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

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 Bulgaria, 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 Bulgaria. 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 Bulgaria, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

2. The review took place from 14 to 19 March 2016 in Bonn, Germany, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: Mr. Tom Dauwe (Belgium), Mr. Raúl J. Garrido Vázquez (Cuba), Ms. Patricia Grobбен (Belgium), Mr. Bernard Hyde (Ireland), Mr. Mwangi Kinyanjui (Kenya), Mr. Giorgi Machavariani (Georgia), Mr. Naoki Matsuo (Japan), Mr. Mark Molnar (Hungary), Mr. Marius Țăranu (Republic of Moldova) and Mr. Shengmin Yu (China). Ms. Grobбен and Mr. Țăranu were the lead reviewers. The review was coordinated by Mr. Bernd Hackmann and Ms. Sylvie Marchand (UNFCCC secretariat).

B. Summary

3. The expert review team (ERT) conducted a technical review of the information reported in the BR2 of Bulgaria 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, Bulgaria provided additional relevant information on: the quantified economy-wide emission reduction target; mitigation actions and their effects; and greenhouse gas (GHG) emission projections.

1. Timeliness

4. The BR2 was submitted on 29 December 2015, before the deadline of 1 January 2016 mandated by decision 2/CP.17. The common tabular format (CTF) tables were also submitted on 29 December 2015.

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 Bulgaria 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 Bulgaria

<i>Section of the biennial report</i>	<i>Completeness</i>	<i>Transparency</i>	<i>Paragraphs with recommendations</i>
Greenhouse gas emissions and trends	Complete	Mostly transparent	7, 8
Assumptions, conditions and methodologies related to the attainment of the quantified economy-wide emission reduction target	Complete	Mostly transparent	14, 15
Progress in achievement of targets	Mostly complete	Partially transparent	21, 22, 23, 24, 26, 36, 37, 42, 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 Bulgaria 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. Bulgaria has provided a summary of information on GHG emission trends for the period 1988–2013 in its BR2 and CTF tables 1(a)–(d). The information presented in the BR2 and CTF table 1 is consistent with the information reported in the 2015 national GHG inventory submission. The BR2 makes reference to the national inventory arrangements, which are explained in more detail in the national inventory report included in Bulgaria’s 2015 annual inventory submission (in chapter 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.

7. However, the ERT noted that GHG emission data related to the quantified economy-wide emission reduction target reported by Bulgaria for the base year are not in line with the joint European Union (EU) target, which uses 1990 as the base year (see also para. 14 below). During the review, Bulgaria confirmed that 1990 should be the base year for all gases in line with the joint EU target. In order to enhance the transparency of its reporting, the ERT reiterates the recommendation that Bulgaria report, in its next BR and in CTF tables 1, GHG emissions related to the quantified economy-wide emission reduction target for the base year in line with the joint EU target.

8. Bulgaria described its national inventory arrangements in its BR2 but did not include the information required by the UNFCCC reporting guidelines on BRs on changes in the national inventory arrangements since the last national communication or biennial report

(BR). During the review, Bulgaria confirmed that there have been no changes in these arrangements. In order to enhance transparency, the ERT recommends that Bulgaria explicitly state in its next BR whether changes have or have not occurred in the national arrangements since the previous national communication or BR.

9. Total GHG emissions² excluding emissions and removals from land use, land-use change and forestry (LULUCF) decreased by 48.4 per cent between 1990 and 2013, whereas total GHG emissions including net emissions and removals from LULUCF decreased by 50.6 per cent over the same period. The decrease in the total GHG emissions can be attributed mainly to carbon dioxide (CO₂) emissions, which decreased by 46.7 per cent (excluding LULUCF) between 1990 and 2013. Over the same period, emissions of methane (CH₄) decreased by 56.7 per cent, while emissions of nitrous oxide (N₂O) decreased by 55.9 per cent. The combined fluorinated gases, such as perfluorocarbons (PFCs), hydrofluorocarbons (HFCs) and sulphur hexafluoride (SF₆), increased by 24,754.9 per cent over the same period, starting from a very small amount.

10. The emission trends were driven mainly by the structural economic changes resulting from the radical transition process from a centrally planned economy to a market-based economy. This process caused a transitory decrease in economic activity (1990–1999) and in power production, followed by an increase in economic activity (2000–2013) and an increased share of renewable energy, including hydropower in total power production. The transition process also affected the structure of the industry sector, as it led to a significant reduction in production of energy-intensive enterprises.

11. The ERT noted that, during the period 1990–2013, Bulgaria’s gross domestic product (GDP) per capita increased by 72.6 per cent, while GHG emissions per GDP unit and GHG emissions per capita decreased by 64.1 and 38.1 per cent, respectively. Table 2 below illustrates the emission trends by sector and some of the economic indicators relevant to GHG emissions for Bulgaria.

12. The ERT reiterates the view from the previous review report that the separation of the total GHG emissions from sources included in the European Union Emissions Trading System (EU ETS) and sources not included in the EU ETS (non-ETS sources) would further increase the usefulness of the information presented on GHG emissions and removals.

