that reporting of projected emissions for the EU ETS and non-ETS sectors separately could improve the transparency of information and enable an assessment by the ERT of Slovakia's progress towards its emission reduction target; the ERT encourages the Party to include this split in its next NC submission.

69. According to the Party's NC6, total GHG emissions in 2020 are expected to be 30.9 per cent, 38.3 per cent and 41.3 per cent below the base year level under the 'without measures', 'with measures' and 'with additional measures' scenarios, respectively, while in 2030 total GHG emissions are expected to be 27.8 per cent, 37.1 per cent and 40.4 per cent below the base year level under those scenarios, respectively. The projected emission levels under the different scenarios and information on the Party's Kyoto Protocol target and quantified economy-wide emission reduction target are presented in table 5 and the figure below.

70. The ERT noted that, under the 'with measures' scenario, total GHG emissions in Slovakia are expected to decrease by 0.01 per cent by 2030 compared with the level in

[7] FCCC/SB/2011/INF.1/Rev.1 and FCCC/KP/AWG/2012/MISC.1.

2011, and during the 2011–2030 period CO_2 emissions are expected to increase by 5.1 per cent, CH_4 emissions are expected to decrease by 34.4 per cent, N_2O emissions are expected to decrease by 13.9 per cent and emissions of F-gases are expected to decrease by 19.1 per cent. Under the 'with additional measures' scenario, total GHG emissions are expected to decrease by 5.2 per cent, CO_2 emissions are expected to increase by 0.2 per cent, CH_4 emissions are expected to decrease by 37.5 per cent, N_2O emissions are expected to decrease by 21.5 per cent and F-gas emissions are expected to decrease by 46.1 per cent.

71. In the previous review report, Slovakia was encouraged to make further improvements to the structure and accuracy of the reporting of the results of its projections. The ERT noted that sector-specific information on factors and PaMs affecting emission trends and projections has been included in the NC6. The ERT commends the Party for making further improvements to the structure and accuracy of the reporting of the results of its projections, for example through the provision of more detailed data on CO_2 removals from the LULUCF sector.

Table 5
Summary of greenhouse gas emission projections for Slovakia

	Greenhouse gas emissions (kt CO_2 eq per year)	*Changes in relation to the base year level (%)*	*Changes in relation to the 1990 level (%)*
Kyoto Protocol base year[a]	72 050.76	NA	0.37
Kyoto Protocol target for the first commitment period (2008–2012)	66 286.70	–8.0	–7.66
Kyoto Protocol target for the second commitment period (2013–2020)	Not available yet	NA	NA
Quantified economy-wide emission reduction target under the Convention	Not available yet	NA	NA
Inventory data 1990[b]	71 781.85	–0.4	NA
Inventory data 2011[b]	45 296.96	–37.1	–36.9
Average annual emissions for 2008–2011[b]	46 065.81	–36.1	–35.8
'Without measures' projections for 2020[c]	49 782.30	–30.9	–30.7
'With measures' projections for 2020[c]	44 492.44	–38.3	–38.0
'With additional measures' projections for 2020[c]	42 294.78	–41.3	–41.1
'Without measures' projections for 2030[c]	51 993.00	–27.8	–27.6
'With measures' projections for 2030[c]	45 290.88	–37.1	–36.9
'With additional measures' projections for 2030[c]	42 940.80	–40.4	–40.2

Note: The quantified economy-wide emission reduction target under the Convention and the Kyoto Protocol target for the second commitment period (2013–2020) are joint targets for the

