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Report of the technical review of the second biennial report of Hungary

According to decision 2/CP.17, developed country Parties are requested to submit their second biennial reports by 1 January 2016, that is, two years after the due date for submission of a full national communication. This report presents the results of the technical review of the second biennial report 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".

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Contents

I. Introduction and summary

A. Introduction

1. This report covers the centralized technical review of the second biennial report (BR2)[1] of Hungary. The review was organized by the secretariat in accordance with the "Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention", particularly "Part IV: UNFCCC guidelines for the technical review of biennial reports from Parties included in Annex I to the Convention" (annex to decision 13/CP.20). In accordance with the same decision, a draft version of this report was communicated to the Government of Hungary, which provided comments that were considered and incorporated with revisions into this final version of the report.

2. The review took place from 14 to 19 March 2016 in Bonn, Germany, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: Ms. Irina Atamuradova (Turkmenistan), Mr. William Blyth (United Kingdom of Great Britain and Northern Ireland), Ms. Patricia Iturregui (Peru), Ms. Awassada Phongphiphat (Thailand), Mr. Adrian Schilt (Switzerland), Mr. Yusuf Serengil (Turkey), Ms. Anna Sikharulidze (Georgia), Mr. Koen Smekens (Belgium), Ms. Tatiana Tugui (Republic of Moldova) and Ms. Andreja Urbancic (Slovenia). Mr. Smekens and Ms. Tugui were the lead reviewers. The review was coordinated by Mr. Javier Hanna and Mr. Daniel Hooper (UNFCCC secretariat).

B. Summary

3. The expert review team (ERT) conducted a technical review of the information reported in the BR2 of Hungary in accordance with the "UNFCCC biennial reporting guidelines for developed country Parties" (hereinafter referred to as the UNFCCC reporting guidelines on BRs). During the review, Hungary provided the following additional relevant information:

(a) Clarifications regarding its national inventory arrangements;

(b) Clarification of its use of contributions from the land use, land-use change and forestry (LULUCF) sector and the market-based mechanisms for the attainment of the quantified economy-wide emission reduction target;

(c) Details of contributions by sectors covered by the European Union (EU) effort-sharing decision (ESD) to the quantified economy-wide emission reduction target;

(d) Projections of emissions under the ESD up to 2030 for both the 'with measures' (WEM) scenario and the 'with additional measures' (WAM) scenario;

(e) Projection results by sector and by gas in 2015 and 2025 for both the WEM and the WAM scenarios;

(f) Clarification of the key assumptions, variables and included policies and measures (PaMs) as well as clarification of the methodologies used in the projection analysis;

[1] The biennial report submission comprises the text of the report and the common tabular format (CTF) tables. Both the text and the CTF tables are subject to the technical review.

(g) Clarification of the change in the methodologies used for projections since the previous biennial report (BR) submission;

(h) Information on the inclusion of currently implemented and adopted PaMs in the WEM scenario for some sectors that the Party reports on, and which PaMs affect which sectors in the projections;

(i) A table listing the mitigation actions organized by gas.

1. Timeliness

4. The BR2 was submitted on 5 February 2016, after the deadline of 1 January 2016 mandated by decision 2/CP.17. The common tabular format (CTF) tables were submitted on 5 February 2016. Hungary informed the secretariat about its difficulties with submitting its BR2 and CTF tables by 7 January 2016. The ERT noted with concern the delay in the submission of the BR2 and CTF tables.

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

5. Issues and gaps related to the reported information identified by the ERT are presented in table 1 below. The information reported by Hungary in its BR2 is partially in adherence with the UNFCCC reporting guidelines on BRs as per decision 2/CP.17.

Table 1
Summary of completeness and transparency issues related to mandatory reported information in the second biennial report of Hungary

Section of the biennial report	*Completeness*	*Transparency*	*Paragraphs with recommendations*
Greenhouse gas emissions and trends	Complete	Mostly transparent	9
Assumptions, conditions and methodologies related to the attainment of the quantified economy-wide emission reduction target	Complete	Mostly transparent	14, 15
Progress in achievement of targets	Mostly complete	Partially transparent	23–26, 39, 46, 48, 53, 59
Provision of support to developing country Parties	NA	NA	NA

Note: A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in chapter III.
Abbreviation: NA = not applicable.

II. Technical review of the reported information

A. All greenhouse gas emissions and removals related to the quantified economy-wide emission reduction target

6. Hungary has provided a summary of information on greenhouse gas (GHG) emission trends for the period 1990–2013 in its BR2 and CTF tables 1(a)–(d). The BR2 makes reference to the national inventory arrangements, which are explained in more detail in the national inventory report included in Hungary's 2015 annual inventory submission (in section 1.2). The national inventory arrangements were established in accordance with the reporting requirements related to national inventory arrangements contained in the

"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories" that are required by paragraph 3 of the UNFCCC reporting guidelines on BRs. Further, Hungary provided information on changes in the national inventory arrangements since its first biennial report (BR1).

7. Hungary explained in its BR2 that, after the national elections in 2014, the structure and responsibilities of the ministries changed, in particular: the Ministry of Rural Development was renamed the Ministry of Agriculture (MoA), which nevertheless continues to have the same responsibilities regarding environmental and climate change matters. The designated single national entity for the preparation of GHG inventories is therefore located in the MoA. MoA has overall responsibility for the preparation of Hungary's GHG inventory and for the Hungarian national system for climate reporting. It is also responsible for the institutional, legal and procedural arrangements for the national system and the strategic development of the national GHG inventory. Furthermore, responsibility for the development of the GHG inventory of non-forest categories of the LULUCF sector has been moved from the Hungarian Meteorological Service to the Plant Protection and Soil Conservation Directorate of the National Food Chain Safety Office together with the Agricultural and Rural Development Agency and the Hungarian Chamber of Agriculture. This change resulted from a new government decree no. 278/2014 (XI.14), which entered into force on 1 January 2015.

8. The BR2 and CTF tables 1(a)–(d) include all the information required by the UNFCCC reporting guidelines on BRs. In addition, Hungary provided a table summarizing its institutional arrangements, which aims to improve the transparency of its reporting. Nevertheless, the summary information on the national inventory arrangements and the changes to the national inventory arrangements since the sixth national communication (NC6) and BR1 reported by Hungary are not transparent. The ERT noted a few discrepancies between the information shown in the CTF tables and the descriptive text in the BR2, for example, regarding the current responsibility for inventory compilation for the non-forest sectors since government decree no. 278/2014 (XI.14) (see para. 7 above). The ERT also noted that Hungary reported two ministries as being responsible for the supervision of the national system for national inventory arrangements (MoA and Ministry of National Development (MoND)), but it did not elaborate on their differentiated responsibilities. The ERT further noted in the BR2 some changes in the list of institutions involved in national arrangements compared with the BR1, which are not explained in the BR2. In addition, the ERT observed that Hungary used different abbreviations for a key institution involved in preparation of the GHG inventory, which could be misleading.

9. During the review, Hungary provided additional information, elaborating on the responsibilities of MoA and MoND. The ERT noted that MoA is responsible for the institutional, legal and procedural arrangements and the strategic development of the national inventory, while MoND, through its Climate Policy Department, is responsible for the national climate policy system in general. The head of this department serves as the national focal point for the Convention. Hungary also clarified the responsibilities of all institutions involved in the preparation of the GHG inventory for the LULUCF sector, and clarified all changes that had occurred since the BR1. The ERT recommends that Hungary improve the transparency of its reporting on its national inventory arrangements by including in its next BR submission consistent and transparent summary information describing the national inventory arrangements, including the institutions involved and the changes made to these national inventory arrangements since the last BR submission.

10. The information reported in the BR2 on emission trends is consistent with that reported in the 2015 annual inventory submission of Hungary. To reflect the most recently

available data, version 1 of Hungary's 2015 annual inventory submission has been used as the basis for discussion in chapter II.A of this review report.