Table 2

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

Sector	GHG emissions (kt CO ₂ eq)					Change (%)		Share by sector (%)	
	1990	2000	2010	2012	2013	1990–2013	2012–2013	1990	2013
1. Energy	75 111.91	41 933.60	46 500.47	46 829.04	41 122.51	–45.3	–12.2	69.3	73.6
A1. Energy industries	38 813.09	24 133.77	31 638.28	31 628.71	27 390.27	–29.4	–13.4	35.8	49.0
A2. Manufacturing industries and construction	19 161.43	8 207.14	3 703.15	3 202.11	3 185.89	–83.4	–0.5	17.7	5.7
A3. Transport	6 782.67	5 696.85	7 972.78	8 450.31	7 433.30	9.6	–12.0	6.3	13.3

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 2015 inventory submission, version 1.

Sector	GHG emissions (kt CO ₂ eq)					Change (%)		Share by sector (%)	
	1990	2000	2010	2012	2013	1990–2013	2012–2013	1990	2013
	A4.–A5. Other	8 137.87	2 579.08	2 112.52	2 359.66	2 081.61	-74.4	-11.8	7.5
B. Fugitive emissions from fuels	2 216.85	1 316.75	1 073.74	1 188.26	1 031.45	-53.5	-13.2	2.0	1.8
C. CO ₂ transport and storage	NO	NO	NO	NO	NO	NA	NA	NA	NA
2. IPPU	10 114.20	6 602.89	3 941.32	4 297.65	4 324.51	-57.2	0.6	9.3	7.7
3. Agriculture	15 995.79	5 676.29	5 546.65	5 593.39	5 939.35	-62.9	6.2	14.8	10.6
4. LULUCF	-14 141.41	-9 859.27	-8 702.29	-9 100.71	-9 303.42	-34.2	2.2	NA	NA
5. Waste	7 143.24	5 433.39	4 584.92	4 472.10	4 506.85	-36.9	0.8	6.6	8.1
6. Other	NO	NO	NO	NO	NO	NA	NA	NA	NA
Total GHG emissions without LULUCF	108 365.14	59 646.17	60 573.36	61 192.18	55 893.22	-48.4	-8.7	100.0	100.0
Total GHG emissions with LULUCF	94 223.73	49 786.90	51 871.07	52 091.47	46 589.80	-50.6	-10.6	NA	NA
<i>Indicators</i>									
GDP per capita (thousands 2011 USD using PPP)	9.28	8.95	15.26	15.73	16.02	72.6	1.8		
GHG emissions without LULUCF per capita (t CO ₂ eq)	12.43	7.30	8.19	8.38	7.69	-38.1	-8.1		
GHG emissions without LULUCF per GDP unit (kg CO ₂ eq per 2011 USD using PPP)	1.34	0.82	0.54	0.53	0.48	-64.1	-9.8		

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

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

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

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

13. In its BR2 and CTF tables 2(a)–(f), Bulgaria reported a description of its target, including associated conditions and assumptions. CTF tables 2(a)–(f) contain the required information in relation to the description of the Party's emission reduction target, such as the base year, gases, sectors covered and global warming potential (GWP) values. Further information on the target and the assumptions, conditions and methodologies related to the target is provided in chapter 3 of the BR2 and in this report (see para. 17 below).

14. The ERT noted that the information on the base years for the gases covered, as provided in CTF table 2(b) (1988 and 1995), is not in line with the base year of the joint EU target (1990). In the same table and in CTF table 2(d), Bulgaria indicated that the LULUCF

sector is included in the quantified economy-wide emission reduction target, while this is not the case for the joint EU target. During the review, Bulgaria confirmed that 1990 should be the base year for all gases and that the LULUCF sector is not covered by the joint EU target. In order to enhance the transparency of its reporting, the ERT reiterates the recommendation that Bulgaria report, in CTF table 2(b) of its next BR, information on the base years and sectors covered in line with the joint EU target.

15. In CTF table 2(e)I, Bulgaria filled in the column “Possible scale of contribution” using the abbreviation “NE”, but did not explain the use of this abbreviation (the use of notation keys, as is the case in GHG emissions inventories, is not covered by the UNFCCC reporting guidelines on BRs). During the review, Bulgaria informed the ERT that it does not plan to use units from the market-based mechanisms under the Convention. In order to enhance transparency, the ERT reiterates the recommendation that Bulgaria specifically state in its next BR and in CTF table 2 whether it plans to use units from the market-based mechanisms in contributing to the achievement of the joint EU target under the Convention and that it fully explain the rationale behind the use of any abbreviation in a footnote.

16. For Bulgaria, the Convention entered into force on 10 August 1995. Under the Convention, Bulgaria 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 CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ using GWP values from the Intergovernmental Panel on Climate Change 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 effort-sharing decision (ESD) (see chapter II.C.1 below). Further information on this package is provided in chapter 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.

