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

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 Slovenia, 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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I. Introduction and summary

A. Introduction

1. This report covers the centralized technical review of the second biennial report (BR2)[1] of Slovenia. 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 Slovenia, which provided comments that were considered and incorporated, as appropriate, into 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: Ms. Ana Maria Danila (European Union (EU)), 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), Ms. Sina Wartmann (Germany) and Mr. Benon Bibbu Yassin (Malawi). 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 Slovenia 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, Slovenia provided additional relevant information on: the EU economy-wide emission reduction target; the use of credits from market-based mechanisms; and projections for the land use, land-use change and forestry (LULUCF) sector.

1. Timeliness

4. The BR2 was submitted on 16 March 2016, after the deadline of 1 January 2016 mandated by decision 2/CP.17. The common tabular format (CTF) tables were submitted on 1 March 2016. The ERT noted the delay in the submission of the BR2 and CTF tables and recommends that Slovenia submit the next biennial report (BR) in due time.

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 Slovenia 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 Slovenia[a]

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	Complete	Mostly transparent	12, 15
Progress in achievement of targets	Mostly complete	Mostly transparent	37, 43
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] Slovenia 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. Slovenia 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 Slovenia's 2015 annual inventory submission (in chapter 1, 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, Slovenia indicated that there have not been significant changes in 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 Slovenia. To reflect the most recently available data, Slovenia's 2016 annual inventory submission 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 LULUCF decreased by 10.9 per cent between 1990 and 2014, whereas total GHG emissions including net emissions and removals from LULUCF decreased by 32.8 per cent over the same period. The decrease in the total GHG emissions can be attributed mainly to carbon dioxide (CO_2) emissions, which decreased by 10.6 per cent (excluding LULUCF) between 1990 and 2014. Over the same period, emissions of methane (CH_4) decreased by 19.9 per cent, while

[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 2016 inventory submission, version 1.0.

emissions of nitrous oxide (N_2O) decreased by 9.6 per cent. The combined fluorinated gases (F-gases), such as perfluorocarbons (PFCs), hydrofluorocarbons (HFCs) and sulphur hexafluoride (SF_6), decreased by 63.1 per cent over the same period. The emission trends were driven mainly by the energy sector, which in 2014 accounted for 79.9 per cent of emissions. Emissions in the energy sector decreased by 9.5 per cent between 1990 and 2014; this was mainly driven by the decrease in emissions from the manufacturing industries and construction sector.

9. The ERT noted that, during the period 1990–2013, Slovenia's gross domestic product (GDP) per capita increased by 46.3 per cent, while GHG emissions per GDP and GHG emissions per capita decreased by 35.7 and 4.6 per cent, respectively. In Slovenia, the key driver of emission trends is the economic development that relates to the political and economic transformation associated with Slovenia's independence, which was intensified by the loss of the former Yugoslav market in the early1990s. Economic conditions improved since then, but the 2008 global economic crisis led to a stagnation in the Slovenian economy. Table 2 below illustrates the emission trends by sector and some of the economic indicators relevant to GHG emissions for Slovenia.

