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

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 Cyprus, 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".

Contents

I. Introduction and summary

A. Introduction

1. This report covers the centralized technical review of the second biennial report (BR2)[1] of Cyprus. 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 Cyprus, which did not provide any additional comments in relation to this final version of the report.

2. The review took place from 6 to 11 June 2016 in Bonn, Germany, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: Mr. Benon Bibbu Yassin (Malawi), Ms. Ana Maria Danila (European Union), Ms. Laura Elena Dawidowski (Argentina), Ms. Hongmin Dong (China), Mr. Domenico Gaudioso (Italy), Ms. Hana Hamadalla (Sudan), Ms. Diana Harutyunyan (Armenia), Mr. Nicolo Macaluso (Canada), Ms. Neranda Maurice (Saint Lucia) and Ms. Sina Wartmann (Germany). Ms. Danila and Ms. Dawidowski were the lead reviewers. The review was coordinated by Ms. Veronica Colerio, Mr. Daniel Hooper and Ms. Barbara Muik (UNFCCC secretariat).

B. Summary

3. The expert review team (ERT) conducted a technical review of the information reported in the BR2 of Cyprus 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, Cyprus provided the following additional relevant information: the possible scale of contributions from market-based mechanisms relating to the Party's progress towards its target; changes in its domestic institutional arrangements; the assessment of the economic and social consequences of response measures; progress made in the establishment of national rules for taking local action against domestic non-compliance with emission reduction targets; and separate emission projections for the European Union Emissions Trading System (EU ETS) and effort-sharing decision (ESD).

1. Timeliness

4. The BR2 was submitted on 15 February 2016, after the deadline of 1 January 2016 mandated by decision 2/CP.17. The BR2 was resubmitted on 22 April and 6 May 2016. The common tabular format (CTF) tables were submitted on 15 February 2016 and resubmitted on 6 May 2016. The ERT noted 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 Cyprus in its BR2 is mostly in adherence with the UNFCCC reporting guidelines on BRs as per decision 2/CP.17.

[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.

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

Section of the biennial report	*Completeness*	*Transparency*	*Paragraphs with recommendations*
Greenhouse gas emissions and trends	Complete	Transparent	
Assumptions, conditions and methodologies related to the attainment of the quantified economy-wide emission reduction target	Mostly complete	Mostly transparent	11, 12
Progress in achievement of targets	Mostly complete	Mostly transparent	19, 20, 21, 31, 37, 39, 40
Provision of support to developing country Parties[a]	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.

[a] Cyprus 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.

II. Technical review of the reported information

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

6. Cyprus 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). Summary information on the inventory arrangements is provided in the BR2, consistent with the detailed information contained in the national inventory report included in the 2015 annual inventory submission of Cyprus (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, Cyprus has indicated that no changes have been made to the national inventory arrangements since its first biennial report (BR1).

7. The information reported in the BR2 on emission trends is consistent with that reported in the 2015 annual inventory submission of Cyprus. To reflect the most recently available data, version 6.0 of the 2016 annual inventory submission of Cyprus has been used as the basis for discussion in chapter II.A of this review report.

8. Total GHG emissions[2] excluding emissions and removals from land use, land-use change and forestry (LULUCF) increased by 47.9 per cent between 1990 and 2014, whereas total GHG emissions including net emissions and removals from LULUCF increased by 53.0 per cent over the same period. The increase in the total GHG emissions can be attributed

[2] In this report, the term "total GHG emissions" refers to the aggregated national GHG emissions expressed in terms of carbon dioxide equivalent excluding land use, land-use change and forestry, unless otherwise specified. Values in this paragraph are calculated based on the 2016 inventory submission, version 6.0.

mainly to carbon dioxide (CO_2) emissions, which increased by 47.5 per cent (excluding LULUCF) between 1990 and 2014. Over the same period, emissions of methane (CH_4) increased by 24.0 per cent, while emissions of nitrous oxide (N_2O) decreased by 7.0 per cent. The emission trends were driven mainly by increases in energy consumption, road transport and industrial processes in Cyprus.

9. The ERT noted that, during the period 1990–2014, the gross domestic product (GDP) per capita of Cyprus increased by 22.0 per cent, while GHG emissions per GDP and GHG emissions per capita decreased by 19.4 and 1.7 per cent, respectively. Table 2 below illustrates the emission trends by sector and some of the economic indicators relevant to GHG emissions for Cyprus.

