Austria's Initial Report under the Kyoto Protocol

Report to facilitate the calculation of the assigned amount pursuant to Article 3, paragraphs 7 and 8, of the Kyoto Protocol

Federal Ministry of Agriculture and Forestry,
Environment and Water Management

Vienna, November 2006

Introduction

According to decision 13/CMP.1, each Annex I Party with a commitment inscribed in Annex B to the Protocol shall facilitate the calculation of its assigned amount pursuant to Article 3, paragraphs 7 and 8, for the commitment period and demonstrate its capacity to account for its emissions and assigned amount. To this end, the Party shall submit a report containing all information required for this purpose, as defined in the annex to decision 13/CMP.1, prior to 1 January 2007. Paragraphs 7 and 8 of the annex to decision 13/CMP.1 require the following information to be submitted:

Part 1

A. Complete inventories of anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol for all years from 1990, or another approved base year or period under Article 3, paragraph 5, to the most recent year available, prepared in accordance with Article 5, paragraph 2, and relevant decisions of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (COP/MOP), taking into account any relevant decisions of the Conference of the Parties;
B. Identification of its selected base year for hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride in accordance with Article 3, paragraph 8;
C. The agreement under Article 4, where the Party has reached such an agreement to fulfil its commitments under Article 3 jointly with other Parties;
D. Calculation of its assigned amount pursuant to Article 3, paragraphs 7 and 8, on the basis of its inventory of anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol;

Part 2

A. Calculation of its commitment period reserve in accordance with decision 11/CMP.1;
B. Identification of its selection of single minimum values for tree crown cover, land area and tree height for use in accounting for its activities under Article 3, paragraphs 3 and 4, together with a justification of the consistency of those values with the information that has been historically reported to the Food and Agriculture Organization of the United Nations or other international bodies, and in the case of difference, an explanation of why and how such values were chosen, in accordance with decision 16/CMP.1;
C. Identification of its election of activities under Article 3, paragraph 4, for inclusion in its accounting for the first commitment period, together with information on how its national system under Article 5, paragraph 1, will identify land areas associated with the activities, in accordance with decision 16/CMP.1;
D. Identification of whether, for each activity under Article 3, paragraphs 3 and 4, it intends to account annually or for the entire commitment period;
E. A description of its national system in accordance with Article 5, paragraph 1, reported in accordance with the guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol;

F. A description of its national registry, reported in accordance with the guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol.

This report provides concise information on the items required on the following pages and, where appropriate, detailed reports in the annexes:

Part 1

1.A Greenhouse gas inventory time series

The Austrian greenhouse gas inventory for the period 1990 to 2004 was compiled according to the recommendations for inventories set out in the UNFCCC reporting guidelines according to Decision 18/CP.8, the Common Reporting Format (CRF), Decision 13/CP.9, the new CRF for the Land Use Change and Forestry Sector, the IPCC 1996 Guidelines for National Greenhouse Gas Inventories, which specify the reporting obligations according to Articles 4 and 12 of the UNFCCC as well as the IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories.

Total emissions of the greenhouse gases listed in Annex A of the Kyoto Protocol were 78.96 million tonnes of carbon dioxide equivalent in the base year 1990 and 91.33 million tonnes in 2004 (figures without emissions and removals from land-use, land-use change and forestry). In 2004, the share of carbon dioxide was 77.10 millions tonnes, of methane 7.41 million tonnes, of nitrous oxide 5.28 million tonnes and of fluorinated gases 1.53 million tonnes carbon dioxide equivalent. Summary information is shown in Table 1. Full time series for the greenhouse gases are shown in Annex 1.

	1990*)	1995	2000	2001	2002	2003	2004
BY GREENHOUSE GASES	**CO_2 equivalent (Gg)**						
CO_2 emissions without LULUCF	61.933	63.664	66.186	70.179	71.943	77.562	77.103
CH_4 emissions without LULUCF	9.179	8.520	7.599	7.478	7.336	7.364	7.414
N_2O emissions without LULUCF	6.242	6.575	6.192	6.075	6.069	6.039	5.283
HFCs	23	267	596	695	782	865	904
PFCs	1.079	69	72	82	87	103	115
SF_6	503	1.139	633	637	641	594	513
BY SOURCES AND SINKS	**CO_2 equivalent (Gg)**						
1. Energy	55.655	57.828	59.890	63.999	65.188	70.908	70.582
2. Industrial Processes	10.112	9.730	10.035	9.909	10.594	10.663	9.913
3. Solvent and Other Product Use	515	422	414	426	425	424	422
4. Agriculture	9.122	9.134	8.334	8.270	8.157	8.007	7.863
5. Land Use, LU Change and Forestry	-11.961	-14.411	-16.026	-18.762	-15.125	-16.597	-16.630
6. Waste	3.556	3.119	2.606	2.541	2.496	2.526	2.552
7. Other	NA	NA	NA	NA	NA	NA	NA
Total (with LULUCF)	**66.999**	**65.823**	**65.253**	**66.383**	**71.734**	**75.930**	**74.703**
Total (without LULUCF)	**78.959**	**80.235**	**81.279**	**85.145**	**86.859**	**92.527**	**91.333**
	*) Base year						