19. Under the ESD, Bulgaria has a target to limit its emission growth to 20 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. For Bulgaria, the AEAs change following a linear path from 26,930 kt of carbon dioxide equivalent (CO₂ eq) in 2013 to 28,800 kt CO₂ eq in 2020.³ The ERT noted that the text of the description of the

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

target provided by Bulgaria in its BR2 could be interpreted as Bulgaria having an emission reduction target, rather than a target for limiting emission growth to a maximum of 20 per cent above the 2005 level by 2020.⁴

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

20. This chapter provides information on the review of the reporting by Bulgaria 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

21. In its BR2 and CTF table 3, Bulgaria reported on its progress in the achievement of its target and the mitigation actions implemented and adopted since its sixth national communication (NC6) and first biennial report (BR1) to achieve its target. The BR2 includes information on mitigation actions organized by sector and by gas. The BR2 describes the Party's policies, action plans and legal acts, while CTF table 3, which is also provided in the BR2, lists specific mitigation actions. The link between the action plans and the mitigation actions is not clearly explained. During the review, Bulgaria provided the ERT with an overview of how the mitigation actions relate to its overall policies, action plans and legal acts for each specific sector. In order to enhance the transparency of its reporting, the ERT recommends that Bulgaria specify in its next BR how each mitigation action included in CTF table 3 relates to the textual information reported in the BR on its policies, action plans and legal acts, and include a textual description of its mitigation actions. Further information on the mitigation actions related to the Party's target is provided in chapter 4 of the BR2 and in this report (see para. 29 below).

22. The BR2 and CTF table 3 include information on the policies and measures (PaMs) for the LULUCF sector, but since this sector is not included in the joint EU quantified economy-wide emission reduction target, the ERT considers that for these mitigation actions, there should be a clear indication that their effect does not count towards the achievement of the joint EU target. Therefore, the ERT recommends, with a view to enhancing transparency, that for the mitigation actions for the LULUCF sector included in CTF table 3, Bulgaria indicate in a footnote, in its next BR, that the effect of these actions does not count towards the achievement of the joint EU target.

23. CTF table 3 includes quantitative estimates of the mitigation impact for all the mitigation actions reported but does not indicate for which year the mitigation impact is estimated. During the review, Bulgaria clarified that the estimates of the GHG emission savings of its mitigation actions are calculated for 2020. To increase transparency, the ERT recommends that Bulgaria specify, in its next BR, the year for which the mitigation impacts have been estimated.

24. The ERT also noted that some of the estimated mitigation impacts are very high compared with Bulgaria's overall emissions. During the review, Bulgaria clarified that the estimates for these mitigation impacts are the cumulative impacts of the mitigation actions up to 2020. The heading of the relevant column in CTF table 3 specifies explicitly that the estimates shall not be cumulative; the ERT therefore considers that Bulgaria did not report

for the period from 2013 to 2020 pursuant to Decision No. 406/2009/EC of the European Parliament and of the Council".

⁴ On page 17 of the BR2, Bulgaria states: "Thus, under the ESD, Bulgaria has a reduction target of not exceeding 20 per cent by 2020 compared with 2005 for emissions from sectors not covered by the EU ETS."

these GHG emission savings according to the UNFCCC reporting guidelines on BRs. During the review, Bulgaria provided the ERT with the non-cumulative GHG emission savings estimates for 2020. To enhance transparency, the ERT recommends that Bulgaria provide non-cumulative estimated GHG emission savings in its next BR.

25. Lastly, the ERT noted that in a few instances in table 4.2 of its BR2 on PaMs, Bulgaria does not consistently use the same number format for reporting on mitigation impacts, and uses a comma for marking decimals (instead of a point), which is normally used for marking thousands. This information is reported using the same format in CTF table 3. The ERT suggests that, in its next BR, Bulgaria present the impact of mitigation actions using the appropriate decimal notation. Based on the above findings, the ERT considers that the implementation of enhanced quality assurance/quality control procedures for the information reported would enhance the Party's reporting.

26. In its BR2, Bulgaria did not highlight the changes made since the publication of its NC6 and BR1 in its domestic institutional arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress made towards its target. During the review, Bulgaria provided an overview of the national system for reporting on PaMs and projections, and on a mechanism for monitoring and reporting GHG emissions and for reporting other information at the national and EU levels. Bulgaria also confirmed that no changes were made in its domestic institutional arrangements in relation to climate change. The ERT recommends that Bulgaria include, in its next BR, information on changes, or absence thereof, in its domestic institutional arrangements for domestic compliance, monitoring, reporting and archiving of information and evaluation of the progress made towards its target.

27. The UNFCCC reporting guidelines on BRs encourage Parties included in Annex I to the Convention to provide, to the extent possible, detailed information on the assessment of the economic and social consequences of response measures. Bulgaria's BR2 does not include such information. During the review, Bulgaria provided information on the economic impacts of its mitigation actions and recognized that information on social impacts was not available. The ERT reiterates the encouragement made in the previous review report that Bulgaria include detailed information on the assessment of the economic and social consequences of response measures in its next BR.