11. Total GHG emissions[2] excluding emissions and removals from LULUCF decreased by 39.1 per cent between 1990 and 2013, whereas total GHG emissions including net emissions or removals from LULUCF decreased by 40.6 per cent over the same period. The decrease in the total GHG emissions (excluding LULUCF) can be attributed mainly to carbon dioxide (CO_2) emissions, which decreased by 39.9 per cent between 1990 and 2013. Over the same period, emissions of methane (CH_4) decreased by 37.6 per cent, while emissions of nitrous oxide (N_2O) decreased by 48.1 per cent. The combined fluorinated gases, such as perfluorocarbons (PFCs), hydrofluorocarbons (HFCs) and sulphur hexafluoride (SF_6), increased by 263.2 per cent over the same period. The emission trends were driven mainly by the marked decreasing trend in emissions from fuel combustion in the energy sector and other energy-intensive activities. This significant reduction was mainly a consequence of the economic transformation in the country, which caused a sudden drop in energy demand and slow down of economic growth in the early 1990s, followed by economic recovery and stable growth in the 2000s and then by the global financial and economic crises in 2008–2009, and subsequent ongoing changes in fuel structure (i.e. the gradual replacement of solid fuel by natural gas, as well as the replacement of fossil fuels by nuclear power in electricity generation).

12. The ERT noted that, during the period 1990–2013, Hungary's gross domestic product (GDP) per capita increased by 34.1 per cent, while GHG emissions per GDP and GHG emissions per capita decreased by 52.3 and 36.1 per cent, respectively. Over this period, Hungary's GHG emissions (excluding LULUCF) decreased by 39.1 per cent, mainly as a result of the decline in GHG emission intensive activities in the energy, industrial processes and product use (IPPU) and agriculture sectors. Despite the decline in these activities, the GDP of Hungary increased by 27.8 per cent reflecting increase in activities in other sectors. Such GDP increase combined with a population decline of 4.6 per cent over the same period, reinforced the GDP per capita increase, as well as a significant emission intensity decrease. Table 2 below illustrates the emission trends by sector and some of the economic indicators relevant to GHG emissions for Hungary.

Table 2
Greenhouse gas emissions by sector and some indicators relevant to greenhouse gas emissions for Hungary for the period 1990–2013

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share by sector (%)*	
Sector	*1990*	*2000*	*2010*	*2012*	*2013*	*1990–2013*	*2012–2013*	*1990*	*2013*
1. Energy	68 068.96	54 419.55	48 685.19	43 391.90	41 140.72	–39.6	–5.2	72.2	71.6
A1. Energy industries	20 909.94	23 780.84	17 971.90	16 726.07	14 093.23	–32.6	–15.7	22.2	24.5
A2. Manufacturing industries and construction	13 644.95	4 833.41	3 496.99	3 164.90	4 316.96	–68.4	36.4	14.5	7.5
A3. Transport	8 739.64	8 852.17	11 662.77	10 648.29	10 062.30	15.1	–5.5	9.3	17.5
A4.–A5. Other	22 128.68	15 448.79	14 419.84	11 946.61	11 827.94	–46.5	–1.0	23.5	20.6

[2] In this report, the term "total GHG emissions" refers to the aggregated national GHG emissions expressed in terms of carbon dioxide equivalent excluding LULUCF, unless otherwise specified. Values in this paragraph are calculated based on the 2015 inventory submission, version 1.

Sector	GHG emissions (kt CO_2 eq)					Change (%)		Share by sector (%)	
	1990	2000	2010	2012	2013	1990–2013	2012–2013	1990	2013
B. Fugitive emissions from fuels	2 645.74	1 504.34	1 133.69	906.03	840.30	–68.2	–7.3	2.8	1.5
C. CO_2 transport and storage	NO	NO	NO	NO	NO	NA	NA	NA	NA
2. IPPU	11 595.64	8 166.02	6 496.02	6 166.07	5 634.83	–51.4	–8.6	12.3	9.8
3. Agriculture	10 254.40	6 350.27	5 733.06	5 940.56	6 332.91	–38.2	6.6	10.9	11.0
4. LULUCF	–3 309.07	–862.33	–4 024.10	–4 305.02	–3 438.20	3.9	–20.1	NA	NA
5. Waste	4 303.28	4 713.80	4 578.77	4 487.85	4 320.00	0.4	–3.7	4.6	7.5
6. Other	NO	NO	NO	NO	NO	NA	NA	NA	NA
Indirect CO_2	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NA	NA	NA	NA
Total GHG emissions without LULUCF	**94 222.27**	**73 649.64**	**65 493.05**	**59 986.38**	**57 428.46**	**–39.1**	**–4.3**	**100.0**	**100.0**
Total GHG emissions with LULUCF	**90 913.20**	**72 787.31**	**61 468.95**	**55 681.36**	**53 990.26**	**–40.6**	**–3.0**	**NA**	**NA**
Indicators									
GDP per capita (thousands 2005 USD using PPP)	13.24	13.84	17.24	17.43	17.75	34.1	1.8		
GHG emissions without LULUCF per capita (t CO_2 eq)	9.08	7.21	6.55	6.05	5.80	–36.1	–4.0		
GHG emissions without LULUCF per GDP unit (kg CO_2 eq per 2005 USD using PPP)	0.69	0.52	0.38	0.35	0.33	–52.3	–5.7		

Sources: (1) GHG emission data: Hungary's 2015 annual inventory submission, version 1; (2) GDP per capita data: World Bank.

Note: The ratios per capita and per GDP unit as well as the changes in emissions and the shares by sector are calculated relative to total GHG emissions without LULUCF using the exact (not rounded) values, and may therefore differ from the ratio calculated with the rounded numbers provided in the table.

Abbreviations: GDP = gross domestic product, GHG = greenhouse gas, IPPU = industrial processes and product use, LULUCF = land use, land-use change and forestry, NA = not applicable, NE = not estimated, NO = not occurring, PPP = purchasing power parity.

B. Assumptions, conditions and methodologies related to the attainment of the quantified economy-wide emission reduction target

13. In its BR2 and CTF tables 2(a)–(f), Hungary reported a description of its target, including associated conditions and assumptions. CTF tables 2(a)–(f) contain the required information in relation to the description of the Party's emission reduction target, such as: the base year (1990), the target year (2020), the emission reduction target in the context of the EU (20 per cent reduction by 2020 compared with the 1990 level), the period in which to achieve this target (base year–2020), the gases covered (CO_2, CH_4, N_2O, HFCs, PFCs and SF_6), the sectors covered (energy, transport (subsector of the energy sector), industrial processes, agriculture and waste), the global warming potential (GWP) values applied (from the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4)) and the role of the LULUCF sector, which is excluded. The intended use of market-

based mechanisms has not been reported; however, during the review, Hungary indicated that this is because it could not be quantified at the time of the BR2 reporting as the compliance assessment under the ESD will take place in 2016. Further information on the target and the assumptions, conditions and methodologies related to the target is provided in sections 3 and 5 of the BR2 and in this report (see paras. 18 and 19 below).

14. The ERT recommends that Hungary improve the transparency of its reporting by providing information in its next BR on whether it plans to make use of the market-based mechanisms in order to meet its target under the Convention and on the possible scale of contributions from market-based mechanisms under the Convention and other market-based mechanisms.

15. The BR2 and CTF tables 2(a)–(f) include the information required by the UNFCCC reporting guidelines on BRs. The ERT noted that the information reported by Hungary on whether the LULUCF sector is included in the target is not transparent, as the information in the BR2 is inconsistent with the information provided in the CTF tables. During the review, Hungary provided additional information, clarifying its target and the sectors covered. Hungary clarified that the LULUCF sector is not covered, in line with the EU target definition valid for all EU member States. The ERT recommends that Hungary improve the transparency of its reporting by including in its next BR a consistent and clear description of the sectors covered in its target according to the EU target definition, which applies to all EU member States, in particular for the LULUCF sector.

