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## Report of the technical review of the sixth national communication of Croatia

Parties included in Annex I to the Convention are requested, in accordance with decision 9/CP.16, to submit a sixth national communication to the secretariat by 1 January 2014. In accordance with decision 7/CMP.8, Parties included in Annex I to the Convention that are also Parties to the Kyoto Protocol shall include in their sixth national communication supplementary information under Article 7, paragraph 2, of the Kyoto Protocol. In accordance with decision 15/CMP.1, these Parties shall start reporting the information under Article 7, paragraph 1, of the Kyoto Protocol with the inventory submission due under the Convention for the first year of the commitment period. This includes supplementary information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol.

This report presents the results of the technical review of the sixth national communication and supplementary information under the Kyoto Protocol 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” and the “Guidelines for review under Article 8 of the Kyoto Protocol”.

GE. 14-15100 (E)



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## I. Introduction and summary

### A. Introduction

1. For Croatia the Convention entered into force on 7 July 1996 and the Kyoto Protocol on 28 August 2007. Under the Convention, Croatia made a commitment to contribute to the achievement of the joint European Union (EU) economy-wide emission reduction target of 20 per cent of greenhouse gas (GHG) emissions compared with the 1990 level by 2020. Under the Kyoto Protocol, Croatia committed itself to reducing its GHG emissions by 5 per cent compared with the base year<sup>1</sup> level during the first commitment period, from 2008 to 2012. For the second commitment period of the Kyoto Protocol, from 2013 to 2020, Croatia made a commitment to contribute to the achievement of the joint EU<sup>2</sup> commitment to reduce GHG emissions by 20 per cent compared with the base year level.

2. This report covers the centralized technical review of the sixth national communication (NC6) of Croatia, coordinated 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” (decision 23/CP.19) and the “Guidelines for review under Article 8 of the Kyoto Protocol” (decision 22/CMP.1).

3. The review took place from 5 to 10 May 2014 in Bonn, Germany, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: Mr. Hamid Alsadoon (Saudi Arabia), Mr. Kennedy Amankwa (Ghana), Mr. Fernando Farias (Chile), Ms. Violeta Hristova (Bulgaria), Mr. Hans Halvorson Kolshus (Norway), Ms. Asia Mohamed (Sudan), Mr. Rostislav Neveceral (Czech Republic), Mr. Asger Strange Olesen (Denmark), Ms. Natalya Parasyuk (Ukraine), Mr. Marcelo Rocha (Brazil), Ms. Lilia Taranu (Republic of Moldova) and Mr. Harry Vreuls (Netherlands). Mr. Amankwa and Mr. Vreuls were the lead reviewers. The review was coordinated by Ms. Xuehong Wang and Ms. Suvi Monni (secretariat).

4. During the review, the expert review team (ERT) reviewed each section of the NC6. The ERT also reviewed the supplementary information provided by Croatia as a part of the NC6 in accordance with Article 7, paragraph 2, of the Kyoto Protocol. In addition, the ERT reviewed the information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol, which was provided by Croatia in its 2013 annual submission and previous submissions under Article 7, paragraph 1, of the Kyoto Protocol.

5. In accordance with decisions 23/CP.19 and 22/CMP.1, a draft version of this report was communicated to the Government of Croatia, which did not provide any comments.

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<sup>1</sup> “Base year” refers to the base year under the Kyoto Protocol, which is 1990 for all gases. The base year emissions include emissions from sectors/source categories listed in Annex A to the Kyoto Protocol.

<sup>2</sup> Please note that the target under the Convention is taken by the EU and its 28 member States, while the target under the Kyoto Protocol for its second commitment period is taken by the EU, its 28 member States and Iceland. A political statement on fulfilling the target under the Kyoto Protocol for its second commitment period by the EU and its 28 member States jointly with Iceland is included in paragraph 45 of the report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol at its eighth session contained in document FCCC/KP/CMP/2012/13.

## B. Summary

6. The ERT conducted a technical review of the information reported in the NC6 of Croatia in accordance with the “Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications” (hereinafter referred to as the UNFCCC reporting guidelines on NCs). As required by decision 15/CMP.1, supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol<sup>3</sup> is provided in the NC6 (see para. 100 below). The supplementary information on the minimization of adverse impacts referred to in paragraph 4 above is complete and partially transparent.

7. Croatia considered part of the recommendations provided in the report of the in-depth review of the fifth national communication (NC5) of Croatia.<sup>4</sup> The ERT commended Croatia for its improved reporting. During the review, Croatia provided further relevant information, including on linkages between national circumstances and GHG emissions, its adaptation strategy, the name and contact information for the national entity, its national registry, its implementation of the decisions of the International Civil Aviation Organization (ICAO) and International Maritime Organization (IMO), the minimization of adverse impacts, its provisions to make information publicly accessible, and how policies and measures (PaMs) modify longer-term GHG trends.

### 1. Completeness and transparency of reporting

8. Gaps and issues related to the reported information identified by the ERT are presented in table 1 below.

### 2. Timeliness

9. The NC6 was submitted on 12 February 2014, after the deadline of 1 January 2014 mandated by decision 9/CP.16. Croatia informed the secretariat about its difficulties with the timeliness of its NC6 on 30 December 2013 in accordance with paragraph 79 of the annex to decision 23/CP.19 and paragraph 139 of the annex to decision 22/CMP.1. The ERT noted with concern the delay in the submission of the NC6.

### 3. Adherence to the reporting guidelines

10. The information reported by Croatia in its NC6 is mostly in adherence with the UNFCCC reporting guidelines on NCs as per decision 4/CP.5 (see table 1).

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<sup>3</sup> Decision 15/CMP.1, annex, chapter II.

<sup>4</sup> FCCC/IDR.5/HRV.

Table 1

**Assessment of completeness and transparency issues of reported information in the sixth national communication of Croatia<sup>a</sup>**

<i>Sections of national communication</i>	<i>Completeness</i>	<i>Transparency</i>	<i>Reference to paragraphs</i>	<i>Supplementary information under the Kyoto Protocol</i>	<i>Completeness</i>	<i>Transparency</i>	<i>Reference to paragraphs</i>
Executive summary	Complete	Transparent		National systems	Mostly complete	Transparent	19
National circumstances	Complete	Mostly transparent	12	National registries	Not complete	Transparent	22
Greenhouse gas inventory	Complete	Transparent		Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Complete	Transparent	
Policies and measures (PaMs)	Mostly complete	Mostly transparent	31, 35	PaMs in accordance with Article 2	Mostly complete	Transparent	58, 59
Projections and total effect of PaMs	Mostly complete	Transparent	60	Domestic and regional programmes and/or arrangements and procedures	Mostly complete	Transparent	27, 28
Vulnerability assessment, climate change impacts and adaptation measures	Partially complete	Mostly transparent	81, 85	Information under Article 10 <sup>b</sup>	NA	NA	
Financial resources and transfer of technology <sup>c</sup>	NA	NA		Financial resources <sup>c</sup>	NA	NA	
Research and systematic observation	Complete	Mostly transparent	87, 89, 90	Minimization of adverse impacts in accordance with Article 3, paragraph 14	Complete	Partially transparent	102
Education, training and public awareness	Complete	Transparent					

*Abbreviation:* NA = not applicable.

<sup>a</sup> A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in the chapter on conclusions and recommendations.

<sup>b</sup> For the purposes of reporting in table 1 this assessment refers to information provided by the Party on the provisions contained in Article 4, paragraphs 3, 5 and 7 of the Convention reported under Article 10 of the Kyoto Protocol, which is relevant for developed country Parties and other developed Parties included in Annex II only. Assessment of the information provided by the Party on the other provisions of Article 10 of the Kyoto Protocol is provided under the relevant substantive headings under the Convention, e.g. research and systematic observation.

<sup>c</sup> Reporting on financial resources under the Kyoto Protocol is relevant for developed country Parties and other developed Parties that are included in Annex II to the Convention (Annex II Parties). As Croatia is not an Annex II Party, it does not have an obligation to provide information on financial resources under Article 11 of the Kyoto Protocol, including on “new and additional” resources.

## II. Technical review of the reported information in the national communication and supplementary information under the Kyoto Protocol

### A. Information on greenhouse gas emissions and national circumstances relevant to greenhouse gas emissions and removals, including other elements related to the Kyoto Protocol

#### 1. Information on relevant national circumstances

11. In its NC6, Croatia provided a concise description of the national circumstances and elaborated on the framework legislation and key policy documents on climate change. Further information on the review of the institutional and legislative arrangements for the coordination and implementation of PaMs is provided in chapter II.B below.

12. The ERT noted that the information Croatia provided in its NC6 lacked transparency regarding how changes in national circumstances affect GHG emissions and removals. During the review, Croatia provided additional information on the national circumstances and their connection with the recent change patterns in energy production and transport as well as on the factors contributing to GHG emissions. The ERT recommends that Croatia, in its next national communication (NC), elaborate more on the connection between changes in the national circumstances and GHG emissions and removals over time, in line with the information provided during the review.

13. By decision 7/CP.12, the Conference of the Parties decided that Croatia, having invoked Article 4, paragraph 6, of the Convention, should be allowed to add 3.5 million tonnes of carbon dioxide equivalent (Mt CO<sub>2</sub> eq) to its 1990 level of GHG emissions not controlled by the Montreal Protocol for the purpose of establishing the level of emissions for the base year for implementation of its commitments under Article 4, paragraph 2, of the Convention. However, the ERT noted that Croatia did not use this flexibility when reporting its base year emissions under the Convention in its NC6.

14. The ERT noted that during the period 1990–2011, Croatia's population decreased by 7.7 per cent and gross domestic product (GDP) increased by 9.9 per cent, while GHG emissions per GDP and GHG emissions per capita decreased by 20.0 and 2.7 per cent, respectively. Table 2 illustrates the national circumstances of Croatia by providing some indicators relevant to GHG emissions and removals.

