Advance Version

COMPLIANCE COMMITTEE

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

Note by the secretariat

The report of the technical review of the sixth national communication of Hungary was published on 26 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/HUN, 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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Report of the technical review of the sixth national communication of Hungary

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 Hungary 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 Hungary the Convention entered into force on 25 May 1994 and the Kyoto Protocol on 16 February 2005. Under the Convention, Hungary, as a member State of the European Union (EU), made a commitment to contribute to the joint EU economy-wide emission reduction target of reducing its greenhouse gas (GHG) emissions by 20.0 per cent by 2020 below the 1990 level. For meeting commitments under the Kyoto Protocol, Hungary committed itself to reducing its GHG emissions by 6.0 per cent compared with the average level for the period 1985–1987 (base year)[1] during the first commitment period, from 2008 to 2012. For the second commitment period of the Kyoto Protocol, from 2013 to 2020, Hungary committed to contributing to the joint EU commitment to reduce GHG emissions by 20.0 per cent below the 1990 level.

2. This report covers the in-country technical review of the sixth national communication (NC6) of Hungary, 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 23 to 28 June 2014 in Budapest, Hungary, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: Mr. Liviu Gheorghe (Romania), Mr. Justin Goodwin (United Kingdom of Great Britain and Northern Ireland), Ms. María Gutiérrez (Mexico) and Ms. Yu'e Li (China). Mr. Goodwin and Ms. Gutiérrez were the lead reviewers. The review was coordinated by Ms. Inkar Kadyrzhanova (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 Hungary 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 Hungary in its 2013 annual submission and previous 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 Hungary, 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 Hungary in accordance 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 on NCs). As required by decision 15/CMP.1, some supplementary

[1] "Base year" refers to the base year under the Kyoto Protocol, which is the average of the GHG emissions during the period 1985–1987, 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.

information required under Article 7, paragraph 2, of the Kyoto Protocol[2] is provided in the NC6 (see paras. 124–125 below). The supplementary information on the minimization of adverse impacts referred to in paragraph 4 above is mostly complete and transparent (see para. 126 below).

7. Hungary considered most recommendations provided in the report of the in-depth review of the fifth national communication (NC5) of Hungary.[3] The ERT commended Hungary for its improved reporting. During the review, Hungary provided further relevant information.

1. Completeness and transparency of reporting

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

2. Timeliness

9. The NC6 was submitted on 8 January 2014, after the deadline of 1 January 2014 mandated by decision 9/CP.16. Hungary informed the secretariat about its difficulties with the timeliness of its NC6 on 31 December 2013 in accordance with decision 23/CP.19, annex, paragraph 79, and decision 22/CMP.1, annex, paragraph 139. The ERT noted with concern the delay in the submission of the NC6.

3. Adherence to the reporting guidelines

10. The information reported by Hungary 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/HUN.

Table 1
Assessment of completeness and transparency issues of reported information in the sixth national communication of Hungary[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	Mostly transparent	13	National registry	Incomplete	Not transparent	28
Greenhouse gas inventory	Complete	Transparent		Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Complete	Transparent	
Policies and measures (PaMs)	Mostly complete	Mostly transparent	39	PaMs in accordance with Article 2	Partially complete	Transparent	75, 76
Projections and total effect of PaMs	Mostly complete	Transparent	80, 97	Domestic and regional programmes and/or arrangements and procedures	Complete	Mostly transparent	32
Vulnerability assessment, climate change impacts and adaptation measures	Complete	Mostly transparent	108	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	Complete	Transparent		Minimization of adverse impacts in accordance with Article 3, paragraph 14	Complete	Mostly transparent	126
Education, training and public awareness	Complete	Transparent					

[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 information in this table, 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 Hungary 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.

Abbreviation: NA = not applicable.

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, Hungary has provided a concise description of the national circumstances and elaborated on the framework legislation and key policy documents on climate change. Information was provided on the geographical and climatic conditions, population, governmental structure, settlement structure and building stock, economy and relevant economic sectors. Further information on the review of the institutional and legislative arrangements for the coordination and implementation of policies and measures (PaMs) is provided in chapter II.B below.

12. As noted in the report of the in-depth review of the NC5 of Hungary, the analysis of how these national circumstances and the changes thereto affect GHG emissions and removals in Hungary could be further enhanced. While some of this information is found in the chapters of the NC6 following the chapter on national circumstances, it is left mostly unaddressed in the chapter on national circumstances, and a full picture of Hungary's national circumstances, its economic development as well as the effects on emission trends is not transparently reported for most economic sectors. Additional information on the national circumstances was provided by Hungary during the review. In particular, Hungary clarified recently changed government competences relevant to decision-making on climate change and energy.

13. The ERT recommends that Hungary improve the transparency of its reporting in its next national communication by providing additional information in the chapter on national circumstances on how national circumstances affect GHG emissions and removals, and how national circumstances and changes in national circumstances affect GHG emissions and removals over time and how they affect sectoral emissions and removals. Transparency in reporting would be enhanced if Hungary addressed government restructuring in this chapter of the NC6, particularly as these changes relate to climate change policymaking. Further, the ERT notes that Hungary could report in more detail on governance arrangements and progress made towards the implementation of EU legislation related to GHG emissions and removals, and the decision-making process related to climate change mitigation and adaptation.

14. Since the release of the previous national communication, Hungary has undertaken significant government restructuring, a key development of which has been the creation of a sovereign State Secretariat of Development, Climate Change and Key Public Services, established under the Ministry of National Development according to the Government of Hungary decree no. 1247/2010 (XI. 18). Three aides of the State secretary, the Deputy State Secretary for Green Economy, Climate Policy and Key Public Services, the Deputy State Secretary for Environment and Energy Efficiency operational programmes, and the Deputy State Secretary for Transport operational programmes, work within this State Secretariat. Climate change policy is underpinned by the National Climate Change Strategy for 2008–2025 (NCCS), superseded by the Second NCCS in 2013 (see para. 46 below). The energy sector is governed by the long-term National Energy Strategy of Hungary for 2030, and the

National Action Plan for Renewable Energy for 2020 and the National Energy Efficiency Action Plan for 2020 submitted to the European Commission.

15. The ERT noted that emission trends in Hungary were driven primarily by the transition to a market economy resulting in the restructuring of industrial production and, as a consequence, of the energy supply system. Hungary's transition to a market economy resulted in a sharp drop in emissions between 1985 and 1995, followed by a decade of economic growth and yet relatively stable low levels of emissions. Between 1990 and 2012, gross domestic product (GDP) increased by 24.2 per cent, while GHG emissions decreased by 36.2 per cent. The global economic crisis of the late 2000s led to halting of economic growth in 2009 and a decrease in total GHG emissions by 7.5 per cent from 2009 to 2012. While Hungary was affected by an economic crisis in the Eurozone in the late 2000s, its economy has shown some signs of improvement starting in 2011, which did not translate into emissions growth. Emission levels during 2009–2011 remained stable and still relatively low compared with 2008 (see para. 19 below).

16. During the review, Hungary provided updated information on emission trends for the period 1990–2012. During the reported period, emissions dropped by 45.8 per cent between the base year level and the 2012 level. In 2012, the increasing GDP trend changed and GDP decreased for the first time since 1995, dropping by 1.7 per cent compared with 2011, as a result of economic recession in Hungary. Carbon intensity of economic production continuously increased as was demonstrated by decreasing GHG emissions per GDP unit (47.9 per cent decrease) over the period 1990–2012. Table 2 illustrates the national circumstances of Hungary by providing some indicators relevant to GHG emissions and removals.

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

	1990	*2000*	*2005*	*2010*	*2012*	*Change 1990–2012 (%)*	*Change 2011–2012 (%)*
Population (million)	10.37	10.21	10.09	10.00	9.92	–4.3	–0.5
GDP (2005 USD billion using PPP)	136.10	139.62	171.22	169.28	169.08	24.2	–1.7
TPES (Mtoe)	28.78	25.00	27.55	25.68	23.47	–18.5	–6.0
GHG emissions without LULUCF (kt CO_2 eq)	97 189.70	76 976.51	78 431.17	67 589.83	62 039.51	–36.2	–6.0
GHG emissions with LULUCF(kt CO_2 eq)	95 201.36	76 357.97	73 382.83	63 606.35	57 585.17	–39.5	–7.6
GDP per capita (2005 USD thousand using PPP)	13.12	13.67	16.97	16.93	17.04	29.9	–1.2
TPES per capita (toe)	2.78	2.45	2.73	2.57	2.37	–14.7	–5.2
GHG emissions per capita (t CO_2 eq)	9.37	7.54	7.77	6.76	6.25	–33.3	–5.6
GHG emissions per GDP unit (kg CO_2 eq per 2005 USD using PPP)	0.71	0.55	0.46	0.40	0.37	–47.9	–2.6

Sources: (1) GHG emissions data: Hungary's 2014 GHG inventory submission, version 2.1; (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.

17. In accordance with Article 4, paragraph 6, of the Convention and decision 9/CP.2, Hungary, as a Party with an economy in transition, may use the average level of emissions for the period 1985–1987 as its base year.

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

18. Hungary has provided a summary of information on GHG emission trends for the period 1985–2011. This information is mostly consistent with the 2013 national GHG inventory submission. Summary tables, including trend tables for emissions in carbon dioxide equivalent (CO_2 eq) (given in the common reporting format tables) are provided in annex I to the NC6, which consists of the first biennial report (BR1). The ERT noted the differences in total GHG emissions reported in the BR1 and the NC6, and it was explained by Hungary during the review that those differences are a consequence of the changes made in the annual submission following the review of the 2013 national GHG inventory submission. During the review, the ERT took note of the recently submitted 2014 annual submission, the relevant information of which is reflected in this report. Further, the ERT notes that transparency of reporting of future national communications and biennial reports can be improved if observed differences (if existing) are appropriately explained.

