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## Report of the technical review of the second biennial report of Germany

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 Germany, 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)<sup>1</sup> of Germany. 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 Germany, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

2. The review took place from 7 to 12 March 2016 in Bonn, Germany, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: Mr. Liviu Gheorghe (Romania), Ms. Pia Paola Huber (Austria), Ms. Tugba Icmeli (Turkey), Mr. Peter Iversen (Denmark), Ms. Karin Kindbom (Sweden), Mr. Hans Kolshus (Norway), Ms. Julia Meisel (United States of America), Mr. Eric Mugurusi (United Republic of Tanzania), Ms. Lilian Portillo (Paraguay), Mr. Janis Rekis (Latvia), Mr. Orlando Rey (Cuba) and Mr. Ching Tiong Tan (Malaysia). Ms. Icmeli and Mr. Tan were the lead reviewers. The review was coordinated by Ms. Barbara Muik and Mr. Nalin Srivastava (UNFCCC secretariat).

### **B. Summary**

3. The expert review team (ERT) conducted a technical review of the information reported in the BR2 of Germany 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, Germany provided the following additional relevant information: mitigation actions and methodologies for calculating the mitigation impact of these actions; progress towards its target under the European Union (EU) effort-sharing decision (ESD); and amounts of financial support in USD.

#### **1. Timeliness**

4. The BR2 was submitted on 22 December 2015, before the deadline of 1 January 2016 mandated by decision 2/CP.17. The common tabular format (CTF) tables were submitted on 22 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 Germany in its BR2 is mostly in adherence with the UNFCCC reporting guidelines on BRs as per decision 2/CP.17 (see table 1).

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<sup>1</sup> 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 Germany**

<i>Chapter of the biennial report</i>	<i>Completeness</i>	<i>Transparency</i>	<i>Paragraphs with recommendations</i>
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	14
Progress in achievement of targets	Mostly complete	Mostly transparent	26, 43, 50
Provision of support to developing country Parties	Complete	Mostly transparent	72

*Note:* A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in chapter III.

## II. Technical review of the reported information

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

6. Germany 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). Following an encouragement made in the previous review report, the BR2 makes reference to the national inventory arrangements, which are explained in more detail in the national inventory report included in Germany’s 2015 annual inventory submission (in chapter 1.2).

7. 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, Germany provided information on changes in the national inventory arrangements since its first biennial report (BR1). Germany further improved the national system in the area of land use, land-use change and forestry (LULUCF) in 2013, and adapted the national system to the requirements of the second commitment period of the Kyoto Protocol in 2014 and to the requirements of the Intergovernmental Panel on Climate Change (IPCC) 2006 *IPCC Guidelines for National Greenhouse Gas Inventories* in 2015.

8. The information reported in the BR2 on emission trends is consistent with that reported in the 2015 annual inventory submission of Germany. To reflect the most recently available data, version 11 of Germany’s 2015 annual inventory submission has been used as the basis for discussion in chapter II.A of this review report.

9. Total GHG emissions<sup>2</sup> excluding emissions and removals from LULUCF decreased by 23.8 per cent between 1990 and 2013, whereas total GHG emissions including net

<sup>2</sup> 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 11.

emissions and removals from LULUCF decreased by 23.1 per cent over the same period. The decrease in the total GHG emissions can be attributed mainly to carbon dioxide (CO<sub>2</sub>) emissions, which decreased by 20.0 per cent (excluding LULUCF) between 1990 and 2013. Over the same period, emissions of methane (CH<sub>4</sub>) decreased by 50.7 per cent, while emissions of nitrous oxide (N<sub>2</sub>O) decreased by 42.7 per cent. The combined fluorinated gases (F-gases), such as perfluorocarbons (PFCs), hydrofluorocarbons (HFCs) and sulphur hexafluoride (SF<sub>6</sub>), increased by 7.7 per cent over the same period. Nitrogen trifluoride (NF<sub>3</sub>) emissions increased by 143.0 per cent over the same period, but their contribution to the overall emissions was extremely small.

10. The emission trends were mainly driven by trends in the energy sector and by economic factors. Whereas the sharp emission reduction in the early 1990s was primarily the result of restructuring in the new German Länder (former East Germany), including switching to cleaner fuels and decommissioning obsolete facilities, the emission reduction in 2009 was mainly due to the global economic crisis; some of the annual variations between 2008 and 2013 were also caused by economic fluctuations in specific sectors.

11. The steady decrease in emissions is also a reflection of the impact of mitigation measures triggering the increased share of renewable energy use within the energy mix or the reduction of waste disposal. While significant reductions were achieved in the waste sector, with a steep decrease in the amount of waste being landfilled, the transport sector only achieved very minor reductions in 2013 compared with the 1990 level. Further information on the review of emissions and emission trends is provided in chapter II.A of the report of the technical review of the sixth national communication of Germany.

12. The ERT noted that, during the period 1990–2013, Germany's gross domestic product (GDP) per capita increased by 36.8 per cent, while GHG emissions per GDP and GHG emissions per capita decreased by 45.1 and 25.0 per cent, respectively. This decoupling of GHG emissions and GDP or population growth has been influenced mainly by mitigation measures, as described in paragraph 11 above. Table 2 below illustrates the emission trends by sector and some of the economic indicators relevant to GHG emissions for Germany.

Table 2

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

Sector	GHG emissions (kt CO <sub>2</sub> eq)					Change (%)		Share by sector (%)	
	1990	2000	2010	2012	2013	1990–2013	2012–2013	1990	2013
1. Energy	1 037 164.78	873 037.05	804 207.87	790 281.29	813 439.22	–21.6	2.9	83.1	85.6
A1. Energy industries	427 352.89	357 414.63	356 182.79	363 548.20	361 654.25	–15.4	–0.5	34.2	38.0
A2. Manufacturing industries and construction	186 709.54	130 164.89	125 397.91	120 769.17	126 248.70	–32.4	4.5	15.0	13.3
A3. Transport	164 476.61	182 629.84	154 014.30	154 608.89	159 271.55	–3.2	3.0	13.2	16.8
A4.–A5. Other	219 337.69	173 595.80	154 964.83	136 750.84	152 034.13	–30.7	11.2	17.6	16.0
B. Fugitive emissions from fuels	39 288.06	29 231.88	13 648.04	14 604.20	14 230.59	–63.8	–2.6	3.1	1.5
C. CO <sub>2</sub> transport and storage	NA	NA	NA	NA	NA	NA	NA	NA	NA
2. IPPU	96 377.58	76 931.42	62 365.18	62 054.31	61 359.52	–36.3	–1.1	7.7	6.5
3. Agriculture	77 889.43	67 159.74	62 259.77	63 397.58	64 242.50	–17.5	1.3	6.2	6.8

Sector	GHG emissions (kt CO <sub>2</sub> eq)					Change (%)		Share by sector (%)	
	1990	2000	2010	2012	2013	1990–2013	2012–2013	1990	2013
	4. LULUCF	–32 531.40	–39 315.56	–17 662.09	–15 745.45	–15 693.77	–51.8	–0.3	NA
5. Waste	36 409.36	27 211.36	13 809.45	12 347.44	11 619.61	–68.1	–5.9	2.9	1.2
6. Other	26.82	17.88	14.90	11.92	11.92	–55.6	0.0	0.0	0.0
<b>Total GHG emissions without LULUCF</b>	<b>1 247 867.98</b>	<b>1 044 357.45</b>	<b>942 657.17</b>	<b>928 092.54</b>	<b>950 672.77</b>	<b>–23.8</b>	<b>2.4</b>	<b>100.0</b>	<b>100.0</b>
<b>Total GHG emissions with LULUCF</b>	<b>1 215 336.58</b>	<b>1 005 041.89</b>	<b>924 995.07</b>	<b>912 347.09</b>	<b>934 978.99</b>	<b>–23.1</b>	<b>2.5</b>	<b>NA</b>	<b>NA</b>
<i>Indicators</i>									
GDP per capita (thousands 2011 USD using PPP)	31.47	36.98	40.66	43.04	43.05	36.8	0.0	NA	NA
GHG emissions without LULUCF per capita (t CO <sub>2</sub> eq)	15.71	12.70	11.53	11.54	11.79	–25.0	2.2	NA	NA
GHG emissions without LULUCF per GDP unit (kg CO <sub>2</sub> eq per 2011 USD using PPP)	0.50	0.34	0.28	0.27	0.27	–45.1	2.1	NA	NA

Sources: (1) GHG emission data: Germany's 2015 annual inventory submission, version 11; (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, 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), Germany 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 domestic emission reduction target (not the national target, which is the joint EU target under the Convention), such as the exclusion of the LULUCF sector and market-based mechanisms from the quantified economy-wide emission reduction target. The target is expressed using the global warming potential (GWP) values of the Fourth Assessment Report (AR4) of the IPCC, covering all gases (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub> and NF<sub>3</sub>). Further information on the target and the assumptions, conditions and methodologies related to the target is provided in chapter 2.1 of the BR2.

