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

According to decision 2/CP.17, developed country Parties are requested to submit their second biennial report 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 Croatia, 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 Croatia. 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 Croatia, which provided comments that were considered and incorporated with revisions 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. Amr Abdel-Aziz (Egypt), Mr. John Davies (United States of America), Ms. Claudia Do Valle Costa (Brazil), Mr. Takeshi Enoki (Japan), Mr. Sandro Federici (Italy), Mr. Mikhail Gytarskiy (Russian Federation), Ms. Medea Inashvili (Georgia), Ms. Baasansuren Jamsranjav (Mongolia), Ms. Yu'e Li (China) and Mr. Ioannis Sempos (Greece). Mr. Federici and Mr. Gytarskiy were the lead reviewers. The review was coordinated by Ms. Kyoko Miwa, Mr. Pedro Torres and Ms. Xuehong Wang (UNFCCC secretariat).

B. Summary

3. The expert review team (ERT) conducted a technical review of the information reported in the BR2 of Croatia 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, Croatia provided the following additional relevant information: the 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 economy-wide emission reduction target; an explanation of the notation keys used for reporting the mitigation impacts of individual policies and measures (PaMs) and the reasons for the use of notation keys; emission projections for international transport; reporting of market-based mechanisms; changes to the assumptions, methodologies, models and approaches used in the preparation of the projection scenarios since the previous submission; sensitivity analyses on parameters used for the projections.

1. Timeliness

4. The BR2 was submitted on 30 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 30 December 2015.

[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.

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 Croatia in its BR2 is mostly in adherence with the UNFCCC reporting guidelines on BRs as per decision 2/CP.17.

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

Section of the biennial report	*Completeness*	*Transparency*	*Paragraphs with recommendations*
Greenhouse gas emissions and trends	Complete	Transparent	
Assumptions, conditions and methodologies related to the attainment of the quantified economy-wide emission reduction target	Complete	Transparent	
Progress in achievement of targets	Mostly complete	Mostly transparent	19, 22, 41, 46
Provision of support to developing country Parties	NA	NA	NA

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

II. Technical review of the reported information

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

6. Croatia has provided a summary of information on greenhouse gas (GHG) emission trends for the period 1990–2013 in its BR2 and CTF tables 1(a)–(d). The BR2 makes reference to the national inventory arrangements, which are explained in more detail in the national inventory report included in Croatia's 2015 annual inventory submission (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"[2] that are required by paragraph 3 of the UNFCCC reporting guidelines on BRs. Further, Croatia reported that only one change has been made in the national inventory arrangements since the first biennial report (BR1): the former Croatian Environment Agency is now called the Croatian Agency for the Environment and Nature (since 2015).

7. The information reported in the BR2 on emission trends is consistent with that reported in the 2015 annual inventory submission of Croatia. To reflect the most recently available data, version 2 of the Party's 2015 annual inventory submission has been used as the basis for discussion in chapter II.A of this review report. Noting the unique emission trend of Croatia, which shows the variation through the time series (see para. 9 below), the ERT considers that a textual description of the historical trends by sector would enhance transparency and would facilitate the understanding and assessment of the emission trends.

[2] Decision 24/CP.19.

During the review, Croatia provided additional textual information, elaborating on the trends by sectors, which is reflected in paragraph 10 below.

8. Total GHG emissions[3] excluding emissions and removals from land use, land-use change and forestry (LULUCF) decreased by 30.3 per cent between 1990 and 2013, whereas total GHG emissions including net emissions or removals from LULUCF decreased by 34.5 per cent over the same period. The decrease in the total GHG emissions can be attributed mainly to carbon dioxide (CO_2) emissions, which decreased by 22.7 per cent (excluding LULUCF) between 1990 and 2013. Over the same period, emissions of methane (CH_4) decreased by 48.5 per cent, while emissions of nitrous oxide (N_2O) decreased by 39.9 per cent. The trends of combined fluorinated gases are varied. Emissions of perfluorocarbons (PFCs) decreased by almost 100 per cent over the whole time series. The increase of sulphur hexafluoride (SF_6) peaked in 2007 (from 10.45 kt carbon dioxide equivalent (CO_2 eq) in 1990 to 13.05 kt CO_2 eq in 2007), and decreased by 37.0 per cent over the whole time period, while emissions of hydrofluorocarbons (HFCs) have increased by 908.6 per cent since 1995 (57.28 kt CO_2 eq in 1995 to 577.71 kt CO_2 eq in 2013).

9. For the 1990–2013 time period: in the energy sector, emissions from the energy industries decreased by 28.6 per cent, and emissions from manufacturing industries and construction decreased by 56.7 per cent, while emissions from the transport subsector increased by 42.6 per cent; emissions from the industrial processes and product use (IPPU) sector decreased by 42.0 per cent; in the agriculture sector, emissions from enteric fermentation decreased by 66.4 per cent, from manure management decreased by 52.9 per cent and from managed soils decreased by 29.2 per cent; and in the waste sector, emissions from solid waste disposal increased by 227.9 per cent, while emissions from wastewater treatment and discharge decreased by 6.8 per cent. However, over the time series, the emission trend has not been stable. In the years between two decreasing trends (for 1990–1994 and from 2008 onwards), emissions have shown an increasing trend, with fluctuations. In the BR 2, the Party explained that this unstable trend was driven mainly by variations in its economic situation, and the ERT noted that this trend is particularly observed in the emissions from the energy and IPPU sectors (see also paras. 10, 44 and 67 below).

10. The ERT noted that, during the period 1990–2013, Croatia's gross domestic product (GDP) per capita increased by 14.7 per cent, while GHG emissions per GDP and GHG emissions per capita decreased by 31.7 and 21.7 per cent, respectively. In the BR2, Croatia explained that the drivers of the reduction of total emissions of GHGs are the decreases in economic activities and in energy consumption in the early 1990s, mainly as a consequence of the war in Croatia, and in the most recent years 2008–2013. In the BR2, the Party also explained that the reasons for the decrease in GHG emissions in 2013 was the economic crisis and the implementation of measures (see also para. 9 above and paras. 44 and 67 below). Table 2 below illustrates the emission trends by sector and some of the economic indicators relevant to GHG emissions for Croatia.

[3] 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 2.

