

Switzerland's Greenhouse Gas Inventory 1990–2004

**Supplement to National Inventory Report
2006**

Supplement to Submission of 10 November 2006
to the United Nations Framework Convention on Climate Change
20 April 2007



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Author

Federal Office for the Environment (FOEN)

Paul Filliger

FOEN; Climate, Economics and Environmental
Observation Division (project leader)

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1. Rationale for the Supplement

During preparation of the In-Country Review of Switzerland which took place from 5 – 10 March 2007, the Swiss energy experts discovered an error in treating the gas losses of the Swiss pipeline network. The revision of emission estimates resulting from the correction of the error was presented to the Expert Review Team in a notification on 7 March 2007 (see paragraph 2).

The Expert Review Team (ERT) proposed to submit to the ERT – through the UNFCCC secretariat – a revised estimate for the 2006 GHG inventory. Switzerland decided to make a complete resubmission of the November 2006 GHG submission (FOEN 2006)¹. This supplement documents the revised GHG emissions 1990-2004 and shows the differences between the original November 2006 submission (CHE-2006-year-v1.2, CRF submitted on 23 November 2006; NIR submitted on 10 November 2006) and the revised November 2006 submission (CHE-2006-year-v1.3, CRF and NIR submitted on 20 April 2007).

2. Revision of Emission Estimates for Natural Gas Losses

The following page shows the original note presented to the ERT during the in-country review on 7 March 2007.

¹ **FOEN 2006:** Switzerland's Greenhouse Gas Inventory 1990–2004, National Inventory Report and CRF tables 2006. Submission of 10/23 November 2006 to the United Nations Framework Convention on Climate Change. Federal Office for the Environment, Bern.
<http://www.bafu.admin.ch/climatereporting/03211/index.html?lang=en>



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Federal Department of the Environment,
Transport, Energy and Communications DETEC
Federal Office for the Environment FOEN
Air Pollution Control and NIR Division

In-Country Review Switzerland, March 2007

Revision of Emission Estimates

Date: 7th March 2007

For: Expert Review Team

Copy to: LA, MBU, FP, SA, JF, JH, NM, BUA

From: P. Filliger / B. Müller

Reference: G102-1421

Revision of the Modeling of Natural Gas Losses, 1990-2005

As explained and discussed in the Energy session, the Swiss Energy Statistics provides metered data of incoming natural gas (Import to Switzerland) and of the end use of natural gas. The difference Δ between these two figures corresponds to:

- the natural **Gas losses** of the pipeline network.
- own consumption of the compressor station (there is only one in Switzerland).
- statistical differences including the sum of the measuring errors of all gas meters.

Year	1990	1995	2000	2005
Difference Δ [TJ]	892.8	810.0	918.0	849.6
Gas losses [TJ]	758.8	519.3	429.9	346.8
Total Gas [TJ]	68'091.6	91'297.7	100'900.6	115'219.7
Gas losses as % of Total Gas	1.14	0.57	0.43	0.30
EF _{CO₂} (Gas) [t/TJ]	55	55	55	55
Error [t CO₂]	41'734	28'563	23'645	19'071

In the November 2006 submission, the calculation of the CO₂ emission from gas consumption is based on the total gas **minus** the gas losses (see table above). However, consultations with experts involved in the preparations for the In-Country Review revealed that the metered end use **is** the real end use and has not to be corrected for any losses.

As a consequence, we do underestimate our CO₂ emissions for 1990 by **41'734 t**. The underestimation of CO₂ for the whole time series is given in the annex.

We therefore request the Expert Review Team to consider this revision in the context of its review of the November 2006 GHG inventory submission.

Annex: Excel File: Time Series "Natural Gas Losses" 1990-2005

Beat Müller
FOEN, Air Pollution Control and NIR Division, 3003
Telephone +41 31 322 07 88, Telefax +41 31 324 01 37
beat.mueller@bafu.admin.ch
<http://www.environment-switzerland.ch>

Annex: Excel File: Time Series "Natural Gas Losses" 1990 – 2005

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Difference Δ [TJ]	892.8	540	568.8	594	738	810	871.2	867.6	892.8	925.2
Gas losses [TJ]	758.8	715.8	657.4	600.7	573.2	519.3	483.0	459.9	439.7	451.1
Total Gas [TJ]	68092	76293	80124	84009	82827	91298	98758	95346	98058	101503
Gas losses as % of Total Gas	1.11%	0.94%	0.82%	0.72%	0.69%	0.57%	0.49%	0.48%	0.45%	0.44%
EFCO ₂ (Gas) [t/TJ]	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0
Error [t CO₂]	41'734	39'366	36'157	33'038	31'524	28'563	26'566	25'295	24'182	24'809

Year	2000	2001	2002	2003	2004	2005
Difference Δ [TJ]	918	957.6	936	770.4	795.6	849.6
Gas losses [TJ]	429.9	442.0	393.6	358.6	350.5	346.8
Total Gas [TJ]	100901	104950	102960	108914	112242	115220
Gas losses as % of Total Gas	0.43%	0.42%	0.38%	0.33%	0.31%	0.30%
EFCO ₂ (Gas) [t/TJ]	55.0	55.0	55.0	55.0	55.0	55.0
Error [t CO₂]	23'645	24'310	21'650	19'724	19'280	19'071

3. Revised Trends in Greenhouse Gas Emissions and Removals

3.1. Aggregated Greenhouse Gas Emissions 1990

Table 1 Switzerland's GHG emissions in CO₂ equivalent (Gg) by gas and sector, 1990.