14. CTF tables 2(a)–(f) do not include the information required by the UNFCCC reporting guidelines on BRs on the joint EU target under the Convention, to which Germany is contributing, but instead include information on the Party's domestic target, which is more ambitious. However, Germany has included information on the joint EU target in the BR2 following an encouragement made in the previous review report. The ERT noted that the joint EU target under the Convention is the target contained in document FCCC/SB/2011/INF.1/Rev.1, to which the UNFCCC reporting guidelines on

BRs refer. To increase transparency, the ERT recommends that Germany present information on the joint EU target under the Convention not only in the biennial report (BR) but also in CTF tables 2(a)–(f).

15. For Germany, the Convention entered into force on 21 March 1994. Under the Convention, Germany 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.

16. 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<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs and SF<sub>6</sub> using the GWP values from the 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 Emissions Trading System (EU ETS).

17. 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 2.2 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.

18. Under the ESD, Germany has a target to reduce its total emissions to 14.0 per cent below the 2005 level by 2020 from sectors covered by the ESD (non-ETS sectors). This national emission target for 2020 has been transferred into binding quantified annual emission reduction targets for the period 2013–2020, expressed in annual emission allocations (AEAs). According to additional information provided by the Party during the review, in absolute terms, this means that under the ESD, Germany has an annual emission reduction target for each year in the period 2013–2020, following a linear path from 472,528 kt of carbon dioxide equivalent (CO<sub>2</sub> eq) in 2013 to 425,647 kt CO<sub>2</sub> eq in 2020.

19. During the review, Germany provided additional information, elaborating on its annual targets for emissions covered by the ESD and making the information available in tabular format in addition to the figures provided in the BR2. Germany further explained that the ESD emissions and AEAs reported in its BR2 were based on non-ETS emissions using GWP values from the IPCC Second Assessment Report (SAR) and the scope of the ESD prior to the adjustments of member States' AEAs. Improved information and recalculations have subsequently led to a revision of the AEAs, as inscribed in EU decisions 2013/162/EU and 2013/634/EU. Due to these recalculations, the figures provided in this report differ from the ESD data provided in the BR1, in the report of the technical review of the first biennial report and in chapter 2.2 of the BR2.

20. Germany has set itself a domestic target of at least a 40.0 per cent reduction below the 1990 level by 2020. This target is more ambitious than the German target within the joint EU target, which the Party has committed to under the Convention. Germany also has interim long-term targets to reduce its GHG emissions by at least 55.0 per cent by 2030, by

at least 70.0 per cent by 2040 and by 80.0–95.0 per cent by 2050 below the 1990 level. The ERT commends Germany for reporting on its ambitious domestic targets.

## **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 Germany 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, Germany reported on its progress in the achievement of its target and the mitigation actions implemented and planned before and after its sixth national communication (NC6) and BR1 to achieve its target. CTF table 3 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, CTF table 3 and in this report (see paras. 32–39 below).

23. This report highlights the changes made since the publication of Germany's NC6 and BR1. In its BR2, Germany followed a recommendation made in the previous review report by providing information on changes in its domestic institutional arrangements, including institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress made towards its target. Through the adoption of Germany's Climate Action Programme 2020 in December 2014, the existing institutional climate change arrangements have been strengthened. In this context, the Climate Action Report was established as an additional monitoring instrument (see para. 29 below).

24. The following elements reported by Germany in its BR2 and CTF table 3 are not transparent: it is difficult to compare the information reported in CTF table 3 on the names and impacts of the mitigation actions with the reported information in the BR2; and there is limited information reported on the methodologies used for estimating the GHG impact of the mitigation actions.

25. In addition, the following elements in CTF table 3 are not reported transparently: the reported effects do not take into account overlaps among the mitigation actions; for five mitigation actions, the start year for calculating the impact has been entered instead of the start year for implementation; the notation key "IE" (included elsewhere) is used to report the effect of some mitigation actions, but limited explanations are provided concerning where the effects are included; for some mitigations actions, it is not clear whether they actually include other mitigation actions; and although Germany has in place climate-relevant measures in the agriculture sector in the context of the EU Common Agricultural Policy as reported in BR2, those measures are not included in CTF table 3.

26. During the review, Germany provided additional information, elaborating on all the elements listed in paragraphs 24 and 25 above. The ERT recommends that Germany address the issues listed in paragraphs 24 and 25 above in its next BR, in order to increase transparency.

27. Some of the encouragements made in the previous review report have been taken into consideration by Germany in its BR2, for example, by providing more descriptive information in the BR to accompany the CTF tables and, to the extent possible, detailed information on the assessment of the economic and social consequences of response measures. The ERT commends Germany for its improved reporting.

28. With regard to information on the assessment of the economic and social consequences of its response measures, Germany reported that most of the climate change mitigation measures implemented are not expected to have an impact on developing countries. In the remaining cases, the anticipated impacts are considered to be predominantly positive. For the handful of exceptional cases, Germany reported that every attempt will be made to put measures in place to minimize the anticipated negative effects. The BR2 provides, as an example, the promotion of biofuels that have not been sustainably produced, which could have negative effects. The Party reported that this effect will be cancelled out in the future when the Biofuel Sustainability Ordinance is implemented in Germany.

29. Germany reported, to the extent possible, on the domestic arrangements established for the process of self-assessment of compliance with emission reductions required by science. The German Government has established a process with which it will monitor the ongoing implementation of the Climate Action Programme 2020 up to 2020. For this process, a Climate Action Report will be produced each year, containing information on: the latest emission trends in the various areas for action, implementation progress and a forecast of the emission reduction impacts that can be expected by 2020. During the review, Germany provided additional information, elaborating on the Climate Action Programme 2020. In November 2015, the Federal Cabinet adopted Germany's first Climate Action Report,<sup>3</sup> and an English version was expected to be published in May 2016. The ERT notes that Germany has the necessary domestic arrangements in place to oversee and monitor the implementation of policies and measures (PaMs) at the national level.

30. The BR2 does not include the information required by the UNFCCC reporting guidelines on BRs on the progress made in the establishment of national rules for taking action against non-compliance with emission reduction targets. During the review, Germany provided information, elaborating that there are no national rules for taking local action against domestic non-compliance with emission reduction targets, because Germany is a Federal Republic. The ERT encourages Germany to include this information, to the extent possible, in its next BR.

31. In its BR2, Germany has, to some extent, taken into consideration the encouragement made in the previous review report about expanding the reported information on the systematic monitoring and evaluation of PaMs. Chapter 3.6 of the BR2 describes the analysis of the contribution of expanding renewable energy use to the emission reduction target and the socioeconomic effects of the mitigation actions on economic developments in Germany. Germany has established the Climate Action Report as an additional monitoring instrument (see para. 29 above). During the review, Germany informed the ERT that the Climate Action Report will, in the future, deliver additional information on the impacts of climate mitigation actions and that the Party is planning to consider more intensively ex post analyses of PaMs. The ERT encourages Germany to report this information and the progress made in ex post analysis of PaMs in future BRs, as appropriate.