16. For Hungary, the Convention entered into force on 25 May 1994. Under the Convention, Hungary committed to contributing to the achievement of the joint EU economy-wide emission reduction target of a 20 per cent reduction in GHG emissions by 2020 compared with the 1990 level. The EU offered to move to a 30 per cent reduction on the condition that other developed countries commit to a comparable target and developing countries contribute according to their responsibilities and respective capabilities under a new global climate change agreement.

17. The target for the EU and its member States is formalized in the EU 2020 climate and energy package. This legislative package regulates emissions of CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 using GWP values from the IPCC AR4 to aggregate the GHG emissions of the EU up to 2020. Emissions and removals from the LULUCF sector are not included in the quantified economy-wide emission reduction target under the Convention. The EU generally allows its member States to use units from the Kyoto Protocol mechanisms as well as new market mechanisms for compliance purposes, subject to a number of restrictions in terms of origin and type of project and up to an established limit. National companies can make use of such units to fulfil their requirements under the EU Emissions Trading System (EU ETS).

18. The EU 2020 climate and energy package includes the EU ETS and the ESD (see chapter II.C.1 below). Further information on this package is provided in section 3 of the BR2. The EU ETS covers mainly point emissions sources in the energy and industrial processes sectors, as well as aviation. For the period 2013–2020, an EU-wide cap has been put in place with the goal of reducing emissions by 21 per cent below the 2005 level by 2020. Emissions from sectors covered by the ESD are regulated by targets specific to each member State, which leads to an aggregate reduction at the EU level of 10 per cent below the 2005 level by 2020.

19. While the EU ETS target is to be achieved by the EU as a whole, the ESD target was divided into national targets to be achieved individually by each member State. Hungary has a target to limit its emissions from sectors covered under the ESD in 2020 by 10 per

cent above the 2005 level.[3] The ESD national emission target for 2020 is expressed as percentage changes from the 2005 levels. These changes have been transferred into binding quantified annual reduction targets for the period 2013–2020 expressed in annual emission allocations (AEAs). Hungary's AEAs change following a linear path from 50,398.98 kt of carbon dioxide equivalent (CO_2 eq) in 2013 to 58,222.59 kt CO_2 eq in 2020.[4] In 2013, verified emissions from stationary installations covered under the EU ETS in Hungary amounted to 20,230.54 kt CO_2 eq. With total GHG emissions of 57,428.46 kt CO_2 eq (excluding LULUCF) in 2013, the share of Hungary's EU ETS emissions in the total emissions was 35.2 per cent. The emissions from sectors covered by the ESD amounted to 37,197.93 kt CO_2 eq in 2013, equivalent to 64.8 per cent of the total GHG emissions. The emissions from sectors covered by the ESD were 26.2 per cent lower than the AEAs in 2013.

C. Progress made towards the achievement of the quantified economy-wide emission reduction target

20. This chapter provides information on the review of the reporting by Hungary on the progress made in reducing emissions in relation to the target, mitigation actions taken to achieve its target, and the use of units from market-based mechanisms and the LULUCF sector.

1. Mitigation actions and their effects

21. In its BR2 and CTF table 3, Hungary reported on its progress in the achievement of its target and the mitigation actions implemented and planned since its NC6 and BR1 to achieve its target. Hungary has provided information on mitigation actions introduced to achieve its target. The BR2 includes information on mitigation actions organized by sector. Further information on the mitigation actions related to the Party's target is provided in section 4 of the BR2.

22. This report highlights the changes made since the publication of Hungary's NC6 and BR1. In its BR2, Hungary reported that there have been only minor changes to and amendments of the legislation regarding its domestic institutional arrangements, but that these did not affect the overall legal base. The policy framework for climate decision-making and financing is connected to the economic development programme, the "Széchenyi 2020" plan, which is valid until 2020, aimed at improving the competitiveness of Hungary. As reported in the BR2, the programmes for the period 2014–2020 concerning mitigation of GHG emissions are mainly focused on the energy sector and transport. The ERT noted that Hungary reported in its BR2 on the replacement of the Green Investment Scheme by the Green Economy Financing Scheme, which is being an important national programme funded partially by revenues from EU allowances and partially by income from trading of Kyoto Protocol units.

[3] Decision No. 406/2009/EC of the European Parliament and of the Council of 23 April 2009 "on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020".

[4] European Commission decision 2013/162/EU of 26 March 2013 "on determining member States' annual emission allocations for the period from 2013 to 2020 pursuant to Decision No. 406/2009/EC of the European Parliament and of the Council" and European Commission implementing decision 2013/634/EU of 31 October 2013 "on the adjustments to member States' annual emission allocations for the period from 2013 to 2020 pursuant to Decision No. 406/2009/EC of the European Parliament and of the Council".

23. The ERT noted that the mitigation actions reported in the BR2 are organized by sector, but not by gas. During the review, Hungary provided a table with PaMs organized by gas. The ERT recommends that Hungary, in its next BR organize its mitigation actions also by gas, to the extent appropriate.

24. The ERT also noted that throughout the BR is not clear which are the key mitigation actions with the higher mitigation impacts. Furthermore, the ERT noted that CTF table 3 does not include an estimation of the mitigation impact for most of the reported individual mitigation actions. Hungary did not provide an explanation as to why these estimates were not provided in CTF table 3 of the BR2, although the BR1 had included quantification of the impacts for most of the mitigation actions reported. The ERT further noted that other information in CTF table 3 was not fully provided, such as the "Start year of implementation" and "Type of instrument", which are not available for some of the mitigation actions. In addition, Hungary did not provide an indication of the reason for this missing information. To improve the completeness of reporting, the ERT recommends that Hungary, in its next BR, include all the required information in CTF table 3, in particular on estimates of the impacts of its mitigation actions, or if Hungary is not able to provide such estimates and information, it should provide relevant explanations as to why the quantification of those impacts was not possible and the reasons why the required information was not provided.

25. The ERT noted that CTF table 3 includes mitigation actions for the LULUCF sector. The ERT also noted that CTF table 3 is to be used to report on those mitigation actions that are relevant for the achievement of the quantified economy-wide emission reduction target under the Convention, while the LULUCF sector is not covered by the EU target (see para. 17 above). The ERT recommends that, to improve the internal consistency of the report and the transparency of reporting, Hungary include in CTF table 3 those mitigation actions that are relevant for the achievement of the Party's quantified economy-wide emission reduction target under the Convention and that, if it decides to include mitigation actions for the LULUCF sector, clearly distinguish these mitigation actions from those that are relevant for the achievement of the target under the Convention, for example, by using a footnote to CTF table 3.

26. The ERT noted that the mitigation actions listed in the BR2 (section 4.2) are not consistent with the mitigation actions reported in CTF table 3. For example, the BR2 lists the mitigation action "Hungary's rural development programme for 2014–2020", whereas it is not listed in CTF table 3; also, the description of the mitigation action "Forest-environmental and agricultural payments of European Agricultural Fund for Rural Development and Common Agricultural Policy" in CTF table 3 does not match the description in the text of the BR2. The ERT recommends that Hungary improve the internal consistency and the transparency of its reporting by including the same mitigation actions and descriptions in the text of its BR and in CTF table 3.

27. The BR2 does not include the detailed information required by the UNFCCC reporting guidelines on BRs on the assessment of the economic and social consequences of response measures. The ERT encourages Hungary to provide this information, to the extent possible, in its next BR submission.

28. The BR2 does not include information required by the UNFCCC reporting guidelines on BRs on domestic arrangements established for the process of self-assessment of compliance with emission reductions in comparison with emission reduction commitments or the level of emission reduction that is required by science, and on the progress made in the establishment of national rules for taking local action against domestic non-compliance with emission reduction targets. However, Hungary reported in its BR2 that the First National Climate Change Strategy (2008–2025) was approved in early 2008 by Parliament, and that it is now under review. This strategy set a reduction target of 16–25

per cent below the 1990 level by 2025. The ERT noted that the information provided in the BR2 is the same as that reported in BR1. The ERT encourages Hungary to report on the progress of this review in its next submission. The information reported by Hungary was not transparent regarding: whether the strategy is of mandatory nature; how it defines the domestic arrangements established for the process of self-assessment of compliance and for taking local action against domestic non-compliance with emission reduction targets; or whether there is any other legislation aimed to assess compliance with climate change targets in Hungary. The ERT encourages Hungary to report, to the extent possible, on domestic arrangements established for the process of self-assessment of compliance with emission reductions and on the progress made in the establishment of national rules for taking local action against domestic non-compliance with emission reduction targets.

