COMPLIANCE COMMITTEE

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15 December 2009

Report of the centralized in-depth review of the fourth national communication of Romania

Note by the secretariat

The report of the centralized in-depth review of the fourth national communication of Romania was published on 8 December 2009. For purposes of rule 10, paragraph 2, of the rules of procedure of the Compliance Committee (annex to decision 4/CMP.2, as amended by decision 4/CMP.4), the report is considered received by the secretariat on the same date. This report, FCCC/IDR.4/ROU, contained in the annex to this note, is being forwarded to the Compliance Committee in accordance with section VI, paragraph 3, of the annex to decision 27/CMP.1.

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Report of the centralized in-depth review of the fourth national communication of Romania

According to decision 4/CP.8, Parties included in Annex I to the Convention are requested to submit to the secretariat, in accordance with Article 12, paragraphs 1 and 2, of the Convention, a fourth national communication by 1 January 2006. This report presents the results of the in-depth review of the fourth national communication of Romania conducted by an expert review team in accordance with relevant provisions of the Convention and Article 8 of the Kyoto Protocol.

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I. Introduction and summary

A. Introduction

1. Romania has been a Party to the Convention since 1994 and to its Kyoto Protocol since 2001. Under the Kyoto Protocol, Romania committed itself to reducing its greenhouse gas (GHG) emissions by 8 per cent in relation to the 1989 level during the first commitment period from 2008 to 2012.

2. This report covers the centralized in-depth review (IDR) of the fourth national communication (NC4) of Romania, coordinated by the UNFCCC secretariat, in accordance with decision 7/CP.11. The review took place from 11 to 16 May 2009 in Bonn, Germany, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: Ms. Eglantina Bruci (Albania), Mr. Ture Hammar (Denmark), Ms. Erika Hasznos (Hungary), Ms. Eva Jernbäcker (Sweden), Ms. Inga Kindsigo (Estonia), Mr. Guy Midgeley (South Africa), Mr. Dennis Rudov (Belarus), Mr. Evren Turkmenoglu (Turkey), Ms. Katalin Zaim (United Nations Development Programme (UNDP)), Mr. Ji Zou (China). Ms. Bruci and Mr. Hammar were the lead reviewers. The review was coordinated by Mr. Harald Diaz-Bone (UNFCCC secretariat).

3. During the IDR, the expert review team (ERT) examined each part of the NC4. The ERT also evaluated the information contained in Romania's report demonstrating progress (RDP) in achieving its commitments under the Kyoto Protocol, and the supplementary information provided by Romania under Article 7, paragraph 2, of the Kyoto Protocol.

4. In accordance with the guidelines for review under Article 8 of the Kyoto Protocol (decision 22/CMP.1), a draft version of this report was communicated to the Government of Romania, which provided comments that were considered and incorporated, as appropriate, in this final version of the report.

B. Summary

5. The ERT noted that Romania's NC4 complies to some extent 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). As required by decisions 22/CP.7 and 25/CP.8, the RDP provides information on the progress made by Romania in achieving its commitments under the Kyoto Protocol. Supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol[1] is provided in both the NC4 and the RDP.

1. Completeness

6. The ERT noted that the NC4 covers all sections required by the UNFCCC reporting guidelines. However, as pointed out in the relevant sections of this review report, the level of detail provided in most sections of the NC4 is limited. The ERT further noted that Romania's RDP comprises all parts stipulated by decisions 22/CP.7 and 25/CP.8. Furthermore, the ERT noted that Romania has provided the supplementary information required under Article 7, paragraph 2.

2. Timeliness

7. The ERT noted with concern that the NC4 was submitted on 4 November 2006 and the RDP on 31 January 2006. Decision 4/CP.8 requested Parties to submit their NC4 by 1 January 2006; decision 22/CP.7 set the same date for Parties to submit their RDP.

[1] Decision 15/CMP.1, annex, chapter II.

3. Transparency

8. The ERT acknowledged that the NC4 sections on policies and measures (PaMs) and projections are comprehensive and transparent; however, other parts of the NC4 are of limited transparency. The ERT recommends that Romania provide clear information on all aspects of implementation in its next national communication. The ERT noted that the information contained in the NC4 is generally consistent with that contained in the RDP.

II. Technical assessment of the reviewed elements

A. National circumstances relevant to greenhouse gas emissions and removals

9. In its NC4, Romania has provided a description of its national circumstances. However, the ERT noted that Romania did not provide the following reporting elements required by the UNFCCC reporting guidelines: how these national circumstances affect GHG emissions and removals in Romania and how national circumstances and changes in national circumstances affect GHG emissions and removals over time. The description of national circumstances provides geographic, climate, political, economic, territorial and population profiles and information relating to the energy, transport, industry, agriculture, land use and forestry and waste management sectors. Table 1 illustrates the national circumstances of the country by providing some indicators relevant to GHG emissions and removals.

