First Biennial Report of Luxembourg under the United Nations Framework Convention on Climate Change

annex to the Sixth National Communication of Luxembourg under the United Nations Framework Convention on Climate Change

14 March 2014

Aménagement du territoire
Environnement
Transports
Travaux publics
Pour un développement durable

LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère du Développement durable et des Infrastructures

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annex to the Sixth National Communication of Luxembourg under the United Nations Framework Convention on Climate Change

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This report has been prepared, written and compiled by Eric De Brabanter, of the Department of the Environment of the Ministry of Sustainable Development and Infrastructure. Contributions by other authors are acknowledged accordingly in the text.

This report is presenting the situation in Luxembourg on the 1st January 2014.

This report has to be considered as an annex to Luxembourg's sixth National Communication under the United Nations Framework Convention on Climate Change which final version was submitted to the UNFCCC Secretariat on the 28th of February 2014. It should therefore be read together with this Communication.

Introduction

This report presents the First Biennial Report (BR1) from Luxembourg, under decision 2/CP.17 of the United Nations Framework Convention on Climate Change (UNFCCC). It describes the information defined in the UNFCCC biennial reporting guidelines for developed country Parties.[1] Tabular information as defined in the common tabular format (CTF) are submitted using, the electronic reporting facility provided by the UNFCCC Secretariat.[2]

For 2014, Luxembourg is presenting its BR1 as an Annex to its 6th National Communication (NC6). Since the BR1 and the NC6 are complementary documents, in this report, and when applicable, references will be made to relevant sections of the NC6.

1 Annex I to Decision 2/CP.17.

2 UNFCCC Decision 19/CP.18.

Chapter I

Information on Greenhouse Gas Emissions and Trends

The GHG emission and removal estimates contained within Luxembourg's Inventory are developed using methodologies consistent with the guidelines prescribed by the Intergovernmental Panel on Climate Change (IPCC). The inventory estimates include the gases CO_2, methane (CH_4), nitrous oxide (N_2O), sulphur hexafluoride (SF_6), perfluorocarbons (PFCs) and hydrofluorocarbons (HFCs), in the following six IPCC sectors: Energy, Industrial Processes, Solvent and Other Product Use, Agriculture, Waste and LULUCF.

I.1. GHG EMISSION IN 2011 AND DEVELOPMENTS SINCE 1990

In 2011, carbon dioxide was the main source of greenhouse gas (GHG) in Luxembourg. This source counted for 92% of the total GHG emissions calculated in CO_2e – total excluding LULUCF.[3] The second source of GHG was nitrous oxide with 3.8% of the total emissions. Methane was the third source with 3.6%. Fluorinated gases only accounted for 0.6% of the total emissions, with hydrofluorocarbons representing 0.55% of the total and sulphur hexafluoride representing 0.06% of the total. Perfluorocarbons only accounted for 0.001% of the total. Total GHG emissions amounted to 12.098 Mio. t CO_2e, 6.2% below their level in 1990 and 8.1% below the level retained for the base year under the Kyoto Protocol.[4] **Several phases can clearly be distinguished** over the period 1990 to 2011 *[→ Figure II.1-1]*:

- firstly, from base year up to 1993, Luxembourg's emissions remained rather stable;
- then, between 1994 and 1998, they started to decrease significantly to reach their lowest value in 1998, when they were down by more than 30%;
- from 1999 up to 2004, emissions augmented recurrently;
- from 2004 to 2006, a stabilisation peaking at 13.1 Mio. t CO_2e is observed;
- a decrease occurred between 2006 and 2007 followed by a period of relative stability of the emissions with the exception of 2009, and to a lesser extent 2011, two years more impacted by the financial and economic crisis.

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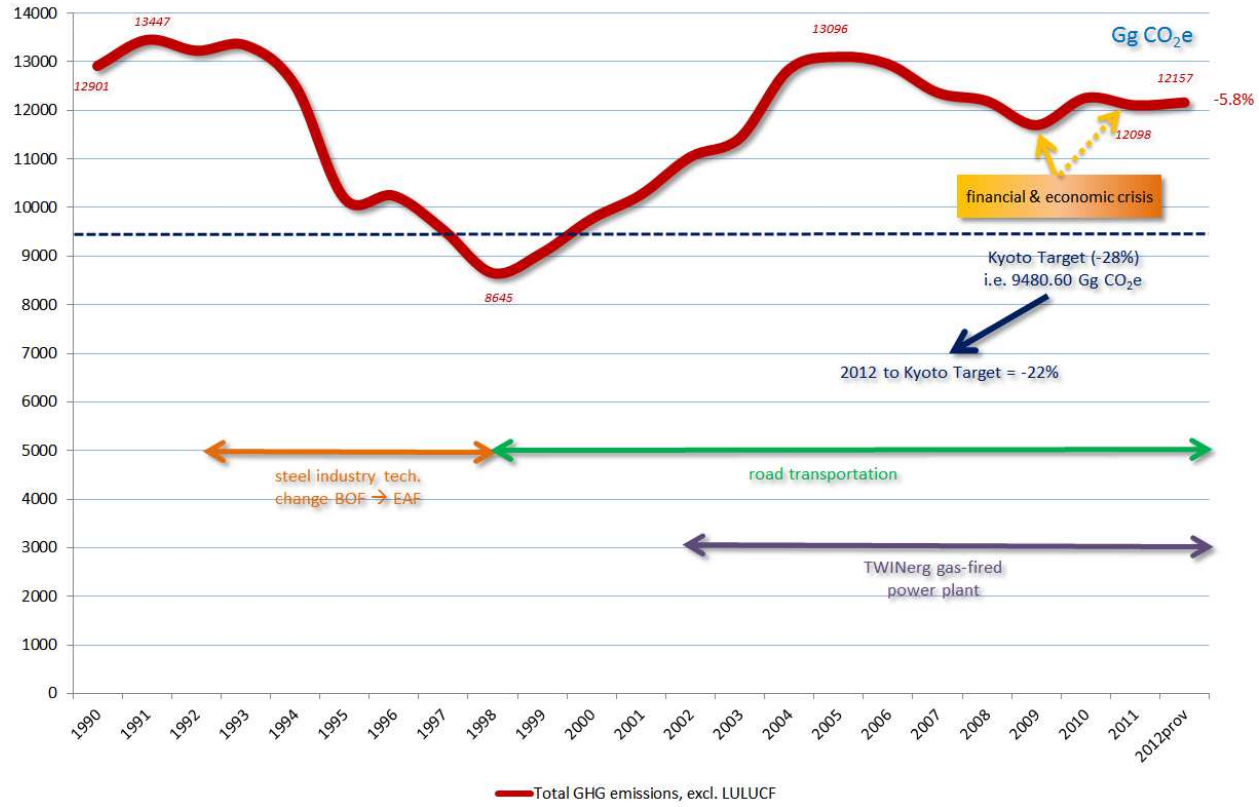
3 In this report, when it is referred to "total (GHG) emissions" it is meant "total GHG emissions excluding LULUCF". Reference is made to total emissions excluding LULUCF since this is the one that counts for the reduction target under the Kyoto Protocol.

4 The base year for CO_2, CH_4 and N_2O is 1990. For the F-gases, the base year is 1995. When the assigned amount under the Kyoto Protocol was determined, F-gases emissions were equal in 1990 and 1995 due to a lack of background data and methods at that time. Now, as CTF Table 1(d) shows, F-gases emissions are no longer the same in 1990 and 1995.

The Common Tabular Format (CTF) Table 1 in this report contains the same information as the Common Reporting Format (CRF) Table 10 in Luxembourg's 2013 National Inventory Submission 2013v1.2 to the UNFCCC.[5]

FIGURE II.1-1 – GHG EMISSIONS (EXCL. LULUCF): 1990-2012



Sources: Environment Agency and MDDI-DEV – Submission 2013v1.2.
Note: 2012 data are provisional data estimated by the Department of the Environment during the summer of 2013 for the EC and the European Environment Agency. They are not part of the CTF Tables 1.

CTF Tables 1 are reproduced on the next pages.

[→ NC6: see Section III.1, p. 69-107]

5 http://unfccc.int/files/national_reports/annex_i_ghg_inventories/national_inventories_submissions/application/zip/lux-2013-crf-15apr.zip.

CTF TABLES 1 – EMISSION TRENDS: SUMMARY AND BY GASES

Table 1 LUX_BR1_v1.0

Emission trends: summary [(1)] Source: Submission 2014 v1.2, LUXEMBOURG

(Sheet 1 of 3) CRF: LUX_CRF__ v1.2

GREENHOUSE GAS EMISSIONS	Base year[a]	1991	1992	1993	1994	1995	1996	1997	1998
	kt CO_2 eq	*kt CO_2 eq*	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq
CO_2 emissions including net CO_2 from LULUCF	12,295.16	12,641.51	12,043.55	12,055.18	11,411.36	8,969.12	8,845.37	8,107.21	7,474.34
CO_2 emissions excluding net CO_2 from LULUCF	11,950.26	12,471.93	12,242.15	12,363.86	11,550.17	9,210.07	9,258.86	8,561.14	7,672.68
CH_4 emissions including CH_4 from LULUCF	461.51	471.95	462.68	466.72	460.99	469.59	473.25	468.33	467.24
CH_4 emissions excluding CH_4 from LULUCF	461.51	471.95	462.68	466.72	460.99	469.59	473.25	468.33	467.24
N_2O emissions including N_2O from LULUCF	478.96	492.49	506.20	491.81	481.62	483.53	491.72	488.82	485.54
N_2O emissions excluding N_2O from LULUCF	476.11	489.64	503.35	488.96	478.77	480.68	488.88	485.97	482.69
HFCs	12.01	12.01	12.21	12.93	13.68	15.59	15.91	17.17	19.99
PFCs	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
SF_6	1.13	1.21	1.29	1.37	1.46	1.55	1.71	1.87	1.97
Total (including LULUCF)	13,248.77	13,619.16	13,025.94	13,028.02	12,369.12	9,939.39	9,827.97	9,083.42	8,449.06
Total (excluding LULUCF)	12,901.02	13,446.74	13,221.69	13,333.84	12,505.07	10,177.48	10,238.60	9,534.50	8,644.56

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year[a]	1991	1992	1993	1994	1995	1996	1997	1998
	kt CO_2 eq	*kt CO_2 eq*	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq
1. Energy	10,429.93	11,044.32	10,895.15	11,042.59	10,325.04	8,340.89	8,451.30	7,867.11	7,140.20
2. Industrial Processes	1,621.50	1,543.72	1,473.95	1,452.53	1,361.33	1,001.64	946.35	839.11	682.94
3. Solvent and Other Product Use	23.90	22.98	21.88	20.85	19.57	19.74	19.42	19.00	17.88
4. Agriculture	743.20	751.50	746.10	732.99	716.24	734.71	744.12	731.74	726.01
5. Land Use, Land-Use Change and Forestry[b]	347.75	172.43	-195.75	-305.83	-135.96	-238.10	-410.64	-451.08	-195.50
6. Waste	82.48	84.21	84.61	84.89	82.89	80.52	77.43	77.53	77.54
7. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total (including LULUCF)	13,248.77	13,619.16	13,025.94	13,028.02	12,369.12	9,939.39	9,827.97	9,083.42	8,449.06

Note: All footnotes for this table are given on sheet 3.

[1] The common tabular format will be revised, in accordance with relevant decisions of the Conference of the Parties and, where applicable, with decisions of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol."

Table 1 LUX_BR1_v1.0

Emission trends: summary [1] Source: Submission 2014 v1.2, LUXEMBOURG

(Sheet 2 of 3) CRF: LUX_CRF__ v1.2

GREENHOUSE GAS EMISSIONS	*1999*	2000	2001	2002	2003	2004	2005	2006	2007	2008
	kt CO_2 eq	*kt CO_2 eq*	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq
CO_2 emissions including net CO_2 from LULUCF	7,755.59	8,392.51	8,842.86	9,603.74	9,998.92	11,417.27	11,719.50	11,691.00	11,106.76	10,934.14
CO_2 emissions excluding net CO_2 from LULUCF	8,077.25	8,780.74	9,297.22	10,057.77	10,461.40	11,834.49	12,107.85	11,969.26	11,382.58	11,209.10
CH_4 emissions including CH_4 from LULUCF	475.18	467.14	466.74	467.41	457.89	452.75	451.79	447.46	442.31	444.81
CH_4 emissions excluding CH_4 from LULUCF	475.18	467.14	466.74	467.41	457.89	452.75	451.79	447.46	442.31	444.81
N_2O emissions including N_2O from LULUCF	486.95	484.19	461.56	469.54	458.20	504.17	481.21	471.01	469.22	466.03
N_2O emissions excluding N_2O from LULUCF	484.10	481.37	458.76	466.76	455.45	501.45	478.52	468.33	466.58	463.41
HFCs	23.96	28.62	34.15	41.86	46.76	49.18	53.01	56.91	61.11	63.46
PFCs	NA, NO	0.01	0.01	0.01	0.02	0.11	0.15	0.17	0.21	0.24
SF_6	2.05	2.15	2.82	3.37	4.09	4.60	5.04	5.71	6.15	6.57
Total (including LULUCF)	8,743.72	9,374.62	9,808.13	10,585.93	10,965.88	12,428.07	12,710.71	12,672.25	12,085.76	11,915.26
Total (excluding LULUCF)	9,062.53	9,760.03	10,259.69	11,037.18	11,425.61	12,842.57	13,096.36	12,947.84	12,358.94	12,187.60

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*1999*	2000	2001	2002	2003	2004	2005	2006	2007	2008
	kt CO_2 eq	*kt CO_2 eq*	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq
1. Energy	7,508.49	8,189.11	8,769.05	9,529.95	10,012.38	11,356.22	11,635.80	11,438.98	10,852.50	10,736.99
2. Industrial Processes	725.05	756.56	704.85	728.96	674.47	719.70	716.11	773.21	767.21	705.99
3. Solvent and Other Product Use	17.30	15.81	16.54	16.76	15.09	17.39	16.65	16.25	17.48	16.90
4. Agriculture	735.77	721.34	694.40	687.42	647.66	677.83	657.76	649.53	653.65	661.28
5. Land Use, Land-Use Change and Forestry [b]	-318.81	-385.41	-451.56	-451.26	-459.74	-414.49	-385.65	-275.59	-273.18	-272.34
6. Waste	75.93	77.20	74.85	74.09	76.02	71.42	70.04	69.87	68.09	66.44
7. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total (including LULUCF)	8,743.72	9,374.62	9,808.13	10,585.93	10,965.88	12,428.07	12,710.71	12,672.25	12,085.76	11,915.26

Note: All footnotes for this table are given on sheet 3.

Table 1 LUX_BR1_v1.0

Emission trends: summary [1] ource: Submission 2014 v1.2, LUXEMBOURG

(Sheet 3 of 3) CRF: LUX_CRF__ v1.2

GREENHOUSE GAS EMISSIONS	*2009*	2010	2011	Change from base to latest reported year
	kt CO_2 eq	*kt CO_2 eq*	kt CO_2 eq	(%)
CO_2 emissions including net CO_2 from LULUCF	10,405.63	10,957.51	10,828.84	-11.93
CO_2 emissions excluding net CO_2 from LULUCF	10,704.66	11,255.34	11,125.58	-6.90
CH_4 emissions including CH_4 from LULUCF	444.89	452.87	437.00	-5.31
CH_4 emissions excluding CH_4 from LULUCF	444.89	452.87	437.00	-5.31
N_2O emissions including N_2O from LULUCF	470.28	472.39	462.95	-3.34
N_2O emissions excluding N_2O from LULUCF	467.68	469.83	460.41	-3.30
HFCs	65.54	66.47	67.00	457.88
PFCs	0.22	0.20	0.18	100.00
SF_6	7.00	7.39	7.75	587.66
Total (including LULUCF)	11,393.55	11,956.83	11,803.72	-10.91
Total (excluding LULUCF)	11,689.99	12,252.09	12,097.92	-6.23

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*2009*	2010	2011	Change from base to latest reported year
	kt CO_2 eq	*kt CO_2 eq*	kt CO_2 eq	(%)
1. Energy	10,298.52	10,839.35	10,688.67	2.48
2. Industrial Processes	641.57	660.24	671.49	-58.59
3. Solvent and Other Product Use	16.11	14.34	15.77	-34.00
4. Agriculture	670.65	677.94	663.65	-10.70
5. Land Use, Land-Use Change and Forestry [b]	-296.43	-295.26	-294.20	-184.60
6. Waste	63.14	60.21	58.33	-29.29
7. Other	NA	NA	NA	0.00
Total (including LULUCF)	11,393.55	11,956.83	11,803.72	-10.91

Notes:

(1) Further detailed information could be found in the common reporting format tables of the Party's greenhouse gas inventory, namely "Emission trends (CO_2)", "Emission trends (CH_4)", "Emission trends (N_2O)" and "Emission trends (HFCs, PFCs and SF_6)", which is included in an annex to this biennial report.

