



Status report of the annual inventory of Luxembourg

1. This status report was prepared by the secretariat pursuant to decision 22/CMP.1 in conjunction with decision 4/CMP.11 as part of the initial check of Luxembourg's 2022 annual greenhouse gas inventory, submitted in accordance with decisions 24/CP.19 and 15/CMP.1 in conjunction with decisions 3/CMP.11 and 2/CMP.8.

2. The report reflects the content of the inventory submission as submitted by the Party, which, in accordance with decision 24/CP.19, is due by 15 April each year (dates of submission are provided in the table on p.2).

3. In accordance with decision 24/CP.19, Parties report aggregate emissions and removals in carbon dioxide equivalent using the global warming potential values from the Fourth Assessment Report of the Intergovernmental Panel on Climate Change over a 100-year time-horizon.

4. In this report, the following abbreviations are used:

CRF: common reporting format

GHG: greenhouse gas

HWP: harvested wood products

IPPU: industrial processes and product use

KP-LULUCF activities: activities under Article 3, paragraphs 3–4, of the Kyoto Protocol

LULUCF: land use, land-use change and forestry

NIR: national inventory report

SEF: standard electronic format

Kyoto Protocol units

AAU: assigned amount unit

CER: certified emission reduction

ERU: emission reduction unit

ICER: long-term certified emission reduction

RMU: removal unit

tCER: temporary certified emission reduction

Gases

CH₄: methane

CO: carbon monoxide

CO₂: carbon dioxide

HFC: hydrofluorocarbon

HFC/PFC mix: unspecified mix of hydrofluorocarbons and perfluorocarbons

N₂O: nitrous oxide

NF₃: nitrogen trifluoride

NM VOC: non-methane volatile organic compound

NO_x: nitrogen oxides

PFC: perfluorocarbon

SF₆: sulfur hexafluoride

SO₂: sulfur dioxide

Notation keys

C: confidential

IE: included elsewhere

NA: not applicable

NE: not estimated

NO: not occurring



Part I															
General information regarding 2022 inventory submission															
General information		Date of original submission			Date(s) of resubmission(s)				Comments ^a						
	NIR	14 April 2022			6 May 2022										
	CRF tables ^b	14 April 2022							Latest inventory (assessed in this report): LUX_2022_1						
	Additional information ^c														
	CRF tables provided for years	1990–2020													
	Base year or period ^d	1990			Base year for HFCs, PFCs and SF ₆ ^e				1995		Base year for NF ₃ ^f			1995	
	Gases covered ^g	CO ₂	CH ₄	N ₂ O	HFCs	PFCs	HFC/PFC mix	SF ₆	NF ₃	NO _x	CO	NMVOCS	SO ₂		
✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
CRF tables	Source categories accounting for 7% or more of the Party's aggregate emissions from sources included in Annex A to the Kyoto Protocol ^h														
No missing source category accounting for 7% or more has been identified															

^a The comments field is used to indicate the name of the inventory being assessed (relevant to CRF tables), the names of the files submitted as additional information (relevant to additional information) and any other information relevant to the submission.

^b Contained in annex II to decision 24/CP.19.

^c Additional information can be any information submitted by a Party in conjunction with its NIR or CRF tables.

^d Parties included in Annex I to the Convention undergoing the process of transition to a market economy may use a base year or period of years other than 1990 in accordance with the provisions of Article 4, para. 6, of the Convention and decisions 9/CP.2 and 11/CP.4.

^e A Party may select 1995 as the base year for HFCs, PFCs and SF₆ in accordance with Article 3, para. 8, of the Kyoto Protocol.

^f A Party may select 1995 or 2000 as the base year for NF₃ in accordance with Article 3, para. 8 bis, in the Doha Amendment.

^g If, for the latest inventory year, for a given gas, a Party reported a numerical value or a notation key other than "NE", a tick is shown in the respective cell; if "NE", zero or no value was reported, the cell is blank.

^h In accordance with decision 15/CMP.1, para. 3(b), in conjunction with decision 3/CMP.11.