Table 2
Greenhouse gas emissions by sector and some indicators relevant to greenhouse gas emissions for Cyprus for the period 1990–2014

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share by sector (%)*	
Sector	*1990*	*2000*	*2010*	*2013*	*2014*	*1990–2014*	*2013–2014*	*1990*	*2014*
1. Energy	3 940.66	6 344.87	7 494.56	5 750.89	5 959.29	51.2	3.6	69.3	70.8
A1. Energy industries	1 767.17	2 964.18	3 880.67	2 839.01	2 950.00	66.9	3.9	31.1	35.0
A2. Manufacturing industries and construction	514.80	821.86	700.71	511.27	702.97	36.6	37.5	9.0	8.4
A3. Transport	1 213.71	1 806.62	2 323.99	1 868.29	1 819.33	49.9	–2.6	21.3	21.6
A4.–A5. Other	444.97	752.21	589.19	532.32	487.00	9.4	–8.5	7.8	5.8
B. Fugitive emissions from fuels	0.00	0.00	NE, NO	NE, NO	NE, NO	–	–	0.0	–
C. CO_2 transport and storage	NO	NO	NO	NO	NO	–	–	–	–
2. IPPU	808.14	927.75	908.75	1 159.76	1 375.20	70.2	18.6	14.2	16.3
3. Agriculture	564.31	657.50	661.97	576.81	578.77	2.6	0.3	9.9	6.9
4. LULUCF	–613.47	–559.01	–640.07	–652.07	–651.47	6.2	–0.1	NA	NA
5. Waste	377.11	452.94	487.89	502.68	505.20	34.0	0.5	6.6	6.0
6. Other	0.00	0.00	0.00	0.00	0.00	–	–	0.0	0.0
Total GHG emissions without LULUCF	**5 690.22**	**8 383.07**	**9 553.17**	**7 990.14**	**8 418.46**	**47.9**	**5.4**	**100.0**	**100.0**
Total GHG emissions with LULUCF	**5 076.75**	**7 824.06**	**8 913.10**	**7 338.07**	**7 766.98**	**53.0**	**5.8**	**NA**	**NA**
Indicators									
GDP per capita (thousands 2011 USD using PPP)	18.01	22.08	25.36	22.71	21.97	22.0	–3.3		
GHG emissions without LULUCF per capita (t CO_2 eq)	7.42	8.89	8.66	7.00	7.30	–1.7	4.3		
GHG emissions without LULUCF per GDP unit (kg CO_2 eq per 2011 USD using PPP)	0.41	0.40	0.34	0.31	0.33	–19.4	7.8		

Sources: (1) GHG emission data: the 2016 annual inventory submission of Cyprus, version 6.0; (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

10. In its BR2 and CTF tables 2(a)–(d), Cyprus reported a description of its target, including associated conditions and assumptions. CTF tables 2(a)–(d) contain the required information in relation to the description of the Party's emission reduction target, such as the base year, the gases and sectors covered, the global warming potential (GWP) values used and the approach to counting emissions and removals from the LULUCF sector. Further information on the target and the assumptions, conditions and methodologies related to the target is provided in sections 4.1–4.4 of the BR2.

11. In CTF tables 2(e)I and 2(e)II, Cyprus did not include information on the possible scale of contributions from market-based mechanisms. In response to a question raised by the ERT during the review, Cyprus explained that it has not used, and does not plan to use, units from market-based mechanisms. To increase completeness, the ERT recommends that Cyprus provide information in CTF tables 2(e)I and 2(e)II on the use of market-based mechanisms in achieving its target, or include explanatory footnotes relating to its use of market-based mechanisms in CTF tables 2(e)I and 2(e)II in its next biennial report (BR). The ERT notes that the Party's reporting could also be improved by using the notation key "NA" (not applicable) in the CTF tables, as appropriate.

12. In CTF table 2(b), Cyprus reported 1995 as the base year for fluorinated gases (F-gases) such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3). However, the base year under the joint European Union (EU) target under the Convention for all gases was reported by Cyprus as 1990 in the textual portion of the BR2. In response to a question raised by the ERT during the review, Cyprus confirmed that the base year for the joint EU target under the Convention for all gases is 1990. To increase transparency, the ERT recommends that, in its next BR, Cyprus provide consistent information in the textual portion of the BR and the CTF tables relating to the description of the joint EU target under the Convention, in particular the base year for F-gases in table CTF table 2(b).