Table 2
Greenhouse gas emissions by sector and some indicators relevant to greenhouse gas emissions for Slovenia 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	14 650.56	15 300.82	16 330.95	15 037.01	13 254.13	–9.5	–11.9	78.7	79.9
A1. Energy industries	6 374.89	5 594.44	6 339.70	5 773.73	447.90	–30.2	–23.0	34.2	26.8
A2. Manufacturing industries and construction	3 149.88	2 275.68	1 914.55	1 642.10	1 647.91	–47.7	0.4	16.9	9.9
A3. Transport	2 733.24	3 857.39	5 264.82	5 459.12	5 384.29	97.0	–1.4	14.7	32.5
A4.–A5. Other	1 883.11	3 102.82	2 291.96	1 704.88	1 416.44	–24.8	–16.9	10.1	8.5
B. Fugitive emissions from fuels	509.44	470.50	519.92	457.18	357.60	–29.8	–21.8	2.7	2.2
C. CO2 transport and storage	NO	NO	NO	NO	NO	NA	NA	NA	NA
2. IPPU	1 390.41	1 168.46	1 018.48	1 095.57	1 135.31	–18.3	3.6	7.5	6.8
3. Agriculture	1 931.24	1 890.20	1 715.30	1 652.70	1 698.98	–12.0	2.8	10.4	10.2
4. LULUCF	–4 223.81	–7 984.25	–7 223.10	–6 894.85	–6 906.40	63.5	0.2	NA	NA
5. Waste	644.24	766.74	554.04	528.50	493.89	–23.3	–6.5	3.5	3.0
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	**18 616.45**	**19 126.23**	**19 618.76**	**18 313.78**	**16 582.31**	**–10.9**	**–9.5**	**100.0**	**100.0**
Total GHG emissions with LULUCF	**14 392.64**	**11 141.98**	**12 395.67**	**11 418.93**	**9 675.91**	**–32.8**	**–15.3**	**NA**	**NA**
Indicators									
GDP per capita (thousands 2005 USD	16.75	20.14	25.41	24.51	NA	NA	NA		

Sector	GHG emissions (kt CO_2 eq)					Change (%)		Share by sector (%)	
	1990	*2000*	*2010*	*2013*	*2014*	*1990–2014*	*2013–2014*	*1990*	*2014*
using PPP)									
GHG emissions without LULUCF per capita (t CO_2 eq)	9.32	9.62	9.58	8.89	8.04	–13.7	–9.5		
GHG emissions without LULUCF per GDP unit (kg CO_2 eq per 2005 USD using PPP)	0.56	0.48	0.38	0.36	NA	NA	NA		

Sources: (1) GHG emission data: Slovenia's 2016 annual inventory submission, version 1.0; (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)–(f), Slovenia reported a description of its target, including associated conditions and assumptions. CTF tables 2(a)–(f) contain some of the required information in relation to the description of the Party's emission reduction target such as: a description of the quantified economy-wide reduction target; the base year; the gases and sectors covered and the global warming potential (GWP) values used to estimate the emissions in units of carbon dioxide equivalent (CO_2 eq). Further information on the target and the assumptions, conditions and methodologies related to the target is provided in chapter 2 of the BR2.

11. The ERT noted inconsistencies between the CTF tables and the textual part of the BR2. In CTF table 2(b), Slovenia included LULUCF in the sectors covered by the target, contrary to the information provided in textual format in the BR2, in which it is clearly stated that LULUCF is excluded from the target. Further, the inclusion of international aviation in the target is not mentioned in the CTF tables, but only in textual format in the BR2. During the review, Slovenia explained that LULUCF is not covered by the target and that the information in CTF table 2(b) was included in error.

12. The ERT recommends that Slovenia improve the transparency of its reporting in its next BR and/or CTF tables by providing consistent information in the textual portion of the BR and in CTF table 2(b) on the description of the target under the Convention, in particular on the sectors covered.

13. The ERT noted that Slovenia has partly implemented the recommendations made in the previous review report, in particular those concerning the gases covered by the target and the respective base year. However, no information is provided in CTF table 2(e)I about the possible scale of contributions of the market-based mechanisms under the Convention to the achievement of the quantified economy-wide emission reduction target.

14. In its BR2, Slovenia explained that it does not plan to use units from the Kyoto Protocol mechanisms, although this would be possible to a certain extent under the EU

Emissions Trading System (EU ETS) and the effort-sharing decision (ESD), and that it plans to fulfil all of its commitments by 2020 by implementing domestic measures. During the review, Slovenia provided additional information, explaining that credits from market-based mechanisms will be used by operators in the EU ETS, but, at the national level, Slovenia does not plan to use them for the achievement of the ESD target.

15. The ERT recommends that Slovenia improve the transparency of its reporting in the next submission of its CTF tables by reporting all relevant information in CTF table 2(e)I, or by providing explanations for not reporting in the footnote to the CTF table.

16. For Slovenia, the Convention entered into force on 29 February 1996. Under the Convention, Slovenia 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.

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 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.

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 chapter 2 of the BR2. The EU ETS covers mainly large 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.