Emissions 1990	CO ₂	CH ₄	N ₂ O	HFCs	PFCs	SF ₆	Total	Share
	CO ₂ equivalent (Gg)							
1 All Energy	41'303	563	268				42'134	79.8%
2 Industrial Processes	2'831	9	174	0	100	144	3'258	6.2%
3 Solvent Use	357		109				466	0.9%
4 Agriculture (1 year average)		3'042	2'861				5'903	11.2%
6 Waste	62	756	212				1'030	2.0%
Total (excluding LULUCF)	44'553	4'370	3'623	0	100	144	52'791	100.0%
5 LULUCF	-1'711	2	5				-1'704	-3.2%
Total (including LULUCF)	42'843	4'372	3'628	0	100	144	51'087	96.8%
<i>International Bunkers</i>	3'066	2	30				3'098	

3.2. Aggregated Greenhouse Gas Emissions 2004

Table 2 Switzerland's GHG emissions in CO₂ equivalent (Gg) by gas and sector, 2004 (compare to FOEN 2006, Table 13).

Emissions 2004	CO ₂	CH ₄	N ₂ O	HFCs	PFCs	SF ₆	Total	Share
	CO ₂ equivalent (Gg)							
1 All Energy	43'141	290	364				43'795	82.5%
2 Industrial Processes	2'004	7	171	617	77	175	3'051	5.7%
3 Solvent Use	186		50				236	0.4%
4 Agriculture (1 year average)		2'775	2'483				5'258	9.9%
6 Waste	15	477	252				744	1.4%
Total (excluding LULUCF)	45'346	3'550	3'320	617	77	175	53'085	100.0%
5 LULUCF	-830	0	9				-821	-1.5%
Total (including LULUCF)	44'516	3'550	3'329	617	77	175	52'264	98.5%
<i>International Bunkers</i>	3'433	1	33				3'468	

3.3. Emission Trends by Gas

Table 3 Switzerland's GHG emissions in CO₂ equivalent (Gg) by gas, 1990–2004 (corresponds to CRF table 10s5/10s5.2, upper half). The column on the far right (digits in *italics*) indicates the percentage change in emissions in 2004 as compared to the base year 1990 (compare to FOEN 2006, Table 1 and 14).

Greenhouse Gas Emissions	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2004/1990
	CO ₂ equivalent (Gg)															%
CO ₂ emissions incl. net CO ₂ from LULUCF	42'843	47'355	46'870	39'900	38'971	40'143	41'644	40'665	43'515	39'876	45'187	44'052	43'292	46'770	44'516	3.9%
CO ₂ emissions excl. net CO ₂ from LULUCF	44'553	46'194	46'225	43'623	42'835	43'355	44'076	43'427	44'643	44'858	43'934	44'716	43'818	44'912	45'346	1.8%
CH ₄	4'372	4'347	4'236	4'094	4'002	3'984	3'935	3'852	3'794	3'745	3'692	3'707	3'648	3'602	3'550	-18.8%
N ₂ O	3'628	3'644	3'618	3'575	3'575	3'504	3'551	3'431	3'428	3'406	3'432	3'411	3'411	3'326	3'329	-8.2%
HFCs	0.02	0.2	6.1	13	30	152	193	258	311	360	418	492	502	538	617	---
PFCs	100	85	69	30	18	15	17	24	28	40	93	52	51	89	77	-23.4%
SF ₆	144	146	148	126	112	81	82	122	152	138	186	234	209	194	175	21.9%
Total (incl. net CO₂ from LULUCF)	51'087	55'577	54'948	47'738	46'707	47'879	49'422	48'351	51'228	47'565	53'008	51'949	51'113	54'520	52'264	2.3%
Total (excl. net CO₂ from LULUCF)	52'797	54'417	54'303	51'462	50'572	51'091	51'853	51'113	52'356	52'547	51'754	52'613	51'639	52'663	53'094	0.6%
Total (excl. LULUCF Removals/Emissions)	52'791	54'414	54'301	51'457	50'562	51'080	51'843	51'097	52'346	52'538	51'745	52'604	51'628	52'651	53'085	0.6%

Table 4 Switzerland's total GHG emissions (excl. net CO₂ from LULUCF) in CO₂ equivalent (Gg), selected years (compare to FOEN 2006, Table 2 and 15).