19. Total GHG emissions[4] excluding emissions and removals from land use, land-use change and forestry (LULUCF) decreased by 36.2 per cent per cent between 1990 and 2012, whereas total GHG emissions including net emissions or removals from LULUCF decreased by 39.5 per cent per cent over the same period. The main driver for the decrease in GHG emissions was the economic downturn in the late 1980s and early 1990s and subsequent structural changes in the economy and the main emitting sectors of energy, industry and agriculture, as a result of the change in political regime, leading to a considerable decline of activity in the energy, industry and agriculture sectors.

20. CO_2 emissions (accounting for 72.2 per cent of total GHG emissions in 2012) have decreased by 46.2 per cent compared with the base year level. Methane (CH_4) emissions (13.9 per cent of total GHG emissions in 2012) decreased by 36.7 per cent compared with the base year level. Nitrous oxide (N_2O) emissions (11.8 per cent in the total GHG emissions in 2012) are 60.2 per cent lower compared with the base year level. In 2012, emissions of fluorinated gases (F-gases) (2.0 per cent of total GHG emissions in 2012) increased by more than three times compared with the base year level. However, the level of F-gas emissions has been almost constant since 2008. An analysis of the drivers of 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 2012.

21. The description of emission trends and drivers of emissions in the energy sector (contributing 73.4 per cent of total GHG emissions in 2012) is not transparently reported in the NC6. The ERT noted that emissions from energy decreased by 44.1 per cent between the base year and 2012 because of reduced energy consumption and changes in the energy mix due to the shift from coal to natural gas and renewables. Despite a significant decrease of emissions from energy, the ERT noted with concern a significant growth of emissions from transport (34.8 per cent increase between the base year and 2012), especially of concern are growth rates between 2004 and 2008.

[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.

Table 3
Greenhouse gas emissions by sector in Hungary, base year–2012

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share[a] by sector (%)*	
Sector	*Base year*	*1990*	*2000*	*2011*	*2012*	*Base year–2012*	*2011–2012*	*Base year*	*2012*
1. Energy	81 324.51	69 891.11	56 821.80	49 149.11	45 474.58	–44.1	–7.5	71.1	73.4
A1. Energy industries	25 466.44	20 548.49	23 502.49	17 166.49	16 532.68	–35.1	–3.7	22.3	26.7
A2. Manufacturing industries and construction	20 413.78	16 409.42	6 065.63	4 564.57	3 985.54	–80.5	–12.7	17.8	6.4
A3. Transport	8 050.26	8 520.40	9 108.37	11 394.09	10 848.91	34.8	–4.8	7.0	17.5
A4.–A5. Other	24 494.83	21 918.95	15 558.50	13 699.26	11 884.66	–51.5	–13.2	21.4	19.2
B. Fugitive emissions	2 899.20	2 493.84	2 586.82	2 324.69	2 222.80	–23.3	–4.4	2.5	3.6
2. Industrial processes	11 614.55	9 336.10	6 655.26	4 680.23	4 273.89	–63.2	–8.7	10.1	6.9
3. Solvent and other product use	289.92	245.80	219.66	349.38	350.45	20.9	0.3	0.3	0.6
4. Agriculture	18 588.22	15 159.43	9 452.29	8 729.80	8 705.49	–53.2	–0.3	16.2	14.0
5. LULUCF	–2 555.44	–1 966.85	–609.34	–3 641.90	–4 407.11	72.5	21.0	NA	NA
6. Waste	2 629.90	2 970.15	3 355.28	3 125.57	3 176.25	20.8	1.6	2.3	5.1
7. Other	NA	NA	NA	NA	NA	NA	NA	–	–
GHG total with LULUCF	**111 891.65**	**95 635.74**	**75 894.96**	**62 392.19**	**57 573.55**	**–48.5**	**–7.7**	**NA**	**NA**
GHG total without LULUCF	**114 447.09**	**97 602.59**	**76 504.30**	**66 034.09**	**61 980.66**	**–45.8**	**–6.1**	**100.0**	**100.0**

Source: Hungary's 2014 GHG inventory submission, version 2.1 (for GHG emission data).

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.

22. Hungary did not report in the NC6 an overview of the factors underlying the emission trends. For example, Hungary did not clearly explain the reasons behind the decreasing emissions from energy supply against increasing electricity production or the drivers of the significant reductions in emissions from industrial production and the residential sector (see para. 54 below). The ERT considers that it would help to improve the transparency of reporting if Hungary were to report on the key characteristics of the energy sector with a breakdown by key sectoral category. It is unclear to the ERT how, despite a steady increase in electricity production at a time of economic crisis in the country, emissions are declining. Figure 3.11 in the NC6 on emissions from fuel combustion does not show a significant decline in emissions from the sector other energy. The ERT encourages Hungary to provide in its next national communication information on the factors underlying the observed emission trends.

3. National system

23. Hungary 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 the elements mandated by decision 15/CMP.1. The ERT took note of the review of the changes to the national system as reflected in the report of the individual review of GHG inventory of Hungary submitted in 2013.

24. During the review, Hungary provided additional information on the national system, elaborating on recent institutional changes, roles and responsibilities, as well as quality assurance and quality control measures. The national system falls under the authority of, and is operated by, the Ministry of National Development and in cooperation with the Ministry of Agriculture and Rural Development (which was renamed after the restructuring of government in June 2014). The national GHG inventory is compiled by the Hungarian Meteorological Service together with the Forestry Directorate of the National Food Chain Safety Office of the Forest Research Institute, which is responsible for the provision of forest management data.

25. Hungary passed a government decree on the national inventory (528/2013), which prescribes compulsory data provision for any company or organization emitting 100 tonnes of CO_2 eq per year or more. The national system is covered by ISO 9001:2008 certification and routinely undergoes both external and internal audits, in particular the external audits started as of January 2014. The ERT commends Hungary for the arrangements put in place to safeguard and maintain the quality of the national system and for ensuring its continuity in the midst of government restructuring.

4. National registry

26. In its NC6, Hungary did not include information on the national registry in accordance with the annex to decision 13/CMP.1 and the annex to decision 5/CMP.1. However, this information was provided during the review. 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 GHG inventory of Hungary submitted in 2013.

27. Hungary described the changes, specifically due to the consolidation of the European Union Emission Trading System (EU ETS) operations into a single EU 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 EU registry. Administration of the national registry in Hungary is the responsibility of the National Inspectorate for Environment and Nature.

28. The ERT notes that the registry system, as described during the review, complies with the requirements of the technical standards for data exchange between registry systems as adopted by the COP/MOP. The ERT recommends that Hungary include a description in its next national communication of how its national registry performs its functions, in accordance with decision 13/CMP.1 and its annex, and the annex to decision 5/CMP.1 and complies with the requirements of the technical standards for data exchange between registry systems as adopted by the COP/MOP.

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

29. Hungary has reported in its NC6 limited information on domestic and regional programmes and/or legislative arrangements and procedures related to the Kyoto Protocol.

30. During the review, Hungary provided additional information elaborating on its domestic and regional legislative arrangements as well as its enforcement and administrative procedures, established pursuant to the implementation of the Kyoto Protocol, according to its national circumstances. The overall responsibility for climate change policymaking lies within the Ministry of National Development of Hungary, and a number of national institutions are involved in the implementation of this policy, including the Ministry of Agriculture and Rural Development (see para. 14 above).

31. This additional information highlighted the changes in the institutional set-up inside the ministry, including the National Inspectorate for Environment and Nature being responsible for the national registry and the Kyoto Protocol units belonging to the Treasury's assets that are kept on a separate account in the national registry.

32. During the review, Hungary indicated that all laws related to environmental protection are publicly available and that it has completed public consultation on its Second NCCS. Hungary also included information stating that all of its related acts and legal documentation are available to the public. Hungary did not report on the coordination of its activities relating to the use of Kyoto Protocol mechanisms. The ERT recommends that Hungary provide in its next national communication more transparent information on its domestic and regional legislative arrangements as well as the enforcement and administrative procedures put in place to meet its Kyoto Protocol commitments, how this information is publicly accessible, and information on arrangements put in place for the coordination of activities relating to participation in the mechanisms under Articles 6, 12 and 17, of the Kyoto Protocol.

33. Hungary reported on the general rules for the Protection of the Environment (1995) and the Act on the Implementation of the UNFCCC and its Kyoto Protocol (2007) that set an overall framework for climate policymaking in the country. As emissions decreased so dramatically over the period 1990–2012, Hungary did not report on any specific PaMs that were put in place to reach its target for the first commitment period of the Kyoto Protocol. Hungary's key policy strategies include expansion of its nuclear power electricity generation, and biomass/biofuels usage (including plans for increased forest growth and sustainable management and planned growth in agriculture industry).

34. Hungary reported that the State Secretariat on Development, Climate Policy and Key Public Services of the Ministry of National Development, through the First NCCS for 2008–2025 and in future the Second NCCS, monitors and evaluates the progress and success of PaMs and prioritizes PaMs with the highest cost-benefit ratio. Hungary also explained that new planned thematic subprogrammes under the Second NCCS provide for explicit use of a set of given indicators to rank measures according to their efficiency (e.g. the planned new Rural Development Strategy[5]).