19. Under the ESD, Slovenia has a target to limit its emission growth to 4.0 per cent above 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. Slovenia's AEAs change following a linear path from 12,324 kt CO_2 eq in 2013 to 12,533 kt CO_2 eq in 2020.[3]

20. The ERT noted that, in addition to the EU target under the Convention, Slovenia made reference in the BR2 to the commitment by the EU and its member States under the Kyoto Protocol stating that "For the EU as a whole, the Kyoto commitment is the same as the Convention target except that it also includes LULUCF". The ERT noted that the description of this target is not correct, since the 20 per cent emission reduction under the Kyoto Protocol refers to the entire period 2013–2020 and not to the year 2020 alone, as in

[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".

the case of the target under the Convention. Further, the second commitment period of the Kyoto Protocol does not include international aviation, whereas the EU target under the Convention does.

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

21. This chapter provides information on the review of the reporting by Slovenia 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

22. In its BR2 and CTF table 3, Slovenia 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. Slovenia has provided information on mitigation actions introduced 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 chapter 3 of the BR2.

23. This report highlights the changes made since the publication of the Party's NC6 and BR1. In its BR2 and following the recommendation made in the previous review report, Slovenia provided 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 particular, Slovenia is developing a new national system for policies and measures (PaMs) and projections, using the experiences with the national inventory system.

24. In 2014, following a proposal by the Ministry of the Environment and Spatial Planning, Slovenia adopted the Operational Programme for Reducing GHG Emissions Until 2020 With a View to 2030 (OP GHG-2020). The programme clearly defines the activities for the reduction of GHG emissions by sector and assigns the implementation of PaMs to relevant ministries and agencies. For each sector, the OP GHG-2020 sets indicative targets and, for sets of measures, it estimates the expected effect. Methodologies are also being defined to assess how local energy plans contribute to the achievement of national mitigation objectives.

25. Slovenia provided, to the extent possible, detailed information on the assessment of the economic and social consequences of its response measures. In particular, it explained that, since the country is a member State of the EU, most of its policies are designed and implemented in the framework of the EU directives, regulations, decisions and recommendations. To ensure that all relevant possible impacts are taken into account, the EU has established processes, including a mandatory impact assessment system for new legislative proposals, which assess the economic and social consequences of climate policy measures.

26. Slovenia also reported, to the extent possible, on the domestic arrangements established for the process of self-assessment of compliance with emission reductions required by science, and on the progress made in the establishment of national rules for taking action against non-compliance with emission reduction targets. In particular, the BR2 provides a detailed description of how the OP GHG-2020 monitors implementation through the preparation of a yearly evaluation report. The Ministry of the Environment and Spatial Planning prepares the report, on the basis of the information provided by ministries and agencies responsible for the implementation of individual PaMs. If the evaluation

shows that the implementation of the programme is not sufficient, additional actions need to be proposed in the evaluation report.

27. 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).

28. 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).

29. 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. 19 above).

30. The BR2 highlights the EU-wide mitigation actions that are under development, in particular in the areas of energy efficiency, renewable energy sources (RES) and municipal waste management. Financial support to the development and the implementation of national policies is also provided at the EU level, for instance through the Cohesion Fund and the rural development programmes. Among the EU policies that provide a foundation for significant additional actions that are critical for Slovenia to attain the EU-wide 2020 emission reduction target is the European Cohesion Policy, which will support the transition to green economic growth.

31. At the national level, Slovenia introduced policies to achieve its targets under the ESD and domestic emission reduction targets. The key policies reported in the BR2 are the environmental tax against air pollution (which applies to both CO_2 and F-gas emissions), the promotion of electricity generation from renewable energy sources, the promotion of co-generation, the introduction of progressive tax rates for motor vehicles with regard to CO_2 emissions, the promotion of public transport and of sustainable freight transport, the reduction of landfilled biodegradable waste and the collection and energy use of landfilled gas. The mitigation actions with the most significant mitigation impact are the technological modernization of thermal power plants, the promotion of energy efficiency and RES in buildings in general, the promotion of the use of biofuels and the promotion of vehicle and driving efficiency and vehicle occupancy in passenger cars.