Table 1. Indicators relevant to greenhouse gas emissions and removals for Romania

	1989	1995	2000	2006	Change 1989–2000 (%)	Change 2000–2006 (%)	Change 1989–2006 (%)
Population (million)	23.15	22.68	22.44	21.59	–3.06	–3.80	–6.75
GDP (2000 USD billion using PPP)	166.36	141.03	132.28	187.88	–20.49	42.03	12.94
TPES (Mtoe)	69.44	46.47	36.31	40.15	–47.71	10.57	–42.18
GDP per capita (2000 USD thousand using PPP)	7.19	6.22	5.89	8.70	–17.97	47.64	21.11
TPES per capita (toe)	3.00	2.05	1.62	1.86	–46.06	14.94	–38.00
GHG emissions without LULUCF (Tg CO_2 eq)	276.05	180.77	135.52	152.29	–50.91	12.37	–44.83
GHG emissions with LULUCF (Tg CO_2 eq)	243.62	141.78	97.52	116.07	–59.97	19.01	–52.36
CO_2 emissions per capita (Mg)	8.35	5.71	4.25	5.14	–49.14	20.94	–38.49
CO_2 emissions per GDP unit (kg per 2000 USD using PPP)	1.16	0.92	0.72	0.59	–37.99	–18.09	–49.21
GHG emissions per capita (Mg CO_2 eq)	10.52	6.25	4.35	5.38	–58.70	23.72	–48.91
GHG emissions per GDP unit (kg CO_2 eq per 2000 USD using PPP)	1.66	1.28	1.02	0.81	–38.26	–20.88	–51.15

Data sources: (1) GHG emissions data: Romania's 2009 greenhouse gas inventory submission; (2) Population, GDP and TPES data: International Energy Agency.
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.
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.

10. Romania has provided a summary of information in the NC4 on GHG emission trends for the period 1989–2004. This information is broadly consistent with the 2006 national GHG inventory submission. Romania reported summary trend tables by gas in carbon dioxide equivalent (CO_2 eq) (given in the common reporting format (CRF)) in the NC4.

11. According to Romania's 2009 GHG inventory submission, total GHG emissions, excluding net removals from land use, land-use change and forestry (LULUCF), decreased by 44.8 per cent between the base year and 2007, whereas total GHG emissions including net removals from LULUCF decreased by 52.4 per cent (see table 2). This was mainly attributed to CO_2 emissions, which decreased by 42.6 per cent over this period. Emissions of methane (CH_4) and nitrous oxide (N_2O) decreased by 44.6 and 54.4 per cent, respectively. A major part of these decreases was experienced during the period

1989–1992, as a direct result of the decline in economic activities and energy consumption. Emissions of fluorinated gases accounted for about 1.2 per cent of total GHG emissions in 1989 and 0.4 per cent in 2007. Table 2 provides an overview of GHG emissions by sector from the base year to 2007 (see also discussion of sectoral trends in chapter II B).

Table 2. Greenhouse gas emissions by sector in Romania, 1989–2007

	GHG emissions (Gg CO_2 eq)						Change (%)		Shares[a] by sector (%)	
	1989	1995	2000	2005	2006	2007	1989–2007	2006–2007	1989	2007
1. Energy	188.4	129.0	94.9	102.0	105.5	104.0	–44.8	–1.4	68.3	68.3
A1. Energy industries	106.3	67.4	46.8	46.4	49.0	48.6	–54.3	–0.7	38.5	31.9
A2. Manufacturing industries and construction	37.6	26.8	17.7	20.8	19.4	19.6	–47.8	1.2	13.6	12.9
A3. Transport	5.8	8.3	9.4	11.9	12.4	12.9	121.0	4.1	2.1	8.4
A4.–A5. Other	10.5	9.8	9.1	11.6	13.4	12.1	14.9	–9.6	3.8	8.0
B. Fugitive emissions	28.2	16.8	11.9	11.3	11.4	10.8	–61.6	–4.8	10.2	7.1
2. Industrial processes	44.1	23.9	17.0	19.8	20.8	22.2	–49.6	6.6	16.0	14.6
3. Solvent and other product use	0.6	0.2	0.2	0.3	0.2	0.2	–75.1	–22.7	0.2	0.1
4. Agriculture	40.0	24.0	18.3	20.7	20.5	19.5	–51.1	–4.5	14.5	12.8
5. LULUCF	–32.4	–39.0	–38.0	–37.2	–37.2	–36.2	11.7	–2.6	–11.7	–23.8
6. Waste	2.9	3.6	5.2	6.6	6.9	6.4	117.5	–7.3	1.1	4.2
7. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GHG total with LULUCF	243.6	141.8	97.5	112.2	116.6	116.1	–52.4	–0.5	88.3	76.2
GHG total without LULUCF	276.0	180.8	135.5	149.4	153.8	152.3	–44.8	–1.0	100.0	100.0

Abbreviations: GHG = greenhouse gas, LULUCF = land use, land-use change and forestry; NA = not applicable
Note: The changes in emissions and the shares 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.
[a] 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.

12. Emission trends in Romania have changed over time, reflecting the economic changes in the country. GHG emissions declined significantly during the years 1989–1992, driven by the decline in some energy-intensive industries during the transition from a centrally planned to a market economy. Emissions started to increase in 1994 as a result of economic recovery; however, the starting of operation of the country's first nuclear reactor at the Cernavoda nuclear power plant in 1996 further reduced emissions. The decline continued until 1999, after which the emission trend again rose in line with economic development in Romania.

13. The ERT recommends that Romania include in its next national communication information on how national circumstances affect GHG emissions and removals in Romania and how national circumstances and changes in national circumstances affect GHG emissions and removals over time, and a complete set of summary and emission trend tables given in the CRF.