Table 2

Indicators relevant to greenhouse gas emissions and removals for Croatia

	1990	2000	2005	2010	2011	Change 1990–2011 (%)	Change 2010–2011 (%)
Population (million)	4.78	4.43	4.44	4.42	4.41	–7.7	–0.2
GDP (2005 USD billion using PPP)	63.99	54.75	68.10	70.32	70.31	9.9	0.0
TPES (Mtoe)	9.03	7.79	8.91	8.56	8.44	–6.5	–1.4
GHG emissions without LULUCF (kt CO <sub>2</sub> eq)	31 693.47	26 343.57	30 503.46	28 780.65	28 421.47	–10.3	–1.2
GHG emissions with LULUCF (kt CO <sub>2</sub> eq)	25 282.26	18 624.33	22 352.02	20 908.99	21 389.67	–15.4	2.3

	1990	2000	2005	2010	2011	Change 1990–2011 (%)	Change 2010–2011 (%)
GDP per capita (2005 USD thousand using PPP)	13.39	12.37	15.33	15.92	15.95	19.1	0.2
TPES per capita (toe)	1.89	1.76	2.00	1.94	1.91	1.1	–1.5
GHG emissions per capita (t CO <sub>2</sub> eq)	6.63	5.95	6.87	6.51	6.45	–2.7	–0.9
GHG emissions per GDP unit (kg CO <sub>2</sub> eq per 2005 USD using PPP)	0.50	0.48	0.45	0.41	0.40	–20.0	–2.4

Sources: (1) GHG emissions data: Croatia's 2013 GHG inventory submission; (2) Population, GDP and TPES data: International Energy Agency.

Note: The ratios per capita and per GDP unit are calculated relative to GHG emissions without LULUCF; the ratios are calculated using the exact (not rounded) values and may therefore differ from a ratio calculated with the rounded numbers provided in the table.

Abbreviations: GDP = gross domestic product, GHG = greenhouse gas, LULUCF = land use, land-use change and forestry, PPP = purchasing power parity, TPES = total primary energy supply.

## 2. Information on the greenhouse gas inventory, emissions and trends

15. In the NC6, Croatia provided a summary of information on GHG emission trends for the period 1990–2011. This information is fully consistent with the 2013 national GHG inventory submission. Summary tables for 1990–2011 in CO<sub>2</sub> eq (given in the common reporting format tables), are provided in an annex to the NC6. During the review, the ERT took note of the recently submitted 2014 annual submission,<sup>5</sup> in which Croatia reported 26,418.80 kt CO<sub>2</sub> eq of total national GHG emissions excluding land use, land-use change and forestry (LULUCF) for 2012.

16. Total GHG emissions<sup>6</sup> excluding emissions and removals from LULUCF decreased by 10.3 per cent between 1990 and 2011, whereas total GHG emissions including net emissions or removals from LULUCF decreased by 15.4 per cent over the same period. The overall decline of economic activities and energy consumption in the period 1991–1994 due to the war in Croatia led to a decline in total GHG emissions in that period. Emissions increased from 1995 to 2007. This increase was mainly caused by increased activities in the energy sector (public electricity and heat production, and transport), industrial processes (cement production, lime production, ammonia production, nitric acid production and consumption of hydrofluorocarbons (HFCs)) and the waste sector (solid waste disposal on land and wastewater handling). This was followed by a decrease in GHG emissions in the period 2008–2011, the main reason of which was the economic crisis, in particular the decrease in industrial production and the consequent decrease in fuel consumption (the greatest reduction in fuel consumption occurred in manufacturing industries and construction sector and transport), as well as a reduction in cement, lime and steel production. An analysis of the drivers of GHG emissions trends in each sector is provided in chapter II.B below. Table 3 provides an overview of GHG emissions by sector from 1990 to 2011.

17. During the review, Croatia provided additional information, elaborating on uncertainties, recalculations and improvements planned for the GHG inventory.

<sup>5</sup> Common reporting format version 2.1, submitted to the secretariat on 2 June 2014.

<sup>6</sup> In this report, the term “total GHG emissions” refers to the aggregated national GHG emissions expressed in terms of CO<sub>2</sub> eq excluding LULUCF, unless otherwise specified.

Table 3  
Greenhouse gas emissions by sector in Croatia, 1990–2011

Sector	GHG emissions (kt CO <sub>2</sub> eq)				Change (%)		Share <sup>a</sup> by sector (%)	
	1990	2000	2010	2011	1990–2011	2010–2011	1990	2011
1. Energy	22 796.49	19 482.32	21 009.15	20 715.35	–9.1	–1.4	71.9	72.9
A1. Energy industries	7 143.78	5 895.01	5 904.69	6 275.44	–12.2	6.3	22.5	22.1
A2. Manufacturing industries and construction	5 871.93	3 631.87	3 379.36	3 153.34	–46.3	–6.7	18.5	11.1
A3. Transport	4 095.41	4 597.31	6 039.64	5 888.70	43.8	–2.5	12.9	20.7
A4.–A5. Other	3 793.85	3 506.65	3 596.16	3 393.01	–10.6	–5.6	12.0	11.9
B. Fugitive emissions	1 891.52	1 851.49	2 089.29	2 004.86	6.0	–4.0	6.0	7.1
2. Industrial processes	3 788.53	2 861.20	3 211.22	3 000.13	–20.8	–6.6	12.0	10.6
3. Solvent and other product use	116.98	109.22	152.48	144.16	23.2	–5.5	0.4	0.5
4. Agriculture	4 380.72	3 130.16	3 315.98	3 442.21	–21.4	3.8	13.8	12.1
5. LULUCF	–6 411.22	–7 719.24	–7 871.65	–7 031.80	9.7	–10.7	–20.2	–24.7
6. Waste	610.76	760.67	1 091.82	1 119.62	83.3	2.5	1.9	3.9
<b>GHG total with LULUCF</b>	<b>25 282.26</b>	<b>18 624.33</b>	<b>20 908.99</b>	<b>21 389.67</b>	<b>–15.4</b>	<b>2.3</b>	<b>NA</b>	<b>NA</b>
<b>GHG total without LULUCF</b>	<b>31 693.47</b>	<b>26 343.57</b>	<b>28 780.65</b>	<b>28 421.47</b>	<b>–10.3</b>	<b>–1.2</b>	<b>100.0</b>	<b>100.0</b>

*Note:* The changes in emissions and the share by sector are calculated using the exact (not rounded) values and may therefore differ from values calculated with the rounded numbers provided in the table.

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

<sup>a</sup> The shares of sectors are calculated relative to GHG emissions without LULUCF; for the LULUCF sector, the negative values indicate the share of GHG emissions that was offset by GHG removals through LULUCF.

### 3. National system

18. Croatia provided in its NC6 a description of how its national system is performing the general and specific functions defined in the guidelines for national systems under Article 5, paragraph 1, of the Kyoto Protocol (decision 19/CMP.1). The description includes most of the elements mandated by decision 15/CMP.1. The NC6 also contains a reference to the national inventory report (NIR) of the 2013 annual submission. The ERT took note of the review of the changes to the national system as reflected in the report of the individual review of GHG inventory of Croatia submitted in 2013.

19. The NC6 did not include the information required by the annex to decision 15/CMP.1 regarding the name and contact information for the national entity and its designated representative with overall responsibility for the national inventory. During the review, Croatia provided the missing information. The ERT recommends that Croatia include this information in its next NC.

### 4. National registry

20. In its NC6, Croatia provided information on the national registry in accordance with the annex to decision 13/CMP.1 and the annex to decision 5/CMP.1. The ERT took note of



the review of the changes to the national registry as reflected in the report of the individual review of the GHG inventory of Croatia submitted in 2013.

21. The NC6 does not include the following information on the national registry as stipulated in the annex to decision 15/CMP.1, paragraph 32:

- (a) The name and contact information of the registry administrator designated by the Party to maintain the national registry;
- (b) The names of the other Parties with which the Party cooperates by maintaining their national registries in a consolidated system;
- (c) A description of the database structure and capacity of the national registry;
- (d) A description of how the national registry conforms to the technical standards for data exchange between registry systems for the purpose of ensuring the accurate, transparent and efficient exchange of data between national registries, the clean development mechanism registry and the transaction log (decision 19/CP.7, paragraph 1);
- (e) A description of the procedures employed in the national registry to minimize discrepancies in the issuance, transfer, acquisition, cancellation and retirement of emission reduction units, certified emission reductions, temporary certified emission reductions (tCERs), long-term certified emission reductions (ICERs), assigned amount units and/or removal units, and replacement of tCERs and ICERs, and of the steps taken to terminate transactions where a discrepancy is notified and to correct problems in the event of a failure to terminate the transactions;
- (f) An overview of security measures employed in the national registry to prevent unauthorized manipulations and to prevent operator error and of how these measures are kept up to date;
- (g) A list of the information publicly accessible by means of the user interface to the national registry;
- (h) The Internet address of the interface to its national registry;
- (i) A description of measures taken to safeguard, maintain and recover data in order to ensure the integrity of data storage and the recovery of registry services in the event of a disaster;
- (j) The results of any test procedures that might be available or developed with the aim of testing the performance, procedures and security measures of the national registry undertaken pursuant to the provisions of decision 19/CP.7 relating to the technical standards for data exchange between registry systems.

22. During the review, Croatia provided additional information, elaborating on the missing elements with a strong focus on the important role that the Consolidated System of European Union registries is taking in managing the registry. The ERT recommends that Croatia provide this additional information given during the review process in its next NC.

## **5. Domestic and regional programmes and/or legislative arrangements and procedures related to the Kyoto Protocol**

23. Croatia has reported in its NC6 comprehensive and well-organized information on domestic and regional programmes and/or legislative arrangements and procedures related to the Kyoto Protocol.

24. The overall responsibility for climate change policymaking lies within the Ministry of Environmental and Nature Protection (MENP) of Croatia, and a number of national institutions are involved in the implementation of this policy. Administrative and

specialized activities relating to the implementation of climate protection measures fall within the competence of the Directorate for Environmental Protection and Sustainable Development of MENP. In its NC6, Croatia reported on a number of acts and accompanying laws relevant to energy savings and reductions in GHG emissions.

25. Implementation of the Kyoto Protocol is underpinned by strategic and operational plans. The main planning document for the period 2013–2017 is the Plan for the Protection of the Air, the Ozone Layer and Climate Change Mitigation (OG 139/2013). It determines the objectives, priorities and measures for reducing GHG emissions and the manner and order of and terms and entities for the implementation of the measures. A future key document that is expected to determine the long-term goals and guide environmental management in line with Croatia's development policy is the Sustainable Development Strategy, which will be drawn up by 2015. Croatia also reported in its NC6 that the implementation of flexible mechanisms is controlled by the Regulation on implementation of the Kyoto Protocol flexible mechanism (OG 142/08).