35. In the NC6, Hungary reported on the Act on Forest, Forest Protection and Forest Management (2009) that regulates the use of natural resources. The Hungarian forest law, which is the strictest in Europe, as was explained by Hungary during the review, was designed to increase the "naturalness of forests". From 2010, a "naturalness index" was added to the information collected during surveys, and new technologies are required in forests of indigenous species to ensure the transition of existing forests to a close-to-nature status. In addition, policies have been implemented to reduce the area of continuous clear cuts and limit the timing of forest operations in order to avoid sensitive times of the season. During the review, Hungary reported on how its Act on Forest, Forest Protection and Forest Management supports other climate change related efforts.

[5] Ministry of Rural Development. 2013. Rural Development Strategy 2014-2020, p. 156. Available at <http://palyazat.gov.hu/download/49630/Vidékfejlesztési%20Program.pdf>.

36. During the review, Hungary provided further information describing 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. Hungary highlighted its policies to promote afforestation and reforestation in areas of poor agricultural yield while still considering grasslands that are of value for biodiversity. Furthermore, Hungary considers the effect of tree species on biodiversity when planting (see para. 72 below).

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

37. Hungary has provided in its NC6 well-organized 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

38. In its NC6, Hungary reported on its PaMs adopted, implemented and planned in achieving its commitments under the Convention. Hungary provided information on PaMs by sector and by gas, and a description of the principal PaMs. Hungary has also provided 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. The NC6 contains a different set of PaMs compared with those in the NC5 (see para. 41 below).

39. The NC6 includes information required by the UNFCCC reporting guidelines on NCs on PaMs, but the ERT noted that Hungary did not report transparently a description of PaMs in industrial processes, in particular PaMs to address F-gases (e.g. projects to reduce emissions from joint implementation and PaMs to comply with a new EU directive on F-gases). Information on implementing entities for PaMs in the waste and forestry sectors was not included in the NC6. Therefore, the ERT recommends that Hungary report a transparent systematic and comprehensive description of the principal PaMs for all sectors in its next national communication.

40. In its NC6, Hungary gave priority to those PaMs adopted, implemented and planned that provide the most significant contribution to its emission reduction efforts, including mostly PaMs at national level. Hungary reported the mitigation impacts of PaMs in its NC6 and provided a summary table on PaMs in its annex (BR1, table 3). The ERT noted that the mitigation impacts of PaMs in agriculture, LULUCF and industrial processes, including F-gases, were reported as "not available" and that a description of the estimation methods, assumptions and data sources used for the estimation of PaMs in other sectors was not reported in the NC6. The ERT encourages Hungary to include in its next national communication a clearer presentation of quantified PaMs showing a summary table of the PaMs and their mitigation impacts by sector for all sectors, to the extent possible, so that this can be compared with detailed descriptions of PaMs. The ERT also encourages Hungary to report a description of estimation methods, assumptions and data sources used for estimation. The ERT reiterates the encouragement made in the previous review report with respect to reporting more transparent information on the mitigation impacts of PaMs in agriculture, including their effect by gas (i.e. CH_4 and N_2O) and how these PaMs are implemented.

41. The NC6 uses a different presentation and structure of PaMs compared with the NC5, with different naming of PaMs and implementing entities as a result of recent

government restructuring. Hungary clarified that, although the PaMs reported in the NC5 remain in place, they have been consolidated as part of the ongoing government restructuring. The ERT notes that the NC6 provides less detail on the breakdown of the PaMs compared with the NC5.

42. In addition, the ERT notes that the NC6 presents a dramatically reduced expected total effect of adopted and implemented PaMs in 2020 in terms of emission reductions by PaMs from 108,186.00 kt CO_2 eq as reported in appendix 3 to the NC5 to 23,237.98 kt CO_2 eq reported in table 3 of the BR1 (over 75 per cent reduction of total effect). Hungary explained during the review that this was as a result of the use of a revised approach for estimating mitigation impacts of PaMs and a renewed focus on improvement of economic performance. The ERT encourages Hungary to present a clear explanation of the differences, recalculations and the methodology used for the estimation of mitigation impact of its PaMs in its next national communication, especially where the effects of PaMs have been revised downwards and the presentation of PaMs restructured.

43. The ERT noted that there is a lack of completeness or transparency in reporting on PaMs which encourage activities that lead to greater levels of anthropogenic GHG emissions than would otherwise occur (e.g. expected growth of emissions from road transport and agriculture as a result of Hungary's strategies for economic growth or information on subsidies for agriculture aimed at increasing agricultural production will have an impact that will compete with efforts to reduce emissions). The ERT encourages Hungary to include such information in the chapter on national circumstances as well as in the chapter on PaMs in its next national communication in order to improve its reporting on PaMs that lead to greater levels of emissions.

44. Also, the ERT notes that Hungary did not report on a number of areas such as the identification of innovative and/or replicable PaMs; PaMs adopted at local or regional levels; costs of PaMs; non-mitigation benefits of PaMs; interaction of PaMs at the national level; and PaMs that are no longer in place compared with those reported in the NC5 and an explanation as to why these PaMs were discontinued. During the review, Hungary provided an explanation that the full set of information on PaMs had been completely revised and it was not possible to provide an analysis of the differences between the NC5 and the NC6. The ERT encourages Hungary to include this information in its next NC to improve the transparency and completeness of its reporting. The ERT notes that none of Hungary's PaMs are deferred to the regional or local levels.

45. Some of the recommendations made in the previous review report were taken into consideration in order to improve reporting in the NC6, including the reporting of the mitigation impact of waste PaMs; and more coherent reporting on PaMs and quantification of their impacts for most sectors.

2. Policy framework and cross-sectoral measures

46. The key framework climate and energy policy is the First NCCS for 2008–2025, which is set to ensure the implementation of its national target of emission reductions by 16.0–25.0 per cent by 2025 below 1991 levels. This strategy was revised in 2013. The review of the First NCCS provided insights and recommendations that informed the design of the Second NCCS, which has been developed in parallel to the submission of the NC6. The Second NCCS incorporates the Decarbonisation Roadmap (which is linked to the Hungarian Long-Term Energy Strategy), the National Adaptation Strategy, and plans for awareness raising, communications and public opinion survey activities. During the review, Hungary elaborated on its priorities for green technologies and the links between the Programme for National Development and the First NCCS.

47. According to Hungary, its programme for the refurbishment of existing buildings and construction of new buildings, supported by the Green Investment Scheme (GIS) and the New Széchenyi Plan, have been identified as the most successful PaMs because of progress in implementation, potential for emissions reductions and energy savings compared to investment costs. The GIS and the New Széchenyi Plan are the two key schemes for the provision of investments for mitigation actions. The GIS is capitalized by the funds raised through the trading of assigned amount unit (AAU) credits. During the review, Hungary provided further details on the GIS, its progress and verification systems.

48. Hungary continues to develop and implement its cross-cutting PaMs and to improve coordination and links among energy, agriculture and forestry PaMs, such as the transport development strategies, the National Agri-Environmental Programme; the New Nitrate Action Programme; the New Hungary Rural Development Strategic Plan; the National Forest Programme 2006–2015; and the Act on Forest, Forest Protection and Forest Management.

49. During the review, Hungary explained that its key overarching cross-sectoral PaM is the EU climate and energy package and its two instruments, the EU ETS and the EU effort-sharing decision (ESD) (EU decision 406/2009/EC). In operation since 2005, the EU ETS is a cap-and-trade system that covers all significant energy-intensive installations, which produce 40–45 per cent of the GHG emissions of the EU. The third phase of the EU ETS started in 2013 and now covers aircraft operations (2012) as well as N_2O emissions from chemical industries, perfluorocarbon (PFC) emissions from aluminium production and CO_2 emissions from industrial processes (2013). The aim of the EU ETS is to decrease GHG emissions from the covered sectors (EU ETS sectors) by 21.0 per cent below the 2005 level by 2020.

50. The ESD became operational in 2013 and covers sectors not covered by the EU ETS (non-ETS sectors), including transport (excluding aviation and international maritime transport), residential and commercial buildings, agriculture, waste and other sectors, together accounting for 55–60 per cent of the GHG emissions of the EU. The aim of the ESD is to decrease GHG emissions from the non-ETS sectors by 10.0 per cent below the 2005 level by 2020 and it includes annual binding targets for 2013–2020, which are underpinned by the national policies and actions of the EU member States. For Hungary, the target under the ESD is to limit its emission growth to 10.0 per cent above the 2005 level by 2020 (see para. 89 below).

51. During the review, in response to questions from the ERT, Hungary provided further information on its policy framework and its implementation of the EU-wide programmes. Hungary elaborated on its targets under the ESD and projections by 2020 and the likely sectors that will deliver emission reductions. Hungary highlighted that, as the first performance review of the ESD will be in 2015, it is still uncertain how the system will operate and how targets will be met. The ERT noted that Hungary could provide an estimate of the projected effects of the EU ETS, ESD and other key PaMs in the chapter on PaMs and could explain how any overlap (or double counting) with existing PaMs is treated.

52. During the review, Hungary also reported further details on other strategies, such as the National Rural Development Strategy 2012–2020.[6] Hungary informed the ERT about: its newly drafted but not yet adopted International Development and Cooperation Strategy, which includes actions for sustainable water management, environment protection and climate change related measures; and the adopted National Sustainable Development

[6] Ministry of Rural Development. 2012. Nemzeti Vidékstratégia 2012–2020 (National Rural Development Strategy 2012–2020). Available at: <http://videkstrategia.kormany.hu/>.

Strategy (2013).[7] Hungary also clarified that the continuation of the National Environmental Protection Programme 2009–2014 is still under consideration because of delays in recent elections and government restructuring. The ERT encourages Hungary to include this information in its next national communication. Table 4 provides a summary of the reported information on the PaMs of Hungary.