13. For Cyprus, the Convention entered into force on 13 January 1998. Under the Convention, Cyprus committed to contributing to the achievement of the joint EU economy-wide emission reduction target of 20 per cent below the 1990 level by 2020. 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. The ERT noted that Cyprus did not include information on its emission reduction target as a percentage of the base year/base period in CTF table 2(a), which is 20 per cent.

14. 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 Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (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. Companies can make use of such units to fulfil their requirements under the EU ETS.

15. 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 sections 4.1–4.3 of the BR2. The EU ETS covers mainly point emissions sources in the energy, industry and aviation sectors. 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.

16. Under the ESD, Cyprus has a target to reduce its total emissions to 5.0 per cent below the 2005 level by 2020 from sectors covered by the ESD (non-ETS sectors). National emission targets for non-ETS sectors for 2020 have been translated into binding quantified annual emission allocations (AEAs) for the period 2013–2020. The AEAs of Cyprus change following a linear path from 5,919.07 kt of carbon dioxide equivalent (CO_2 eq) in 2013 to 5,943.46 kt CO_2 eq in 2020.[3]

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

17. This chapter provides information on the review of the reporting by Cyprus 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 LULUCF.

1. Mitigation actions and their effects

18. In its BR2 and CTF table 3, Cyprus reported on its progress in the achievement of its target and the mitigation actions implemented and planned since its sixth national communication (NC6) and BR1 to achieve its target. The BR2 includes information on mitigation actions organized by sector and by gas. Further information on the mitigation actions related to the Party's target is provided in section 5.1 of the BR2.

19. In its BR2, Cyprus did not provide information on changes in its domestic institutional arrangements including institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress made towards its target. In response to a question raised by the ERT during the review, Cyprus explained that there are no changes in the domestic institutional arrangements. To increase completeness, the ERT reiterates its recommendation that, in its next BR, Cyprus either include information on changes in its domestic institutional arrangements, including institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress made towards its target, or state that there were no changes to these arrangements.

20. In CTF table 3, Cyprus did not include information on the start year of implementation for the reported mitigation actions. In response to a question raised by the ERT during the review, Cyprus explained that there is no information available on the start year of its mitigation actions. To increase completeness, the ERT recommends that, in its next BR,

[3] 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".

Cyprus either include the information on the start year of implementation for each mitigation action in CTF table 3, or use an explanatory footnote. The ERT notes that the Party's reporting could also be improved by using the notation key "NA" in CTF table 3, as appropriate.

21. In CTF table 3, Cyprus includes the planned F-gas recovery mitigation action. However, Cyprus does not provide information regarding the description, start year and implementing entity or entities. In response to a question raised by the ERT during the review, Cyprus explained that a description of the F-gas recovery mitigation action is provided in section 5.1.4 of the BR2 and its impact is presented in tables 14 and 18 of the BR2. To increase transparency, the ERT recommends that Cyprus include, in its next BR, consistent information on its mitigation actions in the textual portion of the BR and CTF table 3.

22. In its BR2, Cyprus did not include information on the assessment of the economic and social consequences of response measures. In response to a question raised by the ERT during the review, Cyprus explained that the economic and social consequences of its response measures have not been assessed. To increase completeness, the ERT reiterates its encouragement for the Party to provide, to the extent possible, information on the assessment of the economic and social consequences of response measures in its next BR.

23. In its BR2, Cyprus did not include information on the progress made in the establishment of national rules for taking local action against domestic non-compliance with emission reduction targets. In response to a question raised by the ERT during the review, Cyprus explained that there are national rules for taking action against Cypriot entities under the EU ETS in cases of non-compliance with their EU ETS emission reduction targets (Law 110(I)/2010) and that corrective action plan procedures in cases of non-compliance for non-ETS sectors have been established. To increase completeness, the ERT encourages the Party to include, to the extent possible, information on the progress made in the establishment of national rules for taking local action against domestic non-compliance with emission reduction targets in its next BR.

24. Cyprus reported, to the extent possible, on the domestic arrangements established for the process of self-assessment of compliance with emission reductions required by science. The BR2 states that the Ministry of Agriculture, Rural Development and Environment is responsible for monitoring the implementation of policies and measures (PaMs) for achieving the national targets, and ensuring that the reporting template provided by the EU, which is to be used for monitoring and evaluation as required by the EU monitoring mechanism decision, includes information on GHG projections, parameters and indicators, PaMs and a summary of results.

25. 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.

26. 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 scheme. 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).

27. 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 para. 13 above).