26. MENP has a key role in policy-making and implementation in accordance with Croatia's strategic priority objectives for environmental protection. Energy policy is the responsibility of the Ministry of Economy, the Department of Industrial Policy, Energy and Mining, MENP, and the Ministry of Construction and Physical Planning for the energy efficiency of buildings. At the implementation level, the Fund for Environmental Protection and Energy Efficiency and the Agency for Transactions and Mediation in Immovable Properties have a key role in financing the creation, development and implementation of projects in the field of energy efficiency, renewable energy and environmental protection.

27. The ERT noted that in its NC6, Croatia did not provide the information required by the annex to decision 15/CMP.1 on making information on legislative arrangements and enforcement and administrative procedures established pursuant to the implementation of the Kyoto Protocol publicly accessible. During the review, Croatia clarified that the information is available on a page of the official website of MENP<sup>7</sup> and that a new website is under construction. The ERT recommends that Croatia improve the completeness of its reporting by incorporating this information in its next NC.

28. Croatia did not provide information required by the annex to decision 15/CMP.1 regarding a description of national legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraph 3, and elected activities under Article 3, paragraph 4, of the Kyoto Protocol also contribute to the conservation of biodiversity and the sustainable use of natural resources. However, in the NC6, Croatia provided information on a study on reforestation related to activities under Article 3, paragraph 3, of the Kyoto Protocol, taking into account the biological regeneration of forest. The ERT recommends that Croatia report on how legislative arrangements and administrative procedures seek to ensure that the implementation of activities under Article 3, paragraph 3, and elected activities under Article 3, paragraph 4, of the Kyoto Protocol also contribute to the conservation of biodiversity and the sustainable use of natural resources, in its next NC.

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<sup>7</sup> <<http://klima.mzoip.hr>>

## **B. Policies and measures, including those in accordance with Article 2 of the Kyoto Protocol**

29. Croatia provided in its NC6 comprehensive and well-organized information on its package of PaMs implemented, adopted and planned in order to fulfil its commitments under the Convention and its Kyoto Protocol.

### **1. Policies and measures related to implementation of commitments under the Convention**

30. In its NC6, Croatia reported on its PaMs adopted, implemented and planned in achieving its commitments under the Convention and its Kyoto Protocol. Croatia provided information on PaMs by sector and by gas and a description of the principal PaMs. During the review, Croatia explained that the NC6 contains a set of PaMs based on its Plan for the Protection of the Air, Ozone Layer and Climate Change Mitigation 2013–2017.

31. The NC6 does not include transparent information required by the UNFCCC reporting guidelines on NCs on how Croatia believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals consistent with the objective of the Convention. During the review, Croatia provided additional information, elaborating on this topic especially as it relates to its energy infrastructure, policies for promoting renewable energy, changes in its transport system and preparation of actions for carbon capture and storage. The ERT recommends that Croatia provide such information in its next NC.

32. Croatia did not report on the GHG impacts of individual PaMs; it only provided the total difference between ‘without measures’ and ‘with measures’ scenarios for 2015–2030 and scenario results for ‘without measures’, ‘with measures’ and ‘with additional measures’ on a sectoral level and by gas. During the review, Croatia informed the ERT that it is improving its bottom-up analysis and its assessment of PaMs as assumptions related to energy sector development have significantly changed since NC5, when Croatia reported the impacts of individual PaMs. Croatia also informed the ERT, during the review, that the Party does not implement PaMs which lead to increases in GHG emissions.

33. During the review, Croatia provided additional information on the costs of implementing PaMs: approximately 937 million Croatian kunas (HRK)<sup>8</sup> for the period 2013–2017 and an additional HRK 13.9 billion for renewables until 2020. In its NC6, Croatia reported that the only measure no longer in place since NC5 is the payment of fees for CO<sub>2</sub> emissions for actors currently involved in the European Union Emissions Trading System (EU ETS).

34. The ERT found that there was a lack of transparency regarding the start and end years for PaMs and regarding the PaMs included in NC5 and NC6. During the review, Croatia explained that it reports 2013 as the starting year for all PaMs as the PaMs are based on the Plan for the Protection of the Air, Ozone Layer and Climate Change Mitigation 2013–2017, although a number of PaMs were already in place and reported in the NC5. Croatia assumes that all PaMs will be effective until (at least) 2020. The ERT encourages Croatia to improve transparency by clarifying in its next NC as to which PaMs are existing and/or updated and which were established after the submission of the previous NC. The ERT also strongly encourages Croatia to continue its efforts to estimate the impacts of individual PaMs as well as to provide more clarification on the start years of PaMs in its next NC.

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<sup>8</sup> EUR 1 = HRK 7.6 (average exchange rate in 2013).

35. The ERT also noted inconsistencies in the reporting of PaMs in the NC6 (chapter 4.4) and the biennial report common tabular format (CTF) table 3, for example with regard to the type of instrument. The ERT recommends that Croatia improve its quality control to ensure that information on PaMs in the NC is consistent with the information presented in the CTF tables.

36. Some of the recommendations made in the previous review report were taken into consideration in order to improve the reporting in the NC6, including information on PaMs subdivided by gas as well as information on PaMs addressing fluorinated gases (F-gases).

## 2. Policy framework and cross-sectoral measures

37. The main planning document for the period 2013–2017 is the “Plan for the Protection of the Air, the Ozone Layer and Climate Change Mitigation” (OG 139/2013). It determines the objectives, priorities and measures for reducing GHG emissions and the manner and order of and terms and entities for the implementation of measures. In addition, for each year in the period 2013–2020, the amount of GHGs emitted in sectors not covered by the EU ETS is limited to the annual national quota as determined by European Commission decision 2013/162/EU.

38. The Environmental Protection Act (OG 80/2013) is the basic law regulating general environmental protection issues in Croatia. In addition, the Air Protection Act (OG 130/2011) stipulates the adoption of the subordinated legislation on specific topics in the areas of climate change mitigation and adaptation.

39. PaMs related to climate change mitigation are planned, adopted and implemented on the national level. These PaMs are incorporated into the programmes and plans of regional and local authorities. Croatia provided in the NC6 comprehensive information on PaMs at the national level as well as on the EU ETS, into which Croatia has been fully integrated from 2013 onwards. Several PaMs also incorporate cities and counties in the promotion of energy efficiency and waste management.

40. Table 4 provides a summary of the reported information on the PaMs of Croatia.

## 3. Policies and measures in the energy sector

41. Emissions in the energy sector were 20,715.35 kt CO<sub>2</sub> eq in 2011, or 72.9 per cent of total GHG emissions. Between 1990 and 2011, GHG emissions from the energy sector decreased by 9.1 per cent (2,081.14 kt CO<sub>2</sub> eq), mainly owing to a decrease of 46.3 per cent in emissions from the manufacturing industries and construction and a decrease of 12.2 per cent in the energy industries; GHG emissions from transport increased in that period by 43.8 per cent.

42. **Energy supply.** The main measure for GHG reduction in the energy supply sector (for combustion in power plants above 20 MW) is the EU ETS. The goal for facilities included in the EU ETS is quantified in such a way that from 2013, the total number of allowances for allocation at EU level decreases linearly at an annual rate of 1.74 per cent. Croatia also promotes cogeneration: a target is having a 4 per cent share of total final electricity consumption coming from cogeneration plants by 2020. The largest contribution is expected to come from the new industrial cogeneration.

43. **Renewable energy sources.** Croatia introduced, among other things, a regulation on the minimum share of electricity that must be produced through stimulated production from renewable energy sources and cogeneration (OG 33/2007, 8/2011). The target by the end of 2020 is to achieve a 13.6 per cent share of the total final consumption of electricity produced through renewable sources. The largest contribution is expected to come from wind power plants, followed by biomass and biogas power plants and then solar power

plants; a smaller contribution is expected to come from small hydropower and geothermal power plants.

Table 4

**Summary of information on policies and measures reported by Croatia**

<i>Sectors affected</i>	<i>List of key policies and measures</i>	<i>Estimate of mitigation impact (kt CO<sub>2</sub> eq)</i>
<b><i>Policy framework and cross-sectoral measures</i></b>	Full-scale inclusion of the plant and aircraft operators in EU ETS from 1 January 2013; adoption of a plan for use of funds obtained through the sale of emission allowances through auctions; CO <sub>2</sub> emission tax; intensification of use of innovative information and communication technologies to reduce greenhouse gas emissions	NE
<b><i>Energy</i></b>		5 604
Energy supply	Usage of biodegradable fraction of municipal waste in public electricity and heating plants	NE
Renewable energy	Support for the use of renewable energy sources in electricity production; promotion of the use of renewable energy sources in energy production for heat/cooling; promotion of the use of renewable energy sources and energy efficiency by the Croatian Bank for Reconstruction and Development and by the Fund for Environmental Protection and Energy Efficiency	NE
Energy efficiency	Promotion of energy efficiency in households and services through project activities; measurement and informative calculation of energy consumption; labelling of the energy efficiency of household appliances; eco-design of energy-using products; energy-efficiency projects implemented through energy services	NE
<b><i>Transport</i></b>	Prescribing of limit values for components and characteristics of liquid petroleum fuels; provision of information to consumers on fuel economy and CO <sub>2</sub> emissions of new passenger cars; implementation of the pilot project and the establishment of eco-driving training for drivers of road vehicles; promotion of the production and use of biofuels in transport; modification of the special fee payment system for the environment for motor vehicles; financial incentives for the purchase of hybrid and electric vehicles; development of infrastructure for electric vehicles in urban areas; development of sustainable transport systems in urban areas	416
<b><i>Industry</i></b>	Energy audits in industry; promotion of the construction of cogeneration facilities; usage of refuse-derived fuel in the cement industry; ban and reduction of the consumption of controlled and new substances and fluorinated GHGs; technical and organizational measures for collecting, recycling and recovering controlled substances and fluorinated GHGs; preventive measures for the uncontrolled leaking of fluorinated GHGs	949

<i>Sectors affected</i>	<i>List of key policies and measures</i>	<i>Estimate of mitigation impact (kt CO<sub>2</sub> eq)</i>
<b>Agriculture</b>	Preparation of a study about possibilities for applying measures to reduce GHG emissions in the agricultural sector	79
<b>Forestry/LULUCF</b>	Preparation of a cost–benefit analysis of reforestation on new surfaces and the biological regeneration of forests; development of an action plan for the LULUCF sector	1 819
<b>Waste management</b>	Avoidance of the generation and reduction of municipal waste; reduction of disposed biodegradable municipal waste; increase in the quantity of sorted and recycled municipal waste; increase of the coverage of the organized municipal waste collection systems; methane flaring or the use of methane as fuel for electricity production; production of fuel from waste; use of biogas from bioreactors for electricity and heat production; thermal treatment of municipal waste and sludge from wastewater treatment	685

*Note:* The GHG reduction estimates by sector are equivalent to the differences between the emissions in the ‘without measures’ and the ‘with measures’ scenarios in carbon dioxide equivalent for 2020.