Table 4
Summary of information on policies and measures reported by Hungary in 2020

Sectors affected	*List of key policies and measures*	*Estimate of mitigation impact (kt CO_2 eq)*
Policy framework and cross-cutting measures	First and Second National Climate Change Strategies	NA
	European Union climate and energy package	NA
Energy		
Energy supply	Promotion of nuclear power	7 800.00
Renewable energy	Promotion of renewables	8 821.20
	Renewable public institutions subprogramme	722.10
Energy efficiency	Reduction of power demand from public institutions	972.80
	District heating efficiency subprogramme	242.00
	Reducing the energy use of enterprises	1 477.60
	Horizontal measures	336.70
Residential and commercial sectors	‘Liveable panel buildings’ subprogramme	953.50
	‘Our home’ reconstruction subprogramme	844.40
	‘Power saving households’ programme	1 117.10
Transport	Reducing the energy demand of cargo and passenger transport	98.20
	Shifting from road to railway transport	80.60
	Shifting from private to public transport and developing public transport	52.40
	Reducing road transport emissions	1 549.70
Agriculture	Climate protection by efficient manure management and biogas use	NA
	Partial change of nitrogen fertilizer utilization and	NA

[7] <http://www.complex.hu/kzldat/o13h0018.htm/o13h0018.htm>.

Sectors affected	*List of key policies and measures*	*Estimate of mitigation impact (kt CO_2 eq)*
	cultivations change	
	Support for perennial herbaceous energy plantation by the European Agricultural Fund	NA
	Rural development for sustainable and modern agriculture	NA
	Reduction of nitrate contamination of water	NA
Forestry	National forest programme for increasing forest area	700.00
	Framework for forestry management and forest protection	NA
Waste management	Governmental regulation on packaging waste	23.08
	Budapest municipal door-to-door selective waste collection	20.77
	Landfill recultivation and recovery	4.62
	Prevention of waste generation	9.23
	Waste landfilling tax	3.85
	New waste management instruments	4.62
	Setting up regional waste management projects	20.77

Note: The greenhouse gas reduction estimates given for some measures are reductions in carbon dioxide or carbon dioxide equivalent for 2020.

Abbreviation: NA = not available.

3. Policies and measures in the energy sector

53. Between 1990 and 2012, GHG emissions from the energy sector decreased by 34.9 per cent (24,416.53 kt CO_2 eq), mainly owing to the economic decline, leading to the closure of many industrial plants and a switch from the use of coal to natural gas, which started in the late 1980s and has continued up to 2012. The trend in GHG emissions from fuel combustion showed notable increases in transport (27.3 per cent or 2,328.51 kt CO_2 eq) and a decrease from energy use in other sectors (45.8 per cent or 10,034.29 kt CO_2 eq) over the reported period.

54. ***Energy supply***. The total primary energy supply has declined by 18.5 per cent since 1990. Despite an increase in electricity production (responsible for 90 per cent of fuel use in energy industries), this decline in emissions has resulted from the increased use of nuclear energy (the share of 26 per cent in total primary energy supply in 2011), a shift from the use of coal to natural gas, and the increased use of renewable energy sources. There is a general downward trend in the energy intensity of the economy since 1999 with a reduction of 34.4 per cent in energy intensity over the period 1990–2012 against a 24.2 per cent increase in GDP. Hungary aims to reduce carbon intensity of the energy sector from

370 g CO_2/kWh to below 200 g CO_2/kWh by 2030 through a few PaMs, including the use of renewable energy sources in cogeneration plants and nuclear power.

55. In its NC6, Hungary reported on its National Energy Strategy by 2030 (2011) aimed at securing energy supply, increasing competitiveness and ensuring sustainable energy management. According to this strategy, Hungary plans to increase the nuclear energy supply by 2030 by putting two new energy blocks into operation and extending the lifetime of the existing blocks. It is planned that this measure will cover the expected annual increase in demand for electricity for the transport and buildings sectors. This measure has been estimated as one of the most significant mitigation policies with the impact of 7,880.00 kt CO_2 eq by 2020. The increase in demand for heating and electricity will be offset by improvements in energy efficiency in industry, transport and residential sectors and the modernization of the electricity grid with the planned buildings retrofit rate of 50 per cent by 2020, which will increase to 70 per cent by 2030. During the review, Hungary provided further details of the linkage between the National Energy Strategy and its plans for potential increased lignite consumption and the studies on the geological potential for carbon dioxide capture and storage.

56. ***Renewable energy sources***. Hungary has seen a steady increase, up to 8.1 per cent in 2011, in the use of renewables since 2003. Hungary has targets to increase the share of renewable energy sources in its total gross final energy consumption to reach the 14.7 per cent and 20 per cent shares by 2020 and 2030, respectively. Hungary considers itself to be on track to achieve these targets, as it already reached the 7.4 per cent share of renewables in 2010.

57. According to the National Renewable Energy Action Plan (2011), Hungary has a relatively good renewable energy potential, especially from biomass (48.0 per cent of total renewable energy potential), biogas (11.4 per cent) and wind power (27.6 per cent), and much less potential in geothermal (7.3 per cent) and solar energy (1.4 per cent). Hungary also has some limited capacity for hydropower energy. In its NC6, Hungary reported that the review of the National Renewable Energy Action Plan is in progress with a view to reflecting changing oil prices and new EU regulations.

58. Hungary plans to meet the 2020 target through continued direct financial support for renewable infrastructure projects, including prioritization of cogeneration biogas and biomass plants for heat and electricity production,[8] geothermal plants for heat production and the use of by-products from agriculture and waste. It also plans to adopt a number of decrees by the Ministry for Agriculture and Rural Development on planting new energy crops or energy forest plantations.

59. The ERT noted that due to limited and not fully transparent information reported in the NC6, it is difficult to understand the total amount of energy generated using renewable energy sources and changes in the share of renewable energy over time. Hungary has not reported a sufficiently transparent overview of renewable energy use by type of energy source and by energy consumption category.

60. ***Energy efficiency***. Through the National Energy Strategy and Hungary's Second National Energy Efficiency Action Plan for 2008–2016, including national energy efficiency programmes (under the New Széchenyi Plan and the GIS), Hungary has a target to achieve 9.0 per cent energy savings in energy end use by 2016 and 1.5 per cent of annual energy savings obligations between 2008 and 2016. Through this measure Hungary plans to reach the level of 57.4 PJ/year of cumulative savings. By 2030, Hungary plans to limit its

[8] World Bioenergy Association. 2014. WBA Press Release on Visit to Pécs, Hungary. Available at <http://www.worldbioenergy.org/content/wba-press-release-wba-visits-p%C3%A9cs-green-city-hungary>.

total primary energy use to 1,150 PJ/year. This will be achieved through retrofit programmes targeting old buildings, strict energy efficiency standards for new buildings and technological modernization of electricity production and transmission.

61. The ERT notes that Hungary does not provide a transparent overview of energy efficiency targets by sector and sectoral PaMs on energy efficiency in its NC6. It reported that it expects to achieve the largest share of cumulative energy savings by 2016 from the residential sector (36.6 per cent of savings) followed by the public sector (16.1 per cent of savings).

62. ***Residential and commercial sectors***. Hungary plans to reduce residential heating demand by 30 per cent (by 2030) through energy efficiency investment subsidy programmes in the residential sector, such as the 'Liveable panel building', 'Our home' and 'Power saving households' programmes. These programmes will target energy efficiency measures in existing buildings through retrofits and the implementation of stricter new building energy efficiency regulations, such as the Hungarian legal framework decree no. 7/2006 (V.24) and amendment of the Government of Hungary decree no. 176/2008 (VI.30).

63. For commercial and public buildings, Hungary funds improvements through the New Széchenyi Plan and the Regional Operational Programmes, which support both the improvement of the energy performance of buildings and the utilization of renewable energy sources. In addition, Hungary plans the modernization of heat production systems in the residential and commercial sectors through the implementation of renewable energy sources (e.g. use of heat pumps and solar panels). Hungary is also implementing plans for awareness raising (e.g. promoting energy-efficient lighting, energy management and eco-labelling of energy efficiency products) and has set minimum standards for the energy efficiency of office equipment.

64. ***Transport sector***. Hungary has implemented a number of PaMs for the improvement of the energy efficiency of transport. These include: increasing the share of biofuels in transport fuels; the promotion of railway cargo transport (through the improvement of the railway coverage and the introduction of road tolls); converting public transport vehicles to use locally produced sustainable fuels; and the encouragement of cycling (through the development of new cycling routes, designation of low traffic zones and environmentally friendly transport campaigns).

65. During the review, Hungary provided further details on the instruments (e.g. cost-benefit analysis in the National Transport Strategy) used for considering the mitigation impact of investment in the motorway and transport infrastructure.

66. ***Industrial sector***. In accordance with the EU directive on emission allowance trading (directive 2003/87/EC) Hungary has been operating the EU ETS since 2005. The EU ETS is the key instrument used to drive the large energy consumers of the economy to make efforts to mitigate their GHG emissions. With investment support provided through the New Széchenyi Plan, Hungary has also implemented initiatives to improve energy efficiency in electrical equipment (heat recovery, motors and appliances), district heating efficiency, application of energy management systems and the introduction of regular energy audits in the industry sector.

4. Policies and measures in other sectors

67. Between 1990 and 2012, GHG emissions from industrial processes (including solvent and other product use), agriculture and waste decreased by 40.4 per cent (11,205.40 kt CO_2 eq), mainly owing to strong emission reductions in agriculture and industrial processes as a result of declining economic activity in these sectors.