B. Policies and measures

14. As required by the UNFCCC reporting guidelines, Romania has provided in its NC4 a sectoral description on policies and measures (PaMs) it has implemented in order to fulfil its commitments under the Convention and its Kyoto Protocol. During the review, the Party provided some updated information on PaMs, as contained in "Romania's 2009 Report for the Assessment of Projected Progress under Decision no 280/2004/EC of the European Parliament and of the Council Concerning a Mechanism for Monitoring Community Greenhouse Gas Emissions and for Implementing the Kyoto Protocol (hereinafter referred to as the 2009 progress report).

15. No quantitative estimates of mitigation effects was provided in the NC4 nor the 2009 progress report as the PaMs implemented in Romania during the period 1989–2007addressed GHG emissions only indirectly, with the exception of the European Union emissions trading scheme (EU ETS). Consequently, there is no table in the NC4 that summarizes PaMs by sector and gives a description of each PaM in accordance with the requirements of the UNFCCC reporting guidelines. The ERT noted, however, that there are some PaMs in place in Romania, particularly in the energy sector, that have a substantial indirect mitigation effect and, therefore, could also be described as PaMs within Romania's strategy to mitigate climate change. Table 3 provides a summary of the reported information on the PaMs of Romania.

Table 3. Summary of information on policies and measures

Major policies and measures	Examples / comments
Framework policies and cross-sectoral measures	
Integrated climate programme	Romania's Governmental Programme 2005–2008; National Strategy on Climate Change (2005); National Action Plan on Climate Change (2005); a strategy for the industrial development of Romania in the medium term (2005–2008); sectoral strategies and policies
Emissions trading	European Union (EU) emissions trading scheme; joint implementation
Other	Intends to develop a framework for implementation of a green investment scheme
Policies and measures by sector	
Energy	
Energy sector transformation	Romania's energy policy has been established to prepare the Romanian market for accession to the EU energy market in 2007 The wholesale electricity market is made up of two components: the regulated market and the competitive market
Renewable energy sources (RES)	Government decision on the strategy for using RES until 2015 (indicative target: 11.2 per cent of total primary energy supply)
Energy efficiency improvements	National Strategy for Energy Efficiency for 2004–2015; UNDP's Energy Efficiency Financing Team for 2003–2006 [126 Gg CO_2 eq per year]; Energy Efficiency Fund [34 Gg CO_2 eq per year]
Transport	
Integrated transport planning	2001 EU White Paper on Transport; a new department set up under the Ministry of Transport, Construction, and Tourism with a mandate on climate change and the reduction of greenhouse gas emissions in the transport sector
Industry	
Integrated pollution prevention and control (IPPC)	Closely follows EU policy in the industrial field – the IPPC Directive; Industrial Policy for 2005–2008
Agriculture	National Strategic Plan for Agriculture and Rural Development for 2007–2013
Waste	National Waste Management Strategy for 2003–2013
Forestry	Provisions under the National Strategic Plan for Agriculture and Rural Development for 2007–2013 to extend forest areas from 27 to 32 per cent by 2013

Note: Numbers in square brackets indicate estimated mitigation effects.

1. Policy framework and cross-sectoral measures

16. The Ministry of Environment and Water Management (MEWM) is the environmental protection public authority responsible for developing national policy on climate change and coordinating the implementation at central, regional and local levels. The ministry is also responsible for the integration of climate change related PaMs in other sectoral policies.

17. Romania became a member of the European Union (EU) in 2007. A number of concrete actions have been implemented in the field of climate change during the EU accession process. The National Strategy on Climate Change (NSCC) and the National Action Plan on Climate Change (NAPCC) were both adopted in 2005. Romania joined the EU ETS in 2007 and developed two National Allocation Plans for 2007 and the 2008–2012 trading period. Romania proposed a cap on allowances to its domestic installations under the EU ETS of 95.7 Mt CO_2 annually for the period 2008–2012. The European Commission decided to set the cap at 75.9 Mt CO_2. However, the allocation still allows an increase in emissions in relation to the verified emissions of the Romanian installations in 2007.

18. Romania is also setting up procedures for promoting joint implementation (JI) projects; by the beginning of 2009, 16 JI projects had been approved.

19. The EU-wide common and coordinated PaMs are now being implemented in all sectors of the economy as a result of the EU accession process. Information on the estimated effects of these additional PaMs on national emissions trends is, however, not yet to be found in the country's current reports on PaMs and projections of GHG emissions. A second National Strategy on Climate Change will be finalized in 2009 with new policy actions to be implemented by 2012. The ERT recommends that Romania include these additional PaMs in its next national communication and provide estimates of their mitigation effects. The ERT encourages Romania to continue strengthening its institutional arrangements in the field of climate change.

2. Policies and measures in the energy sector

20. In 2007, the energy sector accounted for 68.3 per cent of total GHG emissions. Between 1989 and 2007, GHG emissions from this sector decreased by 44.8 per cent. Emissions from energy industries decreased by 54.3 per cent, and emissions from energy use in industries decreased by 47.8 per cent. In transport, emissions increased by 121.0 per cent and emissions from energy use in other sectors increased by 14.9 per cent. Considerable decreases in emissions took place during the decline in economic activities and energy use in the period 1989–1992. Between 1996 and 2000 emissions decreased as a result of a new nuclear reactor starting operation. Overall emissions from the energy sector started to increase slightly after 2000, mainly owing to increasing emissions in the transport sector, but also to some extent to increasing emissions from energy use in other sectors.