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

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share by sector (%)*	
Sector	*1990*	*2000*	*2010*	*2012*	*2013*	*1990–2013*	*2012–2013*	*1990*	*2013*
1. Energy	24 902.63	19 739.09	21 035.31	18 685.67	18 122.71	–27.2	–3.0	70.9	74.0
A1. Energy industries	7 189.55	5 839.41	5 931.02	5 524.18	5 132.17	–28.6	–7.1	20.5	21.0
A2. Manufacturing industries and construction	5 529.04	3 115.63	3 030.11	2 421.88	2 392.78	–56.7	–1.2	15.7	9.8
A3. Transport	4 032.07	4 525.56	5 978.36	5 656.55	5 749.69	42.6	1.6	11.5	23.5
A4.–A5. Other	3 859.66	3 553.50	3 639.74	3 105.01	2 934.65	–24.0	–5.5	11.0	12.0
B. Fugitive emissions from fuels	4 292.31	2 705.00	2 456.07	1 978.05	1 913.42	–55.4	–3.3	12.2	7.8
C. CO_2 transport and storage	NO	NO	NO	NO	NO	NA	NA	NA	NA
2. IPPU	4 852.60	3 291.57	3 591.27	3 092.03	2 812.59	–42.0	–9.0	13.8	11.5
3. Agriculture	4 766.50	3 208.67	2 526.14	2 512.58	2 317.95	–51.4	–7.7	13.6	9.5
4. LULUCF	–5 536.67	–7 162.09	–6 260.34	–5 036.37	–5 125.18	–7.4	1.8	NA	NA
5. Waste	594.24	799.76	1 173.33	1 214.81	1 239.53	108.6	2.0	1.7	5.1
6. Other									
Indirect CO_2	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA	NA	NA	NA
Total GHG emissions without LULUCF	**35 115.98**	**27 039.08**	**28 326.05**	**25 505.09**	**24 492.78**	**–30.3**	**–4.0**	**100.0**	**100.0**
Total GHG emissions with LULUCF	**29 579.31**	**19 876.99**	**22 065.71**	**20 468.71**	**19 367.59**	**–34.5**	**–5.4**	**NA**	**NA**
Indicators									
GDP per capita (thousands 2005 USD using PPP)	13.99	12.51	15.99	16.15	16.04	14.7	–0.7	NA	NA
GHG emissions without LULUCF per capita (t CO_2 eq)	7.35	6.11	6.41	5.98	5.76	–21.7	–3.7	NA	NA
GHG emissions without LULUCF per GDP unit (kg CO_2 eq per 2005 USD using PPP)	0.53	0.49	0.40	0.37	0.36	–31.7	–3.1	NA	NA

Sources: (1) GHG emission data: Croatia's 2015 annual inventory submission, version 2; (2) GDP per capita data: International Energy Agency.

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

11. In its BR2 and CTF tables 2(a)–(f), Croatia 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 as a part of the European Union (EU) quantified economy-wide emission reduction target. Further information on the target and the assumptions, conditions and methodologies related to the target is provided in chapter 2 of the BR2.

12. For Croatia, the Convention entered into force on 7 July 1996. Under the Convention, Croatia 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.

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

14. 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 2.1 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.

15. Under the ESD, Croatia has a target to limit its emission growth to 11 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 Croatia, AEAs change following a linear path from 19,613.81 kt CO_2 eq in 2013 to 20,953.97 kt CO_2 eq in 2020.[4]

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

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

16. This chapter provides information on the review of the reporting by Croatia 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

17. In its BR2 and CTF table 3, Croatia reported on its progress in the achievement of its target and the mitigation actions implemented, adopted and planned since its sixth national communication (NC6) and the BR1 to achieve its target. Croatia has provided information on mitigation actions introduced to achieve its target as its common commitment under the EU. The BR2 includes information on mitigation actions organized by sector and by gas. Further information on the mitigation actions related to the Party's target is provided in chapter 3 of the BR2 and in this report (see paras. 26–36 below).

18. This report highlights the changes made since the publication of the Party's NC6 and BR1. The ERT noted that the legal frameworks for meeting the quantified economy-wide emission reduction targets of Croatia are underpinned by the EU 2020 climate and energy package, the ESD and the national plan for the Protection of Air, Ozone Layer and Climate Change Mitigation in the Republic of Croatia for the period 2013–2017.

19. In its BR2, Croatia did not provide information on changes in its domestic institutional arrangements, including institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress made towards its economy-wide emission reduction target since the NC6/BR1. In response to a question raised by the ERT during the review, the Party provided an explanation of the domestic institutional arrangements and provided a report *"Report on implementation of Policies and Measures that Reduce GHG Emissions by Sources or Enhance Removals by Sinks -addition-"* prepared by the Croatian Environment Agency, published in June 2015, which includes information on the national system for the development of projections of GHG emissions. Croatia further confirmed that there are no additional changes in its domestic institutional arrangements since the BR1. To ensure completeness of reporting, the ERT recommends that the Party provide the information on changes in its domestic institutional arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress towards its target in its next submission.

20. According to an explanation provided by Croatia during the review, the Ministry of Environmental and Nature Protection controls the fulfilment of obligations under the ESD based on the reports on GHG emissions, PaMs, projections and implementation of a low-carbon development strategy. Obligations of emission limitations under the ESD will be fulfilled through the state administration authorities by related activities in environmental protection, construction, economy, energy industry, entrepreneurship, agriculture, forestry, tourism, transport and development. Croatia also explained that the preparation of the low-carbon development strategy for the period until 2030 with a view to 2050 is ongoing and planned to be adopted in 2016.

21. The ERT noted that in the BR2 and CTF table 3, Croatia reported the information on mitigation impacts as "NE" (not estimated) and "IE" (included elsewhere) for the majority of PaMs. During the review, Croatia explained that those notation keys were taken from the national GHG inventory reporting practice and used as substitutes for the impacts of mitigation actions that have not been quantified ("NE") and where it was not possible to

determine the potentials separately ("IE") because, for most of the individual PaMs, it was difficult to single out their impacts.

