

Liechtenstein's Initial Report

under Article 7, paragraph 4
of the Kyoto Protocol

Corrigendum

19 September 2007

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Vaduz, 19 September 2007

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1. Introduction

Initial Report and in-country review

Liechtenstein submitted its Initial Report on 22 December 2006 to the secretariat of the UNFCCC. From 11 to 16 June 2007 the in-country review of the initial report and the GHG inventory (1990-2004, Submission 22 Dec. 2006) took place. Several potential problems were identified by the Expert Review Team (ERT)¹.

Liechtenstein analysed the potential problems and sent a draft of its answers to the ERT on 13 July². In a slightly extended version, Liechtenstein sent its definite response to the ERT on 9 August 2007³.

With an e-mail on 11 September 2007, the ERT informed Liechtenstein about two open problems:

1. "The ERT has noticed small discrepancies in the calculation of the AA. Summary table for 1990 indicates the total emissions in the base year as 229,483 t (229.48 Gg). In the response to the ERT, the total emissions in the base year 229,490 t (229.49 Gg) has been used, which has led to the AA of 1055.67 Gg. If the number indicated in the Summary table for 1990 would have been used, it would result in the AA of 1,055,622 tonnes (1055.62 Gg)."

2. "The ERT noted that Liechtenstein has not provided the revised Commitment period reserve (CPR), according to the revised base year emissions and the revised assigned amount (AA), as requested in the list of potential problems, provided by the ERT at the end of the in-country visit."

Corrigendum to the Initial Report

The ERT asked to comment on the calculation of AA and to provide the ERT with the revised CPR. The paper on hand provides the answers to the two points in the form of a corrigendum to the Initial Report. Due to the ERT (e-mail 11 September 2007), the Corrigendum must contain the revised base year emissions, the assigned amount, the commitment period reserve and the new single definition of forest parameters.

¹ Potential problems and further questions from the Expert Review Team, formulated in the course of the in-country review of Liechtenstein's Initial Report under the Kyoto Protocol and Liechtenstein's GHG inventory, submitted in 2006, Vaduz, 15 June 2007.

² Response by party to potential problems identified by the UNFCCC Expert Review Team (ERT), Vaduz, 13 July 2007

³ Response by party to potential problems identified by the UNFCCC Expert Review Team (ERT), revised version, Vaduz, 9 August 2007

2. Assigned amount

The following categories have been recalculated in August 2007 due to the recognition of potential problems identified by the ERT

- Energy: 1A1a Public Electricity and Heat Production
- Agriculture: 4D1 Direct Soil Emissions, Cultivation of histosols
- Waste: 6A2 Solid Waste Disposal on Land, Unmanaged Waste Disposal Sites
- Waste: 6C Waste Incineration, illegal incineration

The recalculation leads to slight changes in the emissions of the base year 1990: The national total emissions (without LULUCF) are decreased from 230.421 Gg CO₂ equivalent to 229.483 Gg CO₂ equivalent.

In the Response by party (see footnote 3) there are two tables containing the corrected values

- In Table 13 the national total emissions 1990 are given by 229.49 Gg CO₂ equivalent (Response by party, p. 28, rounded number with two decimal digits)
- In Summary Table 2 in the annex of the response the same national total emissions 1990 without LULUCF are given by 229.48 Gg CO₂ equivalent (Response by party p. 30 rounded number with two decimal digits).

The two numbers are actually **not identical** but have a difference of $229.49 - 229.48 = 0.01$ Gg CO₂ equivalent. **The difference stems from rounding errors** since the number calculated in Table 13 is taken from an isolated spread sheet calculation, whereas the number in Summary Table 2 is generated by the CRF Reporter. In both cases the numbers of digits were not exactly the same which is the only reason for the difference.

If the correct version of the national total emissions are used, the assigned amount becomes **1055.623 Gg CO₂ equivalent and not 1055.667 Gg CO₂ equivalent** as stated in the response by party:

Version	Base year emissions Gg CO ₂ eq	Base year emissions times 5 Gg CO ₂ eq	Percentage acc. to Annex B %	Calculated Assigned Amount Gg CO ₂ eq
Submission Dec 2006	230.421	1152.106	92	1059.937
Recalculated ICR	229.483	1147.416	92	1055.623
Difference	-0.938	-4.690		-4.314

Table 1 Adjustment of Liechtenstein's assigned amount, corrected version. note that the third decimal digits are rounded numbers.

Due to the corrected recalculations, the party intends to adjust the assigned amount from 1059.937 Gg CO₂ equivalent downwards to 1055.623 Gg CO₂ equivalent corresponding to a decrease of 4.314 Gg CO₂ equivalent (0.407%).

This adjustment replaces the version given in the "Response of party" (9 August 2007) where the assigned amount was indicated by 1055.667 Gg CO₂ equivalent (incorrect).

3. Commitment period reserve

Since the assigned amount is intended to be adjusted, the commitment period reserve has to be adjusted too.