21. The developments in the energy sector follow the **National Energy Strategy for the period 2007–2020**. Energy efficiency has become an important element of the energy strategy following the country's integration into the EU. In this context, Romania intends to increase the share of renewable energy sources (RES) in its total energy consumption from to 23 per cent in 2020, compared to the 15 per cent in 2005.

22. The country's indicative target according to the EU Directive on Electricity Production from RES (EU RES-E Directive) is to increase the share of **RES in electricity production** to 31.4 per cent in 2010. National targets for the share of electricity produced from RES are 33 per cent in 2010, 35 per cent in 2015 and 38 per cent in 2020. In 2004 a quota system of tradable green certificates was introduced to support electricity production from RES. The quota increases from 0.7 in 2007 to 4.3 per cent of total electricity in 2010. The certificates are issued for electricity production in plants with a capacity of less than 10 MW.

23. The share of **combined heat and power** (CHP) in installed capacity is 26 per cent. Romania plans to increase this capacity by another 15–20 per cent by 2020.

24. **Nuclear power** covers about 18 per cent of the power supply of the country. Romania intends to double the capacity of nuclear power in Romania by 2015 by putting new units into operation.

25. The Romanian Agency for Energy Conservation is the body responsible for the implementation of the **national energy efficiency policy**. There was no detailed information of this work in the NC4 or in the 2009 progress report.

26. The main objective for development in the Romanian **transport** sector is to modernize the infrastructure. There are some initiatives mentioned in the NC4 and in the 2009 progress report that could help strengthen the environmental perspective in transport policies. The ERT encouraged Romania to provide more information on its PaMs in the transport sector in its next national communication.

3. Policies and measures in other sectors

27. GHG emissions from the non-energy sectors accounted for 31.8 per cent of total GHG emissions in 1989 and 31.7 per cent in 2007. Between the base year and 2007, GHG emissions from industrial processes (including solvent and other product use), agriculture and waste decreased by 44.9 per cent. The trends in GHG emissions from industrial processes and agriculture showed notable decreases (–49.6 and 51.1 per cent, respectively), while emissions from the waste sector has increased by 117.5 per cent in relation to the base year.

28. ***Industrial processes*** accounted for 14.6 per cent of total GHG emissions in 2007. A significant decrease in GHG emissions of 49.6 per cent registered in this sector between 1989 and 2007 is a result of some major developments, including a technological changes in aluminium production, stopping production of adipic acid from 2001 and reduced production of iron, steel and ammonia. Until 2007, Romania's main approach was to follow closely the EU-wide common and coordinated PaMs in the industrial field in order to develop a national competitive market that can be linked with the European market after EU accession. Romania has implemented its Industrial Policy for 2005–2008, with the main objectives of increasing competitiveness, enhancing research, development and innovation, integrating sustainable management of natural resources and developing cooperation with industrial services and public–private partnerships.

29. ***Agriculture*** accounted for 12.8 per cent of total GHG emissions in 2007. Emissions of both N_2O and CH_4 from this sector have decreased considerably as a result of smaller numbers of livestock and amounts of mineral fertilizers applied to soils. The National Strategic Plan for Agriculture and Rural Development for 2007–2013 was prepared with the aim of reviewing the present status of agriculture and rural development and identifying Romania's priorities as a new EU member State with regard to agriculture, forestry and rural development. Activities within the strategy include increasing competitiveness in agriculture and forestry, improving the environment in rural areas and setting better standards of living in rural areas.

30. ***Forestry***. The Romanian LULUCF sector constitutes a net carbon sink, at an average uptake of 37,531.6 Gg per year, and has been relatively stable over the period 1989–2007. The area of the national territory covered by forests is currently 27 per cent , which is below the European average The Government of Romania aims to extend the forest areas to about 32 per cent by 2013. An important activity being carried out in Romania is the restitution of nationalized forests; the plan is to increase the privately and locally owned forest areas to 65 per cent of forested land by 2013.

31. ***Waste*** accounted for 4.2 per cent of total GHG emissions in 2007. Over the period 1989–2007, GHG emissions resulted from the waste sector increased by 117.5 per cent as a result of consumption growth, an increase in the number of managed waste sites and an increase in population living in homes connected to sewerage. The National Waste Management Strategy for the period 2003–2013 has been implemented by the MEWM and includes waste reduction, material reuse, integrated management plans and reducing hazardous waste transboundary movement.

C. Projections and the total effect of policies and measures

1. Projections

32. The GHG emission projections provided by Romania in the NC4 include a 'with measures', a 'with additional measures' and a 'without measures' scenario until 2020. Projections are presented on a sectoral basis, and on a gas-by-gas basis for the following GHGs: CO_2, CH_4, N_2O and perfluorocarbons. Projections for all fluorinated gases (based on extrapolation of historic emission trends) are also provided. In addition, projections are provided in an aggregated format for some sectors as well as for a national total. The national total, however, does not include hydrofluorocarbons (HFCs) and sulphur

hexafluoride (SF_6) emissions. The ERT noted that Romania did not provide the following reporting elements required by the UNFCCC reporting guidelines: projections in an aggregated format for each sector as well as for a national total, including all six gases (para. 35), emission projections related to fuel sold to ships and aircraft engaged in international transport reported separately and not included in the totals (para. 36), actual data for the base year (para. 37). Table 4 and the figure below provide a summary of GHG emission projections for Romania.