Table 1: Austria's anthropogenic greenhouse gas emissions by gas and by sectors

Detailed inventory information can be found in the **CRF data files** and the **National Inventory Report** submitted to the secretariat, latest **version of November 2006**.

1.B Base year for HFCs, PFCs and SF_6

According to Art. 3 (8) of the Kyoto Protocol any Party included in Annex I may use 1990 or 1995 as its base year for hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride for the purpose of calculating its assigned amount.

Austria has decided to use the year **1990** as its base year for hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride. The base year emissions for HFCs, PFCs and SF_6 are 0.023, 1.079 and 0.503 million tonnes carbon dioxide equivalent respectively.

1.C Agreement under Article 4

The Kyoto Protocol, under Article 4, provides the option for Parties to fulfil their commitments under Article 3 jointly, acting in the framework of and together with a regional economic integration organisation.

The agreement of the European Community and its Member States to fulfil the commitments under Article 3(1) of the Kyoto Protocol jointly (the joint fulfilment agreement) established quantified emission limitation and reduction commitments for the Community and its Member States for the first commitment period, from 2008 to 2012. These commitments define the Member States' assigned amount under the Kyoto Protocol. The full text of this agreement is contained in the Council Decision approving the Kyoto Protocol, Council Decision 2002/358/EC of 25 April 2002 concerning the approval, on behalf of the European Community, of the Kyoto Protocol to the United Nations Framework Convention on Climate Change and the joint fulfilment of commitments thereunder, OJ L130, 15.5.2002, p. 1. The agreement was notified to the UNFCCC Secretariat upon ratification by the Community and its Member States.

Austria will therefore fulfil its commitments together with the European Community and those **14 Member States of the European Community**, which were members at the time of ratification of the Protocol on 31 May 2002: the Kingdom of Belgium, the Kingdom of Denmark, the Federal Republic of Germany, the Hellenic Republic, the Kingdom of Spain, the French Republic, Ireland, the Italian Republic, the Grand Duchy of Luxembourg, the Kingdom of the Netherlands, the Portuguese Republic, the Republic of Finland, the Kingdom of Sweden, the United Kingdom of Great Britain and Northern Ireland. According to the joint agreement Austria has taken on the commitment to reduce its annual emissions by 13 % below the base year levels in the commitment period 2008–2012.

1.D Proposed allocated emission level

The assigned amount is calculated pursuant to Article 3, paragraphs 7 and 8 of the Kyoto Protocol.

Based on the greenhouse gas inventory as described in Part 1, Section A of this report, and the quantified emission reduction commitment as in the joint fulfilment agreement, Austria proposes its allocated emission level to be **343 473 407 tonnes** carbon dioxide equivalent according to the formula below:

$$\text{base year emissions} \times \frac{\text{quant. emission limitation (percentage)}}{100} \times 5 = 78959404 \times \frac{87}{100} \times 5$$

Part 2

2.A Commitment period reserve

According to Decision 11/CMP.1 each Party shall maintain, in its national registry, a commitment period reserve which should not drop below 90 per cent of the Party's assigned amount calculated pursuant to Article 3, paragraphs 7 and 8, of the Kyoto Protocol, or 100 per cent of five times its most recently reviewed inventory, whichever is lowest.

Calculated as 90 per cent of the assigned amount the commitment period reserve is **309 126 066 tonnes** carbon dioxide equivalent.

(The calculation based on the most recently reviewed inventory would result in a higher value.)

2.B Tree crown cover, land area and tree height

A Party shall identify its selection of single minimum values for tree crown cover, land area and tree height for use in accounting for its activities under Article 3, paragraphs 3 and 4, together with a justification of the consistency of those values with the information that has been historically reported to the Food and Agriculture Organization of the United Nations or other international bodies, and in the case of difference, an explanation of why and how such values were chosen, in accordance with decision 16/CMP.1.