*Abbreviations:* EU ETS = European Union Emissions Trading System, GHG = greenhouse gas, LULUCF = land use, land-use change and forestry, NE = not estimated.

44. **Energy efficiency.** In addition to the PaMs reported in its NC6, Croatia refers to its National Energy Efficiency Action Plans, which contain information on realized and planned improvements in energy efficiency. There is a wide range of measures, including energy audits in industry, the promotion of equipment for measuring energy consumption and billing, the labelling of household appliances and the eco-design of energy-using products.

45. **Residential and commercial sectors.** Among other things, Croatia reported on its project “Removing Barriers to Efficient Use of Energy in the Households and Services Sector”, which targets households, service sector facilities and public facilities responsible for around 40 per cent of the total energy consumption in Croatia. The primary objective of the project is to encourage the use of cost-effective, energy-efficient technologies, materials and services in order to reduce unnecessary energy consumption and emissions of GHGs. A number of programmes related to energy efficiency are also targeted at households and commercial organizations.

46. **Transport sector.** PaMs include the limiting of sulphur content in liquid petroleum fuels, the provision of information on fuel economy and CO<sub>2</sub> emissions from passenger cars, eco-driving training for drivers of road vehicles, promotion of biofuels and promotion of electric vehicles.

47. **Industrial sector.** The EU ETS is the main PaM for mineral oil refining and the production of pig iron and steel, cement clinker, lime, glass, ceramic products, insulation materials made of mineral wool, paper, and nitric acid. There are also PaMs for energy audits, energy services for the implementation of energy-efficiency projects, usage of refuse-derived fuel in the cement industry and funds for environmental, energy-efficiency and renewable-energy projects.

#### 4. Policies and measures in other sectors

48. In 2011, GHG emissions from industrial processes (including solvent and other product use), agriculture and waste amounted to 7,706.12 kt CO<sub>2</sub> eq, a decrease of 13.4 per cent compared with 1990, mainly owing to a decrease in industrial processes and agricultural emissions.

49. **Industrial processes.** GHG emissions from industrial processes were 3,000.13 kt CO<sub>2</sub> eq in 2011, or 10.6 per cent of total emissions. The emissions decreased since 1990 by 20.8 per cent, mainly owing to a change in the metal production (decrease of 97.5 per cent). GHG emissions from solvent and other product use amounted to 144.16 kt CO<sub>2</sub> eq in 2011, or 0.5 per cent of total emissions. The increase of 23.2 per cent since 1990 is driven by emissions from other solvent use.

50. Croatia reported three PaMs targeted to reduce F-gases in industrial processes: a ban and reduction of the consumption of ozone-depleting substances and F-gases; technical and organizational measures for collecting, recycling and recovering ozone-depleting substances and F-gases; and preventive measures for uncontrolled leaking of F-gases.

51. **Agriculture.** GHG emissions were 3,442.21 kt CO<sub>2</sub> eq in 2011, or 12.1 per cent of total emissions. The emissions decreased since 1990 by 21.4 per cent, mainly owing to a decrease in the livestock population.

52. At the moment, Croatia has no measures in place to reduce GHG emissions in the agriculture sector, but it is preparing a study of potential measures, taking into account that the application of potential measures poses many social and economic risks for farmers. Although Croatia's strategic objective is to meet the national goal for the use of biofuels in transport from domestic production, there is no PaM in place for this as yet.

53. **LULUCF.** The LULUCF sector was a net removal of 7,031.80 kt CO<sub>2</sub> eq in Croatia in 2011 and net GHG removals increased by 9.7 per cent since 1990. The trend was mainly driven by increased removals in forests and the re-establishment of forest management.

54. Croatia is developing an action plan for the LULUCF sector to define measures to reduce emissions and maintain or increase the removals of the LULUCF sector. Croatia also reported an ongoing cost-benefit analysis of reforestation on the new areas to justify the introduction of possible incentive measures. Additionally, Croatia is making efforts to improve the reporting on the LULUCF sector. Currently there are no PaMs in place to promote concrete actions for reducing emissions or increasing carbon storage in the LULUCF sector.

55. **Waste management.** The GHG emissions from the waste management sector amounted to 1,119.62 kt CO<sub>2</sub> eq in 2011, or 3.9 per cent of total emissions. The emissions increased since 1990 by 83.3 per cent, mainly owing to increased emissions from solid waste disposal on land.

56. Croatia reported eight PaMs related to waste management:

- (a) Avoiding the generation and reducing the quantity of municipal waste;
- (b) Increasing the quantity of sorted and recycled municipal waste;
- (c) Increasing the coverage of the organized municipal waste collection system;
- (d) Reducing the quantity of disposed biodegradable municipal waste;
- (e) Methane flaring or the use of methane as fuel for electricity production on waste disposal sites;
- (f) The production of fuel from waste;

- (g) The use of biogas from bioreactors for electricity and heat production;
- (h) The thermal treatment of municipal waste and sludge from wastewater treatment.

## **5. Policies and measures related to implementation of commitments under the Kyoto Protocol**

57. Croatia reported on its package of PaMs adopted, implemented and planned in achieving its commitment under the Kyoto Protocol and reported in its NC6 that PaMs for the reduction of emissions and mitigation of climate change work to fulfil Croatia's international obligations under the Convention, Kyoto Protocol and the European Union's energy and climate policy.

58. The ERT noted that in its NC6, Croatia did not include information required by the annex to decision 15/CMP.1 regarding how it promotes and/or implements the ICAO and IMO decisions to limit emissions from aviation and marine bunker fuels. During the review, Croatia informed the ERT that it is actively involved in preparing the proposal for a regulation of the European Parliament and of the Council on the monitoring, reporting and verification of CO<sub>2</sub> emissions from maritime transport and in amending Regulation 525/2013. In addition, as a member State of the IMO, Croatia is obliged to comply with Annex VI of the International Convention for the Prevention of Pollution from Ships by monitoring the energy efficiency of its fleet. The ERT recommends that Croatia include information on how it promotes and/or implements the ICAO/IMO decisions to limit emissions from aviation and marine bunker fuels in its next NC.

59. In its NC6, Croatia did not report information required by the annex to decision 15/CMP.1 on how it strives to implement PaMs under Article 2 of the Kyoto Protocol in such a way as to minimize adverse effects, including the adverse effects of climate change and effects on international trade and social, environmental and economic impacts, on other Parties, especially developing country Parties. During the review, Croatia provided the ERT with complete information, but the information lacked transparency regarding how the reported policies and activities contributed to reducing adverse social, environmental and economic impacts. The ERT recommends that Croatia provide transparent information on this matter in its next NC. Further information on how Croatia strives to implement its commitments under Article 3, paragraph 1, of the Kyoto Protocol in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties, as reported in the 2013 annual submission, is presented in chapter III.B below.

## **C. Projections and the total effect of policies and measures, including information on supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol**

### **1. Projections overview, methodology and key assumptions**

60. The GHG emission projections provided by Croatia in the NC6 include a 'with measures', a 'with additional measures' and a 'without measures' scenario until 2030, presented relative to actual inventory data for 1990, 1995, 2000, 2005 and 2010. Following a recommendation made in the previous review report, projections are presented on a sectoral basis, using the same sectoral categories used in the PaMs section and on a gas-by-gas basis for all GHGs (treating perfluorocarbons and HFCs collectively in each case). Projections are also provided in an aggregated format for each sector as well as for a national total, using global warming potential values. Emission projections related to fuel sold to ships and aircraft engaged in international transport were not included in the totals



and were not reported separately. The ERT reiterates the recommendation made in the previous review report that such projections be reported in the next NC.

61. During the review, Croatia provided additional information, elaborating on the model used for the projections and the sensitivity analysis of the results. To increase transparency, the ERT encourages Croatia to include the information provided to the ERT in its next NC.

62. The 'without measures' scenario assumes that the implementation of adopted as well as planned PaMs will not happen. The 'with measures' scenario assumes implementation of PaMs, for which the implementation is already in progress, as well as the application of adopted PaMs, for which the implementation is likely but has not yet started. The 'with additional measures' scenario is based on the application of planned PaMs. In the industry, agriculture and waste sectors, projections for the 'with additional measures' scenario were not presented. During the review, Croatia explained that there are no planned PaMs until 2030 for the industry and agriculture sectors, and that the PaM for 2030 in the waste sector on the thermal processing of municipal waste, whose application contributes to CO<sub>2</sub> emission reductions, is included in the energy sector.

63. Following an encouragement made in the previous review report, Croatia reported on the methodology and the key underlying factors (e.g. GDP, population, coal, oil and gas prices, and number of heating days), variables and assumptions used for the preparation of projections for all sectors. Croatia uses a bottom-up model (Inventory System Projection and Estimation (ISPE)). During the review, Croatia provided additional information about the model. ISPE was developed and is maintained by the Energy and Environmental Protection Institute and has two modules: one for GHGs (CO<sub>2</sub>, methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O)) and one for air pollutant emission projections (sulphur dioxide, nitrogen oxides, ammonia, volatile organic compounds, particulate matter). Croatia explained that the model could be characterized as a combined simulation-optimization approach where optimization is not performed automatically but 'manually' by choosing the emission reduction measures according to the cost minimum principle. The ERT welcomes the inclusion of the methodology and the description of the key parameters in the NC; however it encourages Croatia to provide more detailed information about the ISPE model in its next NC.

64. In its NC6, Croatia reported assumptions used in projections that differ from those used in the NC5. The projections described in the NC5 are based on the assumption of stable economic growth of GDP of about 5 per cent per annum up to 2020. The economic and financial crisis resulted in a decrease in GDP. Instead of the estimated GDP growth of 21.5 per cent in the period 2009–2012, a decrease in GDP of 9.0 per cent occurred. Therefore, the projected emissions presented in the NC6 for 2020 are 23–24 per cent below those presented in the NC5, and the projected emissions for 2030 are 24–31 per cent below those presented in the NC5.