33. Romania provided information on variables such as gross domestic product (GDP) growth, population growth, energy consumption, energy intensity and energy production structure; but no information was provided on tax levels and international fuel prices. Romania did not provide any information on the models/approaches used for the projections in the NC4; however, some relevant information was provided in the RDP. The projections were based on calculations carried out using the ENPEP (Energy and Power Evaluation Program) package programme, developed by Argonne National Laboratory of the United States Department of Energy and distributed to Romania by the International Atomic Energy Agency. The main models used are MAED (Model for Analysis of Energy Demand), WASP (Wiener Automatic Simulation Program), BALANCE and IMPACT. The ERT encourages the Party to provide information on the strength and weaknesses of the models used and on assumptions and the sensitivity of the projections.

34. During the review, Romania provided the ERT with a new set of projections, including a business-as-usual, a with measures and a with-additional measures scenario, as contained in the 2009 progress report. The ERT acknowledged this important information and encourages the Party to reflected these projections in its next national communication. The ERT also encourages Romania to report on the main differences between projections in the fourth national communication and those in the earlier national communications with regard to assumptions, methods used and results. The ERT further encourages the Party to provide information and assumptions on tax levels and international fuel prices.

Table 4. Summary of greenhouse gas emission projections for Romania

	Greenhouse gas emissions (Tg CO_2 eq per year)	Changes in relation to base year level (%)
Inventory data 1989[a]	276.0	- -
Inventory data 2007[a]	152.3	–45.3
Kyoto Protocol base year[b]	278.2	0.0
Kyoto Protocol target[b]	255.0	–8.0
'Business-as-usual' scenario for 2010[c]	201.8	–26.9
'With measures' scenario for 2010[c]	183.3	–33.6
'With additional measures' scenario for 2010[c]	181.3	–34.1

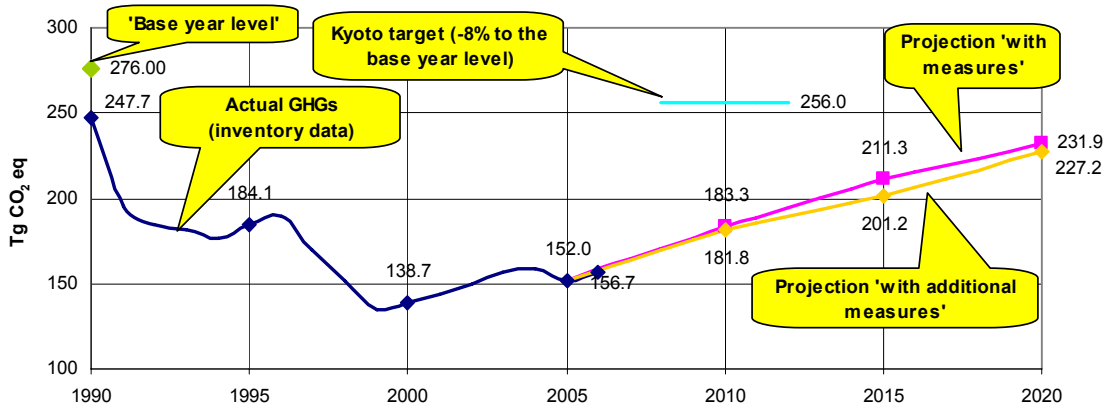
[a] *Data source*: Romania's 2009 greenhouse gas inventory submission; the emissions are without land use, land-use change and forestry.
[b] Based on the initial review report contained in document FCCC/2007/IRR/ROU.
[c] *Data source*: 2009 progress report.

35. According to the projections as contained in the 2009 progress report, total GHG emissions without LUULCF in 2010 are estimated to remain 26.9 to 34.1 per cent below the 1989 levels (see table 4). The ERT noted that even under the 'business as usual' scenario, total GHG emissions in 2020 would not exceed the base year level. The 'with measures' and 'with-additional measures' scenarios for 2020 project emissions levels of 16 and 17.7 per cent, respectively, below the base year level.

36. Consequently, Romania is expected to comply with its target under the Kyoto Protocol for the period 2008–2012, even considering a sustained strong economical development requested by the objective to reach the level of the more advanced EU member States in a definite timeframe.

37. Romania recognizes that a considerable potential exists to further reduce the carbon intensity of the economy and to decouple growth in GHG emissions from GDP growth. The options include further fuel switching and energy efficiency improvements in the power sector, as well as an increased share of RES electricity and further efficiency improvements in the end-use sectors of the economy. In the non-energy sectors, CH_4 emissions from the agriculture and waste sectors can be further reduced, while the carbon sink capacity can be increased through afforestation and reforestation. Finally, N_2O emissions from agriculture and industrial processes can also be reduced. The ERT acknowledges the information provided by Romania on its reduction potential both in the NC4 and in the 2009 progress report, for instance on the mitigation potential and costs in the transport sector, and encourages the Party to provide more insight into this potential in its next national communication.