In order to determine which of the two methods⁴ to calculate the commitment period reserve results in the lower value, the results of both methods are indicated in Table 2.

Method 1		Method 2	
Assigned amount calculated pursuant to Art. 3, para. 7 and 8 of the Kyoto protocol (five times 92% of 1990 emissions, see Table 1) [Gg CO ₂ equivalent]	1055.623	2004 emissions without LULUCF (see Summary Table 2 in chp. 5 Summary tables 1990 and 2004) [Gg CO ₂ equivalent]	271.371
90% of the assigned amount [Gg CO ₂ equivalent]	950.061	100% of five times the 2004 emissions without LULUCF [Gg CO ₂ equivalent]	1356.853

Table 2 Calculation of Liechtenstein's commitment period reserve.

Method 1 results in the lower value and is therefore used to calculate the minimum amount of the commitment period reserve.

The commitment period reserve of Liechtenstein should not drop below 950.061 Gg CO₂ equivalent (950'061 tonnes CO₂ equivalent).

Due to the corrected recalculations, the party intends to adjust the commitment period reserve from 953.944 Gg CO₂ equivalent downwards to 950.061 Gg CO₂ equivalent corresponding to a decrease of 3.883 Gg CO₂ equivalent.

⁴ The calculation of the commitment period reserve is carried out according to the rules provided by Decision 11/CMP.1 "Modalities, rules and guidelines for emissions trading under Article 17 of the Kyoto Protocol" (FCCC/KP/CMP/2005/8/Add.2).

4. Definition of forest

Liechtenstein adopts its forest definition (and its LULUCF methodologies) from Switzerland:

New definition of forest for Liechtenstein

For activities under Article 3, paragraphs 3 and 4 of the Kyoto Protocol, the Marrakech Accords (in the annex to decision 16/CMP.1) list the definitions to be specified by Parties. For forest, Liechtenstein chooses the following definition:

- minimum area of land: 0.0625 hectares (with a minimum width of 25 m)
- minimum crown cover: 20 per cent
- minimum height of the dominant trees: 3 m (dominant trees must have the potential to reach 3 m at maturity in situ)

5. Summary tables 1990 and 2004 (6 Aug 2007)

Recalculated data 6 Aug 2007 (Recalculation due to in-country review)

SUMMARY 2 SUMMARY REPORT FOR CO₂ EQUIVALENT EMISSIONS

(Sheet 1 of 1)

Inventory 1990
Submission 2006 v2.2
LIECHTENSTEIN

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs ⁽²⁾	PFCs ⁽²⁾	SF ₆ ⁽²⁾	Total
	CO ₂ equivalent (Gg)						
Total (Net Emissions)⁽¹⁾	195.71	13.40	13.02	0.00	NA,NO	NA,NO	222.14
1. Energy	201.53	1.05	0.89				203.47
A. Fuel Combustion (Sectoral Approach)	201.53	0.73	0.89				203.15
1. Energy Industries	0.12	0.00	0.05				0.18
2. Manufacturing Industries and Construction	35.23	0.04	0.06				35.33
3. Transport	75.38	0.50	0.52				76.39
4. Other Sectors	88.44	0.19	0.24				88.87
5. Other	2.36	0.00	0.02				2.39
B. Fugitive Emissions from Fuels	NA,NO	0.32	NA,NO				0.32
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NO	0.32	NA,NO				0.32
2. Industrial Processes	NA,NO	NA,NO	NA,NO	0.00	NA,NO	NA,NO	0.00
A. Mineral Products	NO	NO	NO				NO
B. Chemical Industry	NO	NO	NO	NA	NA	NA	NA,NO
C. Metal Production	NA,NO	NA,NO	NA	NA,NO	NA,NO	NA,NO	NA,NO
D. Other Production	NO						NO
E. Production of Halocarbons and SF ₆				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF ₆ ⁽²⁾				0.00	NA,NO	NA,NO	0.00
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	1.53		0.46				1.99
4. Agriculture		11.70	10.78				22.48
A. Enteric Fermentation		9.80					9.80
B. Manure Management		1.90	1.52				3.41
C. Rice Cultivation		NA,NO					NA,NO
D. Agricultural Soils ⁽³⁾		NA,NO	9.26				9.26
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO
G. Other		NA	NA				NA
5. Land Use, Land-Use Change and Forestry⁽¹⁾	-7.35	NO	NO				-7.35
A. Forest Land	-18.18	NO	NO				-18.18
B. Cropland	4.72	NO	NO				4.72
C. Grassland	1.65	NO	NO				1.65
D. Wetlands	0.93	NO	NO				0.93
E. Settlements	3.26	NO	NO				3.26
F. Other Land	0.27	NO	NO				0.27
G. Other	NO	NO	NO				NO
6. Waste	0.0087	0.65	0.89				1.55
A. Solid Waste Disposal on Land	NA,NO	0.22					0.2185
B. Waste-water Handling		0.02	0.81				0.82
C. Waste Incineration	0.01	0.01	0.00				0.01
D. Other	NO	0.41	0.08				0.49
7. Other (as specified in Summary 1.A)	NA	NA	NA	NA	NA	NA	NA
Memo Items:⁽⁴⁾							
International Bunkers	0.43	0.00	0.00				0.43
Aviation	0.43	0.00	0.00				0.43
Marine	NA,NO	NA,NO	NA,NO				NA,NO
Multilateral Operations	NO	NO	NO				NO
CO₂ Emissions from Biomass	5.67						5.67
Total CO ₂ Equivalent Emissions without Land Use, Land-Use Change and Forestry ⁽⁵⁾							229.48
Total CO ₂ Equivalent Emissions with Land Use, Land-Use Change and Forestry ⁽⁵⁾							222.14