68. ***Industrial processes***. Between 1990 and 2012, GHG emissions from the industrial processes sector decreased by 54.2 per cent (5,062.21 kt CO_2 eq), mainly owing to the transition to a market economy and a strong decline in iron and steel production, where two out of three plants closed down in 1991, abandoned aluminium production discontinued in 2006, and significant reduction in production of adipic and nitric acids, ammonia and ferroalloys. Hungary has not reported in its NC6 any PaMs for the industrial processes sector. The ERT noted that Hungary does not provide information on the PaMs for industrial processes, including consumption and use of F-gases that is sufficiently transparent.

69. ***Agriculture***. Between 1990 and 2012, GHG emissions from the agriculture sector decreased by 42.6 per cent (6,453.94 kt CO_2 eq), mainly owing to transition to a market economy, significant reduction in agricultural production, livestock population and the use of fertilizers. In its NC6, Hungary reported on its New Hungary Rural Development Strategic Plan for 2007–2013, which is aimed at improving the competitiveness of agriculture, increasing the use of biomass, increasing energy crop production and the afforestation of agricultural lands. Hungary provided information confirming that subsidies for the agricultural sector aimed at increasing the agricultural economy (increased production) will have an impact that will compete with efforts to reduce emissions. However, Hungary listed a number of planned mitigation PaMs including: the modernization of livestock farms and horticulture equipment; the purchase of new technologies; agri-environmental support; and the establishment of agroforestry systems for sustainable forests.

70. ***LULUCF***. The LULUCF sector was a net sink of 4,407.11 kt CO_2 eq in Hungary in 2012 and net GHG removals increased by 2,440.26 kt CO_2 eq since 1990. The increasing trend was mainly driven by the huge carbon uptake of forests due to continuous afforestation efforts and sustainable forest management. The main PaMs in the LULUCF sector are the National Forest Programme 2006–2015, focused on increasing the forest area, and the Act on Forest, Forest Protection and Forest Management, focused on forest management.

71. During the review, Hungary provided more information on the effects of forestry PaMs on net emissions, and explained how the policies affect activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol (see para. 36 above).

72. Hungary provided additional descriptions of its assumptions on forestry projections and a brief description of its assessment of the afforestation needed to supply a growing biomass market while sustaining and continuously increasing forest resources. Hungary acknowledged that its forestry and renewable energy strategies required further cross-linking, but that its forest capacity was sufficient for it to meet its 2020 renewable energy targets in terms of expected biomass share.

73. ***Waste management***. Between 1990 and 2012, GHG emissions from the waste sector increased by 6.9 per cent (206.10 kt CO_2 eq), mainly owing to the insignificant increase in waste generation and collection and increased waste disposal in landfills up until 2005. The main PaMs in the waste sector include Hungary's regulation on packaging waste, selective waste collection, waste prevention policies and the waste landfilling tax. During the review, Hungary provided information on the Hungarian waste reduction and reuse targets derived from its National Waste Collection and Recovery Plan.

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

74. Hungary reported on its package of PaMs adopted, implemented and elaborated in achieving its commitment under the Kyoto Protocol.

75. The NC6 does not include information identifying the steps Hungary has 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. During the review, Hungary provided additional information to address these reporting requirements. The ERT recommends that Hungary provide this information in its next national communication.

76. In its NC6, Hungary 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. The ERT recommends that Hungary report information in its next national communication on how it strives to implement its 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. Further information on how Hungary 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 2014 annual submission, is presented in chapter III.B below.

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

77. Hungary has provided in its NC6 emission projections for three scenarios until 2025. During the review, Hungary clarified to the ERT that no updated projections had been prepared since the publication of the NC6.

1. Projections overview, methodology and key assumptions

78. The GHG emission projections provided by Hungary in the NC6 include a 'with existing measures' (WEM), a 'with additional measures' (WAM) and a 'without measures' (WOM or baseline) scenario until 2025, presented relative to actual inventory data for 2008 and 2010. While the WOM scenario was presented only for total GHG emissions, the WEM and WAM projections are provided in an aggregated format for each sector as well as for a national total, using global warming potential values from the Second Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).

79. The WEM and WAM projections are presented on a sectoral basis using, to the extent possible, the same sectoral categories used in the PaMs section for the following sectors: energy, industrial processes, solvent and other product use, agriculture, waste and LULUCF, and on a gas-by-gas basis for all GHGs: CO_2, CH_4, N_2O, PFCs, hydrofluorocarbons (HFCs) and sulphur hexafluoride (SF_6) (treating PFCs and HFCs collectively in each case). The projections were calculated for total GHG emissions including and excluding LULUCF.

80. Hungary did not report projections for 2030 (see FCCC/TRR.1/HUN, para. 35). Emission projections related to fuel sold to ships and aircraft engaged in international transport were not reported separately and were included in the total GHG emissions. The ERT recommends that Hungary report the projections related to fuel sold to ships and aircraft separately, to the extent possible, in its next national communication.

81. The NC6 does not include information on the definitions of the different scenarios used, and on the indirect GHGs such as carbon monoxide, nitrogen oxides and non-methane volatile organic compounds or sulphur oxides. The NC6 also lacks information on how the projection models and approaches of the Party account for overlaps or synergies that may exist between different PaMs; and on the changes in assumptions, methods employed and results between projections in the NC6 and those in the NC5.

82. The NC6 lacks a clear explanation of which PaMs are included in the different scenarios or a definition of the terms (e.g. 'implemented' or 'adopted' PaMs) used in assessing the status of PaMs and their linkages under different projection scenarios. Hungary provided more descriptive information during the review, contributing significantly to improvements in transparency; however, the ERT encourages Hungary in its next national communication to provide more detailed definitions of the scenarios and assumptions used on including or excluding certain PaMs in its projection scenarios.

83. Hungary reported on the methodology and approach used for preparing its GHG emission projections for the different sectors; however, in its NC6, Hungary did not provide information on the changes in the methodologies used for the preparation of projections since the previous national communication or details of how the models and approaches used account for overlaps or synergies. During the review, Hungary explained that for the previous national communication it used mostly the HUNMIT model, while for the NC6 it has used updated harmonized assumptions (GDP growth, population growth, carbon value, energy prices) and different models for projections in the electricity and heating sectors (EEMM model), buildings (REKK building model), industrial processes emissions (econometric model), transport (econometric model), agriculture and LULUCF (CASMOFOR), and for other sectors it has used trend estimations and expert evaluations. For preparation of the scenarios, Hungary has used the following assumptions, based on the recent economic forecasts, whereby GDP growth rate has been set to vary between 0.002 and 0.1 per cent per year and the population growth rate has been set as –0.01 per cent (on average) per year between 2010 and 2025.

84. The supplementary information provided during the review illustrates the efforts made by Hungary to enhance the transparency and completeness of reporting, including on methods and details of how the models and approaches used for the preparation of projections account for overlaps or synergies that may exist between different PaMs. The information provided contributes significantly to the improvements in the transparency and completeness of the reporting and the ERT encourages Hungary to include this information in its next national communication.

85. Hungary did not present a sensitivity analysis in its NC6. The ERT encourages Hungary to prepare and present a sensitivity analysis in its next national communication.

2. Results of projections

86. Under the Kyoto Protocol, Hungary committed itself to reducing its GHG emissions by 6.0 per cent compared to the average level for the 1985–1987 period (base year) during the first commitment period, from 2008 to 2012. Its Kyoto Protocol target for the first commitment period is to achieve the level of emissions in the amount of 108,473.32 kt CO_2 eq per year on average for the period 2008–2012.

87. In its 2014 annual submission, for 2012, Hungary reported GHG emissions of 62,039.51 kt CO_2 eq per year. This level of emissions is 57.2 per cent (46,433.81 kt CO_2 eq per year) below the target. Therefore, Hungary is expected to overachieve its target and it does not plan to use the Kyoto Protocol mechanisms or units from the LULUCF activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol to meet its target for the first commitment period.

88. Hungary's Kyoto Protocol target for the second commitment period is the joint EU-wide target of reducing total GHG emissions by 20.0 per cent below the emissions level in 1990. Considering the existing and planned PaMs (in both EU ETS and non-ETS sectors), Hungary is expected to meet the target; therefore it does not plan to use the Kyoto Protocol mechanisms (see FCCC/TRR.1/HUN, para. 15).

89. Hungary did not include information in its NC6 on its emission reduction target by 2020 for the non-ETS sectors (+10.0 per cent) or on its non-binding target to achieve an increase in energy efficiency (+9.0 per cent) for 2016. Hungary reported in its NC6 on the PaMs used to achieve these targets, but it did not transparently explain the linkages between these PaMs and the overall EU 2020 target, by reporting separately based on ETS/non-ETS sectors. In order to increase transparency, Hungary may consider including such information in its next national communication.

90. Hungary reported on its two targets on the increase in the share of renewable energy sources (RES) in the final total energy consumption. The Party's target to achieve a 13.0 per cent share of RES in the final consumption of energy sources by 2020 according to the EU directive on renewable energy, and on its national target to achieve a 14.65 per cent share of RES according to the National Renewable Energy Action Plan.

91. In terms of projections by gas, based on the assumption that appropriate PaMs are applied, Hungary reported that under the WEM scenario, the share of CO_2 in total GHG emissions will decrease from 83.1 per cent to 74.8 per cent between 2011 and 2020; the share of CH_4 will decrease from 14.1 per cent to 11.5 per cent; while the N_2O share will slightly increase from 11.3 per cent to 12.4 per cent. For other gases, the changes were insignificant, with the share of HFCs decreasing from 1.7 per cent to 1.2 per cent; and of PFCs and SF_6, increasing from 0.003 to 0.0036 per cent, cumulatively. In its NC6, Hungary did not provide projections by gas in tabular form; however, the Party provided detailed information on this matter during the review; therefore, in order to improve the transparency, the ERT encourages Hungary to present projections by gas in tabular form in its next national communication.

