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**Report of the centralized in-depth review of
the fourth national communication of France**

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 France 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. France has been a Party to the Convention since 1994 and to its Kyoto Protocol since 2002. Within the burden-sharing agreement of the European Union (EU) for meeting commitments under the Kyoto Protocol, France committed itself to keeping its greenhouse gas (GHG) emissions at the 1990 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 France, coordinated by the UNFCCC secretariat, in accordance with decision 7/CP.11. The review took place from 12 to 17 May 2008 in Bonn, Germany, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: Ms. Maryse Courchesne (Canada), Ms. Jane Ellis (Organisation for Economic Co-operation and Development), Ms. Fatou Ndeye Gaye (Gambia), Mr. Knut Vrålstad (Norway), Mr. Abdelkrim Ben Mohamed (Niger), Mr. Bhawan Singh (Trinidad and Tobago) and Mr. Vlad Trusca (Romania). Ms. Ellis and Mr. Ben Mohamed were the lead reviewers. The review was coordinated by Ms. Ruta Bubniene (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 France's report demonstrating progress (RDP) in achieving its commitments under the Kyoto Protocol, and the supplementary information provided by France 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 France, which provided comments that were considered, as appropriate, in this final version of the report.

B. Summary

5. The ERT noted that France's NC4 complies in general with the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC 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 clear and detailed information on the progress made by France in achieving its commitments under the Kyoto Protocol. Most of the supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol¹ is provided in the NC4 and the RDP.

1. Completeness

6. The ERT noted that the NC4 covers all sections required by the UNFCCC reporting guidelines and that France's RDP contains all parts stipulated by decisions 22/CP.7 and 25/CP.8. The ERT noted that France has not provided all the supplementary information required under Article 7, paragraph 2, including information on the Party's registry system, information on efforts to implement policies and measures in such a way as to minimize adverse effects, and a description of legal and administrative arrangements related to implementation of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol.

2. Timeliness

7. The NC4 was submitted on 7 July 2006 and the RDP on 27 July 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 RDPs.

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

3. Transparency

8. The ERT acknowledged that France's NC4 is well structured and in accordance with the outline contained in the annex to the UNFCCC reporting guidelines. The NC4 provides clear information on all aspects of implementation. In the course of the review, the ERT formulated a number of recommendations that could help France to further increase the transparency of its reporting, such as a recommendation to clarify data on emissions from buildings. The ERT noted that the information contained in the NC4 is sometimes different from that contained in the RDP (emissions data are different because France includes its overseas departments and territories for the purposes of the reporting under the UNFCCC, but not under the Kyoto Protocol), but that the two sets of information are consistent.

II. Technical assessment of the reviewed elements

A. National circumstances relevant to greenhouse gas emissions and removals

9. In its NC4, France has provided a description of its national circumstances, how these national circumstances affect GHG emissions and removals in France, and how national circumstances and changes in national circumstances affect GHG emissions and removals over time. The ERT encourages France to provide more detailed analysis on the changes in national circumstances that affect the GHG emissions and removals over time.

10. The ERT noted that the main drivers of emission trends in France include demographic developments, overall economic activity, energy production structure based on non-fossil fuels and an increase of annual mean surface temperatures in some regions and colder winter months. Table 1 illustrates the national circumstances of France by providing some indicators relevant to GHG emissions and removals.

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

	1990	1995	2000	2006	Change ^a 1990–2000 (%)	Change 2000–2006 (%)	Change ^a 1990–2006 (%)
Population (million)	58.17	59.42	60.67	62.70	4.3	3.4	7.8
GDP (2000 USD billion using PPP)	1 260.37	1 334.77	1 532.95	1 694.97	21.6	10.6	34.5
TPES (Mtoe)	227.6	241.2	258.21	272.67	13.4	5.6	19.8
GDP per capita (2000 USD thousand using PPP)	21.67	22.46	25.27	27.03	16.6	7.0	24.8
TPES per capita (toe)	3.91	4.06	4.26	4.31	8.8	1.4	10.3
GHG emissions without LULUCF (Tg CO ₂ eq)	566.41	559.08	559.88	546.53	-1.2	-2.4	-3.5
GHG emissions with LULUCF (Tg CO ₂ eq)	526.24	511.99	508.43	476.63	-3.4	-6.3	-9.4
CO ₂ emissions per capita (Mg)	6.80	6.60	6.69	6.52	-1.6	-2.6	-4.2
CO ₂ emissions per GDP unit (kg per 2000 USD using PPP)	0.31	0.29	0.26	0.24	-15.6	-9.0	-23.2
GHG emissions per capita (Mg CO ₂ eq)	9.74	9.41	9.23	8.72	-5.2	-5.6	-10.5
GHG emissions per GDP unit (kg CO ₂ eq per 2000 USD using PPP)	0.45	0.42	0.37	0.32	-18.7	-11.7	-28.3

Data sources: (1) France's 2008 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.

11. France has provided summary information on GHG emission trends by gas and by sector for 1990–2003. This information is consistent with the 2005 national GHG inventory submission. Summary tables, including trend tables for emissions by gas, trend tables for emissions by sector and overall trends in carbon dioxide equivalent (CO₂ eq), using the common reporting format, are also provided in the

annexes to the NC4. Total national GHG emissions² fluctuate throughout the time series, which is in part explained by the large year-to-year variations in emissions from the energy sector.