32. 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 by legislative proposals on the 2020 targets for CO<sub>2</sub> emissions from cars and vans, the carbon capture and

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<sup>3</sup> Available at <<http://www.bmub.bund.de/themen/klima-energie/klimaschutz/nationale-klimapolitik/aktionsprogramm-klimaschutz/details-aktionsprogramm/artikel/klimaschutzbericht-2015>>.

storage directive, and the general programmes for environmental conservation, namely the 7<sup>th</sup> Environment Action Programme and the Clean Air Policy Package (see table 3 below).

33. 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<sub>2</sub>O emissions from chemical industries, PFC emissions from aluminium production and CO<sub>2</sub> emissions from industrial processes (since 2013).

34. 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 (see para. 18 above), which are underpinned by the national policies and actions of the member States.

35. At the national level, Germany introduced mitigation actions to achieve its targets under the ESD and its national emission reduction target. The key mitigation actions reported in the BR2 are the Renewable Energy Act, diverse measures for electricity savings and mandatory biofuel quotas. The mitigation effect of the Renewable Energy Act is the most significant.

36. The use of renewable energy contributes to the avoidance of GHG emissions, primarily in the German electricity generation sector, but also in the heat and transport sector. The avoided emissions are, to a great extent, achieved by using biomass, but the use of wind energy, photovoltaics and hydropower are also important. For the BR2, a model run with a capacity expansion of different types of renewable power generation due to the implementation of the Renewable Energy Act is compared to a model run without the renewable power capacity expansion, to estimate the GHG mitigation impact of the Renewable Energy Act. For electricity savings, the mitigation effect is estimated by comparing a model run with electricity savings with a model run without such savings. In addition, the effect of mandatory biofuel quotas is quantified compared with the baseline of no biofuel use in the transport sector.

37. Table 3 below provides a concise summary of the key implemented mitigation actions and estimates of their mitigation effects reported by Germany to achieve its targets.

Table 3

**Summary of information on mitigation actions and their impacts reported by Germany**

<i>Sector affected</i>	<i>List of key mitigation actions</i>	<i>Estimate of mitigation impact by 2020 (kt CO<sub>2</sub> eq)</i>
Policy framework and cross-sectoral measures	Diverse measures for electricity savings	47 000
	EU ETS (energy)	7 000
	EU ETS (industry)	8 316
Energy, including:		
Transport	Mandatory biofuel quotas	13 100

<i>Sector affected</i>	<i>List of key mitigation actions</i>	<i>Estimate of mitigation impact by 2020 (kt CO<sub>2</sub> eq)</i>
	Regulation on CO <sub>2</sub> emissions from cars	1 800
	Redistribution of highway toll for heavy-duty vehicles	1 600
Renewable energy	Renewable Energy Act	142 000
Energy efficiency	Combined Heat and Power Act	1 000
	Energy Saving Order	830
IPPU	EU F-gas regulation	10 485
	Energy Consulting Service for small and medium-sized enterprises	1 300
	100 energy efficiency networks	800
Waste	Landfill aeration	500

*Note:* The estimates of mitigation impact are estimates of emissions of carbon dioxide or carbon dioxide equivalent avoided in 2020 as a result of the implementation of mitigation actions. During the review, Germany informed the expert review team that the mitigation impact does not take into account overlap effects.

*Abbreviations:* EU = European Union, EU ETS = European Union Emissions Trading System, F-gas = fluorinated gas, IPPU = industrial processes and product use, LULUCF = land use, land-use change and forestry.

38. In addition to the mitigation actions reported in CTF table 3 and reflected in table 3 above, Germany also reported in the BR2 on its Climate Action Programme 2020, which was adopted by the German Government in December 2014. These mitigation actions are not included in the ‘with measures’ (WEM) scenario projections as described in chapter II.C.3 of this report. The Climate Action Programme 2020 comprises nine components, and among those mitigation actions that provide a foundation for significant additional actions, the following are critical for Germany to attain its domestic 2020 emission reduction target: the National Energy Efficiency Action Plan; upgrading the fossil fuel power station fleet; and measures in the transport sector, including strengthening the role of environmental friendly modes of transport such as rail, public transport and cycling, increased use of electric vehicles and promoting efficiency in vehicles.

39. Germany reported in the BR2 that the mitigation actions adopted as part of the Climate Action Programme 2020 are expected to result in emission reductions in 2020 of 62–78 Mt CO<sub>2</sub> eq, which are in addition to the mitigation impacts reported in CTF table 3 and in table 3 of the BR2. During the review, Germany informed the ERT that a research consortium had analysed the emission reductions estimated for all single measures, taking overlapping effects among sectors into account, but that this information is available in German only. Germany also informed the ERT during the review that, due to the state of implementation of planned mitigation actions, the expected emission reductions were not included in CTF table 3, but that these planned mitigation actions will be considered in the next BR.

## 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

40. Germany reported in its BR2 and CTF tables 4, 4(a)I, 4(a)II and 4(b) its use of units from market-based mechanisms under the Convention and the contribution of LULUCF to achieving its target. According to the information provided in chapter 2 of the BR2 and in CTF tables 2(b), 2(d) and 2(e)I, and as confirmed by Germany during the review, the Party does not intend to use units from market-based mechanisms or the contribution of LULUCF to achieve its target under the Convention. Further relevant information on emissions and removals and the use of units is provided in chapter 2.1 of the BR2 for the domestic target and in chapter 2.2 of the BR2 for the joint EU target.

41. The information reported by Germany in CTF tables 4 and 4(a)II is not fully transparent, because figures are provided in CTF table 4 indicating a contribution from LULUCF to the progress towards its target in 2013 and information on the contribution of LULUCF is reported in CTF table 4(a)II. However, as indicated in the BR2 and in CTF table 2(b), and as clarified during the review, Germany excludes the contribution of LULUCF from its target.

42. In its BR2, Germany reported that, due to changes in the technical system used to track market-based mechanisms in the EU ETS, the information reflecting their use in 2013 will not become available until 2016. This is because, since 2013, it has no longer been possible to track the use of these mechanisms in the EU ETS directly from the EU transaction log public website: certified emission reductions (CERs) and emission reduction units (ERUs) are exchanged into EU allowances, following which they cannot be further tracked as CERs or ERUs. These exchanges at installation level will be publicized two years after the transfers are conducted. Thus, information reflecting their use in 2013 will not become available until 2016. However, in its BR2, Germany states that it does not plan to use units from market-based mechanisms to achieve its emission reduction targets.

43. In order to increase transparency, the ERT recommends that Germany fill in the relevant parts of CTF table 4 in accordance with the assumptions related to the target, for example by using the notation key "NA" (not applicable) if the requested information is not applicable, such as for LULUCF or units from market-based mechanisms, or the value "0" (zero) in cases where units from market-based mechanisms are not used in a particular year for the progress made towards the target.

44. For 2013, Germany reported in CTF table 4 annual total GHG emissions excluding LULUCF of 950,672.77 kt CO<sub>2</sub> eq, or 23.8 per cent below the 1990 level. In 2013, emissions from the non-ETS sectors relating to the target under the ESD were 471,516 kt CO<sub>2</sub> eq, which is 0.2 per cent below Germany's 2013 AEA under the ESD (see para. 18 above).

45. Table 4 below illustrates Germany'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 Germany towards the achievement of its target

<i>Year</i>	<i>Emissions excluding LULUCF (kt CO<sub>2</sub> eq)</i>	<i>Contribution from LULUCF (kt CO<sub>2</sub> eq)</i>	<i>Emissions including contribution from LULUCF (kt CO<sub>2</sub> eq)</i>	<i>Use of units from market-based mechanisms (kt CO<sub>2</sub> eq)</i>
1990	1 247 867.98	NA	NA	NA

<i>Year</i>	<i>Emissions excluding LULUCF (kt CO<sub>2</sub> eq)</i>	<i>Contribution from LULUCF (kt CO<sub>2</sub> eq)<sup>a</sup></i>	<i>Emissions including contribution from LULUCF (kt CO<sub>2</sub> eq)</i>	<i>Use of units from market-based mechanisms (kt CO<sub>2</sub> eq)</i>
2010	942 657.17	NA	NA	NA
2011	922 713.87	NA	NA	NA
2012	928 092.54	NA	NA	NA
2013	950 672.77	NA	NA	NA

*Sources:* Germany's second biennial report and common tabular format table 4.