Greenhouse Gas Emissions	1990		1995		2000		2004	
	Gg CO ₂ eq	%	Gg CO ₂ eq	%	Gg CO ₂ eq	%	Gg CO ₂ eq	%
CO ₂ emissions excluding net CO ₂ from LULUCF	44'553	84.4%	43'355	84.9%	43'934	84.9%	45'346	85.4%
CH ₄	4'372	8.3%	3'984	7.8%	3'692	7.1%	3'550	6.7%
N ₂ O	3'628	6.9%	3'504	6.9%	3'432	6.6%	3'329	6.3%
HFCs	0	0.0%	152	0.3%	418	0.8%	617	1.2%
PFCs	100	0.2%	15	0.0%	93	0.2%	77	0.1%
SF ₆	144	0.3%	81	0.2%	186	0.4%	175	0.3%
Total (excl. net CO₂ from LULUCF)	52'797	100%	51'091	100%	51'754	100%	53'094	100%

3.4. Emission Trends by Sources and Sinks

Table 5 Switzerland's GHG emissions in CO₂ equivalent (Gg) by sources and sinks, 1990–2004 (compare to FOEN 2006, Table 16).

Source and Sink Categories	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	CO ₂ equivalent (Gg)														
1. Energy	42'134	44'134	44'297	41'924	40'986	41'686	42'605	42'131	43'348	43'540	42'464	43'223	42'346	43'460	43'795
1A1 Energy Industries	2'545	2'827	2'912	2'564	2'589	2'620	2'830	2'795	3'118	2'969	2'886	3'011	3'085	3'064	3'384
1A2 Manufacturing Industries and Construction	6'065	5'957	5'810	5'603	5'627	5'544	5'463	5'549	5'717	5'783	5'855	5'959	5'784	5'821	5'817
1A3 Transport	14'599	15'078	15'393	14'312	14'486	14'151	14'193	14'757	14'957	15'542	15'774	15'465	15'340	15'505	15'608
1A4 Other Sectors	17'885	19'237	19'163	18'437	17'273	18'367	19'116	18'034	18'556	18'234	16'948	17'776	17'151	18'114	18'026
1A5 Other (Offroad)	519	538	557	576	594	613	624	635	646	657	668	670	672	674	676
1B Fugitive emissions from oil and natural gas	520	497	462	432	416	392	379	361	353	355	334	342	313	282	285
2. Industrial Processes	3'258	2'912	2'744	2'437	2'617	2'527	2'382	2'298	2'415	2'509	2'819	2'946	2'890	2'900	3'051
3. Solvent and Other Product Use	466	444	424	400	385	367	346	324	302	292	281	270	259	250	236
4. Agriculture	5'903	5'907	5'833	5'753	5'706	5'638	5'662	5'499	5'467	5'405	5'409	5'418	5'394	5'282	5'258
6. Waste	1'030	1'018	1'004	943	867	861	848	845	814	791	772	747	740	760	744
Total (excl. LULUCF Removals/Emissions)	52'791	54'414	54'301	51'457	50'562	51'080	51'843	51'097	52'346	52'538	51'745	52'604	51'628	52'651	53'085
5. Land Use, Land-Use Change and Forestry	-1'704	1'163	647	-3'719	-3'854	-3'201	-2'421	-2'746	-1'118	-4'973	1'263	-655	-515	1'869	-821
Total (incl. net CO₂ from LULUCF)	51'087	55'577	54'948	47'738	46'707	47'879	49'422	48'351	51'228	47'565	53'008	51'949	51'113	54'520	52'264

Table 6 Contribution of individual source categories to total emissions (excl. LULUCF Removals/Emissions) in CO₂ equivalent (Gg), selected years (compare to FOEN 2006, Table 17).

Source and Sink Categories	1990		1995		2000		2004	
	Gg CO ₂ eq	%	Gg CO ₂ eq	%	Gg CO ₂ eq	%	Gg CO ₂ eq	%
1. Energy	42'134	79.8%	41'686	81.6%	42'464	82.1%	43'795	82.5%
1A1 Energy Industries	2'545	4.8%	2'620	5.1%	2'886	5.6%	3'384	6.4%
1A2 Manufacturing Industries and Construction	6'065	11.5%	5'544	10.9%	5'855	11.3%	5'817	11.0%
1A3 Transport	14'599	27.7%	14'151	27.7%	15'774	30.5%	15'608	29.4%
1A4 Other Sectors	17'885	33.9%	18'367	36.0%	16'948	32.8%	18'026	34.0%
1A5 Other (Offroad)	519	1.0%	613	1.2%	668	1.3%	676	1.3%
1B Fugitive emissions from oil and natural gas	520	1.0%	392	0.8%	334	0.6%	285	0.5%
2. Industrial Processes	3'258	6.2%	2'527	4.9%	2'819	5.4%	3'051	5.7%
3. Solvent and Other Product Use	466	0.9%	367	0.7%	281	0.5%	236	0.4%
4. Agriculture	5'903	11.2%	5'638	11.0%	5'409	10.5%	5'258	9.9%
6. Waste	1'030	2.0%	861	1.7%	772	1.5%	744	1.4%
Total (excl. LULUCF Removals/Emissions)	52'791	100.0%	51'080	100.0%	51'745	100.0%	53'085	100.0%

3.5. Emission trend of source category 1 "Energy"

Table 7 GHG emissions of source category 1 "Energy" by gas in CO₂ equivalent (Gg), 1990–2004 (compare to FOEN 2006, Table 20).