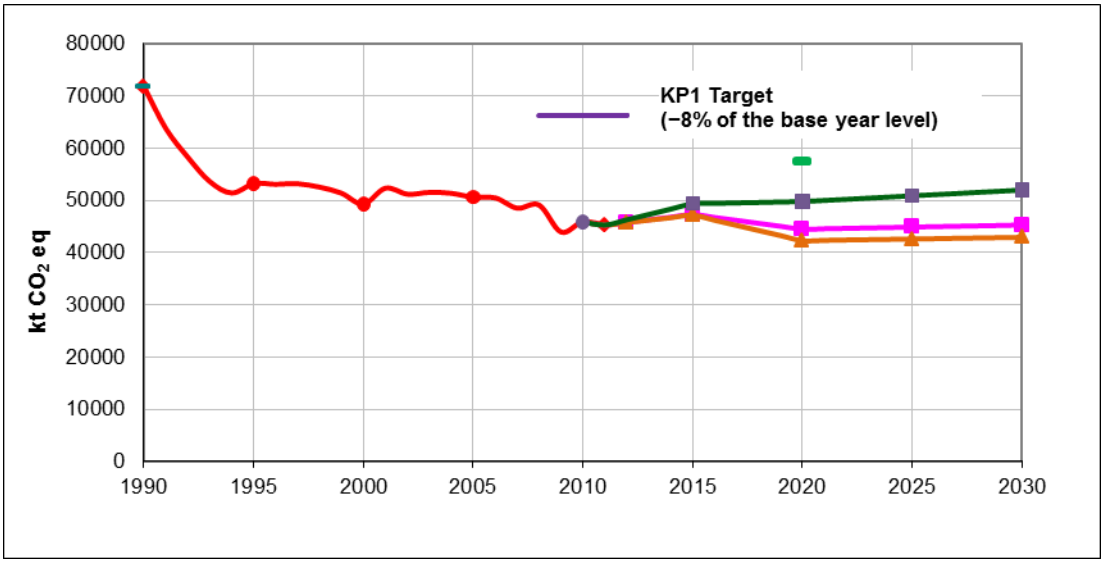
European Union and its 28 member States and Iceland of a 20 per cent emission reduction by 2020 compared with the base year (1990) level. The target for sectors not covered by the European Union Emissions Trading System is a 13 per cent emission reduction for Slovakia under the European Union effort-sharing decision.

[a] Based on the initial review report contained in document FCCC/IRR/2007/SVK.

[b] Slovakia's 2013 greenhouse gas inventory submission; the emissions are without land use, land-use change and forestry.

[c] Slovakia's sixth national communication and/or first biennial report.

Greenhouse gas emission projections



Sources: (1) Data for the years 1990–2012: Slovakia's 2013 greenhouse gas inventory submission; the emissions are without land use, land-use change and forestry (LULUCF); (2) Data for the years 2015–2030: Slovakia's sixth national communication and first biennial report; the emissions are without LULUCF.

Note: The target for the second commitment period of the Kyoto Protocol is based on preliminary estimates of the base year emissions for the first commitment period of the Kyoto Protocol and the quantified emission limitation or reduction objective included in annex I to decision 1/CMP.8. The initial assigned amount for the second commitment period will be established after the initial review for the second commitment period of the Kyoto Protocol.

Abbreviations: KP1 = first commitment period of the Kyoto Protocol; GHG = greenhouse gas emissions.

3. Total effect of policies and measures

72. In its NC6, Slovakia presents the estimated and expected total effect of implemented and adopted PaMs, in accordance with the 'with measures' definition, and the total expected effect of planned PaMs, in accordance with the 'with additional measures' definition. It also presents relevant information on factors and activities for each sector for the years 2015, 2020, 2025 and 2030.

73. The ERT commends Slovakia for implementing a recommendation made in the previous review report and including in its NC6 information on the total effect of PaMs. However, the ERT noted that Slovakia did not report the total effect of its PaMs on a gas-by-gas basis. During the review, Slovakia provided data structured on a gas-by-gas basis and presented in terms of GHG emissions avoided (on a CO_2 eq basis) in 2015, 2020, 2025 and 2030. The ERT reiterates the recommendation made in the previous review report that the Party report, in its next national communication, the total effect of PaMs in terms of GHGs avoided or sequestered (on a CO_2 eq basis), presented by GHG. Additionally, noting

that only the effect of PaMs implemented after 2010 is included, the ERT encourages the Party to consider using an approach allowing it to capture the effect of PaMs implemented before 2010, as appropriate.

74. The ERT noted that Slovakia did not specify in its NC6 the approach that it used to calculate the total effect of PaMs. During the review, Slovakia stated that the total effect is the sum of the individual effects of the PaMs. The ERT encourages Slovakia to include the description of the approach used in its next national communication.

75. Slovakia reported that the total estimated effect of adopted and implemented PaMs in 2020 is 5,278.2 kt CO_2 eq and for 2030 is 6,686.3 kt CO_2 eq. According to the information reported in the NC6, for both 2020 and 2030 PaMs implemented in the energy sector (without CO_2 from transport) will deliver the largest emission reductions, followed by the effect of PaMs implemented in the industrial processes and waste management sectors. The most effective PaMs and drivers behind GHG emission reductions are described in chapter II.B above. Table 6 provides an overview of the total effect of PaMs as reported by Slovakia.