28. At the national level, Cyprus introduced policies to achieve its targets under the ESD and domestic emission reduction targets. The key policies and actions reported in the BR2 are the import of natural gas, the promotion of renewable energy sources, and energy efficiency and savings. The mitigation effect of the import of natural gas is the most significant. Other policies that have delivered significant emission reductions are the promotion of low CO_2-emitting vehicles and the reduction of emissions from municipal solid waste.

29. Regarding the import of natural gas, Cyprus has decided to introduce natural gas into its energy mix primarily for electricity production; however, it is expected to also be used in other sectors, such as the commercial/industrial and transport sectors. With respect to the promotion of renewable energy sources, the National Renewable Energy Action Plan was prepared according to Article 4 of the EU renewable energy directive (2009/28/EC) and submitted in July 2010. The National Renewable Energy Action Plan is currently under revision to reflect the potential use of natural gas in the energy sector. In its BR2, Cyprus stated that its share of renewable energy increased from 1.7 per cent in 2007 to 5.9 per cent in 2014. Regarding energy efficiency and savings, Cyprus submitted its Energy Efficiency Action Plan to the EU in 2007, which focuses on the promotion of energy efficiency in residential and commercial buildings.

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

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

Sector affected	*List of key mitigation actions*	*Estimate of mitigation impact by 2020 (kt CO_2 eq)*
Policy framework and cross-sectoral measures	EU ETS and ESD	NE
Energy, including:		
Transport	Promotion of public transport	35.4
	Promotion of low CO_2-emitting vehicles	86.8
Energy supply	Introduction of natural gas	672.43
Renewable energy	Increase the share of RES in final energy consumption	233.63
Energy savings/efficiency	Increase energy efficiency and energy savings to reduce primary and final energy consumption	164.73
Agriculture	Promotion of anaerobic digesters for livestock waste treatment	15.3

Waste	Reduction of emissions from municipal solid waste	206.02

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.

Abbreviations: ESD = effort-sharing decision, EU ETS = European Union Emissions Trading System, NE = not estimated, RES = renewable energy sources.

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

31. The BR2 and CTF tables 4, 4(a)I, 4(a)II and 4(b) do not include information on the Party's total emissions excluding LULUCF, the contribution from LULUCF to achieving its target, and the quantity of units used from market-based mechanisms. Specifically, CTF tables 4, 4(a)I and 4(b) are blank. In response to questions raised by the ERT during the review, Cyprus explained that at the time when its BR2 and CTF tables were submitted, no information regarding these issues was available. However, the ERT noted that Cyprus could include information on its total emissions excluding LULUCF in CTF table 4 based on CTF table 1, and either notation keys or explanatory footnotes could be used for the remaining CTF tables. To increase completeness, the ERT recommends that Cyprus include information on its total emissions excluding LULUCF and use footnotes regarding the contribution from LULUCF to achieving its target and the quantity of units used from market-based mechanisms in CTF tables 4, 4(a)I, 4(a)II and 4(b) in its next BR. The ERT notes that the Party's reporting could also be improved by using the notation key "NA" in these CTF tables, as appropriate.

32. For 2013, Cyprus reported annual total GHG emissions excluding LULUCF of 8,319.35 kt CO_2 eq, or 49.7 per cent above the 1990 level. In 2013, emissions from the non-ETS sectors relating to the target under the ESD were 4,294.00 kt CO_2 eq.

33. On its contribution from LULUCF, Cyprus reported that it does not include emissions/removals from LULUCF in its 2020 target. In addition, during the review, Cyprus explained that it does not plan to use units from market-based mechanisms under the Convention towards the achievement of its 2020 target. Table 4 below illustrates the Party's total GHG emissions, the contribution of LULUCF and the use of units from market-based mechanisms to achieve its target.

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 Cyprus towards the achievement of its target

Year	*Emissions excluding LULUCF (kt CO_2 eq)*	*Contribution from LULUCF (kt CO_2 eq)[b]*	*Emissions including contribution from LULUCF (kt CO_2 eq)*	*Use of units from market-based mechanisms (kt CO_2 eq)*
1990	5 555.57	NA	NA	NA
2010	9 920.48	NA	NA	NA
2011	9 694.25	NA	NA	NA
2012	9 129.43	NA	NA	NA
2013	8 319.35	NA	NA	NA

Sources: The second biennial report and common tabular format table 1 of Cyprus.

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

[a] The European Union's unconditional commitment to reduce greenhouse gas emissions by 20 per cent below the 1990 level by 2020 does not include emissions/removals from LULUCF.