22. The ERT considers that the use of such abbreviations, "NE" and "IE", instead of reporting quantified information on mitigation impacts, is acceptable if proper explanation of the reasons why the estimates cannot be calculated is provided. The ERT acknowledges that some types of measures, such as educational, research or informational PaMs, are indeed difficult to assess in terms of CO_2 eq emission reductions. The ERT also finds that in certain cases the method of reporting aggregated impact assessments for some measures that are grouped around one common area/sector/subsector may be appropriate, however, the ERT notes that such an approach should be duly justified. Nevertheless, full transparency is needed to ensure the avoidance of double counting of the impacts of some measures in different groups, as well as to avoid any omissions. The ERT also considers that each "NE" measure may have different reasons that prevent its impact from being estimated. Therefore, noting the strong encouragement made in the report of the technical review of the Party's NC6 to continue efforts to estimate the impacts of individual PaMs, the ERT recommends that Croatia improve the transparency of its reporting by providing, in its next submission, justification for each mitigation action for which the quantitative assessment of its impact is not reported.

23. ERT noted that the Party did not report, in its BR2, information 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 encourages Croatia to report, to the extent possible, the missing information in its next submission.

24. The ERT also noted that the Party did not report, in its BR2, information on the progress made in the establishment of national rules for taking local action against domestic non-compliance with emission reduction targets. The ERT encourages Croatia to report, to the extent possible, the missing information in its next submission.

25. The ERT noted inconsistency between the statuses and the starting years of implementation for some individual measures in CTF table 3. For example, some laws and a programme for the promotion of the use of renewable energy sources in heat/cooling energy production are reported grouped into one mitigation action in the BR2 and in CTF table 3 (reported as MEN-11), for which the status is indicated as 'implemented', although the starting year is indicated as 2016; and some measures to intensify the use of innovative information and communication technologies to reduce GHG emissions are grouped into one mitigation action (reported as MSP-20), for which the status is reported as 'adopted', although the starting year of implementation is referred to as 2011. In response to a question raised by the ERT, Croatia clarified that a future starting year for the measures with the status 'implemented' meant that their impacts would be seen from that year, while the status 'adopted' in past years for some measures just reflects their adoption in that year. The ERT encourages Croatia to enhance the transparency of its reporting of individual PaMs by providing explicit and consistent explanations on how the notations 'planned', 'adopted' and 'implemented' are used, in its next submission.

26. The key overarching cross-sectoral policy in the EU is the 2020 climate and energy package adopted in 2009, which includes the revised EU ETS and the ESD. This package is supplemented by renewable energy and energy efficiency legislation and legislative proposals on the 2020 targets for CO_2 emissions from cars and vans, the carbon capture and storage directive, and the general programmes for environmental conservation, namely the 7th Environment Action Programme and the Clean Air Policy Package (see table 3 below).

27. In operation since 2005, the EU ETS is a cap-and-trade system that covers all significant energy-intensive installations (mainly large point emissions sources such as

power plants and industrial facilities), which produce 40–45 per cent of the GHG emissions of the EU. It is expected that the EU ETS will guarantee that the 2020 target (a 21 per cent emission reduction below the 2005 level) will be achieved for sectors under the scheme. The third phase of the EU ETS started in 2013 and the system now includes aircraft operations (since 2012) as well as N_2O emissions from chemical industries, PFC emissions from aluminium production and CO_2 emissions from industrial processes (since 2013).

28. Croatia acceded the EU on 1 July 2013. The BR2 highlights as the most relevant mitigation action the inclusion of operators at full scale in the EU ETS from January 2013, including aviation operators from 1 January 2014 (reported as MSP-1 in the BR2/CTF table 3). Prior to 2013, operators in Croatia were not obliged to limit emissions to a given threshold, as the plant operators in the EU member States. Croatia has included domestic civil aviation in the EU ETS from 2014. With this development, all operators, except electricity producers for third-party's sales, have submitted their applications for issuance of free allowances. Croatia explains, in the BR2, operators in Croatia which will not have a sufficient number of allowances to cover their GHG emissions have the option to purchase emission units through auctions or at a specialized secondary market.

29. The ESD became operational in 2013 and covers sectors outside the EU ETS, including transport (excluding domestic and international aviation, and international maritime transport), residential and commercial buildings, agriculture, waste and other sectors, together accounting for 55–60 per cent of the GHG emissions of the EU. The ESD aims to decrease GHG emissions in the EU by 10 per cent below the 2005 level by 2020 and includes binding annual targets for each member State for 2013–2020, which are underpinned by the national policies and actions of the member States (see the figure below). For Croatia, the ESD target is set as a capped increase of 11 per cent above the 2005 level by 2020 (see para. 15 above).

30. At the national level, Croatia introduced policies to achieve its targets under the ESD (see para. 29 above). The key policies reported in the BR2 are related to renewable energy and energy efficiency, as reflected in the action plans and in the set of measures for the energy sector (see para. 26 above). Croatia reported, in CTF table 3, the aggregated mitigation impacts of those actions for renewable energy and energy efficiency as 4,325 kt CO_2 eq and 1,229 kt CO_2 eq, respectively, by 2020.

31. In the BR2, Croatia explained that objectives and a policy for increasing the share of renewable energy sources in final energy consumption by 2020 were determined, in the year 2013, under the National Action Plan for Renewable Energy Sources. A set of mitigation actions related to renewable energy includes: the promotion of biofuels in transport (MTR-4); the use of renewable energy in electricity generation mainly through incentive prices (tariffs) (MEN-7); and the use of biogas from waste to electricity and heating (MEN-15).

32. Croatia indicated that energy efficiency in buildings has been identified as an area with great potential, and related action plans and programmes have been adopted. Operative Programme Competitiveness and Cohesion for the period 2014–2020 is expected to provide the incentives (MEN-1). Under the Law on Energy Efficiency (OG 127/14), energy audits are mandatory for large companies to support the assessment of the potential energy savings in industrial plants, and, as such, a voluntary scheme is provided for small- and medium-sized companies (MEN-2). Energy efficiency projects for existing plants and facilities through modernization, reconstruction and renovation have been introduced to promote rational use of energy (MEN-14). Regulations on energy labelling of household appliances (MEN-5) and an ordinance on establishing eco-design requirements for energy-related products (MEN-6) have also been implemented. Measures in the transport sector include the promotion of eco-driving (MTR-3), and modified fees for motor vehicles by engine and fuel type, engine operating volume and vehicle age (MTR-5).