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

<sup>a</sup> The unconditional commitment of the European Union to reduce greenhouse gas emissions by 20 per cent below the 1990 level by 2020 does not include emissions and removals from LULUCF.

46. To assess the progress towards the achievement of the 2020 target, the ERT noted that, under the ESD, Germany has an annual emission reduction target for each year in the period 2013–2020, following a linear path from 472,528 kt CO<sub>2</sub> eq in 2013 to 425,647 kt CO<sub>2</sub> eq in 2020 (see para. 18 above). As discussed in chapter II.B above, in 2013, Germany's emissions from the sectors not covered by the EU ETS were 0.2 per cent (1,012 kt CO<sub>2</sub> eq) below the AEA under the ESD.

47. The ERT noted that Germany is making progress towards its emission reduction target under the ESD by implementing mitigation actions.

48. The ERT also noted that Germany may still face challenges in achieving its domestic emission reduction target by implementing existing mitigation actions alone (see paras. 53 and 61 below). In addition to the Climate Action Programme 2020, which is expected to deliver additional emission reductions, a 2050 Climate Action Plan will be drawn up in 2016 and could possibly also help Germany make progress towards its domestic emission reduction target for 2020.

### 3. Projections

49. Germany reported in its BR2 and CTF table 6(a) updated projections for 2020 and 2030 relative to actual inventory data for 2014 under the WEM scenario. Projections are presented on a sectoral basis, using the same sectoral categories as used in the chapter on mitigation actions, excluding LULUCF, and on a gas-by-gas basis for the following GHGs: CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, PFCs, HFCs and SF<sub>6</sub> (treating PFCs, HFCs and SF<sub>6</sub> 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 SAR. Emission projections related to fuel sold to ships and aircraft engaged in international transport were reported separately in table 2 of the BR2 and were not included in the totals in the BR2 or in CTF table 6(a). Germany reported on factors and activities influencing emissions for each sector. Further information on the projections is provided in chapter 4 of the BR2.

50. As a matter of completeness, the ERT recommends that Germany present projected emissions and removals for the LULUCF sector in its next BR.

51. The data reported in the projections chapter in the BR2 and in CTF table 6(a) differ slightly. During the review, Germany provided additional information explaining that the data for the historic GHG emissions used for the projections, as described in chapter 4.2 of the BR2, are based on the 2014 annual inventory submission, whereas the data for the GHG emissions from 1990 to 2013 provided in CTF tables 1 and 6(a) are based on the 2015 annual inventory submission. As in the previous review report, the ERT notes that it would increase transparency if Germany presents all data (inventory and projection data for the

BR and the CTF tables) based on the same submission data or provide at least a footnote to explain the differences within the data reported.

52. Germany provided information on the models and approaches used and on the key variables and assumptions used in the preparation of the projection scenarios using CTF table 5. Germany has not provided information on the historical data used to develop the GHG projections in CTF table 5, but has instead provided only a link to a report that includes these data in the footnote in chapter 4.1 of the BR2. The ERT encourages Germany to report the key variables and assumptions also for historical years in CTF table 5 in its next BR.

53. Germany reported a WEM scenario projection by sector and by gas and presented data for the following years: 1990–2013, 2015, 2020, 2025, 2030 and 2035. Germany did not report ‘with additional measures’ (WAM) or ‘without measures’ scenarios. As the WEM projections do not take into consideration the Climate Action Programme 2020 or the planned 2050 Climate Action Plan, which is scheduled to be drawn up in 2016, a comparable WAM projection incorporating these planned measures would have been helpful to enable the ERT to better understand whether Germany could reach its domestic target through planned measures. As indicated during the review, Germany plans to update its projections, taking the planned PaMs into account. In case the updated WEM projections are insufficient to reach the domestic target and there are additional PaMs planned, the ERT encourages Germany to also provide a WAM scenario.

54. During the review, Germany provided additional information on its projected emissions from sectors covered by the ESD and by the EU ETS. The ERT noted that presenting separate projections for emissions from sectors covered by the EU ETS and the ESD in its next BR would further facilitate the assessment of whether Germany is on track to achieve its target under the ESD.

55. The ERT noted that an updated projection which takes into account all PaMs currently in place and is based on the GWP values from the AR4 would further facilitate the assessment of whether Germany is on track to achieve its domestic emission reduction target.

#### Overview of projection scenarios

56. The WEM scenario reported by Germany includes all new climate and energy PaMs launched by 31 August 2014 and existing ones that were substantially modified by the same date. Germany provides a definition of its scenario in chapter 4.1 of the BR2. The definition indicates that the scenario has been prepared according to the “Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications”.

#### Methodology and changes since the previous submission

57. The methodology used in the BR2 is identical to that used for the preparation of the emission projections for the NC6/BR1. Germany reported supporting information further explaining the methodologies and the changes made since the NC6/BR1, which relate to updates of assumptions on the population, CO<sub>2</sub> prices, fuel prices and GDP.

58. An energy system model and an emission calculation model were used to develop the WEM scenario by consolidating the results of detailed sectoral analyses, some of which were based on models, into consistent and exhaustive figures for energy demand and GHG emissions. To calculate the emission reduction effect of the PaMs in the WEM scenario, the methods set out in the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* and the GWP values from the SAR were used. The methodology used is explained in chapter 4.2 of the NC6 and chapter 4.1 of the BR2.

59. To prepare its projections, Germany relied on the following key underlying assumptions: a declining population trend; decreasing energy prices until 2020, but rising energy prices thereafter; and a decreasing GDP growth rate, 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.

60. Sensitivity analyses were conducted for a number of important assumptions, such as population trends, energy prices and economic development indicators for each sector. If the sensitivities analysed are taken into consideration, the possible range for emission reduction in 2020 is between 31.9 per cent (higher population growth accompanied by higher fuel prices) and 35.0 per cent (lower economic growth accompanied by a lower electricity export balance) below the 1990 level, and in 2030, it is between 42.2 and 45.0 per cent below the 1990 level.

### Results of projections

61. Germany's total GHG emissions excluding LULUCF in 2020 and 2030 are projected to be 833,233.52 and 707,284.50 kt CO<sub>2</sub> eq, respectively, under the WEM scenario, which represents a decrease of 33.4 per cent (or 418,292.03 kt CO<sub>2</sub> eq) and 43.5 per cent (or 544,241.05 kt CO<sub>2</sub> eq), respectively, below the base year level (1990 for CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O, and 1995 for HFCs, PFCs and SF<sub>6</sub>). The 2020 projections suggest that Germany will continue contributing to the achievement of the EU target under the Convention (see para. 18 above).

62. Germany's target for the emissions from sectors covered by the ESD (non-ETS sectors) is to reduce its total emissions by 14.0 per cent below the 2005 level by 2020. For Germany, the AEAs reflecting its national emission reduction target for the non-ETS sectors follow a linear path from 472,528 kt CO<sub>2</sub> eq in 2013 to 425,647 kt CO<sub>2</sub> eq in 2020 (see para. 18 above). The projections under the WEM scenario in the BR2 do not refer to emission reductions from the non-ETS sectors. However, during the review, Germany provided projected emissions from the non-ETS sectors under the WEM scenario, expressed within the new scope of the ESD and using GWP values from the AR4. According to these projections, emissions from the non-ETS sectors are estimated to reach 421,700 kt CO<sub>2</sub> eq by 2020, which is 0.9 per cent below the AEA for 2020. The ERT noted that this suggests that Germany expects to meet its target for emissions from sectors covered by the ESD under the WEM scenario.

63. In addition to its target for the non-ETS sectors, Germany committed itself to achieving a domestic target of a 40.0 per cent reduction in emissions below the 1990 level by 2020. The WEM projections for 2020 forecast a 33.4 per cent reduction, which indicates that Germany may face challenges in achieving its domestic emission reduction target. However, these pathways do not take into account PaMs implemented as part of the Climate Action Programme 2020 (launched in December 2014), and are therefore likely to overestimate emission levels in 2020. Further PaMs that may have an impact on the domestic emission reduction target for 2020 will be implemented through the 2050 Climate Action Plan, which will be drawn up in 2016.