(2) 2011 is the latest reported inventory year.

(3) 1 kt CO_2 eq equals 1 Gg CO_2 eq.

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

[a] The column "Base year" should be filled in only by those Parties with economies in transition that use a base year different from 1990 in accordance with the relevant decisions of the Conference of the Parties. For these Parties, this different base year is used to calculate the percentage change in the final column of this table.

[b] Includes net CO_2, CH_4 and N_2O from LULUCF.

Table 1 (a) LUX_BR1_v1.0

Emission trends (CO_2) Source: Submission 2014 v1.2, LUXEMBOURG

(Sheet 1 of 3) CRF: LUX_CRF__ v1.2

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*Base year* [a]	1991	1992	1993	1994	1995	1996	1997	1998
	kt	kt	kt	kt	kt	kt	kt	kt	kt
1. Energy	10,327.26	10,927.36	10,768.39	10,913.01	10,192.31	8,213.42	8,317.96	7,728.97	7,000.37
A. Fuel Combustion (Sectoral Approach)	10,327.23	10,927.34	10,768.36	10,912.99	10,192.28	8,213.38	8,317.92	7,728.93	7,000.33
1. Energy Industries	33.29	34.01	34.73	33.04	32.32	91.07	79.62	80.46	144.48
2. Manufacturing Industries and Construction	6,285.43	6,121.42	5,795.50	5,921.31	5,201.13	3,343.75	3,201.46	2,450.11	1,412.48
3. Transport	2,672.53	3,170.77	3,460.24	3,501.54	3,560.39	3,379.01	3,477.92	3,678.89	3,842.35
4. Other Sectors	1,309.70	1,574.84	1,451.59	1,433.96	1,376.88	1,389.12	1,540.82	1,497.06	1,567.67
5. Other	26.28	26.29	26.30	23.14	21.57	10.43	18.10	22.42	33.34
B. Fugitive Emissions from Fuels	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04
1. Solid Fuels	NO	NO	NO	NO	NO	NO	NO	NO	NO
2. Oil and Natural Gas	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04
2. Industrial Processes	1,608.36	1,530.51	1,460.44	1,438.23	1,346.19	984.50	928.72	820.07	660.99
A. Mineral Products	623.45	592.76	607.15	515.03	575.35	519.11	512.12	525.97	520.30
B. Chemical Industry	NO	NO	NO	NO	NO	NO	NO	NO	NO
C. Metal Production	984.91	937.74	853.29	923.19	770.83	465.38	416.60	294.10	140.69
D. Other Production	NO	NO	NO	NO	NO	NO	NO	NO	NO
E. Production of Halocarbons and SF6									
F. Consumption of Halocarbons and SF6									
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	14.64	14.06	13.32	12.62	11.66	12.16	12.18	12.11	11.33
4. Agriculture									
A. Enteric Fermentation									
B. Manure Management									
C. Rice Cultivation									
D. Agricultural Soils									
E. Prescribed Burning of Savannas									
F. Field Burning of Agricultural Residues									
G. Other									
5. Land Use, Land-Use Change and Forestry	344.90	169.58	-198.60	-308.68	-138.81	-240.95	-413.49	-453.93	-198.35
A. Forest Land	126.20	-49.24	-417.54	-527.74	-358.29	-460.19	-632.59	-673.51	-418.49
B. Cropland	34.47	34.59	34.71	34.83	35.26	35.01	34.87	35.35	35.91
C. Grassland	31.64	31.64	31.64	31.64	31.64	31.64	31.64	31.64	31.64
D. Wetlands	12.27	12.27	12.27	12.27	12.27	12.27	12.27	12.27	12.27
E. Settlements	138.93	138.93	138.93	138.93	138.93	138.93	138.93	138.93	138.93
F. Other Land	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
G. Other	NE	NE	NE	NE	NE	NE	NE	NE	NE
6. Waste	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO
A. Solid Waste Disposal on Land	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
B. Waste-water Handling									
C. Waste Incineration	IE	IE	IE	IE	IE	IE	IE	IE	IE
D. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
7. Other (as specified in the summary table in CRF)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total CO2 emissions including net CO2 from LULUCF	12,295.16	12,641.51	12,043.55	12,055.18	11,411.36	8,969.12	8,845.37	8,107.21	7,474.34
Total CO2 emissions excluding net CO2 from LULUCF	11,950.26	12,471.93	12,242.15	12,363.86	11,550.17	9,210.07	9,258.86	8,561.14	7,672.68
Memo Items:									
International Bunkers	394.47	412.31	398.61	394.26	500.14	566.92	615.99	736.93	893.35
Aviation	394.41	412.24	398.54	394.16	500.06	566.83	615.91	736.85	893.27
Marine	0.07	0.07	0.07	0.09	0.08	0.08	0.08	0.08	0.08
Multilateral Operations	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO2 Emissions from Biomass	159.05	160.93	163.73	159.33	157.46	153.78	135.56	146.84	139.67

Note: All footnotes for this table are given on sheet 3.

Table 1 (a) LUX_BR1_v1.0

Emission trends (CO_2) Source: Submission 2014 v1.2, LUXEMBOURG

(Sheet 2 of 3) CRF: LUX_CRF__ v1.2

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*1999*	2000	2001	2002	2003	2004	2005	2006	2007	2008
	kt	kt	kt	kt	kt	kt	kt	kt	kt	kt
1. Energy	7,367.10	8,044.96	8,618.22	9,362.76	9,826.51	11,155.43	11,437.08	11,246.69	10,669.85	10,561.18
A. Fuel Combustion (Sectoral Approach)	7,367.06	8,044.92	8,618.18	9,362.70	9,826.45	11,155.36	11,437.01	11,246.62	10,669.79	10,561.12
1. Energy Industries	159.47	117.30	280.45	1,026.00	1,033.84	1,259.19	1,239.90	1,303.67	1,179.86	995.47
2. Manufacturing Industries and Construction	1,523.45	1,438.07	1,573.45	1,494.99	1,413.82	1,584.47	1,557.81	1,627.49	1,516.69	1,403.63
3. Transport	4,135.64	4,778.73	4,997.46	5,144.68	5,579.80	6,524.35	6,919.22	6,617.02	6,352.36	6,486.70
4. Other Sectors	1,505.30	1,699.22	1,743.69	1,684.14	1,795.96	1,787.35	1,720.08	1,698.43	1,620.88	1,675.32
5. Other	43.21	11.60	23.15	12.90	3.03	NO	NO	NO	NO	NO
B. Fugitive Emissions from Fuels	0.04	0.04	0.04	0.06	0.06	0.07	0.07	0.07	0.07	0.07
1. Solid Fuels	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
2. Oil and Natural Gas	0.04	0.04	0.04	0.06	0.06	0.07	0.07	0.07	0.07	0.07
2. Industrial Processes	699.04	725.78	667.88	683.72	623.60	665.82	657.91	710.42	699.74	635.71
A. Mineral Products	551.34	579.74	513.12	528.32	471.66	513.37	504.99	500.63	496.26	466.41
B. Chemical Industry	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
C. Metal Production	147.70	146.05	154.76	155.40	151.94	152.45	152.92	209.79	203.49	169.30
D. Other Production	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
E. Production of Halocarbons and SF6										
F. Consumption of Halocarbons and SF6										
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	11.11	9.99	11.12	11.28	11.29	13.24	12.86	12.14	12.98	12.21
4. Agriculture										
A. Enteric Fermentation										
B. Manure Management										
C. Rice Cultivation										
D. Agricultural Soils										
E. Prescribed Burning of Savannas										
F. Field Burning of Agricultural Residues										
G. Other										
5. Land Use, Land-Use Change and Forestry	-321.66	-388.23	-454.36	-454.03	-462.48	-417.22	-388.35	-278.26	-275.82	-274.96
A. Forest Land	-540.90	-557.07	-623.71	-624.13	-632.61	-587.07	-559.81	-448.98	-446.69	-445.73
B. Cropland	35.01	31.32	30.85	30.59	29.63	28.37	28.98	27.25	26.41	25.32
C. Grassland	31.64	7.67	9.81	11.95	14.09	16.23	18.36	20.50	22.64	24.78
D. Wetlands	12.27	10.77	10.67	10.56	10.46	10.35	10.25	10.14	10.04	9.94
E. Settlements	138.93	118.35	117.34	116.32	115.31	114.30	113.29	112.27	111.26	110.25
F. Other Land	1.40	0.72	0.69	0.66	0.64	0.61	0.58	0.55	0.52	0.49
G. Other	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
6. Waste	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO
A. Solid Waste Disposal on Land	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
B. Waste-water Handling										
C. Waste Incineration	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
D. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
7. Other (as specified in the summary table in CRF)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total CO2 emissions including net CO2 from LULUCF	7,755.59	8,392.51	8,842.86	9,603.74	9,998.92	11,417.27	11,719.50	11,691.00	11,106.76	10,934.14
Total CO2 emissions excluding net CO2 from LULUCF	8,077.25	8,780.74	9,297.22	10,057.77	10,461.40	11,834.49	12,107.85	11,969.26	11,382.58	11,209.10
Memo Items:										
International Bunkers	1,007.92	960.64	1,039.00	1,125.70	1,172.70	1,275.99	1,296.51	1,213.34	1,304.18	1,312.81
Aviation	1,007.83	960.53	1,038.90	1,125.59	1,172.59	1,275.88	1,296.37	1,213.19	1,304.06	1,312.68
Marine	0.09	0.10	0.10	0.11	0.11	0.11	0.14	0.15	0.12	0.13
Multilateral Operations	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO2 Emissions from Biomass	148.82	149.63	163.83	163.75	181.66	201.03	295.32	301.33	446.75	460.47

Note: All footnotes for this table are given on sheet 3.

Table 1(a) LUX_BR1_v1.0

Emission trends (CO_2) e: Submission 2014 v1.2, LUXEMBOURG

(Sheet 3 of 3) CRF: LUX_CRF__ v1.2

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*2009*	2010	2011	Change from base to latest reported year
	kt	kt	kt	%
1. Energy	10,124.52	10,659.69	10,518.21	1.85
A. Fuel Combustion (Sectoral Approach)	10,124.46	10,659.62	10,518.15	1.85
1. Energy Industries	1,190.99	1,203.21	990.79	2,876.48
2. Manufacturing Industries and Construction	1,338.73	1,408.03	1,270.55	-79.79
3. Transport	5,937.12	6,306.84	6,760.34	152.96
4. Other Sectors	1,657.61	1,741.54	1,496.47	14.26
5. Other	NO	NO	NO	-100.00
B. Fugitive Emissions from Fuels	0.07	0.07	0.06	141.19
1. Solid Fuels	NO	NO	NO	0.00
2. Oil and Natural Gas	0.07	0.07	0.06	141.19
2. Industrial Processes	568.81	586.18	596.56	-62.91
A. Mineral Products	440.16	452.57	472.70	-24.18
B. Chemical Industry	NO	NO	NO	0.00
C. Metal Production	128.66	133.61	123.86	-87.42
D. Other Production	NO	NO	NO	0.00
E. Production of Halocarbons and SF6				
F. Consumption of Halocarbons and SF6				
G. Other	NA	NA	NA	0.00
3. Solvent and Other Product Use	11.33	9.47	10.81	-26.16
4. Agriculture				
A. Enteric Fermentation				
B. Manure Management				
C. Rice Cultivation				
D. Agricultural Soils				
E. Prescribed Burning of Savannas				
F. Field Burning of Agricultural Residues				
G. Other				
5. Land Use, Land-Use Change and Forestry	-299.03	-297.83	-296.74	-186.04
A. Forest Land	-471.13	-470.16	-469.19	-471.79
B. Cropland	25.66	24.89	24.02	-30.32
C. Grassland	26.92	29.05	31.19	-1.41
D. Wetlands	9.83	9.73	9.62	-21.56
E. Settlements	109.23	108.22	107.21	-22.83
F. Other Land	0.46	0.44	0.41	-70.84
G. Other	NE	NE	NE	0.00
6. Waste	IE, NA, NO	IE, NA, NO	IE, NA, NO	0.00
A. Solid Waste Disposal on Land	NA, NO	NA, NO	NA, NO	0.00
B. Waste-water Handling				
C. Waste Incineration	IE	IE	IE	0.00
D. Other	NO	NO	NO	0.00
7. Other (as specified in the summary table in CRF)	NA	NA	NA	0.00
Total CO2 emissions including net CO2 from LULUCF	10,405.63	10,957.51	10,828.84	-11.93
Total CO2 emissions excluding net CO2 from LULUCF	10,704.66	11,255.34	11,125.58	-6.90
Memo Items:				
International Bunkers	1,257.71	1,285.94	1,219.01	209.02
Aviation	1,257.60	1,285.83	1,218.88	209.04
Marine	0.11	0.10	0.13	86.87
Multilateral Operations	NO	NO	NO	0.00
CO2 Emissions from Biomass	446.95	467.17	443.39	178.77

Abbreviations : CRF = common reporting format, LULUCF = land use, land-use change and forestry.

[a] The column "Base year" should be filled in only by those Parties with economies in transition that use a base year different from 1990 in accordance with the relevant decisions of the Conference of the Parties. For these Parties, this different base year is used to calculate the percentage change in the final column of this table.

[b] Fill in net emissions/removals as reported in CRF table Summary 1.A of the latest reported inventory year. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

Table 1(b) LUX_BR1_v1.0

Emission trends (CH_4) Source: Submission 2014 v1.2, LUXEMBOURG

(Sheet 1 of 3) CRF: LUX_CRF__ v1.2

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*Base year* [a]	1991	1992	1993	1994	1995	1996	1997	1998
	kt	kt	kt	kt	kt	kt	kt	kt	kt
1. Energy	2.30	2.45	2.47	2.46	2.41	2.39	2.50	2.44	2.42
A. Fuel Combustion (Sectoral Approach)	1.52	1.65	1.63	1.59	1.53	1.39	1.40	1.32	1.29
1. Energy Industries	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.04
2. Manufacturing Industries and Construction	0.16	0.16	0.15	0.15	0.15	0.10	0.10	0.08	0.06
3. Transport	0.90	0.98	1.00	0.95	0.94	0.83	0.86	0.79	0.77
4. Other Sectors	0.43	0.48	0.44	0.44	0.41	0.42	0.41	0.41	0.42
5. Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B. Fugitive Emissions from Fuels	0.77	0.80	0.84	0.87	0.88	1.00	1.09	1.12	1.13
1. Solid Fuels	NO	NO	NO	NO	NO	NO	NO	NO	NO
2. Oil and Natural Gas	0.77	0.80	0.84	0.87	0.88	1.00	1.09	1.12	1.13
2. Industrial Processes	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
A. Mineral Products	NO	NO	NO	NO	NO	NO	NO	NO	NO
B. Chemical Industry	NO	NO	NO	NO	NO	NO	NO	NO	NO
C. Metal Production	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
D. Other Production									
E. Production of Halocarbons and SF6									
F. Consumption of Halocarbons and SF6									
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use									
4. Agriculture	16.19	16.46	15.99	16.22	16.11	16.66	16.83	16.70	16.73
A. Enteric Fermentation	12.45	12.41	11.91	12.00	11.90	12.23	12.39	12.14	12.01
B. Manure Management	3.74	4.05	4.08	4.22	4.21	4.42	4.45	4.57	4.72
C. Rice Cultivation	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
D. Agricultural Soils	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE
E. Prescribed Burning of Savannas	NA	NA	NA	NA	NA	NA	NA	NA	NA
F. Field Burning of Agricultural Residues	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA
5. Land Use, Land-Use Change and Forestry	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
A. Forest Land	NO	NO	NO	NO	NO	NO	NO	NO	NO
B. Cropland	NO	NO	NO	NO	NO	NO	NO	NO	NO
C. Grassland	NO	NO	NO	NO	NO	NO	NO	NO	NO
D. Wetlands	NO	NO	NO	NO	NO	NO	NO	NO	NO
E. Settlements	NE	NE	NE	NE	NE	NE	NE	NE	NE
F. Other Land	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Other	NE	NE	NE	NE	NE	NE	NE	NE	NE
6. Waste	3.49	3.56	3.57	3.55	3.44	3.32	3.20	3.16	3.10
A. Solid Waste Disposal on Land	3.20	3.28	3.30	3.25	3.15	3.03	2.93	2.86	2.76
B. Waste-water Handling	0.29	0.28	0.28	0.27	0.26	0.26	0.25	0.24	0.23
C. Waste Incineration	IE	IE	IE	IE	IE	IE	IE	IE	IE
D. Other	NO	NO	NO	0.02	0.03	0.03	0.03	0.06	0.11
7. Other (as specified in the summary table in CRF)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total CH4 emissions including CH4 from LULUCF	21.98	22.47	22.03	22.22	21.95	22.36	22.54	22.30	22.25
Total CH4 emissions excluding CH4 from LULUCF	21.98	22.47	22.03	22.22	21.95	22.36	22.54	22.30	22.25
Memo Items:									
International Bunkers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Aviation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Marine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Multilateral Operations	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO2 Emissions from Biomass									

Note: All footnotes for this table are given on sheet 3.