33. Financial incentives for renewable energy and energy efficiency include: favourable loan programmes through the Loan Programme for the Preparation of Renewable Energy Resources and the Loan Programme for the Financing of Projects of Environmental Protection Energy Efficiency and Renewable Energy Sources, operated by the Croatian Bank for Reconstruction and Development (MEN-12); the use of revenues from air polluters and fees for waste, environment and vehicles and for the Environmental Protection and Energy Efficiency Fund to provide funding to energy efficiency projects such as cogeneration, district heating systems and energy audits, as well as to provide grants and other financial incentives such as interest-rate subsidies, to local governments, companies, non-governmental organizations and individuals (MEN-13).

34. Other significant mitigation impacts are observed for the set of measures implemented in the waste sector through demand management/reduction, enhanced recycling and reduced landfilling, for which the mitigation impact in 2020 is projected to be 464 kt CO_2 eq, and CH_4 recovery from waste management (MSP-12 in CTF table 3), for which the mitigation impact in 2020 is projected to be 145 kt CO_2 eq.

35. Croatia has reported most individual mitigation impacts in the various sectors as "NE" and "IE" (see paras. 21 and 22 above and para. 39 below), and has grouped them into major actions, which prevents the ERT from assessing which PaMs indicated in paragraphs 31–34 above are indeed significant.

36. The BR2 highlights the domestic mitigation actions that are under development, such as: a feasibility study for carbon capture and storage (MSP-3); the development of sustainable transport systems in urban areas (MTR-8); the thermal treatment of municipal waste and sludge from wastewater treatment plants (starting from 2020, MSP-16); the development of assessment of the implementation of GHG emission reduction measures in the agriculture sector (MSP-4); and the preparation of cost–benefit analyses of afforestation on new areas and natural regeneration of forests as a measure of increasing sinks in the LULUCF sector (MSP-6). Some other measures related to renewable energy and energy efficiency improvements on the demand side, such as for buildings, services and industrial end-use sectors in the energy, transport and waste sectors, are also planned to start in 2021. These planned measures would provide a foundation for significant additional actions for Croatia.

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

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

Sector affected	*List of key mitigation actions*	*Estimate of mitigation impact by 2020 (kt CO_2 eq)*
Policy framework and cross-sectoral measures	Inclusion of operators in the EU ETS in the full scale from 1 January 2013 and administering aviation operators from 1 January 2014 (MSP-1)	NE
Energy, including:		
Transport	Development of a sustainable transport system in urban areas (MTR-8)	NE
Renewable energy	Renewable energy group of measures for the WEM scenario including: biofuels in transport	4 325

Sector affected	*List of key mitigation actions*	*Estimate of mitigation impact by 2020 (kt CO_2 eq)*
	(MTR-4); renewable energy in electricity generation (MEN-7; usage of biodegradable fraction of municipal waste in public electricity and heating plants (MEN-9); biogas from waste to electricity and heating (MSP-15); and financial incentives for the promotion of use of renewable energy sources (MEN-12 and -13)	
Energy efficiency	Energy efficiency group of measures for the WEM scenario: Law on Energy Efficiency (OG 127/14) including energy audit in industry (MEN-2); measurement and informative calculation of energy consumption (MEN-3); energy efficiency projects with implementation through energy services (MEN-14); labelling the energy efficiency of household appliances (MEN-5); eco-design of energy-using products (MEN-6); and financial incentives – loans and funds – for the promotion of use of renewable energy sources (MEN-12 and MEN-13)	1 229
IPPU	Handling with ODS and fluorinated GHGs (MOS-1)	NE
Agriculture	Rural development programme for the period 2014–2020 (MSP-4a)	68
LULUCF	Development of an action plan for the LULUCF sector (MSP-8)	NE
Waste	Waste group of measures for the WEM scenario including: preventing and reducing the amount of municipal waste (MSP-9); separating and recycling municipal waste (MSP-10); and reducing biodegradable municipal waste disposed to landfills under the Law on Sustainable Waste Management (MSP-13)	464
	CH_4 recovery from waste management (MSP-12)	145

Note: The estimates of mitigation impact are estimates of emissions of carbon dioxide or carbon dioxide equivalent avoided in a given year as a result of the implementation of mitigation actions.

Abbreviations: EU ETS = European Union Emissions Trading System, GHG = greenhouse gases, IPPU = industrial processes and product use, LULUCF = land use, land-use change and forestry, NE = not estimated, ODS = ozone-depleting substances, WEM = 'with measures'.

38. In its BR2, Croatia improved its reporting on individual mitigation actions since the BR1 by providing better descriptions and more estimates of their impacts. Croatia listed the mitigation actions, introduced to achieve its quantified economy-wide emission reduction target, under the common EU target of 20 per cent reduction from the 1990 level by 2020, by sectors and in relation to the EU ETS and non-ETS sectors. The ERT commends the Party for this improvement.

39. However, the ERT noted that Croatia still does not provide quantified estimates for most individual domestic mitigation measures. Instead, Croatia reported aggregated estimates that involve various sectors/subsectors (e.g. for waste recovery for energy, renewable energy and energy efficiency) (see also paras. 21, 22 and 35 above). For other sectors, such as transport, IPPU and agriculture, emissions are not estimated. The ERT considers that the inclusion of the operators in the EU ETS on the full scale from 1 January 2013 and of aviation operators from 1 January 2014 (MSP-1) is the most important cross-cutting action for mitigation in the country; however, its mitigation impact is reported as "NE" in the BR2 and CTF table 3. The ERT considers that the provision of quantitative estimates of the individual mitigation actions as far as possible or an explanation of the reason for it not being estimated would improve the transparency of the reporting on the mitigation actions of the Party in its next submission.

40. In response to the encouragement made in the technical review report of the BR1, Croatia provided, in its BR2, information on the assessment of the economic and social consequences of response measures. The ERT commends Croatia for this improvement.

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

41. Croatia reported in its BR2 that "a limited number of CERs and ERUs units may be used to achieve the target", and in a footnote to CTF table 4(b), Croatia reported that "the use of CER and ERU cannot be quantified at the time of reporting". During the review, Croatia updated the ERT that it intends to fulfil all its obligations under the Convention by domestic measures. To enhance the transparency of its reporting, the ERT recommends that Croatia report on its intention to fulfil all its obligations under the Convention by domestic measures in reporting the information on the use of units from market-based mechanisms in its next submission. Croatia has also reported in its BR2 and CTF tables 4, 4(a)I and 4(a)II that LULUCF is not being used to achieve its target.