Part II					
General information regarding the submission of supplementary information under Article 7, paragraph 1, of the Kyoto Protocol					
Reporting of supplementary information		<i>Date of original submission</i>	<i>Date(s) of resubmission(s)</i>	<i>Comments^a</i>	
	KP-LULUCF information ^b	14 April 2022	6 May 2022	NIR chapter 11	
	KP-LULUCF CRF tables ^c	14 April 2022		KP-LULUCF CRF tables provided for years	1990, 2013–2020
	Information on Kyoto Protocol units (AAUs, CERs, ERUs and RMUs) ^d	14 April 2022	6 May 2022	NIR chapter 12	
	SEF tables with Kyoto Protocol units ^e	14 April 2022		Reported year: 2021 - SEF tables for the first commitment period submitted on 14 April 2022 - SEF tables for the second commitment period submitted on 14 April 2022	
	Changes in national system ^f	14 April 2022	6 May 2022	NIR chapter 13	
	Changes in national registry ^f	14 April 2022	6 May 2022	NIR chapter 14	
	Minimization of adverse impacts ^f	14 April 2022	6 May 2022	NIR chapter 15	

^a Where applicable, the comments field indicates the location of the reported information in the NIR.

^b Parties are required to include in their annual inventory submission information on anthropogenic GHG emissions by sources and removals by sinks from LULUCF activities under Article 3, para. 3, of the Kyoto Protocol, and, if any, elected activities under Article 3, para. 4, in accordance with decision 2/CMP.8, annex II, paras. 1–5.

^c Parties are required to report anthropogenic GHG emissions by sources and removals by sinks from LULUCF activities under Article 3, para. 3, of the Kyoto Protocol, forest management and, if any, elected activities under Article 3, para. 4. Parties may also elect to report these tables for the base year or 1990.

^d Parties are required to include in their annual inventory submission information on AAUs, CERs, ICERs, tCERs, ERUs and RMUs in accordance with decision 15/CMP.1, annex, chap. I.E, in conjunction with annex II to decision 3/CMP.11.

^e As required by annex II to decision 3/CMP.11.

^f The requirements for Parties to report on changes in the national system in accordance with Article 5, para. 1, of the Kyoto Protocol, changes in the national registry and the minimization of adverse impacts in accordance with Article 3, para. 14, of the Kyoto Protocol are set out in decision 15/CMP.1, annex, chaps. I.F, I.G and I.H, respectively, in conjunction with annex II to decision 3/CMP.11.

Part III														
Completeness of CRF tables for the latest reported inventory year (2020)														
		Energy		IPPU		Agriculture		LULUCF				Waste		
		<i>Sectoral report tables</i>	1	✓	2(I)	✓	3	✓	4	✓	4.1	✓	5	✓
<i>Sectoral background tables</i>	1.A(a)	✓	2(I)A-H	✓	3.A	✓	4.A	✓	4(I)	✓	5.A	✓		
	1.A(b)	✓	2(II)	✓	3.B(a)	✓	4.B	✓	4(II)	✓	5.B	✓		
	1.A(c)	✓	2(II)B-H	✓	3.B(b)	✓	4.C	✓	4(III)	✓	5.C	✓		
	1.A(d)	✓			3.C	✓	4.D	✓	4(IV)	✓	5.D	✓		
	1.B.1	✓			3.D	✓	4.E	✓	4(V)	✓				
	1.B.2	✓			3.E	✓	4.F	✓						
	1.C	✓			3.F	✓	4.G	✓						
	1.D	✓			3.G-I	✓								
	<i>Cross-sectoral report tables</i>	Table 6 (Indirect emissions of N ₂ O and CO ₂)							✓					
<i>Other tables</i>	Table 9 (Information on notation keys – “NE”)					✓	Table 9 (Information on notation keys – “IE”)					✓		

Note: A tick indicates that the respective CRF table is not blank.

^a Tables that are automatically generated by CRF Reporter (summary table 1.A, summary table 2, summary table 3, table 7 key categories and table 10 emission trends) are not included here.