Table 1(b) LUX_BR1_v1.0

Emission trends (CH_4) Source: Submission 2014 v1.2, LUXEMBOURG

(Sheet 2 of 3) CRF: LUX_CRF__ v1.2

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*1999*	2000	2001	2002	2003	2004	2005	2006	2007	2008
	kt	kt	kt	kt	kt	kt	kt	kt	kt	kt
1. Energy	2.46	2.51	2.65	3.16	3.17	3.40	3.30	3.34	3.06	2.93
A. Fuel Combustion (Sectoral Approach)	1.29	1.31	1.31	1.26	1.23	1.25	1.19	1.12	0.98	0.94
1. Energy Industries	0.05	0.04	0.05	0.06	0.06	0.07	0.07	0.07	0.07	0.07
2. Manufacturing Industries and Construction	0.07	0.07	0.08	0.07	0.07	0.08	0.11	0.11	0.11	0.10
3. Transport	0.77	0.79	0.76	0.73	0.69	0.69	0.62	0.54	0.44	0.39
4. Other Sectors	0.40	0.41	0.42	0.39	0.40	0.41	0.40	0.39	0.36	0.38
5. Other	0.00	0.00	0.00	0.00	0.00	NO	NO	NO	NO	NO
B. Fugitive Emissions from Fuels	1.17	1.20	1.33	1.91	1.94	2.15	2.11	2.22	2.07	1.98
1. Solid Fuels	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
2. Oil and Natural Gas	1.17	1.20	1.33	1.91	1.94	2.15	2.11	2.22	2.07	1.98
2. Industrial Processes	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
A. Mineral Products	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
B. Chemical Industry	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
C. Metal Production	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
D. Other Production										
E. Production of Halocarbons and SF6										
F. Consumption of Halocarbons and SF6										
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use										
4. Agriculture	17.17	16.79	16.75	16.29	15.82	15.60	15.74	15.56	15.68	16.00
A. Enteric Fermentation	12.00	11.84	11.90	11.56	11.22	11.11	11.09	10.98	11.38	11.63
B. Manure Management	5.17	4.94	4.84	4.73	4.60	4.49	4.66	4.58	4.30	4.37
C. Rice Cultivation	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
D. Agricultural Soils	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE
E. Prescribed Burning of Savannas	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
F. Field Burning of Agricultural Residues	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5. Land Use, Land-Use Change and Forestry	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
A. Forest Land	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
B. Cropland	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
C. Grassland	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
D. Wetlands	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
E. Settlements	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
F. Other Land	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Other	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
6. Waste	3.00	2.95	2.83	2.80	2.82	2.56	2.47	2.41	2.33	2.25
A. Solid Waste Disposal on Land	2.67	2.52	2.43	2.36	2.32	2.07	1.97	1.87	1.81	1.70
B. Waste-water Handling	0.22	0.21	0.21	0.20	0.19	0.19	0.18	0.18	0.18	0.16
C. Waste Incineration	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
D. Other	0.11	0.21	0.20	0.24	0.31	0.30	0.32	0.36	0.34	0.39
7. Other (as specified in the summary table in CRF)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total CH4 emissions including CH4 from LULUCF	22.63	22.24	22.23	22.26	21.80	21.56	21.51	21.31	21.06	21.18
Total CH4 emissions excluding CH4 from LULUCF	22.63	22.24	22.23	22.26	21.80	21.56	21.51	21.31	21.06	21.18
Memo Items:										
International Bunkers	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aviation	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Marine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Multilateral Operations	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO2 Emissions from Biomass										

Note: All footnotes for this table are given on sheet 3.

Table 1(b) LUX_BR1_v1.0

Emission trends (CH_4) :e: Submission 2014 v1.2, LUXEMBOURG

(Sheet 3 of 3) CRF: LUX_CRF__ v1.2

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*2009*	2010	2011	Change from base to latest reported year
	kt	kt	kt	%
1. Energy	2.91	3.06	2.68	16.87
A. Fuel Combustion (Sectoral Approach)	0.91	0.90	0.82	-46.38
1. Energy Industries	0.07	0.07	0.07	79.11
2. Manufacturing Industries and Construction	0.09	0.10	0.09	-41.46
3. Transport	0.35	0.32	0.32	-64.69
4. Other Sectors	0.40	0.42	0.34	-20.49
5. Other	NO	NO	NO	-100.00
B. Fugitive Emissions from Fuels	2.00	2.16	1.87	141.19
1. Solid Fuels	NO	NO	NO	0.00
2. Oil and Natural Gas	2.00	2.16	1.87	141.19
2. Industrial Processes	NA, NO	NA, NO	NA, NO	0.00
A. Mineral Products	NO	NO	NO	0.00
B. Chemical Industry	NO	NO	NO	0.00
C. Metal Production	NA, NO	NA, NO	NA, NO	0.00
D. Other Production				
E. Production of Halocarbons and SF6				
F. Consumption of Halocarbons and SF6				
G. Other	NA	NA	NA	0.00
3. Solvent and Other Product Use				
4. Agriculture	16.16	16.52	16.22	0.18
A. Enteric Fermentation	11.73	11.96	11.63	-6.53
B. Manure Management	4.43	4.56	4.59	22.51
C. Rice Cultivation	NA, NO	NA, NO	NA, NO	0.00
D. Agricultural Soils	NA, NE	NA, NE	NA, NE	0.00
E. Prescribed Burning of Savannas	NA	NA	NA	0.00
F. Field Burning of Agricultural Residues	NO	NO	NO	0.00
G. Other	NA	NA	NA	0.00
5. Land Use, Land-Use Change and Forestry	NE, NO	NE, NO	NE, NO	0.00
A. Forest Land	NO	NO	NO	0.00
B. Cropland	NO	NO	NO	0.00
C. Grassland	NO	NO	NO	0.00
D. Wetlands	NO	NO	NO	0.00
E. Settlements	NE	NE	NE	0.00
F. Other Land	NO	NO	NO	0.00
G. Other	NE	NE	NE	0.00
6. Waste	2.11	1.99	1.90	-45.42
A. Solid Waste Disposal on Land	1.61	1.49	1.40	-56.06
B. Waste-water Handling	0.15	0.15	0.14	-50.53
C. Waste Incineration	IE	IE	IE	0.00
D. Other	0.35	0.35	0.35	100.00
7. Other (as specified in the summary table in CRF)	NA	NA	NA	0.00
Total CH4 emissions including CH4 from LULUCF	21.19	21.57	20.81	-5.31
Total CH4 emissions excluding CH4 from LULUCF	21.19	21.57	20.81	-5.31
Memo Items:				
International Bunkers	0.01	0.01	0.01	208.76
Aviation	0.01	0.01	0.01	209.04
Marine	0.00	0.00	0.00	86.88
Multilateral Operations	NO	NO	NO	0.00
CO2 Emissions from Biomass				

Abbreviations: CRF = common reporting format, LULUCF = land use, land-use change an

[a] The column "Base year" should be filled in only by those Parties with economies in transition that use a base year different from 1990 in accordance with the relevant decisions of the Conference of the Parties. For these Parties, this different base year is used to calculate the percentage change in the final column of this table.

Table 1(c) LUX_BR1_v1.0

Emission trends (N_2O) Source: Submission 2014 v1.2, LUXEMBOURG

(Sheet 1 of 3) CRF: LUX_CRF__ v1.2

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*Base year* [a]	1991	1992	1993	1994	1995	1996	1997	1998
	kt	kt	kt	kt	kt	kt	kt	kt	kt
1. Energy	0.18	0.21	0.24	0.25	0.27	0.25	0.26	0.28	0.29
A. Fuel Combustion (Sectoral Approach)	0.18	0.21	0.24	0.25	0.27	0.25	0.26	0.28	0.29
1. Energy Industries	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01
2. Manufacturing Industries and Construction	0.05	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0.05
3. Transport	0.10	0.13	0.16	0.17	0.18	0.18	0.19	0.20	0.20
4. Other Sectors	0.01	0.02	0.02	0.01	0.02	0.01	0.02	0.02	0.02
5. Other	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01
B. Fugitive Emissions from Fuels	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
1. Solid Fuels	NO	NO	NO	NO	NO	NO	NO	NO	NO
2. Oil and Natural Gas	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
2. Industrial Processes	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
A. Mineral Products	NO	NO	NO	NO	NO	NO	NO	NO	NO
B. Chemical Industry	NO	NO	NO	NO	NO	NO	NO	NO	NO
C. Metal Production	NA	NA	NA	NA	NA	NA	NA	NA	NA
D. Other Production									
E. Production of Halocarbons and SF6									
F. Consumption of Halocarbons and SF6									
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
4. Agriculture	1.30	1.31	1.32	1.27	1.22	1.24	1.26	1.23	1.21
A. Enteric Fermentation									
B. Manure Management	0.13	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.09
C. Rice Cultivation									
D. Agricultural Soils	1.17	1.19	1.22	1.16	1.12	1.14	1.16	1.13	1.12
E. Prescribed Burning of Savannas	NA	NA	NA	NA	NA	NA	NA	NA	NA
F. Field Burning of Agricultural Residues	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA
5. Land Use, Land-Use Change and Forestry	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
A. Forest Land	NO	NO	NO	NO	NO	NO	NO	NO	NO
B. Cropland	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
C. Grassland	NO	NO	NO	NO	NO	NO	NO	NO	NO
D. Wetlands	NO	NO	NO	NO	NO	NO	NO	NO	NO
E. Settlements	NE	NE	NE	NE	NE	NE	NE	NE	NE
F. Other Land	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Other	NE	NE	NE	NE	NE	NE	NE	NE	NE
6. Waste	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04
A. Solid Waste Disposal on Land									
B. Waste-water Handling	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
C. Waste Incineration	IE	IE	IE	IE	IE	IE	IE	IE	IE
D. Other	NO	NO	NO	0.00	0.00	0.00	0.00	0.00	0.01
7. Other (as specified in the summary table in CRF)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total N2O emissions including N2O from LULUCF	1.55	1.59	1.63	1.59	1.55	1.56	1.59	1.58	1.57
Total N2O emissions excluding N2O from LULUCF	1.54	1.58	1.62	1.58	1.54	1.55	1.58	1.57	1.56
Memo Items:									
International Bunkers	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02
Aviation	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02
Marine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Multilateral Operations	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO2 Emissions from Biomass									

Note: All footnotes for this table are given on sheet 3.

Table 1(c) LUX_BR1_v1.0

Emission trends (N_2O) Source: Submission 2014 v1.2, LUXEMBOURG

(Sheet 2 of 3) CRF: LUX_CRF__ v1.2

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*1999*	2000	2001	2002	2003	2004	2005	2006	2007	2008
	kt	kt	kt	kt	kt	kt	kt	kt	kt	kt
1. Energy	0.29	0.29	0.31	0.32	0.38	0.42	0.42	0.39	0.38	0.37
A. Fuel Combustion (Sectoral Approach)	0.29	0.29	0.31	0.32	0.38	0.42	0.42	0.39	0.38	0.37
1. Energy Industries	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
2. Manufacturing Industries and Construction	0.05	0.04	0.04	0.06	0.11	0.11	0.11	0.10	0.10	0.08
3. Transport	0.21	0.23	0.23	0.23	0.24	0.26	0.27	0.25	0.24	0.25
4. Other Sectors	0.01	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
5. Other	0.01	0.00	0.00	0.00	0.00	NO	NO	NO	NO	NO
B. Fugitive Emissions from Fuels	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
1. Solid Fuels	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
2. Oil and Natural Gas	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
2. Industrial Processes	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
A. Mineral Products	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
B. Chemical Industry	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
C. Metal Production	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D. Other Production										
E. Production of Halocarbons and SF6										
F. Consumption of Halocarbons and SF6										
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.02
4. Agriculture	1.21	1.19	1.11	1.11	1.02	1.13	1.06	1.04	1.05	1.05
A. Enteric Fermentation										
B. Manure Management	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.08	0.08
C. Rice Cultivation										
D. Agricultural Soils	1.13	1.11	1.03	1.04	0.94	1.06	0.98	0.97	0.96	0.97
E. Prescribed Burning of Savannas	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
F. Field Burning of Agricultural Residues	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5. Land Use, Land-Use Change and Forestry	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
A. Forest Land	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
B. Cropland	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
C. Grassland	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
D. Wetlands	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
E. Settlements	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
F. Other Land	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Other	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
6. Waste	0.04	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06
A. Solid Waste Disposal on Land										
B. Waste-water Handling	0.03	0.03	0.04	0.03	0.03	0.04	0.04	0.04	0.04	0.04
C. Waste Incineration	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
D. Other	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.03	0.02	0.03
7. Other (as specified in the summary table in CRF)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total N2O emissions including N2O from LULUCF	1.57	1.56	1.49	1.51	1.48	1.63	1.55	1.52	1.51	1.50
Total N2O emissions excluding N2O from LULUCF	1.56	1.55	1.48	1.51	1.47	1.62	1.54	1.51	1.51	1.49
Memo Items:										
International Bunkers	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.03	0.04	0.04
Aviation	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.03	0.04	0.04
Marine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Multilateral Operations	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO2 Emissions from Biomass										

Note: All footnotes for this table are given on sheet 3.

Table 1(c) LUX_BR1_v1.0

Emission trends (N_2O) e: Submission 2014 v1.2, LUXEMBOURG

(Sheet 3 of 3) CRF: LUX_CRF__ v1.2

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*2009*	2010	2011	Change from base to latest reported year
	kt	kt	kt	%
1. Energy	0.36	0.37	0.37	109.57
A. Fuel Combustion (Sectoral Approach)	0.36	0.37	0.37	109.57
1. Energy Industries	0.01	0.01	0.01	67.91
2. Manufacturing Industries and Construction	0.09	0.09	0.07	29.73
3. Transport	0.23	0.24	0.26	175.67
4. Other Sectors	0.03	0.04	0.03	100.45
5. Other	NO	NO	NO	-100.00
B. Fugitive Emissions from Fuels	NA, NO	NA, NO	NA, NO	0.00
1. Solid Fuels	NO	NO	NO	0.00
2. Oil and Natural Gas	NA, NO	NA, NO	NA, NO	0.00
2. Industrial Processes	NA, NO	NA, NO	NA, NO	0.00
A. Mineral Products	NO	NO	NO	0.00
B. Chemical Industry	NO	NO	NO	0.00
C. Metal Production	NA	NA	NA	0.00
D. Other Production				
E. Production of Halocarbons and SF6				
F. Consumption of Halocarbons and SF6				
G. Other	NA	NA	NA	0.00
3. Solvent and Other Product Use	0.02	0.02	0.02	-46.40
4. Agriculture	1.07	1.07	1.04	-19.89
A. Enteric Fermentation				
B. Manure Management	0.08	0.08	0.08	-39.37
C. Rice Cultivation				
D. Agricultural Soils	0.99	0.98	0.96	-17.66
E. Prescribed Burning of Savannas	NA	NA	NA	0.00
F. Field Burning of Agricultural Residues	NO	NO	NO	0.00
G. Other	NA	NA	NA	0.00
5. Land Use, Land-Use Change and Forestry	0.01	0.01	0.01	-10.72
A. Forest Land	NO	NO	NO	0.00
B. Cropland	0.01	0.01	0.01	-10.72
C. Grassland	NO	NO	NO	0.00
D. Wetlands	NO	NO	NO	0.00
E. Settlements	NE	NE	NE	0.00
F. Other Land	NO	NO	NO	0.00
G. Other	NE	NE	NE	0.00
6. Waste	0.06	0.06	0.06	98.98
A. Solid Waste Disposal on Land				
B. Waste-water Handling	0.04	0.03	0.03	14.79
C. Waste Incineration	IE	IE	IE	0.00
D. Other	0.03	0.02	0.03	100.00
7. Other (as specified in the summary table in CRF)	NA	NA	NA	0.00
Total N2O emissions including N2O from LULUCF	1.52	1.52	1.49	-3.34
Total N2O emissions excluding N2O from LULUCF	1.51	1.52	1.49	-3.30
Memo Items:				
International Bunkers	0.04	0.04	0.03	209.02
Aviation	0.04	0.04	0.03	209.04
Marine	0.00	0.00	0.00	86.88
Multilateral Operations	NO	NO	NO	0.00
CO2 Emissions from Biomass				

Abbreviations: CRF = common reporting format, LULUCF = land use, land-use change an

[a] The column "Base year" should be filled in only by those Parties with economies in transition that use a base year different from 1990 in accordance with the relevant decisions of the Conference of the Parties. For these Parties, this different base year is used to calculate the percentage change in the final column of this table.