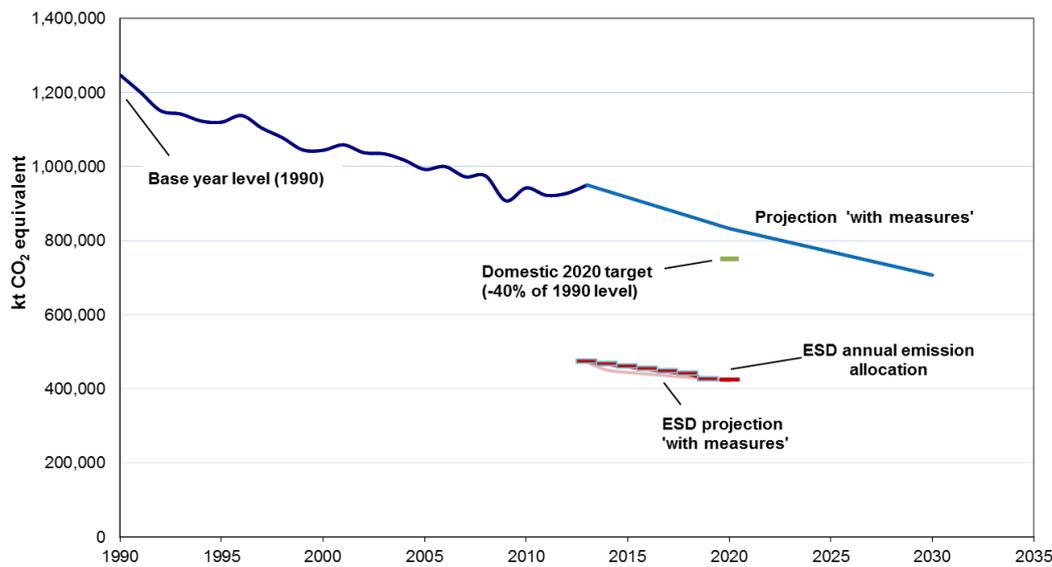
64. According to the projections reported by sector in CTF table 6(a), the most significant absolute GHG emission reductions under the WEM scenario from 1990 to 2020 and to 2030 will occur in the energy sector (341,848.88 and 452,190.98 kt CO<sub>2</sub> eq, or -33.0 and -43.6 per cent, respectively, below the 1990 level), followed in both the 2020 and 2030 projections by the industry/industrial processes sector (28,887.13 and 43,071.69 kt CO<sub>2</sub> eq, or -30.0 and -44.7 per cent, respectively). The third most important sector in 2020 is the waste sector (27,280.17 kt CO<sub>2</sub> eq, or -74.9 per cent) and in 2030, it is the transport sector (31,765.80 kt CO<sub>2</sub> eq, or -19.3 per cent).

65. The most significant absolute GHG emission reductions under the WEM scenario from 2013 to 2020 and to 2030 will also occur in the energy sector (118,122.32 and 228,464.42 kt CO<sub>2</sub> eq, or -14.5 and -28.1 per cent, respectively, below the 2013 level), followed in both the 2020 and 2030 projections by the transport sector (11,132.84 and 26,560.73 kt CO<sub>2</sub> eq, or -7.0 and -16.7 per cent, respectively). The third most important sector in 2020 is the agriculture sector (2,971.97 kt CO<sub>2</sub> eq, or -4.6 per cent). While emissions from the industry/industrial processes sector are projected to increase from 2013 to 2020 (6,144.56 kt CO<sub>2</sub> eq, or +9.5 per cent), they are projected to decrease to 2030 (8,040.00 kt CO<sub>2</sub> eq, or -13.1 per cent below the 2013 level).

66. According to the projections reported by gas in CTF table 6(a), reductions in CO<sub>2</sub> emissions are expected to contribute the most to the Party's overall emission reductions. Under the WEM scenario, reductions in CO<sub>2</sub> emissions will make up approximately 77.3 and 80.2 per cent of the aggregate GHG emission reductions below the 1990 level by 2020 and 2030 (320,395.92 and 433,416.69 kt CO<sub>2</sub> eq), respectively, followed by CH<sub>4</sub> with 17.0 and 13.6 per cent (70,381.99 and 73,481.85 kt CO<sub>2</sub> eq), respectively, and N<sub>2</sub>O with 6.0 and 4.7 per cent (24,914.74 and 25,403.02 kt CO<sub>2</sub> eq), respectively.<sup>4</sup>

67. The projected emission levels under the different scenarios and Germany's quantified economy-wide emission reduction target, as well as projected ESD emissions and Germany's AEAs under the ESD, are presented in the figure below.

**Greenhouse gas emission projections by Germany**



Sources: (1) Data for the years 1990–2013: Germany's 2015 annual inventory submission, version 11; total GHG emissions excluding land use, land-use change and forestry; (2) Data for the years 2013–2030: Germany's second biennial report, common tabular format table 6(a); total GHG emissions excluding land use, land-use change and forestry; (3) Data for the ESD projections and annual emission allocations provided by Germany during the review.

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

<sup>4</sup> The sum of the percentages for the 2020 projections exceeds 100 per cent because emissions of F-gases are projected to increase from 1990 to 2020.

68. The ERT acknowledged the information reported by Germany in its BR2 on the estimated and expected effects of PaMs in terms of emissions avoided by 2020. In table 3 of the BR2, Germany reports that by 2020, the aggregated impact of PaMs will lead to emission reductions of about 197 Mt CO<sub>2</sub> eq (compared to a situation without those PaMs), taking into account overlap effects. Germany also reported that the mitigation actions adopted as part of the Climate Action Programme 2020 are expected to result in emission reductions of an additional 62–78 Mt CO<sub>2</sub> eq in 2020.

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

69. In its BR2, Germany reported information on the provision of financial, technological and capacity-building support required under the Convention. The BR2 includes information on the national approach to tracking the provision of support, indicators, delivery mechanisms used and allocation channels tracked. Germany provided a description of the methodology used to report financial support, including underlying assumptions. Germany followed up on all recommendations made in the previous review report and significantly improved its reporting on support compared with the BR1.

70. Germany provided details on what new and additional support it has provided and clarified how this support is new and additional (see para. 74 below for further information on new and additional financial resources). Further information on the Party's provision of support to developing country Parties is provided in chapter 5 of the BR2.

71. The BR2 does not include the information required by the UNFCCC reporting guidelines on BRs on the provision of information on the amounts of financial support provided in USD; the reported information in CTF tables 7, 7(a), 7(b) is in EUR only, and only the total amounts of multilateral and bilateral support are presented in USD in chapter 5.4 of the BR2.

72. During the review, Germany provided comprehensive additional information, elaborating on information provided in CTF tables 7, 7(a) and 7(b), and providing the financial information in USD with a corresponding exchange rate. However, Germany also explained that it does not consider the data in USD to be comparable given that Parties can choose the exchange rates themselves. The ERT recommends that Germany provide the information in its domestic currency as well as in USD in accordance with the UNFCCC reporting guidelines on BRs in its next BR, to increase transparency.

73. Germany reported that its financial support addresses the needs of Parties not included in Annex I to the Convention (non-Annex I Parties) and provides funding for mitigation and adaptation activities, recognizing the capacity-building elements of such support. In its BR2, Germany included more detailed information than in its BR1 and pointed out the changes made since the previous submission. Germany's climate finance reporting system has been further developed since the BR1; it now includes systematic and transparent reporting of all public climate finance, including mobilized public climate finance (see para. 81 below).