12. Total GHG emissions excluding emissions and removals from land use, land-use change and forestry (LULUCF) decreased by 3.5 per cent between the base year and 2006, whereas total GHG emissions including net emissions and removals from LULUCF decreased by 9.4 per cent in the same period (see table 2). A major part of the decrease in total GHG emissions including LULUCF was due to the increase of sinks. Important declines in emissions were recorded in the industrial processes (28.1 per cent), agriculture (11.5 per cent) and waste (14.5 per cent) sectors. Emissions of methane (CH₄) and nitrous oxide (N₂O) decreased over the same period by 17.7 per cent and 29.5 per cent, respectively. In contrast, CO₂ emissions excluding net CO₂ from LULUCF increased by 3.3 per cent in the period 1990–2006. CO₂ is the most important GHG in France, accounting for 69.8 per cent of the total national GHG emissions in the base year and 74.8 per cent in 2006. Emissions of perfluorocarbons (PFCs), hydrofluorocarbons (HFCs) and sulphur hexafluoride (SF₆) taken together accounted for 1.8 per cent of total GHG emissions in 1990 and 3.0 per cent in 2006. Table 2 provides an overview of GHG emissions by sector from the base year to 2006 (see also discussion of sectoral trends in chapter II B below).

Table 2. Greenhouse gas emissions by sector in France, 1990–2006

	GHG emissions (Tg CO ₂ eq)					Change (%)		Shares ^a by sector (%)	
	1990	1995	2000	2005	2006	1990–2006	2005–2006	1990	2006
1. Energy	384.52	382.51	396.03	406.60	395.75	2.9	-2.7	67.9	72.4
A1. Energy industries	67.03	58.98	65.78	69.68	66.11	-1.4	-5.1	11.8	12.1
A2. Manufacturing industries and construction	86.94	81.18	81.84	82.00	79.47	-8.6	-3.1	15.3	14.5
A3. Transport	119.73	129.67	138.09	140.85	139.93	16.9	-0.7	21.1	25.6
A4.–A5. Other	99.16	101.90	101.51	108.12	104.11	5.0	-3.7	17.5	19.0
B. Fugitive emissions	11.66	10.79	8.81	5.95	6.13	-47.5	3.0	2.1	1.1
2. Industrial processes	56.41	54.81	42.81	41.42	40.57	-28.1	-2.1	10.0	7.4
3. Solvent and other product use	1.86	1.64	1.67	1.34	1.30	-30.3	-3.6	0.3	0.2
4. Agriculture	107.77	101.44	103.13	96.88	95.35	-11.5	-1.6	19.0	17.4
5. LULUCF	-40.17	-47.09	-51.45	-65.41	-69.89	74.0	6.9	-7.1	-12.8
6. Waste	15.86	18.68	16.24	14.11	13.56	-14.5	-3.9	2.8	2.5
GHG total with LULUCF	526.24	511.99	508.43	494.96	476.63	-9.4	-3.7	92.9	87.2
GHG total without LULUCF	566.41	559.08	559.88	560.36	546.53	-3.5	-2.5	100.0	100.0

Abbreviations: GHG = greenhouse gas, LULUCF = land use, land-use change and forestry.

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.

B. Policies and measures

13. As required by the UNFCCC reporting guidelines, France has provided in its NC4 and the RDP well-organized information on its package of policies and measures (PaMs) implemented, adopted and planned in order to fulfil its commitments under the Convention and its Kyoto Protocol. Each sector (apart from waste) has its own textual description of the principal PaMs, supplemented by a summary table on PaMs by sector. France has also provided information on how it believes many of its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals consistent with the objective of the Convention.

14. France's climate policies have been considerably strengthened – both before and after publication of the NC4. This is reflected in the recent lowering of expected emissions in 2010 (compared with those presented in the NC4). France's central climate policy covers a wide range of sectors and policy types (including regulations and standards, economic and fiscal incentives, market mechanisms, information and voluntary agreements) and is implemented by a wide range of actors at the local, subnational and

² In this report, the term “total national GHG emissions” refers to the aggregated national GHG emissions expressed in terms of CO₂ eq excluding land use, land-use change and forestry (LULUCF), unless otherwise specified.

national level. The ERT appreciates the further information provided on policy developments during the IDR. The ERT commends France for improving the identification of the status of implementation of its PaMs since the publication of its third national communication (NC3). Table 3 provides a summary of the reported information on the PaMs of France.