Gas	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	CO ₂ equivalent (Gg)														
CO ₂	41'303	43'296	43'480	41'148	40'218	40'931	41'853	41'401	42'616	42'794	41'742	42'496	41'657	42'792	43'141
CH ₄	563	546	501	459	436	412	393	364	357	362	335	341	310	293	290
N ₂ O	268	292	317	317	332	344	359	366	375	384	387	386	379	374	364
Sum	42'134	44'134	44'297	41'924	40'986	41'686	42'605	42'131	43'348	43'540	42'464	43'223	42'346	43'460	43'795

Table 8 Summary of source category 1 "Energy", emissions in 2004 in Gg CO₂ equivalent (compare to FOEN 2006, Table 21).

Emissions 2004	CO₂	CH₄	N₂O	Total
	CO₂ equivalent (Gg)			
1 Energy	43'141	290	364	43'795
1A Fuel Combustion	43'034	112.5	364.0	43'510
1A1 Energy Industries	3'260	1.5	122.4	3'384
1A2 Manufacturing Industries and Construction	5'768	8.6	40.1	5'817
1A3 Transport	15'442	24.5	141.4	15'608
1A4 Other Sectors	17'895	76.7	54.2	18'026
1A5 Other	669	1.3	5.9	676
1B Fugitive Emissions from Fuels	107	177.9	0.0	285
International Bunkers	3'433	1.3	33.4	3'468
CO₂ Emissions from Biomass	2'887			2'887

4. Recalculations

Due to technical problems regarding the data import in the CRF Reporter, CRF-tables 8(a)s1 and 8(a)s2 are NOT correct (erroneous data in columns "previous submission").

Please refer to the following tables containing the correct figures for 1990 and 2003 recalculated data and, respectively, to the separate recalculation files 1990-2004, which have been submitted together with the CRF files.

In the recalculation tables, "previous submission" refers to the 23 November 2006 submission (CHE-2006-year-v1.2) and "latest submission" refers to the revised November 2006 CRF Tables submitted on 20 April 2007 (CHE-2006-year-v1.3).

TABLE 8(a) RECALCULATION - RECALCULATED DATA
(Sheet 1 of 2)Recalculated year: Inventory 1990
Submission 2006 v1.3
SWITZERLAND