65. Croatia did not provide a sensitivity analysis for the projections in its NC6, but during the review it explained that the sensitivity of projections was analysed based on key selected values such as economic development rates (e.g. 1.0 per cent change in GDP resulting in emission changes of between 0.2 and 0.6 per cent); technology development (e.g. the use of carbon capture and storage, resulting in up to 5 kt CO<sub>2</sub> eq emission reduction after 2020); fuel and equipment prices; import/export volumes (e.g. resulting in the 'without measures' and 'with measures' scenarios in changes up to 1.5 kt CO<sub>2</sub> eq; and in the 'with additional measures' scenario in a change of 0.5 kt CO<sub>2</sub> eq); electricity generation from hydropower plants; climate factors; and the method of calculation in the forestry sector. During the review, Croatia also provided a brief description of such impacts in text and tabular formats and indicated that it plans to include the results of sensitivity analysis in

its next NC. The ERT welcomes the efforts of Croatia and reiterates the encouragement made in the previous review report to include such analyses in its next NC.

## 2. Results of projections

66. Croatia has an obligation under the Kyoto Protocol to reduce GHG emissions by 5 per cent in the period 2008–2012 compared with 1990. According to its NC6, Croatia could meet the target through domestic PaMs and activities defined in Article 3, paragraphs 3 and 4, of the Kyoto Protocol. This means that the use of the Kyoto Protocol mechanisms is not planned. Croatia also indicated in its biennial report that in case domestic measures fail to realize their full potential and meeting the requirements of the Kyoto Protocol becomes uncertain, possible purchase of emission units in international market would be considered. Assigned amount units for the period 2008–2012 totalled 148,778,503 t CO<sub>2</sub> eq while cumulative emissions in the period 2008–2011 totalled 117,918,524 t CO<sub>2</sub> eq with a constant annual downward trend.

67. For the second commitment period of the Kyoto Protocol (2013–2020), with the Croatian accession to the European Union, Croatia committed to contributing to the joint EU commitment to reduce GHG emissions by 20 per cent by 2020 compared with the base year level. The effort-sharing decision of the EU sets a positive limit for Croatia for sectors not covered by the EU ETS, which is an 11 per cent increase by 2020 compared with the emissions in 2005. Croatia listed all the mitigation actions that are implemented and/or planned in order to fulfil its target, but did not estimate the mitigation impact per action (see paras. 32 and 34 above). The ERT noted that Croatia is making efforts to meet its target (see also para. 71 below).

68. Croatia presented projections by gas and by sector. During the review, Croatia informed the ERT that projections of indirect GHGs were under revision at the time of the review and it is expected that the new scenarios and projections will be prepared by the end of 2014. The ERT commends the effort of Croatia and encourages Croatia to include the projections of indirect GHGs in its next NC.

69. The ERT noted that the GHG emissions and removals and emissions projections reported in chapter 5 of the NC6 (submitted on 12 February 2014) differ from those reported in the first biennial report (BR1) (annex III to the NC6) and the CTF tables (submitted on 12 February 2014). During the review, Croatia informed the ERT that the differences occurred because different versions of the GHG inventory submissions were used for the NC6, the BR1 and the CTF tables, and that the correct values are the ones reported in chapter 5 of its NC6. Following a request by the ERT, Croatia resubmitted its CTF tables on 26 May 2014, in which table 6 is consistent with the projections presented in its NC6.

70. According to scenarios reported in the NC6, the CO<sub>2</sub> emission projections (excluding LULUCF) indicated an increase of 57.8 per cent for the ‘without measures’ scenario, an increase of 1.5 per cent for the ‘with measures’ scenario and a decrease of 21.6 per cent for the ‘with additional measures’ scenario by 2030 compared with 1990. The CH<sub>4</sub> emission projections (excluding LULUCF) indicated an increase of 54.5 per cent for the ‘without measures’ scenario and an increase of about 18 per cent for both the ‘with measures’ scenario and the ‘with additional measures’ scenario. And finally, the N<sub>2</sub>O emissions projections (excluding LULUCF) indicated a decrease of 4.5 per cent for the ‘without measures’ scenario, a decrease of 24.2 per cent for the ‘with measures’ scenario and a decrease of 24.8 per cent for the ‘with additional measures’ scenario.

71. According to the projections, energy sector emissions (excluding transport) could increase by 56.3 per cent in the ‘without measures’ scenario, decrease by 7.8 per cent in the ‘with measures’ scenario, or decrease by 33.6 per cent in the ‘with additional measures’

scenario by 2030 compared with 1990. Transport emissions are projected to increase by 75.5 per cent in the ‘without measures’ scenario, 44.3 per cent in the ‘with measures’ scenario and 29.6 per cent in the ‘with additional measures’ scenario, respectively. Industry sector emissions are projected to increase by 21.1 per cent for the ‘without measures’ scenario and decrease by 5.2 per cent for both the ‘with measures’ and the ‘with additional measures’ scenarios. Agricultural emissions are projected to decrease by 9.9 per cent in the ‘without measures’ scenario and decrease by 11.8 per cent for both the ‘with measures’ and ‘with additional measures’ scenarios. In the waste sector, the projections indicated an increase of 175.0 per cent in the ‘without measures’ scenario and 43.3 per cent for both the ‘with measures’ and the ‘with additional measures’ scenarios. The ERT noted that reporting projected emissions for the EU ETS sector and non-EU ETS sector separately could improve the transparency of information and enable the ERT to assess Croatia’s progress towards its emission reduction target.

72. The projected emission levels under different scenarios and information on the Kyoto Protocol targets and quantified economy-wide emission reduction target are presented in table 5 and the figure below.

Table 5  
**Summary of greenhouse gas emission projections for Croatia**

	<i>Greenhouse gas emissions (kt CO<sub>2</sub> eq per year)</i>	<i>Changes in relation to the base year<sup>a</sup> level (%)</i>	<i>Changes in relation to the 1990 level (%)</i>
Kyoto Protocol base year <sup>b</sup>	31 321.79	NA	–1.2
Kyoto Protocol target for the first commitment period (2008–2012)	29 755.70	–5.0	–6.1
Kyoto Protocol target for the second commitment period (2013–2020) <sup>c</sup>	Not available yet		
Quantified economy-wide emission reduction target under the Convention <sup>d</sup>	Not available yet		
Inventory data 1990 <sup>e</sup>	31 693.47	1.2	NA
Inventory data 2011 <sup>e</sup>	28 421.47	–9.3	–10.3
Average annual emissions for 2008–2011 <sup>e</sup>	29 479.63	–5.9	–7.0
‘Without measures’ projections for 2020 <sup>f</sup>	39 001.80	24.5	23.1
‘With measures’ projections for 2020 <sup>f</sup>	31 269.60	–0.2	–1.3
‘With additional measures’ projections for 2020 <sup>f</sup>	31 269.60	–0.2	–1.3
‘Without measures’ projections for 2030 <sup>f</sup>	46 780.90	49.4	47.6
‘With measures’ projections for 2030 <sup>f</sup>	31 598.90	0.9	–0.3
‘With additional measures’ projections for 2030 <sup>f</sup>	26 172.50	–16.4	–17.4

*Abbreviation:* NA = not applicable.

<sup>a</sup> “Base year” in this column refers to the base year used for the target under the Kyoto Protocol.

<sup>b</sup> The Kyoto Protocol base year level of emissions is provided in the initial review report contained in document FCCC/IRR/2008/HRV.

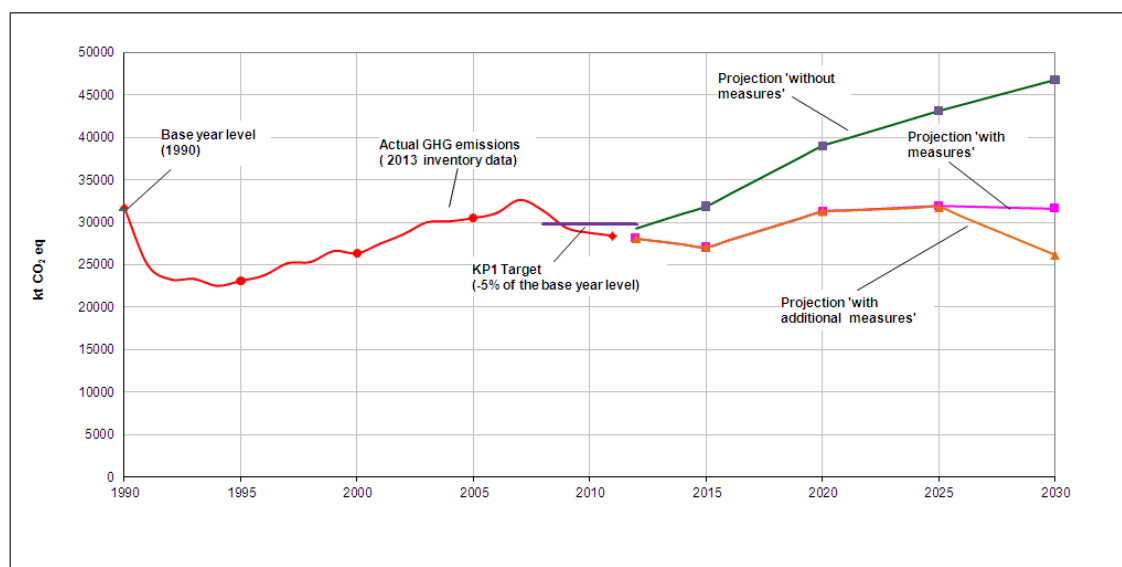
<sup>c</sup> The Kyoto Protocol target for the second commitment period (2013–2020) is a joint target for the European Union and its 28 member States and Iceland. The target is to reduce emissions by 20 per cent by 2020 compared with the base year (1990) level. The target for sectors not covered by the European Union Emissions Trading System is, for Croatia, an emission increase up to 11 per cent by 2020 (compared with 2005) under the European Union effort-sharing decision.

<sup>d</sup> Quantified economy-wide emission reduction target under the Convention is a joint target for the European Union and its 28 member States. The target is to reduce emissions by 20 per cent by 2020 compared with the base year (1990) level.

<sup>e</sup> Croatia’s 2013 greenhouse gas inventory submission; the emissions are without land use, land-use change and forestry.

<sup>f</sup> Croatia’s sixth national communication and first biennial report.