32. As to the financing schemes, the main measure for promoting energy efficiency and use of RES in households continues to remain financial grants allocated by the Eco Fund, Slovenian Public Environmental Fund. In addition to that, revenues from the European GHG emission allowance trading scheme have now been fully deposited into the Special Climate Change Fund, and not partially as in the period before 2015.

33. The BR2 highlights the domestic mitigation actions that are under development, such as the green budget reform, the smart specialization strategy and the measures aimed

at reducing transit freight transport. Among the mitigation actions that provide a foundation for significant additional actions, the most critical are those aimed at reducing transit transport through modernization of existing railway infrastructures and of intermodal terminals, together with the introduction of electronic tolling for cargo vehicles, given that transit transport accounts for up to 20 per cent of the total sales of motor fuels in the territory of Slovenia.

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

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

Sector affected	*List of key mitigation actions*	*Estimate of mitigation impact by 2020 (kt CO_2 eq)*
Policy framework and cross-sectoral measures	European Union Emissions Trading System	IE
	Environmental tax on air pollution	IE
	Taxes and charges	IE
	Green economic growth (OP GHG-2020)	NA
Energy, including: Transport	Promoting use of biofuels	413
	Promoting vehicle and driving efficiency and vehicle occupancy – passenger cars	388
	Promoting use of public transport	155
	Promoting vehicle and driving efficiency and vehicle occupancy – buses and trucks	125
Renewable energy and energy efficiency		
	Technological modernization of thermal power plants	851
	Promoting energy efficiency and RES in buildings in general	509
	Promoting energy efficiency and RES in industry	433
IPPU		
	Reduction of F-gas emissions from mobile A/C	139
	Reduction of F-gas emissions in stationary equipment	84
Agriculture	Rational use of nitrogen fertilizers	35.5
LULUCF	Sustainable forest management	NA

Sector affected	*List of key mitigation actions*	*Estimate of mitigation impact by 2020 (kt CO_2 eq)*
Waste	Collection of landfilled gas and its energy use	133
	Reduction of landfilled biodegradable waste	198

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: A/C = air-conditioning systems, F-gas = fluorinated gas, IE = included elsewhere, IPPU = industrial processes and product use, LULUCF = land use, land-use change and forestry, NA = not available, 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

35. Slovenia did not report in CTF table 4 on the use of credits from market-based mechanisms. In its BR2, Slovenia reported that it does not plan to use Kyoto Protocol mechanisms and plans to fulfil all of its commitments by 2020 by implementing domestic measures. During the review, Slovenia explained that credits from market-based mechanisms will be used by operators in the EU ETS to comply with their individual targets, whereas at the national level Slovenia does not plan to use them for the achievement of the national target under the ESD.

36. Similarly, Slovenia did not report in CTF tables 4(a)I and 4(a)II on the use of credits from the LULUCF sector; it explained in its BR2 that the target under the Convention excludes this sector.

37. In order to increase transparency, the ERT recommends that Slovenia fill in all relevant parts of CTF table 4 in accordance with the assumptions related to the target. This can be done, for example, by using the notation key "NA" (not applicable) if the requested information is not applicable, such as for LULUCF and for the use of the market-based mechanisms, and by providing explanations in the footnote to the CTF table.

38. For 2013, Slovenia reported in CTF table 4 annual total GHG emissions of 18,165.82 kt CO_2 eq, or 2.1 per cent below the 1990 level. In 2013, emissions from the non-ETS sectors relating to the target under the ESD were 10,776 kt CO_2 eq. Table 4 below illustrates Slovenia'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 Slovenia 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	18 562.49	NA	NA	NA
2010	19 493.93	NA	NA	NA
2011	19 499.83	NA	NA	NA
2012	18 898.33	NA	NA	NA

2013	18 165.82	NA	NA	NA

Sources: Slovenia'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] 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.

39. To assess the progress towards the achievement of the 2020 target, the ERT noted that Slovenia's emission reduction target under the Convention for sectors not covered by the EU ETS under the ESD is 4 per cent above the 2005 level (see para. 19 above). In 2013, Slovenia's emissions from the sectors not covered by the EU ETS were 12.6 per cent below the AEAs under the ESD.