29. Hungary reported in its BR2 that, as a member State of the EU, its mitigation actions are characterized by the EU legal framework on climate change. The key overarching cross-sectoral policy in the EU is the 2020 climate and energy package adopted in 2009, which includes the revised EU ETS and the ESD. This package is supplemented by renewable energy and energy efficiency legislation and legislative proposals on the 2020 targets for CO_2 emissions from cars and vans, the carbon capture and storage directive, and the general programmes for environmental conservation, namely the 7th Environment Action Programme and the Clean Air Policy Package (see table 3 below).

30. In operation since 2005, the EU ETS is a cap-and-trade system that covers all significant energy-intensive installations (mainly large point emissions sources such as power plants and industrial facilities), which produce 40–45 per cent of the GHG emissions of the EU. It is expected that the EU ETS will guarantee that the 2020 target (a 21 per cent emission reduction below the 2005 level) will be achieved for sectors under the system. The third phase of the EU ETS started in 2013 and the system now includes aircraft operations (since 2012) as well as N_2O emissions from chemical industries, PFC emissions from aluminium production and CO_2 emissions from industrial processes (since 2013).

31. The ESD became operational in 2013 and covers sectors outside the EU ETS, including transport (excluding domestic and international aviation, and international maritime transport), residential and commercial buildings, agriculture, waste and other sectors, together accounting for 55–60 per cent of the GHG emissions of the EU. The ESD aims to decrease GHG emissions in the EU by 10 per cent below the 2005 level by 2020 and includes binding annual targets for each member State for 2013–2020, which are underpinned by the national policies and actions of the member States (see paras. 18 and 19 above).

32. At the national level, Hungary introduced policies to achieve its targets under the ESD. The key mitigation actions reported in the BR2 are connected to the implementation of the Third National Energy Efficiency Action Plan and the National Renewable Energy Action Plan. These plans have a broad coverage of sectors and topics, and are cross-sectoral in nature. As the emission reduction impacts of most mitigation actions reported by Hungary in its BR2 are not quantified, the ERT could not assess which ones have the highest emission reduction impacts**.**

33. The BR2 highlights the domestic mitigation actions that are under development, consisting of two PaMs in the transport subsector: the Transport Energy Efficiency Improving Action Plan and the National Intelligent Transport Systems Strategy. The impact of the latter is reported to be 959.00 kt CO_2 eq in 2020, and it will provide additional support to the attainment of the 2020 emission reduction target.

34. Table 3 below provides a concise summary of the key mitigation actions and estimates of their mitigation effects reported by Hungary to achieve its target.

Table 3
Summary of information on mitigation actions and their impacts reported by Hungary

Sector affected	*List of key mitigation actions*	*Estimate of mitigation impact in 2020 (kt CO_2 eq)*	*Estimate of mitigation impact in 2030 (kt CO_2 eq)*
Policy framework and cross-sectoral measures	Second National Climate Change Strategy (16–25 per cent of 1990 level by 2025)	NE	NE
	Green Economy Financing Scheme	NE	NE
Energy, including:			
Transport	National Transport Infrastructure Development Strategy	84–124	31–71
	Transport Energy Efficiency Improving Action Plan	NE	NE
	National Intelligent Transport Systems Strategy	959	NE
Renewable energy	National Renewable Energy Action Plan	NE	NE
Energy efficiency	Third National Energy Efficiency Action Plan	959	1 464
IPPU	NR	NR	NR
Agriculture	Reduction of Nitrate Emission in Waters and N-cycle	NE	NE
LULUCF	NA	NA	NA
Waste	National Waste Management Plan (2014–2020)	NE	NE

Note: The estimates of mitigation impact are estimates of emissions of carbon dioxide or carbon dioxide equivalent avoided in a given year as a result of the implementation of mitigation actions. In addition to the impact in 2020, the effects of mitigation actions in 2030 as reported in CTF table 3 are included, if available.

Abbreviations: IPPU = industrial processes and product use, LULUCF = land use, land-use change and forestry, NA = not applicable, NE = not estimated, NR = not reported.

35. The ERT noted that some PaMs reported in the BR1 are not reported in the BR2. For example, the adopted measure on "Reducing road transport emissions by supporting the manufacturers of efficient/renewable fuel cars"[5] that is reported in the BR1 is missing in the BR2, with no indication of the reason why it is not included. The ERT encourages Hungary to report more transparently on its PaMs and ensure that PaMs are reported consistently between successive BR submissions, or to provide explanations when a PaM is discontinued between BR submissions.

36. The ERT noted that the description of PaMs reported in the BR2 does not provide links between the EU framework policies and the Hungarian legislation. For example, it is not clear if the new act on "Energy audits of larger companies" (2015) is specifically

[5] This measure is apparently not accounted for in the BR2 and does not appear within the Third National Energy Efficiency Plan (2014). According to CTF table 3 of the BR1, this measure results in an emission reduction of 1,549.70 kt CO_2 eq.

connected with EU policies and, if so, which ones. The ERT encourages Hungary to enhance the transparency by reporting its national PaMs indicating, as appropriate, the links with EU policies.

37. The ERT noted that Hungary reports mitigation actions in CTF table 3, which incorporates information on various subprogrammes and PaMs, but connections among those are not clearly identified. For example, it was not clear whether the "Warmth of home programme" is part of the Third National Energy Efficiency Action Plan. Also, the BR2 reports less detail on subprogrammes compared with the BR1, and this lack of detail is not explained in the BR2. For example, subprogrammes of the "Warmth of home programme" are not reported in the BR2, but they were reported in the BR1. To improve the transparency of reporting, the ERT suggests that Hungary prioritize the reported PaMs and report on the connections between PaMs and subprogrammes with the mitigation actions included in CTF table 3. This will facilitate a better understanding of domestic PaMs, their changes and how mitigation actions progress between BR submissions.

2. Estimates of emission reductions and removals and the use of units from the market-based mechanisms and land use, land-use change and forestry

38. Hungary reported in its BR2 that the use of units from market-based mechanisms under the Convention cannot be quantified at the moment, because the compliance assessment for the first year under the ESD (2013) will take place in 2016, any potential use of units from 2013 onwards will only take place in 2016. CTF tables 4, 4(a)I, 4(a)II and 4(b) did not contain any information on the use of units from market-based mechanisms. In addition, the information reported by Hungary in CTF table 4 on the contribution from the LULUCF sector to achieve its target is not required because the LULUCF sector is not covered in Hungary's target as a member State of the EU (see para. 17 above).

39. During the review, Hungary provided additional information clarifying the use of units from market-based mechanisms. Hungary indicated that it did not use any units from market-based mechanisms under the ESD in 2013 and 2014. Hungary also confirmed that the LULUCF sector is not covered in its definition of the target. The ERT recommends that Hungary improve the transparency and consistency of its reporting in its next BR, in particular in CTF table 4, by clarifying that the contribution from the LULUCF sector to achieve the progress towards the target under the Convention is excluded because it is not covered in the EU target.

40. For 2013, Hungary reported in CTF table 4 annual total GHG emissions excluding LULUCF of 57,428.46 kt CO_2 eq, or 39.1 per cent below the 1990 level. In 2013, verified emissions from stationary installations covered under the EU ETS amounted to 20,230.54 kt CO_2 eq, which is a 22.7 per cent emission reduction below the 2005 level. Additionally, Hungary reported that emissions from sectors under the ESD (37,197.93 kt CO_2 eq), accounting for 64.8 per cent of the total national emissions in 2013, decreased by 25.3 per cent in 2013 below the 2005 level.