Part III (continued)									
Completeness of CRF tables related to KP-LULUCF ^a information for the latest reported inventory year (2020)									
Sectoral tables	Sectoral report tables	NIR-1	✓						
		NIR-2	✓						
		NIR-3	✓						
		4(KP)	✓						
		4(KP) Recalculations							
	Sectoral background tables	4(KP-I)A.1	✓	4(KP-I)B.1	✓	4(KP-I)B.2	✓	4(KP-II)1	✓
		4(KP-I)A.1.1	✓	4(KP-I)B.1.1	✓	4(KP-I)B.3	✓	4(KP-II)2	✓
		4(KP-I)A.2	✓	4(KP-I)B.1.2	✓	4(KP-I)B.4	✓	4(KP-II)3	✓
		4(KP-I)A.2.1	✓	4(KP-I)B.1.3	✓	4(KP-I)B.5	✓	4(KP-II)4	✓
						4(KP-I)C	✓	accounting	✓

Note: A tick indicates that the respective CRF table is not blank.

^a Parties are required to report anthropogenic GHG emissions by sources and removals by sinks from LULUCF activities under Article 3, para. 3, of the Kyoto Protocol and, if any, elected activities under Article 3, para. 4, using the agreed CRF tables adopted under decision 6/CMP.9.

Part IV									
Provision of selected information in the CRF tables									
<i>Direct GHG totals^a</i>	Gas	CO ₂	CH ₄	N ₂ O	HFCs	PFCs	HFC/PFC mix	SF ₆	NF ₃
	Provided for years	1990–2020	1990–2020	1990–2020	1990–2020	1990–2020	1990–2020	1990–2020	1990–2020
<i>Indirect CO₂</i>	Sector	Energy	IPPU	Agriculture	LULUCF	Waste	Other		
	Provided for years	1990–2020	1990–2018		1990–2020	1990–2020	1990–2020		
<i>Energy CO₂^b</i>	Comparison of estimated CO ₂ emissions from fuel combustion ^b	Reference approach	Sectoral approach	Difference in estimate between reference and sectoral approach more than 2%					
		✓	✓	Liquid		Solid	✓	Gaseous	
<i>International bunkers</i>	Bunker type	Aviation	Navigation						
	Provided for years	1990–2020	1990–2020						
<i>HFCs and PFCs^{b, c}</i>	Disaggregation by species	HFCs	PFCs						
		✓	✓						

^a Considered provided if the total for a given gas is a numerical value or a notation key other than “NE”.

^b A tick indicates that the information was provided.

^c Assessment based on information reported for the latest inventory year.

Part V					
Completeness of CRF tables for years reported (base year, 1990–2020) ^a					
	<i>Yes/no</i>	<i>Sector</i>	<i>Table</i>	<i>Year(s)</i>	<i>Notation keys used</i>
CRF submission contains blank tables ^b	Yes	IPPU	Table2(II)B-Hs1	1990–2020	
CRF submission includes tables containing only notation keys ^c	Yes	Energy	Table1.B.1	1990–2020	NO
		Energy	Table1.C	1990–2020	NO
		Agriculture	Table3.C	1990–2020	NA, NO
		Agriculture	Table3.E	1990–2020	NA, NO
		Agriculture	Table3.F	1990–2020	NA, NO
		LULUCF	Table4(I)	1990–2020	NO
		LULUCF	Table4(II)	1990–2020	NO
		LULUCF	Table4(V)	1990–2020	NE, NO
		Waste	Table5.B	1990–1991	IE, NE, NO
		Waste	Table5.C	1990–2020	IE, NO
		KP-LULUCF	NIR-2.1	1990, 2013–2020	NO
		KP-LULUCF	4(KP-I)A.1.1	1990	NA, NO
		KP-LULUCF	4(KP-I)A.2.1	1990, 2013–2020	NO
		KP-LULUCF	4(KP-I)B.1.2	1990, 2013–2020	NA
		KP-LULUCF	4(KP-I)B.1.3	1990	NA, NO
		KP-LULUCF	4(KP-I)B.2	1990, 2013–2020	NA, NO
		KP-LULUCF	4(KP-I)B.3	1990, 2013–2020	NA, NO
		KP-LULUCF	4(KP-I)B.4	1990, 2013–2020	NA
		KP-LULUCF	4(KP-I)B.5	1990, 2013–2020	NA
		KP-LULUCF	4(KP-I)C	1990, 2013–2020	NA, NO
KP-LULUCF	4(KP-II)1	1990, 2013–2020	NA, NO		
KP-LULUCF	4(KP-II)2	1990, 2013–2020	NA, NO		
KP-LULUCF	4(KP-II)4	1990, 2013–2020	NA, NO		

^a KP-LULUCF CRF tables are considered only for the years associated with the second commitment period of the Kyoto Protocol.