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂					CH ₄					N ₂ O				
	Previous submission	Latest submission	Difference	Difference ⁽¹⁾	Impact of recalculation on total emissions ⁽²⁾	Previous submission	Latest submission	Difference	Difference ⁽¹⁾	Impact of recalculation on total emissions ⁽²⁾	Previous submission	Latest submission	Difference	Difference ⁽¹⁾	Impact of recalculation on total emissions ⁽²⁾
	CO ₂ equivalent (Gg)			(%)	(%)	CO ₂ equivalent (Gg)			(%)	(%)	CO ₂ equivalent (Gg)			(%)	(%)
Total National Emissions and Removals	42'800.91	42'842.64	41.73	0.10	0.08	4'371.89	4'371.89	0.00	0.00	0.00	3'628.35	3'628.35	0.00	0.00	0.00
1. Energy	41'261.28	41'303.01	41.73	0.10	0.08	563.11	563.11	0.00	0.00	0.00	267.60	267.60	0.00	0.00	0.00
1.A. Fuel Combustion Activities	41'121.94	41'163.68	41.73	0.10	0.08	182.65	182.65	0.00	0.00	0.00	267.57	267.57	0.00	0.00	0.00
1.A.1. Energy Industries	2'492.78	2'492.78	0.00	0.00	0.00	1.16	1.16	0.00	0.00	0.00	50.97	50.97	0.00	0.00	0.00
1.A.2. Manufacturing Industries and Construction	6'004.50	6'004.50	0.00	0.00	0.00	6.89	6.89	0.00	0.00	0.00	53.99	53.99	0.00	0.00	0.00
1.A.3. Transport	14'403.99	14'403.99	0.00	0.00	0.00	93.51	93.51	0.00	0.00	0.00	101.76	101.76	0.00	0.00	0.00
1.A.4. Other Sectors	17'707.67	17'749.40	41.73	0.24	0.08	79.62	79.62	0.00	0.00	0.00	56.33	56.33	0.00	0.00	0.00
1.A.5. Other	513.00	513.00	0.00	0.00	0.00	1.47	1.47	0.00	0.00	0.00	4.53	4.53	0.00	0.00	0.00
1.B. Fugitive Emissions from Fuels	139.33	139.33	0.00	0.00	0.00	380.47	380.47	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00
1.B.1. Solid fuel	NO	NO				NO	NO				NO	NO			
1.B.2. Oil and Natural Gas	139.33	139.33	0.00	0.00	0.00	380.47	380.47	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00
2. Industrial Processes	2'831.33	2'831.33	0.00	0.00	0.00	9.11	9.11	0.00	0.00	0.00	173.76	173.76	0.00	0.00	0.00
2.A. Mineral Products	2'564.98	2'564.98	0.00	0.00	0.00	0.94	0.94	0.00	0.00	0.00	NO	NO			
2.B. Chemical Industry	13.60	13.60	0.00	0.00	0.00	8.16	8.16	0.00	0.00	0.00	173.76	173.76	0.00	0.00	0.00
2.C. Metal Production	251.71	251.71	0.00	0.00	0.00	IE,NO	IE,NO				NO	NO			
2.D. Other Production	IE	IE													
2.G. Other	1.04	1.04	0.00	0.00	0.00	NO	NO				NO	NO			
3. Solvent and Other Product Use	357.01	357.01	0.00	0.00	0.00						109.41	109.41	0.00	0.00	0.00
4. Agriculture						3'042.22	3'042.22	0.00	0.00	0.00	2'861.01	2'861.01	0.00	0.00	0.00
4.A. Enteric Fermentation						2'474.84	2'474.84	0.00	0.00	0.00					
4.B. Manure Management						557.39	557.39	0.00	0.00	0.00	448.20	448.20	0.00	0.00	0.00
4.C. Rice Cultivation						NO	NO								
4.D. Agricultural Soils ⁽³⁾						NO	NO				2'408.91	2'408.91	0.00	0.00	0.00
4.E. Prescribed Burning of Savannas						NO	NO				NO	NO			
4.F. Field Burning of Agricultural Residues						10.00	10.00	0.00	0.00	0.00	3.91	3.91	0.00	0.00	0.00
4.G. Other						NO	NO				NO	NO			
5. Land Use, Land-Use Change and Forestry (net)⁽⁴⁾	-1'710.70	-1'710.70	0.00	0.00	0.00	1.50	1.50	0.00	0.00	0.00	4.98	4.98	0.00	0.00	0.00
5.A. Forest Land	-3'552.31	-3'552.31	0.00	0.00	0.00	1.50	1.50	0.00	0.00	0.00	3.38	3.38	0.00	0.00	0.00
5.B. Cropland	515.72	515.72	0.00	0.00	0.00	NO	NO				1.60	1.60	0.00	0.00	0.00
5.C. Grassland	670.41	670.41	0.00	0.00	0.00	NO	NO				NO	NO			
5.D. Wetlands	38.79	38.79	0.00	0.00	0.00	NO	NO				NO	NO			
5.E. Settlements	460.39	460.39	0.00	0.00	0.00	NE,NO	NE,NO				NE,NO	NE,NO			
5.F. Other Land	156.30	156.30	0.00	0.00	0.00	NE,NO	NE,NO				NE,NO	NE,NO			
5.G. Other	NO	NO				NO	NO				NO	NO			

Note: All footnotes for this table are given at the end of the table on sheet 2.

TABLE 8(a) RECALCULATION - RECALCULATED DATA
(Sheet 2 of 2)Recalculated year: Inventory 1990
Submission 2006 v1.3
SWITZERLAND

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂					CH ₄					N ₂ O				
	Previous submission	Latest submission	Difference	Difference ⁽¹⁾	Impact of recalculation on total emissions ⁽²⁾	Previous submission	Latest submission	Difference	Difference ⁽¹⁾	Impact of recalculation on total emissions ⁽²⁾	Previous submission	Latest submission	Difference	Difference ⁽¹⁾	Impact of recalculation on total emissions ⁽²⁾
	CO ₂ equivalent (Gg)			(%)	(%)	CO ₂ equivalent (Gg)			(%)	(%)	CO ₂ equivalent (Gg)			(%)	(%)
6. Waste	62.00	62.00	0.00	0.00	0.00	755.94	755.94	0.00	0.00	0.00	211.60	211.60	0.00	0.00	0.00
6.A. Solid Waste Disposal on Land	9.13	9.13	0.00	0.00	0.00	693.04	693.04	0.00	0.00	0.00					
6.B. Waste-water Handling						28.60	28.60	0.00	0.00	0.00	190.67	190.67	0.00	0.00	0.00
6.C. Waste Incineration	52.87	52.87	0.00	0.00	0.00	3.96	3.96	0.00	0.00	0.00	14.69	14.69	0.00	0.00	0.00
6.D. Other	NO	NO				30.34	30.34	0.00	0.00	0.00	6.23	6.23	0.00	0.00	0.00
7. Other (as specified in Summary 1.A)	NO	NO				NO	NO				NO	NO			
Memo Items:															
International Bunkers	3'066.43	3'066.43	0.00	0.00	0.00	1.84	1.84	0.00	0.00	0.00	29.87	29.87	0.00	0.00	0.00
Multilateral Operations	NO	NO				NO	NO				NO	NO			
CO ₂ Emissions from Biomass	2'790.91	2'790.91	0.00	0.00	0.00										

