

United Nations

Framework Convention on Climate Change

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# Status report of the annual inventory of Liechtenstein

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 Liechtenstein's 2021 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 page 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 IPCC: Intergovernmental Panel on Climate Change 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

Gases CH<sub>4</sub>: methane CO: carbon monoxide CO<sub>2</sub>: carbon dioxide HFC: hydrofluorocarbon HFC/PFC mix: unspecified mix of hydrofluorocarbons and perfluorocarbons NF<sub>3</sub>: nitrogen trifluoride NMVOC: non-methane volatile organic compound NO<sub>X</sub>: nitrogen oxides N<sub>2</sub>O: nitrous oxide PFC: perfluorocarbon SF<sub>6</sub>: sulfur hexafluoride SO<sub>2</sub>: sulfur dioxide

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

Notation keys C: confidential IE: included elsewhere NA: not applicable NE: not estimated NO: not occurring



			Genera	al infoi	mation		nrt I ing 2021 inve	ntory	submissi	on			
		Date subm	of origir ission	ıal	Date o	of resubi	nission(s)	Co	mments <sup>a</sup>				
	NIR	15 A	pril 202	21									
	CRF tables <sup>b</sup>	14 A	pril 202	21					test inve E_2021_		ssessed in	n this report):	
General information	Additional information <sup>c</sup>												
General ii	CRF tables provided for years	1990	1990–2019										
	Base year or $period^d$	1990		Base	e year fo	or HFC	s, PFCs and	SF6 <sup>e</sup>	1990		Base y	ear for NF3 <sup>f</sup>	1990
	Gases covered <sup>g</sup>	$\rm CO_2$	CH4	N <sub>2</sub> O	HFCs	PFCs	HFC/PFC mix	SF <sub>6</sub>	NF <sub>3</sub>	NOx	СО	NMVOCs	SO <sub>2</sub>
		~	~	~	~	~	~	✓	~	~	~	~	~
CRF <sup>h</sup> tables	Source categories accounting for 7% or more of the Party's aggregate emissions from sources included in Annex A to the Kyoto Protocol	No n	nissing	source	catego	ry acco	unting for 7	% or	more ha	s been id	lentified		

<sup>*a*</sup> The comment 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 the row for additional information) and any other information relevant to the submission.

<sup>b</sup> The CRF tables are contained in annex II to decision 24/CP.19.

<sup>c</sup> 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 a 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.

<sup>e</sup> A Party may select 1995 as the base year for HFCs, PFCs and SF<sub>6</sub> in accordance with Article 3, para. 8, of the Kyoto Protocol.

<sup>*f*</sup> A Party may select 1995 or 2000 as the base year for NF<sub>3</sub> in accordance with Article 3, para. 8 bis, in the Doha Amendment.

<sup>g</sup> If, in the latest year, for a given gas, a Party reports a numerical value or a notation key other than "NE", a tick is shown in the respective cell; if "NE", zero or no value is reported, the cell is left blank.

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

	General information regarding the subn	nission of supplemen	Part II tary information und	ler Article 7, paragraph 1, of th	e Kyoto Protocol
		Date of original submission	Date of resubmission(s)	<i>Comments</i> <sup>a</sup>	
	KP-LULUCF information <sup>b</sup>	15 April 2021		NIR chapter 11	
information	KP-LULUCF CRF tables <sup>c</sup>	14 April 2021		KP-LULUCF CRF tables provided for years	1990, 2013–2019
supplementary inj	Information on Kyoto Protocol units (AAUs, CERs, ERUs and RMUs) <sup><math>d</math></sup>	15 April 2021		NIR chapter 12	
Reporting of supple	SEF tables with Kyoto Protocol units <sup>e</sup>	14 April 2021		Reported year: 2020 - SEF tables for the second submitted on 14 April 2021	commitment period
Repc	Changes in national system <sup>f</sup>	15 April 2021		NIR chapter 13	
	Changes in national registry <sup>f</sup>	15 April 2021		NIR chapter 14	
	Minimization of adverse impacts <sup>f</sup>	15 April 2021		NIR chapter 15	

<sup>*a*</sup> Where applicable the comments field indicates the location of the reported information in the NIR.

<sup>b</sup> Parties are required to include in their annual 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.

<sup>c</sup> 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.

<sup>d</sup> Parties are required to include in their annual 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.

<sup>e</sup> As required by annex II to decision 3/CMP.11.

<sup>f</sup> The requirements for Parties to report on changes in their national systems in accordance with Article 5, para. 1, of the Kyoto Protocol, changes in national registries, 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.