^b Excludes CRF table 8 in the latest reported inventory year.

^c Notation keys associated with methods and emission factor information are not considered.

Part VI						
Provision of information in the CRF tables relating to recalculations						
Recalculation(s) reported for year(s) ^a	1990–2019					
Recalculated sectors/gases ^b	Energy	IPPU	Agriculture	LULUCF	Waste	KP-LULUCF
CO ₂	✓	✓	✓	✓		✓
CH ₄	✓		✓		✓	
N ₂ O	✓	✓	✓	✓	✓	✓
HFCs		✓				
PFCs						
HFC/PFC mix						
SF ₆		✓				
NF ₃						
Indirect CO ₂						
Percentage difference in estimated aggregate GHG emissions	Base year ^c	With LULUCF	0.62%	Without LULUCF	0.04%	
	Latest recalculated year ^d	With LULUCF	0.37%	Without LULUCF	-0.09%	

^a Years for which recalculations were performed.

^b A tick indicates that, for the respective sector and gas, recalculations were performed for one or more years.

^c Parties included in Annex I to the Convention undergoing the process of transition to a market economy may use a base year or period of years other than 1990 in accordance with the provisions of Article 4, para. 6, of the Convention and decision 24/CP.19.

^d Latest reported inventory year minus one.

Part VII			
Provision of information relating to KP-LULUCF activities			
		Provided ^a	Observation
Reporting requirements under decision 2/CMP.8, annex II, paragraphs 1–5	Emissions by sources and removals by sinks are clearly distinguished from emissions from categories included in Annex A to the Kyoto Protocol	✓	
	Information on how inventory methodologies have been applied, taking into account the 2006 IPCC Guidelines for National Greenhouse Gas Inventories and any relevant supplementary guidance recognizing the principles laid out in decision 16/CMP.1	✓	
	Information on the geographical location of the boundaries of areas that encompass:		
	Units of land subject to activities under Article 3, paragraph 3	✓	
	Units of land subject to activities under Article 3, paragraph 3, which would otherwise be included in land subject to forest management or elected activities under Article 3, paragraph 4	✓	
	Land subject to forest management or elected activities under Article 3, paragraph 4	✓	
	Information on the spatial assessment unit for determining the area of accounting for afforestation, reforestation and deforestation	✓	
	Information on GHG emissions/removals resulting from KP-LULUCF activities, for all geographical locations reported in the current and previous years since the beginning of the commitment period or the onset of the activity, whichever occurs later	✓	
	Information on carbon pools (above-ground/below-ground biomass, litter, deadwood and soil organic carbon) that are not accounted for	✓	
	When a Party applies the provisions for natural disturbances, information demonstrating that these emissions in any single year exceed the background level(s), including a margin, where needed. For this purpose, the Party shall include information showing:		
	That all lands subject to exclusion due to natural disturbances are identified	✓	
	How annual emissions resulting from natural disturbances and the subsequent removals are estimated and excluded from the accounting	✓	
	That no land-use change has occurred on lands for which the provisions in decision 2/CMP.7, annex, paragraph 33, are applied	✓	
That events and circumstances were beyond the control of the Party	✓		