Table 1(d)

Emission trends (HFCs, PFCs and SF_6)

(Sheet 1 of 3)

LUX_BR1_v1.0

Source: Submission 2014 v1.2, LUXEMBOURG

CRF: LUX_CRF__ v1.2

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*Base year* [a]	1991	1992	1993	1994	1995	1996	1997	1998
	kt	kt	kt	kt	kt	kt	kt	kt	kt
Emissions of HFCsc - (kt CO2 eq)	12.01	12.01	12.21	12.93	13.68	15.59	15.91	17.17	19.99
HFC-23	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
HFC-32	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	0.00	0.00	0.00	0.00
HFC-41	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
HFC-43-10mee	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
HFC-125	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	0.00	0.00	0.00	0.00
HFC-134	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
HFC-134a	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
HFC-152a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-143	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
HFC-143a	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	0.00	0.00	0.00	0.00
HFC-227ea	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
HFC-236fa	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
HFC-245ca	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
Unspecified mix of listed HFCsd - (kt CO_2 eq)	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
Emissions of PFCsc - (kt CO2 eq)	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
CF_4	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
C_2F_6	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
C 3F8	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
C_4F_{10}	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
c-C_4F_8	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
C_5F_{12}	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
C_6F_{14}	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
Unspecified mix of listed PFCs(4) - (Gg CO_2 equivalent)	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
Emissions of SF6(3) - (Gg CO2 equivalent)	1.13	1.21	1.29	1.37	1.46	1.55	1.71	1.87	1.97
SF_6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: All footnotes for this table are given on sheet 3.

Table 1(d) LUX_BR1_v1.0

Emission trends (HFCs, PFCs and SF_6) Source: Submission 2014 v1.2, LUXEMBOURG

(Sheet 2 of 3) CRF: LUX_CRF__ v1.2

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*1999*	2000	2001	2002	2003	2004	2005	2006	2007	2008
	kt	kt	kt	kt	kt	kt	kt	kt	kt	kt
Emissions of HFCsc - (kt CO2 eq)	23.96	28.62	34.15	41.86	46.76	49.18	53.01	56.91	61.11	63.46
HFC-23	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
HFC-32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-41	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
HFC-43-10mee	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
HFC-125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
HFC-134	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
HFC-134a	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
HFC-152a	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-143	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
HFC-143a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-227ea	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
HFC-236fa	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
HFC-245ca	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
Unspecified mix of listed HFCsd - (kt CO_2 eq)	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
Emissions of PFCsc - (kt CO2 eq)	NA, NO	0.01	0.01	0.01	0.02	0.11	0.15	0.17	0.21	0.24
CF_4	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
C_2F_6	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
C 3F8	NA, NO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C_4F_{10}	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
c-C_4F_8	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
C_5F_{12}	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
C_6F_{14}	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
Unspecified mix of listed PFCs(4) - (Gg CO_2 equivalent)	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
Emissions of SF6(3) - (Gg CO2 equivalent)	2.05	2.15	2.82	3.37	4.09	4.60	5.04	5.71	6.15	6.57
SF_6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: All footnotes for this table are given on sheet 3.

Table 1(d) LUX_BR1_v1.0

Emission trends (HFCs, PFCs and SF_6) e: Submission 2014 v1.2, LUXEMBOURG

(Sheet 3 of 3) CRF: LUX_CRF__ v1.2

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	*2009*	2010	2011	Change from base to latest reported year
	kt	kt	kt	%
Emissions of HFCsc - (kt CO2 eq)	65.54	66.47	67.00	457.88
HFC-23	NA, NO	NA, NO	NA, NO	0.00
HFC-32	0.00	0.00	0.00	100.00
HFC-41	NA, NO	NA, NO	NA, NO	0.00
HFC-43-10mee	NA, NO	NA, NO	NA, NO	0.00
HFC-125	0.01	0.01	0.01	100.00
HFC-134	NA, NO	NA, NO	NA, NO	0.00
HFC-134a	0.02	0.03	0.03	173.54
HFC-152a	0.00	0.00	0.00	442.39
HFC-143	NA, NO	NA, NO	NA, NO	0.00
HFC-143a	0.00	0.00	0.00	100.00
HFC-227ea	NA, NO	NA, NO	NA, NO	0.00
HFC-236fa	NA, NO	NA, NO	NA, NO	0.00
HFC-245ca	NA, NO	NA, NO	NA, NO	0.00
Unspecified mix of listed HFCsd - (kt CO_2 eq)	NA, NO	NA, NO	NA, NO	0.00
Emissions of PFCsc - (kt CO2 eq)	0.22	0.20	0.18	100.00
CF_4	NA, NO	NA, NO	NA, NO	0.00
C_2F_6	NA, NO	NA, NO	NA, NO	0.00
C 3F8	0.00	0.00	0.00	100.00
C_4F_{10}	NA, NO	NA, NO	NA, NO	0.00
c-C_4F_8	NA, NO	NA, NO	NA, NO	0.00
C_5F_{12}	NA, NO	NA, NO	NA, NO	0.00
C_6F_{14}	NA, NO	NA, NO	NA, NO	0.00
Unspecified mix of listed PFCs(4) - (Gg CO_2 equivalent)	NA, NO	NA, NO	NA, NO	0.00
Emissions of SF6(3) - (Gg CO2 equivalent)	7.00	7.39	7.75	587.66
SF_6	0.00	0.00	0.00	587.66

Abbreviations : CRF = common reporting format, LULUCF = land use, land-use change and forestry.

[a] The column "Base year" should be filled in only by those Parties with economies in transition that use a base year different from 1990 in accordance with the relevant decisions of the Conference of the Parties. For these Parties, this different base year is used to calculate the percentage change in the final column of this table.

[c]Enter actual emissions estimates. If only potential emissions estimates are available, these should be reported in this table and an indication for this be provided in the documentation box. Only in these rows are the emissions expressed as CO2 equivalent emissions.

[d]In accordance with the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories", HFC and PFC emissions should be reported for each relevant chemical. However, if it is not possible to report values for each chemical (i.e. mixtures, confidential data, lack of disaggregation), this row could be used for reporting aggregate figures for HFCs and PFCs, respectively. Note that the unit used for this row is kt of CO2 equivalent and that appropriate notation keys should be entered in the cells for the individual chemicals.)

I.2. NATIONAL INVENTORY ARRANGEMENTS

A Grand-Ducal Regulation [6] designates a **Single National Entity**, the **National Inventory Compiler** and the **National GHG Inventory Focal Point**. It also defines and allocates specific responsibilities for the realization of the GHG inventories both within the Single National Entity and within the other administrations and/or services that will be involved in the inventory preparation in the future. Following the entry into force of the EU Regulation No 525/2013 (MMR), this national "Regulation" will be revised during the course of the year 2014 so to comply with new requirements this European text enforces, such as having a national system in place for GHG projections and the evaluation of policies and measures.

[→ NC6: see Section III.2, p. 107-139]

6 *Règlement grand-ducal du 1er août 2007 relatif à la mise en place d'un Système d'Inventaire National des émissions de gaz à effet de serre dans le cadre de la Convention-cadre des Nations Unies sur le Changement Climatique* (http://www.legilux.public.lu/leg/a/archives/2007/1300708/1300708.pdf, p. 2318-2320).

Chapter II

Economy-wide Emission Reduction Target

II.1. FIRST KYOTO COMMITMENT PERIOD

Luxembourg ratified the United Nations Framework Convention on Climate Change in 1994, and the Kyoto Protocol in 2002. Pursuant to that Protocol and the terms of the European agreement distributing the burden among, at that time, the EU-15 Member States, Luxembourg undertook **to reduce its GHG emissions by 28% below their 1990 level over the period 2008-12** – the so-called "burden sharing" EU target. This is the deepest cut of any agreed by the 15 Member States for the first Kyoto commitment period.

These 28% reduction corresponds to a disposable volume of 9.48 Mio. t CO_2e per year for the period between 2008 and 2012.[7] Historical emissions for 2008-2011 and nowcasted emissions for 2012 are above the assigned amount of 9.48 Mio. t CO_2e. Moreover, Luxembourg could not count on carbon sinks over the period 2008-2012 (Article 3.3 activities under the Kyoto Protocol): based on the 2013v1.2 submission covering 2008-2011, Luxembourg would rather present net emissions and therefore could not issue Removal Units (RMUs).[8] Consequently, closing the gap between the volume of Assigned Amount Units (AAUs) and the volume of emissions according to IPCC rules will require the acquisition of additional emission permits, either by making use of project based mechanisms (Joint Implementation – JI and Clean Development Mechanisms – CDM) or by purchasing permits on the international emissions trading market, pursuant to Articles 6, 12 and 17 of the Kyoto Protocol.

According to historical and nowcasted emission estimates for the Kyoto commitment period 2008-2012, usage of Kyoto mechanisms would reach 3.02 Mio. t CO_2e on average per year. Over the whole period, **the gap would reach 15.11 Mio. t CO_2e**.

[→ NC6: see Table V.5-1, p. 224]

7 Burden sharing exact value is 9 480 599 tonnes.

8 If calculations reported in this Communication – submission 2013v1.2 – show that Article 3.3 related activities could be net emitters and not carbon sinks, first calculations for the 2014 GHG inventory submission, based on more precise spatial data, tend to show the opposite.

II.2. SECOND KYOTO COMMITMENT PERIOD

For the commitment period 2013-2020, the EU Member States have committed themselves to collectively deliver, by 2020, a reduction of around 10% in total EU emissions from the non-ETS sectors compared with 2005 levels. Together with a 21% cut in emissions covered by the EU ETS, this will accomplish the overall emission reduction goal of the EU "Climate & Energy package", namely a 20% cut below 1990 levels by 2020 – which is equivalent to an overall reduction of 14% compared with 2005. This minus 20% objective covers the 7 GHG taken into account for the second Kyoto commitment period, i.e. CO_2, CH_4, N_2O, HFCs, PFCs, SF_6 and NF_3, and the following sectors: Energy, Industrial Processes, Solvent and Other Product Use, Agriculture, Waste, as well as Domestic Aviation and Maritime emissions (which are both negligible for Luxembourg) *[→ CTF Table 2(b)]*. All this is framed under the so-called "Effort Sharing Decision" No 406/2009/EC (ESD).[9]

In *CTF Tables 2*, the quantified economy-wide emission reduction target reported by each EU Member State is therefore the EU commitment of a 20% cut below 1990 levels by 2020 *[→ CTF Table 2(a)]*.

However, for Luxembourg, within the EU context, the main objective of the policies and measures put in place will be to cope with its non EU ETS target. In Luxembourg, the non-ETS sectors include transport (road and rail, but not aviation or international maritime shipping), buildings (in particular heating), services, small industrial installations, agriculture and waste. **Binding annual GHG targets for Member States for sectors not included in the EU ETS for the period 2013–2020** – the "ESD targets" – have been set on the basis of Member States' relative wealth (measured by GDP per capita). These targets are expressed as percentage changes from 2005 levels. They range from a 20% emissions reduction by 2020 (from 2005 levels) for the richest Member States to a 20% increase for the least wealthy one.[10] Luxembourg being the richest Member State if GDP per capita is used as a benchmark, it has **to reduce its non-ETS emissions by 20% in 2020 compared to their level in 2005**.

All this process requires that Luxembourg's non-ETS emissions should reach 8 085 Gg CO_2e in 2020 in order to comply with the "ESD target" of minus 20% *[→ Figure II.2-1]*. Moreover, from 2013 onwards, non-ETS emissions should remain below a linear trajectory, the turquoise line in *Figure II.2-1*.

CTF Tables 2 are reproduced on the next pages.

[→ NC6: see Sections IV.1.1, p. 144-147 & IV.1.2, p. 156-160]

9 Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020 (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0136:0148:EN:PDF).

10 See this graphic for individual Member State "ESD targets": http://ec.europa.eu/clima/policies/effort/images/2020_limits_en.png.

FIGURE II.2-1 – ESD IMPLICATION FOR LUXEMBOURG – 2013-2020 TRAJECTORY FOR NON-ETS EMISSIONS

Source: MDDI-DEV.

CTF TABLES 2 – DESCRIPTION OF QUANTIFIED ECONOMY-WIDE REDUCTION TARGET

Table 2(a) LUX_BR1_v1.0

Description of quantified economy-wide emission reduction target: base year[a]

Party	*Luxembourg*	
Base year /base period	1990	
Emission reduction target	% of base year/base period	% of 1990 [b]
	-20.00	-20.00
Period for reaching target	BY-2020	

[a] Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

[b] Optional.

Table 2(b) LUX_BR1_v1.0

Description of quantified economy-wide emission reduction target: gases and sectors covered[a]

Gases covered		*Base year for each gas (year):*
CO_2		1990
CH_4		1990
N_2O		1990
HFCs		1990
PFCs		1990
SF_6		1990
NF_3		1990
Other Gases (specify)		
Sectors covered[b]	Energy	Yes
	Transport[f]	Yes
	Industrial processes[g]	Yes
	Agriculture	Yes
	LULUCF	No
	Waste	Yes
	Other Sectors (specify)	

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

[a] Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

[b] More than one selection will be allowed. If Parties use sectors other than those indicated above, the explanation of how these sectors relate to the sectors defined by the IPCC should be provided.

[f] Transport is reported as a subsector of the energy sector.

[g] Industrial processes refer to the industrial processes and solvent and other product use sectors.

Table 2(c) LUX_BR1_v1.0

Description of quantified economy-wide emission reduction target: global warming potential values (GWP)[a]

Gases	*GWP values* [b]
CO_2	2nd AR
CH_4	2nd AR
N_2O	2nd AR
HFCs	2nd AR
PFCs	2nd AR
SF_6	2nd AR
NF_3	2nd AR
Other Gases (specify)	

Abbreviations : GWP = global warming potential

[a] Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

[b] Please specify the reference for the GWP: Second Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) or the Fourth Assessment Report of the IPCC.

Table 2(c) – Luxembourg reports GWPs from the second IPCC Assessment Report. However, from 2015 onwards, and the inventory covering the years 1990-2013, GWPs from the fourth IPCC Assessment report will have to be used.

Table 2(d) LUX_BR1_v1.0

Description of quantified economy-wide emission reduction target: approach to counting emissions and removals from the LULUCF sector[a]

Role of LULUCF	LULUCF in base year level and target	Excluded
	Contribution of LULUCF is calculated using	

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

[a] Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

Table 2(d) – for Luxembourg, no national projections of the LULUCF related emissions have been produced so far since this sector is not part of the EU binding annual GHG targets for Member States for the period 2013-2020. Nevertheless, a Decision has been adopted in May 2013[11] which

[11] Decision No 529/2013/EU of the European Parliament and of the Council of 21 May 2013 on accounting rules on greenhouse gas emissions and removals resulting from activities relating to land use, land-use change and forestry and on information concerning actions relating to those activities (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:165:0080:0097:EN:PDF).

requests to implement action plans that will act on LULUCF related emissions. More precisely, Art. 10 of this Decision stresses that Member States shall draw up and transmit to the Commission information on their current and future LULUCF actions to limit or reduce emissions and maintain or increase removals resulting from the following activities: afforestation, reforestation, deforestation, forest management, cropland management, grazing land management, revegetation, as well as wetland drainage and rewetting.