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	HFCs					PFCs					SF ₆				
	Previous submission	Latest submission	Difference	Difference ⁽¹⁾	Impact of recalculation on total emissions ⁽²⁾	Previous submission	Latest submission	Difference	Difference ⁽¹⁾	Impact of recalculation on total emissions ⁽²⁾	Previous submission	Latest submission	Difference	Difference ⁽¹⁾	Impact of recalculation on total emissions ⁽²⁾
	CO ₂ equivalent (Gg)			(%)	(%)	CO ₂ equivalent (Gg)			(%)	(%)	CO ₂ equivalent (Gg)			(%)	(%)
Total Actual Emissions	0.02	0.02	0.00	0.00	0.00	100.21	100.21	0.00	0.00	0.00	143.62	143.62	0.00	0.00	0.00
2.C.3 Aluminium Production						100.17	100.17								
2.E. Production of Halocarbons and SF ₆	NO	NO				NO	NO				NO	NO			
2.F. Consumption of Halocarbons and SF ₆	0.02	0.02	0.00	0.00	0.00	0.04	0.04	0.00	0.00	0.00	143.62	143.62	0.00	0.00	0.00
2.G. Other	NO	NO				NO	NO				NO	NO			
Potential Emissions from Consumption of HFCs/PFCs and SF ₆	0.61	0.61	0.00	0.00	0.00	0.33	0.33	0.00	0.00	0.00	480.01	480.01	0.00	0.00	0.00

	Previous submission	Latest submission	Difference	Difference ⁽¹⁾
	CO ₂ equivalent (Gg)			(%)
	Total CO2 Equivalent Emissions with Land Use, Land-Use Change and Forestry ⁽⁵⁾	51'045.00	51'086.73	41.73
Total CO2 Equivalent Emissions without Land Use, Land-Use Change and Forestry ⁽⁵⁾	52'749.22	52'790.96	41.73	0.08

⁽¹⁾ Estimate the percentage change due to recalculation with respect to the previous submission (Percentage change = 100 x [(LS-PS)/PS], where LS = Latest submission and PS = Previous submission. All cases of recalculation of the estimate of the source/sink category should be addressed and explained in table 8(b).⁽²⁾ Total emissions refer to total aggregate GHG emissions expressed in terms of CO₂ equivalent, excluding GHGs from the LULUCF sector. The impact of the recalculation on the total emissions is calculated as follows:

impact of recalculation (%) = 100 x [(source (LS) - source (PS))/total emissions (LS)], where LS = Latest submission, PS = Previous submission.

⁽³⁾ Parties which previously reported CO₂ from soils in the Agriculture sector should note this in the NIR.⁽⁴⁾ Net CO₂ emissions/removals to be reported.⁽⁵⁾ The information in these rows is requested to facilitate comparison of data, because Parties differ in the way they report emissions and removals from Land Use, Land-Use Change and Forestry.**Documentation box:**

Parties should provide detailed information on recalculations in Chapter 10: Recalculations and Improvements, and in the relevant sections of Chapters 3 to 9 (see section 2.5 of each of Chapters 3 - 9) of the NIR. Use this documentation box to provide references to relevant sections of the NIR if any additional information and further details are needed to understand the content of this table.

Recalculation DATA IN THE COLUMN "PREVIOUS SUBMISSION" ARE NOT CORRECT!

Data in the Column "Previous Submission" refer to the November 2006 submission (v1.2). The only recalculation is related to the correction of gas losses.

TABLE 8(a) RECALCULATION - RECALCULATED DATA
(Sheet 1 of 2)Recalculated year: Inventory 2003
Submission 2006 v1.3
SWITZERLAND