### Greenhouse gas emission projections



*Sources:* (1) Data for the years 1990–2011: Croatia’s 2013 greenhouse gas inventory submission; the emissions are without land use, land-use change and forestry; (2) Data for the years 2012–2030: Croatia’s sixth national communication and first biennial report; the emissions are without land use, land-use change and forestry.

*Abbreviations:* GHG = greenhouse gas, KP1 = first commitment period of the Kyoto Protocol.

### 3. Total effect of policies and measures

73. In the NC6, Croatia presented an estimate of the total effect of its PaMs, in accordance with the ‘with measures’ definition, compared with a situation without such PaMs. Information is presented in terms of GHG emissions avoided or sequestered, by gas (on a CO<sub>2</sub> eq basis) and by sector for 2015, 2020, 2025 and 2030 (see para. 32).

74. Croatia reported that the total estimated effect of adopted and implemented PaMs (excluding LULUCF) is 7,732 kt CO<sub>2</sub> eq by 2020. According to the information reported in the NC6, PaMs implemented in the energy sector will deliver the largest emission reductions, followed by the effect of PaMs implemented in the industry and waste sectors. The most effective PaMs and drivers behind GHG emission reductions are described in chapter II.B above. Table 6 provides an overview of the total effect of PaMs as reported by Croatia.

75. The ERT noted that several PaMs have an impact on emissions both included in and not included in the EU ETS. The ERT noted that reporting the effects of PaMs for the EU ETS sector and non-EU ETS sector separately could improve the transparency of information and enable the ERT to assess the Party's progress towards its emission reduction targets.

Table 6

**Projected effects of planned, implemented and adopted policies and measures in 2020 and 2030**

Sector	Effect of implemented and adopted measures (kt CO <sub>2</sub> eq)	Relative value (% of 1990 emissions)	Effect of planned measures (kt CO <sub>2</sub> eq)	Relative value (% of 1990 emissions)	Effect of implemented and adopted measures (kt CO <sub>2</sub> eq)	Relative value (% of 1990 emissions)	Effect of planned measures (kt CO <sub>2</sub> eq)	Relative value (% of 1990 emissions)
	2020				2030			
Energy	5 604	30	0	0	11 993	64	4 826	26
Transport	416	10	0	0	1 276	31	600	15
Industrial processes	949	24	0	0	1 027	26	0	0
Agriculture	79	2	0	0	83	2	0	0
Land-use change and forestry	1 819	28	1 265	20	1 162	18	1 586	25
Waste management	685	112	0	0	804	132	0	0
<b>Total excluding LULUCF</b>	<b>7 732</b>	<b>24</b>	<b>0</b>	<b>0</b>	<b>15 182</b>	<b>48</b>	<b>5 426</b>	<b>17</b>

Source: Croatia's sixth national communication and first biennial report.

Note: The total effect of implemented and adopted policies and measures is defined as the difference between the 'without measures' and 'with measures' scenarios; the total effect of planned policies and measures is defined as the difference between the 'with measures' and 'with additional measures' scenarios.

Abbreviation: LULUCF = land use, land-use change and forestry.

#### **4. Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol**

76. Croatia in its NC6 provided information on how its use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action, although it did not elaborate on supplementarity as such. The ERT noted that Croatia does not plan to use the market-based mechanisms to meet its Kyoto Protocol target.

#### **D. Provision of financial resources and technology transfer to developing country Parties, including information under Articles 10 and 11 of the Kyoto Protocol**

77. Croatia is a Party not 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, its NC6 did include some relevant information regarding technology transfer and capacity-building. The ERT assessed this information and the findings are reflected in this report.

78. Croatia reported activities related to technology transfer, which were implemented through its participation in European Union-funded projects including Parties not included in Annex I to the Convention (Bosnia and Herzegovina, Montenegro, Serbia). In its NC6,

Croatia provides a list of projects in which “soft” transfer of technology was implemented through sharing knowledge and experience in the field of environmental protection and climate actions.

79. In its NC6, Croatia provided information on the fulfilment of its commitments under Article 10 of the Kyoto Protocol. The ERT welcomes the comprehensive reporting on its capacity-building contributions to Central and Eastern European Parties, in particular in the Balkan region. A wide array of initiatives and programmes relating to sharing knowledge, strengthening regional legislation, developing environmental protection indicators and boosting energy efficiency, among other things, was reported.

## **E. Vulnerability assessment, climate change impacts and adaptation measures**

80. In its NC6, Croatia provided the required information on the expected impacts of climate change in the country and on adaptation options. However, the ERT noted that Croatia did not provide an outline of the action taken to implement Article 4, paragraph 1(e), of the Convention with regard to adaptation. In general, the information in the NC6 on vulnerability, climate change impacts and adaptation is brief and not provided for all sectors. In addition, some information has not been updated since the NC5.

81. The ERT noted that the information in the NC6 on the actions taken to implement Article 4, paragraph 1(b), of the Convention with regard to adaptation lacked transparency. During the review, Croatia provided additional information about the preparation of a climate change adaptation strategy, which is planned to take place during 2015–2016. The strategy’s aim is to assess the impact of climate change and the adaptation measures needed in order to avoid risks and possible damages caused by climate change for all vulnerable sectors (water resources, agriculture and fisheries, forestry, biodiversity and natural ecosystems, coastal areas, tourism and human health). Furthermore, the vulnerability of the aforementioned sectors to climate change will be analysed, the costs of adaptation measures will be estimated, and measures will be ranked according to a cost–benefit analysis as well as the potential for their implementation. The ERT welcomes the information provided and recommends that the Party improve transparency by including in its next NC information on the strategy.

82. The ERT encourages Croatia to use the Intergovernmental Panel on Climate Change Technical Guidelines for Assessing Climate Change Impacts and Adaptations and the United Nations Environment Programme Handbook on Methods for Climate Change Impact Assessment and Adaptation Strategies to improve the transparency of the information on vulnerability and adaptation to climate change in the next NC. Table 7 summarizes the information on vulnerability and adaptation to climate change presented in the NC6.

Table 7

### **Summary of information on vulnerability and adaptation to climate change**

<i>Vulnerable area</i>	<i>Examples/comments/adaptation measures reported</i>
Agriculture and food security	<p><i>Vulnerability:</i> Longer growing season; changes in suitable areas for cultivation of crops, orchards, vineyards and olive groves; decrease in precipitation, water insufficiency and frequency of droughts may threaten winter wheat and maize production</p> <p><i>Adaptation:</i> Investment in research and public awareness; crop rotation; fast-growing crops; earlier sowing of spring crops; irrigation</p>
Biodiversity and natural	<p><i>Vulnerability:</i> Shift in the period of freshwater fish spawning and earlier</p>

<i>Vulnerable area</i>	<i>Examples/comments/adaptation measures reported</i>
ecosystems	<p>arrival of migratory birds from wintering grounds; changes in phenology of lilac, grape, apple and olive trees; vegetation of the pre-mountain region of the Dinarides to be replaced by the vegetation of a temperate climate zone; most endangered plant species to be those of a circumpolar, pre-Alpine and Alpine distribution (40 species, 266 species and 607 species, respectively)</p> <p><i>Adaptation:</i> Ex-situ and in-situ protection of threatened species; preservation of migratory corridors; adjustment of physical plans and protected area management plans; planning/prediction of changes in the boundaries of protected areas; scientific evaluation of the status, forecast and monitoring of changes in terrestrial ecosystems and biodiversity</p>
Coast and coastal zone	<p><i>Vulnerability:</i> Sea-level rise possibly affecting a number of commercial fishing ports and fixed marinas, polluting coastal or sub-coastal freshwater springs in karstic areas and impacting tourism and recreation activities</p> <p><i>Adaptation:</i> Croatia's ratification of the Protocol on Integrated Coastal Zone Management in the Mediterranean (OG – International Treaties, No. 8/2012) and preparation for a national strategy for integrated coastal zone management and coastal implementation plans and programmes</p>
Marine ecosystems and fisheries	<p><i>Vulnerability:</i> Increase of species that tolerate warm water and lower oxygen levels; moving of spawning centres; extension of spawning period for sardine, anchovy and hake; change in bathymetric distribution of Norwegian lobster; negative impact for sea bass and flat oyster due to increased temperature</p> <p><i>Adaptation:</i> Changes in breeding (e.g. breeding transfer to deeper waters); continued research on and condition monitoring and analysis of climate change impacts in neighbouring and/or similar countries required</p>
Forestry	<p><i>Vulnerability:</i> Change in spatial distribution of forest vegetation; possible disappearance of existing forest types or the appearance of new forest types; change in the density of the population of certain tree species, the productivity of forest ecosystems, ecological stability and forest health; and change in the overall productive value and welfare effects of forests</p> <p><i>Adaptation:</i> No adaptation measures reported</p>
Human health	<p><i>Vulnerability:</i> Heatwaves to pose a serious threat to the elderly and chronically ill patients; warmer and drier conditions to possibly favour the spread of diseases borne by food or water, such as diarrhoea and dysentery; warmer summers and an extended vegetation season to lead to a rise in respiratory allergies; seasonal allergic rhinitis and allergic asthma caused by pollen from trees, grasses and weeds; increased risk of malaria in the coastal area</p> <p><i>Adaptation:</i> Advice for the public during heatwaves published on the Internet and distributed to patients in health institutions; advice for the elderly during heatwaves distributed in retirement homes and health institutions; lectures, round-table discussions and workshops held for health professionals and the public on climate change and health, including at World Health Day events</p>
Water resources	<p><i>Vulnerability:</i> Impact on water flow, evapotranspiration, groundwater inflow, water level in rivers and lakes, and water temperature; rise in temperature and decline in annual precipitation to possibly decrease water discharges; impact on hydropower</p> <p><i>Adaptation:</i> Adoption by the Government of Croatia of the River Basin Management Plan (OG 82/2013) and preparation by Croatian Waters of the Flood Risk Management Plan (these plans contain adaptation</p>

<i>Vulnerable area</i>	<i>Examples/comments/adaptation measures reported</i>
	measures; for the purpose of water management, Croatian Waters carries out detailed water monitoring research on water quantity and quality and develops water infrastructure)

83. The focus of Croatia's NC6 is on vulnerability, with adaptation being discussed to a lesser extent. There are two new research studies being conducted by Croatia on the observed vulnerability of its forestry and of its biodiversity and natural terrestrial ecosystems. There is a transparent description of the methodology used for the observed climate, but for the future climate change scenarios in Croatia, references for the tools and methodologies used in the vulnerability assessment for sectors including hydrology and water resources, forestry, agriculture and public health are not presented. In addition, the expected socioeconomic or ecological impacts of climate change in Croatia have not been discussed.