Table 2(e)I LUX_BR1_v1.0

Description of quantified economy-wide emission reduction target: market-based mechanisms under the Convention[a]

Market-based mechanisms under the Convention	*Possible scale of contributions (estimated kt CO_2 eq)*
CERs	NE
ERUs	NE
AAUs[i]	NE
Carry-over units[j]	NE
Other mechanism units under the Convention (specify)[d]	

Abbreviations: AAU = assigned amount unit, CER = certified emission reduction, ERU = emission reduction unit.

[a] Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

[d] As indicated in paragraph 5(e) of the guidelines contained in annex I of decision 2/CP.17 .

[i] AAUs issued to or purchased by a Party.

[j] Units carried over from the first to the second commitment periods of the Kyoto Protocol, as described in decision 13/CMP.1 and consistent with decision 1/CMP.8.

Table 2(e)II LUX_BR1_v1.0

Description of quantified economy-wide emission reduction target: other market-based mechanisms[a]

Other market-based mechanisms (Specify)	*Possible scale of contributions (estimated kt CO_2 eq)*

[a] Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

Tables 2(e) – Luxembourg cannot yet report on the use of the market-based mechanisms for the second Kyoto commitment period. However, it is already known that Luxembourg will make use of the provisions foreseen by the ESD.

[→ NC6: see Section IV.1.2, p. 158-159]

Chapter III

Progress in Achievement of Quantified Economy-wide Emission Reduction Targets and Relevant Information

III.1. POLICIES AND MEASURES AIMING AT REDUCING GHG EMISSIONS

The second "Action Plan for reducing CO_2 emissions" is the **main tool Luxembourg will have at its disposal to comply with the EU "Climate & Energy package" commitment** by 2020 that was assigned to the country, the "ESD target" *[→ Section II.2]*. It lists **51 implemented, adopted or planned measures and actions** of a regulatory, fiscal, economic, information, training, awareness raising or land planning nature.

[→ NC6: see Box IV.1-2, p. 154 to 156 & Table IV.3-1, p. 178-184]

Other plans and programmes may have co-benefits in terms of climate change mitigation though this is not their first concern. They mostly deal with energy efficiency and the use of renewable energy sources, air pollutants emissions and concentrations, road transportation and mobility, agriculture, land planning and preservation of eco-systems.

[→ NC6: see Section IV.1.4, p. 162-169]

CTF Table 3 reproduced on the next pages only records the 51 implemented, adopted or planned measures and actions of the second "Action Plan for reducing CO2 emissions". Actually, for this CTF table, the measures and actions – or "policies and measures" (P&Ms) – **have been grouped according to Table IV.3-2 of the NC6**, p. 185, so to reduce the number of entries and also, because, for most of them, **it is not yet possible to present mitigation potentials**. In fact, with the recent adoption of the second "Action Plan for reducing CO2 emissions", mitigation potentials from P&Ms that it includes should be recalculated and/or updated. Indeed, potentials presented in the NC5 [Ministry of Sustainable Development and Infrastructure, Department of the Environment (2010), Sections IV.3.3 & IV3.4] are no longer valid and/or should be rearranged so to be consistent with the new Action Plan. Unfortunately, for various reasons, it has not been possible yet for Luxembourg to perform this work. One of these reasons is that the exercise of assessing new P&Ms – or reassessing previously existing P&Ms that are still included in the second Action Plan – will capitalize on the different savings hypotheses and outcomes of the third "National Energy

Efficiency Action Plan" (NEEAP III). However, this work is not finalized yet as this document should be submitted to the EC by 30 April 2014

Consequently, the assessment of progress in achievement of quantified economy-wide emission reduction targets is limited in this first Biennial Report.

III.2. REPORTING ON PROGRESS – ESTIMATE OF ANTICIPATED EMISSION MITIGATION FROM LULUCF ACTIVITIES

Luxembourg has chosen to account for the activities under Article 3.3 of the Kyoto Protocol for the whole first commitment period but does not plan to account for net emissions and removals from activities under Article 3.4 of the same Protocol since, for the moment, there is a lack of reliable data allowing to produce realistic estimates of the activities covered under Article 3.4.

According to Luxembourg's latest inventory submission to the UNFCCC – submission 2013v1.2 – Luxembourg could not count on RMUs *[→ Section II.1]*. *CTF Table 4(a)II* below summarizes the situation according to submission 2013v1.2 and therefore, for the years 2008 to 2011 only. From this calculation, **net emissions would be recorded for Luxembourg** for an amount of 51.47 kt of CO_2e.[12] [13]

Luxembourg would like to emphasize that it is only possible to present results for the first Kyoto commitment period under this section. Indeed, at the time of drafting this report, it is not yet possible to submit the anticipated contribution of the LULUCF sector to the second commitment period target since Luxembourg has not yet performed projections for that sector.

Finally, as a Kyoto Protocol Party, Luxembourg filled in Table 4(a)II, but not Table 4(a)I.

[12] If calculations reported in this Communication – submission 2013v1.2 – show that Article 3.3 related activities could be net emitters and not carbon sinks, first calculations for the 2014 GHG inventory submission, based on more precise spatial data, tend to show the opposite.

[13] kt = 1000 tonnes = Gg.

CTF TABLE 3 – PROGRESS IN ACHIEVEMENT OF QUANTIFIED ECONOMY-WIDE REDUCTION TARGETS: MITIGATION ACTIONS AND THEIR EFFECTS

Table 3 LUX_BR1_v1.0

Progress in achievement of the quantified economy-wide emission reduction target: information on mitigation actions and their effects

Name of mitigation action[a]	*Sector(s) affected*[b]	*GHG(s) affected*	*Objective and/or activity affected*	*Type of instrument*[c]	*Status of implementation*[d]	*Brief description*[e]	*Start year of implementation*	*Implementing entity or entities*	*Estimate of mitigation impact (not cumulative, in kt CO_2 eq)*			
									2015	*2020*	*2025*	*2030*
Transport - road fuels	Transport	CO_2	Reducing road fuel sales.	Fiscal	Planned	Reduce the price differential between Luxembourg and its neighbouring countries with regard to road fuels whilst taking into consideration the impacts on the public finance and the economy in general.	mid-term	MDDI-DEV / MFIN-ADA	NE	NE	NE	NE
Transport - road fuels: biofuels	Transport	CO_2	Increasing the share of biofuels in road fuel sales.	Regulatory	Planned	Increased share of second generation biofuels in road fuel sales so to help achieving the mandatory EU 2020 objective in renewable energy sources assigned to Luxembourg, i.e. 10% renewables in the transportation sector.	2007	MECO-DEN	345.33	550.60	590.20	633.60
Transport – road fuels: alternative means of propulsion	Transport	CO_2	Developing the use of electric and hybrid vehicles as well as of gas powered vehicles / Going on with the "CAR-e" scheme for electric and hybrid vehicles emitting less than 60g CO2/km / Launching an "ecological mobility" label for enterprises using low consumption and emissions vehicles.	Economic|Regulatory|Voluntary Agreement	Implemented	Reaching a share of 10% for electric vehicles in the total number of passenger cars by 2020 (i.e. some 40 000 vehicles). The 2020 objective is also to install 850 electric charging stations and to develop a network of petrol stations offering natural gas / Pursuing the "CAR-e" scheme for electric and hybrid vehicles for the years 2013 and 2014, and terminate it by 2015.	NE	MDDI-DAT / MDDI-DEV / MECO-DEN / ILR / CdT	6.20	172.65	225.12	251.08
Transport – vehicles taxation	Transport	CO_2	Increasing energy efficiency of the vehicle fleet / Setting up an incentive for promoting an offer of company cars that is more environment-friendly.	Other (Fiscal)	Planned	Re-evaluating the car tax with regard to the bonus offered when buying new cars respecting certain criteria. This might not be necessary any more since the "CAR-e" scheme will be discontinued by end 2014 / Examining if it would be relevant to apply an extra tax for high emitting vehicles / Examining different options chosen in other countries to deal with the issue of company cars. Options could be incentives, taxation schemes according to the average emissions rate of a company vehicles fleet, etc.	NE	MDDI-DEV / MFIN-ACD / MFIN-ADA	NE	NE	NE	NE

Transport – public transport & cycling and walking	Transport	CO_2	MoDu Plan objectives of 25% of daily trips by non-motorized traffic (walking & cycling) and 25% of motorized trips by public transport by 2020 / Interlinking real near-time transportation related data to provide users with on-line information at any time.	Regulatory|Information|Voluntary Agreement|Other (Planning)	Implemented	Set of measures aiming at changing the actual mobility patterns towards an increased use of public transportation and non-motorized traffic: land planning, infrastructures, reorganising the public train & busses transport networks to increase intermodal connection, increasing the capacities of public transport (places, frequencies), car-pooling & sharing, favour cycling & walking, raising awareness, providing better & faster information, etc. Always with a trans-border aspect due to the high number of cross-border commuters.	NE	MDDI-DAT / MINT / CdT / CFL / municipalities / foreign neighbouring Regions	NE	NE	NE	NE
Energy supply: alternatives & renewable energy sources	Energy	CO_2	Increasing the share of renewable energy sources, with a focus on the use of biomass, in the electricity and gas networks, whether it is produced by households or enterprises / Developing heat generation (cogeneration) from renewable energy sources.	Economic|Regulatory|Other (Planning)	Implemented	Promoting the supply of renewable energy sources with a focus on biomass (wood, green waste, agricultural waste & sewage sludge), notably via the launch of a financial compensation for the supply of biogas / Reassessment and adaptation of the compensation mechanisms (tariffs) notably to promote heat generation / Better adequacy between planning tools, decision and public information.	NE	MDDI_DEV / MDDI-AEV / MDDI-AGE / MECO-DEN / MAVPC	NE	NE	NE	NE
Energy consumption – energy efficiency: housing	Energy	CO_2	Increasing energy efficiency in the residential sector: old and new constructions / Progressive strengthening of energy efficiency requirements for new residential buildings; the targets are: C/B energy norm in 2012, then reinforcement every two years to reach an "almost zero" energy consumption for new residential buildings by 2018.	Economic|Fiscal|Regulatory|Education|Information|Other (Planning)	Implemented	Better planning for the development of new residential areas / Adapting subsidies and other fiscal measures for residential buildings (new & renovated), notably to the energy efficiency performance of the construction and to sustainable development criteria.	NE	MDDI-DEV / MECO-DEN / MLOG / MFIN / MFIN-ACD / MTEES / MFIGR / myenergy	0.00	0.00	29.50	66.34
Energy consumption – renewable energy sources: housing	Energy	CO_2	Increasing the share of renewable energy sources in the residential sector related energy final consumption.	Economic|Regulatory|Education|Information	Implemented	Adapting subsidies and other fiscal measures for residential buildings (new & renovated), notably to sustainable development criteria, and reinforcing minimum standards for obtaining subsidies.	NE	MDDI-DEV MECO-DEN MLOG MFIN MTEES MFIGR myenergy	NE	NE	NE	NE

Energy consumption – energy efficiency: public & commercial services, retail	Energy	CO_2	Increasing energy efficiency in the commercial/institutional sector: old and new constructions with the aim of reaching "near zero" passive buildings by 2020.	Regulatory|Voluntary Agreement|Education|Information|Other (Monitoring)	Implemented	Renovating public buildings so that they become more energy efficient, notably by elaborating a measuring concept and the installation of smart meters / Progressive adaptation of energy standards for new commercial and institutional buildings so to reach "nearly zero" energy consumption for new constructions / Promoting "energy contracting" to SMEs operating in the tertiary sector / See also the "Climate Agreement" with municipalities.		MDDI-DEV / MECO-DEN / ABP / CRTE / myenergy / Luxinnovation / OAI / Klima-Bündnis	0.00	0.00	13.50	33.70
Energy consumption – renewable energy sources: public & commercial services, retail	Energy	CO_2	Increasing the share of renewable energy sources in the commercial/institutional sector related energy final consumption.	Regulatory|Education|Information	Implemented	Increasing the use of renewable energy sources in public buildings located in municipalities / See also the "Climate Agreement" with municipalities.		MDDI-DEV / MECO-DEN / myenergy	NE	NE	NE	NE
Energy consumption – energy efficiency: manufacturing industries	Industry/industrial processes	CO_2	Increasing energy efficiency in the manufacturing industry sector.	Voluntary Agreement|Education|Information	Implemented	Developing of the use of cross-cutting technologies and their energy savings potential / Assessing incentives to save energy and their effect on the installations / Various projects aiming at a better deployment of energy efficiency projects in industries and SMEs through education / Voluntary agreement FEDIL - State.	NE	MDDI-DEV / MECO-DEN / MECO-DCM / CRTE / myenergy / Luxinnovation / OAI / Klima-Bündnis	NE	NE	NE	NE
Energy consumption – renewable energy sources: manufacturing industries	Industry/industrial processes	CO_2	Increasing the share of renewable energy sources in the manufacturing industry sector related energy final consumption.	Regulatory|Education|Information	Implemented	Increasing the use of renewable energy sources in manufacturing industries (combustion, processes).	NE	MDDI-DEV / MECO-DCM / MECO-DEN / myenergy	NE	NE	NE	NE
EU ETS	Industry/industrial processes	CO_2	Increasing energy efficiency in companies under the EU ETS.	Voluntary Agreement	Implemented	Assessing incentives to save energy and their effect on the installations / Voluntary agreement FEDIL - State.	1996	MDDI-DEV / MECO-DEN	NE	NE	NE	NE
Municipalities ("Pacte Climat" - "Climate Agreement")	Energy	CO_2	Improving energy efficiency and the use of renewable energy sources in municipal buildings.	Regulatory	Implemented	Increasing energy efficiency of public buildings located in municipalities, as well as the use of renewable energy sources / Nominating advisers so to help municipalities to implement the "Climate Agreement" / Implementing and following-up the "Climate Agreement", notably by making data collection compulsory with regard to energy consumption and related emissions.	2013	MDDI-DEV / MECO-DEN / MINT / SIGI / Syvicol	NE	NE	NE	NE

Agriculture, land use & forestry	Agriculture, Forestry/LULUCF	CO_2, N_2O	Increasing carbon storage by forests and in cultivated land.	Regulatory|Other (Research)|Other (Planning)	Planned	Developing agro-forestry activities which consist in mixing agricultural activities (crops, livestock) and trees so to combine economic (agriculture) and ecological (environment protection, climate change mitigation) conditions / Implementing new findings and approaches so to increase the "carbon sink" role of the forests and of cultivated land, alongside with techniques aiming at reducing soil erosion.	2014	MDDI-ANF / MAVPC / MAVPC-ASTA	NE	NE	NE	NE
Innovation & research	Cross-cutting	CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3	Promoting eco-technologies in the fields of invention and innovation.	Other (Research)	Implemented	Suggesting a better use of public financial supports for the promotion and the use of eco-technologies, as well as supporting sectors and businesses operating in eco-technologies.	NE	MDDI-DEV / MECE-DEN / MESR / Luxinnovation / Public Research Centres	NA	NA	NA	NA
Taxation (excl. road fuels)	Cross-cutting	CO_2, CH_4, N_2O	Setting up a legal framework for environmentally harmful subsidies.	Regulatory	Implemented	Analysing the different subsidies in conjunction with their possible harmful impacts on the environment.	2013	MDDI-DEV / MFIN	NA	NA	NA	NA
Education, information, awareness, advices	Energy, Transport	CO_2	Training, education and awareness rising in the fields of energy efficiency, renewable energy sources and transportation.	Regulatory|Education|Information	Implemented	Promoting and diffusing information, notably on energy efficient and ecological construction and renovation, and on their their advantages / Development of advices and support to industry and SMEs concerning energy efficiency and the usage of renewable energy sources / Enhancing capacities and knowledge amongst the construction companies through various learning schemes / Ensuring that myenergy can fulfil all its missions. Use of new communication tools to increase attractiveness for public transport.	NE	MDDI-DAT / MDDI-DEV / MECO-DEN / MECO-DCM / MLOG / MTEES / MFIGR / CdT / myenergy	NA	NA	NA	NA
Governance	Cross-cutting	CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3	Increasing the governance of the energy and climate change related activities in Luxembourg: "good governance" actions.	Regulatory|Information|Other (Monitoring)	Implemented	Giving a future, clear perspectives and a legal framework to the work and functioning of the "Environment and Climate Partnership" / Regular follow-up of the Action Plan so to initiate, if applicable, corrective or revised measures / Thorough monitoring of the measures taken in the framework of the "Climate Agreement" / Development of statistical and econometric work on energy consumption and related emissions: projections, ex ante & ex post evaluations of P&Ms (emissions, abatement costs), etc.	2013	MDDI-DEV / MECO-DEN / STATEC / SIGI	NA	NA	NA	NA
Other measures	Energy, Transport	CO_2	Promoting sustainable and environment-friendly public purchases and procurements, as well in public planning.	Information|Education|Other (Planning)|Other (Monitoring)	Implemented	Establishing rules for sustainable public procurements and to monitor them.	2013	MDDI-DEV / MECO-DEN	NA	NA	NA	NA

Note: The two final columns specify the year identified by the Party for estimating impacts (based on the status of the measure and whether an ex post or ex ante estimation is available).