42. Table 4 below illustrates Croatia'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 Croatia towards the achievement of its target

Year	*Emissions excluding LULUCF (kt CO_2 eq)*	*Contribution from LULUCF (kt CO_2 eq)* [a]	*Emissions including contribution from LULUCF (kt CO_2 eq)*	*Use of units from market-based mechanisms (kt CO_2 eq)* [b]
1990	35 115.98	NA	NA	0
2010	28 326.05	NA	NA	0
2011	27 719.29	NA	NA	0
2012	25 505.09	NA	NA	0
2013	24 492.78	NA	NA	0

Sources: Croatia'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] Croatia reports that the use of certified emission reductions and emission reduction units cannot be quantified at the time of reporting.

43. To assess the progress towards the achievement of the 2020 target, the ERT noted that Croatia's emission reduction target under the Convention from sectors not covered by the EU ETS under the ESD is 11 per cent above the 2005 level (see paras. 15 and 29 above). As discussed in chapter II.B above, in 2013, Croatia's annual total GHG emissions excluding LULUCF were 30.3 per cent (10,623.2 kt CO_2 eq) below the base year level. In addition, the ERT noted that in 2013, the contribution from LULUCF was –5,125.18 kt CO_2 eq, and although the Party has not decided on its use of market-based mechanisms to achieve the target, it intends to fulfil all its obligations under the Convention by domestic measures (see para. 41 above).

44. The ERT noted that Croatia is on track for meeting its contribution to the overall EU emission target. However, the ERT also noted that Croatia experienced an increase in GHG emissions, at an average rate of 3 per cent per year in the period 1995–2007, which reflects a growth in the economy and an increase in the consumption of energy and goods (see paras. 9 and 10 above). Furthermore, over the periods 1990–1994 and 2008–2013 the main drivers for GHG emission reductions were a decrease in economic activity and in energy consumption. For the most recent years, Croatia indicated, in the BR2, that the implementation of mitigation actions was also a driver behind the decrease in GHG emissions particularly in 2013.

3. Projections

45. Croatia reported in its BR2 and CTF table 6(a) updated projections for 2020 and 2030 relative to actual inventory data for the year 2012 under the 'with measures' (WEM) scenario. Indicative projections up to 2035 are also reported in the BR2. Projections were developed based on historical data from the 2014 national inventory report, which was made in accordance with the methodologies provided in the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*. For the elaboration of the WEM scenario, historical emissions from the 2014 national inventory report were recalculated using GWP values from the IPCC AR4. The reference year for the projections was 2012. Projections are presented on a sectoral basis, using the same sectoral categories as those used in the chapter on mitigation actions, and on a gas-by-gas basis for the following GHGs: CO_2, CH_4, N_2O, PFCs, HFCs and SF_6 (treating PFCs, HFCs and SF_6 collectively in each case). Projections are also provided in an aggregated format for each sector as well as for a Party total, using GWP values from the IPCC AR4. Croatia reported on factors and activities influencing emissions for each sector. Further information on the projections is provided in chapter 4 of the BR2 and in this report (see paras. 52–55 below).

46. Croatia does not report, in the BR2 and CTF table 6(a), information on emission projections related to fuel sold to ships and aircraft engaged in international transport separately as required by the UNFCCC reporting guidelines on BRs; and no explanation for not reporting is provided in the BR2. During the review, the Party explained that the historical data are included in CTF table1 as memo items; these data are not part of the total emissions for Croatia, and are therefore not relevant for projection purposes. Noting the requirement in paragraph 36 of 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 Annex I reporting guidelines on NCs), the ERT reiterates the recommendation made in the report of the technical review of the NC6 that Croatia report emission projections for international transport separately, to the extent possible, in its next submission.

47. In addition to the WEM scenario, Croatia reported in BR2 and CTF tables 6(b) and 6(c) the 'with additional measures' (WAM) and 'without measures' (WOM) scenarios. The projections are prepared by sector and by gas in the same way as for the WEM scenario for the years 2020 and 2030, and indicative projections are reported up to 2035.

48. Croatia has not provided, in its BR2, information on the changes made since the NC6/BR1 on the assumptions, methodologies, models and approaches used and on the key variables and assumptions used in the preparation of the projection scenarios. The ERT noted the following differences in projections between the NC6 and BR2: the WEM projections in the NC6 showed only a slight increase of GHG emissions after 2020, while the projections in the BR2 show a continuous increase from 2015 to 2035 for both total emissions and ESD sector emissions; the WOM projections in the BR2 are much lower than those in the NC6 for the whole time series; the WAM projections in the NC6 show a clear decrease from 2025, while in the BR2, the projected emissions show a continuous increase even after 2025. In response to a question raised by the ERT during the review, Croatia provided additional information that explains the main changes, such as the change of a model used for the energy sector projection and changes in the macroeconomic parameters since the last submission together with the document *Report on Projections of Greenhouse Gas Emissions – addition – Republic of Croatia* (see paras. 52 and 53 below). The ERT encourages the Party to provide information on the changes made since the NC6 in the model and methodologies used for projections, with the supporting documents, in its next submission, in order to improve the transparency in its reporting.

49. Croatia also did not provided, in its BR2, information on sensitivity analyses. During the review, Croatia provided the above mentioned "*Report on Projections of Greenhouse Gas Emissions -addition-".* The ERT noted that this report provides the information on sensitivity analyses on a few selected parameters (see para. 54 below). The ERT reiterates the encouragement made in the report of the technical review of the NC6 the Party to provide this information in its next submission.

50. As indicated in paragraphs 21, 22 and 39 above, Croatia has not reported, in the BR2 or CTF table 3, quantitative information on the effect of each individual mitigation policy and action for 2020 and 2030. The ERT also noted that the Party has not reported, in the BR2, the information on quantified values for most of key parameters and activity data adopted for the projections for the BR2, as well as changes of those values since the NC6. The above mentioned "*Report on Projections of Greenhouse Gas Emissions -addition-",* provided by the Party during the review (see para. 48 above), gives numerical values for some key parameters and activity data. The ERT considers that reporting the above-mentioned missing quantitative information on parameters and activity data used for projections, as well as effect of individual PaMs (see para. 39 above), will allow the ERT to gain a better understanding of the projections made by Croatia, and encourages the Party to provide this information in its next submission.