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂					CH ₄					N ₂ O				
	Previous submission	Latest submission	Difference	Difference ⁽¹⁾	Impact of recalculation on total emissions ⁽²⁾	Previous submission	Latest submission	Difference	Difference ⁽¹⁾	Impact of recalculation on total emissions ⁽²⁾	Previous submission	Latest submission	Difference	Difference ⁽¹⁾	Impact of recalculation on total emissions ⁽²⁾
	CO ₂ equivalent (Gg)			(%)	(%)	CO ₂ equivalent (Gg)			(%)	(%)	CO ₂ equivalent (Gg)			(%)	(%)
Total National Emissions and Removals	46'749.88	46'769.61	19.72	0.04	0.04	3'602.07	3'602.07	0.00	0.00	0.00	3'326.16	3'326.16	0.00	0.00	0.00
1. Energy	42'772.62	42'792.34	19.72	0.05	0.04	293.44	293.44	0.00	0.00	0.00	373.89	373.89	0.00	0.00	0.00
1.A. Fuel Combustion Activities	42'671.17	42'690.90	19.72	0.05	0.04	113.11	113.11	0.00	0.00	0.00	373.86	373.86	0.00	0.00	0.00
1.A.1. Energy Industries	2'940.00	2'940.00	0.00	0.00	0.00	1.27	1.27	0.00	0.00	0.00	122.31	122.31	0.00	0.00	0.00
1.A.2. Manufacturing Industries and Construction	5'773.04	5'773.04	0.00	0.00	0.00	8.47	8.47	0.00	0.00	0.00	39.55	39.55	0.00	0.00	0.00
1.A.3. Transport	15'327.42	15'327.42	0.00	0.00	0.00	26.53	26.53	0.00	0.00	0.00	151.42	151.42	0.00	0.00	0.00
1.A.4. Other Sectors	17'963.72	17'983.44	19.72	0.11	0.04	75.54	75.54	0.00	0.00	0.00	54.70	54.70	0.00	0.00	0.00
1.A.5. Other	667.00	667.00	0.00	0.00	0.00	1.29	1.29	0.00	0.00	0.00	5.88	5.88	0.00	0.00	0.00
1.B. Fugitive Emissions from Fuels	101.44	101.44	0.00	0.00	0.00	180.33	180.33	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00
1.B.1. Solid fuel	NO	NO				NO	NO				NO	NO			
1.B.2. Oil and Natural Gas	101.44	101.44	0.00	0.00	0.00	180.33	180.33	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00
2. Industrial Processes	1'907.35	1'907.35	0.00	0.00	0.00	7.14	7.14	0.00	0.00	0.00	163.24	163.24	0.00	0.00	0.00
2.A. Mineral Products	1'661.93	1'661.93	0.00	0.00	0.00	0.63	0.63	0.00	0.00	0.00	NO	NO			
2.B. Chemical Industry	13.60	13.60	0.00	0.00	0.00	6.51	6.51	0.00	0.00	0.00	163.24	163.24	0.00	0.00	0.00
2.C. Metal Production	228.38	228.38	0.00	0.00	0.00	IE,NO	IE,NO				NO	NO			
2.D. Other Production	IE	IE													
2.G. Other	3.44	3.44	0.00	0.00	0.00	NO	NO				NO	NO			
3. Solvent and Other Product Use	197.14	197.14	0.00	0.00	0.00						52.42	52.42	0.00	0.00	0.00
4. Agriculture						2'803.83	2'803.83	0.00	0.00	0.00	2'478.56	2'478.56	0.00	0.00	0.00
4.A. Enteric Fermentation						2'295.96	2'295.96	0.00	0.00	0.00					
4.B. Manure Management						497.87	497.87	0.00	0.00	0.00	396.68	396.68	0.00	0.00	0.00
4.C. Rice Cultivation						NO	NO								
4.D. Agricultural Soils ⁽³⁾						NO	NO				2'077.97	2'077.97	0.00	0.00	0.00
4.E. Prescribed Burning of Savannas						NO	NO				NO	NO			
4.F. Field Burning of Agricultural Residues						10.00	10.00	0.00	0.00	0.00	3.91	3.91	0.00	0.00	0.00
4.G. Other						NO	NO				NO	NO			
5. Land Use, Land-Use Change and Forestry (net)⁽⁴⁾	1'857.12	1'857.12	0.00	0.00	0.00	0.7707	0.77	0.00	0.00	0.00	10.80449696	10.80	0.00	0.00	0.00
5.A. Forest Land	404.7131494	404.71	0.00	0.00	0.00	0.7707	0.77	0.00	0.00	0.00	1.736	1.74	0.00	0.00	0.00
5.B. Cropland	602.6076419	602.61	0.00	0.00	0.00	NO	NO				9.06849696	9.07	0.00	0.00	0.00
5.C. Grassland	402.2945234	402.29	0.00	0.00	0.00	NO	NO				NO	NO			
5.D. Wetlands	27.4500582	27.45	0.00	0.00	0.00	NO	NO				NO	NO			
5.E. Settlements	289.4639659	289.46	0.00	0.00	0.00	NE,NO	NE,NO				NE,NO	NE,NO			
5.F. Other Land	130.5920919	130.59	0.00	0.00	0.00	NE,NO	NE,NO				NE,NO	NE,NO			
5.G. Other	NO	NO				NO	NO				NO	NO			

Note: All footnotes for this table are given at the end of the table on sheet 2.