41. Table 4 below illustrates Hungary's total GHG emissions, the contribution of LULUCF and the use of units from market-based mechanisms to achieve its target.

42. To assess the progress towards the achievement of the 2020 target, the ERT noted that Hungary's emission reduction target under the Convention is 20 per cent below the 1990 level (see paras. 13, 18 and 19 above). As discussed in chapter II.B above, in 2013 Hungary's annual total GHG emissions excluding LULUCF (57,428.46 kt CO_2 eq) were 39.1 per cent below the 1990 level.

Table 4
Summary of information on the use of units from market-based mechanisms and land use, land-use change and forestry as part of the reporting on the progress made by Hungary towards the achievement of its target

Year	*Emissions excluding LULUCF (kt CO_2 eq)*	*Contribution from LULUCF (kt CO_2 eq)*[a]	*Emissions including contribution from LULUCF (kt CO_2 eq)*	*Use of units from market-based mechanisms (kt CO_2 eq)*
1990	94 222.27	NA	NA	NA
2010	65 493.05	NA	NA	NA
2011	63 906.33	NA	NA	NA
2012	59 986.38	NA	NA	NA
2013	57 428.46	NA	NA	NA

Sources: Hungary's second biennial report and common tabular format tables 1, 4, 4(a)I, 4(a)II and 4(b).

Abbreviations: LULUCF = land use, land-use change and forestry, NA = not applicable.

[a] Hungary, in common tabular format table 4, reported a contribution from the LULUCF sector. The expert review team did not include these values in the above table as the Party is a European Union (EU) member State, which is bound by the EU-wide unconditional commitment to reduce greenhouse gas emissions by 20 per cent by 2020 compared with the 1990 level, which does not include emissions/removals from LULUCF.

43. The ERT noted that Hungary's emission reduction target from sectors covered under the ESD for 2020 is expressed as percentage changes from the 2005 level. These changes have been transferred into binding quantified annual reduction targets for the period 2013–2020 expressed in AEAs. Hungary's AEAs allow an increase of emissions from 50,398.98 kt CO_2 eq in 2013 to 58,222.59 kt CO_2 eq in 2020 following a linear path (see para. 19 above). As discussed in section II.B above, Hungary's emissions from the sectors covered by the ESD (37,197.93 kt CO_2 eq) are 26.2 per cent below the AEAs under the ESD for 2013. With total GHG emissions of 57,428.46 kt CO_2 eq (excluding LULUCF) in 2013, the share of emissions from the sectors covered by the ESD is 64.8 per cent. The ERT noted that emissions from the sectors covered by the ESD contribute significantly to the progress towards Hungary's emission reduction target: 68.0 per cent of the total reduction in 2013 (below the 2005 level). On the basis of the reported information, the ERT concluded that Hungary expects to meet its target for the sectors covered by the ESD.

44. The ERT noted that Hungary is making progress towards its emission reduction target by implementing and planning mitigation actions. The intended use of units from market-based mechanisms under the Convention could not be quantified at the time of reporting.

3. Projections

45. Hungary reported in its BR2 and CTF table 6(a) updated projections for 2020 and 2030 relative to actual inventory data for 2013 under the WEM scenario. In addition, Hungary reported in its BR2 emission projections for 2015 and 2025 under the WEM scenario for its national totals (excluding and including LULUCF). Projections are presented on a sectoral basis, using the same sectoral categories as used in the section on mitigation actions, and on a gas-by-gas basis for the following GHGs: CO_2, CH_4, N_2O, PFCs, HFCs and SF_6 (treating PFCs and HFCs collectively in each case). Projections are also provided in an aggregated format for each sector as well as for the Party total, using GWP values from the IPCC AR4. Emission projections related to fuel sold to aircraft engaged in international transport were reported separately and were not included in the

totals. Emission projections related to fuel sold to ships engaged in international transport were not included in the national totals and not reported. Hungary reported on factors and activities influencing emissions for each sector. Further information on the projections is provided in section 5 of the BR2.

46. The BR2 and CTF table 6(a) do not include the information required by the UNFCCC reporting guidelines on BRs regarding the reporting of separate emission projections related to fuel sold to ships engaged in international transport as set out in 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). The ERT recommends that Hungary, to the extent possible, report separate information on emission projections related to fuel sold to ships engaged in international transport in its next BR.

47. The ERT noted that the information reported by Hungary in its BR2 is not transparent regarding how currently implemented and adopted PaMs have been included in the reported sectoral projections under the WEM scenario, and how planned PaMs are related to the reported projections under the WAM scenario. During the review, Hungary provided additional information elaborating on how, for some sectors, currently implemented and adopted PaMs have been included in the projections under the WEM scenario. These sectors include the energy sector (in particular, the energy industries, manufacturing industries, transport and other sectors) and the agriculture, LULUCF and waste sectors. The ERT considered this information and concluded that the provided information explained the reported sectoral projections under the WEM scenario. In addition, Hungary also provided information on the assumptions that were used for constructing the projections under the WAM scenario. However, the ERT noted that planned PaMs were not included in the projections under the WAM scenario for most categories, except for the transport subsector and the LULUCF sector (see para. 53 below). The ERT also noted that, for the IPPU sector (in particular, in the mineral industry, chemical industry and metal industry categories), this information was not provided. During the review, Hungary reported that no PaMs were directly included in the calculations of WAM projections for these categories.

48. The ERT notes that in accordance with the UNFCCC reporting guidelines on NCs the WEM projections shall encompass currently implemented and adopted PaMs, while the WAM projections, if provided, also encompass planned PaMs. Therefore, the ERT recommends that Hungary in its next BR clearly describe which PaMs were included in each projection scenario for the reported sectors. Further, the ERT suggests that Hungary also explain which PaMs affect which sectors in the projections and report on the definitions used for the reported projection scenarios.

49. In addition to the WEM scenario, Hungary reported in BR2 and CTF tables 6(c) a WAM scenario. The projections are presented by sector and by gas in the same way as the WEM scenario for 2020 and 2030. In addition, Hungary reported in its BR2 emission projections for 2015 and 2025 under the WAM scenario for its national totals (excluding and including LULUCF). Hungary provided information on the key variables and assumptions used in the preparation of the projection scenarios using CTF table 5 (see para. 58 below).

50. The ERT noted that in the BR2 the projections for 2015 and 2025 were not provided in tabular format by sector and by gas; only national totals were reported. During the review, Hungary provided additional emission projections for 2015 and 2025 in tabular format by sector and by gas for both the WEM and WAM scenarios. The ERT suggests that Hungary report in its next BR submission projections by sector and by gas in a tabular format for the year 2025, in addition to the years listed in the UNFCCC reporting guidelines on BRs.

51. The ERT also noted that Hungary did not provide a diagram in its BR2 presenting inventory data and projections starting from 1990 (or another base year, as appropriate) for the WEM and WAM scenarios. In the detailed description of the projections presented by sector in the BR2, Hungary did provide diagrams for these scenarios; however, the ERT noted that the starting year varied across sectors and mostly had 2000 as the starting year. The ERT encourages Hungary to present inventory data and projection diagrams for the WEM and WAM scenarios starting from 1990 (or another base year, as appropriate).

52. The ERT noted that Hungary did not provide a 'without measures' (WOM) projection scenario, as encouraged by the UNFCCC reporting guidelines on NCs. During the review, Hungary stated that it is planning to construct a WOM projection scenario for its next BR submission. The ERT encourages Hungary to improve the completeness of its reporting by including projections under the WOM scenario in its next BR submission.