Overview of projection scenarios

51. The WEM scenario reported by Croatia includes the effects of key PaMs that have been implemented or for which implementation is in progress or likely, but still not begun. Croatia also reported on a WAM scenario, which includes planned PaMs, and a WOM scenario, which assumes that the implementation of already adopted and planned PaMs will not take place after 2012. The definitions indicate that the scenarios have been prepared according to the UNFCCC Annex I reporting guidelines on NCs. The ERT noted that no clear explanation has been provided in the BR2 to link the PaMs presented in the PaMs chapter with the actions and measures taken into account in the projections. During the review, Croatia presented additional and more detailed documentation "*Report on Projections of Greenhouse Gas Emissions -addition-",* (see para. 50 above) which enabled the ERT to better evaluate which PaMs were included in the WEM scenario.

Methodology and changes since the previous submission

52. As indicated in paragraph 48 above, the methodology used in the BR2 is different from that used for the preparation of the emission projections for the NC6/BR1. The GDP growth rate used for the BR2 is, on average, around 1.9 per cent, while it was more than 3.0 per cent in the NC6. The model used for energy has been changed to the LEAP (Long-range Alternatives Planning System) model because the Party considered that it enables faster modelling and scenario creation and analysis. For the IPPU and waste sectors, projections of the macroeconomic parameters have been changed, and for the waste sector, some mitigation measures were not considered in the BR2. For agriculture, an adjustment factor accounting for the effect of the financial crisis in recent years since 2009 was applied for the crop yield trend for the scenario for the BR2, in order to compensate for data from recent years that would make the trend unrealistically underestimated.

53. To prepare its projections, Croatia relied on the following key underlying assumptions: population trends, energy prices and economic development indicators, as reported in CTF table 5. During the review, the Party explained that these assumptions have been updated since the NC6 according to the information provided by the European Commission and that the data are consistent with the EU Reference scenario[5] and provided a document "*Report on Projections of Greenhouse Gas Emissions -addition-"* (paras. 48, 50 and 52 above), which gives numerical values for some key parameters as well as activity data.

54. According to the report *"Report on Projections of Greenhouse Gas Emissions -addition-"* (see para. 49 above), Croatia analysed the sensitivity of the projections for four cases of economic growth combined with parameters of volume of imports/experts and variability owing to electricity generation from hydropower plants. In the case of annual GDP growth rate being 10 per cent lower than the original rate used for the BR2, the WEM scenario showed 0.9 per cent lower emissions for 2020 and 2.6 per cent lower for 2030 compared with the WEM scenario reported in the BR2. In the case of a 10 per cent higher annual GDP growth rate, emissions in the WEM scenario were 0.9 per cent higher for 2020 and 2.8 per cent higher for 2030. In the case of a 20 per cent lower/higher GDP growth rate, emission estimates deviated with a range of ±1.8 per cent for 2020 from the reported WEM scenario. Variability in the electricity generation of hydropower plants can affect the total emissions by around ±10 per cent.

55. The ERT commends Croatia for its improvement in transparency by providing the projections of all three scenarios separately for emissions covered under the EU ETS and under non-ETS sectors in response to the review report on the BR1. Based on the reported information in the BR2, the non-ETS sector emissions for the period 2015–2020 under the WEM scenario (97,632 kt CO_2 eq, cumulative total of annual emissions for the period estimated by linear interpolation between 16,091 kt CO_2 eq in 2015 and 16,453 kt CO_2 eq in 2020) are approximately 20.5 per cent below the cumulative total of the AEAs for the same period (122,852.03 kt CO_2 eq). In order to improve transparency and consistency with the PaMs reported in the BR2 and CTF table 3, the ERT notes that the separation by sectors/subsectors under the EU ETS and non-ETS, as well as the provision of the impacts of PaMs in the WEM scenario separately under the ETS and non-ETS, will greatly increase the transparency.

[5] *EU Energy, Transport and GHG Emissions, Trends to 2050, Reference Scenario 2013*, available at <http://ec.europa.eu/transport/media/publications/doc/trends-to-2050-update-2013.pdf>.

Results of projections

56. Croatia's total GHG emissions excluding LULUCF in 2020 and 2030 are projected to be 26,271.45 and 29,686.88 kt CO_2 eq, respectively, under the WEM scenario, which represents a decrease of 25.2 and 15.5 per cent, respectively, below the 1990 level. Under the WAM scenario, emissions in 2020 and 2030 are projected to be lower than those in 1990 by around 11,397.48 and 10,646.88 kt CO_2 eq, respectively, which represents a decrease of 32.5 and 30.3 per cent, respectively. The 2020 projections suggest that Croatia will continue contributing to the achievement of the EU target under the Convention (see also paras. 15, 43 and 44 above).

57. Croatia's target for the emissions from sectors covered by the ESD (non-ETS sectors) is to limit its emission growth to 11 per cent above the 2005 level by 2020. For Croatia, the AEAs, which correspond to its national emission target for non-ETS sectors, change following a linear path from 19,613.81 kt CO_2 eq in 2013 to 20,953.97 kt CO_2 eq in 2020. According to the projections made under the WEM scenario, emissions from non-ETS sectors are estimated to reach 16,453 kt CO_2 eq by 2020, corresponding to 12.5 per cent below the 2010 level (18,798 kt CO eq as provided in the BR2), and Croatia's emissions in 2020 are projected to be 15,293 kt CO_2 eq under the WAM scenario, corresponding to an estimated reduction of 18.6 per cent below the historical emissions in 2010. The ERT noted that this suggests that Croatia expects to meet its target under the WEM scenario (see paras. 15, 43, 44 and 56 above).