		Со	mpleten	ess of CRF tab		Part III ne latest rej	ported i	inventory	year (20)	19)			
		Ener	·gy	IPPU	T	Agricu	lture		LU	LUCF		W	aste
	Sectoral report tables	1	~	2(I)	~	3	~	4	~	4.1	~	5	~
		1.A(a)	~	2(I)A-H	✓	3.A	~	4.A	~	4(I)	~	5.A	✓
8		1.A(b)	~	2(II)	~	3.B(a)	~	4.B	~	4(II)	~	5.B	~
Sectoral tables		1.A(c)	~	2(II)B-H	~	3.B(b)	~	4.C	~	4(III)	~	5.C	✓
Sector	Sectoral background	1.A(d)	~			3.C	~	4.D	~	4(IV)	~	5.D	~
	tables	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	~						
mative and cross- cutting tables <sup>a</sup>	Cross-sectoral report tables	Table 6 (Indirect	t emissi	ons of N2O an	nd CO2)		~			-			
Summative and cross- cutting tables <sup>a</sup>	Other tables	Table 9 (Informa	ation on	notation keys	s – "NE'	')		Table 9 (Inform		n notation	keys –	"IE")	

*Note*: A tick indicates that the respective table is not blank. <sup>*a*</sup> 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 <sup>a</sup> information for the latest reported inventory year (2019)											
		NIR-1	~									
	tables	NIR-2	~									
	l report	NIR-3										
	Sectoral report tables	4(KP)	~									
l tables		4(KP) Recalculation										
Sectoral tables	es	4(KP-I)A.1	~	4(KP-I)B.1	~	4(KP-I)B.2	~	4(KP-II)1	~			
•1	md tabl	4(KP-I)A.1.1	~	4(KP-I)B.1.1	~	4(KP-I)B.3	~	4(KP-II)2	~			
	ackgrou	4(KP-I)A.2	~	4(KP-I)B.1.2		4(KP-I)B.4	~	4(KP-II)3	~			
	Sectoral background tables	4(KP-I)A.2.1	~	4(KP-I)B.1.3	~	4(KP-I)B.5	~	4(KP-II)4	~			
	Sec					4(KP-I)C	~	Accounting table	~			

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

<sup>*a*</sup> 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.

			Pr	ovision of	selected	Part infor		in the	CRF t	ables					
HG totals <sup>a</sup>	Gas	CO <sub>2</sub>	CH	CH4 N2O		HFCs		PFCs		HFC/PFC mix		SF <sub>6</sub>		NF3	
Direct GHG totals <sup>a</sup>	Provided for years	1990– 2019	19 20	90– 19	- 1990– 2019		1990- 2019	-				90– 19	1990– 2019		1990– 2019
t CO2	Sector	Energy		IPPU		Agriculture		LUI	LULUCF		Waste		Ot	her	
Indirect CO <sub>2</sub>	Provided for years	1990–2019		1990–2	2018	19	90–201	9	1990	0–2019		1990–2	019	19	90–2019
Energy CO2 <sup>b</sup>	Comparison of CO <sub>2</sub> emissions from fuel	Reference approach		Sectora approa		Di	fference	e betw	een re	eference	and	sectoral	approa	ch mo	re than 2%
Energ	combustion <sup>b</sup>	~		~		Lio	quid	~	Solid				Ga	seous	
International bunkers	Bunker type	Aviation		Naviga	tion										
Interna bun	Provided for years	1990–2019		1990–2	2019										
s and <sub>S<sup>b, c</sup></sub>	Disaggregation by species	HFCs		PFCs											
HFCs and PFCs <sup>b, c</sup>		~		√											

<sup>a</sup> Considered provided if the total for a given gas is a numerical value or a notation key other than "NE".
<sup>b</sup> A tick indicates that the information is provided.
<sup>c</sup> Assessment based on information reported for the latest inventory year.