92. Hungary presented the WEM and WAM projections by sector. Under the WEM, it is expected that emissions from the energy sector will account in 2020 for about 69.9 per cent of total GHG emissions; while those from industry will account for 9.8 per cent; agriculture for 1.6 per cent; and waste for 16.5 per cent.

93. Based on Hungary's projections by 2020, emissions are expected to decrease under both WEM and WAM scenarios. The emission projections provided by Hungary indicate that emissions in 2020 are expected to amount to 59,840.24 kt CO_2 eq under the WEM scenario (or 38.7 per cent below the 1990 level) and 56,774.20 kt CO_2 eq under the WAM scenario (or 41.8 per cent below the 1990 level). According to the reported projections by 2020, Hungary is expected to achieve its target and contribute to achieving the EU 2020 target.

94. For the longer-term perspective, the projections show that emissions in 2025 are expected to further decrease and reach the level of 58,598.03 kt CO_2 eq under the WEM scenario (or 40.0 per cent below the 1990 level) and 55,400.29 kt CO_2 eq under the WAM scenario (or 43.2 per cent below the 1990 level).

95. The projected emission levels under different scenarios and information on the Kyoto Protocol targets and quantified economy-wide emission reduction target are presented in table 5 and the figure.

Table 5
Summary of greenhouse gas emission projections for Hungary

	Greenhouse gas emissions (kt CO_2 eq per year)	*Changes in relation to the base year[a] level (%)*	*Changes in relation to the 1990 level (%)*
Kyoto Protocol base year[b]	115 397.15	–	18.2
Kyoto Protocol target for the first commitment period (2008–2012)	108 473.32	–6.0	11.1
Kyoto Protocol target for the second commitment period (2013–2020)[c]	Not available yet		
Quantified economy-wide emission reduction target under the Convention[d]	Not available yet		
Inventory data 1990[e]	97 602.58	–15.4	–
Inventory data 2012[e]	61 980.66	–46.3	–36.5
Average annual emissions for 2008–2012[e]	67 191.27	–41.8	–31.2
'Without measures' projections for 2020[f]	65 945.70	–42.9	–32.4
'With measures' projections for 2020[f]	59 840.24	–48.1	–38.7
'With additional measures' projections for 2020[f]	56 774.20	–50.8	–41.8

[a] "Base year" in this column refers to the base year used for the targets under the Kyoto Protocol, while for the target under the Convention it refers to the base year used for that target.

[b] The Kyoto Protocol base year level of emissions is provided in the initial review report contained in document FCCC/IRR/2007/HUN.

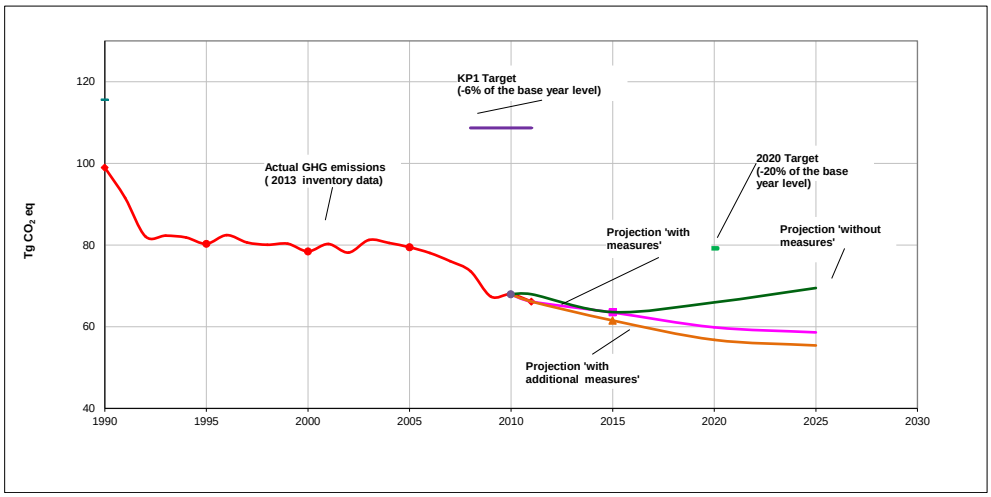
[c] The Kyoto Protocol target for the second commitment period (2013–2020) is a joint target for the European Union and its 28 member States and Iceland. The target is to reduce emissions by 20 per cent by 2020 compared with the base year (1990) level. The target for sectors not covered by the European Union Emission Trading System is +10 per cent for Hungary under the European Union effort-sharing decision.

[d] Quantified economy-wide emission reduction target under the Convention is a joint target for the European Union and its 28 member States. The target is to reduce emissions by 20 per cent by 2020 compared with the base year (1990) level.

[e] Hungary's 2014 greenhouse gas inventory submission; the emissions are without land use, land-use change and forestry (LULUCF).

[f] Hungary's sixth national communication and/or first biennial report.

Greenhouse gas emission projections



Sources: (1) Data for the years 1990–2012: Hungary's 2014 greenhouse gas inventory submission, version 2.1; the emissions are without land use, land-use change and forestry; (2) Data for the years 2010–2025: Hungary's sixth national communication and/or first biennial report; the emissions are without land use, land-use change and forestry.

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 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: GHG = greenhouse gas, KP1 = first commitment period of the Kyoto Protocol.

3. Total effect of policies and measures

96. In its NC6, Hungary presents the estimated and expected total effects of implemented and adopted PaMs, in accordance with the WEM scenario definition, compared with a situation without such PaMs. Information is presented in terms of GHG emissions avoided or sequestered on a CO_2 eq basis, up to 2030. It also presents relevant information on factors and activities for each sector for the years 1990 to 2025.

97. The NC6 does not include information required by the UNFCCC reporting guidelines on NCs on the effect of PaMs in terms of GHG emissions avoided or sequestered, by gas (on a CO_2 equivalent basis), in 1995, 2000 and 2005. Also, the ERT noted inconsistencies with respect to the figures presented in the different sections of the report and/or between the NC6 and the BR1. During the review, Hungary provided additional information, elaborating on the calculation method of the total effect of its PaMs, and differences in the figures presented. These explanations improved the transparency and completeness of its reporting. The ERT recommends that Hungary improve its reporting by including in its next national communication and biennial report the estimated total effect of the PaMs under different scenarios presented by gas. In addition, the ERT encourages Hungary to report in a consistent manner and provide a transparent description of the methods used to calculate the total effects of PaMs.

98. Hungary reported that the total estimated effect of adopted and implemented PaMs is 23,237.98 kt CO_2 eq in 2020 and 41,250.61 kt CO_2 eq in 2030. According to the NC6, in 2020, PaMs implemented in the energy sector are likely to deliver the largest emission reductions, followed by the effect of PaMs in the transport sector. 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 Hungary.

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 transport)	15 083.05	18.6	NA	–	NA	–	NA	–
Transport	1 780.90	22.1	NA	–	NA	–	NA	–
Industrial processes	NE	–	NA	–	NA	–	NA	–
Agriculture	NE	–	NA	–	NA	–	NA	–
Land-use change and forestry	NE	–	NA	–	NA	–	NA	–
Waste management	NE	–	NA	–	NA	–	NA	–
Total	**23 237.98**	**23.8**	**NA**	**–**	**41 250.61**	**–**	**NA**	**–**

Source: Hungary'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.

Abbreviations: NA = not available, NE = not estimated.

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

99. Hungary in its NC6 provided information on how its use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action. The ERT noted that Hungary does not plan to use the market-based mechanisms in the first commitment period of the Kyoto Protocol to meet its Kyoto Protocol target. However, Hungary has used the joint implementation (JI) mechanism as a host country for a number of projects, accounting for 7 300 kt CO_2 eq over the period 2008–2012. Hungary did not fund clean development mechanism or JI projects in other countries; but it has sold its AAUs during the first commitment period of the Kyoto Protocol.

100. Hungary did not explain its approach to defining supplementarity. However, based on the emission trend data included in the 2013 national inventory report (NIR) and in the NC6, it is obvious that due to a large decrease in emissions during the period 1990–2011, Hungary is very likely to meet its target, without the use of the units from the Kyoto Protocol mechanisms.

D. Provision of financial resources and technology transfer to developing country Parties

1. Financial resources, including "new and additional" resources

101. As Hungary is not included in Annex II to the Convention, it is not required to provide specific information on measures taken in accordance with Article 12, paragraph 3, of the Convention.

102. However, the ERT noted information reported by Hungary and commends the Party for the efforts and progress made, in its NC6, to provide financial assistance in terms of official development assistance (ODA) to developing countries allocated through multilateral and bilateral channels.

103. Hungary's ODA contribution increased steadily over the reported period, from EUR 22.11 million in 2003 (0.03 per cent of gross national income (GNI)) to EUR 100.76 million in 2011 (0.11 per cent of GNI) to fulfil its commitment as a member State of the EU and of the Organisation for Economic Co-operation and Development (OECD). Hungary's ODA contribution did not meet the OECD targets set as a percentage of its GNI (0.17 per cent in 2010) due to the economic crisis of the late 2000s and the acute financial problems of the central budget.

104. With regard to the most recent financial contributions to enhance the implementation of the Convention by developing countries, Hungary has committed itself to provide fast-start finance, including USD 1.30 million allocated through the Least Developed Country Fund for adaptation activities and USD 0.75 million allocated through bilateral channels for mitigation activities. Table 7 summarizes information on financial resources.