58. Croatia explained that it developed projections in the BR2 based on the historical emission data of the 2012 GHG inventory year (see para. 45 above), however, the information on historical emissions from non-ETS sectors in 2012 is not separately provided in the BR2. The ERT also noted that in the BR2, Croatia indicated that the historical emissions from non-ETS sectors in 2010 were 18,798 kt CO_2 eq. The projected emissions from non-ETS sectors in 2015 under the WEM scenario are 16,091 kt CO_2 eq, owing to the continuation of the downward trend in emissions until 2015. This could mean an average of around a 3 per cent reduction per annum in the emissions from non-ETS sectors for the period between 2010 and 2015. Noting this, the ERT considers that the inclusion of information on the most recent historical emissions from non-ETS sectors in the BR2 would allow better assessment on the progress in the ESD sectors.

59. According to the projections reported by sector, the most significant GHG emission reductions under the WEM scenario from 1990 to 2020 are expected to occur in the energy sector excluding the transport subsector (7,197.40 kt CO_2 eq or 34.5 per cent), followed by the IPPU sector (2,329.63 kt CO_2 eq or 48.0 per cent) and the agriculture sector (1,411.10 kt CO_2 eq or 29.6 per cent). GHG emissions from the transport subsector are projected to increase by 1,442.82 kt CO_2 eq (35.8 per cent) above the 1990 level by 2020, and for the waste sector, emissions are projected to increase by 650.79 kt CO_2 eq (109.5 per cent). The pattern of sectoral proportions under the WAM scenario presents no changes: the energy sector remains the most prominent source of reductions, followed by the IPPU sector.

60. Under the WEM scenario from 1990 to 2030, the most significant GHG emission reductions will occur in the energy sector excluding the transport subsector (5,167.89 kt CO_2 eq or 24.8 per cent), followed by the IPPU sector (1,956.87 kt CO_2 eq or 40.3 per cent) and the agriculture sector (1,062.04 kt CO_2 eq or 22.3 per cent). Emissions from the transport subsector are projected to increase by 2,370.88 kt CO_2 eq (58.8 per cent) above the 1990 level by 2030. Emissions from the waste sector are projected to decrease from the 2020 projection level; however, they are projected to still exceed the 1990 level by 386.84 kt CO_2 eq (65.1 per cent).

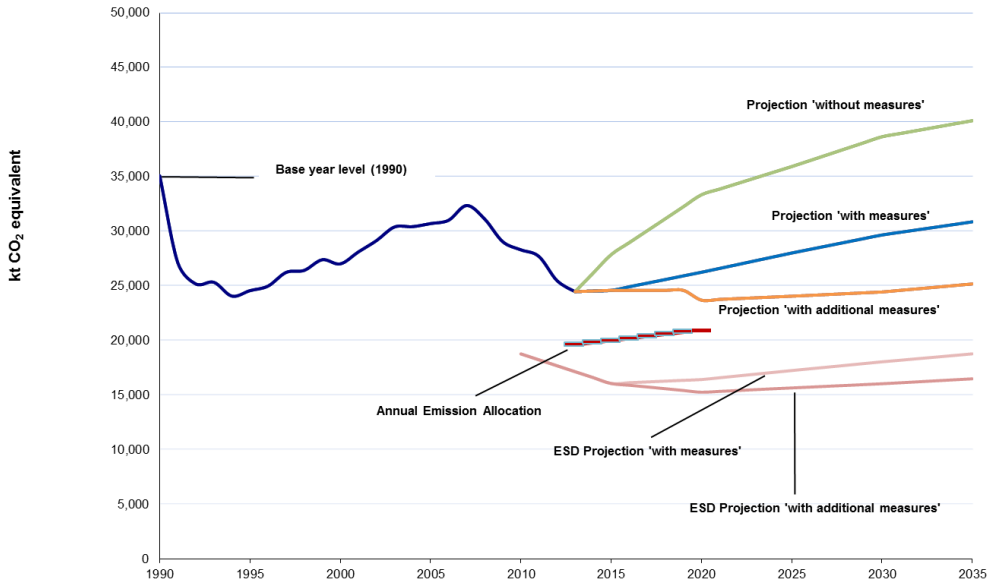
61. According to the projections reported by gas, reductions in CO_2 emissions are expected to contribute the most to the Party's overall emission reductions excluding the

LULUCF sector. Under the WEM scenario, reductions in CO_2 emissions (4,920.08 kt CO_2 eq), excluding the LULUCF sector, make up approximately 55.6 per cent of the aggregate GHG emission reductions between 1990 and 2020, followed by CH_4 with 34.1 per cent (3,017.97 kt CO_2 eq) and N_2O with 2.7 per cent (235.28 kt CO_2 eq). Under the WAM scenario, reductions in CO_2 emissions make up approximately 63.6 per cent (7,250.00 kt CO_2 eq) of the aggregate GHG emission reductions between 1990 and 2020, followed by CH_4 with 46.4 per cent (3,226.36 kt CO_2 eq) and N_2O with 2.2 per cent (249.92 kt CO_2 eq).

62. For the projections to 2030 under the WEM scenario, reductions in CH_4 emissions (2,884.52 kt CO_2 eq), excluding the LULUCF sector, make up approximately 53.1 per cent of the aggregate GHG emission reductions between 1990 and 2030, followed by CO_2 with 34.9 per cent (1,893.86 kt CO_2 eq) and N_2O with 0.5 per cent (29.01 kt CO_2 eq).

63. The projected emission levels under the different scenarios for total GHG emissions, the AEAs for the ESD sectors and Croatia's emission projections under the ESD are presented in the figure below.

Greenhouse gas emission projections



Sources: (1) Data for the years 1990–2013: Croatia's 2015 annual inventory submission, version 2; total GHG emissions excluding LULUCF; (2) Data for the years 2015–2035: Croatia's second biennial report; total GHG emissions excluding LULUCF; Croatia Environmental Agency, 2015; (3) Data of historical emissions and projections of GHG emissions in non-ETS sectors for the years 2010–2035: Croatia's second biennial report.

Abbreviations: ESD = effort-sharing decision, ETS = emissions trading system, GHG = greenhouse gas, LULUCF = land use, land-use change and forestry.

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

64. Croatia 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, Croatia provided information on its provision of support to developing country Parties. The ERT commends Croatia for reporting this information and encourages it to continue to do so in future biennial reports.

65. Croatia is supporting Montenegrin institutions in strengthening administrative capacity in the field of climate change, under the EU accession process.