Greenhouse gas emission projections



Data sources: (1) Data for the years 1990–2005: Romania's 2009 greenhouse gas inventory submission; the emissions are without land use, land-use change and forestry. (2) Data for the years 2006–2020: 2009 progress report.

38. The ERT noted that the projections made in NC4 also excluded HFCs and SF_6 emissions because of the lack of quantified data and the low level of emissions. The ERT recommends that Romania provide this information in its future national communications, in accordance with the UNFCCC reporting guidelines, as its absence reduces comparability and transparency. The ERT noted that both in the NC4 and in the 2009 progress report Romania provided a calculation for future trends in emissions of fluorinated gases (established by extrapolation from the inventory figures for the period 2000–2006), but in the NC4 these results were not included in the aggregated projections.

39. The ERT acknowledges the efforts made by Romania to submit three different scenarios, and recommends that Romania continue to scale up its efforts to explore its domestic mitigation potential and to reflect these findings in its 'with measures' and 'with additional measures' scenarios. The ERT also suggests that the Party should provide in its next national communication information on the differences in methods and assumptions for different sets of projections.

2. Total effect of policies and measures

40. In its NC4, Romania does not provide a quantitative estimate of the effect of its existing and new PaMs. The ERT recommends the Party to follow the UNFCCC reporting guidelines more closely and provide an estimate of the total effect of Romania's PaMs, in accordance with the 'with measures' definition, compared with a situation without such PaMs. However, in the 2009 progress report, Romania presents 'business as usual', 'with measures' and 'with additional measures' scenarios until 2020, which could be used to estimate the total effect of PaMs. This report also provides relevant information on factors and activities for each sector for the period 2005–2020. Table 5 provides an overview of the total effect of PaMs as calculated by the ERT based on the difference between these three scenarios.

Table 5. Projected effects of planned, implemented and adopted policies and measures in 2010

Sector	Effect of implemented and adopted measures (Tg CO_2 eq)	Relative value (% of base year emissions)	Effect of planned measures (Tg CO_2 eq)	Relative value (% of base year emissions)
Energy (without CO_2 from transport)	NA	NA	NA	NA
Transport – CO_2	NA	NA	NA	NA
Industrial processes	NA	NA	NA	NA
Agriculture	NA	NA	NA	NA
Land-use change and forestry	NA	NA	NA	NA
Waste management	NA	NA	NA	NA
Total	**18.5**	**6.7**	**1.5**	**0.5**

Data source: 2009 progress report
Abbreviation: NA = not available.
Note: The total effect of implemented and adopted policies and measures is calculated from the difference between the 'business-as-usual' and the 'with measures' scenarios; the total effect of planned policies and measures is defined as the difference between the 'with measures' and the 'with additional measures' scenarios.

41. Based on the projections of the 2009 progress report the estimated mitigation effects of implemented, adopted and planned PaMs amount to 20.0 Mt CO_2 eq in 2010 and 37.4 Mt CO_2 eq in 2020. The ERT noted, however, that this report does not describe the additional PaMs included under the 'with additional measures' scenario.

42. The ERT recommends that Romania strengthen the link between the PaMs section and the 'with measures' and 'with additional measures' scenarios, in order to give an insight into the differences between the two scenarios. The ERT also encourages the Party to give more emphasis to the estimation of the total effect of PaMs and to present the estimated effect of PaMs in accordance with the UNFCCC reporting guidelines.

D. Vulnerability assessment, climate change impacts and adaptation measures

43. In its NC4, Romania has provided the required information on the expected impacts of climate change in the country and on adaptation options for only one sector, agriculture. However, the ERT noted that Romania did not provide broader information on the expected impacts of climate change or an outline of the action taken to implement Article 4, paragraph 1(b) and (e), of the Convention with regard to adaptation (UNFCCC reporting guidelines, para. 49) for other sectors. Table 6 summarizes the information on vulnerability and adaptation to climate change presented in the NC4.

Table 6. Summary of information on vulnerability and adaptation to climate change

Vulnerable area	Examples/comments/adaptation measures reported
Agriculture and soil-water balance	***Vulnerability***: Drought – a key determinant of Romanian agricultural production, with south-eastern and eastern parts of the country most affected, and together with regions in the south and west, at high risk of rainfall deficit during the crop growing season; consistent increase of thermal stress recorded over the last 30 years ***Adaptation***: Assessment and near-real time monitoring of agro-meteorological risk factors; evaluation and monitoring of soil moisture; elaboration of specialized information on agro-meteorology

44. The ERT noted that the NC4 reports in detail on the assessment of current climate trends and impacts of climate extremes in agriculture with a focus on soil-water balance, and gives attention to operational and research activities relating to agro-meteorology. However, a lack of information for other sectors prevented an overall assessment of climate change impacts in Romania.