Overview of projection scenarios

53. The WEM scenario reported by Hungary includes all PaMs that have been implemented and adopted up to 2013. Hungary also reported on a WAM scenario, which includes the planned PaMs listed in CTF table 3 for the transport subsector and LULUCF sector. The ERT noted that Hungary provided projections under the WAM scenario for other sectors/categories, but these excluded the listed planned PaMs (such as public electricity and heat production, commercial institutional, residential, agriculture sector and solid waste disposal categories). The ERT noted that under the WAM scenario, these projections consisted of a more optimistic implementation of the PaMs included under the WEM scenario, but were not related to the listed planned PaMs. This indicates that the WAM scenario has not been prepared in accordance with the UNFCCC reporting guidelines on NCs. The ERT further noted that Hungary did not provide transparent information explaining the definitions of its scenarios. The ERT recommends that Hungary follow closely the UNFCCC reporting guidelines on NCs regarding definitions of the WEM and WAM scenarios, if provided.

Methodology and changes since the previous submission

54. Hungary did not report information on the changes in the methodologies, models or approaches and on the key variables and assumptions used in the preparation of the projection scenarios since the submission of its NC6 and BR1, and did not report information on the changes to the results of the emission projections between BR submissions. During the review, Hungary clarified that the methodologies used in the BR2 are different from those used in the preparation of the emission projections for the NC6 and BR1, and provided supporting information explaining the methodologies and the changes made since the NC6 and BR1. The ERT encourages Hungary to improve the completeness of its reporting by including in its next BR a description of the differences in the assumptions and methods employed as well as in the results of the emission projections since its BR2, including supporting documentation.

55. From the information given during the review, the ERT noted that emission projections reported in Hungary's BR2 were prepared by the Ministry of Development with the help of other governmental institutions, while for the NC6 and BR1, they were prepared by an external contractor. The ERT noted that Hungary prepared emission projections in its BR2 by using different models and methods in each sector (not a comprehensive model).

56. The ERT noted that Hungary did not report transparently on the type and characteristics of the models or approaches applied to estimate sectoral projections. During the review, Hungary provided additional information regarding the assumptions and methodology applied for modelling the projections. The ERT encourages Hungary to improve the transparency of its reporting by including the following in its next BR: a

description of the original purpose that the model or approach was designed for and how it has been modified for climate change purposes; a summary of the strengths and weaknesses of the model or approach used; and information on how the model or approach used accounts for any overlap or synergies that may exist between different PaMs. In addition, the ERT encourages Hungary to provide references for more detailed information on the aspects indicated above.

57. The ERT also noted that the assumptions and input data used in the BR2 and the NC6 and BR1 were different. For example, for the public electricity and heat production category, projections in the NC6 and BR1 used the European Electricity Market Model and did not include emissions from heat production; whereas in the BR2, projections for this category were calculated using the 2013 emission data of the GHG inventory and data received from the Hungarian Energy and Public Utility Regulatory Authority on electricity and heat production. Furthermore, in the BR2, projections for all sectors and categories were based on the latest GHG inventory data, while in the NC6 and BR1, not all the projections were prepared on the basis of the latest GHG inventory data.

58. To prepare its projections, Hungary relied on the following key underlying assumptions: population trends, energy prices, economic development indicators such as GDP (billion Hungarian forints (HUF) at 2010 prices) and GDP growth rate (per cent), as reported in CTF table 5. These assumptions have been updated for the BR2 on the basis of the most recent economic developments known at the time of the reporting on projections. Throughout the development of the projections, the impacts of EU and national regulations, specific domestic policies, and EU and national level targets were taken into account.

59. The ERT noted that Hungary did not present transparently all relevant information used on factors and activities driving projections for some sectors, in particular the energy sector and the IPPU sector. During the review, Hungary provided additional information on factors and activities driving projections for all the sectors in question. The ERT recommends that Hungary improve the transparency of its reporting by providing in its next BR relevant information on factors and activities driving projections for each sector. This information may be presented in tabular format.

60. The ERT noted that Hungary did not conduct sensitivity analyses. During the review, Hungary stated that it will consider conducting sensitivity analyses in its next BR. The ERT encourages Hungary to improve the completeness of its reporting by including in its next BR a sensitivity analysis of the projections to underlying assumptions.

Results of projections

61. Hungary's total GHG emissions excluding LULUCF in 2020 and 2030 are projected to be 59,923.87 and 59,369.93 kt CO_2 eq, respectively, under the WEM scenario, which represents a decrease of 36.4 and 37.0 per cent, respectively, below the 1990 level. Under the WAM scenario, emissions in 2020 and 2030 are projected to be 57,921.60 and 54,588.64 kt CO_2 eq, respectively, which represents a decrease of 38.5 per cent and 42.1 per cent, respectively, below the 1990 level. The 2020 projections suggest that Hungary will continue contributing to the achievement of the EU target under the Convention (see paras. 18 and 19 above).

62. Hungary's target for the emissions from sectors covered by the ESD is to limit its emission growth to the binding quantified annual reduction targets for the period 2013–2020 expressed in AEAs. The AEAs of Hungary reflecting its annual emission reduction targets follow a linear path from 50,398.98 kt CO_2 eq in 2013 to 58,222.59 kt CO_2 eq in 2020.The ERT noted that Hungary does not report any domestic target in addition to its target for the emissions from sectors covered by the ESD. According to the projections under the WEM scenario provided by Hungary during the review, emissions from sectors

under the ESD are estimated to reach 38,810.00 kt CO_2 eq by 2020, corresponding to an estimated 66.7 per cent of AEAs allocated for 2020. Under the WAM scenario, Hungary's emissions from sectors under the ESD in 2020 are projected to be 37,500.00 kt CO_2 eq, corresponding to an estimated 64.4 per cent of AEAs allocated for 2020. The ERT noted that this suggests that Hungary expects to meet its target under both the WEM and the WAM scenarios.

63. According to the projections reported by sector, the most significant GHG emission reductions under the WEM scenario from 1990 to 2020 will occur in the energy sector (26,416.29 kt CO_2 eq or 38.8 per cent), followed by the IPPU sector (4,184.86 kt CO_2 eq or 36.1 per cent), the agriculture sector (3,589.50 kt CO_2 eq or 35.0 per cent) and the waste sector (109.09 kt CO_2 eq or 2.5 per cent). GHG emissions from the transport subsector are projected to increase by 1,716.24 kt CO_2 eq (19.6 per cent) above the 1990 level by 2020. If additional measures are considered (i.e. under the WAM scenario), the pattern of sectoral proportions changes slightly: the energy sector remains the most prominent source of reductions (28,324.06 kt CO_2 eq or 41.6 per cent), followed by the IPPU and the agriculture sectors. The projected emission growth in the transport subsector under the WAM scenario is less prominent (759.65 kt CO_2 eq or 8.7 per cent increase above the 1990 level by 2020).

64. The ERT noted that for the projections reported for 2030, the sectoral shares of emission reductions change slightly compared with those for 2020. The most significant GHG emission reductions under the WEM scenario in 2030 will remain in the energy sector (27,203.04 kt CO_2 eq or 40.0 per cent), followed by the agriculture sector (3,734.00 kt CO_2 eq or 36.4 per cent), the IPPU sector (3,234.00 kt CO_2 eq or 27.9 per cent) and the waste sector (683.22 kt CO_2 eq or 15.9 per cent). GHG emissions from the transport subsector are projected to increase by 2,418.12 kt CO_2 eq (27.7 per cent) above the 1990 level by 2030. If additional measures are considered (i.e. under the WAM scenario), the pattern of sectoral proportions changes slightly: the energy sector remains the most prominent source of reductions (31,635.43 kt CO_2 eq or 46.5 per cent), followed by the agriculture and the IPPU sectors. The reductions in the waste sector are more prominent (1,032.08 kt CO_2 eq or 24.0 per cent). The projected emission growth in the transport subsector under the WAM scenario is less prominent (955.26 kt CO_2 eq or 10.9 per cent increase above the 1990 level by 2030).