III. Conclusions

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

67. Croatia's total GHG emissions excluding LULUCF related to its quantified economy-wide emission reduction target were estimated to be 30.3 per cent below the 1990 level, whereas total GHG emissions including LULUCF were 34.5 per cent below the 1990 level for 2013. The emission decrease was driven by declines in economic activities and energy consumption.

68. Under the Convention, Croatia is committed to contributing to the achievement of the joint EU quantified economy-wide target of a 20 per cent reduction in emissions below the 1990 level by 2020. The target covers all sectors and the gases CO_2, CH_4, N_2O, HFCs, PFCs and SF_6, expressed using GWP values from the AR4. Emissions and removals from the LULUCF sector are not included in the quantified economy-wide emission reduction target under the Convention 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.

69. Under the ESD, Croatia has a target to limit the emission growth to 11 per cent above the 2005 level by 2020. For Croatia, the AEAs, which correspond to its national emission target for non-ETS sectors, increase following a linear path from 19,613.81 kt CO_2 eq in 2013 to 20,953.97 kt CO_2 eq in 2020.

70. Croatia's main policy framework relating to energy and climate change is underpinned by the EU 2020 climate and energy package with the EU ETS and the ESD. Key legislation supporting Croatia's climate change goals includes the national plan for the Protection of Air, Ozone Layer and Climate Change Mitigation in the Republic of Croatia for the period 2013–2017. Energy-related legislation is supported by the national action plans for renewable energy sources, and for energy efficiency.

71. The mitigation actions with the most significant mitigation impacts are the those that are related to renewable energy such as the promotion of biofuels in transport, the use of renewable energy in electricity generation mainly through incentive prices, and the use of biogas from waste to electricity and heating. Actions related to energy efficiency for the demand side include: action plans and programmes targeting buildings; energy audits to support the assessment of the potential energy savings in industrial plants; modernization, reconstruction and renovation of existing facilities; labelling of household appliances; and eco-design requirements for energy-related products. Measures in the transport sector include the promotion of eco-driving and modified fees to promote more vehicles that are more energy efficient.

72. For 2013, Croatia reported in CTF table 4 total GHG emissions excluding LULUCF at 24,492.78 kt CO_2 eq. or 30.3 per cent below the 1990 level. Croatia reported, on its use of the units from market-based mechanisms to achieve its target, that the use of CERs and ERUs could not be quantified at the time of reporting. During the review, Croatia updated the ERT that it intends to fulfil all its obligations under the Convention by domestic measures.

73. The GHG emission projections provided by Croatia in its BR2 include the WOM, WEM and WAM scenarios. Under these three scenarios, emissions are projected to be 5.0, 25.2 and 32.5 per cent below the 1990 levels by 2020, respectively. Based on this information, the ERT concluded that Croatia expects to meet its 2020 target, under the WEM and WAM scenarios.

74. In the course of the review, the ERT formulated the following recommendations for Croatia to improve its adherence to the UNFCCC reporting guidelines on BRs in its next biennial report:[6]

(a) Improve the completeness of its reporting by:

(i) Providing information on changes in its domestic institutional arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress towards its target (see para. 19 above);

(ii) Reporting emission projections for international transport separately, to the extent possible (see para. 46 above);

(b) Improve the transparency of its reporting by:

(i) Providing justification for each mitigation action for which the quantitative assessment of its impact is not reported (see para. 22 above);

(ii) Reporting on its intention to fulfil all obligations under the Convention by domestic measures in reporting the information on the use of units from market-based mechanisms (see para. 41 above).

[6] 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/ARR/2014/HRV. Report on the individual review of the annual submission of Croatia submitted in 2014. Available at <http://unfccc.int/resource/docs/2015/arr/hrv.pdf>.

FCCC/IDR.6/HRV. Report of the technical review of the sixth national communication of Croatia. Available at <http://unfccc.int/resource/docs/2014/idr/hrv06.pdf>.

FCCC/TRR.1/HRV. Report of the technical review of the first biennial report of Croatia. Available at <http://unfccc.int/resource/docs/2014/trr/hrv01.pdf>.

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

Sixth national communication of Croatia. Available at <http://unfccc.int/files/national_reports/annex_i_natcom_/application/pdf/hrv_nc6.pdf>.

First biennial report of Croatia. Available at <http://unfccc.int/files/national_reports/annex_i_natcom_/application/pdf/hrv_nc6.pdf>.

Common tabular format tables of the first biennial report of Croatia. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/dnk_2014_v3.0.pdf>.

Second biennial report of Croatia. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/br2_croatia.pdf>.

Common tabular format tables of the second biennial report of Croatia. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/copy_of_hrv_2016_v1_0-formatted.pdf>.

2015 Reporting of Croatia pursuant to article 23 of Commission implementing regulation (EU) No 749/2014 of 30 June 2014 on structure, format, submission processes and review

of information reported by Member States pursuant to Regulation (EU) No 525/2013 of the European Parliament and of the Council. Available at: <http://cdr.eionet.europa.eu/hr/eu/mmr/art04-13-14_lcds_pams_projections/envvxfj1g/>.

B. Additional information used during the review

Responses to questions during the review were received from Ms. Vlatka Palcic, Ms. Tatjana Antolic and Ms Visnja Grgasovic (Ministry of Environmental and Nature Protection), including additional material and the following documents[1] provided by Croatia:

Croatian Environment Agency. 2015 June. *Report on implementation of Policies and Measures that Reduce GHG Emissions by Sources or Enhance Removals by Sinks -addition-*. Zagreb. Available at: <http://cdr.eionet.europa.eu/hr/eu/mmr/art04-13-14_lcds_pams_projections/envvyajma/Report_on_Implementation_of_PAMs_Croatia_2015_new_GWP.pdf >.

Croatia Environment Agency. 2015 June. *Report on Projections of Greenhouse Gas Emissions -addition-, Republic of Croatia*". Available at: <http://cdr.eionet.europa.eu/hr/eu/mmr/art04-13-14_lcds_pams_projections/envvyahja/Report_on_Projections_of_ GHG_ Emissions_Croatia_2015_new_GWP.pdf >.

Ministry of Economy. 2014. National Action Plan for Renewable Energy Sources to 2020. Ref. (Provisional translation) Ares (2014)443294 - 21/02/2014.

[1] Reproduced as received from the Party.