Table 6
Projected effects of planned, implemented and adopted policies and measures in 2020 and 2030

Sector	*Effect of implemented and adopted measures (kt CO_2 eq)*	*Relative value (% of 1990 emissions)*	*Effect of planned measures (kt CO_2 eq)*	*Relative value (% of 1990 emissions)*	*Effect of implemented and adopted measures (kt CO_2 eq)*	*Relative value (% of 1990 emissions)*	*Effect of planned measures (kt CO_2 eq)*	*Relative value (% of 1990 emissions)*
	2020				*2030*			
Energy (without CO_2 from transport)	3 686.6	7.5	1 751.8	3.6	4 512.7	9.2	1 751.5	3.6
Transport – CO_2	0	0	0	0	0	0	0	0
Industrial processes	870.8	9.1	228.2	2.4	886.8	9.3	395.1	4.1
Agriculture	341.6	4.8	189.7	2.7	483.1	6.8	155.7	2.2
Land-use change and forestry	0	0	353	3.5	0	0	232.2	2.3
Waste management	379.1	34.7	0	0	803.7	73.6	0	0
Total	**5 278.1**	**56.2**	**2 522.7**	**12.2**	**6 686.3**	**98.9**	**2 534.5**	**12.2**

Source: Slovakia's sixth national communication and first biennial report.
Note: The total effect of implemented and adopted policies and measures is defined as the difference between the 'without measures' and 'with measures' scenarios; the total effect of planned policies and measures is defined as the difference between the 'with measures' and 'with additional measures' scenarios.

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

76. Slovakia provided in its NC6 information on how its use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action. The ERT noted that, for the first commitment period, Slovakia does not plan to use the market-based mechanisms to meet its Kyoto Protocol target; only domestic measures are used for compliance. Slovakia's plans for achieving its Kyoto Protocol target associated with the second commitment period are presented in chapter II.B.1.1 above.

77. According to the legal provisions related to EU directive 2003/87/EU regulating the EU ETS, the companies under the EU ETS can meet their emission reduction obligations

by acquiring emission allowances from the market. ERUs and CERs can be used for up to 7 per cent of their total allocated allowances for the 2008–2012 period.

78. During the first commitment period of the Kyoto Protocol, Slovakia was the host country for joint implementation projects. In its NC6, Slovakia has described the implementation of a project on waste landfill gas recovery based on a memorandum of understanding with the Netherlands. During the 2005–2012 period the total expected GHG emission reductions generated through the project amount to 617,632 t CO_2 eq.

79. In December 2009 Slovakia formally approved the establishment of a green investment scheme as an instrument supporting domestic projects determining the reduction of GHG emissions, on the basis of the revenue from selling surplus AAUs, under international emissions trading. In response to a question raised by the ERT during the review, Slovakia presented in detail elements of the scheme's operation. The ERT encourages Slovakia to include in its next national communication the information provided during the review, in order to increase the transparency of the information reported.

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

1. Financial resources, including "new and additional" resources and resources under Article 11 of the Kyoto Protocol

80. The ERT noted that Slovakia is not a Party included in Annex II to the Convention and thus has no obligation to report on the provision of financial resources to developing country Parties.[8] In its NC6, Slovakia provided information on the provision of support required under the Convention and its Kyoto Protocol. Slovakia is commended for providing such information.

81. In its NC6, Slovakia provided information on measures taken to give effect to its commitments under Article 4, paragraphs 3, 4 and 5, of the Convention as required by the UNFCCC reporting guidelines on NCs and under Article 11 of the Kyoto Protocol as required by the "Guidelines for the preparation of information required under Article 7 of the Kyoto Protocol". Slovakia has indicated what "new and additional" financial resources it has provided pursuant to Article 4, paragraph 3, of the Convention but the NC6 did not clarify how the Party has determined such resources as being "new and additional. The ERT notes that Slovakia may wish to explore improving the transparency of what "new and additional" financial resources it has provided in its next national communication.