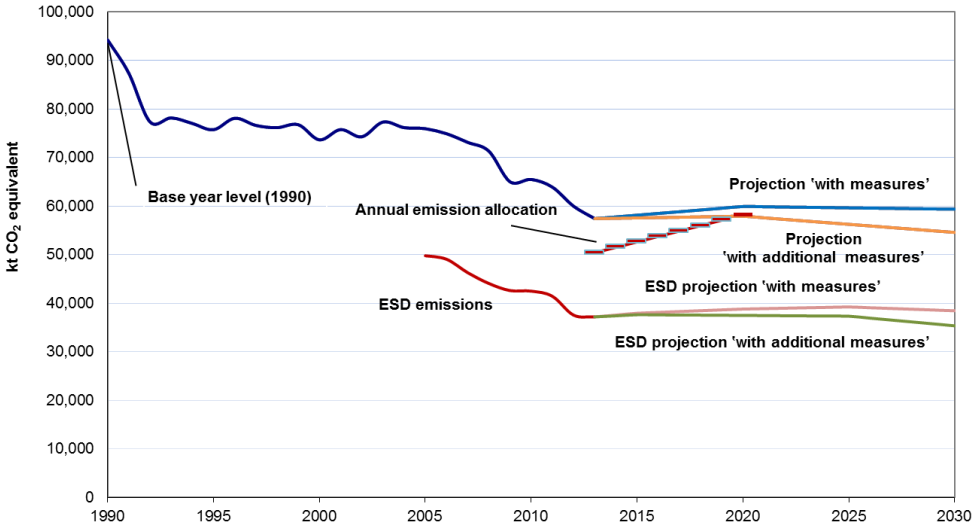
65. According to the projections reported by gas, reductions in CO_2 emissions are expected to contribute the most to Hungary's overall emission reductions. Under the WEM scenario, reductions in CO_2 emissions make up 35.9 per cent of the aggregate GHG emission reductions below the 1990 level by 2020 (26,201.66 kt CO_2 eq), followed by CH_4 with 37.1 per cent (4,643.61 kt CO_2 eq) and N_2O with 46.7 per cent (3,892.48 kt CO_2 eq). Emissions of HFCs, PFCs and SF_6 taken together increase by 113.6 per cent (439.35 kt CO_2 eq) over the same period. Under the WAM scenario, reductions in CO_2 emissions make up 38.4 per cent of the aggregate GHG emission reductions below the 1990 level by 2020 (28,060.91 kt CO_2 eq), followed by CH_4 with 38.1 per cent (4,772.34 kt CO_2 eq) and N_2O with 46.9 per cent (3,906.77 kt CO_2 eq). Emissions of HFCs, PFCs and SF_6 taken together increase by 113.6 per cent (439.35 kt CO_2 eq) over the same period as in the WEM scenario.

66. The ERT noted that in 2030, the reductions in CO_2 emissions are still expected to contribute the most to Hungary's overall emission reductions. Under the WEM scenario, reductions in CO_2 emissions make up 35.1 per cent of the aggregate GHG emission reductions below the 1990 level by 2030 (25,588.44 kt CO_2 eq), followed by CH_4 with 42.4 per cent (5,313.39 kt CO_2 eq) and N_2O with 49.0 per cent (4,080.80 kt CO_2 eq). Emissions of HFCs, PFCs and SF_6 taken together increase by 33.7 per cent (130.29 kt CO_2 eq) over the same period. Under the WAM scenario, reductions in CO_2 emissions make up 41.0 per cent of the aggregate GHG emission reductions below the 1990 level by 2030 (29,944.91 kt

CO_2 eq), followed by CH_4 with 45.6 per cent (5,712.84 kt CO_2 eq) and N_2O with 49.3 per cent (4,106.17 kt CO_2 eq). Emissions of HFCs, PFCs and SF_6 taken together increase by 33.7 per cent (130.29 kt CO_2 eq) over the same period as in the WEM scenario.

67. The projected emission levels under the different scenarios and Hungary's quantified economy-wide emission reduction target are presented in the figure below.

Greenhouse gas emission projections by Hungary



Sources: (1) Data for the years 1990–2013: Hungary's 2015 annual inventory submission, version 1; total GHG emissions excluding land use, land-use change and forestry; (2) Data for the years 2014–2030: Hungary's second biennial report; total GHG emissions excluding land use, land-use change and forestry; (3) ESD emissions for the years 2005–2013: Hungary's second biennial report, table 7; (4) ESD projections for the years 2014–2030: data provided by Hungary during the review for 2015, 2020, 2025 and 2030 and interpolated data for other years.

Abbreviations: ESD = effort-sharing decision, GHG = greenhouse gas.

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

68. Hungary is not a Party included in Annex II to the Convention and is therefore not obliged to adopt measures and fulfil obligations as defined in Article 4, paragraphs 3, 4 and 5, of the Convention. However, as reported in its BR2, Hungary provided information on its provision of support to developing country Parties and some Parties included in Annex I to the Convention with economies in transition. The ERT commends Hungary for reporting this information and encourages it to continue to do so in future BRs.

69. In its BR2, Hungary provided information on the provision of financial support in terms of official development assistance (ODA) as part of its commitment to contribute to the EU Development Co-operation Policy. In 2014, Hungary's net ODA amounted to USD 144 million, and the ratio of ODA as a share of the gross national income remained stable at 0.11 per cent. The majority of the Hungarian ODA is allocated through multilateral channels (80 per cent of the total ODA) in the form of core and voluntary contributions to international organizations and funds such as the World Bank, the International Monetary Fund and the United Nations. Hungary's bilateral ODA related to climate finance, which

accounts for 11.5 per cent of the total (core and climate-specific) contribution, is expected by the Party to remain at a similar level in the coming years. However, climate-related ODA provided through multilateral and bilateral channels will increase substantially in 2016 as the Hungarian Government has decided to allocate up to HUF 2 billion (approximately USD 8 million) to participate in international climate finance efforts related to the climate policy negotiations, including a pledge in 2015 of HUF 1 billion to the Green Climate Fund.

70. Hungary reported in CTF table 7 on its climate-specific public financial support provided in 2014, totalling USD 3.59 million, which has been provided through multilateral, bilateral, regional and other channels, as well as USD 9.23 million as general multilateral support. More specifically, Hungary contributed USD 2.09 million through multilateral channels, as reported in CTF table 7(a), and USD 1.50 million through bilateral channels, as reported in CTF table 7(b).

71. A significant part of the financial contributions provided in 2014 was allocated to projects on adaptation activities (USD 1.44 million) and mitigation activities (USD 2.09 million), as reported in CTF table 7(b). Financial contributions through bilateral, regional and other channels (USD 0.06 million) went to cross-cutting sectors across mitigation and adaptation, as reported in CTF table 7(a). The main recipients of bilateral assistance were Kenya, Republic of Moldova, Serbia, Ukraine and Viet Nam.

72. With regard to the provision of technology transfer and capacity-building support, Hungary reported in its BR2 that it focused mainly on development assistance by providing scholarships, training programmes, trainer exchange programmes and support for language acquisition programmes. Hungary also provides know-how, capacity-building, transfer of technology and good practices to developing and neighbouring countries, particularly in agriculture and related manufacturing industries and water management.

III. Conclusions

73. The ERT conducted a technical review of the information reported in the BR2 and CTF tables of Hungary in accordance with the UNFCCC reporting guidelines on BRs. The ERT concludes that the reported information is mostly in adherence with the UNFCCC reporting guidelines on BRs and provides an overview on: emissions and removals related to the Party's quantified economy-wide emission reduction target; assumptions, conditions and methodologies related to the attainment of the target; progress made by Hungary in achieving its target; and the Party's voluntary reporting on the provision of support to developing country Parties.

74. Hungary's total GHG emissions excluding LULUCF related to its quantified economy-wide emission reduction target were estimated to be 39.1 per cent below its 1990 level, whereas total GHG emissions including LULUCF were 40.6 per cent below its 1990 level for 2013. The emission decrease was driven mainly by the change in Hungary from a centrally planned economy to a market economy at the beginning of the 1990s, which resulted in a radical decline in the industrial output and slow down of economic growth in the 1990s, followed by economic recovery and stable growth in the 2000s and then by the global financial and economic crises in 2008–2009. As a result, activities in almost all economic sectors, including the energy, IPPU and agriculture sectors, decreased compared with the 1990 levels. Other key emission drivers include changes in the structure of fuels used (from fossil fuels to lower CO_2 emissions sources) and the decreased use of fertilizer in agriculture.