84. With regard to adaptation, Croatia ratified the Protocol on Integrated Coastal Zone Management in the Mediterranean. For the purpose of minimizing the vulnerability of the coast/coastal zone to sea-level rise, five adaptation measures were identified: (1) improvement of institutional and organizational capacities for integrated coastal zone planning and management; (2) preparation of a national strategy for integrated coastal zone management and coastal implementation plans and programmes, including measures and costs; (3) more detailed mapping of the coastal zone, spatial features, land-use samples and economic activities; (4) cooperation with scientific research institutions developing global and regional databases and prognostic models related to the forecast of sea-level rise and analyses of the effects of adaptation measures and their costs; and (5) technical measures such as beach replenishment, construction of groynes and sea walls, raising of structures above flood elevations, development of alternative water supply resources, planning and construction of new water treatment capacities due to increased salinity.

85. Croatia reported cooperation in coastal zone management projects such as the Integration of Climatic Variability and Change into Coastal Plans and National Integrated Coastal Zone Management Strategies, financed by the Global Environment Facility, but did not provide an outline of actions taken to implement Article 4, paragraph 1(e), with regard to adaptation. The ERT recommends that Croatia provide the information in its next NC.

## **F. Research and systematic observation**

86. In its NC6, Croatia provided information on its actions relating to research and systematic observation and addressed both domestic and international activities, including the Global Earth Observation System of Systems (GEOSS) and the Global Climate Observing System (GCOS). The NC6 also provided examples of capacity-building in developing countries.

87. In its NC6, Croatia did not use the structure presented in the annex to the UNFCCC reporting guidelines on NCs, with separate sections on (1) general policy on research and systematic observation; (2) research, and (3) systematic observation. The ERT recommends that Croatia use this structure in its next NC.

88. The ERT noted that in its NC6, Croatia included information on planned research and studies on climate change impacts in the most vulnerable sectors of the national economy. However, most of this information has not been updated since the NC4 and NC5. The ERT encourages Croatia to provide updated information in its next NC.



89. During the review, Croatia provided additional information on research and systematic observation, including on ongoing domestic and international programmes and projects related to climate change. These include projects funded by the Croatian Ministry of Science, Education and Sports, European Cooperation in Science and Technology projects and European Union-funded projects. The ERT recommends that Croatia improve the transparency of its reporting by providing information on recent research activities in its next NC.

90. In its NC6, Croatia reported on capacity-building activities carried out with other countries, including Bosnia and Herzegovina. During the review, Croatia informed the ERT that there is not a specific plan for supporting capacity-building for climate observation activities in developing countries. The ERT reiterates the recommendation made in the previous review report that Croatia provide information on its actions taken to support capacity-building activities in developing countries relating specifically to research and systematic observation. The ERT also encourages Croatia to include information on general policy and funding for research and systematic observation, and to update the section on research and systematic observation in its next NC.

91. The central institution for meteorological and hydrological observations and data processing, Meteorological and Hydrological Service, is working in the area of climate modelling and monitoring. It is currently undertaking research on the following topics: (1) dynamic downscaling of global climate change scenarios from the ECHAM5-OM global model: simulations for two 30-year periods, present climate (1961–1990) and future climate (2041–2070); (2) estimation of present and future water cycles, for example rainfall, evapotranspiration and surface run-off, particularly for the Mediterranean region; (3) occurrence of and changes in extreme weather events, notably droughts and rainfall; (4) occurrence of and changes in the amount and variability of seasonal and annual precipitation; and (5) changes in the frequency and intensity of heavy precipitation events.

92. Croatia provided a summary of its domestic and international actions relating to GCOS activities. Croatia's contribution to GCOS includes 158 GCOS Surface Network (GSN) stations for air temperature, 40 World Weather Watch stations, 40 Baseline Surface Radiation Network stations, 300 hydrological stations, 40 snow-cover stations, 10 sea-level stations, one GCOS Upper-Air Network (GUAN) radio-sounding upper-air station and five Global Atmosphere Watch (GAW) stations. There are plans to modernize meteorological observation networks. The project "Modernization of Meteorological and Hydrological Observation Networks" has been recognized as a priority by MENP, and co-financing from the European Union is expected.

## **G. Education, training and public awareness**

93. In its NC6, Croatia provided information on its actions relating to education, training and public awareness at both the domestic and international level. Compared with the NC5, the Party provided more extensive information on training and public awareness and the roles and involvement of the public and non-governmental organizations (NGOs) in framing climate change policy and awareness-raising. The ERT welcomes the more extensive reporting.

94. During the review, Croatia informed the ERT that at the moment there is no general policy on education, training and public awareness that is particularly related to climate change, but that climate change is part of a programme for sustainable development and environmental protection in general. Croatia expects that in the upcoming process of drawing up a low-carbon development strategy, such general policy will be elaborated in a more concrete way. The ERT encourages Croatia to report on this topic in its next NC.

95. Croatia reported in its NC6 on public awareness campaigns. During the review, the Party explained that the campaigns are mostly related to energy savings and the promotion of energy-efficiency measures in households, buildings and services, which also result in GHG emission reductions. The campaigns are funded by the Ministry of Economy, MENP and the Environmental Protection and Energy Efficiency Fund. During the review, Croatia also explained that there is a need to, over the short term, increase the number and improve the quality of public awareness campaigns related to climate change mitigation and adaptation.

96. During the review, Croatia also explained that it is involved in the regional project Environment and Climate Regional Accession Network, which is funded by the European Commission and is related to capacity-building and training in specific topics related to the development of climate change policies and adaptation. The ERT welcomes this information and encourages Croatia to provide such information in its next NC.

97. The ERT encourages Croatia to improve its complete and transparent reporting by including in its next NC an additional section on its general policy toward education, training, public awareness and participation in international activities.

98. MENP is carrying out a series of activities related to the implementation of obligations under Article 6 of the Convention. It is also the competent authority for the implementation of the first two pillars of the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention). There are many institutions that have been implementing continuous programmes and projects related to providing information and education on climate change and concrete mitigation measures and instruments. Particularly significant are the Croatian Chamber of Economy, Croatian Business Council for Sustainable Development, Croatian Employers' Association and the Green Building Council. During 2012 and 2013, MENP, in cooperation with the United Nations Development Programme in Croatia, has prepared two documents which have undergone intense public consultations attended by hundreds of participants, many of whom are experts on certain general and sectoral matters related to climate change mitigation and adaptation. One is the Framework for a Long-term Low-carbon Development Strategy for the Republic of Croatia for the Period until 2050 and the other is the Plan for the Protection of the Air, Ozone Layer and Climate Change Mitigation 2013–2017. In Šibenik-Knin County, the project “Climagine” has been in progress since spring of 2013 and its goal is to prepare a plan for adaptation to climate change by the spring of 2014 using participatory methods and to link it closely with the Integral Coastal Management Plan for Šibenik-Knin County.

99. In the period 2009–2013, the Society for Sustainable Development, a civil society organization that deals with sustainable development primarily in the field of energy, has organized more than 50 public events and study trips (e.g. the expert roundtable Sustainable Energy Communities in 2010; the national conference Achieving Social, Environmental and Economic Sustainability through Energy Efficiency in 2011; and the international conference Energy. Development. Democracy. Successful Approaches for a New Energy Future in South East Europe in 2013). More than 20 public advocacy actions on climate change and the energy sector were organized by the NGO Zelena akcija. This organization monitors national climate policy and comments on national legislation related to policies on energy, transport, climate change and natural resource management. It monitors and comments on international climate policy within the international delegation Friends of the Earth International and has participated in the United Nations climate negotiations since 2009. Zelena akcija has actively participated in the establishment and operation of an international network of young people, which is principally engaged in education and public advocacy campaigns on climate change and policy.

### III. Summary of reviewed supplementary information under the Kyoto Protocol

#### A. Overview of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol

100. Supplementary information provided by Croatia under Article 7, paragraph 2, of the Kyoto Protocol in its NC6 is mostly complete and mostly transparent. The supplementary information is located in different sections of the NC6. Table 8 provides an overview of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol as well as references to the NC6 sections in which this information is provided.

101. Croatia did not fully report on the following elements of the supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol: a description of the national system; a description of the national registry; identification of steps taken to promote and/or implement any decisions by the ICAO and the IMO in order to limit or to reduce GHG emissions not included in the Montreal Protocol from aviation and marine bunker fuels; information on what efforts Croatia is making to implement PaMs in such a way as to minimize adverse effects, including the effects of climate change, effects on international trade, and social, environmental and economic impacts on other Parties, particularly those identified in Article 4, paragraphs 8 and 9, of the Convention; and a description of domestic and regional programmes and/or arrangements and procedures. The technical assessment of the information reported under Article 7, paragraph 2, of the Kyoto Protocol is contained in the relevant sections of this report. The ERT recommends that Croatia include these reporting elements in its next NC.

#### B. Minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol

102. Croatia reported the information requested in section H, “Minimization of adverse impacts in accordance with Article 3, paragraph 14”, of the annex to decision 15/CMP.1 as a part of its 2013 annual submission. During the review, Croatia provided the ERT with the additional information on how it strives to implement its commitments under Article 3, paragraph 1, of the Kyoto Protocol in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties, particularly those identified in Article 4, paragraphs 8 and 9, of the Convention. The information provided during the review included examples related to renewable energy, biofuels and forests. The ERT commends Croatia for the additional information provided. However, the ERT considers that the information in the NIR and that provided during the review lacked transparency regarding how the reported policies and activities contribute to reducing adverse social, environmental and economic impacts. The ERT recommends that Croatia improve the transparency of its reporting by further elaborating on these matters.

Table 8

#### Overview of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol

<i>Supplementary information</i>	<i>Reference to the sixth national communication</i>
National registry	Chapter 3.4
National system	Chapter 3.3

<i>Supplementary information</i>	<i>Reference to the sixth national communication</i>
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Chapter 5.6
Policies and measures in accordance with Article 2	Chapter 4.2
Domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures	Chapter 4.1
Information under Article 10	Chapters 3.3, 4.1, 4.2, 7.2, 8. 9
Financial resources	Not applicable

*Note:* Reporting on financial resources under the Kyoto Protocol is relevant for developed country Parties and other developed Parties that are included in Annex II to the Convention (Annex II Parties). As Croatia is not an Annex II Party, it does not have an obligation to provide information on financial resources under Article 11 of the Kyoto Protocol, including on “new and additional” resources.