82. Slovakia has provided detailed information on the assistance that it has made available to developing country Parties that are particularly vulnerable to the adverse effects of climate change. Financed projects include climate change adaptation, GHG mitigation, and support and capacity-building projects regarding water, waste management, agriculture, food security, afforestation and renewable energy. Over 30 projects have been implemented, mainly through bilateral cooperation, and to the amount of EUR 8.5 million that has been committed for the period 2009–2013. Further, Slovakia has provided information on other financial resources related to the implementation of the Convention

[8] Reporting on financial resources under the Kyoto Protocol is relevant for developed country Parties and other developed Parties that are included in Annex II to the Convention (Annex II Parties). As Slovakia is not an Annex II Party, it does not have an obligation to provide information on financial resources under Article 11 of the Kyoto Protocol, including on "new and additional" resources.

provided through bilateral, regional and other multilateral channels. Slovakia has also provided information on its financial contribution to the Adaptation Fund, established in accordance with decision 10/CP.7 which varied from USD 157,605 in 2009 to USD 765,450 in 2012. Table 7 summarizes information on financial resources and technology transfer.

Table 7
Summary of information on financial resources and technology transfer for 2009–2013
(United States dollars)

Allocation channel of public financial support	*Years of disbursement*				
	2009	*2010*	*2011*	*2012*	*2013*
Contributions through multilateral channels					
Multilateral financial institutions	1 254 157	267 000	267 000	580 000	
Contributions through bilateral and regional channels and others		794 392	1 570 271	3 190 427	578 173

2. Technology transfer, including information under Article 10 of the Kyoto Protocol

83. Slovakia has provided in its NC6 information on some activities related to the transfer of technology and notable activities undertaken by the public and private sectors.

E. Vulnerability assessment, climate change impacts and adaptation measures

84. In its NC6, Slovakia has provided the required information on the expected impacts of climate change and vulnerabilities in the country and on adaptation options in line with the UNFCCC reporting guidelines on NCs. Slovakia has reported on expected impacts, vulnerability and adaptation measures for eight socioeconomic sectors: agriculture, forestry, biodiversity, public health, hydrology and water management, tourism, transport and energy. Compared with the NC5, the information reported in the NC6 on climate change impacts, vulnerability assessment and adaptation has been improved by the provision of additional informational on new studies conducted on socioeconomic sectors that are vulnerable to the impact of climate change.

85. The ERT noted that Slovakia has used complex and precise methodology to define climate change scenarios for four global and regional circulation models for downscaling climate scenarios to assess the vulnerability and climate change impact. The models are coupled atmosphere-ocean models, with more than 10 atmospheric levels and more than 20 oceanic depths of model equations in the network of grid points. The ERT found that the Party did not report on the methodology used for the assessment of expected socioeconomic and ecological impacts of climate change. The ERT encourages Slovakia to report that methodology in its next national communication.

86. In its NC6, Slovakia reported several adaptation options for the eight vulnerable socioeconomic sectors referred to in paragraph 85 above The most effort regarding adaptation options was put into 7 sectors, as these are the most vulnerable sectors. In addition, Slovakia has put in place an ad hoc expert working group to coordinate the preparation of the national adaptation strategy. The ERT commends the Party for making efforts to start the preparation of the national adaptation strategy and encourages Slovakia

to speed up the completion of the national adaptation strategy and report thereon in its next national communication.

87. The NC6 does not provide information on the framework of responsibilities and the involvement of the institutions in activities related to climate change impacts, vulnerability and adaptation, as was also noted in the review report of the NC5. However, during the review Slovakia provided additional information on the roles, namely that the Ministry of the Environment is responsible for providing information on climate change issues, international negotiations and the development of specific instruments (including legislative instruments), and the Slovak Hydrometeorological Institute deals with monitoring, evaluating and approving tools for the coordination of the climate change impact, vulnerability and adaptation assessment. The ERT commends Slovakia for providing the additional information and encourages the Party to report on institutional arrangements in relation to climate change impacts, vulnerability and adaptation in its next national communication, in order to improve transparency.

88. It was noted by the ERT that Slovakia has not reported on the actions taken to meet its commitment under Article 4, paragraph 1(e), of the Convention on cooperation with developing country Parties in preparing for adaptation. The ERT recommends that Slovakia report on the actions being taken to cooperate with developing countries in preparing for adaptations under Article 4, paragraph 1(e), of the Convention, namely "(Cooperate in preparing for adaptation to the impacts of climate change; develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas, particularly in Africa, affected by drought and desertification, as well as floods)", in its next national communication. Table 8 summarizes the information on vulnerability and adaptation to climate change presented in the NC6.