40. The ERT noted that Slovenia is making progress towards its emission reduction target by implementing mitigation actions that are delivering some emission reductions. However, the ERT also noted that Slovenia experienced an increase in GHG emissions, at an average rate of 2.4 per cent per year in the period 2004–2008, mainly due to a growth in the economy after joining the EU in 2004 and an increase in transit transport after the admission of Romania and Bulgaria into the EU in 2007. In 2009, emissions from fuel combustion and industrial processes started to decrease owing to the global financial crisis. In 2010 and 2011, emission levels had not changed significantly from those of 2009, while in 2012 and 2013 a further decrease was observed.

3. Projections

41. Slovenia 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 chapter 3 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 except LULUCF, as well as for a Party total, using GWP values from the IPCC AR4. Emission projections related to fuel sold to ships and aircraft engaged in international transport were reported separately and were not included in the totals. Slovenia reported on factors and activities influencing emissions for each sector. Further information on the projections is provided in chapter 4 of the BR2.

42. The BR2 and CTF table 6(a) do not include the information required by the UNFCCC reporting guidelines on BRs on projections for the LULUCF sector. During the review, Slovenia explained that such projections had not been prepared, with no explanations as to why these projections had not been prepared.

43. The ERT recommends that Slovenia improve the completeness of its reporting in its next BR and CTF tables by reporting projections for the LULUCF sector.

44. The BR2 and CTF tables 6(b) and 6(c) do not include the information required by the UNFCCC reporting guidelines on BRs on the 'with additional measures' (WAM) and 'without measures' (WOM) scenario projections. To increase the completeness of its next BR, the ERT encourages Slovenia to report a WAM projection and a WOM projection following the scenario definitions included 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).

45. Slovenia provided information on the changes since the submission of its NC6 and 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 (see para. 50 below). However, the ERT noted that CTF table 5 does not provide information on some key variables and assumptions for the historical years 1990, 1995, 2000, 2010 and 2011. During the review, Slovenia clarified that this information was not available and that historical data before 2012 had not been used for the compilation of the projections. To increase transparency, the ERT encourages Slovenia to provide a summary of key variables and assumptions for the historical period for the projection analysis.

46. The BR2 indicates that there were changes in how the projections were compiled compared with previous submissions, but does not explain all of the changes in detail. During the review, in response to a request made by the ERT, Slovenia provided additional information on the model used for compiling the projections. The ERT noted that transparency could be enhanced if changes to the methodology were explained in more detail in Slovenia's next BR in the way they had been during the review.

47. Slovenia reported relevant information on factors and activities influencing GHG emission trends for each sector for the years 1990–2020.

48. Slovenia also provided information on a sensitivity analysis of projections in section 4.5 of its BR2. In section 4.3, Slovenia provided an assessment of the total impact of measures, determined as the sum of impacts of individual measures. The ERT commends Slovenia for providing this information.

Overview of projection scenarios

49. The WEM scenario reported by Slovenia includes implemented and adopted PaMs up to 2013. The definition indicates that the scenarios have been prepared according to theUNFCCC reporting guidelines on NCs. Further, Slovenia explained in its BR2 that all measures presented by the Party in chapter 3 of its BR2 with the exception of green growth and sustainable forest management were included in the WEM projections.

Methodology and changes since the previous submission

50. The methodology used in the BR2 is improved compare with that used for the preparation of the emission projections for the NC6 and BR1. The improvements include the use of new models for the calculation of emissions in waste and agriculture, updates to activity projections in line with strategic and programme documents, and the application of new emission factors and GWP values.