#### IV. Conclusions and recommendations

103. The ERT conducted a technical review of the information reported in the NC6 of Croatia according to the UNFCCC reporting guidelines on NCs. The ERT concludes that the NC6 provides a good overview of the national climate policy of Croatia. The information provided in the NC6 includes most elements of the supplementary information under Article 7 of the Kyoto Protocol with the exception of: one element of information on the national system, several elements of information on the national registry, information on the steps taken to promote and/or implement ICAO/IMO decisions, and some elements of information regarding domestic and regional programmes and/or legislative arrangements and administrative procedures. Information on the minimization of adverse effects was not provided in the NC6 but was provided in the NIR of 2013 annual submission. During the review, Croatia provided additional information on the missing elements.

104. Croatia's emissions for 2011 were estimated to be 10.3 per cent below its 1990 level excluding LULUCF and 15.4 per cent below including LULUCF. Emission decreases were driven by a decline in economic activities and energy consumption in the period 1991–1994 (due to the war in Croatia) and by the economic crisis in the period 2008–2011. During the review, the ERT took note of the recently submitted 2014 annual submission, in which Croatia reported 26,418.80 kt CO<sub>2</sub> eq for the total national GHG emissions excluding LULUCF for the year 2012.

105. Croatia participates in achieving the European Union quantified economy-wide emission reduction target to achieve a 20 per cent reduction of emissions by 2020 compared with the base-year (1990) level. Croatia does not have a national quantified economy-wide emission reduction target. Emissions that fall under the EU ETS sector contribute to the European Union wide EU ETS target of a 21 per cent reduction by 2020 compared with 2005. For the non-EU ETS sector (excluding LULUCF), the EU effort-sharing decision sets a positive limit for Croatia, which is an 11 per cent increase by 2020 compared with emissions in 2005.

106. In the NC6, Croatia presents GHG projections for the period from 2015 to 2030. Three scenarios are included: baseline (‘without measures’) scenario; ‘with measures’; and ‘with additional measures’. The projected changes in GHG emissions under the baseline scenario, in relation to 1990, and under the ‘with measures’ and ‘with additional measures’ scenarios, are 23.1, –1.3 and –1.3 per cent for 2020, respectively. Based on the comparison

of the target and the average annual emissions for 2008–2011, Croatia is in a position to meet its Kyoto Protocol target for the first commitment period (which is a 5 per cent reduction).

107. The NC6 contains information on how Croatia's use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action, although it did not elaborate on supplementarity as such. Croatia is not planning to make use of the Kyoto Protocol mechanisms to meet its Kyoto Protocol target.

108. Croatia provided in its NC6 comprehensive and well-organized information on its package of PaMs implemented, adopted and planned that address all sectors and GHGs. The PaMs with the most significant mitigation impact are in the energy supply sector: the EU ETS; a regulation on the minimum share of electricity that must be produced through renewable energy sources and cogeneration; and energy efficiency measures included in Croatia's National Energy Efficiency Action Plans. In addition, an action plan for the LULUCF sector is under development to define measures to reduce emissions and maintain or increase the removals of the LULUCF sector.

109. In its NC6, Croatia provided the required information on the expected impacts of climate change in the country and on adaptation options. Croatia did not provide in its NC6 an outline of the action taken to implement Article 4, paragraph 1(e), of the Convention with regard to adaptation, while information regarding the implementation of Article 4, paragraph 1(b), of the Convention lacked transparency. In general, the information in the NC6 on vulnerability, climate change impacts and adaptation is brief and not provided for all sectors. In addition, some information has not been updated since the NC5.

110. In its NC6, Croatia provided information on its actions relating to research and systematic observation and addressed both domestic and international activities, including with regard to GEOSS and GCOS, through its provision of meteorological and atmospheric observations for networks such as the GSN, GUAN and GAW. The ERT noted that in its NC6, Croatia included information on planned research and studies on climate change impacts in the most vulnerable sectors of the national economy. However, most of this information has not been updated since the NC4 and NC5.

111. In the NC6, Croatia provided information on its actions relating to education, training and public awareness at both the domestic and international level. Compared with the NC5, the Party provided more extensive information on training and public awareness and the roles and involvement of the public organizations and NGOs in framing climate change policy and awareness-raising.

112. Supplementary information under Article 7, paragraph 1, of the Kyoto Protocol on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol is provided by Croatia in its 2013 annual submission. During the review, the Party provided further information, but the information lacked transparency regarding how the reported policies and activities contribute to reducing adverse social, environmental and economic impacts.

113. In the course of the review, the ERT formulated several recommendations relating to the completeness and transparency of Croatia's reporting under the Convention and its Kyoto Protocol. The key recommendations<sup>9</sup> are that Croatia:

(a) Improve completeness of reporting by including in the next NC the following information:

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<sup>9</sup> The recommendations are given in full in the relevant sections of this report.

- (i) The name and contact information for the national entity and its designated representative with overall responsibility for the national inventory;
  - (ii) Information on the national registry;
  - (iii) Information on how Croatia believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals consistent with the objectives of the Convention;
  - (iv) Information on the steps taken to promote and/or implement ICAO/IMO decisions;
  - (v) Emission projections related to fuel sold to ships and aircraft engaged in international transport;
  - (vi) Information on how it strives to implement PaMs under Article 2 of the Kyoto Protocol in such a way as to minimize adverse effects, including the adverse effects of climate change and effects on international trade and social, environmental and economic impacts, on other Parties, especially developing country Parties, in line with the information provided during the review, but by further elaborating on how the policies and activities contribute to reducing adverse social, environmental and economic impacts;
  - (vii) Information on provisions to make information on legislative arrangements and enforcement and administrative procedures established pursuant to the implementation of the Kyoto Protocol publicly accessible;
  - (viii) Information on the legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraph 3, and elected activities under Article 3, paragraph 4, of the Kyoto Protocol also contribute to the conservation of biodiversity and the sustainable use of natural resources;
  - (ix) An outline of the actions taken to implement Article 4, paragraph 1(e), of the Convention with regard to adaptation;
- (b) Improve the transparency of reporting by including in the next NC the following information:
- (i) Information on how the changes in the national circumstances affect GHG emissions and removals over time;
  - (ii) Information on action taken to develop and implement the adaptation strategy;
  - (iii) Information on research and systematic observation following the structure presented in annex to the UNFCCC reporting guidelines on NCs;
  - (iv) More information on actions relating to research;
  - (v) Information on actions taken to support capacity-building activities in developing countries regarding research and systematic observation;
- (c) Improve transparency by ensuring that information on PaMs in the NC is consistent with the information in the CTF tables.

## **V. Questions of implementation**

114. During the review, the ERT assessed the NC6, including supplementary information provided under Article 7, paragraph 2, of the Kyoto Protocol, and reviewed information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol, with regard to timeliness, completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. No question of implementation was raised by the ERT during the review.

## Annex

### Documents and information used during the review

#### A. Reference documents

“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 preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories”. FCCC/CP/1999/7. Available at <<http://unfccc.int/resource/docs/cop5/07.pdf>>.

“Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol”. Decision 15/CMP.1. Available at <<http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf#page=54>>.

“Guidelines for review under Article 8 of the Kyoto Protocol”. Decision 22/CMP.1. Available at <<http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf#page=51>>.

“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 23/CP.19. Available at <<http://unfccc.int/resource/docs/2013/cop19/eng/10a02.pdf#page=20>>.

FCCC/SBI/2011/INF.1. Compilation and synthesis of fifth national communications. Executive summary. Note by the secretariat. Available at <<http://unfccc.int/resource/docs/2011/sbi/eng/inf01.pdf>>.

FCCC/SBI/2011/INF.1/Add.1. Compilation and synthesis of fifth national communications. Note by the secretariat. Addendum. Policies, measures, and past and projected future greenhouse gas emission trends of Parties included in Annex I to the Convention. Available at <<http://unfccc.int/resource/docs/2011/sbi/eng/inf01a01.pdf>>.

FCCC/SBI/2011/INF.1/Add.2. Compilation and synthesis of fifth national communications. Note by the secretariat. Addendum. Financial resources, technology transfer, vulnerability, adaptation and other issues relating to the implementation of the Convention by Parties included in Annex I to the Convention. Available at <<http://unfccc.int/resource/docs/2011/sbi/eng/inf01a02.pdf>>.

FCCC/ARR/2013/HRV. Report of the individual review of the annual submission of Croatia submitted in 2013. Available at <<http://unfccc.int/resource/docs/2014/arr/hrv.pdf>>.

FCCC/IRR/2008/HRV. Report of the review of the initial report of Croatia. Available at <<http://unfccc.int/resource/docs/2009/irr/hrv.pdf>>.

FCCC/IDR.5/HRV. Report of the in-depth review of the fifth national communication of Croatia. Available at <<http://unfccc.int/resource/docs/2011/idr/hrv05.pdf>>.

Sixth national communication of Croatia. Available at <[http://unfccc.int/files/national\\_reports/annex\\_i\\_natcom\\_/application/pdf/hrv\\_nc6.pdf](http://unfccc.int/files/national_reports/annex_i_natcom_/application/pdf/hrv_nc6.pdf)>.

2013 GHG inventory submission of Croatia. Available at <[http://unfccc.int/national\\_reports/annex\\_i\\_ghg\\_inventories/national\\_inventories\\_submissions/items/7383.php](http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/7383.php)>.



2014 GHG inventory submission of Croatia. Available at  
<[http://unfccc.int/national\\_reports/annex\\_i\\_ghg\\_inventories/national\\_inventories\\_submissions/items/8108.php](http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/8108.php)>.

## **B. Additional information provided by the Party**

Responses to questions during the review were received from Ms. Vlatka Palčić (Department for Climate and Ozone Layer Protection), including additional material on policies and measures, greenhouse gas projections, the national registry and recent climate policy developments in Croatia. The following document<sup>1</sup> was also provided by Croatia:

Ministry of Economy, Ministry of Construction and Physical Planning. 2013. *Second National Energy Efficiency Action Plan for the Period until the End of 2013*.

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