Table 8
Summary of information on vulnerability and adaptation to climate change

Vulnerable area	*Examples/comments/adaptation measures reported*
Agriculture and food security	*Vulnerability*: Creeping increase in aridness of maize production area; occurrence and spread of pests and diseases of agricultural plants, trees and animals
	Adaptation: Cultivation and introduction of new agricultural and horticultural species; development of irrigation systems; mulching
Biodiversity and natural ecosystems	*Vulnerability*: Invasions of some species of insects as agricultural pests; invasions of vector-borne diseases threatening human health; decreased biodiversity
	Adaptation: Phytopathological measures in legislation and in practice; protection of extra-endangered species and communities; prevention of drying of wetlands and water biotopes
Transport	*Vulnerability*: Threats to road quality; hampered inland water transport; disruption of air traffic and maintenance of railways
	Adaptation: Improvement of quality of road corridors and their enlargement; construction of motorways and tunnels
Tourism	*Vulnerability*: Restriction of water tourism in the south of Slovakia; less and irregular occurrence of snow cover in lower localities; shortening of the winter season in lower localities
	Adaptation: Transfer of skiing activity to higher centres; reorientation of threatened winter centres to other activities; supporting the development of winter sports centres at higher altitudes

Vulnerable area	*Examples/comments/adaptation measures reported*
Forests	*Vulnerability*: Increased risk of forest fires; damage to forest ecosystems by new dynamics of pests; destruction of spruce forests
	Adaptation: Forest protection against biotic pests; cultivation of new and more resistant species and the change of tree composition; reduction of permanently deforested areas
Energy	*Vulnerability*: Higher demand for energy in summer season; less water in rivers
	Adaptation: Increase of safety of power plants
Hydrology and water management	*Vulnerability*: Decrease in the electric energy production of big water power stations; increase in the occurrence of drought and floods; decrease in water resources in the south and east of Slovakia; threat to water resources for water supply and electricity production
	Adaptation: Water resources protection; redistribution of run-off between the north and the south; utilization of new energy sources (biofuels, wind energy and small hydropower stations)

F. Research and systematic observation

89. Slovakia has provided information on its actions relating to research and systematic observation, and addressed both domestic and international activities, including the World Climate Programme, the International Geosphere–Biosphere Programme and the Global Climate Observing System (GCOS). Slovakia has reported information on the Long-Term Plan of the State Science and Technology Policy up to 2015, which is a flagship policy on research and systematic observation. The policy specifies the objectives and targets in science, research, human resources development and international cooperation. In addition, the Party reported on existing funding sources for research and systematic observation.

90. The ERT noted, however, that Slovakia has not provided summary information on its GCOS activities. The ERT therefore recommends that Slovakia expand its reporting on research and systematic observation by including information on its GCOS activities in its next national communication.

91. Slovakia has reported on the involvement of Slovakian institutions in both international and domestic actions relating to research. The Party provided information on research activities relating to climate change processes and climate system studies, paleo-climate studies, climate modelling and prediction, including general circulation models, and climate change impacts on different socioeconomic sectors and ecosystems. The ERT commends the Party for its efforts in relation to research and systematic observation and encourages Slovakia to report any additional information on the steps taken to integrate research findings into adaptation planning in its next national communication.

G. Education, training and public awareness

92. In its NC6, Slovakia has provided information on its actions relating to education, training and public awareness at both the domestic and international levels. Slovakia has produced a number of publications, periodicals and training materials, as well as organizing conferences, festivals, fairs and exhibitions, to facilitate the raising of public awareness. In addition, the Ministry of Education, Science, Research and Sport, the Ministry of the Environment and civil society have been engaged in education, training and public awareness related activities on the subject of climate change and related policies since 2009. The Party has also reflected efforts being taken to ensure the integration of climate

change into teaching and learning at primary, secondary and training schools and colleges and universities. The Party facilitates free public access to scientific information on climate change and on the climate system of the Earth.

93. Compared with in the NC5, the Party provided more extensive information in its NC6 on the increase in public awareness within Slovakia of climate change, which was achieved through the publications and training materials mentioned in paragraph 92 above and through various activities hosted by Slovakia, such as conferences, workshops, seminars, festivals and media events.

III. Summary of reviewed supplementary information under the Kyoto Protocol

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

94. Supplementary information provided by Slovakia under Article 7, paragraph 2, of the Kyoto Protocol in its NC6 is mostly complete and transparent. The supplementary information is placed in different sections of the NC6. Table 9 provides an overview of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol as well as references to the NC6 chapters in which the information is provided.