Table 3. Summary information on policies and measures

Major policies and measures	Examples / comments
Framework policies and cross-sectoral measures	
Integrated climate programme	Climate Plan 2004–2012, updated in 2006
Emissions trading	European Union (EU) emissions trading scheme since 2005
Other	Energy Law (2005); measures by regions and communities
Policies and measures by sector	
Energy	
Building regulations	Regulations on energy performance of new buildings; support for the refurbishment of existing buildings; support for energy audits for buildings
Renewable energy sources	Plan on biofuels (2004); plan on solar energy 2000–2006 (Environment and Energy Management Agency, ADEME); tenders for wind and biomass power plants; programme on biomass 2000–2006; system of “green certificates” (since 2002); plan on wind energy
Energy efficiency improvements	Energy use labelling; activities of the Energy and Environment Investments Fund (2003), activities of the Energy Trust Fund (2001)
Other	Continued use of nuclear power; European Community (EC) directives on the promotion of cogeneration, on biofuels, on energy use in buildings, on promotion of power generation from renewable energy sources and on energy labelling
Transport	
Vehicle and fuel taxes	Plan on clean vehicles (2003); plan on biofuels (2004), support for biofuels
Agreements/partnerships	EC agreements with European Automobile Manufacturers Association (1999), Korean Automobile Manufacturers Association (2000) and Japanese Automobile Manufacturers Association (2000)
Integrated transport planning	Investments in the high-speed train (TGV) system; support for infrastructural development
Industrial processes	
Energy efficiency improvements	Energy audits; decrease of emissions through substitution of petrol and coal by natural gas and electricity and improvements in energy efficiency; control of SF ₆ emissions; recuperation and limitation of HFC emissions by rationalizing the use of air conditioners
Pollution prevention and control	Regulations to limit N ₂ O emissions; regulations on HFC emissions; general tax on industrial polluting activities regarding N ₂ O emissions; limiting N ₂ O emissions from adipic acid and nitric acid production from chemical plants
Agreements/partnerships	Agreement on SF ₆ emissions; voluntary participation in programmes aimed at reducing greenhouse gas emissions, such as the Association of Companies for Reduction of the Greenhouse Effect and research groups, such as the CO ₂ Action Group
Agriculture	
	Studies/information by the Ministry of Agriculture; support for research; measures to decrease energy use in agriculture; reductions of CH ₄ emissions through reduced livestock; reductions of N ₂ O emissions through more rational use of mineral fertilizers; measures aimed at reducing energy consumption by tractors and other agricultural machinery through information sessions and retrofitting of machinery
Waste management	
	Plan on waste (2004); reducing GHG emissions through reduction of waste disposed on land (since 2000); regulation on waste (tax on waste disposal (1998), and waste incineration; recuperation of CH ₄ from landfill sites for electricity generation; treatment of wastewater
Forestry	
	Measures to facilitate the use of wood in construction; use of wood as a fuel energy source

1. Policy framework and cross-sectoral measures

15. Several bodies are involved in developing and implementing France’s national climate policy. The policy is coordinated by the Interministerial Task Force for Climate Change. The Ministry of Ecology and Sustainable Development manages the registry for the European Union emissions trading scheme (EU ETS). The French Environment and Energy Management Agency (ADEME) is involved in policy implementation through support for the promotion of renewable energies and energy efficiency as well as financing demonstration projects. Several other ministries and bodies are also involved in implementing policies, including the ministries of transport, agriculture, industry and housing, as well as regional and local governments. ADEME also manages the evaluation of the impact of climate change policies and measures.

16. The NC4 outlines many developments in climate change policy in France since the publication of the NC3, including the development of the Climate Plan 2004–2012. The Climate Plan includes actions

to stabilize France's emissions in 2008–2012 at 1990 levels. The Climate Plan was updated in 2006, to strengthen actions in the transportation and buildings sectors. It includes a range of policy types, such as labelling the energy efficiency of cars and housing, and fiscal incentives.

17. In July 2005, the Energy Law was adopted. This law has several aims, including contributing to France's energy independence and security of supply, and combating climate change. It includes measures to encourage energy efficiency, renewable energy development, and increased research and development, and to maintain France's nuclear power generation. The law also includes short-term targets (for example, 10 per cent of France's energy should come from renewable sources by 2010), medium-term targets (for example, increasing the energy efficiency growth rate to 2.5 per cent per year by 2030) and long-term targets (for example, reducing national emissions of GHG by 50 per cent by 2050).

18. The 2006 state budget introduced fiscal measures (both positive and negative incentives) to encourage greater deployment of cleaner vehicles. France has also established an "Environment Round Table" (Grenelle de l'environnement), which brings together government, non-governmental organizations, local authorities and business in order to define policies and measures and good practices on environmental issues.

19. As an EU member State, France also implements several PaMs that have been coordinated at the EU level. These PaMs can affect one or more sectors, and include the EU ETS, combined heat and power production, the use of biofuels in transport, and energy savings in buildings. France has indicated that it is favourable to the idea of "opting in" 17 industrial facilities that emit N₂O into the EU ETS.

20. The ERT commends France's regular policy updates. It recommends that France, in its future national communications, includes more information on PaMs, in particular in the waste and the LULUCF sectors. Also, the ERT recommends that France provides more information on international bunkers, and (as also noted in the previous IDR report) on actions taken to periodically revise its policies and practices which encourage activities that lead to higher levels of GHG emissions than would otherwise occur.

2. Policies and measures in the energy sector

21. Between 1990 and 2006, GHG emissions from the energy sector increased by 2.9 per cent (11.2 Tg), mainly driven by a 16.9 per cent increase in emissions from the transport sector in 1990–2006), and to some extent by developments in the building sector. Emissions from energy use in industry and fugitive emissions decreased over the same period. The NC4 indicates that emissions from transport were driven by a substantial increase in road transport, notably a 25 per cent increase in passenger-car-kilometres and a 45 per cent increase in road-freight-kilometres.

22. France highlights its position as a leading nuclear and renewable energy producer, and the favourable effect this has on the country's GHG emission levels. And it has directed the overall priorities in its energy sector policies and measures towards maintaining and strengthening this position.

23. **Nuclear electricity.** In 2001, the installation of three new nuclear reactors in France was completed, bringing the total number of nuclear reactors in the country to 59. The current policy is to maintain the growth of nuclear generation capacity by renewing the oldest installations and installing a third generation reactor of 1,600 MW in 2012. This reactor will improve the environmental and financial viability of nuclear electricity generation in France.