45. Information provided by Romania during the reviewing process indicated that several studies focusing on a broader range of sectors have been undertaken in Romania since the publication of the NC4, that EU research projects in the adaptation field are ongoing, and that a National Guide for Climate

Change Adaptation was published in 2008. The ERT encouraged that the Party report on these and other advances in its future national communications

E. Research and systematic observation

46. Romania has provided information on its actions relating to research and systematic observation, and addressed both domestic and international activities (the latter being exclusively regionally based). However, the ERT noted that Romania did not provide the following reporting elements required by the UNFCCC reporting guidelines: information on programmes or plans relating to the needs of international activities such as the World Climate Programme, the International Geosphere–Biosphere Programme, the Global Climate Observing System (GCOS) and the Intergovernmental Panel on Climate Change; a summary of information on GCOS activities (para. 64).

47. Romania has considerably increased its climate modelling research capacity, especially in downscaling methods, with validation efforts using recent monitored trends. These advances lend credibility to the climate projections described in the NC4, though limited detail is presented that is relevant for climate change impact assessments (see section D above). Noteworthy enhancements of the national climate observing system, integration with regional international data exchange through regional networks, and ongoing investment in research and monitoring indicate good potential for an effective national systematic observation system. However, the ERT's assessment of the ongoing investment in research and monitoring is constrained by a lack of reporting on general policy on and funding of research and systematic observation.

48. The ERT noted that Romania could engage more effectively with international programmes, which would also contribute towards satisfying reporting requirements in future national communications. Advances in climate modelling could usefully be integrated with future efforts to assess impacts of climate change, the socio-economic analysis of such impacts and potential response options. Reported efforts in monitoring via land and remote sensing could be enhanced by consideration of the long-term continuity of data, data quality control and availability, and archiving of data.

F. Education, training and public awareness

49. The RDP description on education, training and public awareness is generally in compliance with the UNFCCC reporting guidelines but does not fully reflect the country's achievements in this area. Climate change related activities fall under the responsibility of MEWM, which uses a range of channels, including its own website providing public access to information, to inform relevant target groups: the mass media, non-governmental organizations (NGOs) and the business sector. Several training programmes and activities have been developed in Romania, based on direct cooperation between the Government and NGOs and international co-operation.

50. Climate change is not specifically addressed in both school and university curricula, but more broadly in the framework of environmental protection and sustainable development education at all levels. Between 1995 and 2002 several universities established environmental science faculties and departments.

51. The RDP showed two significant developments: the NSCC and the NAPCC, as referred to in paragraph 16 above. Both of these address commitments under Article 6 of the Convention. The specific objective of the NSCC is to incorporate climate change issues into education and research, and to increase the level of awareness and public participation in such issues. It includes a list of key actions on education, research, awareness-raising and public participation in decision-making and their expected impact. These actions were expanded upon in the corresponding chapter of the NAPCC, including a full description, responsible institutions, a schedule, resources needed and expected impacts for each action.

52. During the review, Romania provided the ERT with additional information on the implementation of the actions described in its NAPCC. It reported that access to information and public participation had been significantly improved; an internal working group on the education issues related to climate change had been created and the first draft of the NAPCC was developed.

53. The ERT also encourages Romania to include examples of the actions performed (information campaigns, projects, etc.) in its next national communication.

III. Evaluation of information contained in the report demonstrating progress and of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol

A. Information contained in the report demonstrating progress

54. Romania's RDP includes four chapters, which contain all the information required by decisions 22/CP.7 and 25/CP.8. The ERT found the information contained in the RDP to be consistent with that provided in the NC4.

55. Romanian legislation on climate change includes the transposition of EU legislation (e.g. the EU-ETS Directive), general environmental regulations which include climate change aspects and specific legislation related to energy, transport, agriculture and waste. In addition, Romania has prepared its NSCC and NAPCC in 2005. MEWM is the main coordinating body for climate change related activities in Romania.

56. Romania's total GHG emissions are projected to be well below its Kyoto Protocol target for the first commitment period. During the review, the Party provided updated projections including a 'with measures' and a 'with additional measures' scenario. According to these scenarios, total GHG emissions in 2010 are projected to remain 33.6 per cent and 34.1 per cent, respectively, below the base year level.

57. Romania plans to make use of the flexibility mechanisms of the Kyoto Protocol but there is no intention or need to utilize their effect for compliance during the first commitment period 2008–2012. Romania will provide emission reduction units to other Parties through JI as a host country. At the time of the review, Romania had already approved 12 JI projects (including an afforestation project), which were expected to generate about 8 million emission reduction units in the first commitment period of the Kyoto Protocol.

B. Supplementary information under Article 7, paragraph 2, of the Kyoto Protocol

58. Romania has provided most of the supplementary information under Article 7, paragraph 2, of the Kyoto Protocol in its NC4 and RDP. This information reflects the steps taken by Romania to implement the relevant provisions of the Kyoto Protocol. The supplementary information is placed in different sections of the NC4 and RDP. Table 7 provides references to the NC4 and RDP chapters in which supplementary information is provided.

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

Supplementary information	Reference
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	RDP, chapter 3
Policies and measures in accordance with Article 2	RDP, chapter 1, NC4, chapter 4
Domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures	RDP, chapter 4
Information under Article 10	RDP, chapter 4
Financial resources[a]	not applicable

[a] As a country with an economy in transition, Romania does not have to report on the implementation of Article 11 of the Kyoto Protocol, including on the provision of new and additional resources.