(1) For CO₂ from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

(2) Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

(3) Parties which previously reported CO₂ from soils in the Agriculture sector should note this in the NIR.

(4) See footnote 8 to table Summary 1.A.

(5) These totals will differ from the totals reported in table 10, sheet 5 if Parties report non-CO₂ emissions from LULUCF.

SUMMARY 2 SUMMARY REPORT FOR CO₂ EQUIVALENT EMISSIONS

(Sheet 1 of 1)

Inventory 2004
Submission 2006 v2.2
LIECHTENSTEIN

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs ⁽²⁾	PFCs ⁽²⁾	SF ₆ ⁽²⁾	Total
	CO ₂ equivalent (Gg)						
Total (Net Emissions)⁽¹⁾	233.81	14.34	12.85	3.95	NA,NO	0.06	264.99
1. Energy	239.31	1.56	1.21				242.09
A. Fuel Combustion (Sectoral Approach)	239.31	0.64	1.21				241.16
1. Energy Industries	2.79	0.03	0.08				2.90
2. Manufacturing Industries and Construction	37.27	0.05	0.05				37.38
3. Transport	85.06	0.16	0.76				85.98
4. Other Sectors	111.17	0.39	0.30				111.85
5. Other	3.02	0.00	0.03				3.05
B. Fugitive Emissions from Fuels	NA,NO	0.93	NA,NO				0.93
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NO	0.93	NA,NO				0.93
2. Industrial Processes	NA,NO	NA,NO	NA,NO	3.95	NA,NO	0.06	4.00
A. Mineral Products	NO	NO	NO				NO
B. Chemical Industry	NO	NO	NO	NA	NA	NA	NA,NO
C. Metal Production	NA,NO	NA,NO	NA	NA,NO	NA,NO	NA,NO	NA,NO
D. Other Production	NO						NO
E. Production of Halocarbons and SF ₆				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF ₆ ⁽²⁾				3.95	NA,NO	0.06	4.00
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	0.87		0.23				1.10
4. Agriculture		12.12	10.32				22.44
A. Enteric Fermentation		10.40					10.40
B. Manure Management		1.73	1.58				3.31
C. Rice Cultivation		NA,NO					NA,NO
D. Agricultural Soils ⁽³⁾		NA,NO	8.74				8.74
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO
G. Other		NA	NA				NA
5. Land Use, Land-Use Change and Forestry⁽¹⁾	-6.38	NO	NO				-6.38
A. Forest Land	-18.88	NO	NO				-18.88
B. Cropland	4.74	NO	NO				4.74
C. Grassland	2.32	NO	NO				2.32
D. Wetlands	0.55	NO	NO				0.55
E. Settlements	3.11	NO	NO				3.11
F. Other Land	1.78	NO	NO				1.78
G. Other	NO	NO	NO				NO
6. Waste	0.009	0.65	1.08				1.74
A. Solid Waste Disposal on Land	NA,NO	0.03					0.0312
B. Waste-water Handling		0.03	0.96				0.99
C. Waste Incineration	0.01	0.01	0.00				0.01
D. Other	NO	0.59	0.12				0.71
7. Other (as specified in Summary I.A)	NA	NA	NA	NA	NA	NA	NA
Memo Items:⁽⁴⁾							
International Bunkers	0.35	0.00	0.00				0.36
Aviation	0.35	0.00	0.00				0.36
Marine	NA,NO	NA,NO	NA,NO				NA,NO
Multilateral Operations	NO	NO	NO				NO
CO₂ Emissions from Biomass	9.97						9.97
Total CO ₂ Equivalent Emissions without Land Use, Land-Use Change and Forestry ⁽⁵⁾							271.37
Total CO ₂ Equivalent Emissions with Land Use, Land-Use Change and Forestry ⁽⁵⁾							264.99

(1) For CO₂ from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

(2) Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

(3) Parties which previously reported CO₂ from soils in the Agriculture sector should note this in the NIR.

(4) See footnote 8 to table Summary I.A.

(5) These totals will differ from the totals reported in table 10, sheet 5 if Parties report non-CO₂ emissions from LULUCF.