24. **Biomass.** Six million households in France use fuelwood for heating, which makes biomass the largest renewable energy source in France. Through different support programmes by ADEME, the development of biomass has been encouraged since 1994. The Energy Law includes a target to increase thermal renewable energy production by 50 per cent by 2010. The target will be met principally by the use of wood.

25. **Renewable electricity.** The Energy Law sets out a goal of 21 per cent of French electricity being produced from renewable sources by 2010. The Climate Plan 2004–2012 outlines a fiscal incentive (tax credit) for investment in renewable energy production capacity (and energy efficiency improvements in existing buildings). The 40 per cent subsidy of investment costs introduced in the 2005 state budget was increased to 50 per cent in the 2006 budget. The Government also announced a doubling of the purchase tariff for photovoltaic electricity production in 2006. The NC4 estimates that, taken together, renewable electricity PaMs will avoid 14.4 Tg CO₂ eq in emissions in 2010.

26. **Energy efficiency.** Energy-related emissions from manufacturing industries and construction decreased by more than 8 per cent between 1990 and 2006, and the energy emissions intensity (energy-related emissions per unit of gross domestic product (GDP)) decreased by almost 20 per cent in the same period. This indicates a considerable increase in energy efficiency in the French economy. The NC4 describes ADEME assistance for industrial enterprises to carry energy audits as the most important PaM to improve energy efficiency. The Energy Law reinforces the efforts to promote energy efficiency. A system of energy conservation certificates that sets out energy efficiency targets for energy suppliers was enacted on 1 July 2006.

27. **Transport.** The transport sector is responsible for a quarter of French GHG emissions, and its emission levels have been growing faster than in any other sector since 1990. However, the growth rate has slowed considerably since 2000. French transport policies have focused on improving the environmental performance of road transport through technological and behaviour change, and through developing inter-modal transport. The Climate Plan 2004–2012 and its update in 2006 set out new policies or reinforced existing ones, such as a tax credit for the purchase of new “clean” cars, application of the EU biofuels directive, and increased support for the development of the railway system. The updated Climate Plan also outlines France’s increased support for biofuels; the aim is for biofuels to constitute 5.75 per cent of fuel used in 2008 (rather than 2010), 7 per cent in 2010 and 10 per cent in 2015. The NC4 estimates that the aggregated effect of all PaMs in the transport sector in 2010 will be 28 Tg CO₂ eq.

28. The ERT noted that the increase in transport emissions has slowed in recent years and that reported PaMs in the transport sector are expected to have a substantial effect in 2010. Increasing emphasis on the transport sector can be seen in various policy documents, including the Climate Plan 2004–2012 and its update. The ERT commends France for its achievements in the transport sector and encourages it to continue the efforts.

29. **Buildings.** In spite of major improvements in the specific energy use in new buildings since 1975, due to active policies in the sector, emissions from building sector have been increasing. The buildings sector is the second largest emitting sector in France, accounting for close to 100 Mt CO₂ eq in 2001. The NC4 reports on regulation of the thermal efficiency in existing buildings, labelling of boilers and appliances, inspection of boilers and research programmes on buildings. The NC4 estimates that, taken together, PaMs in the building sector will avoid 5.5 Tg CO₂ eq in emissions in 2010.

30. The ERT encourages France to provide cost estimates and cost-efficiency indicators for PaMs across all sectors in future national communications. The ERT also encourages France to report on PaMs influencing GHG emissions from international transport.

3. Policies and measures in other sectors

31. The non-energy sectors accounted for 27.6 per cent of total national GHG emissions in 2006, compared with 32.1 per cent in 1990: industrial processes accounted for 7.4 per cent, solvents and other product use for 0.2 per cent, agriculture for 17.4 per cent, and waste for 2.5 per cent. The LULUCF sector offset 12.8 per cent of total national GHG emissions. Between 1990 and 2006, GHG emissions from industrial processes decreased by 28.1 per cent, emissions from solvent and other product use by

30.3 per cent, emissions from agriculture by 11.5 per cent, and emissions from waste by 14.5 per cent, whereas the net removals in the LULUCF sector increased by 74.0 per cent.

32. **Industrial processes.** Several types of PaMs, including regulations and voluntary agreements, are used to mitigate emissions from industrial processes. These include a general tax on industrial polluting activities (N₂O emissions), an act passed in 2004 to control SF₆ emissions from the production of electrical equipment, and voluntary agreements to reduce GHG emissions within the Association of Companies for Reduction of the Greenhouse Effect. In accordance with European legislation, a further measure was put in place to recuperate and limit HFC emissions from refrigeration equipments.

33. **Agriculture.** In 2006, emissions in the agriculture sector comprised emissions from agricultural soils (49.8 per cent of sectoral emissions), animal enteric fermentation (29.3 per cent) and manure management (20.9 per cent). The decrease in emissions by 11.5 per cent between 1990 and 2006 was largely due to a reduction in CH₄ emissions resulting from decreases in livestock numbers and to the reduction in N₂O emissions achieved by more controlled application of mineral fertilizers. Further GHG emission reductions were achieved by measures aimed at reducing energy consumption of tractors and other agricultural machinery and by retrofitting of machinery, and were facilitated through information sessions.

34. **Land-use change and forestry.** In the forestry sector, several measures aimed at increasing the sequestration capacity of forest and forest products were implemented. For example, an agreement (“Bois construction environnement”) signed in 2001 between the State and the wood industry representatives proposed the use of wood products in construction. Further legislative measures in the forestry sector promoted the use of wood as a fuel.