34. To assess the progress towards the achievement of the 2020 target, the ERT noted that the Party's emission reduction target from sectors not covered by the EU ETS under the ESD is 5.0 per cent below the 2005 level (see para. 16 above). As discussed in chapter II.B above, in 2013 the Party's annual total GHG emissions excluding LULUCF from the sectors not covered by the EU ETS are 27.5 per cent (1,627.07 kt CO_2 eq) below the AEAs under the ESD. In addition, the ERT noted that Cyprus does not include the contribution from LULUCF in its target and does not plan to use market-based mechanisms to achieve the target.

35. The ERT noted that Cyprus is making progress towards its emission reduction target by implementing mitigation actions that are delivering some emission reductions.

3. Projections

36. Cyprus reported in its BR2 and CTF table 6(a) updated projections for 2020 and 2030 relative to actual inventory data for 2013 under the 'with measures' (WEM) scenario. Projections are presented on a sectoral basis, using the same sectoral categories as used in section 5.1 of the BR2 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 a Party total, using GWP values from the IPCC AR4. Cyprus reported on factors and activities influencing emissions for each sector. Further information on the projections is provided in sections 6.1– 6.4 of the BR2.

37. In its BR2, Cyprus did not include emission projections related to fuel sold to ships and aircraft engaged in international transport. In response to a question raised by the ERT during the review, Cyprus provided separate emission projections. To improve completeness, the ERT recommends that Cyprus include, to the extent possible, emission projections related to fuel sold to ships and aircraft engaged in international transport separately from the emission projection totals in its next BR.

38. In addition to the WEM scenario, Cyprus reported in its BR2 and CTF tables 6(b) and 6(c) the 'without measures' (WOM) and 'with additional measures' (WAM) scenarios. The projections are presented by sector and by gas in the same way as for the WEM scenario for the following years: 1990–2030. Cyprus provided information on the changes since the submission of its NC6/BR1 in the assumptions, methodologies, models and approaches used and on the key variables and assumptions used in the preparation of the projection scenarios using CTF table 5.

39. The BR2 and CTF tables 6(a), 6(b) and 6(c) do not include LULUCF projections for the WOM, WEM or WAM scenarios. In response to a question raised by the ERT during the review, Cyprus provided additional information, elaborating that LULUCF projections have not been estimated. To improve completeness, the ERT recommends that Cyprus report LULUCF projections for its WEM scenario, and encourages Cyprus to report LULUCF projections for its WOM and WAM scenarios, in its next BR.

40. In CTF tables 6(a), 6(b) and 6(c), the total GHG emissions (excluding LULUCF) by sector did not equal the total GHG emissions (excluding LULUCF) by gas. In addition, the GHG inventory data reported in these CTF tables were not consistent with the GHG inventory data reported in CTF table 1. In response to questions raised by the ERT during the review, Cyprus acknowledged that there were slight calculation errors in CTF tables 6(a), 6(b) and 6(c) that resulted in the total GHG emissions by sector not equalling the total GHG emissions by gas, and provided corrected projections data. Cyprus also highlighted that it had included more up-to-date GHG inventory data in CTF tables 6(a), 6(b) and 6(c) compared with CTF

table 1. To increase transparency, the ERT recommends that Cyprus provide consistent data for the total GHG emissions by sector and total GHG emissions by gas in its next BR. The ERT also encourages Cyprus to report consistent GHG inventory data in its CTF table 1 and CTF tables 6(a), 6(b) and 6(c), in its next BR.

41. In its BR2, Cyprus did not report emission projections for indirect GHGs such as carbon monoxide, nitrogen oxides and non-methane volatile organic compounds, as well as for sulphur oxides. To increase completeness, the ERT encourages Cyprus to include emission projections of indirect GHGs, such as carbon monoxide, nitrogen oxides and non-methane volatile organic compounds, as well as sulphur oxides, in its next BR.

42. In its BR2, Cyprus stated that the sensitivity analysis for the WEM and WAM scenarios was carried out using the change in the total reduction of emissions at 1 per cent change in the reduction of emissions from each measure. However, this information is not sufficient to understand the sensitivity analysis process and methodologies. To increase transparency, the ERT encourages Cyprus to provide more explanatory information regarding its sensitivity analysis in its next BR.

43. In its BR2, Cyprus did not report on the changes since its BR1 relating to the model or methodologies used for the preparation of its emission projections. In response to a question raised by the ERT during the review, Cyprus stated there are significant changes in the emission projection methodologies used in the BR1 and the BR2 (see para. 46 below). To increase completeness, the ERT encourages Cyprus to report, in its next BR, on the changes since its most recent BR relating to the model or methodologies used for the preparation of its emission projections.