59. In its NC4 and RDP, Romania has not reported the following elements of the supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol: a description of national legislative arrangements and administrative procedures relating to the implementation of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol; and a description of the national registry. (Romania's registry was under development during the preparation of NC4 and RDP.) However, the Party provided all necessary information during the review. The ERT recommends that Romania include these reporting elements in its next national communication.

60. Romania did not provide information about its activities related to the International Maritime Organization and the International Civil Aviation Organization or the minimization of adverse effects, including the adverse effects of climate change, effects on international trade, and social, environmental and economic impacts on other Parties. The ERT recommends that Romania follow the UNFCCC reporting guidelines more closely and provide this information in its next national communication.

IV. Conclusions

61. The transformation of Romania's economy over the last two decades has resulted in reduced GHG emissions. This reduction has been further stimulated by a decline in population, mainly due to emigration. After 2000, the trend was reversed and a slight growth in emissions has been observed.

62. A number of PaMs have been implemented in Romania, with an estimated mitigation effect of 20.0 Mt CO_2 eq in 2010 and 37.4 Mt CO_2 eq in 2020. Romania is in the process of transposing a number of EU directives into national law, including in the field of RES, CHP, energy efficiency and transport. Romania will also have access to new financing programmes made available by the EU. Both might result in further GHG emission reductions.

63. In its 2009 progress report, Romania presents GHG emission projections for the period from 1989 to 2020. Two scenarios are included: 'with measures'; and 'with additional measures'. Both scenarios indicate a growth in GHG emissions, from 138.7 Mt CO_2 eq in 2000 to 181.8–183.3 Tg CO_2 eq in 2010, and 227.2–231.9 Tg CO_2 eq in 2020. The ERT noted that even the emission levels projected for 2020 are still below the Kyoto Protocol target of 256 Tg CO_2 eq. Thus, Romania is expected to comply with its target under the Kyoto Protocol for the period 2008–2012, even considering a sustained strong economical development requested by the objective to reach the level of the more advanced EU member States in a definite timeframe.

64. In the course of the review, the ERT formulated a number of recommendations relating to the completeness and transparency of Romania's reporting under the Convention and its Kyoto Protocol.

The key recommendations are that Romania:

(a) Continue strengthening its institutional arrangements in the field of climate change;

(b) Ensure that its next national communication is complete, transparent and comprehensive, and submitted on time towards the due date 1 January 2010;

(c) Provide information on how national circumstances affect GHG emissions and removals in Romania and how national circumstances and changes in national circumstances affect GHG emissions and removals over time, and a complete set of summary and emission trend tables given in the CRF;

(d) Include additional PaMs (see para. 19) in its reporting and to provide estimates of their mitigation effects;

(e) Provide information on how it believes its PaMs are modyfiing longer-term trends in anthropogenic GHG emissions and removals consistent with the objective of the Convention;

(f) Continue to scale up its efforts to explore its domestic mitigation potential and to reflect these findings in its GHG emission projections under the “with measures” and “with additional measures” scenarios;

(g) Provide an estimate of the total effect of Romania’s PaMs, in accordance with the ‘with measures’ definition, compared with a situation without such PaMs;

(h) Provide complete supplementary information under Article 7, paragraph 2, of the Kyoto Protocol, including a description of national legislative arrangements and administrative procedures relating to the implementation of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol and a description of the national registry.

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 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>.

FCCC/IDR.2/ROM. Report on the in-depth review of the second national communication of Romania. Available at <http://unfccc.int/resource/docs/idr/rom02.pdf>.

FCCC/SBI/2006/INF.2. Synthesis of reports demonstrating progress in accordance with Article 3, paragraph 2, of the Kyoto Protocol. Available at <http://unfccc.int/resource/docs/2006/sbi/eng/inf02.pdf>.

FCCC/SBI/2007/INF.6. Compilation and synthesis of fourth national communications. Available at <http://unfccc.int/resource/docs/2007/sbi/eng/inf06.pdf>.

FCCC/SBI/2007/INF.7. Compilation and synthesis of supplementary information incorporated in fourth national communications submitted in accordance with Article 7, paragraph 2, of the Kyoto Protocol. Available at <http://unfccc.int/resource/docs/2007/sbi/eng/inf07.pdf>.

FCCC/ARR/2008/ROU. Report of the individual review of the greenhouse gas inventory of Romania submitted in 2007 and 2008. Available at <http://unfccc.int/resource/docs/2009/arr/rou.pdf>.

FCCC/IRR/2007/ROU. Report of the review of the initial report of Romania. Available at <http://unfccc.int/resource/docs/2008/irr/rou.pdf>.

Fourth national communication of Romania. Available at <http://unfccc.int/resource/docs/natc/romnc4.pdf>.

Report demonstrating progress of Romania. Available at <http://unfccc.int/resource/docs/dpr/rom1.pdf>.

2009 GHG inventory submission of Romania. Available at <http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/4771.php>.

B. Additional information provided by the Party

Responses to questions during the review were received from Mr. Vlad Trusca from the Ministry of Environment and Water Management, including additional material on updated greenhouse gas emission projections, research, the national registry and recent climate policy developments in Romania. The following document was also provided by Romania:

Government of Romania. 2009. *Romania's 2009 Report for the assessment of projected progress under Decision no 280/2004/EC of the European Parliament and of the Council concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol.* Bucharest.

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