35. **Waste.** The RDP outlines the importance of regulations in the waste sector to the overall French climate strategy. A piece of national legislation requiring the recovery of CH₄ from landfill sites and a tax on waste disposal (introduced in 1999) led to a large decrease in CH₄ emissions from the waste sector. Between 1990 and 2006, GHG emissions from the waste sector decreased by 14.7 per cent.

36. The ERT noted that the NC4 contains an adequate description of PaMs in the non-energy sectors in addition to information on the role of these PaMs in limiting GHG emissions. However, there was no separate discussion of PaMs in the waste sector in the NC4 (although such a discussion was included in the RDP). The ERT also felt that the PaMs for the LULUCF sector were not presented in sufficient detail. The ERT further noted non-standardization of units of measure and an incomplete list of acronyms.

C. Projections and the total effect of policies and measures

1. Projections

37. The GHG emission projections provided by France in the NC4 include a ‘with measures’, a ‘with additional measures’ and a ‘without measures’ scenario until 2020, and are presented relative to actual inventory data for 1990 and 2003. Projections are presented on a sectoral basis, using the same sectoral categories as in the PaMs section, and on a gas-by-gas basis for all the following GHGs: CO₂, CH₄, N₂O, PFCs, HFCs and SF₆ (treating PFCs and HFCs collectively in each case). In addition, projections are provided in an aggregated format for each sector as well as for a national total for the existing and additional measures scenarios, using global warming potential values. Emissions projections related to fuel sold to ships and aircraft engaged in international transport are also reported separately and not included in the totals. However, the ERT noted that France did not provide figures for the total effect of PaMs, in accordance with the ‘with measures’ scenario, compared with a situation without such PaMs in terms of GHG emissions avoided or sequestered, by gas, in 1995 and 2000. This reporting element is required by the UNFCCC reporting guidelines.

38. The final energy demand projections were modelled using a technical–economic model and an energy supply and demand equilibrium economic model. These tools do not include the following two economic instruments: the EU ETS and energy economy certificates (“Certificats d’économies d’énergie”). These two economic instruments were integrated in the projections using a CO₂ price effect simulation.

39. The demographic and socio-economic assumptions come from the 2004 reference scenario of the Ministry of Economy, Finance and Industry. The following assumptions were applied: for population 61.1 million for 2010 and 62.7 million for 2020; for GDP, an average annual growth rate of 2.3 per cent per year from 2002 to 2020; for energy prices, the International Energy Agency assumption of USD 30 per barrel in 2003 for oil, for the whole period, with the price of gas closely following the oil price. Table 4 and the figure below provide a summary of GHG emission projections for France.

Table 4. Summary of greenhouse gas projections for France

	Greenhouse gas emissions (Tg CO ₂ eq per year)	Changes in relation to base year level (%)
Inventory data 1990 ^a	566.4	0.4
Inventory data 2006 ^a	546.5	-3.1
Kyoto Protocol base year ^b	563.9	-
Kyoto Protocol target ^b	563.9	0.0
‘With measures’ projections for 2010 ^c	569	0.9
‘With additional measures’ projections for 2010 ^c	545	-3.4

^a Data source: France’s 2008 greenhouse gas inventory submission; the emissions are without land use, land-use change and forestry (LULUCF).

^b Based on the initial review report contained in document FCCC/IRR/2007/FRA.

^c Data source: Updated projections provided by the Party during the in-depth review; the projections are for emissions without LULUCF.

40. The projections under the ‘with measures’ scenario show that France will not be able to reach its commitment of GHG stabilization with the current P&Ms. However, following the updated GHG projections (EEA, 2007), France expects to meet its Kyoto target under the EU burden-sharing agreement and even reduce 3.4 per cent beyond the target, if additional measures are implemented and delivered as projected.

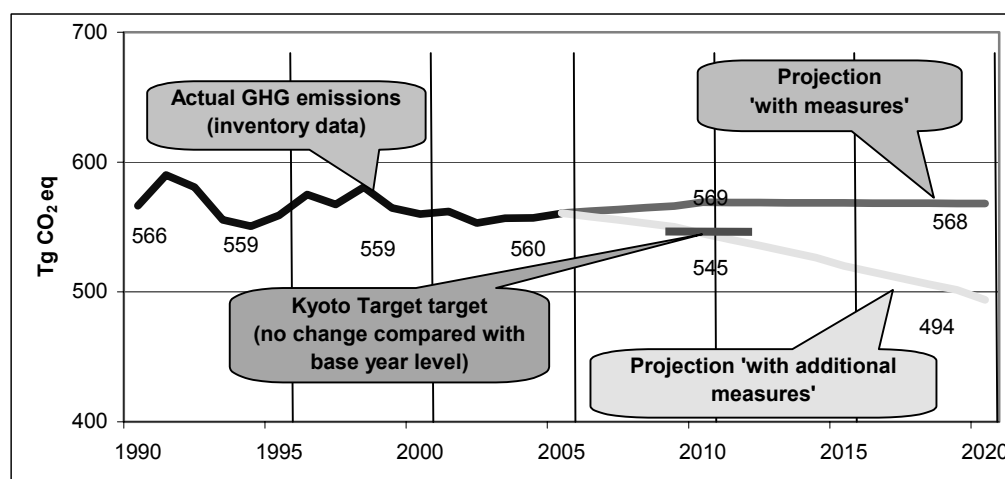
2. Total effect of policies and measures

41. In its NC4, France presents the estimated and expected total effect of implemented and adopted PaMs, in accordance with the ‘with measures’ definition, compared with a situation without such PaMs, presented in terms of GHG emissions avoided or sequestered. It also presents relevant information on factors and activities for each sector. Table 5 provides an overview of the total effect of PaMs as reported by France.