Table 9
Overview of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol

Supplementary information	*Reference to the sixth national communication*
National registry	Section 3.4, page 56
National system	Section 3.3, pages 51–54
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Section 5.5, page 78
Policies and measures in accordance with Article 2	Section 4, page 67
Domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures	Section 2.1, page 15
Information under Article 10	Section 7, page 112
Financial resources	Not applicable

Note: Reporting on financial resources under the Kyoto Protocol is relevant for developed country Parties and other developed Parties that are included in Annex II to the Convention (Annex II Parties). As Slovakia is not an Annex II Party, it does not have an obligation to provide information on financial resources under Article 11 of the Kyoto Protocol, including on "new and additional" resources.

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

95. Slovakia 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 part of its 2013 annual submission. Most information is focused on estimating mitigation impact. During the review, Slovakia explained that there are no macroeconomic analyses

for PaMs. The ERT considers the reported information to be complete and transparent. The ERT also encourages Slovakia to continue exploring and reporting on the adverse impacts of its response measures.

96. Slovakia reported on the progressive reduction or phasing out of market imperfections, fiscal incentives, tax and duty exemptions and subsidies in all GHG-emitting sectors, and on strengthening the capacity of developing country Parties identified in Article 4, paragraphs 8 and 9, of the Convention. The Party's 2013 and previous national inventory reports and the additional information provided during the review presented several initiatives of Slovakia aimed at minimizing adverse impacts and assisting developing country Parties that are highly dependent on the export of fossil fuels to diversify their economies.

IV. Conclusions and recommendations

97. The ERT conducted a technical review of the information reported in the NC6 of Slovakia according to the UNFCCC reporting guidelines on NCs. The ERT concludes that the NC6 provides a good general overview of the national climate policy of Slovakia, and that the information provided is mostly complete and mostly transparent. The information provided in the NC6 includes all elements of the supplementary information under Article 7 of the Kyoto Protocol. During the review Slovakia provided additional information on: national legislative arrangements and administrative procedures that seek to ensure the implementation of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol; steps taken to promote and/or implement any decisions of the ICAO and the IMO; reference year for projections and associated GHG inventory data; gas-by-gas projections data presented in terms of GHG emissions avoided; and on information under Article 3, paragraph 14, of the Kyoto Protocol. This additional information enhances the transparency of reported information on domestic arrangements and procedures.

98. Slovakia's emissions for 2011 were estimated to be 36.9 per cent below its 1990 level excluding LULUCF and 38.7 per cent below including LULUCF. Emission decreases were driven by decreases in industrial output and structural changes in the economy, caused by the transition from a centrally planned to a market-driven economy.

99. In its NC6, Slovakia presents GHG projections for the period from 2010 to 2030. Three scenarios are included: baseline ('without measures'); 'with measures'; and 'with additional measures'. The projected reductions in GHG emissions under the baseline scenario, in relation to the base year, and under the 'with measures' and 'with additional measures' scenarios are 30.9, 38.3 and 41.3 per cent, respectively. The projections indicate that Slovakia can meet its Kyoto Protocol target for the first commitment period (which is an 8 per cent emission reduction) even under the baseline scenario, and the Party's GHG emissions are not expected to exceed its Kyoto Protocol target even by 2020. The ERT noted that reporting of projected emissions for the EU ETS and non-ETS sectors separately could improve the transparency of information and facilitate a more thorough assessment by the ERT of Slovakia's progress towards its emission reduction target.

100. The NC6 contains information on how the Party's use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action. Slovakia is not planning to make use of the Kyoto Protocol mechanisms to meet its Kyoto Protocol target.

101. Slovakia has implemented PaMs in all sectors, most of which are linked to the 2020 EU climate and energy targets and EU policies. The EU ETS was reported as one of the most effective cross-sectoral policies. For the sectors not covered by the EU ETS, Slovakia has the target of limiting the growth in these emissions to 13 per cent above the 2005 level

by 2020. The main PaMs are: the National Renewable Energy Action Plan, aimed at increasing the share of RES in electricity generation; the National Action Plan for Biomass Use, aimed at increasing the share of overall energy demand met by biomass; and the Action Plan for Energy Efficiency, aimed at increasing energy efficiency across the relevant sectors and areas with proposed financial and legal tools.