51. Slovenia reported in CTF table 5 the following key variables used in the preparation of its projections: population, number of households, GDP, coal, oil and gas price as well as gross inland consumption and gross electricity production. With respect to the assumptions reported in CTF table 5, the key trends are as follows: GDP (at constant prices 2005) is projected to grow from EUR 31.2 billion in 2012 to EUR 34 billion in 2020 (9 per cent growth over the period). Between 2012 and 2020, the population is projected to increase by 0.6 per cent, or from 2.0 to 2.01 million inhabitants, while the number of households is projected to increase by 5.9 per cent (or from 806,262 to 854,139 households). Gross inland consumption is expected to grow by 0.4 per cent over the same period (from 292.56 to 293.76 PJ) while gross electricity production is expected to grow by 16.5 per cent (from 15.73 to 18.33 TWh). International fuel prices (coal, oil and gas) are expected to decrease by 18.6, 0.9 and 6.8 per cent, respectively, between 2012 and 2020.

52. Slovenia reported in its BR2 detailed information on the sensitivity analysis performed for emissions in the transport sector, which represents the largest emission source in the non-ETS sector, representing 30 per cent of the total GHG emissions in 2013, and is considered to have the highest uncertainty with regard to its future development according to the BR2.

53. Slovenia provided in its BR2 additional information on projections, including detailed information on projections for EU ETS and ESD sectors, an analysis of the estimated and expected effects of PaMs in terms of emissions avoided or sequestrated, by sector, for 2015, 2020, 2025 and 2030, and an overview of uncertainty of projections. The ERT commends the Party for providing this information.

Results of projections

54. Slovenia's total GHG emissions excluding LULUCF in 2020 and 2030 are projected to be 18,197.68 and 17,002.07 kt CO_2 eq, respectively, under the WEM scenario, which represents a decrease of 2.0 and 8.4 per cent, respectively, below the 1990 level. The 2020 projections suggest that Slovenia will continue contributing to the achievement of the EU target under the Convention (see para. 16 above).

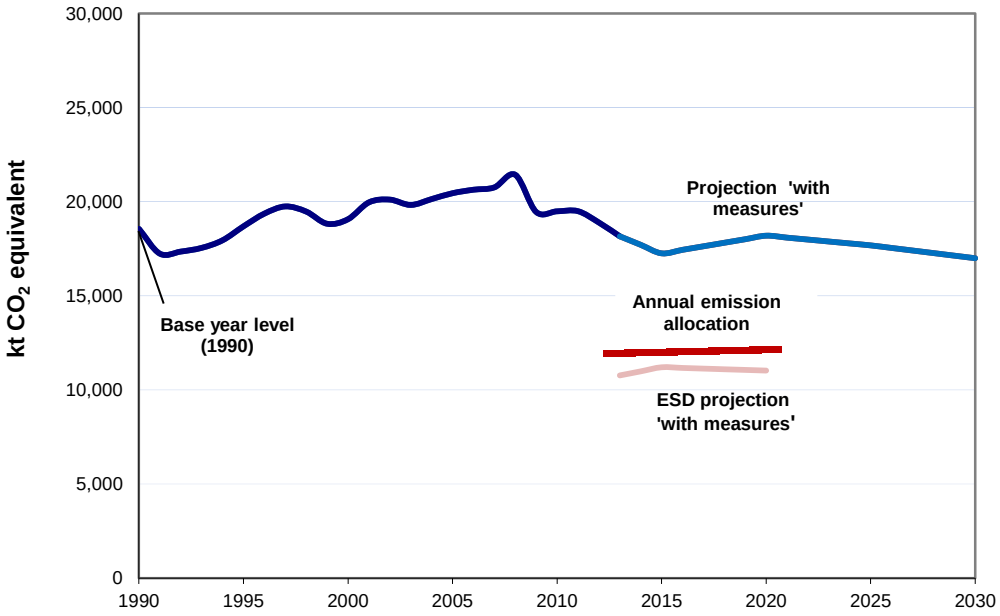
55. Slovenia's target for the emissions from sectors covered by the ESD (non-ETS sectors) is to limit its emission growth to 4.0 per cent above the 2005 level by 2020 (see para. 19 above). For Slovenia, the number of AEAs, which corresponds to its national emission target for non-ETS sectors, changes linearly from 12,324 kt CO_2 eq in 2013 to 12,533 kt CO_2 eq in 2020. According to the projections under the WEM scenario, emissions from non-ETS sectors are estimated to reach 11,033 kt CO_2 eq by 2020. The projected level of emissions under the WEM scenario is 12.0 per cent below the AEAs allocated for 2020. The ERT noted that this suggests that Slovenia expects to meet the ESD target under the WEM scenario.