42. In total, implemented and adopted measures in 2010 are expected to result in 53.7 Tg CO₂ eq fewer emissions than under the ‘without measures’ scenario. The greatest effects are expected to be achieved in the transport, waste and industry sectors. The total effect of planned measures is projected to avoid an additional 25.5 Tg CO₂ in emissions, most notably in the transport and energy sectors.

43. In its NC4, France has presented impacts of the ‘with measures’ scenario only for the years 2010 and 2020. The ERT recommends that in future reports France provides the impacts for the years 1995, 2000, 2005 and 2015 as required in the UNFCCC reporting guidelines. The ERT noted that France refers to different historical years throughout the document, for example, in the summary tables on electricity production, CO₂ emissions from energy industries and household waste. The ERT encourages the reporting of values for the same historical years across the national communication.

Greenhouse gas emission projections



Data sources: (1) Data for the years 1990–2005: France’s 2008 greenhouse gas inventory submission; the emissions are without land use, land-use change and forestry. (2) Data for the years 2006–2020: updated projections provided by the Party during the in-depth review.

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

	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 (includes energy industries and manufacturing industries)	7.7	5.0	6.9	4.5
Transport – CO ₂	16.7	14.2	7.4	6.3
Buildings	1.4	1.7	3.8	4.6
Industry (including effect of measures to reduce fluorinated gases)	12.6	135.5	3.7	39.8
Agriculture	0.9	0.8	3.1	2.9
Waste management	14.4	98.6	0.7	4.8
Total	53.7	11.1	25.5	5.3

Data source: European Environment Agency. 2007. *Greenhouse Gas Emission Trends and Projections in Europe 2007 – Country Profile: France*. Estimates of effects of measures in the energy, transport and buildings sectors in the fourth national communication (NC4) are different from those in the EEA document, as the NC4 covers all territories of France and the EEA report excludes overseas collectivities.

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.

D. Vulnerability assessment, climate change impacts and adaptation measures

44. In its NC4, France has provided detailed information on the expected impacts of climate change in the country and on actions taken to implement Article 4, paragraph 1(b), of the Convention with regard to adaptation. The Environment Round Table has decided on the preparation of a national plan of adaptation for 2008–2011. The ERT noted that the NC4 does not present actions taken to implement Article 4, paragraph 1(e), of the Convention, and encourages France to consider doing so in its next national communication.

45. Assessment of vulnerability was based on outputs of two climate models developed by the Institut Pierre-Simon Laplace and Météo France. During the IDR the ERT was informed that the performance of the two models in simulating the increase of temperature over the preceding century was reported in the summary for policymakers in the Synthesis Report of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. The ERT noted that the NC4 provides a projection for mean temperature trends for France during June, July and August from 1900 to 2100.

46. The NC4 identifies the southern Mediterranean zone, the northern half of France and the continental and overseas regions as the most vulnerable areas of the country. 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
Water resources	Vulnerability: There are risks of flooding during winter and spring, as well as during periods of river swelling between June and July and between October and November Adaptation: Management of water resources
Human health	Vulnerability: The occurrence of heat waves, such as the 2003 episode (15,000 casualties), is expected to increase; expansion of vector-borne diseases is expected in the continental and overseas regions of France; increase in allergies is also expected Adaptation: Improved surveillance of elderly and vulnerable people; reinforcement of epidemiological surveillance; combined surveillance of vectors and environmental factors
Agriculture and food security	Vulnerability: A decrease in soil water availability during the vegetative period in summer could lead to losses in agricultural production Adaptation: Improvement in irrigation systems; selection of agricultural species
Forests	Vulnerability: The occurrence of heat waves is expected to increase the risks of forest fires, particularly in the Mediterranean region; this sector may also be adversely affected by the decrease in soil water availability in middle altitude areas Adaptation: Reduction of planting density; mixing of drought-resistant forest species in vulnerable areas; reinforcement of forest observation
Mountain ice caps	Vulnerability: Warming is expected to negatively affect ice caps in the Alps and Pyrenees, with consequent higher risks of avalanches as well as flooding in winter and spring
Infrastructure and economy	Vulnerability: Decrease in mountain ice caps would affect winter tourism; the risks of flooding in winter and spring are expected to increase
Coastal zones and marine ecosystems	Vulnerability: Sea level rise can have multiple adverse effects on low-lying coasts and coral reefs in Polynesia; salination and reduction of freshwater tables are also expected Adaptation: Avoidance of construction in zones endangered by sea level rise; measures to improve protection of existing infrastructure

47. Many negative impacts are expected from the projected warmer climate. France has already experienced serious threats from climate extremes events in 2001 (flooding) and 2003 (heat waves). On the positive side, some model simulation studies project a 20 per cent increase in annual grass production, by conversion of temporary grassland to permanent grassland, leading to an increase of carbon stocks in soils. The ERT found measures such as those identified under "Human health" in table 6 to be a good advance response to the threat of climate change.

48. The ERT encourages France to formulate, in its next national communication, more specific adaptation strategies in areas where such strategies have not been identified in the NC4, for example, tourism, biodiversity and natural terrestrial ecosystems.