102. Agriculture, forestry, biodiversity, public health, hydrology and water management, tourism, transport and energy are identified by Slovakia as the most significant sectors in relation to an assessment of the impacts of climate change. Moreover, tourism, transport and energy have been recognized as the most vulnerable and are key in an initiative to develop a national adaptation strategy containing appropriate adaptation response measures.

103. Slovakia's Long-Term Plan of the State Science and Technology Policy up to 2015 is a flagship policy on research and systematic observation. The policy specifies the objectives and targets in science, research, human resources development and international cooperation. Slovakia is involved in international activities in the areas of climate observation and systematic observation, including capacity-building projects under the World Climate Programme, the International Geosphere–Biosphere Programme and GCOS.

104. Information reported on education, training and public awareness has significantly improved since the NC5. Slovakia has produced a number of publications, periodicals and training materials, as well as organizing conferences, festivals, fairs and exhibitions, to facilitate the raising of public awareness.

105. 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 has been provided by Slovakia in its 2013 annual submission. The ERT considers the information to be complete and partially transparent.

106. In the course of the review, the ERT formulated several recommendations relating to the completeness and transparency of Slovakia's reporting under the Convention, and its Kyoto Protocol. The key recommendations[9] are that Slovakia:

(a) Improve the completeness of its reporting by including in its next national communication the following:

(i) Information on the total effect of PaMs in terms of GHGs avoided or sequestered (on a CO_2 eq basis), presented by GHG;

(ii) Information on the actions being taken to cooperate with developing countries in preparing for adaptation as required under Article 4, paragraph 1(e), of the Convention;

(b) Improve the transparency of its reporting by including in its next national communication the following:

(i) The detailed information in the NC on PaMs that is currently contained in the Party's BR1 and cross-referenced in its NC6;

(ii) Projections presented using the same sectoral categories as used in the sections on PaMs;

(iii) Enhanced information on how it promotes and implements the decisions of ICAO to limit emissions from aviation, and an explanation as to why IMO decisions are not relevant to Slovakia due to national circumstances;

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

(iv) More detailed information on how it believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals, consistent with the objective of the Convention.

V. Questions of implementation

107. During the review, the ERT assessed the NC6, 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, transparency and adherence to the reporting guidelines on NCs. 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>.

"Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention". Annex to decision 23/CP.19. Available at <http://unfccc.int/resource/docs/2013/cop19/eng/10a02.pdf#page=20>.

FCCC/SBI/2011/INF.1. Compilation and synthesis of fifth national communications. Executive summary. Note by the secretariat. Available at <http://unfccc.int/resource/docs/2011/sbi/eng/inf01.pdf>.

FCCC/SBI/2011/INF.1/Add.1. Compilation and synthesis of fifth national communications. Note by the secretariat. Addendum. Policies, measures, and past and projected future greenhouse gas emission trends of Parties included in Annex I to the Convention. Available at <http://unfccc.int/resource/docs/2011/sbi/eng/inf01a01.pdf>.

FCCC/SBI/2011/INF.1/Add.2. Compilation and synthesis of fifth national communications. Note by the secretariat. 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/2011/sbi/eng/inf01a02.pdf>.

FCCC/SBI/2011/INF.2. Compilation and synthesis of supplementary information incorporated in fifth national communications submitted in accordance with Article 7, paragraph 2, of the Kyoto Protocol. Note by the secretariat. Available at <http://unfccc.int/resource/docs/2011/sbi/eng/inf02.pdf>.

FCCC/ARR/2013/SVK and Corr.1. Report of the individual review of the annual submission of Slovakia submitted in 2013. Available at <http://unfccc.int/resource/docs/2014/arr/svk.pdf>.

FCCC/IRR/2007/SVK. Report of the review of the initial report of Slovakia. Available at <http://unfccc.int/resource/docs/2007/irr/svk.pdf>.

FCCC/IDR.5/SVK. Report on the in-depth review of the fifth national communication of Slovakia. Available at <http://unfccc.int/resource/docs/2011/idr/svk05.pdf>.

Sixth national communication of Slovakia. Available at <http://unfccc.int/files/national_reports/non-annex_i_natcom/application/pdf/svk_nc6.pdf>.

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

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

B. Additional information provided by the Party

Responses to questions during the review were received from Ms. Janka Szemesova (Slovak Hydrometeorological Institute), including additional material on updated policies and measures, greenhouse gas projections, the national registry and recent climate policy developments in Slovakia.