28. Bulgaria did not provide information 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 local action against domestic non-compliance with emission reduction targets. During the review, Bulgaria provided the ERT with the list of legal acts that relate to the process of self-monitoring and evaluation of the progress made towards the emission reduction targets, and the national rules for taking local action against domestic non-compliance. The ERT encourages Bulgaria to report, to the extent possible, on the domestic arrangements established for the process of the self-assessment of compliance with emission reductions in comparison with emission reduction commitments or the level of emission reduction that is required by science. The ERT also encourages Bulgaria to report, to the extent possible, on the progress made in the establishment of national rules for taking local action against domestic non-compliance with emission reduction targets.

29. The key overarching cross-sectoral policy for Bulgaria is the EU 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 CO₂ emissions from cars and vans, the carbon capture and storage directive, and the general programmes for environmental conservation, namely the 7th Environment Action Programme and the Clean Air Policy Package (see table 3 below).

30. In operation since 2005, the EU ETS is a cap-and-trade system that covers all significant energy-intensive installations (mainly large point emissions sources such as power plants and industrial facilities), which produce 40–45 per cent of the GHG emissions of the EU. It is expected that the EU ETS will guarantee that the 2020 target (a 21 per cent emission reduction below the 2005 level) will be achieved for sectors under the scheme. The third phase of the EU ETS started in 2013 and the system now includes aircraft operations (since 2012) as well as N₂O emissions from chemical industries, PFC emissions from aluminium production and CO₂ emissions from industrial processes (since 2013).

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

32. At the national level, Bulgaria introduced policies to achieve its targets under the ESD. The key policies reported in the BR2 that guide Bulgaria’s climate action are: the Climate Change Mitigation Act; the Third National Climate Change Action Plan (2013–2020), defining specific measures for the reduction of GHG emissions across all sectors; the Energy Efficiency Act; and the Energy Efficiency Action Plan. The estimates of the annual mitigation impact (GHG emission savings) of specific mitigation actions in the energy sector for 2020, such as fuel shift from coal to natural gas (1,462 kt CO₂ eq) and the improvement of production efficiency in existing coal-fired power plants (585 kt CO₂ eq), are the most significant. Other policies that are expected to deliver significant GHG emission savings are related to the waste sector, such as the construction of installations for the mechanical and biological treatment of waste and the construction of installations for the treatment and recovery of compost and biogas (728 kt CO₂ eq GHG emission savings in 2020), capture and burning of biogas in all new and existing regional landfills (634 kt CO₂ eq GHG emission savings in 2020) and the use of biomass in the combustion units of installations (554 kt CO₂ eq GHG emission savings in 2020).

33. During the review, Bulgaria indicated that performance indicators had been set relating to the calculation of the expected impacts of its policies and mitigation actions, as well as target values by year, as reported in its Third National Climate Change Action Plan, which describes the policies, their impacts and the projections in detail. The ERT considers that the transparency of the information reported by Bulgaria could be improved by providing this additional information or references related to the methodologies used for the estimation of the GHG emission savings of its mitigation actions.

34. Table 3 below provides a summary of the key mitigation actions and estimates of their mitigation impacts reported by Bulgaria to achieve its target in 2020.

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

<i>Sector affected</i>	<i>List of key mitigation actions</i>	<i>Estimate of mitigation impact in 2020 (kt CO₂ eq)</i>
Policy framework and cross-sectoral measures	European Union Emissions Trading System	NE
	Third National Climate Change Action Plan (2013–2020) measures	NE

<i>Sector affected</i>	<i>List of key mitigation actions</i>	<i>Estimate of mitigation impact in 2020 (kt CO₂ eq)</i>
	Climate Change Mitigation Act	NE
Energy, including:		
Energy efficiency	Energy Efficiency Act and Energy Efficiency Action Plan	
	Fuel shift from coal to natural gas fired power plants	1 462
	Improvement of production efficiency in existing coal-fired power plants	585
	Implementation of the measures in the programme for accelerated gasification in Bulgaria	310
	Increasing high-efficiency combined production	200
Renewable energy	Renewable Energy Act and National Action Plan for Renewable Energy	
	Use of biomass in the combustion units of installations	554
Transport	Promotion of sustainable urban mobility (Third National Climate Change Action Plan), including:	
	Introduction of intelligent transport systems along the national and urban road networks	145
	Development and promotion of cycling	127
	Increasing the share of public electrical transport, including railway, trolley, tram and metro	142
Waste	Landfill tax	
	Capture and burning of biogas in all new and existing regional landfills	634
	National Waste Management Plan 2014–2020	
	Introduction of anaerobic stabilization of sludge with management capture and burning of biogas in new plants and plants under reconstruction for 20 000 residents	128
	National Waste Management Programme	
	Construction of installations for mechanical and biological treatment of waste and installations for treatment and recovery of compost and biogas	728

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.

Abbreviation: NE = not estimated.

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. Bulgaria reported in CTF table 4 its total emissions excluding LULUCF for the reported years.