E. Financial resources and transfer of technology

1. Financial resources

49. In its NC4, France has provided details of measures taken to give effect to its commitments under Article 4, paragraphs 3, 4, and 5, of the Convention. France has also provided detailed information on the assistance it has made available to developing country Parties, especially least developed countries, that are particularly vulnerable to the adverse effects of climate change to help them meet the costs of adaptation to those adverse effects. Furthermore, France has provided information on other financial

resources related to the implementation of the Convention provided through bilateral, regional and other multilateral channels. Table 7 summarizes information on financial resources.

Table 7. Summary of information on financial resources

Official development assistance (ODA)	EUR 58,200 million
Climate-related aid in bilateral ODA	EUR 301,665 million in 2001–2004
Climate-related support programmes	EUR 59,040 million
Contributions to the Global Environment Facility	EUR 164,000 million in 2001–2004

50. The details provided on financial resources include information on the French Global Environmental Facility. The NC4 also notes that France funds 24.6 per cent of the European Development Fund, which is devoted to implementing climate change projects in developing countries. France indicates that, in addition to current funds, it intends to increase its multilateral contributions pursuant to Article 4, paragraph 3, of the Convention up to 6 per cent. It has demonstrated how these resources are “new and additional” in its NC4.

51. During the reporting period the Party contributed to the Special Climate Change Fund and the Least Developed Countries Fund. In partnership with the World Bank, France is contributing official development assistance to support capacity-building projects in developing countries. France is also involved in different mitigation projects in the field of carbon sequestration in many areas in Africa.

2. Transfer of technology

52. In its NC4, France has provided detailed information on measures taken to promote, facilitate and finance the transfer of, or access to, environmentally sound technologies. The NC4 clearly distinguishes between activities undertaken by the public sector and those undertaken by the private sector, and has indicated funds for studies and support to the private sector. The NC4 also reports activities related to technology transfer, including success and failure stories, and activities for financing access by developing countries to ‘hard’ or ‘soft’ environmentally sound technologies. Furthermore, France has reported on steps taken by the Government to promote, facilitate and finance transfer of technology, and to support development and enhancement of endogenous capacities and technologies of developing countries.

F. Research and systematic observation

53. France has provided comprehensive information on its domestic and international actions relating to research and systematic observation including activities in collaboration with the Global Climate Observing System (GCOS). The NC4 reflects actions taken to support related capacity-building in developing countries. Furthermore, France has provided summary information on GCOS activities (in accordance with the UNFCCC reporting guidelines, para. 64).

54. On research, France’s NC4 presents an extensive list of national and international programmes in the area of climate process and climate system studies, including palaeoclimate studies, modelling and prediction, impact mitigation studies and technological innovation studies. A number of new research programmes on modelling and projections, including global climate models, socio-economic analysis and the development of mitigation and adaptation measures, have been initiated since the publication of the NC3.

55. On global observations, the reported actions fully comply with the UNFCCC reporting guidelines. The NC4 provides detailed information on atmospheric climate observing systems, including those measuring atmospheric constituents, and terrestrial, ocean and space-based climate observing systems, and on the data access and exchange policy of France.

56. The RDP provides information on contributions by France to capacity-building in developing countries related to climate change. The ERT noted that the relevant chapter of the NC4 does not include

information on actions taken to support establishment and maintenance of observing systems in developing countries. The ERT encourages France to include more information on this in its next national communication.

G. Education, training and public awareness

57. In the NC4, France has provided information on actions relating to education, training and public awareness, as required by the UNFCCC reporting guidelines (para. 65). A number of climate change programmes are included within courses on science in high schools, and within “education on environment for a sustainable development”. This is a part of the Government’s national strategy on sustainable development adopted in June 2003.

58. In accordance with the Climate Plan 2004–2012, ADEME launched a three-year public awareness campaign throughout France, with a budget of EUR 3 million. The ERT noted that climate change was also chosen as the main theme of the second “Conference of the Citizens”, recommendations from which were included in a public report to the French delegation to the Johannesburg Summit 2002.

59. The ERT noted the efforts undertaken by France to implement education, training and public awareness programmes. However, the ERT noted that although France’s NC4 provides a good deal of information in this area, it does not provide the specific information referred to in Article 6 (b) (ii) of the Convention.

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

60. France’s RDP includes 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.

61. Under the EU burden-sharing agreement France is required to stabilize its GHG emissions in the period 2008–2012 at the 1990 level. Total GHG emissions in France in 2006 were 3.5 per cent lower than emissions in 1990. The RDP indicates that France is projected to meet its GHG emissions stabilization target by implementing both the existing and the additional PaMs envisaged. It is estimated that the current and additional domestic PaMs will stabilize national GHG emissions at the 1990 level in 2010.

62. There is no information in the NC4 or the RDP regarding possible governmental use of the flexible mechanisms of the Kyoto Protocol. However, France has created a framework for the application of the flexible mechanisms by interested project developers. In this respect there is no information on the complementarity regarding the use of the flexible mechanisms. The ERT encourages France to provide more information on this in its next national communication.

63. France elected to account for “forest management” activity under Article 3, paragraph 4, of the Kyoto Protocol.

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

64. France has provided most of the supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol in its NC4 and RDP. This information reflects the steps taken by France to implement the relevant provisions of the Kyoto Protocol. The supplementary information provided by France is placed in different sections of the NC4 and RDP. Table 8 provides references to the NC4 and RDP chapters in which supplementary information is provided.