44. The ERT commends Cyprus for the additional information provided regarding its projections, compared with its BR1, including detailed activity data and the overviews of the estimated impacts of measures for the WEM and WAM scenarios.

Overview of projection scenarios

45. The WEM scenario reported by Cyprus includes implemented and adopted PaMs up to 2030. Cyprus also reported on a WAM scenario, which includes planned PaMs, and a WOM scenario, which excludes all PaMs implemented, adopted or planned after 2013. Cyprus provided a definition of its scenarios, explaining that its WEM scenario includes existing policies (implemented and adopted), while its WAM scenario includes additional policies (planned). The definitions indicate that the scenarios have been prepared according to 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".

Methodology and changes since the previous submission

46. The methodology used in the BR2 is different from that used for the preparation of the emission projections for the NC6/BR1. In response to a question raised by the ERT during the review, Cyprus stated that in the NC6/BR1, the energy sector emission projections were estimated and all other sectors were assumed to have a linear relation to the energy sector emission projections. In the BR2, the emission projections for all sectors were estimated using projected activity data. In addition, in the BR1, historical data were estimated using the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, while in the BR2, historical data were estimated using the *2006 IPCC Guidelines for National Greenhouse Gas Inventories.*

47. To prepare its projections, Cyprus relied on the following key underlying assumptions: population and GDP growth rate. These variables and assumptions are reported in CTF table

5. The population is projected to grow by 23.9 per cent between 2000 and 2020, while the GDP growth rate is projected to decline from 5.7 per cent in 2000 to 1.8 per cent in 2020.

Result of projections

48. The Party's total GHG emissions excluding LULUCF in 2020 and 2030 are projected to be 6,907.87 and 7,233.02 kt CO_2 eq, respectively, under the WEM scenario, which represents an increase of 21.6 and 27.3 per cent respectively, above the 1990 level. Under the WAM scenario, emissions in 2020 and 2030 are projected to be higher than those in 1990 by 6.4 and 2.1 per cent and amount to around 6,046.55 and 5,799.14 kt CO_2 eq, respectively. The 2020 projections suggest that Cyprus will strive to contribute to the achievement of the EU target under the Convention (see para. 14 above).

49. The target for Cyprus for the emissions from sectors covered by the ESD (non-ETS sectors) is to reduce its total emissions by 5.0 per cent below the 2005 level by 2020 (see para. 16 above). The Party's AEAs, which correspond to its national emission target for non-ETS sectors, change linearly from 5,919.07 kt CO_2 eq in 2013 to 5,943.46 kt CO_2 eq in 2020. In its BR2, Cyprus did not provide separate ETS and ESD projections. In response to a question raised by the ERT during the review, Cyprus provided this information for the WEM, WOM and WAM scenarios. According to the projections under the WEM scenario, emissions from non-ETS sectors are estimated to reach 3,578 kt CO_2 eq by 2020. Under the WAM scenario, emissions from non-ETS sectors in 2020 are projected to be 2,717 kt CO_2 eq. The projected level of emissions under the WEM and WAM scenarios is 39.8 and 54.4 per cent, respectively, below the AEAs allocated for 2020. The ERT noted that this suggests that Cyprus expects to meet the target under the WEM and WAM scenarios (see para. 16 above). To increase transparency, the ERT suggests that Cyprus include information on its ESD projections in its next BR.