74. Germany explained how it determines how much of its support is new and additional. Germany defines new and additional climate finance as newly committed or disbursed climate finance during the years 2013 and 2014. In its BR2, the Party explained that for 2013 and 2014, there was a deviation from the sums reported on climate-related official development assistance (ODA) compared with the totals reported in the BR2, because a different method was used to determine the Rio Markers used to define ODA and the climate finance reporting to the UNFCCC. In addition, the funding approval process used for the amounts reported in the BR2 is the date at which government approval is granted (minutes of negotiations or a verbal note), whereas the date used for ODA reporting

differs, as it is the date on which the project is commissioned or the agreement with the partner institution is signed.

75. Germany included in its BR2 information on how it has refined its approach compared to BR1 to tracking climate support and methodologies, including through the indicators and delivery mechanisms used when collecting and reporting the information. It provided information on the methodology that it adopted for tracking finance for adaptation and mitigation using the Rio Markers. The methodology used for preparing information on international climate support is reflected in chapter 5.4 of the BR2. Germany explained that the imputed climate-relevant contributions to multilateral development banks were recorded using the methodology developed by the Organisation for Economic Co-operation and Development Joint ENVIRONET and WP-STAT Task Team to Improve Rio Markers, Environment and Development Finance Statistics. In future, the grant elements of development loans will also be recorded with this improved methodology.

## **1. Finance**

76. In its BR2 and CTF tables 7, 7(a) and 7(b), Germany reported information on the provision of financial support required under the Convention, including on financial support provided, committed and pledged, allocation channels and annual contributions (see para. 81 below for further information on financial resources). The summary information was reported for 2013 and 2014, and is contained in table 5 below.

77. Germany described how its resources address the adaptation and mitigation needs of non-Annex I Parties. It also described how those resources assist non-Annex I Parties to mitigate and adapt to the adverse effects of climate change, facilitate economic and social response measures, and contribute to capacity-building and technology transfer related to mitigation and adaptation. In its BR2, Germany explained that the principles of the Paris Declaration on Aid Effectiveness, the Accra Agenda for Action and the Busan Partnership for Effective Development Cooperation are the basis for the country's cooperation with non-Annex I partners. Annual consultations and/or negotiations with partner countries are an important aspect of the implementation of these principles, as is the continuous dialogue with the partners that ensure aid effectiveness. In chapters 5.1 (adaptation), 5.2 (mitigation), 5.3 (REDD-plus<sup>5</sup>), 5.6 (technology transfer) and 5.7 (capacity-building) of the BR2, Germany outlined in detail the different approaches to address the needs of non-Annex I Parties. As mentioned above, the consultations with country partners identify the most suitable approaches for a specific partner.

78. Germany provided information on the types of instrument used in the provision of its assistance (see para. 86 below). In addition, Germany reported information on its private financial flows from bilateral sources directed towards mitigation and adaptation activities in non-Annex I Parties. It also reported information on PaMs that promote private investment in mitigation and adaptation activities in developing country Parties (see para. 90 below).

79. With regard to the most recent financial contributions aimed at enhancing the implementation of the Convention by developing countries, Germany reported that its climate finance has been allocated on the basis of priority areas, strategies and programmes. The major part of German climate finance is provided through the Ministry for Economic Cooperation and Development. This allows for full integration of climate action into

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<sup>5</sup> In decision 1/CP.16, paragraph 70, the Conference of the Parties encouraged developing country Parties to contribute to mitigation actions in the forest sector by undertaking the following activities: reducing emissions from deforestation; reducing emissions from forest degradation; conservation of forest carbon stocks; sustainable management of forests; and enhancement of forest carbon stocks.

development cooperation, following the aid effectiveness agenda (see para. 77 above). In addition, the Ministry for the Environment, Nature Conservation, Building and Nuclear Safety implements the International Climate Initiative (IKI). IKI is active in four areas: mitigating GHGs, adaptation to the effects of climate change, conserving natural carbon sinks with a special focus on reducing emissions from deforestation and forest degradation (REDD-plus), and conserving biodiversity. The Ministry for the Environment, Nature Conservation, Building and Nuclear Safety uses this instrument to strengthen the Government's cooperation on climate issues with developing countries, emerging economies and transition countries.

80. In its BR2, Germany explained that mitigation and adaptation to the effects of climate change are cross-cutting issues in the development of cooperation. To ensure the inclusion of environment and climate considerations in bilateral governmental development cooperation, the Ministry for Economic Cooperation and Development has produced a set of guidelines.<sup>6</sup>

81. Germany reported on its climate-specific public financial support provided in 2013 and 2014, totalling USD 2,547.38 million in 2013 and USD 2,812.70 million in 2014.<sup>7</sup> At the Petersberg Climate Dialogue in 2015, Germany committed itself to doubling its climate finance from budget funds by 2020 compared with the 2014 planning level (up to approximately EUR 4 billion per year in 2020). Germany has also reported mobilized public climate finance for 2013 onwards (i.e. climate-related credit financing provided by the KfW Development Bank and the Deutsche Investitions- und Entwicklungsgesellschaft mbH, which uses market funds). During the reporting period, Germany placed a particular focus on mitigation, adaptation and biodiversity conservation (including REDD-plus) in its multilateral support. Support channelled through bilateral and regional channels was also balanced between mitigation, adaptation and biodiversity conservation, and focused mainly on the energy, urban development, transport, water management, environmental protection, resource conservation and agriculture sectors.

82. Germany provided support for countries in all regions through bilateral and global initiatives in developing countries as a part of its climate finance, cross-cutting development cooperation strategies and programmes and its international research cooperation strategies.

83. Germany reported in its BR2 that it offered specific support in relation to adaptation, particularly for the development and implementation of national adaptation plans (NAPs), integrated water resources, emergency drought assistance programmes, measures to promote sustainable management, and conservation and rehabilitation of ecosystems that are important for adaptation and the integration of agriculture into NAPs. Recipient countries include Albania, Cambodia, Grenada, Jamaica, Kenya, Mauritania, Nepal, Niger, Philippines, Saint Lucia, Saint Vincent and the Grenadines, Senegal, Thailand, Togo, Uganda, Uruguay and Zambia.

84. The BR2 includes detailed information on the financial support provided through multilateral channels, and bilateral and regional channels in 2013 and 2014. More specifically, Germany contributed through multilateral channels, as reported in its BR2 and in CTF table 7(a), USD 394.29 million and 375.17 million for 2013 and 2014, respectively. These contributions were made to specialized multilateral climate change funds, such as the Green Climate Fund (GCF), the Climate Investment Fund, the Adaptation Fund, the Global Environment Facility (GEF), the Forest Carbon Partnership Facility, the BioCarbon Fund

<sup>6</sup> *Handreichung für die Prüfung und Berücksichtigung von Umwelt und Klimaaspekten in der bilateralen staatlichen Entwicklungszusammenarbeit.*

<sup>7</sup> These figures exclude the climate-specific contributions to the Global Environment Facility.

Initiative for Sustainable Forest Landscapes and various multilateral development banks and United Nations organizations. The BR2 and CTF table 7(b) also include detailed information on the total financial support provided through bilateral and regional (USD 2,211.90 million and 2,497.42 million) channels in 2013 and 2014, respectively.

85. Germany has an important role regarding the provision of financial support to non-Annex I Parties, and also to economies in transition. Germany's contribution accounts for 12.4 per cent of total GEF funding in the reporting period, making it the third largest donor. Germany's provision of support in 2013 and 2014 was in the form of grants, mainly directed towards Africa, Asia and some Latin American countries, and contributions to multilateral channels (the GCF, the Adaptation Fund, the GEF, etc.) or specialized United Nations agencies, but also to bilateral projects. Table 5 includes some of the information reported by Germany on its provision of financial support.

Table 5  
**Summary of information on provision of financial support in 2013–2014 by Germany**  
(Millions of United States dollars)

<i>Allocation channel of public financial support</i>	<i>Years of disbursement</i>	
	<i>2013</i>	<i>2014</i>
Official development assistance <sup>a</sup>	4 440.00	7 756.00
Climate-specific contributions through multilateral channels, including:	394.29	375.17
Global Environment Facility <sup>b</sup>	58.82	59.89
Least Developed Countries Fund	39.83	39.80
Special Climate Change Fund	26.02	23.88
Adaptation Fund	39.83	66.34
Green Climate Fund	1.04	1.33
Other multilateral climate change funds	18.14	19.11
Financial institutions, including regional development banks	206.05	134.00
United Nations bodies	4.56	30.82
Climate-specific contributions through bilateral, regional and other channels	2 211.90	2 497.42

<sup>a</sup> *Source:* Germany's second biennial report.