## FCCC/ASR/2021/LIE

	Compl	eteness of CRF tab	Part V les for years reported	l (base year, 1990–2019) <sup>a</sup>	
	Yes/no	Sector	Table	Year(s)	Notation keys used
CRF submission contains	Yes	KP-LULUCF	NIR-1	1990	
blank tables <sup>b</sup>		KP-LULUCF	NIR-2	1990	
		KP-LULUCF	NIR-3	1990, 2013–2019	
		KP-LULUCF	4(KP)	1990	-
		KP-LULUCF	4(KP)Recalculat ions	1990	-
		KP-LULUCF	4(KP-I)A.1	1990	
		KP-LULUCF	4(KP-I)A.1.1	1990, 2013	
		KP-LULUCF	4(KP-I)A.2	1990	
		KP-LULUCF	4(KP-I)A.2.1	1990, 2013	
		KP-LULUCF	4(KP-I)B.1	1990	
		KP-LULUCF	4(KP-I)B.1.1	1990	
		KP-LULUCF	4(KP-I)B.1.2	1990, 2013–2019	
		KP-LULUCF	4(KP-I)B.1.3	1990, 2013, 2015	
		KP-LULUCF	4(KP-I)B.2	1990, 2013, 2015	
		KP-LULUCF	4(KP-I)B.3	1990, 2013, 2015	
		KP-LULUCF	4(KP-I)B.4	1990, 2013, 2015	
		KP-LULUCF	4(KP-I)B.5	1990, 2013, 2015	
		KP-LULUCF	4(KP-I)C	1990	
		KP-LULUCF	4(KP-II)1	1990, 2013	
		KP-LULUCF	4(KP-II)2	1990, 2013	
		KP-LULUCF	4(KP-II)3	1990	
CRF submission includes	Yes	Energy	Table1.B.1	1990–2019	NA, NO
tables containing only notation keys <sup>c</sup>		Energy	Table1.C	1990–2019	NO
		IPPU	Table2(I).A-Hs1	1990–2019	NO
		IPPU	Table2(II)B-Hs1	1990–2019	NO
		Agriculture	Table3.C	1990–2019	NA, NO
		Agriculture	Table3.E	1990–2019	NO
		Agriculture	Table3.F	1990–2019	NA, NE, NO

## FCCC/ASR/2021/LIE

Compl	leteness of CRF tab	Part V les for years reported	d (base year, 1990–2019) <sup>a</sup>	
Yes/no	Sector	Table	Year(s)	Notation keys used
	LULUCF	Table4(I)	1990–2019	IE, NA, NO
	LULUCF	Table4(II)	1990–2019	NO
	LULUCF	Table4(V)	1990–2019	NA, NO
	KP-LULUCF	4(KP-I)A.1.1	2014–2019	NO
	KP-LULUCF	4(KP-I)A.2.1	2014–2019	NO
	KP-LULUCF	4(KP-I)B.1.3	2014, 2016–2019	NO
	KP-LULUCF	4(KP-I)B.2	2014, 2016–2019	NO
	KP-LULUCF	4(KP-I)B.3	2014, 2016–2019	NO
	KP-LULUCF	4(KP-I)B.4	2014, 2016–2019	NO
	KP-LULUCF	4(KP-I)B.5	2014, 2016–2019	NO
	KP-LULUCF	4(KP-II)1	2014–2019	NO
	KP-LULUCF	4(KP-II)2	2014–2019	NO
	KP-LULUCF	4(KP-II)4	1990, 2013–2019	NA, NO

<sup>a</sup> KP-LULUCF tables are only considered for the years associated with the second commitment period of the Kyoto Protocol.
<sup>b</sup> Excludes table 8 in the latest reported inventory year.
<sup>c</sup> Notation keys associated with methods and emission factor information are not considered.

	Provision of		Part VI e CRF tables rela	ting to recalculation	IS	
Recalculation reported for years <sup>a</sup>	1990–2018					
Recalculated sectors/gases <sup>b</sup>	Energy	IPPU	Agriculture	LULUCF	Waste	KP-LULUCF
CO <sub>2</sub>	✓			~		~
CH <sub>4</sub>	✓		✓		✓	
N <sub>2</sub> O	✓	✓	✓	~	✓	~
HFCs		✓				
PFCs		✓				
HFC/PFC mix						
SF <sub>6</sub>						
NF <sub>3</sub>						
Indirect CO <sub>2</sub>						
Percentage difference in aggregate GHG	Base-year estimate <sup>c</sup>	With LULUCF:	0.06%	Without LULUCF:	0.05%	
emissions	Latest recalculated $year^d$	With LULUCF:	-0.28%	Without LULUCF:	-0.21%	

<sup>*a*</sup> Years in which recalculations were performed.

<sup>b</sup> Tick indicates that, for the respective sector and gas, recalculations were performed in one or more years.
<sup>c</sup> Parties included in Annex I to the Convention undergoing the process of transition to a market economy may use a base year or a period of years other than 1990 in accordance with the provisions of Article 4, para. 6, of the Convention and decision 24/CP.19.
<sup>d</sup> The latest recalculated year is the latest reported inventory year minus one.