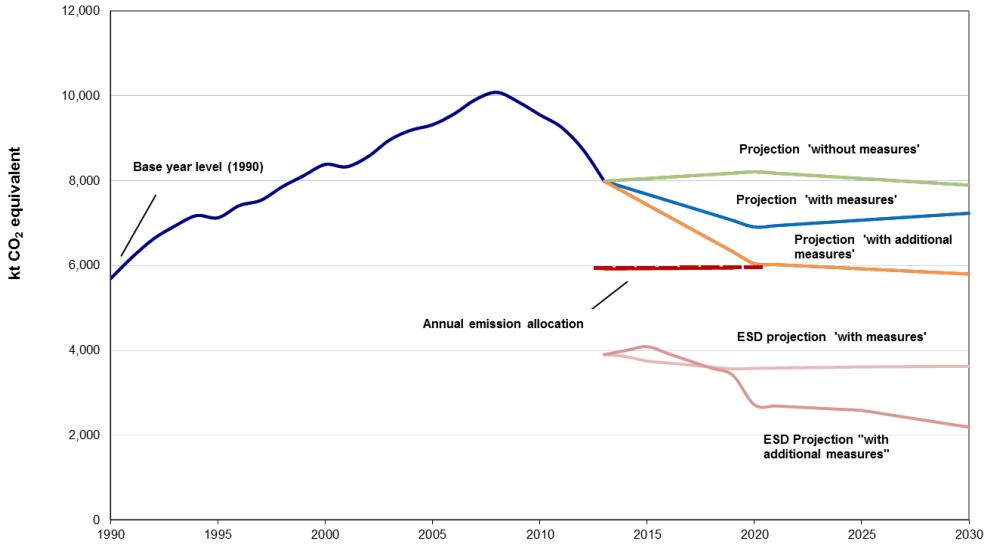
50. According to the projections reported for 2020 under the WEM scenario, the most significant emission reductions are expected to occur in the energy sector (excluding transport), amounting to projected reductions of 32.95 kt CO_2 eq (1.2 per cent) between 1990 and 2020. However, emissions from the transport, industrial processes, waste and agriculture sectors are projected to increase by 525.25 kt CO_2 eq (43.3 per cent), 664.48 kt CO_2 eq (82.2 per cent), 44.81 kt CO_2 eq (11.9 per cent) and 16.02 kt CO_2 eq (2.8 per cent), respectively. The pattern of projected emissions reported for 2030 under the same scenario changes slightly owing to an emission increase in the energy sector (excluding transport) of 245.05 kt CO_2 eq (9.0 per cent).

51. In 2020, the most significant increases are projected for CO_2 and HFC emissions: 740.92 kt CO_2 eq (15.9 per cent) and 325.85 kt CO_2 eq (217,233.3 per cent) between 1990 and 2020, respectively. In 2030, CO_2 and HFC emissions are projected to increase by 20.5 per cent and 202,566.7 per cent, respectively.

52. If additional measures are considered (i.e. under the WAM scenario), the patterns of emission reductions by 2020 presented by sector and by gas are significantly altered owing to a decrease in emissions in the energy sector (excluding transport) of 892.95 kt CO_2 eq (32.7 per cent) and in CO_2 emissions of 113.08 kt CO_2 eq (2.4 per cent). In 2030, the trends remain the same, with a projected emission reduction of 953.95 kt CO_2 eq (35.0 per cent) in the energy sector (excluding transport) and a reduction in CO_2 emissions of 413.08 kt CO_2 eq (8.9 per cent).

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

Greenhouse gas emission projections by Cyprus



Sources: (1) Data for the years 1990–2013: the 2016 annual inventory submission of Cyprus, version 6.0; total GHG emissions excluding land use, land-use change and forestry; (2) Data for the years 2014–2030: the second biennial report of Cyprus; total GHG emissions excluding land use, land-use change and forestry.

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

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

54. Cyprus 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, in its BR2, Cyprus reported that it did not provide any financial support to developing countries in 2013 and 2014. In addition, Cyprus included information on the joint provision by the EU and its member States of support to developing country Parties. The ERT commends Cyprus for reporting this information and suggests that it continue to do so in future BRs.

III. Conclusions

55. The ERT conducted a technical review of the information reported in the BR2 and CTF tables of Cyprus 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; and progress made by Cyprus in achieving its target.

56. The total GHG emissions of Cyprus excluding LULUCF related to its quantified economy-wide emission reduction target were estimated to be 47.9 per cent above its 1990 level, whereas total GHG emissions including LULUCF were 53.0 per cent above its 1990 level in 2014. The emission trends were driven mainly by increases in energy consumption, road transport and industrial processes in Cyprus.

57. Under the Convention, Cyprus 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. 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. Companies can make use of such units to fulfil their requirements under the EU ETS.

58. Under the ESD, Cyprus has a target to reduce its emissions by 5.0 per cent below the 2005 level by 2020. The Party's AEAs, which correspond to its national emission target for non-ETS sectors, change linearly from 5,919.07 kt CO_2 eq in 2013 to 5,943.46 kt CO_2 eq in 2020.

59. The Party's main policy framework relating to energy and climate change is the EU 2020 climate and energy package adopted in 2009, which includes the revised EU ETS and the ESD. The mitigation actions with the most significant mitigation impact are the import of natural gas, the promotion of renewable energy sources, and energy efficiency and savings.