<sup>b</sup> These figures correspond to the climate-specific share of the total core amount (USD 104.89 and 106.95 million in 2013 and 2014, respectively).

86. The BR2 provides information on the types of support provided. In terms of the focus of public financial support, as reported in CTF table 7 for 2013, the shares of total public financial support allocated for mitigation, adaptation, cross-cutting projects and other climate-specific undefined activities corresponding to these channels were 35.7, 33.6 and 30.7 per cent, respectively. In total, 17.3 per cent of the total public financial support was allocated through multilateral channels and 82.7 per cent through bilateral, regional and other channels. In 2014, the shares of total public financial support allocated for mitigation, adaptation and cross-cutting projects, corresponding to these channels were 28.8, 37.4 and 33.8 per cent, respectively. Altogether, 11.2 per cent of the total public financial support was allocated through multilateral channels and 88.8 per cent through bilateral, regional and other channels.

87. The ERT noted that, in 2013, 64.4 per cent of financial contributions made through multilateral channels were allocated to mitigation, 31.3 per cent to adaptation and the remaining 4.3 per cent to funding for activities that are cross-cutting across mitigation and adaptation, as reported in CTF table 7(a). The corresponding figures for 2014 were 11.4, 41.2, 8.6 and 38.7 per cent for sectors such as mitigation, adaptation, cross-cutting activities and REDD-plus/biodiversity, respectively. Hence, most of the multilateral funding is being allocated to adaptation and REDD-plus/biodiversity. In the BR2, mobilized public climate finance is still reported in summarized form, although Germany explained that it is aiming to submit a breakdown of such data in its next BR. Most of the bilateral and regional support provided in 2013 and 2014, as reported in CTF table 7(b), was for energy generation and supply, water and sanitation, agriculture, rural development, REDD-plus/biodiversity, innovative finance instruments, urban development and environmental protection.

88. CTF tables 7(a) and 7(b) include information on the types of financial instrument used in the provision of assistance to developing countries, which include grants and concessional loans. The ERT noted that the share of the grants provided in 2013 and 2014 was approximately 90 and 100 per cent of the total public financial support, respectively.

89. In its BR2, Germany clarified that for the reporting period, it did not include mobilized private climate finance in its BR2. However, to achieve the greatest possible transparency, it is following the common reporting method for mobilized private climate finance, which was adopted by a group of donors in September 2015. Germany explained in its BR2 that for the reporting period, there are no consolidated data available on climate-relevant private financial flows, and that it is currently working on a methodology for calculating those flows.

90. Germany highlighted its success stories in mobilizing private financial flows leveraged by bilateral climate finance for mitigation and adaptation activities in non-Annex I Parties owing to the established practice of reporting by private organizations. The global Private Sector Adaptation to Climate Change project supports small and medium-sized enterprises in cooperation countries to enable them to better assess climate-related risks and opportunities and develop adaptation strategies. This project of the Ministry for Economic Cooperation and Development receives funding of approximately EUR 3.6 million and its term is from 2014 to 2019. The Global Climate Partnership Fund was initiated in 2010 by the Ministry for the Environment, Nature Conservation, Building and Nuclear Safety and the KfW Development Bank, and provides funding for energy efficiency and renewable energy projects in emerging economies and developing countries. Currently, seven shareholders and one private investor have pledged over USD 327 million to the fund. The Ministry for the Environment, Nature Conservation, Building and Nuclear Safety is currently one of the largest shareholders with a stake of USD 55.5 million. The portfolio currently comprises 15 investments in 13 countries.

## **2. Technology development and transfer**

91. In its BR2 and CTF table 8, Germany provided information on measures and activities related to technology transfer, access and deployment benefiting developing countries, including information on activities undertaken by the public and private sectors. Germany provided examples of support provided for the deployment and enhancement of the endogenous capacities and technologies of non-Annex I Parties (see para. 94 below).

92. In its BR2, Germany provided information on technology transfer in textual and tabular format, as required by the UNFCCC reporting guidelines on BRs, and distinguished between activities undertaken by the public and private sectors. The ERT took note of the

complete information provided in CTF table 8 following the recommendations made in the previous review report.

93. The ERT noted that, in its BR2, including CTF table 8, Germany reported on its PaMs as well as success and failure stories in relation to technology transfer, and in particular on measures taken to promote, facilitate and finance the transfer and deployment of climate-friendly technologies. In its BR2, Germany provided information on measures taken to support the development and enhancement of the endogenous capacities and technologies of non-Annex I Parties.

94. Germany provided information on success stories related to two initiatives under the support of the German Government for the reporting period: the German Climate Technology Initiative (DKTI) and the Climate Technology Centre and Network (CTCN). DKTI aims to accelerate the spread of technologies to reduce GHG emissions and assist adaptation to the effects of climate change in developing countries, emerging economies and transition countries. For DKTI, projects with a total volume of EUR 1.77 billion and EUR 1.93 billion were approved in 2013 and 2014, respectively, and a total of EUR 10.92 billion in reduced interest loans was approved between 2007 and 2014 for renewable energy and energy efficiency projects for developing countries and emerging economies. The Ministry for Economic Affairs and Energy has been appointed as the national designated entity for the CTCN. Also, the Gesellschaft für Internationale Zusammenarbeit, one of Germany's implementing organizations, is part of the CTCN consortium of 13 partner organizations on behalf of the Ministry for Economic Cooperation and Development and supports its work, in particular through a range of technical cooperation projects.

95. As reported in CTF table 8, Asian and African countries were the main recipient countries during the reporting period. With respect to mitigation activities, the main targeted sector was energy, while for adaptation activities, the main area of support was water supply. In addition, most of the activities reported were undertaken by the public sector and were in the implementation phase.

### **3. Capacity-building**

96. In its BR2 and CTF table 9, Germany supplied information on how it provided capacity-building support for mitigation, adaptation and technology that responds to the existing and emerging needs identified by non-Annex I Parties.

97. Germany provided information on capacity-building that is part of almost all the Government's climate-related bilateral development cooperation projects. In its BR2, Germany explained that it is not possible to separately report finance streams used exclusively for capacity-building. The Party therefore included a selection of activities that support capacity-building, which aim to strengthen capacities in the partner countries to enable them to effectively implement the Convention and combat climate change.

98. In its BR2 and CTF table 9, Germany provided information on how it provided capacity-building support for mitigation, adaptation and technology that responds to the existing and emerging needs identified by non-Annex I Parties following the principles of national ownership and cooperation between donors and across funded projects. It also explained that capacity-building support is developed under both bilateral and multilateral activities and in a number of cooperation projects with the private sector. Germany reported that it has put comprehensive support measures in place to build capacity in the fields of GHG emission reduction, adaptation to the effects of climate change, technology development and transfer, and access to climate finance.

99. The BR2 and CTF table 9 include information describing a number of individual capacity-building measures and activities carried out during the reporting period. Examples

include: the Regional Science Service Centres in West and Southern Africa that aim to assist the regions hardest hit by the effects of climate change in establishing relevant scientific structures so that the countries in these regions can take their own valid decisions with regard to land use and water supply; a global initiative to support selected partner countries in developing their intended nationally determined contributions; and the Global Programme on Risk Assessment and Management for Adaptation to Climate Change.

100. The ERT took note of the complete information provided in CTF table 9 following the recommendations made in the previous review report.

### III. Conclusions

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

102. Germany's total GHG emissions excluding LULUCF related to its quantified economy-wide emission reduction target were estimated to be 23.8 per cent below its 1990 level, whereas total GHG emissions including LULUCF were 23.1 per cent below its 1990 level for 2013. The emission decrease was mainly driven by trends in the energy sector, including economic restructuring in the former East Germany from 1990 onwards, switching to cleaner fuels, decommissioning obsolete facilities, increasing the share of renewable energy use within the energy mix and the global economic crisis in the late 2000s.