		Part VII		
		Provision of information relating to KP-LULUCF act	ivities	
			<i>Provided</i> <sup>a</sup>	Observation
		issions by sources and removals by sinks are clearly distinguished from emissions from categories luded in Annex A to the Kyoto Protocol	~	
	Gu	ormation on how inventory methodologies have been applied, taking into account the 2006 IPCC idelines for National Greenhouse Gas Inventories and any relevant supplementary guidance recognizing principles laid out in decision 16/CMP.1	√	
s 1–5	Info	ormation on the geographical location of the boundaries of areas that encompass:		
graph		Units of land subject to activities under Article 3, paragraph 3	✓	
x II, para		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	~	
, anne		Land subject to forest management or elected activities under Article 3, paragraph 4	✓	
2/CMP.8		ormation on the spatial assessment unit for determining the area of accounting for afforestation, prestation and deforestation	~	
ıder decision	loca	ormation on GHG emissions/removals resulting from KP-LULUCF activities, for all geographical ations reported in the current and previous years since the beginning of the commitment period or the onset he activity, whichever occurs later	~	
ements un		ormation on carbon pools (above-ground/below-ground biomass, litter, deadwood and soil organic carbon) t are not accounted for	~	
Reporting requirements under decision 2/CMP.8, annex II, paragraphs 1–5	in a	ten a Party applies the provisions for natural disturbances, information demonstrating that these emissions iny single year exceed the background level(s), including a margin, where needed. For this purpose, the ty shall include information showing:		
Rep		That all lands subject to exclusion due to natural disturbances are identified	√	In NIR chapter 11.8.1, the Party reported that no emissions from natural disturbances were excluded in inventory year 2018
		How annual emissions resulting from natural disturbances and the subsequent removals are estimated and excluded from the accounting	√	In NIR chapter 11.8.1, the Party reported that no emissions from natural disturbances were excluded in inventory year 2018

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	Provided <sup>a</sup>	Observation
That no land-use change has occurred on lands for which the provisions in decision 2/CMP.7, annex, paragraph 33, are applied	~	In NIR chapter 11.8.1, the Party reported that no emiss from natural disturbances were excluded in inventory 2018
That events and circumstances were beyond the control of the Party	~	In NIR chapter 11.8.1, the Party reported that no emiss from natural disturbances were excluded in inventory 2018
That the efforts taken to rehabilitate the land for which the provisions contained in decision 2/CMP.7, annex, paragraph 33, are applied	~	In NIR chapter 11.8.1, the Party reported that no emiss from natural disturbances were excluded in inventory 2018
That emissions associated with salvage logging were not excluded from the accounting	~	In NIR chapter 11.8.1, the Party reported that no emiss from natural disturbances were excluded in inventory 2018
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	~	
Half-lives used in estimating emissions/removals for the HWP categories used	✓	
	~	
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		
period have been included in the accounting, if the forest management reference level is based on a	~	
period have been included in the accounting, if the forest management reference level is based on a projectionHow emissions from the HWP pool accounted for in the first commitment period on the basis of	✓ ✓ ✓	
period have been included in the accounting, if the forest management reference level is based on a projectionHow 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		

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#### Part VII

## Provision of information relating to KP-LULUCF activities

	$Provided^a$	Observation
Elevated CO <sub>2</sub> concentrations above pre-industrial levels	✓	
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	I 🗸	
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 or wetland drainage and rewetting
Emissions/removals from activities under Article 3, paragraph 4, are not accounted for under activities under Article 3, paragraph 3	s 🗸	
Information on how emissions arising from the conversion of natural forests to planted forests are accounted for	~	
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 no forest land were included, information on how requirements set out in decision 2/CMP.7, annex, paragraphs 37–39, were met, including:	n-	
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 11.5, the Party reported that it does not appl the provisions for carbon equivalent forests for emissions/removals from the harvest and conversion of fore plantations to non-forest land

Part VII Provision of information relating to KP-LULUCF activities							
	Provided <sup>a</sup>	Observation					
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 11.5, the Party reported that it does not apply the provisions for carbon equivalent forests for emissions/removals from the harvest and conversion of forest plantations to non-forest land					
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 11.5, the Party reported that it does not apply the provisions for carbon equivalent forests for emissions/removals from the harvest and conversion of forest plantations to non-forest land					
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 11.5, the Party reported that it does not apply the provisions for carbon equivalent forests for emissions/removals from the harvest and conversion of forest plantations to non-forest land					

<sup>*a*</sup> A tick is accompanied by an explanatory comment in the observation field where the provision of information is not applicable.