60. For 2013, Cyprus reported total GHG emissions excluding LULUCF at 8,319.35 kt CO_2 eq. In addition, Cyprus has not used, and does not plan to use, units from market-based mechanisms to achieve its target. In 2013, Cyprus's emissions from the sectors covered by the ESD were 4,294.00 kt CO_2 eq, which is 27.5 per cent below the Party's AEAs under the ESD.

61. The GHG emission projections provided by Cyprus in its BR2 include those for the WOM, WEM and WAM scenarios. Under these three scenarios, emissions are projected to be 44.2, 21.6 and 6.4 per cent above the 1990 level in 2020, respectively. Under the EU ETS, it is expected that the market-based mechanisms will guarantee that the respective emissions will be reduced by 21 per cent below the 2005 level by 2020. By 2020, emissions covered by the ESD are projected to reach 3,807 kt CO_2 eq under the WOM scenario, 3,578 kt CO_2 eq under the WEM scenario and 2,717 kt CO_2 eq under the WAM scenario. The projected levels of emissions under the WOM, WEM and WAM scenarios are 35.9, 39.8 and 54.4 per cent, respectively, below the AEAs allocated for 2020.

62. The ERT noted that Cyprus is making progress towards its emission reduction target by implementing mitigation actions that deliver some emission reductions. On the basis of the results of the projections for 2020 under the WEM and WAM scenarios, the ERT concluded that Cyprus expects to meet its target for non-ETS sectors under the WEM and WAM scenarios.

63. In the course of the review, the ERT formulated the following recommendations for Cyprus to improve its adherence to the UNFCCC reporting guidelines on BRs in its next BR:[4]

(a) Improve the completeness of its reporting by:

(i) Providing an explanatory footnote relating to its use of market-based mechanisms in CTF tables 2(e)I and 2(e)II (see para. 11 above);

(ii) Providing information on changes in its domestic institutional arrangements, including institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation

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

of the progress made towards its target, or stating that there were no changes to these arrangements (see para. 19 above);

(iii) Providing information on the start year of implementation for each mitigation action in CTF table 3 (see para. 20 above);

(iv) Providing information on total emissions excluding LULUCF, the contribution from LULUCF and the use of market-based mechanisms in CTF tables 4, 4(a)I, 4(a)II and 4(b) (see para. 31 above);

(v) Including, to the extent possible, emission projections related to fuel sold to ships and aircraft engaged in international transport separately from the emission projection totals (see para. 37 above);

(vi) Providing LULUCF projections for its WEM scenario (see para. 39 above);

(b) Improve the transparency of its reporting by:

(i) Providing consistent information in the textual portion of the BR and the CTF tables relating to the description of the joint EU target under the Convention, in particular the base year for F-gases in CTF table 2(b) (see para. 12 above);

(ii) Providing consistent information on all its mitigation actions in the textual portion of the BR and CTF table 3 (e.g. F-gas recovery) (see para. 21 above);

(iii) Providing consistent data for the total GHG emissions by sector and the total GHG emissions by gas in CTF table 1 and CTF tables 6(a), 6(b) and 6(c) (see para. 40 above);

(c) Improve the timeliness of its reporting by submitting its next BR on time (see para. 4 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/ARR/2013/CYP. Report of the individual review of the inventory submission of Cyprus submitted in 2013. Available at <http://unfccc.int/resource/docs/2014/arr/cyp.pdf>.

FCCC/IDR.6/CYP. Report of the technical review of the sixth national communication of Cyprus. Available at <http://unfccc.int/resource/docs/2014/idr/cyp06.pdf>.

FCCC/TRR.1/CYP. Report of the technical review of the first biennial report of Cyprus. Available at <http://unfccc.int/resource/docs/2014/trr/cyp01.pdf>.

2015 greenhouse gas inventory submission of Cyprus. Available at <http://unfccc.int/8812.php>.

2016 greenhouse gas inventory submission of Cyprus. Available at <http://unfccc.int/9492.php>.

Sixth national communication of Cyprus. Available at <http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/cyp_nc6[1].pdf>.

First biennial report of Cyprus. Available at <http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/cyp_nc6[1].pdf>.

Common tabular format tables of the first biennial report of Cyprus. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/cyp_2014_v1.0_formatted.pdf>.

Second biennial report of Cyprus. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/br2016_200416_resubmission.pdf>.

Common tabular format tables of the second biennial report of Cyprus. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/cyp_2016_v3.0_formatted.pdf>.

B. Additional information used during the review

Responses to questions during the review were received from Ms. Nicoletta Kythreotou (Ministry of Environment), including additional material.