Part VII		
Provision of information relating to KP-LULUCF activities		
	<i>Provided?</i>	<i>Observation</i>
That the efforts taken to rehabilitate the land for which the provisions contained in decision 2/CMP.7, annex, paragraph 33, are applied	✓	
That emissions associated with salvage logging were not excluded from the accounting	✓	
If not accounted for by instantaneous oxidation, information on GHG emissions/removals resulting from changes in the HWP pool accounted for in accordance with decision 2/CMP.7, including:		
Activity data for the HWP categories used for estimating the pool removed from domestic forests, for domestic consumption and for export	✓	In NIR chapter 11.4.3.5, the Party reported that all wood harvested for the production of HWP is considered as instantaneous oxidation
Half-lives used in estimating emissions/removals for the HWP categories used	✓	In NIR chapter 11.4.3.5, the Party reported that all wood harvested for the production of HWP is considered as instantaneous oxidation
Whether emissions from HWP originating from forests prior to the start of the second commitment period have been included in the accounting, if the forest management reference level is based on a projection	✓	In NIR chapter 11.4.3.5, the Party reported that all wood harvested for the production of HWP is considered as instantaneous oxidation
How emissions from the HWP pool accounted for in the first commitment period on the basis of instantaneous oxidation have been excluded from the accounting for the second commitment period	✓	In NIR chapter 11.4.3.5, the Party reported that all wood harvested for the production of HWP is considered as instantaneous oxidation
How HWP resulting from deforestation has been accounted on the basis of instantaneous oxidation	✓	In NIR chapter 11.4.3.5, the Party reported that all wood harvested for the production of HWP is considered as instantaneous oxidation
How CO ₂ emissions from HWP in solid waste disposal sites and from wood harvested for energy purposes have been accounted on the basis of instantaneous oxidation	✓	In NIR chapter 11.4.3.5, the Party reported that all wood harvested for the production of HWP is considered as instantaneous oxidation
How emissions/removals from changes in the HWP pool accounted for do not include imported HWP	✓	In NIR chapter 11.4.3.5, the Party reported that all wood harvested for the production of HWP is considered as instantaneous oxidation
Information on anthropogenic GHG emissions from KP-LULUCF activities, factoring out removals from:		
Elevated CO ₂ concentrations above pre-industrial levels	✓	

Part VII			
Provision of information relating to KP-LULUCF activities			
		<i>Provided^a</i>	<i>Observation</i>
	Indirect nitrogen deposition	✓	
	The dynamic effects of age structure resulting from activities prior to 1 January 1990	✓	
	Specific information to be reported for activities under Article 3, paragraph 3:		
	Activities that began on or after 1 January 1990 and before 31 December of the last year of the commitment period, and are directly human-induced	✓	
	How harvesting or forest disturbance that is followed by the re-establishment of forest is distinguished from deforestation	✓	
	Specific information to be reported for activities under Article 3, paragraph 4:		
	Activities that have occurred since 1 January 1990 and are human-induced	✓	
	Cropland management, grazing land management, revegetation, wetland drainage and rewetting: emissions/removals reported for each year of the commitment period and for the base year for each of the elected activities at the geographical locations reported	✓	The Party has not elected cropland management, grazing land management, revegetation, wetland drainage and rewetting
	Emissions/removals from activities under Article 3, paragraph 4, are not accounted for under activities under Article 3, paragraph 3	✓	
	Information on how emissions arising from the conversion of natural forests to planted forests are accounted for		Information required in paragraph 5(d) of annex II to decision 2/CMP.8 could not be identified in the submission
	Methodological consistency between the reference level and reporting for forest management	✓	
	Technical corrections made pursuant to decision 2/CMP.7, annex, paragraph 14	✓	
	Forest management: if emissions/removals from the harvest and conversion of forest plantations to non-forest land were included, information on how requirements set out in decision 2/CMP.7, annex, paragraphs 37–39, were met, including:		
	The identification of all lands and associated carbon pools subject to decision 2/CMP.7, annex, paragraph 37, including the georeferenced location and year of conversion	✓	In NIR chapter 11.4.3.3, the Party reported that it has not elected the provision for carbon equivalent forests

Part VII				
Provision of information relating to KP-LULUCF activities				
			<i>Provided^a</i>	<i>Observation</i>
		A demonstration that the forest plantation was first established through direct human-induced planting and/or seeding of non-forest land before 1 January 1990, and, if the forest plantation was re-established, that this last occurred on forest land through direct human-induced planting and/or seeding after 1 January 1960	✓	In NIR chapter 11.4.3.3, the Party reported that it has not elected the provision for carbon equivalent forests
		A demonstration that a new forest of area at least equivalent to the harvested forest plantation is established through direct human-induced planting and/or seeding of non-forest land that did not contain forest on 31 December 1989	✓	In NIR chapter 11.4.3.3, the Party reported that it has not elected the provision for carbon equivalent forests
		A demonstration that this newly established forest will reach at least the equivalent carbon stock that was contained in the harvested forest plantation at the time of harvest, within the normal harvesting cycle of the harvested forest plantation, and, if not, that a debit would be generated under Article 3, paragraph 4	✓	In NIR chapter 11.4.3.3, the Party reported that it has not elected the provision for carbon equivalent forests

^a A tick is accompanied by an explanatory comment in the observation field where the provision of information is not applicable.