56. According to the projections reported for 2020 under the WEM scenario, the transport sector is the only sector showing a growth in emissions, while the other sectors show a decrease. This situation is the same for 2030. Transport sector emissions are expected to increase by 3,262.66 kt CO_2 eq (119.4 per cent) by 2020 compared with 1990 and to roughly stay at this level until 2030. The most significant emission reductions are expected to occur in the industrial processes sector and the energy sector (without transport), amounting to projected reductions of 1,677.15 kt CO_2 eq (36.9 per cent) and 1,646.71 kt CO_2 eq (19.1 per cent), respectively, between 1990 and 2020. By 2030, emissions from the energy sector (without transport) are expected to continue their downward trend, with projected reductions of 3,316.97 kt CO_2 eq (38.4 per cent) compared with 1990. Emissions from industrial processes are, however, expected to change their trend and increase, amounting to a reduction of 1,118.18 kt CO_2 eq (24.6 per cent) compared with the 1990 level.

57. In 2020, the most significant reductions are projected for CH_4 emissions, which will be 401.25 kt CO_2 eq (16.6 per cent) lower than in 2020. Emissions from CO_2 will slightly increase by 70.85 kt CO_2 eq (0.5 per cent). For 2030, projected reductions for CH_4 amount to 549.35 kt CO_2 eq (22.7 per cent), and for CO_2 the trend changes, with a reduction of 974.75 kt CO_2 eq (6.5 per cent) achieved compared with 1990.

58. The projected emission levels under the WEM scenario and Slovenia's AEAs are presented in the figure below.

Greenhouse gas emission projections by Slovenia



Sources: (1) Data for the years 1990–2013: Slovenia's 2016 annual inventory submission, version 1.0; total GHG emissions excluding land use, land-use change and forestry; (2) Data for the years 2015, 2020, 2025, 2030: Slovenia's second biennial report; total GHG emissions excluding land use, land-use change and forestry.

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

59. The total impact of PaMs is calculated as a sum of the effects of each measure with regard to the year 2012. The total reported effects of PaMs in 2020 and 2030 amounted to 3,515.00 kt CO_2 eq and 6,777.00 kt CO_2 eq, respectively. During the review, Slovenia further clarified the methodology behind the calculation of the total impact of PaMs, explaining that the effect of measures is estimated by comparing projections with the reference level, where only autonomous progress is taken into account. This is achieved by multiple runs of a projections model with different assumptions that simulate implementation of different measures.

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

60. Slovenia 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, Slovenia provided information on its provision of support to developing country Parties. The ERT commends Slovenia for reporting this information and suggests that it continue to do so in future BRs.

61. In 2013, Slovenia provided financial support of EUR 403,560 through multilateral financial institutions and EUR 1,556,965 through bilateral agreements. The corresponding figures for 2014 were EUR 533,510 and EUR 1,603,350, respectively. The financial support provided through multilateral channels was given to the Global Environment Facility and the World Bank as grants for cross-cutting activities. Bilateral support was

provided in the form of grants, mainly to Bosnia and Herzegovina, Montenegro, Serbia and the western Balkans as development assistance for mitigation and adaptation.

III. Conclusions

62. The ERT conducted a technical review of the information reported in the BR2 and CTF tables of Slovenia 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 Slovenia in achieving its target.

63. Slovenia's total GHG emissions related to its quantified economy-wide emission reduction target were estimated to be 10.9 per cent below the 1990 level, whereas total GHG emissions including LULUCF are 32.8 per cent below the 1990 level for 2014. The key driver for the emission trend is the economic development that in turn relates to the political and economic transformation associated with Slovenia's independence, which was intensified by the loss of the former Yugoslav markets. Economic conditions improved, but the 2008 global economic crisis led to a stagnation in the Slovenian economy.

64. Under the Convention, Slovenia 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 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.