36. The BR2 does not include a section with textual information on progress made towards the target, including on the use of units from market-based mechanisms. Elements of information are included in the chapters on mitigation actions and projections. Also, in CTF table 4, all cells other than those for GHG emissions were filled in with the abbreviation “NA” and CTF tables 4(a)I, 4(a)II and 4(b) were left empty with no explanation for doing so. During the review, Bulgaria clarified that it will not make use of units from market-based mechanisms and reconfirmed that the LULUCF sector is excluded from the joint EU target. To enhance the completeness of its reporting, the ERT recommends that Bulgaria report in its next BR a section with textual information on the progress made towards the emission reduction target including information on the use of units from market-based mechanisms. In addition, to enhance the transparency of its reporting, the ERT recommends that Bulgaria provide, in the custom footnotes to CTF table 4, an explanation for any abbreviation used, to the effect that the Party does not plan to use units from market-based mechanisms, or units from LULUCF activities, since the LULUCF sector is not included in the joint EU target.

37. The ERT also noted that, as is the case for CTF tables 1 and 2, the GHG emission data for the base year provided in CTF table 4 are not in line with the base year of the joint EU target (1990) and reiterates the recommendation (see paras. 7 and 14 above) that Bulgaria report in its next BR the correct GHG emission data for the base year, in line with the joint EU target.

38. On the basis of the information provided in CTF table 4, annual total GHG emissions excluding LULUCF were 55,893.22 kt CO₂ eq, or 48.4 per cent below the 1990 base year level. In 2013, emissions from the non-ETS sectors relating to the target under the ESD were 23,170 kt CO₂ eq. Table 4 below illustrates Bulgaria’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 Bulgaria towards the achievement of its target

<i>Year</i>	<i>Emissions excluding LULUCF (kt CO₂ eq)</i>	<i>Contribution from LULUCF (kt CO₂ eq)^a</i>	<i>Emissions including contribution from LULUCF (kt CO₂ eq)</i>	<i>Use of units from market-based mechanisms (kt CO₂ eq)^b</i>
1990	108 365.14	NA	NA	NA
2010	60 573.36	NA	NA	NA
2011	66 207.98	NA	NA	NA
2012	61 192.18	NA	NA	NA
2013	55 893.22	NA	NA	NA

Sources: Bulgaria’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.

^b Bulgaria does not plan to use units from market-based mechanisms.

39. To assess the progress towards the achievement of the 2020 target, the ERT noted that Bulgaria’s emission limitation target from sectors not covered by the EU ETS under the ESD is a maximum 20 per cent increase above the 2005 level (see para. 19 above). As

discussed in chapter II.B above, in 2013 Bulgaria's emissions from the sectors not covered by the EU ETS were 23,170 kt CO₂ eq, or 14 per cent (3,760 kt CO₂ eq) below the AEAs under the ESD for that year.

40. The ERT noted that Bulgaria is progressing in line with its emission limitation target by implementing mitigation actions mainly in the energy and waste sectors (see table 3 above).

3. Projections

41. Bulgaria reported in its BR2 and CTF table 6(a) updated projections for 2020 and 2030 under the 'with measures' (WEM) scenario. Projections are presented on a sectoral basis, using the same sectoral categories as used in the section on mitigation actions, and on a gas-by-gas basis for the following GHGs: CO₂, CH₄, N₂O, PFCs, HFCs and SF₆ (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 AR4. Bulgaria reported on factors and activities influencing emissions for each sector. Further information on the projections is provided in chapter 5 of the BR2.

42. In the BR2 and CTF table 6(a), emission projections related to fuel sold to ships and aircraft engaged in international transport were not reported separately from the projected emission totals. During the review, Bulgaria provided the ERT with projected emissions from fuel sold to ships and aircraft engaged in international transport. The ERT recommends that Bulgaria report, to the extent possible, projected emissions related to fuel sold to ships and aircraft engaged in international transport separately from the projected total emissions in its next BR.

43. Also, the ERT noted that the BR2 mentions that the WEM scenario includes all implemented, adopted and planned measures, which is not in accordance with the UNFCCC reporting guidelines on BRs or 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), which require that a WEM scenario includes implemented and adopted measures only. During the review, Bulgaria informed the ERT that there was an error in the text of the BR2 and that planned measures had not actually been included in the WEM scenario, as also stated in chapter 4 of the BR2 on mitigation actions, as Bulgaria did not report any planned measures in its BR2. The ERT recommends that Bulgaria enhance the transparency of its reporting and accurately report, in the next BR, which measures (i.e. adopted, planned or implemented) are included in each reported scenario.

44. The BR2 and CTF tables 6(b) and 6(c) do not include a 'without measures' (WOM) (baseline scenario) or a 'with additional measures' (WAM) scenario. During the review, Bulgaria informed the ERT that a WAM scenario is presented in the Third National Climate Change Action Plan for the period 2013–2020 and that the Party expects to achieve its emission limitation target based on the measures included in the WEM scenario only. The ERT encourages Bulgaria to provide a WOM scenario and/or a WAM scenario in its next BR.