TABLE 8(a) RECALCULATION - RECALCULATED DATA
(Sheet 2 of 2)Recalculated year: Inventory 2003
Submission 2006 v1.3
SWITZERLAND

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂					CH ₄					N ₂ O				
	Previous submission	Latest submission	Difference	Difference ⁽¹⁾	Impact of recalculation on total emissions ⁽²⁾	Previous submission	Latest submission	Difference	Difference ⁽¹⁾	Impact of recalculation on total emissions ⁽²⁾	Previous submission	Latest submission	Difference	Difference ⁽¹⁾	Impact of recalculation on total emissions ⁽²⁾
	CO ₂ equivalent (Gg)			(%)	(%)	CO ₂ equivalent (Gg)			(%)	(%)	CO ₂ equivalent (Gg)			(%)	(%)
6. Waste	15.66	15.66	0.00	0.00	0.00	496.89	496.89	0.00	0.00	0.00	247.25	247.25	0.00	0.00	0.00
6.A. Solid Waste Disposal on Land	0.34	0.34	0.00	0.00	0.00	371.78	371.78	0.00	0.00	0.00					
6.B. Waste-water Handling						32.64	32.64	0.00	0.00	0.00	207.75	207.75	0.00	0.00	0.00
6.C. Waste Incineration	15.31	15.31	0.00	0.00	0.00	3.95	3.95	0.00	0.00	0.00	21.33	21.33	0.00	0.00	0.00
6.D. Other	NO	NO				88.52	88.52	0.00	0.00	0.00	18.17	18.17	0.00	0.00	0.00
7. Other (as specified in Summary I.A)	NO	NO				NO	NO				NO	NO			
Memo Items:															
International Bunkers	3'643.21	3'643.21	0.00	0.00	0.00	1.31	1.31	0.00	0.00	0.00	35.49	35.49	0.00	0.00	0.00
Multilateral Operations	NO	NO				NO	NO				NO	NO			
CO ₂ Emissions from Biomass	2'910.73	2'910.73	0.00	0.00	0.00										

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	HFCs					PFCs					SF ₆				
	Previous submission	Latest submission	Difference	Difference ⁽¹⁾	Impact of recalculation on total emissions ⁽²⁾	Previous submission	Latest submission	Difference	Difference ⁽¹⁾	Impact of recalculation on total emissions ⁽²⁾	Previous submission	Latest submission	Difference	Difference ⁽¹⁾	Impact of recalculation on total emissions ⁽²⁾
	CO ₂ equivalent (Gg)			(%)	(%)	CO ₂ equivalent (Gg)			(%)	(%)	CO ₂ equivalent (Gg)			(%)	(%)
Total Actual Emissions	538.50	538.50	0.00	0.00	0.00	89.49	89.49	0.00	0.00	0.00	193.82	193.82	0.00	0.00	0.00
2.C.3 Aluminium Production						11.89	11.89								
2.E. Production of Halocarbons and SF ₆	NO	NO				NO	NO				NO	NO			
2.F. Consumption of Halocarbons and SF ₆	538.50	538.50	0.00	0.00	0.00	77.60	77.60	0.00	0.00	0.00	140.05	140.05	0.00	0.00	0.00
2.G. Other	NO	NO				NO	NO				NO	NO			
Potential Emissions from Consumption of HFCs/PFCs and SF ₆	1'935.22	1'935.22	0.00	0.00	0.00	103.36	103.36	0.00	0.00	0.00	318.93	318.93	0.00	0.00	0.00

	Previous submission	Latest submission	Difference	Difference ⁽¹⁾
	CO ₂ equivalent (Gg)			(%)
Total CO ₂ Equivalent Emissions with Land Use, Land-Use Change and Forestry ⁽⁵⁾	54'499.92	54'519.65	19.72	0.04
Total CO ₂ Equivalent Emissions without Land Use, Land-Use Change and Forestry ⁽⁵⁾	52'631.23	52'650.95	19.72	0.04

⁽¹⁾ Estimate the percentage change due to recalculation with respect to the previous submission (Percentage change = 100 x [(LS-PS)/PS], where LS = Latest submission and PS = Previous submission. All cases of recalculation of the estimate of the source/sink category should be addressed and explained in table 8(b).⁽²⁾ Total emissions refer to total aggregate GHG emissions expressed in terms of CO₂ equivalent, excluding GHGs from the LULUCF sector. The impact of the recalculation on the total emissions is calculated as follows:
impact of recalculation (%) = 100 x [(source (LS) - source (PS))/total emissions (LS)], where LS = Latest submission, PS = Previous submission.⁽³⁾ Parties which previously reported CO₂ from soils in the Agriculture sector should note this in the NIR.⁽⁴⁾ Net CO₂ emissions/removals to be reported.⁽⁵⁾ The information in these rows is requested to facilitate comparison of data, because Parties differ in the way they report emissions and removals from Land Use, Land-Use Change and Forestry.**Documentation box:**

Parties should provide detailed information on recalculations in Chapter 10: Recalculations and Improvements, and in the relevant sections of Chapters 3 to 9 (see section 2.5 of each of Chapters 3 - 9) of the NIR. Use this documentation box to provide references to relevant sections of the NIR if any additional information and further details are needed to understand the content of this table.

Recalculation DATA IN THE COLUMN "PREVIOUS SUBMISSION" ARE NOT CORRECT!

Data in the Column "Previous Submission" refer to the November 2006 submission (v1.2). The only recalculation is related to the correction of gas losses.