Table 7
Summary of information on financial resources for 2009–2012
(Millions of United States dollars)

Allocation channel of public financial support	*Years of disbursement*			
	2009	*2010*	*2011*	*2012*
Official development assistance	116.92	112.620	139.73	118.38
Contributions through multilateral channels, including:	87.32	83.560	113.73	86.06
Contributions through bilateral and regional channels	29.60	29.060	26.00	32 320
Fast-start finance	–	–	1.30	0.75

105. Hungary provided more detailed information on its ODA allocated through bilateral channels. The supported areas in 2011 included education programmes, scholarships, exchange programmes (50.0 per cent), security (20.0 per cent), government and civil society (10.0 per cent), and agriculture (7.0 per cent). During the review, Hungary provided information on its allocation of financial resources by recipient country, such as Afghanistan (32.4 per cent), Serbia (19.3 per cent), Ukraine (13.6 per cent), and Montenegro (5.2 per cent) during the period 2008–2011. The Party also provided a summary of its draft International Development and Cooperation Strategy up to 2020. In the draft strategy, geographical directions and sectors of Hungarian development aid were proposed.

106. During the review, Hungary provided additional information, elaborating on the provision of support for adaptation in developing countries, for example through projects such as support for the establishment of an irrigation system in Ethiopia, construction of a sanitation centre in Kenya, and improvement of food safety in Afghanistan implemented in collaboration with the Food and Agriculture Organization of the United Nations.

2. Technology transfer

107. Hungary has provided in its NC6 brief information on activities related to the transfer of technology and notable activities by the public and private sectors. Hungary's public sector contributions are delivered mainly through scholarships and training programmes for developing country Parties with the focus on the neighbouring countries and countries with which Hungary has had long-term cooperation. The private sector played a role in the transfer of water purification technology for drinking water and sharing of know-how and good practices in agriculture. A number of examples of private sector projects have been reported in the NC6 and discussed during the review, such as infrastructure development in Bosnia and Herzegovina, training activities related to technology transfer in Macedonia, Montenegro, Serbia and Ukraine. The ERT noted the efforts of Hungary to promote private sector involvement through a project aimed at providing mother and child health, nutrition and family planning services in Kenya.

E. Vulnerability assessment, climate change impacts and adaptation measures

108. In its NC6, Hungary has provided the required information on the expected impacts of climate change in the country, vulnerability assessments and adaptation options. However, the ERT noted that the information on adaptation options included for the most part recommendations of a general nature. Although the NC6 refers elsewhere to a large number of initiatives, these are not incorporated or elaborated upon in the adaptation section, where few actual adaptation measures are described. Additional information was provided during the review, in particular on the heightened role of adaptation in the latest revision to the Second NCCS and the latest developments related to adaptation planning. As noted in the NC5, there is scope in the NC6 for reporting on more targeted, localized responses. The ERT therefore recommends that Hungary provide more information in its next national communication on existing and planned adaptation actions and initiatives, and explain how these actions are to be implemented. The ERT also encourages Hungary to include information on the latest developments in adaptation planning under the Second NCCS in its next national communication.

109. During the review, Hungary provided additional information elaborating on the establishment of the National Adaptation Centre in Budapest and the advancement of the National Adaptation Strategy for Hungary. While the latter was expected to be approved by Parliament in the autumn of 2014 as part of the approval of the Second NCCS, the National Adaptation Centre has already initiated work on the Climate Change Action Plan, which will consist of concrete adaptation measures. Examples of these include the preparation of guidelines to assist municipal-level adaptation strategy formulation and the development of a web portal on best practices in agriculture-related adaptation measures.

110. The ERT commends Hungary for its efforts with regard to adaptation, including through a dedicated centre, a national adaptation strategy and an action plan, informed by the results of impact and vulnerability assessments. Table 8 summarizes the information on vulnerability and adaptation to climate change presented in the NC6 and during the review.

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

Vulnerable area	*Examples/comments/adaptation measures reported*
Agriculture and food security	*Vulnerability*: decreased annual precipitation, changed precipitation patterns and an increased incidence of rainstorms are expected to increase the risks of drought and inland flooding
	Adaptation: guidelines to assist municipal-level adaptation strategy formulation have been prepared by the National Adaptation Centre
Biodiversity and natural ecosystems	*Vulnerability*: overall vulnerability to changed precipitation patterns and higher temperatures is expected
	Adaptation: various studies have been undertaken, for example on the development of forest management methods for reducing the negative impacts of climate change and protecting nature
Forests	*Vulnerability*: vulnerable to temperature extremes and drought, as well as the spread of pests and diseases
	Adaptation: a revision of the National Forest Programme to take into account climate change impacts is in process. Various studies on adaptation possibilities to climate change effects on forests have been completed and/or are in progress
Human health	*Vulnerability*: heatwaves are expected to increase the incidence of heart and respiratory problems in urbanized areas
	Adaptation: a Climate Health Network has been established and standardized forewarning systems for heatwaves have been developed
Infrastructure and economy	*Vulnerability*: a change in demand from power plants, and impacts on roads and settlements from floods and storms are expected
	Adaptation: power system planning taking into account climate change risks, and surveys of landslides and endangered areas, is in progress. The need for further assessment of impacts on key infrastructure, including drainage and storage facilities, is recognized
Water resources	*Vulnerability*: both water availability and quality is at risk from extreme weather events
	Adaptation: a drought vulnerability map of Hungary is being developed by the Hungarian Met Service; improvement of the Vásárhelyi Project and floodplain management is foreseen

111. In its NC6, Hungary provides extensive information on climate change impacts by 2071–2100. Using the PRECIS model, for global emission scenarios contemplating atmospheric concentrations of between 621 and 854 ppm, impacts in the Carpathian Basin include a projected annual temperature increase of between 4.0 and 5.4°C, with the largest warming occurring in the summer (up to + 6 to 8°C), and a likely annual precipitation decrease of up to 20 per cent. The distribution of monthly precipitation is also expected to change significantly, with the driest months projected to be July and August (instead of January and February), and the wettest months April, May and June. Agriculture is considered the most vulnerable sector given the impact of drought and inland waters flooding in this sector.

112. In its NC6, Hungary has not provided information on cooperation with developing countries in preparing for adaptation, primarily because of its current emphasis on the domestic effort. However, during the review, Hungary did provide information on some adaptation-related projects undertaken in developing countries, including an irrigation

project in Ethiopia, and one on improvement of food safety in Afghanistan. The ERT noted that Hungary could provide such information in its next national communication.

F. Research and systematic observation

113. Hungary has provided information on its actions relating to research and systematic observation in Hungary, covering climate system studies, modelling and prediction, impacts and adaptation, and mitigation technologies. The ERT notes that the Party's national research efforts appear to be well coordinated and supported through the active participation of the Hungarian Academy of Sciences, the Hungarian Meteorological Service, and national universities and research institutions.

114. The ERT also notes that coordination of climate change research has become more institutionalized with the establishment of the Office of Climate Change Research Coordination at the Hungarian Academy of Sciences, as well as the National Climate Change Committee and the National Intergovernmental Panel on Climate Change Committee. An overview of current research projects is included in the NC6.

115. Additional information was provided during the review on its international activities, including on contributions to the World Climate Programme. While the NC6 provides evidence of international collaboration through initiatives at the EU level, the ERT noted that Hungary's participation in international activities such as the Global Climate Observing System, the International Geosphere–Biosphere Programme and the IPCC, could be further elaborated on in its next national communication.

116. Funding for research and systematic observation is largely provided by the EU. Funds are also made available by the National Office for Research and Technology. The VAHAVA project, which provided the scientific basis for the First NCCS, has been followed by the establishment of a network of institutions and individuals, and seed funding for post-VAHAVA research projects is made available by the Academy of Sciences. A new framework for climate change related research funding was being formulated at the time of the review.

117. While the NC6 does not contain information on opportunities for, and barriers to, free and open international exchange of data and information and on action taken to overcome those barriers, during the review, Hungary explained that these are overtaken through participation in EU research networks and projects. The ERT encourages Hungary to address this specifically in its next national communication.

118. Also during the review, Hungary informed the ERT that support for developing countries to establish and maintain observing systems and related data and monitoring systems is planned but not yet provided. This information is not contained in the NC6. The ERT encourages Hungary provide information in its next national communication on support for developing countries to establish and maintain observing systems, and related data and monitoring systems.

G. Education, training and public awareness

119. In its NC6, Hungary has provided extensive information on its actions relating to education, training and public awareness. The section in question includes a list of courses related to climate change in Hungarian universities and colleges, as well as training activities, both centralized and decentralized, mostly geared towards professionals in the fields of construction and engineering. The NC6 also contains information on activities undertaken by various organizations to raise awareness of climate change. This includes

EU initiatives but also local ones undertaken by organizations ranging from churches and national civil organizations to local chapters of international non-governmental organizations (NGOs). Compared to the NC5, both the range and the amount of activity reported in these areas have increased.

120. During the review, Hungary provided additional information elaborating in particular on institutional arrangements. The ERT learned that the Department of Climate Policy at the Ministry of National Development has given continuity to several dissemination and awareness raising programmes launched by the previous Ministry of Environment. Significant funding for NGOs had been provided through the National Civil Fund for educational, training, awareness raising and information dissemination purposes.

121. Hungary is making an effort to integrate climate change education into formal programmes at the primary, secondary and tertiary levels, and to expand higher education in climate change related fields. The Central European University, which includes a Centre for Climate Change and Sustainable Energy Policy, offers English-language environmental MSc and PhD programmes, and has established relevant partnerships with universities in Sweden, the United Kingdom of Great Britain and Northern Ireland, and Greece.