Table 8. 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	Not applicable (France does not intend to use flexible mechanisms to meet its greenhouse gas emissions stabilization target)
Policies and measures in accordance with Article 2	NC4, chapter 4, pp. 57–83 RDP, chapter 3, pp. 17–24
Domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures	NC4, chapter 4.1, pp. 57–59 RDP, chapter 1, pp. 5–8
Information under Article 10	NC4, annex, pp. 220–223 RDP, chapter 4.1–4.6, pp. 25–30
Financial resources	NC4, chapter 7, pp. 125–134 RDP, chapter 4.5, pp. 27–29

65. France has reported in its NC4 most of the elements of the supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol, including the description of the national inventory system. However, France has not reported information on what efforts it 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. This is a required element of the supplementary information under Article 7, paragraph 2, of the Kyoto Protocol. France has also not reported information on activities to limit GHG emissions from international bunkers. The ERT recommends that France include these reporting elements in its next national communication. The ERT encourages France to provide more information about cooperation with other countries in implementing PaMs, in accordance with Article 2 of the Kyoto Protocol.

66. France has also not provided in the NC4 or the RDP the required description of the national registry or the description of the national legislative arrangements and administrative procedures relating to the implementation of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol. However, during the review the ERT considered the above-mentioned information as provided by France in its initial report under the Kyoto Protocol.

67. The report of the review of the initial report of France³ concluded that the national system for the estimation of anthropogenic GHG emissions by sources and sinks meets the requirements for the implementation of general and specific functions and that the national registry is fully compliant with the registry requirements. The ERT noted these conclusions.

IV. Conclusions

68. In France, total GHG emissions excluding emissions and removals from LULUCF decreased by 3.5 per cent between 1990 and 2006, and total GHG emissions including net emissions or removals from LULUCF decreased by 9.4 per cent in the same period. There are several reasons for these decreases, including the continued importance of nuclear power and electricity in France's energy mix (thus avoiding the need for more carbon-intensive electricity generation), as well as policies that have slowed the growth in emissions from the transport sector, increased carbon uptake in the LULUCF sector, and absolute emission reductions in sectors such as industrial processes and waste.

69. In the NC4 and RDP, France presents GHG projections for the period from 1990 to 2020. Three scenarios are included: (a) baseline ('without measures') scenario; (b) 'with measures' (including the effect of currently implemented and adopted PaMs); and (c) 'with additional measures'. The projected increases in GHG emissions in 2010 under the baseline scenario, in relation to the base year, and under the 'with measures' and 'with additional measures' scenarios, are 21, 9 and 3 per cent, respectively. However, more recent projections indicate that in 2010 expected emissions under a 'with

³ FCCC/IRR/2007/FRA.

measures' scenario will be 0.9 per cent above base year emissions, whereas expected emissions under a 'with additional measures' scenario will be 3.4 per cent below the Kyoto target. Thus, these recent projections indicate that France can meet its Kyoto Protocol target under the EU burden-sharing agreement (which is to stabilize its emissions at the 1990 level) by implementing additional measures.

70. In the course of the IDR, the ERT formulated a number of recommendations relating to the completeness and transparency of France's reporting under the Convention and its Kyoto Protocol. The key recommendations⁴ are that France:

- Reports on how it is taking steps to minimize adverse effects of climate change following Article 3, paragraph 14, of the Kyoto Protocol;
- Quantifies the total effect of its PaMs for 1995, 2000, 2005 and 2015;
- Provides information on the action taken to cooperate in preparing for adaptation to climate change; to develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture; and to protect and rehabilitate areas, in the developing countries affected by drought and desertification;
- Provides information on actions taken to support capacity-building in developing countries and further details on actions taken to cooperate with the developing countries and promote, at the international level, the development and implementation of education and training programmes.

71. The ERT encourages France to provide, in its next national communication, further detail on its registry and institutional arrangements for implementation of the provisions of Article 3, paragraphs 3 and 4, of the Kyoto Protocol. The ERT also encourages France to describe activities taken to limit emissions from bunker fuels, the impact of PaMs on sustainable development, PaMs undertaken in the waste management sector, and action taken to periodically revise its own policies and practices which encourage activities that lead to higher levels of GHG emissions than would otherwise occur.

⁴ The recommendations are given in full in the relevant sections of this report.

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.3/FRA. Report on the in-depth review of the third national communication of France. Available at <<http://unfccc.int/resource/docs/idr/fra03.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/2006/FRA. Report of the individual review of the greenhouse gas inventory of France submitted in 2006. Available at <<http://unfccc.int/resource/docs/2007/arr/fra.pdf>>.

FCCC/IRR/2007/FRA. Report of the review of the initial report of France. Available at <<http://unfccc.int/resource/docs/2007/irr/fra.pdf>>.

Fourth national communication of France. Available at <<http://unfccc.int/resource/docs/natc/franc4f.pdf>>.

Report demonstrating progress of France. Available at <<http://unfccc.int/resource/docs/dpr/fra1.pdf>>.

2008 GHG inventory submission of France, submitted on 7 May 2008. Available at <http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/4303.php>.

EEA (European Environment Agency). 2007. *Greenhouse Gas Emission Trends and Projections in Europe 2007 – Country Profile: France*. Available at <http://reports.eea.europa.eu/eea_report_2007_5/en>.

B. Additional information provided by the Party

Responses to questions during the review were received from Ms. Frédérique Millard (Ministry for Ecology, Sustainable Development and Spatial Planning), including references to the national system for inventory preparation and the national registry and additional material on the status of the policies and measures, the use of biofuels in transport, financial resources, implementation of the European Union emissions trading scheme, and developments regarding clean development mechanism, joint implementation and domestic offset projects.