45. Bulgaria did not provide a description of the models and approaches used in the projections or information on the changes since the submission of its NC6/BR1. During the review, Bulgaria clarified that information on the models, approaches and methodologies used in the emission projections is included in its Third National Climate Change Action Plan for the period 2013–2020 and in the NC6, and provided the list of reference documents for the assumptions used in the projections. With a view to increasing the transparency of the reporting on projections, the ERT encourages Bulgaria to provide detailed information on the models, methodologies and approaches used in the projections,

and their associated strengths and weaknesses, as well as on any changes, or the absence thereof, compared to previous reports to enable the reader to obtain a basic understanding of the models and/or approaches used.

46. In its BR2, Bulgaria has not provided information on the sensitivity analysis of the underlying assumptions used in the emission projections. In accordance with the UNFCCC reporting guidelines on NCs, this information should be reported. The ERT encourages Bulgaria to include a sensitivity analysis in its next BR and discuss qualitatively and, where possible, quantitatively the sensitivity of the projections to the underlying assumptions.

47. In CTF table 5, Bulgaria has provided a summary of information on the key variables and assumptions used in the projections. According to the footnote to CTF table 5, Parties should include the historical data used to develop the GHG emission projections reported. In CTF table 5, there are some missing values for the historical data on the variables reported by Bulgaria. The ERT encourages Bulgaria to present, where possible, historical information with respect to the key variables and assumptions used in the projections in CTF table 5 to increase transparency.

Overview of projection scenarios

48. The WEM scenario used by Bulgaria includes implemented and adopted PaMs up to 2014, in contrast to the incorrect definition reported by Bulgaria on its WEM scenario in chapter 5 of its BR2 on projections (see para. 43 above). This indicates that the WEM scenario has been prepared according to the UNFCCC reporting guidelines on NCs.

Methodology and changes since the previous submission

49. During the review, Bulgaria explained that the methodology used in the BR2 is identical to that used for the preparation of the emission projections for the NC6/BR1 (see para. 45 above).

50. To prepare its projections, Bulgaria relied on the following key underlying assumptions: GDP growth trend, population growth trend and oil and coal international prices, as reported in CTF table 5. These assumptions have been updated on the basis of the most recent economic developments known at the time of the reporting on projections. Bulgaria used different sources for the projections of underlying variables. For instance, for the GDP growth rate forecast, Bulgaria used internal data sources, such as projections calculated by the Ministry of Finance. With respect to the assumptions for energy prices, Bulgaria used national energy balance forecasts and the European Commission's database for international energy prices. The main results of the analysis of projections are as follows: GDP will grow by approximately 1.1 per cent in the period 2015–2030; the population will decrease from 7.17 million to 6.55 million (–8.6 per cent) over the same time period; and prices of oil, coal and gas will gradually increase.

Results of projections

51. Bulgaria's total GHG emissions excluding LULUCF in 2020 and 2030 are projected to be 60,179.30 and 57,170.88 kt CO₂ eq, respectively, under the WEM scenario, which represents a decrease of 44.5 and 47.2 per cent, respectively, below the 1990 level. Total emissions are projected to decrease by 6.1 and 10.8 per cent in 2020 and 2030, respectively, below the 2005 level. The 2020 projections suggest that Bulgaria will continue contributing to the achievement of the EU target under the Convention (see para. 16 above). The ERT noted that the reporting of projected emissions for the EU ETS and non-ETS sectors separately would increase transparency and would facilitate the assessment by the ERT of Bulgaria's progress towards its emission limitation target.

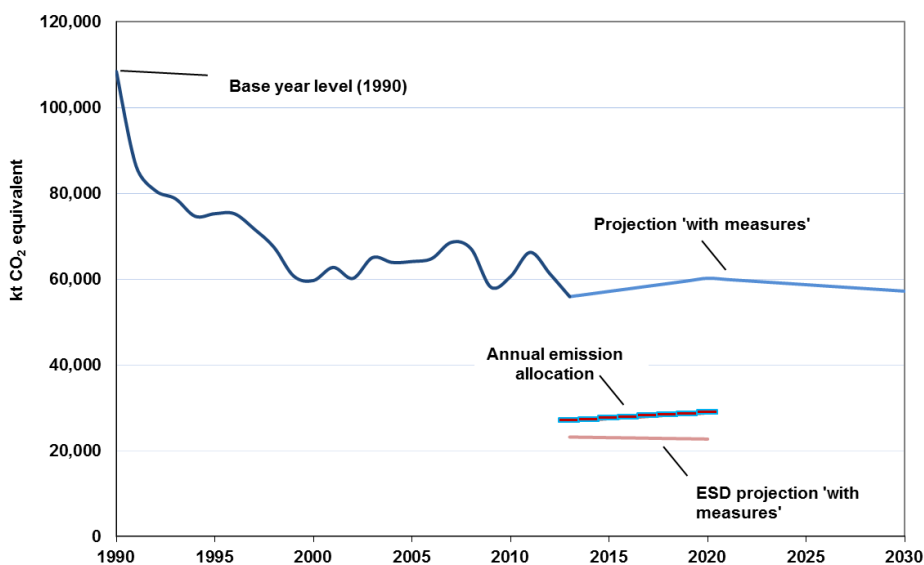
52. According to the projections presented by sector, the most significant GHG emission reductions under the WEM scenario from 1990 to 2020 are expected to occur in the energy sector (29,408.55 kt CO₂ eq, or 39.2 per cent), followed by the agriculture sector (9,646.11 kt CO₂ eq, or 60.3 per cent) and the industrial processes sector (5,849.91 kt CO₂ eq, or 57.8 per cent). GHG emissions from the transport subsector are projected to increase by 321.76 kt CO₂ eq (4.7 per cent) above the 1990 level by 2020.