103. Under the Convention, Germany 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<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs and SF<sub>6</sub>, 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. Although the EU generally allows its member States to use units from market-based mechanisms, Germany does not plan to use them; however, companies can make use of such mechanisms to fulfil their requirements under the EU ETS.

104. Under the ESD, Germany has a target to reduce its emissions by 14.0 per cent below the 2005 level by 2020. In absolute terms, this means that Germany has to reduce emissions from the non-ETS sectors from 472,528 kt CO<sub>2</sub> eq in 2013 to 425,647 kt CO<sub>2</sub> eq by 2020. In addition, Germany committed itself to achieving a domestic target of a 40.0 per cent reduction in emissions below the 1990 level by 2020.

105. 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. At the national level, Germany introduced mitigation actions to achieve its targets under the ESD and its national emission reduction target. The key mitigation actions reported in the BR2 are the Renewable Energy Act, diverse measures for electricity savings and mandatory biofuel quotas. The mitigation effect of the Renewable Energy Act is the most significant.

106. For 2013, Germany reported in CTF table 4 total GHG emissions excluding LULUCF of 950,672.77 kt CO<sub>2</sub> eq. Germany reported that it does not plan to use units from

market-based mechanisms or LULUCF to achieve its ESD or its national target. In 2013, Germany's emissions from the sectors covered by the ESD were 471,516 kt CO<sub>2</sub> eq, which is 0.2 per cent below Germany's 2013 AEA under the ESD. The ERT noted that Germany is making progress towards its emission reduction target under the ESD by implementing mitigation actions.

107. The GHG emission projections provided by Germany in its BR2 include the WEM scenario. Under this scenario, emissions excluding LULUCF are projected to be 33.4 per cent below the 1990 level in 2020. Based on this information, the ERT concluded that Germany may still face challenges in achieving its domestic target by implementing mitigation actions under the WEM scenario. However, additional measures from the Climate Action Programme 2020 are expected to deliver additional emission reductions of 62–78 Mt CO<sub>2</sub> eq in 2020. According to the projections under the WEM scenario, emissions from the non-ETS sectors are estimated to reach 421,700 kt CO<sub>2</sub> eq in 2020, which is below the ESD target for 2020 (425,647 kt CO<sub>2</sub> eq). Based on the reported information, the ERT concluded that Germany expects to meet its target for the non-ETS sectors.

108. Germany continues to allocate climate financing in line with the climate finance programmes such as IKI in order to assist developing country Parties to implement the Convention. Germany's climate-specific public financial support in 2013 and 2014 totalled USD 2,547.38 million and USD 2,812.70 million, respectively. Germany remains the third largest contributor to the GEF for the reporting period. The Party's support provided in 2013 was balanced between mitigation and adaptation, but for 2014, for the first time, the support provided for adaptation was higher. The highest level of financial support went to projects in the energy sector, followed by the agriculture and cross-cutting sectors. Germany reported that the support provided for technology transfer and capacity-building was part of almost all the Government's climate-related bilateral development cooperation projects.

109. In the course of the review, the ERT formulated the following recommendations for Germany to improve its adherence to the UNFCCC reporting guidelines on BRs in its next BR:<sup>8</sup>

- (a) Improve the completeness of its reporting by providing projected emissions and removals for the LULUCF sector (see para. 50 above);
- (b) Improve the transparency of its reporting by:
  - (i) Providing information on the joint EU target in the CTF tables (see para. 14 above);
  - (ii) Providing consistent information in CTF table 3 and the BR, in particular on: the mitigation impacts and methodologies used for estimating the impacts of mitigation actions; mitigation impacts, taking into account overlaps; an explanation of the mitigation actions and their effects when included elsewhere; and actions implemented for the agriculture sector (see paras. 24–26 above);
  - (iii) Completing the relevant parts of CTF table 4 in accordance with the assumptions related to the target (see para. 43 above);
  - (iv) Providing the financial information in CTF tables 7, 7(a) and 7(b) in USD (see para. 72 above).

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<sup>8</sup> 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 to decision 2/CP.17. Available at

<<http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf#page=4>>.

“Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories”. Annex to decision 24/CP.19. Available at

<<http://unfccc.int/resource/docs/2013/cop19/eng/10a03.pdf#page=2>>.

“Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications”.

FCCC/CP/1999/7. Available at <<http://unfccc.int/resource/docs/cop5/07.pdf>>.

“Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention”. Annex to decision 13/CP.20. Available at

<<http://unfccc.int/resource/docs/2014/cop20/eng/10a03.pdf>>.

FCCC/IDR.6/DEU. Report of the technical review of the sixth national communication of Germany. Available at <<http://unfccc.int/resource/docs/2015/idr/deu06.pdf>>.

FCCC/TRR.1/DEU. Report of the technical review of the first biennial report of Germany. Available at <<http://unfccc.int/resource/docs/2015/trr/deu01.pdf>>.

2015 greenhouse gas inventory submission of Germany. Available at

<<http://unfccc.int/8812.php>>.

Sixth national communication of Germany. Available at

<[http://unfccc.int/files/national\\_reports/annex\\_i\\_natcom/submitted\\_natcom/application/pdf/national\\_communication\\_eng\\_bf.pdf](http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/national_communication_eng_bf.pdf)>.

First biennial report of Germany. Available at

<[http://unfccc.int/files/national\\_reports/annex\\_i\\_natcom/submitted\\_natcom/application/pdf/141022\\_br\\_2014\\_germany\\_english.resubmission.pdf](http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/141022_br_2014_germany_english.resubmission.pdf)>.

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

<[http://unfccc.int/files/national\\_reports/biennial\\_reports\\_and\\_iar/submitted\\_biennial\\_reports/application/pdf/deu\\_2014\\_v3.0\\_formatted.pdf](http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/deu_2014_v3.0_formatted.pdf)>.

Second biennial report of Germany. Available at

<[http://unfccc.int/files/national\\_reports/biennial\\_reports\\_and\\_iar/submitted\\_biennial\\_reports/application/pdf/germany\\_second\\_biennial\\_report\\_under\\_the\\_unfccc.pdf](http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/germany_second_biennial_report_under_the_unfccc.pdf)>.

Common tabular format tables of the second biennial report of Germany. Available at

<[http://unfccc.int/files/national\\_reports/biennial\\_reports\\_and\\_iar/submitted\\_biennial\\_reports/application/pdf/deu\\_2016\\_v1.0\\_formatted.pdf](http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/deu_2016_v1.0_formatted.pdf)>.

## B. Additional information used during the review

Responses to questions during the review were received from Mr. Benno Hain (German Federal Environment Agency), including additional material and the following documents<sup>1</sup> provided by Germany:

Germany's Climate Action Programme 2020 (English version). Available at <[http://www.bmub.bund.de/fileadmin/Daten\\_BMU/Pool/Broschueren/aktionsprogramm\\_klimaschutz\\_2020\\_broschuere\\_en\\_bf.pdf](http://www.bmub.bund.de/fileadmin/Daten_BMU/Pool/Broschueren/aktionsprogramm_klimaschutz_2020_broschuere_en_bf.pdf)>.

Analysis of the emission reductions of the Climate Action Programme (in German). Available at <[www.bmub.bund.de/N51395/](http://www.bmub.bund.de/N51395/)>.

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>>.

Umweltbundesamt, Deutsche Emissionshandelsstelle, 2014. Emissionshandelspflichtige stationäre Anlagen und Luftverkehr in Deutschland. Available at <[http://www.dehst.de/SharedDocs/Downloads/DE/Publikationen/VET-Bericht\\_2014.pdf](http://www.dehst.de/SharedDocs/Downloads/DE/Publikationen/VET-Bericht_2014.pdf)>.

EU Decision 2013/634/EU. Commission Implementing Decision 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. Available at <<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2013:292:FULL&from=EN>>.

EU Decision 2013/162/EU. Commission Decision 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 (notified under document C(2013) 1708). Available at <<http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32013D0162>>.

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<sup>1</sup> Reproduced as received from the Party.