75. Under the Convention, Hungary is committed to contributing to the achievement of the joint EU quantified economy-wide target of a 20 per cent reduction in emissions below

the 1990 level by 2020. The target covers all sectors and the gases CO_2, CH_4, N_2O, HFCs, PFCs and SF_6, expressed using GWP values from the IPCC AR4. Emissions and removals from the LULUCF sector are not included in the quantified economy-wide emission reduction target under the Convention and the EU does not plan to make use of market-based mechanisms to achieve the target, although national companies can make use of such mechanisms to fulfil their requirements under the EU ETS. Hungary did not report the intended use of market-based mechanisms as it could not be quantified at the time of BR2 reporting.

76. Under the ESD, Hungary has a target to limit the emission growth from the sectors under the ESD and the percentage targets for 2020 relative to the 2005 level have been translated into binding quantified annual emission reduction targets for the period 2013–2020. For Hungary, the allocation of AEAs reflecting its national emission target for sectors under the ESD follows a linear path from 50,398.98 kt CO_2 eq in 2013 to 58,222.59 kt CO_2 eq by 2020. This equates to a 16.9 per cent increase in emissions above the 2005 level (49,787.63 kt CO_2 eq).

77. Hungary's main policy framework relating to energy and climate change is given by the Third National Energy Efficiency Action Plan and the National Renewable Energy Action Plan. These plans have a broad coverage of sectors and topics, are cross-sectoral in nature, and are closely linked to the EU 2020 climate and energy package adopted in 2009, which currently includes the revised EU ETS and the ESD. The mitigation actions with the most significant mitigation impact are related to energy efficiency in buildings, although no specific quantification for these mitigation actions was reported.

78. For 2013, Hungary reported in CTF table 4 total GHG emissions excluding LULUCF at 57,428.46 kt CO_2 eq. Hungary did not report on its use of the units from market-based mechanisms to achieve its target. The share of emissions from sectors under the ESD was 64.8 of the total GHG emissions, and it was 26.2 per cent below the AEAs for 2013. The ERT noted that Hungary is making progress towards its emission reduction target.

79. The GHG emission projections provided by Hungary in its BR2 include those for the WEM and WAM scenarios. Under these two scenarios, emissions are projected to be 36.4 and 38.5 per cent below the 1990 level in 2020, respectively. On the basis of the reported information, the ERT concluded that Hungary expects to meet its 2020 target, under both the WEM and the WAM scenarios. The projections of emissions from sectors under the ESD in the WEM and WAM scenarios are reported to be 33.3 and 35.6 per cent below the AEA in 2020, respectively. On the basis of the reported information, the ERT concluded that Hungary expects to meet its target for non-ETS sectors.

80. As Hungary is not a Party included in Annex II to the Convention, the Party is not obliged to provide information on its provision of support to developing country Parties in accordance with Article 4, paragraphs 3, 4 and 5, of the Convention. However, in its BR2 Hungary reported information on the provision of financial support in 2014 required under the Convention in textual format and in CTF tables 7, 7(a) and 7(b). In its BR2, Hungary also provided brief information on activities related to technology transfer and capacity-building support, which mostly focused on providing scholarships, training programmes, trainer exchange programmes and support for language acquisition programmes, as well as on providing know-how, capacity-building, transfer of technology and good practices for developing and neighbouring countries, particularly in agriculture and related manufacturing industries and water management.

81. In the course of the review, the ERT formulated several recommendations for Hungary to address in its next BR. The key recommendations[6] are that Hungary :

[6] The recommendations are given in full in the relevant chapters of this report.

(a) Improve the completeness of its reporting by:

(i) Providing all the required information in CTF table 3, in particular on estimates of the impacts of its mitigation actions, or if it is not able to provide such estimates and information, it should provide relevant explanations as to why the quantification of those impacts was not possible and the reasons why the required information was not provided (see para. 24 above);

(ii) Providing, to the extent possible, separate information on emission projections related to fuel sold to ships engaged in international transport as set out in the UNFCCC reporting guidelines on NCs (see para. 46 above);

(b) Improve the transparency of its reporting by:

(i) Providing consistent and transparent summary information describing the national inventory arrangements, including the institutions involved and the changes made to these national inventory arrangements since the last BR submission (see para. 9 above);

(ii) Providing information on whether it plans to make use of the market-based mechanisms in order to meet its target and on the possible scale of contributions from market-based mechanisms under the Convention and other market-based mechanisms (see para. 14 above);

(iii) Providing a consistent and clear description of the sectors covered in its target according to the EU target definition, which applies to all EU member States, in particular for the LULUCF sector (see para. 15 above);

(iv) Organizing its mitigation actions also by gas, to the extent appropriate (see para. 23 above);

(v) Including in CTF table 3 those mitigation actions that are relevant for the achievement of its quantified economy-wide reduction target under the Convention and, if it decides to include mitigation actions for the LULUCF sector, clearly distinguishing them from those that are relevant for the achievement of the target under the Convention (see para. 25 above);

(vi) Including the same mitigation actions and descriptions in the text of its BR and in CTF table 3 (see para. 26 above);

(vii) Clarifying, in particular in CTF table 4, that the contribution from the LULUCF sector to achieve the progress towards the target under the Convention is excluded because it is not covered in the EU target (see para. 39 above);

(viii) Providing information clearly describing which PaMs were included in each projection scenario for the reported sectors (see para. 48 above);

(ix) Following closely the UNFCCC reporting guidelines on NCs regarding definitions of the WEM and WAM scenarios, if provided (see para. 53 above);

(x) Providing relevant information on factors and activities driving projections for each sector (see para. 59 above);

(c) Improve the timeliness of its reporting by submitting its next BR on time (see para. 4 above);

(d) Improve its adherence to the UNFCCC reporting guidelines on BRs by implementing all the recommendations listed above.

Annex

Documents and information used during the review

A. Reference documents

"UNFCCC biennial reporting guidelines for developed country Parties". Annex to decision 2/CP.17. Available at <http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf#page=4>.

"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories". Annex to decision 24/CP.19. Available at <http://unfccc.int/resource/docs/2013/cop19/eng/10a03.pdf#page=2>.

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

FCCC/IDR.6/HUN. Report of the technical review of the sixth national communication of Hungary. Available at <http://unfccc.int/resource/docs/2015/idr/hun06.pdf>.

FCCC/TRR.1/HUN. Report of the technical review of the first biennial report of Hungary. Available at <http://unfccc.int/resource/docs/2015/trr/hun01.pdf>.

2015 greenhouse gas inventory submission of Hungary. Available at **<**http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/8812.php>.

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>.

First biennial report of Hungary (annex to 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>.

Common tabular format tables of the first biennial report of Hungary. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/hun_2014_v3.0.pdf>.

Second biennial report of Hungary. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/hun_br2.pdf>.

Common tabular format tables of the second biennial report of Hungary. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/hun_2016_v1.0_formatted.pdf>.

B. Additional information used during the review

Responses to questions during the review were received from Mr. Mate Olti (Ministry of National Development), including additional material and the following documents[1] provided by Hungary:

Ministry of National Development. 2012. *National Energy Strategy 2030*. Available at <http://www.terport.hu/webfm_send/2658>.

European Union. 2013. *Commission Decision No. 2013/162/EU (26 March 2013) on determining Member States' annual emission allocations for the period from 2013 to 2020 pursuant to Decision No. 406/2009/EC of the European Parliament and of the Council*.

European Union. 2013. *Commission Implementing Decision No. 2013/634/EU (31 October 2013) on the adjustments to Member States' annual emission allocations for the period from 2013 to 2020 pursuant to Decision No 406/2009/EC of the European Parliament and of the Council.*

[1] Reproduced as received from the Party.