53. Bulgaria also provided GHG projections for 2030. According to the projections presented by sector, the most significant GHG emission reductions under the WEM scenario from 1990 to 2030 will continue to occur in the energy sector (32,791.42 kt CO₂ eq, or 43.7 per cent), followed by the agriculture sector (8,798.87 kt CO₂ eq, or 55.5 per cent) and the industrial processes sector (5,901.28 kt CO₂ eq, or 58.3 per cent). In contrast to the trend for 2020, GHG emissions from the transport subsector are projected to decrease by 544.17 kt CO₂ eq (8.0 per cent) below the 1990 level by 2030. The ERT notes that the decrease in emissions in the transport subsector by 2030 relies on the assumptions that GDP growth will drop from 1.4 to 1.1 per cent, the population will decrease from 6.97 to 6.55 million, and the international price of oil will increase from USD 88.5 to USD 93.1 per barrel between 2020 and 2030.

54. According to the projections presented by gas, reductions in CO₂ emissions are expected to contribute the most to the Party's overall emission reductions. Under the WEM scenario, reductions in CO₂ emissions will make up approximately 67.5 per cent of the aggregate GHG emission reductions below the 1990 level (33,274.84 kt CO₂ eq) by 2020, followed by CH₄ with 22.1 per cent (10,915.29 kt CO₂ eq) and N₂O with 11.9 per cent (5,876.77 kt CO₂ eq). The projections presented by gas for 2030 follow a similar pattern as for 2020.

55. The projected emission levels under the WEM scenario, the AEAs and the expected GHG emissions for the non-ETS sectors⁵ are presented in the figure below.

Greenhouse gas emission projections by Bulgaria



⁵ European Environment Agency. 2015. *Trends and Projections in Europe 2015 – Tracking Progress towards Europe's Climate and Energy Targets*. See <<http://www.eea.europa.eu/publications/trends-and-projections-in-europe-2015>>.

Sources: (1) Data for the years 1990–2013: Bulgaria’s 2015 annual inventory submission, version 1; total GHG emissions excluding land use, land-use change and forestry; (2) Data for the years 2014–2030: Bulgaria’s second biennial report; total GHG emissions excluding land use, land-use change and forestry; (3) Data for the annual emission allocations and ESD projection ‘with measures’: European Environment Agency. 2015. *Trends and Projections in Europe 2015 – Tracking Progress towards Europe’s Climate and Energy Targets*. Available at <<http://www.eea.europa.eu/publications/trends-and-projections-in-europe-2015>>.

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

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

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

57. In its BR2, Bulgaria stated that the national road map for participation in international development assistance delineates the States situated near to Bulgaria (Armenia, Georgia, Kosovo, the Republic of Moldova, Serbia and the former Yugoslav Republic of Macedonia) as the most appropriate beneficiaries for current and future financial, technological and capacity-building support.

III. Conclusions

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

59. Bulgaria’s total GHG emissions excluding LULUCF related to its quantified economy-wide emission reduction target were estimated to be 48.4 per cent below its 1990 level, whereas total GHG emissions including LULUCF are 50.6 per cent below its 1990 level. The emission decrease was driven mainly by the structural economic changes resulting from the radical transition process from a centrally planned economy to a market-based economy. This process caused a decrease in power production and an increase in the share of hydropower in total power production. The transition process also affected the structure of the industry sector, as it led to a significant reduction in the production of energy-intensive enterprises.

60. Under the Convention, Bulgaria 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 CO₂, CH₄, N₂O, HFCs, PFCs and SF₆, 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 and the EU does not plan to make use of market-based mechanisms to achieve the target, although companies can make use of such mechanisms to fulfil their requirements under the EU ETS.

61. Under the ESD, Bulgaria has a target to limit the emission growth to 20 per cent above the 2005 level by 2020. For Bulgaria, the AEAs reflecting its national emission target for non-ETS sectors change linearly from 26,930 kt CO₂ eq in 2013 to 28,800 kt CO₂ eq in 2020. Bulgaria is progressing in line with its emission limitation target by implementing mitigation actions in the energy and waste sectors.

62. Bulgaria's main policies relating to energy and climate change are: the Climate Change Mitigation Act; the Third National Climate Change Action Plan (2013–2020), defining specific measures for the reduction of GHG emissions across all sectors; the Energy Efficiency Act; and the Energy Efficiency Action Plan. The mitigation actions with the most significant mitigation impact are those related to the energy and waste sectors.