65. Under the ESD, Slovenia has a target to limit the emission growth to 4.0 per cent above the 2005 level by 2020. Slovenia's AEAs, which correspond to its national emission target for non-ETS sectors, change linearly from 12,324 kt CO_2 eq in 2013 to 12,533 kt CO_2 eq in 2020.

66. Slovenia's main policy framework relating to energy and climate change is the OP GHG-2020. Key legislation supporting Slovenia's climate change goals includes the EU ETS, the EU renewable energy directive, the EU energy efficiency directive and the EU clean vehicles directive. The mitigation actions with the most significant mitigation impact are the technological modernization of thermal power plants, the promotion of energy efficiency and RES in buildings in general, the promotion of the use of biofuels and the promotion of vehicle and driving efficiency and vehicle occupancy in passenger cars.

67. For 2013, Slovenia reported in CTF table 4 total GHG emissions at 18,165.82 kt CO_2 eq. It also reported that it does not plan to use units from the Kyoto Protocol mechanisms and plans to fulfil all of its commitments by 2020 by implementing domestic measures.

68. The ERT noted that Slovenia is making progress towards its emission reduction target by implementing mitigation actions that deliver some emission reductions. The GHG emission projections provided by Slovenia in its BR2 include the WEM scenario. Under this scenario, emissions are projected to be 2.0 and 8.4 per cent below the 1990 level in 2020 and 2030, respectively. According to the projections under the WEM scenario,

emissions from non-ETS sectors are estimated to reach 11,033 kt CO_2 eq by 2020. The projected level of emissions under the WEM scenario is 12.0 per cent below the AEAs allocated for 2020. The ERT noted that this suggests that Slovenia expects to meet the ESD target under the WEM scenario.

69. Slovenia provided support for mitigation and adaptation through multilateral financial institutions and bilateral agreements. The financial support provided through multilateral channels was given to the Global Environment Facility and the World Bank as grants for cross-cutting activities. Bilateral support was provided in the form of grants, mainly to Bosnia and Herzegovina, Montenegro, Serbia and the western Balkans as development assistance for mitigation and adaptation.

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

(a) Improve the completeness of its reporting by reporting projections for the LULUCF sector (see para. 43 above);

(b) Improve the transparency of its reporting by:

(i) Providing information in the textual portion of the BR that is consistent with that provided in CTF table 2(b) on the description of the target under the Convention, in particular on the sectors covered (see para. 12 above);

(ii) Reporting all relevant information in CTF table 2(e)I or providing explanations for not reporting in the footnote to the CTF table (see para. 15 above);

(iii) Filling in all relevant parts of CTF table 4 in accordance with the assumptions related to the target (see para. 37 above);

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

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

Annex

Documents and information used during the review

A. Reference documents

"UNFCCC biennial reporting guidelines for developed country Parties". Annex I 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 I 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/2014/SVN. Report on the individual review of the annual submission of Slovenia submitted in 2014. Available at <http://unfccc.int/resource/docs/2015/arr/svn.pdf>.

FCCC/IDR.6/SVN. Report of the technical review of the sixth national communication of Slovenia. Available at <http://unfccc.int/resource/docs/2015/idr/svn06.pdf>.

FCCC/TRR.1/SVN. Report of the technical review of the first biennial report of Slovenia. Available at <http://unfccc.int/resource/docs/2015/trr/svn01.pdf>.

2016 greenhouse gas inventory submission of Slovenia. Available at <http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/9492.php>.

Sixth national communication of Slovenia. Available at <http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/6nc-si_en_v.2.pdf>.

First biennial report of Slovenia. Available at <http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/6nc-si_en_v.2.pdf>.

Common tabular format tables of the first biennial report of Slovenia. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/svn_2014_v3.0.pdf>.

Second biennial report of Slovenia. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/br2_2016_slovenija_-_textual_part.pdf>.

Common tabular format tables of the second biennial report of Slovenia. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/svn_2016_v1_0_formatted.pdf>.

B. Additional information used during the review

Responses to questions during the review were received from Ms. Zorana Komar and Mr. Zoran Kus (Ministry of the Environment and Spatial Planning of Slovenia).