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

[a] Parties should use an asterisk (*) to indicate that a mitigation action is included in the 'with measures' projection.

[b] To the extent possible, the following sectors should be used: energy, transport, industry/industrial processes, agriculture, forestry/LULUCF, waste management/waste, other sectors, cross-cutting, as appropriate.

[c] To the extent possible, the following types of instrument should be used: economic, fiscal, voluntary agreement, regulatory, information, education, research, other.

[d] To the extent possible, the following descriptive terms should be used to report on the status of implementation: implemented, adopted, planned.

[e] Additional information may be provided on the cost of the mitigation actions and the relevant timescale.

[f] Optional year or years deemed relevant by the Party.

Custom Footnotes

Abbreviations in the column "Implementing entity or entities" are described under Table IV.3-1 of the NC6 (p. 178-179).

CTF TABLE 4(A)II – PROGRESS IN ACHIEVEMENT OF QUANTIFIED ECONOMY-WIDE REDUCTION TARGETS: FURTHER INFORMATION ON MITIGATION ACTIONS RELEVANT TO THE COUNTING OF EMISSIONS AND REMOVALS FROM THE LULUCF SECTOR IN RELATION TO ACTIVITIES UNDER ARTICLE 3(3) & 3(4) OF THE KYOTO PROTOCOL

Table 4(a)II

LUX_BR1_v1.0

Source: LUX_CRF__ v1.2

Progress in achievement of the quantified economy-wide emission reduction targets – further information on mitigation actions relevant to the counting of emissions and removals from the land use, land-use change and forestry sector in relation to activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol[a,b,c]

GREENHOUSE GAS SOURCE AND SINK ACTIVITIES	*Base year*[d]	*Net emissions/removals*[e]					*Accounting parameters*[h]	*Accounting quantity*[i]
		2008	2009	*2010*	*2011*	Total[g]		
	(kt CO_2 eq)							
A. Article 3.3 activities								
A.1. Afforestation and Reforestation								-357.93
A.1.1. Units of land not harvested since the beginning of the commitment periodj		-76.51	-78.00	-93.80	-109.61	-357.93		-357.93
A.1.2. Units of land harvested since the beginning of the commitment periodj								NO
A.2. Deforestation		141.05	141.38	140.92	140.45	563.80		563.79625
B. Article 3.4 activities								
B.1. Forest Management (if elected)		NA	NA	NA	NA	NA		NA
3.3 offset[k]							205.86918	NA
FM cap[l]							183.33333	NA
B.2. Cropland Management (if elected)	0	NA	NA	NA	NA	NA	0	0
B.3. Grazing Land Management (if elected)	0	NA	NA	NA	NA	NA	0	0
B.4. Revegetation (if elected)	0	NA	NA	NA	NA	NA	0	0

Note: 1 kt CO_2 eq equals 1 Gg CO_2 eq.

Abbreviations: CRF = common reporting format, LULUCF = land use, land-use change and forestry.

[a] Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

[b] Developed country Parties with a quantified economy-wide emission reduction target as communicated to the secretariat and contained in document FCCC/SB/2011/INF.1/Rev.1 or any update to that document, that are Parties to the Kyoto Protocol, may use table 4(a)II for reporting of accounting quantities if LULUCF is contributing to the attainment of that target.

[c] Parties can include references to the relevant parts of the national inventory report, where accounting methodologies regarding LULUCF are further described in the documentation box or in the

[d] Net emissions and removals in the Party's base year, as established by decision 9/CP.2.

[e] All values are reported in the information table on accounting for activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, of the CRF for the relevant inventory year as reported in the current submission and are automatically entered in this table.

[f] Additional columns for relevant years should be added, if applicable.

[g] Cumulative net emissions and removals for all years of the commitment period reported in the current submission.

[h] The values in the cells "3.3 offset" and "Forest management cap" are absolute values.

[i] The accounting quantity is the total quantity of units to be added to or subtracted from a Party's assigned amount for a particular activity in accordance with the provisions of Article 7, paragraph 4, of the Kyoto Protocol.

[j] In accordance with paragraph 4 of the annex to decision 16/CMP.1, debits resulting from harvesting during the first commitment period following afforestation and reforestation since 1990 shall not be greater than the credits accounted for on that unit of land.

[k] In accordance with paragraph 10 of the annex to decision 16/CMP.1, for the first commitment period a Party included in Annex I that incurs a net source of emissions under the provisions of Article 3 paragraph 3, may account for anthropogenic greenhouse gas emissions by sources and removals by sinks in areas under forest management under Article 3, paragraph 4, up to a level that is equal to the net source of emissions under the provisions of Article 3, paragraph 3, but not greater than 9.0 megatonnes of carbon times five, if the total anthropogenic greenhouse gas emissions by sources and removals by sinks in the managed forest since 1990 is equal to, or larger than, the net source of emissions incurred under Article 3, paragraph 3.

[l] In accordance with paragraph 11 of the annex to decision 16/CMP.1, for the first commitment period of the Kyoto Protocol only, additions to and subtractions from the assigned amount of a Party resulting from Forest management under Article 3, paragraph 4, after the application of paragraph 10 of the annex to decision 16/CMP.1 and resulting from forest management project activities undertaken under Article 6, shall not exceed the value inscribed in the appendix of the annex to decision 16/CMP.1, times five.

III.2. REPORTING ON PROGRESS – ESTIMATE OF ANTICIPATED EMISSION MITIGATION FROM MARKET-BASED MECHANISMS

Since Luxembourg would rather present net emissions and therefore could not issue RMUs,[14] closing the gap between the volume of AAUs and the volume of emissions according to IPCC rules will require the acquisition of additional emission permits, either by **making use of project based mechanisms** (JI and CDM) or by **purchasing permits on the international emissions trading market**, pursuant to Articles 6, 12 and 17 of the Kyoto Protocol *[→ Section II.1]*.

According to historical and nowcasted emission estimates for the Kyoto commitment period 2008-2012, usage of Kyoto mechanisms would reach 3.02 Mio. t CO_2e on average per year. Over the whole period, **the gap would reach 15.11 Mio. t CO_2e**.

[→ NC6: see Table V.5-1, p. 224]

CTF Table 4(b) reproduced below only concentrates on the years 2011 and 2012.

CTF TABLE 4(B) – REPORTING ON PROGRESS: MARKET-BASED MECHANISMS FOR THE YEARS 2011 AND 2012

Table 4(b) LUX_BR1_v1.0

Reporting on progress[a, b, c]

Units of market based mechanisms			*Year*	
			2011	*2012*
Kyoto Protocol units[d]	*Kyoto Protocol units*	*(number of units)*	2,252,662.00	2,052,211.00
		(kt CO_2 eq)	2,252.65	2,052.20
	AAUs	*(number of units)*	2,065,018.00	1,810,479.00
		(kt CO2 eq)	2,065.01	1,810.47
	ERUs	*(number of units)*	NO	NO
		(kt CO2 eq)	NO	NO
	CERs	*(number of units)*	187,644.00	241,732.00
		(kt CO2 eq)	187.64	241.73
	tCERs	*(number of units)*	NO	NO
		(kt CO2 eq)	NO	NO
	lCERs	*(number of units)*	NO	NO
		(kt CO2 eq)	NO	NO
Other units[d,e]	*Units from market-based mechanisms under the Convention*	*(number of units)*		
		(kt CO_2 eq)		
	Units from other market-based mechanisms	*(number of units)*		
		(kt CO_2 eq)		
Total		*(number of units)*	2,252,662.00	2,052,211.00
		(kt CO_2 eq)	2,252.65	2,052.20

[14] Id.

Abbreviations : AAUs = assigned amount units, CERs = certified emission reductions, ERUs = emission reduction units, lCERs = long-term certified emission reductions, tCERs = temporary certified emission reductions.
Note: 2011 is the latest reporting year.

[a] Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

[b] For each reported year, information reported on progress made towards the emission reduction target shall include, in addition to the information noted in paragraphs 9(a-c) of the reporting guidelines, on the use of units from market-based mechanisms.

[c] Parties may include this information, as appropriate and if relevant to their target.

[d] Units surrendered by that Party for that year that have not been previously surrendered by that or any other Party.

[e] Additional rows for each market-based mechanism should be added, if applicable.

Custom Footnotes

1 unit = 1 t CO2 eq / Disaggregation of use of KP units at annual level is not relevant for the first commitment period of the KP. Hence, NA in the "Comments" column.

Finally, *CTF Table 4* summarizes the above presented information.

CTF TABLE 4 – REPORTING ON PROGRESS: LULUCF AND MARKET-BASED MECHANISMS FOR THE FIRST KYOTO PROTOCOL COMMITMENT PERIOD

Table 4 LUX_BR1_v1.0

Reporting on progress[a, b]

	Total emissions excluding LULUCF	*Contribution from LULUCF*[d]	*Quantity of units from market based mechanisms under the Convention*		*Quantity of units from other market based mechanisms*	
Year[c]	*(kt CO_2 eq)*	*(kt CO_2 eq)*	*(number of units)*	*(kt CO_2 eq)*	*(number of units)*	*(kt CO_2 eq)*
(1990)	13,167.50	NA	NA	NA		
2008	12,187.60	64.54	NO	NO		
2009	11,689.99	63.38	NO	NO		
2010	12,252.09	47.11	4,280,589.00	4,280.58		
2011	12,097.92	30.84	2,252,662.00	2,252.65		
2012	12,157.45	NE	2,052,211.00	2,052.20		

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

[a] Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

[b] For the base year, information reported on the emission reduction target shall include the following: (a) total GHG emissions, excluding emissions and removals from the LULUCF sector; (b) emissions and/or removals from the LULUCF sector based on the accounting approach applied taking into consideration any relevant decisions of the Conference of the Parties and the activities and/or land that will be accounted for; (c) total GHG emissions, including emissions and removals from the LULUCF sector. For each reported year, information reported on progress made towards the emission reduction targets shall include, in addition to the information noted in paragraphs 9(a–c) of the UNFCCC biennial reporting guidelines for developed country Parties, information on the use of units from market-based mechanisms.

[c] Parties may add additional rows for years other than those specified below.

[d] Information in this column should be consistent with the information reported in table 4(a)I or 4(a)II, as appropriate. The Parties for which all relevant information on the LULUCF contribution is reported in table 1 of this common tabular format can refer to table 1.

Chapter IV
GHG Emission Projections

Luxembourg has **specifically updated its GHG projections up to the year 2030 for the NC6 and the BR1**. All the relevant methodological information is presented in the NC6.

[→ NC6: see Section V.2, p. 196-208]

CTF Tables 5 and 6 are reproduced below.

CTF TABLE 5 – SUMMARY OF KEY VARIABLES AND ASSUMPTIONS USED IN THE PROJECTIONS ANALYSIS

Table 5 LUX_BR1_v1.0

Summary of key variables and assumptions used in the projections analysis[a]

Key underlying assumptions		*Historical*[b]							Projected			
Assumption	*Unit*	*1990*	*1995*	2000	2005	2010	2011	2012	2015	2020	2025	2030
Population	*thousands*	384.40	411.60	439.00	469.10	511.80	524.90	537.00	541.11	578.10	600.36	646.74
Total gross inland energy consumption	PJ	144.04	134.63	149.62	190.57	184.55	182.68	177.78	186.44	194.93	205.84	215.60
Energy demand - energy industries	PJ	NE	NE	NE	NE	NE	NE	NE	21.97	22.42	22.64	22.87
Energy demand - industry	PJ	NE	NE	30.60	32.73	32.34	28.92	26.38	22.26	22.63	22.76	22.69
Energy demand - commercial (tertiary)	PJ	NE	NE	17.85	17.49	19.34	18.20	23.52	8.74	8.26	8.16	8.06
Energy demand - residential	PJ	NE	NE	20.09	22.82	22.47	21.01	18.84	16.15	14.83	13.46	12.15
Energy demand - transport	PJ	NE	NE	80.94	117.29	110.03	114.18	108.70	116.71	126.25	138.34	149.41
Net electricity import	*GWh*	3,910.54	4,949.32	5,708.52	3,260.30	4,063.44	4,482.00	4,110.00	3,745.21	3,864.59	3,978.64	3,833.47

[a] Parties should include key underlying assumptions as appropriate.

[b] Parties should include historical data used to develop the greenhouse gas projections reported.

Custom Footnotes

For energy related assumptions, a detail by fuel type is available in the template used by EU Member States to report to the EC on GHG projections and P&Ms. This template is available upon request.

Table 5 – since Luxembourg's projections mostly rely on a "bottom-up" approach, only a few key parameters have been used, namely population anticipated growth and projections of energy demand by main sectors. GDP developments have not been used in the projections exercise because it is mainly driven by service activities and, more precisely, finance related activities. Moreover, a great share of the industrial production in Luxembourg is exported (small internal market, most of the big industrial installations are subsidiaries of foreign business concerns). Finally, road freight transport, which represents an important share of Luxembourg's total GHG emissions and is definitively correlated to GDP, is actually more correlated to an aggregated GDP for various EU Member States than to the GDP of Luxembourg since its emissions are principally due to traffic in transit. With regard to carbon and energy prices, no specific hypotheses have been made.

[→ NC6: see Section V.2.2, p. 198-199]

CTF TABLE 6(A) – GHG PROJECTIONS UNDER A "WITH MEASURES" (WEM) SCENARIO

Table 6(a) LUX_BR1_v1.0

Information on updated greenhouse gas projections under a 'with measures' scenario[a]

	GHG emissions and removals[b]							GHG emission projections	
	(kt CO_2 eq)							(kt CO_2 eq)	
	Base year (1990)	1990	1995	2000	2005	2010	2011	2020	2030
Sector[d,e]									
Energy	2,636.68	1,404.16	1,528.03	1,873.37	3,026.39	3,013.80	2,546.55	2,696.23	2,494.06
Transport	2,778.54	2,721.07	3,452.79	4,865.33	7,015.96	6,388.14	6,848.96	7,346.75	8,659.28
Industry/industrial processes	6,945.82	7,950.10	4,381.45	2,222.79	2,326.22	2,111.99	1,980.42	2,121.30	2,155.00
Agriculture	756.93	743.20	734.71	721.34	657.76	677.94	663.65	562.33	500.01
Forestry/LULUCF	NA	347.75	-238.10	-385.41	-385.65	-295.26	-294.20	NE	NE
Waste management/waste	49.53	82.48	80.52	77.20	70.04	60.21	58.33	59.13	55.21
Other (specify)									
Gas									
CO_2 emissions including net CO_2 from LULUCF	NA	12,295.16	8,969.12	8,392.51	11,719.50	10,957.51	10,828.84	NA	NA
CO_2 emissions excluding net CO_2 from LULUCF	12,219.20	11,950.26	9,210.07	8,780.74	12,107.85	11,255.34	11,125.58	11,862.76	12,975.36
CH_4 emissions including CH_4 from LULUCF	NA	461.51	469.59	467.14	451.79	452.87	437.00	NA	NA
CH_4 emissions excluding CH_4 from LULUCF	460.04	461.51	469.59	467.14	451.79	452.87	437.00	419.76	376.57
N_2O emissions including N_2O from LULUCF	NA	478.96	483.53	484.19	481.21	472.39	462.95	NA	NA
N_2O emissions excluding N_2O from LULUCF	471.14	476.11	480.68	481.37	478.52	469.83	460.41	414.36	404.20
HFCs	14.21	12.01	15.59	28.62	53.01	66.47	67.00	75.73	84.72
PFCs	NO	NA, NO	NA, NO	0.01	0.15	0.20	0.18	0.24	0.27
SF_6	2.91	1.13	1.55	2.15	5.04	7.39	7.75	12.89	22.43
Other (specify)									
Total with LULUCF[f]	17.12	13,248.77	9,939.38	9,374.62	12,710.70	11,956.83	11,803.72	88.86	107.42
Total without LULUCF	13,167.50	12,901.02	10,177.48	9,760.03	13,096.36	12,252.10	12,097.92	12,785.74	13,863.55

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

[a] In accordance with the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications", at a minimum Parties shall report a 'with measures' scenario, and may report 'without measures' and 'with additional measures' scenarios. If a Party chooses to report 'without measures' and/or 'with additional measures' scenarios they are to use tables 6(b) and/or 6(c), respectively. If a Party does not choose to report 'without measures' or 'with additional measures' scenarios then it should not include tables 6(b) or 6(c) in the biennial report.