122. The ERT noted that Hungary's Second NCCS specifically highlights an increased role for NGOs and civil organizations in the dissemination of information, awareness and civil control. This is however not addressed in this section of the NC6. During the review, Hungary provided more information on how this engagement and collaboration is to take place, including what the institutional and funding arrangements might be. The ERT believes that, overall, transparency in the reporting would be enhanced if the key elements of the Second NCCS pertaining to education and awareness raising were addressed in a more comprehensive manner in the pertinent chapters of the NC6.

123. Hungary has not reported on any joint training programmes or capacity-building activities with developing countries in its NC6. The ERT encourages Hungary to include such information in its next national communication.

III. Summary of reviewed supplementary information under the Kyoto Protocol

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

124. Supplementary information provided by Hungary under Article 7, paragraph 2, of the Kyoto Protocol in its NC6 is not complete and mostly transparent (see para. 125 below). The supplementary information is located in different sections of the NC6. Additional information was, however, provided by Hungary during the review. 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 this information is found.

125. Hungary has not reported the following elements of the supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol: a description of the national registry; identification of steps taken to promote and/or implement any decisions by the ICAO and the IMO in order to limit or to reduce GHG emissions not included in the Montreal Protocol from aviation and marine bunker fuels; and information on what efforts Hungary 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. 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 Hungary include these reporting elements in its next national communication.

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	Not included
National system	Chapter 3.3
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Chapter 5.3
Policies and measures in accordance with Article 2	Chapter 4
Domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures	Chapter 4.2
Information under Article 10	Chapter 7
Financial resources	Chapter 7

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 Hungary 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

126. Hungary 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 2014 annual submission. It has not reported, however, how it gives priority to the actions taken to implement its commitments under Article 3, paragraph 14, of the Kyoto Protocol. During the review, Hungary 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 complete and mostly transparent. During the review Hungary provided additional information which helped to enhance transparency. The ERT recommends that Hungary improve the transparency of its reporting by including in its next annual submission information on how it gives priority to the actions taken to implement its commitments under Article 3, paragraph 14, of the Kyoto Protocol regarding the minimization of adverse impacts of response measures to climate change and more detailed information on the adverse impacts of those response measures.

127. The 2014 NIR, previous NIRs and the additional information provided during the review presented Hungary's approach to minimizing adverse impacts, which consists mainly of adherence to EU regulations aimed at avoiding adverse impacts and fostering sustainable development. Hungary also reported that it does not take part in any large scale development projects relating to climate change.

IV. Conclusions and recommendations

128. The ERT conducted a technical review of the information reported in the NC6 of Hungary according to the UNFCCC reporting guidelines on NCs. The ERT concludes that the NC6 provides a good overview of the national climate policy of Hungary. The information provided in the NC6 includes most elements of the mandatory information required by the UNFCCC reporting guidelines on NCs and some elements of the supplementary information under Article 7, paragraph 2, of the Kyoto Protocol, with the exception of information on: a description of the national registry; identification of steps taken to promote and/or implement any decisions by the ICAO and the IMO in order to limit or to reduce GHG emissions not included in the Montreal Protocol from aviation and marine bunker fuels; and information on what efforts Hungary 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. During the review, Hungary provided information on these reporting elements.

129. Hungary's emissions for 2012 were estimated to be 45.8 per cent below its base year level excluding LULUCF and 48.5 per cent below that level including LULUCF. Emission decreases were driven by a strong decline in economic activity owing to the transition to a market economy, which lead to a considerable decline of activity in energy, industry and agriculture.

130. In the NC6, Hungary presents GHG projections for the period from 2010 to 2025. Three scenarios are included: WOM (baseline), WEM and WAM scenarios. The projected emissions by 2020 under the baseline, WEM and WAM scenarios are 32.4 per cent, 38.7 per cent and 41.8 per cent, respectively, below the 1990 level. The emission projections indicate that Hungary will contribute to achieving the EU target under the second commitment period of the Kyoto Protocol that is 20.0 per cent emission reduction compared to the 1990 level by 2020. GHG emissions in Hungary are not expected to exceed the Kyoto Protocol target by 2020. Based on the comparison of the Kyoto Protocol target for the first commitment period (6.0 per cent reduction) and the average annual emissions for 2008–2012, Hungary is in a position to meet this target.

131. The NC6 contains information on how its use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action, although it did not elaborate on supplementarity as such. Hungary is not planning to make use of the Kyoto Protocol mechanisms to meet its Kyoto Protocol target for the first and second commitment periods.

132. The key national framework climate and energy policy is the First NCCS for 2008–2025 that is set to ensure the implementation of Hungary's national target of emission reductions by 16–25 per cent by 2025 below 1991 levels. This strategy has been superseded in 2013 by the Second NCCS, which represents an overarching document incorporating the Decarbonisation Roadmap, the National Adaptation Strategy, and plans for awareness raising, communications and public opinion survey activities. Hungary's key cross-sectoral PaM is the 2020 EU climate and energy package and its two instruments, the EU ETS and the ESD. For Hungary, the target under the ESD is to limit its emission growth to 10.0 per cent above the 2005 level by 2020. Hungary's major PaMs to achieve this 10.0 per cent target include its measures to promote the use of renewable energy sources, energy efficiency improvements and increase in the use of biofuels. PaMs in the residential sector, financed through the GIS programme and the New Széchenyi Plan, are the most successful PaMs based on the progress in implementation, mitigation potential and energy savings.

133. As Hungary is not included in Annex II to the Convention, it is not required to provide specific information on measures taken in accordance with Article 2, paragraph 3, of the Convention. Nevertheless, in its NC6, Hungary reported information on financial assistance to developing countries in terms of ODA, which has been steadily increasing from 2003 to 2011. Hungary provided more detailed information on its ODA allocated through bilateral channels, its allocations by supported areas and recipient country. Hungary also provided very brief information on activities related to technology transfer by the public and the private sectors.

134. Hungary has made adaptation a key area of work under its Second NCCS, which awaited parliamentary approval in the autumn of 2014. A dedicated National Adaptation Centre was in charge of preparing the National Adaptation Strategy in the Second NCCS and is already developing an Adaptation Action Plan to go with it. Impact and vulnerability studies undertaken by Hungarian research institutes and universities, often in the framework of EU initiatives, appear to be well integrated in the work of the National Adaptation Centre.

135. Research and systematic observation appear to be well coordinated and supported through the active participation of the Hungarian Academy of Sciences, the Hungarian Meteorological Service and national universities and research institutions. The work of these institutions influences policymaking through the Department for Climate Policy at the Ministry of National Development (the focal point of both the UNFCCC and the IPCC). There is also evidence of well-established connections and collaboration with international research and systematic observation initiatives, particularly at the EU level.

136. Efforts to integrate climate change education into formal programmes at all levels have continued in Hungary. Partnerships with universities in other EU countries and training programmes have also expanded. The NC6 lists various activities aimed at raising awareness of climate change undertaken by organizations ranging from churches and national civil organizations to local chapters of international NGOs and the EU. It appears that, compared to the NC5, both the range and the amount of activity in these areas has increased.

137. 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 is provided by Hungary in its 2014 annual submission, although there is no reference to it in the NC6.

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

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

(i) A description of how its national registry performs its functions, in accordance with decision 13/CMP.1 and its annex and the annex to decision 5/CMP.1 (see para. 28 above);

(ii) Information on the steps that Hungary has taken to promote and/or implement any decisions by the ICAO and the IMO in order to limit or reduce emissions of greenhouse gases not controlled by the Montreal Protocol from aviation and marine bunker fuels (see para. 75 above);

(iii) Projections related to fuel sold to ships and aircraft engaged in international transport, to the extent possible (see para. 80 above);

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

(iv) The estimated total effect of the PaMs presented by gas (see para. 97 above);

(v) Information on what efforts Hungary 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 (see para. 76 above);

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

(i) Information on how national circumstances and changes thereto affect trends in emissions and removals and drive sectoral emissions and removals (see para. 13 above);

(ii) Information on its domestic and regional legislative arrangements, and enforcement and administrative procedures put in place to meet the Kyoto Protocol commitments, to make this information publicly accessible, and to provide a description of arrangements put in place for the coordination of activities relating to participation in the mechanisms under Articles 6, 12 and 17, of the Kyoto Protocol (see para. 32 above);

(iii) A systematic and transparent description of the principal PaMs for all sectors (see para. 39 above);

(iv) Actions and initiatives related to adaptation to climate change and an explanation of how these actions are to be implemented (see para. 108 above);

(c) Improve the transparency of reporting by including in its next annual submission information on how it gives priority to the actions taken to implement its commitments under Article 3, paragraph 14, of the Kyoto Protocol regarding the minimization of adverse impacts of response measures to climate change and information on the adverse impacts of those response measures (see para. 126 above).

V. Questions of implementation

139. 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 UNFCCC 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/HUN. Report of the individual review of the annual submission of Hungary submitted in 2013. Available at <http://unfccc.int/resource/docs/2014/arr/hun.pdf>.

FCCC/IRR/2007/HUN. Report of the review of the initial report of Hungary. Available at <http://unfccc.int/resource/docs/2007/irr/hun.pdf>.

FCCC/IDR.5/HUN. Report of the in-depth review of the fifth national communication of Hungary. Available at <http://unfccc.int/resource/docs/2011/idr/hun05.pdf>.

Sixth national communication of Hungary. Available at <http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/nc6-final_hun[1].pdf>.

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

2014 GHG inventory submission of Hungary. 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. Andrea Vigh (Ministry of National Development), including additional material on updated policies and measures, greenhouse gas projections, the national registry and recent climate policy developments in Hungary. The following documents[1] were also provided by Hungary:

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[1] Reproduced as received from the Party.