63. For 2013, Bulgaria reported in CTF table 4 total GHG emissions excluding LULUCF at 55,893.22 kt CO₂ eq, or 48.4 per cent below the 1990 base year level. In 2013, emissions from the non-ETS sectors relating to the target under the ESD were 23,170 kt CO₂ eq, or 14 per cent below Bulgaria's 2013 AEA under the ESD. Bulgaria reported that it does not plan to use units from market-based mechanisms to achieve its target.

64. The GHG emission projections provided by Bulgaria in its BR2 include those for the WEM scenario. Under this scenario, emissions are projected to be 44.5 and 47.2 per cent below the 1990 level in 2020 and 2030, respectively. Total GHG emissions are projected to decrease by 6.1 and 10.8 per cent below the 2005 level in 2020 and 2030, respectively. Based on this information, the ERT concluded that Bulgaria will continue contributing to the achievement of the joint EU 2020 target under the WEM scenario.

65. In the course of the review, the ERT formulated the following recommendations for Bulgaria to improve its adherence to the UNFCCC reporting guidelines on BRs in its next BR:⁶

- (a) Improve the completeness of its reporting by:
 - (i) Reporting in its BR a section with textual information on progress made towards the target, including information on the use of units from market-based mechanisms (see para. 36 above);
 - (ii) Reporting, to the extent possible, emissions related to fuel sold to ships and aircraft engaged in international transport separately from the projected total emissions (see para. 42 above);
- (b) Improve the transparency of its reporting by:
 - (i) Reporting in CTF table 1 GHG emissions related to the quantified economy-wide emission reduction target for the base year in line with the joint EU target (see para. 7 above);
 - (ii) Explicitly stating whether changes have or have not occurred in the national inventory arrangements since the previous national communication or BR (see para. 8 above);
 - (iii) Reporting in CTF table 2(b) information on the base years and sectors covered in relation to its target in line with the joint EU target (see para. 14 above);
 - (iv) Stating specifically whether it plans to use units from the market-based mechanisms in contributing to the achievement of the joint EU target under the Convention and by fully explaining the rationale behind the use of any abbreviation in a footnote (see para. 15 above);

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

- (v) Specifying how each mitigation action included in CTF table 3 relates to the textual information reported in the BR on its policies, action plans and legal acts, and by including a textual description of its mitigation actions (see para. 21 above);
- (vi) Indicating in a footnote to CTF table 3 that the effects of mitigation actions for the LULUCF sector do not count towards the achievement of the joint EU target (see para. 22 above);
- (vii) Specifying the year for which the mitigation impacts have been calculated (see para. 23 above);
- (viii) Providing non-cumulative estimates of GHG emission savings for the reported year (see para. 24 above);
- (ix) Providing information on changes, or absence thereof, in its domestic institutional arrangements for domestic compliance, monitoring, reporting and archiving of information and evaluation of the progress made towards its target (see para. 26 above);
- (x) Providing, in the custom footnotes to CTF table 4, an explanation for any abbreviations used, to the effect that the Party does not plan to use units from market-based mechanisms, or units from LULUCF activities, since the LULUCF sector is not included in the joint EU target definition (see para. 36 above);
- (xi) Reporting in CTF table 4 correct GHG emission data for the base year in line with the joint EU target (see para. 37 above);
- (xii) Accurately reporting in the text of the BR which measures (i.e. adopted, planned or implemented) are included in each reported scenario (see para. 43 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/2014/BGR. Report on the individual review of the annual submission of Bulgaria submitted in 2014. Available at

<<http://unfccc.int/resource/docs/2015/arr/bgr.pdf>>.

FCCC/IDR.6/BGR. Report of the technical review of the sixth national communication of Bulgaria. Available at <<http://unfccc.int/resource/docs/2015/idr/bgr06.pdf>>.

FCCC/TRR.1/BGR. Report of the technical review of the first biennial report of Bulgaria. Available at <<http://unfccc.int/resource/docs/2015/trr/bgr01.pdf>>.

2015 greenhouse gas inventory submission of Bulgaria. Available at

<http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/8812.php>.

Sixth national communication of Bulgaria. Available at

<http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/vi_nc_bulgaria_2013_22102014_final_-_resubmission.pdf>.

First biennial report of Bulgaria. Available at

<http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/vi_nc_bulgaria_2013_22102014_final_-_resubmission.pdf>.

Common tabular format tables of the first biennial report of Bulgaria. Available at

<http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/bgr_2014_v3.0_formatted.pdf>.

Second biennial report of Bulgaria. Available at

<http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/bg_br2.pdf>.

Common tabular format tables of the second biennial report of Bulgaria. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/bgr_2016_v1.0_formatted.pdf>.

B. Additional information used during the review

Responses to questions during the review were received from Ms. Rayna Angelova (Ministry of Environment and Water), including additional material and the following documents¹ provided by Bulgaria:

Third National Action Plan on Climate Change for the Period 2013-2020. Ministry of Environment and Water, 2012. Available at <http://www3.moew.government.bg/files/file/Climate/Climate_Change_Policy_Directorate/THIRD_NATIONAL_ACTION_PLAN.pdf>.

¹ Reproduced as received from the Party.