[b] Emissions and removals reported in these columns should be as reported in the latest GHG inventory and consistent with the emissions and removals reported in the table on GHG emissions and trends provided in this biennial report. Where the sectoral breakdown differs from that reported in the GHG inventory Parties should explain in their biennial report how the inventory sectors relate to the sectors reported in this table.

[c] 20XX is the reporting due-date year (i.e. 2014 for the first biennial report).

[d] In accordance with paragraph 34 of the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications", projections shall be presented on a sectoral basis, to the extent possible, using the same sectoral categories used in the policies and measures section. This table should follow, to the extent possible, the same sectoral categories as those listed in paragraph 17 of those guidelines, namely, to the extent appropriate, the following sectors should be considered: energy, transport, industry, agriculture, forestry and waste management.

[e] To the extent possible, the following sectors should be used: energy, transport, industry/industrial processes, agriculture, forestry/LULUCF, waste management/waste, other sectors (i.e. cross-cutting), as appropriate.

[f] Parties may choose to report total emissions with or without LULUCF, as appropriate.

Custom Footnotes

Base year data corresponds to those used for defining Luxembourg's Assigned Amount under the Kyoto Protocol (CP1). These values are extracted from the "Report of the review of the initial report of Luxembourg" (doc. FCCC/IRR/2007/LUX of 14 December 2007 and its associated GHG inventory - submission 2007v3.1). The base year is 1990 except for HFCs, PFCs and SF6 for which the base year is 1995.

CRF 3 is included in "Industry/industrial processes" since it is not possible to enter data for the row "Other (specify)"

CTF TABLE 6(C) – GHG PROJECTIONS UNDER A "WITH ADDITIONAL MEASURES" (WAM) SCENARIO

Table 6(c) LUX_BR1_v1.0

Information on updated greenhouse gas projections under a 'with additional measures' scenario[a]

	GHG emissions and removals[b]							GHG emission projections	
	(kt CO_2 eq)							(kt CO_2 eq)	
	Base year (1990)	1990	1995	2000	2005	2010	2011	2020	2030
Sector[d,e]									
Energy	2,636.68	1,404.16	1,528.03	1,873.37	3,026.39	3,013.80	2,546.55	2,696.23	2,393.33
Transport	2,778.54	2,721.07	3,452.79	4,865.33	7,015.96	6,388.14	6,848.96	6,614.98	7,764.17
Industry/industrial processes	6,945.82	7,950.10	4,381.45	2,222.79	2,326.22	2,111.99	1,980.42	2,121.30	2,155.00
Agriculture	756.93	743.20	734.71	721.34	657.76	677.94	663.65	562.33	500.01
Forestry/LULUCF	NA	347.75	-238.10	-385.41	-385.65	-295.26	-294.20	NE	NE
Waste management/waste	49.53	82.48	80.52	77.20	70.04	60.21	58.33	59.13	55.21
Other (specify)									
Gas									
CO_2 emissions including net CO_2 from LULUCF	NA	12,295.16	8,969.12	8,392.51	11,719.50	10,957.51	10,828.84	NA	NA
CO_2 emissions excluding net CO_2 from LULUCF	12,219.20	11,950.26	9,210.07	8,780.74	12,107.85	11,255.34	11,125.58	11,139.51	11,990.64
CH_4 emissions including CH_4 from LULUCF	NA	461.51	469.59	467.14	451.79	452.87	437.00	NA	NA
CH_4 emissions excluding CH_4 from LULUCF	460.04	461.51	469.59	467.14	451.79	452.87	437.00	419.69	375.99
N_2O emissions including N_2O from LULUCF	NA	478.96	483.53	484.19	481.21	472.39	462.95	NA	NA
N_2O emissions excluding N_2O from LULUCF	471.14	476.11	480.68	481.37	478.52	469.83	460.41	405.91	393.66
HFCs	14.21	12.01	15.59	28.62	53.01	66.47	67.00	75.73	84.72
PFCs	NO	NA, NO	NA, NO	0.01	0.15	0.20	0.18	0.24	0.27
SF_6	2.91	1.13	1.55	2.15	5.04	7.39	7.75	12.89	22.43
Other (specify)									
Total with LULUCF[f]	17.12	13,248.77	9,939.38	9,374.62	12,710.70	11,956.83	11,803.72	88.86	107.42
Total without LULUCF	13,167.50	12,901.02	10,177.48	9,760.03	13,096.36	12,252.10	12,097.92	12,053.97	12,867.71

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

[a] In accordance with the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications", at a minimum Parties shall report a 'with measures' scenario, and may report 'without measures' and 'with additional measures' scenarios. If a Party chooses to report 'without measures' and/or 'with additional measures' scenarios they are to use tables 6(b) and/or 6(c), respectively. If a Party does not choose to report 'without measures' or 'with additional measures' scenarios then it should not include tables 6(b) or 6(c) in the biennial report.

[b] Emissions and removals reported in these columns should be as reported in the latest GHG inventory and consistent with the emissions and removals reported in the table on GHG emissions and trends provided in this biennial report. Where the sectoral breakdown differs from that reported in the GHG inventory Parties should explain in their biennial report how the inventory sectors relate to the sectors reported in this table.

[c] 20XX is the reporting due-date year (i.e. 2014 for the first biennial report).

[d] In accordance with paragraph 34 of the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications", projections shall be presented on a sectoral basis, to the extent possible, using the same sectoral categories used in the policies and measures section. This table should follow, to the extent possible, the same sectoral categories as those listed in paragraph 17 of those guidelines, namely, to the extent appropriate, the following sectors should be considered: energy, transport, industry, agriculture, forestry and waste management.

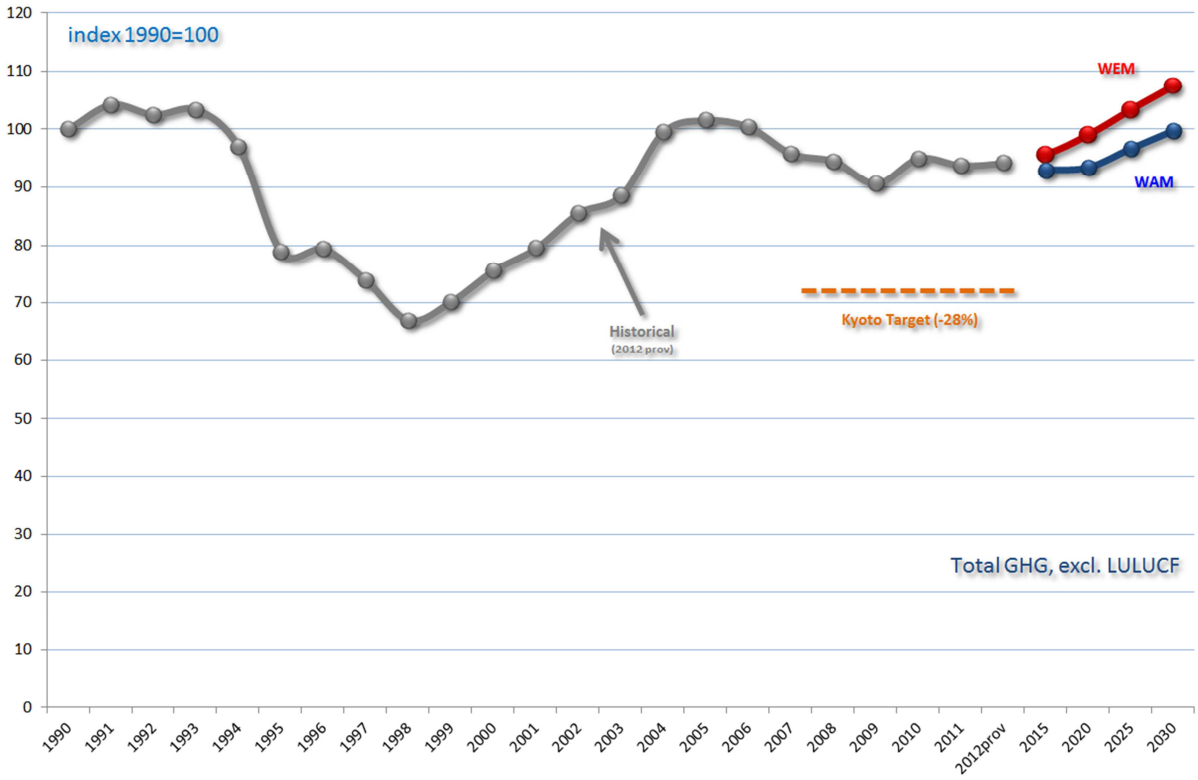
[e] To the extent possible, the following sectors should be used: energy, transport, industry/industrial processes, agriculture, forestry/LULUCF, waste management/waste, other sectors (i.e. cross-cutting), as appropriate.

[f] Parties may choose to report total emissions with or without LULUCF, as appropriate.

Tables 6 – Luxembourg has not performed a "without measures" scenario projection exercise yet.

Figure IV-1 summarizes the projections prepared for the NC6 and the BR1.

FIGURE IV-1 – HISTORICAL AND PROJECTED EMISSIONS FOR TOTAL GHG, EXCL. LULUCF



Sources: Environment Agency and MDDI-DEV – Submission 2013v1.2
MDDI-DEV – 2012 nowcasts & projections.

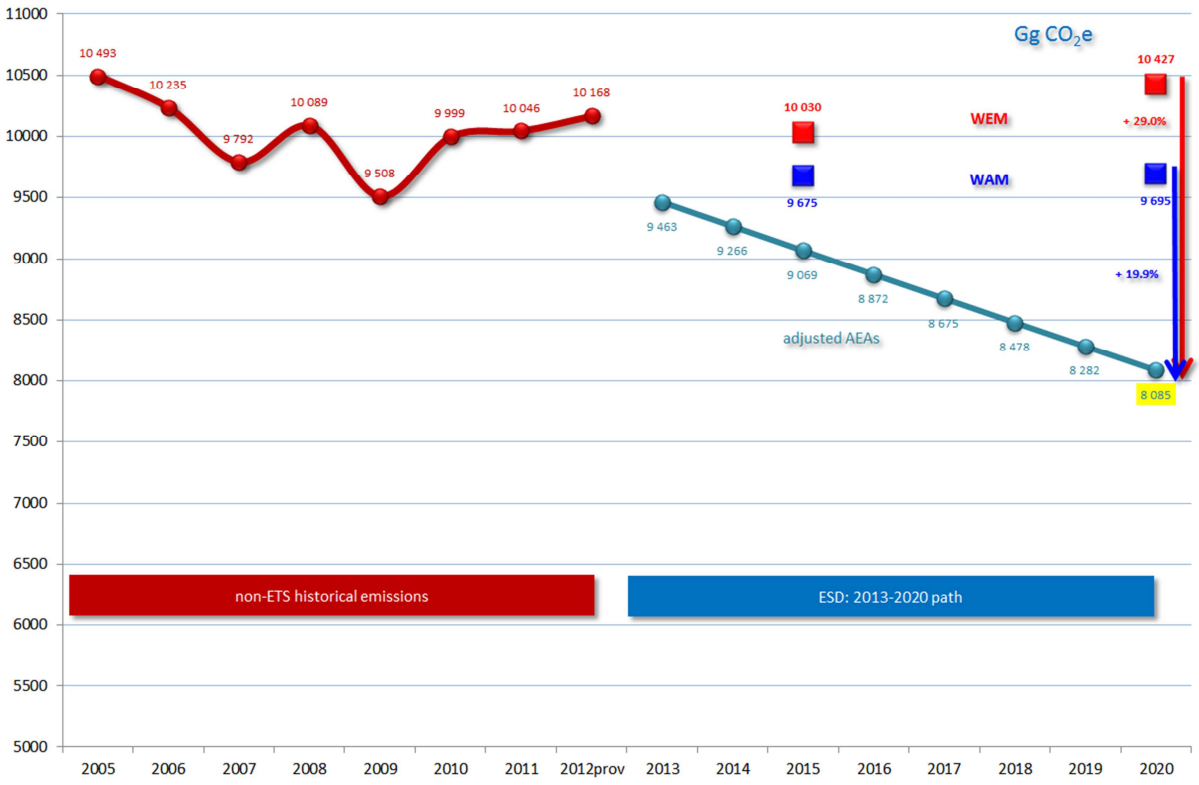
For the WEM scenario, results of the projections exercise show that in 2020, emission level would be almost identical to the level of 1990. However, 2030 emissions would be 7.5% higher than in 1990. Compared to the last historical year (i.e. 2011), these percentages would however reach +5.7% and +14.6%, respectively.

Additional measures would trigger GHG savings of about 356 kt CO_2e in 2015, 732 kt CO_2e in 2020, 868 kt CO_2e in 2025 and 996 kt CO_2e in 2020.

The WAM scenario therefore yields 2020 emissions 6.6% lower than in 1990. They are almost identical to 1990 for 2030. When compared to the last historical year, WAM projections for 2020 are almost identical to the 2011 emissions, whereas 2030 projected emissions would be 6.4% higher.

But, what is crucial now for Luxembourg is that it respects its **binding annual GHG targets for the period 2013-2020 as set under the ESD** *[→ Section II.2]*. The figure below completes *Figure IV-1* by including the projected emissions in both 2015 and 2020 for the two scenarios, WEM and WAM.

FIGURE IV-2 – ESD IMPLICATION FOR LUXEMBOURG – NON-ETS EMISSIONS – 2013-2020 TRAJECTORY AND 2015 & 2020 PROJECTED EMISSIONS



Sources: Environment Agency and MDDI-DEV – Submission 2013v1.2
MDDI-DEV – 2012 nowcasts & projections.

Figure IV-2 clearly demonstrates that with P&Ms in place, but also considering additional measures such as biofuels and electro-mobility, Luxembourg will not reach its non-ETS target. There might be an overachievement of the 2020 target by 29% for the WEM scenario (2.3 Mio. t CO_2e) and almost 20% for the WAM scenario (1.6 Mio. t CO_2e).

Consequently, to "fill the gap", Luxembourg will have to turn to the various possibilities offered by the ESD *[→ Section II.2, Tables 2(e)]*.

[→ NC6: see Section IV.1.2, p. 158-159]

Chapter V

Provisions of Financial, Technological and Capacity Building Support to Developing Country Parties

V.1. FINANCE

Tables 7(a) and 7(b) report, for the years 2011 and 2012, ODA's financial flows and contributions managed by the Development Cooperation Directorate of the Ministry of Foreign and European Affairs, other official flows coming from the Fast Start Finance 2010-2012 and the contributions to the Global Environment Facility (GEF) which are under the responsibility of the Ministry of Finance. As it can be seen from the tables, Luxembourg's ODA relating to climate change is **essentially made of bilateral contributions as well as of co-financing and framework agreements with NGOs**. The bilateral contributions under the PMA, AOSIS and "Other" are managed by Luxembourg's executing agency for development cooperation, LuxDev.[15]

With regard to AOSIS, it is worth mentioning that Cape Verde is one of Luxembourg's partner countries and is currently implementing the "Indicative Cooperation Programme 2011-2015" to which Luxembourg is contributing the sum of 60 Mio. EUR.

Luxembourg reserves 5% of its humanitarian aid to **disaster risk reduction and prevention activities**. Among these funds, regular contributions to the UNISDR and GFDRR have to be mentioned, as it was the case, e.g., in 2010 for the UNISDR.

Resilience building activities are playing an increasingly important role in Luxembourg's ODA. Acknowledging that preventing catastrophes and addressing the causes of recurrent crises rather than responding only to disasters are not only investments in the best interest of the beneficiaries but also more cost-efficient, Luxembourg tries to facilitate the transition between humanitarian aid and development aid, with resilience building activities at its intersection. Contributions to the GFDRR, UNISDR, BCPR and various NGO projects reflect Luxembourg's commitment in this regard.

[→ NC6: see Section VII.4.2, p. 254-257]

15 See http://luxdev.lu/en/home.

CTF TABLE 7(A) – PROVISION OF PUBLIC FINANCIAL SUPPORT: CONTRIBUTION THROUGH MULTILATERAL CHANNELS IN 2011

Table 7(a) LUX_BR1_v1.0

Provision of public financial support: contribution through multilateral channels in 2011[a]

Donor funding	*Total amount*				*Status[b]*	*Funding source[f]*	*Financial instrument[f]*	*Type of support[f,g]*	*Sector[c]*
	Core/general[d]		*Climate-specific[e]*						
	European euro - EUR	*USD*	*European euro - EUR*	*USD*					
Total contributions through multilateral channels			7,402,189.00						
Multilateral climate change funds [g]			3,373,400.00						
1. Global Environment Facility			1,373,400.00		Provided	ODA	Grant	Cross-cutting	Cross-cutting
2. Least Developed Countries Fund									
3. Special Climate Change Fund									
4. Adaptation Fund			2,000,000.00		Committed	OOF	Grant	Adaptation	Cross-cutting
5. Green Climate Fund									
6. UNFCCC Trust Fund for Supplementary Activities									
7. Other multilateral climate change funds									
Multilateral financial institutions, including regional development banks			1,428,795.00						
1. World Bank									
2. International Finance Corporation									
3. African Development Bank									
4. Asian Development Bank									
5. European Bank for Reconstruction and Development									
6. Inter-American Development Bank									
7. Other			1,428,795.00						
Mekong River Commission			428,795.00		Provided	ODA	Grant	Adaptation	Water and sanitation
GFDRR			1,000,000.00		Provided	OOF	Grant	Adaptation	Cross-cutting
Specialized United Nations bodies			2,599,994.00						
1. United Nations Development Programme			2,000,000.00						
UN-REDD			2,000,000.00		Provided	OOF	Grant	Mitigation	Cross-cutting
2. United Nations Environment Programme									
3. Other			599,994.00						
UN - WFP			599,994.00		Provided	ODA	Grant	Adaptation	Cross-cutting

Abbreviations: ODA = official development assistance, OOF = other official flows.

[a] Parties should fill in a separate table for each year, namely 2011 and 2012, where 2014 is the reporting year.

[b] Parties should explain, in their biennial reports, the methodologies used to specify the funds as provided, committed and/or pledged. Parties will provide the information for as many status categories as appropriate in the following order of priority: provided, committed, pledged.

[c] Parties may select several applicable sectors. Parties may report sectoral distribution, as applicable, under "Other".

[d] This refers to support to multilateral institutions that Parties cannot specify as climate-specific.

[e] Parties should explain in their biennial reports how they define funds as being climate-specific.

[f] Please specify.

[g] Cross-cutting type of support refers to funding for activities which are cross-cutting across mitigation and adaptation.

CTF TABLE 7(A) – PROVISION OF PUBLIC FINANCIAL SUPPORT: CONTRIBUTION THROUGH MULTILATERAL CHANNELS IN 2012

Table 7(a) LUX_BR1_v1.0

Provision of public financial support: contribution through multilateral channels in 2012[a]

Donor funding	*Total amount*				*Status[b]*	*Funding source[f]*	*Financial instrument[f]*	*Type of support[f,g]*	*Sector[c]*
	Core/general[d]		*Climate-specific[e]*						
	European euro - EUR	*USD*	*European euro - EUR*	*USD*					
Total contributions through multilateral channels			6,490,206.00						
Multilateral climate change funds [g]			1,474,475.00						
1. Global Environment Facility			1,474,475.00		Provided	ODA	Grant	Cross-cutting	Cross-cutting
2. Least Developed Countries Fund									
3. Special Climate Change Fund									
4. Adaptation Fund									
5. Green Climate Fund									
6. UNFCCC Trust Fund for Supplementary Activities									
7. Other multilateral climate change funds									
					Provided				
Multilateral financial institutions, including regional development banks			3,308,464.00						
1. World Bank									
2. International Finance Corporation									
3. African Development Bank									
4. Asian Development Bank									
5. European Bank for Reconstruction and Development									
6. Inter-American Development Bank									
7. Other			3,308,464.00						
Mekong River Commission			428,795.00		Provided	ODA	Grant	Adaptation	Water and sanitation
GFDRR			1,000,000.00		Committed	OOF	Grant	Adaptation	Cross-cutting
IUCN - SIDS			1,000,000.00		Provided	OOF	Grant	Mitigation	Energy
ASTM / ARFA			67,169.00		Provided	OOF	Grant	Cross-cutting	Agriculture, Water and sanitation
Climate Focus / 4climate			100,000.00		Committed	OOF	Grant	Mitigation	Cross-cutting
ICRC			312,500.00		Provided	ODA	Grant	Adaptation	Cross-cutting
GFDRR			400,000.00		Provided	ODA	Grant	Adaptation	Agriculture, Water and sanitation
Specialized United Nations bodies			1,707,267.00						
1. United Nations Development Programme			1,000,000.00						
UNDP Yasuni			1,000,000.00		Provided	OOF	Grant	Cross-cutting	Forestry
2. United Nations Environment Programme									
3. Other			707,267.00						
UN Women			157,267.00		Provided	ODA	Grant	Adaptation	Cross-cutting
UNISDR			250,000.00		Provided	ODA	Grant	Adaptation	Cross-cutting
UNHCR			300,000.00		Provided	ODA	Grant	Adaptation	Cross-cutting

Abbreviations: ODA = official development assistance, OOF = other official flows.

[a] Parties should fill in a separate table for each year, namely 2011 and 2012, where 2014 is the reporting year.

[b] Parties should explain, in their biennial reports, the methodologies used to specify the funds as provided, committed and/or pledged. Parties will provide the information for as many status categories as appropriate in the following order of priority: provided, committed, pledged.

[c] Parties may select several applicable sectors. Parties may report sectoral distribution, as applicable, under "Other".

[d] This refers to support to multilateral institutions that Parties cannot specify as climate-specific.

[e] Parties should explain in their biennial reports how they define funds as being climate-specific.

[f] Please specify.

[g] Cross-cutting type of support refers to funding for activities which are cross-cutting across mitigation and adaptation.

CTF TABLE 7(B) – PROVISION OF PUBLIC FINANCIAL SUPPORT: CONTRIBUTION THROUGH BILATERAL, REGIONAL AND OTHER CHANNELS IN 2011

Table 7(b) LUX_BR1_v1.0

Provision of public financial support: contribution through bilateral, regional and other channels in 2011[a]

Recipient country/ region/project/programme[b]	*Total amount*		*Status*[c]	*Funding source*[g]	*Financial instrument*[g]	*Type of support*[g, h]	*Sector*[d]	*Additional information*[e]
	Climate-specific[f]							
	European euro - EUR	*USD*						
Total contributions through bilateral, regional and other channels	20,422,349.76							
LDCs / PMA	5,595,782.95		Provided	ODA	Grant	Adaptation	Cross-cutting	
LDCs / PMA	771,559.41		Provided	ODA	Grant	Mitigation	Cross-cutting	
Cape Verde / AOSIS	2,322,893.17		Provided	ODA	Grant	Adaptation	Energy	
Cape Verde / AOSIS	2,322,893.17		Provided	ODA	Grant	Mitigation	Energy	
Kosovo, Montenegro, Vietnam, Nicaragua, Namibia / Other bilateral supports	2,397,992.00		Provided	ODA	Grant	Adaptation	Cross-cutting	
Kosovo, Montenegro, Vietnam, Nicaragua, Namibia / Other bilateral supports	11,921.13		Provided	ODA	Grant	Mitigation	Cross-cutting	
Various countries / Other channels - NGOs	1,243,758.16		Provided	ODA	Grant	Adaptation	Cross-cutting	
Various countries / Other channels - NGOs	485,954.03		Provided	ODA	Grant	Adaptation	Cross-cutting	
Various countries / Other channels - NGOs	231,897.86		Provided	ODA	Grant	Mitigation	Cross-cutting	
Various countries / Other channels - NGOs	3,734,739.00		Provided	ODA	Grant	Adaptation	Cross-cutting	
Various countries / Other channels - NGOs	1,302,958.88		Provided	ODA	Grant	Mitigation	Cross-cutting	

Abbreviations: ODA = official development assistance, OOF = other official flows; USD = United States dollars.

[a] Parties should fill in a separate table for each year, namely 2011 and 2012, where 2014 is the reporting year.

[b] Parties should report, to the extent possible, on details contained in this table.

[c] Parties should explain, in their biennial reports, the methodologies used to specify the funds as provided, committed and/or pledged. Parties will provide the information for as many status categories as appropriate in the following order of priority: provided, committed, pledged.

[d] Parties may select several applicable sectors. Parties may report sectoral distribution, as applicable, under "Other".

[e] Parties should report, as appropriate, on project details and the implementing agency.

[f] Parties should explain in their biennial reports how they define funds as being climate-specific.

[g] Please specify.

[h] Cross-cutting type of support refers to funding for activities which are cross-cutting across mitigation and adaptation.

CTF TABLE 7(B) – PROVISION OF PUBLIC FINANCIAL SUPPORT: CONTRIBUTION THROUGH BILATERAL, REGIONAL AND OTHER CHANNELS IN 2012

Table 7(b) LUX_BR1_v1.0

Provision of public financial support: contribution through bilateral, regional and other channels in 2012[a]

Recipient country/ region/project/programme[b]	*Total amount*		*Status*[c]	*Funding source*[g]	*Financial instrument*[g]	*Type of support*[g, h]	*Sector*[d]	*Additional information*[e]
	Climate-specific[f]							
	European euro - EUR	*USD*						
Total contributions through bilateral, regional and other channels	31,235,046.75							
LDCs / PMA	6,758,250.32		Provided	ODA	Grant	Adaptation	Cross-cutting	
LDCs / PMA	2,575,535.65		Provided	ODA	Grant	Mitigation	Cross-cutting	
Cape Verde / AOSIS	4,632,416.48		Provided	ODA	Grant	Adaptation	Energy	
Cape Verde / AOSIS	4,682,620.43		Provided	ODA	Grant	Mitigation	Energy	
Kosovo, Montenegro, Vietnam, Nicaragua, Namibia / Other bilateral supports	3,440,994.66		Provided	ODA	Grant	Adaptation	Cross-cutting	
Kosovo, Montenegro, Vietnam, Nicaragua, Namibia / Other bilateral supports	1,581,704.33		Provided	ODA	Grant	Mitigation	Cross-cutting	
Cape Verde / AOSIS	681,000.00		Provided	OOF	Grant	Mitigation	Energy	
Various countries / Other channels - NGOs	1,272,935.00		Provided	ODA	Grant	Adaptation	Cross-cutting	
Various countries / Other channels - NGOs	1,073,993.52		Provided	ODA	Grant	Adaptation	Cross-cutting	
Various countries / Other channels - NGOs	118,553.91		Provided	ODA	Grant	Mitigation	Cross-cutting	
Various countries / Other channels - NGOs	3,005,886.45		Provided	ODA	Grant	Adaptation	Cross-cutting	
Various countries / Other channels - NGOs	1,411,156.00		Provided	ODA	Grant	Mitigation	Cross-cutting	

Abbreviations: ODA = official development assistance, OOF = other official flows; USD = United States dollars.

[a] Parties should fill in a separate table for each year, namely 2011 and 2012, where 2014 is the reporting year.

[b] Parties should report, to the extent possible, on details contained in this table.

[c] Parties should explain, in their biennial reports, the methodologies used to specify the funds as provided, committed and/or pledged. Parties will provide the information for as many status categories as appropriate in the following order of priority: provided, committed, pledged.

[d] Parties may select several applicable sectors. Parties may report sectoral distribution, as applicable, under "Other".

[e] Parties should report, as appropriate, on project details and the implementing agency.

[f] Parties should explain in their biennial reports how they define funds as being climate-specific.

[g] Please specify.

[h] Cross-cutting type of support refers to funding for activities which are cross-cutting across mitigation and adaptation.

Finally, *CTF Table 7* summarizes the above presented information.

CTF TABLE 7 – PROVISION OF PUBLIC FINANCIAL SUPPORT: SUMMARY INFORMATION IN 2011

Table 7 LUX_BR1_v1.0

Provision of public financial support: summary information in 2011[a]

Allocation channels	*Year*									
	European euro - EUR					*USD[b]*				
	Core/ general[c]	*Climate-specific[d]*				*Core/ general[c]*	*Climate-specific[d]*			
		Mitigation	*Adaptation*	*Cross-cutting[e]*	*Other[f]*		*Mitigation*	*Adaptation*	*Cross-cutting[e]*	*Other[f]*
Total contributions through multilateral channels:		2,000,000.00	4,028,789.00	1,373,400.00						
Multilateral climate change funds[g]			2,000,000.00	1,373,400.00						
Other multilateral climate change funds[h]										
Multilateral financial institutions, including regional development banks			1,428,795.00							
Specialized United Nations bodies		2,000,000.00	599,994.00							
Total contributions through bilateral, regional and other channels		4,641,230.45	15,781,119.31							
Total		6,641,230.45	19,809,908.31	1,373,400.00						

Abbreviation: USD = United States dollars.

[a] Parties should fill in a separate table for each year, namely 2011 and 2012, where 2014 is the reporting year.

[b] Parties should provide an explanation on methodology used for currency exchange for the information provided in table 7, 7(a) and 7(b) in the box below.

[c] This refers to support to multilateral institutions that Parties cannot specify as climate-specific.

[d] Parties should explain in their biennial reports how they define funds as being climate-specific.

[e] This refers to funding for activities which are cross-cutting across mitigation and adaptation.

[f] Please specify.

[g] Multilateral climate change funds listed in paragraph 17(a) of the "UNFCCC biennial reporting guidelines for developed country Parties" in decision 2/CP.17.

[h] Other multilateral climate change funds as referred in paragraph 17(b) of the "UNFCCC biennial reporting guidelines for developed country Parties" in decision 2/CP.17.

CTF TABLE 7 – PROVISION OF PUBLIC FINANCIAL SUPPORT: SUMMARY INFORMATION IN 2012

Table 7 LUX_BR1_v1.0

Provision of public financial support: summary information in 2012[a]

Allocation channels	*Year*									
	European euro - EUR					*USD[b]*				
	Core/ general[c]	*Climate-specific[d]*				*Core/ general[c]*	*Climate-specific[d]*			
		Mitigation	*Adaptation*	*Cross-cutting[e]*	*Other[f]*		*Mitigation*	*Adaptation*	*Cross-cutting[e]*	*Other[f]*
Total contributions through multilateral channels:		1,100,000.00	2,848,562.00	2,541,644.00						
Multilateral climate change funds[g]				1,474,475.00						
Other multilateral climate change funds[h]										
Multilateral financial institutions, including regional development banks		1,100,000.00	2,141,295.00	67,169.00						
Specialized United Nations bodies			707,267.00	1,000,000.00						
Total contributions through bilateral, regional and other channels		11,050,570.32	20,184,476.43							
Total		12,150,570.32	23,033,038.43	2,541,644.00						

Abbreviation: USD = United States dollars.

[a] Parties should fill in a separate table for each year, namely 2011 and 2012, where 2014 is the reporting year.

[b] Parties should provide an explanation on methodology used for currency exchange for the information provided in table 7, 7(a) and 7(b) in the box below.

[c] This refers to support to multilateral institutions that Parties cannot specify as climate-specific.

[d] Parties should explain in their biennial reports how they define funds as being climate-specific.

[e] This refers to funding for activities which are cross-cutting across mitigation and adaptation.

[f] Please specify.

[g] Multilateral climate change funds listed in paragraph 17(a) of the "UNFCCC biennial reporting guidelines for developed country Parties" in decision 2/CP.17.

[h] Other multilateral climate change funds as referred in paragraph 17(b) of the "UNFCCC biennial reporting guidelines for developed country Parties" in decision 2/CP.17.

V.2. TECHNOLOGY DEVELOPMENT AND TRANSFER

With regard to *Table 8* (Provision of technology development and transfer support) and *Table 9* (Provision of capacity-building support), as Luxembourg's does not have an OECD marker for technology development, this information is difficult to disaggregate from the existing statistics. As regards capacity building, however, the information can be retrieved following the capacity building marker. Nevertheless, for this first Biennial Report, Luxembourg does not report *CTF Tables 8 & 9* but some related information is presented in the NC6.

[→ NC6: see Section VII.5, p. 258-261]

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