Austria has decided to select

- as **minimum value for tree crown cover** [between 10 and 30 percent]: **30%**
- as **minimum land area** [between 0,05 and 1 hectare]: **0,05 hectare**
- as **minimum tree height** [between 2 and 5 metres]: **2 metres**

With regard to the identification of forest areas, Austria defines a **minimum forest width of 10 metres**.

According to the Food and Agriculture Organization of the United Nations (FAO), forest is defined as “Land spanning more than 0.5 hectares with trees higher than 5 metres and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ” (Global Forest Resources Assessment 2005). Austria uses different values in relation to the definition under FAO to ensure consistent data and a comparable time series. The values are selected in correspondence to the forest definition used for the Austrian Forest Inventory; Austria does not have data available that meet the FAO definition.

2.C Election of activities under Article 3 paragraph 4

A Party shall identify its election of activities under Article 3, paragraph 4, for inclusion in its accounting for the first commitment period, together with information on how its national system under Article 5, paragraph 1, will identify land areas associated with the activities, in accordance with decision 16/CMP.1.

Austria has decided **not to elect any of the activities under Article 3.4** of the Kyoto Protocol.

2.D Accounting for activities under Article 3, paragraphs 3 and 4

A Party shall identify whether, for each activity under Article 3, paragraphs 3 and 4, it intends to account annually or for the entire commitment period.

Austria has decided **to account for each activity under Article 3.3 for the entire commitment period**.

2.E National system in accordance with Art. 5 paragraph 1

A Party to the Kyoto Protocol must provide a description of its national system, reported in accordance with the guidelines for the preparation of the information, as set down in Decision 15/CMP.1, part II ("Reporting of supplementary information under Article 7, paragraph 2", D. National systems in accordance with Article 5, paragraph 1). This section provides concise information on the requested items; more details about the national system can be found in Annex 2.

a) The **postal and electronic addresses** of the single national entity are:

Umweltbundesamt, Spittelauer Lände 5, 1090 Wien/Austria;
email: office@umweltbundesamt.at, web: www.umweltbundesamt.at.

The designated representative with overall responsibility for the national inventory of Austria is the head of the Inspection body for GHG inventory, Klaus Radunsky.

b) As far as **roles and responsibilities in relation to the inventory development process** as well as the **institutional, legal and procedural arrangements** are concerned, it must be noted that Austria has a centralized inventory system, with all the work related to inventory preparation being carried out at the single national entity. The most important legal arrangement is the Austrian Environmental Control Act (Umweltkontrollgesetz), which sets the main responsibility for inventory preparation and identifies the Umweltbundesamt as single national entity with overall responsibility for inventory preparation. The "Inspection body for GHG inventory" within the Umweltbundesamt is responsible for the compilation of the greenhouse gas inventory.

The national energy balance is the most important data basis for the Austrian Air Emissions Inventory. The Austrian statistical office (Statistik Austria) is required by contract with the Federal Ministry of Agriculture, Forestry, Environment and Water Management and with the Federal Ministry of Economics and Labour to annually prepare the national energy balance. The compilation of several other relevant statistics is regulated by law; other data sources include reporting obligations under national and European regulations and reports of companies and associations. For further information see Annex 2, Sections 3.1.1 and 3.1.2 of the National Inventory System Austria Implementation Report.

c) As far as the process for **collecting activity data**, for **selecting emission factors and methods**, and for the **development of emission estimates** is concerned, specific responsibilities for the different emission source/sink categories ("sector experts") are defined within the inventory system, as well as for all activities related to the preparation of the inventory, including quality assurance / quality control (QA/QC), data management and reporting.

Sector experts collect activity data, emission factors and all relevant information needed for finally estimating emissions. The sector experts also have specific

responsibilities regarding the choice of methods, data processing and archiving and for contracting studies, if needed. As part of the quality management system the head of the "Inspection body for GHG inventory" approves the methodological choices. Sector experts are also responsible for performing Quality Control (QC) activities that are incorporated in the Quality Management System (QMS).

During the inventory preparation process, all data collected together with emission estimates are fed into a database, where data sources are well documented for future reconstruction of the inventory. The Austrian Inventory is based on the SNAP nomenclature and has to be transformed into the UNFCCC Common Reporting Format to comply with the reporting obligations under the UNFCCC. In addition to the actual emission data, the background tables of the CRF are filled in by the sector experts, and finally QA/QC procedures as defined in the inventory planning process are carried out before the data are submitted to the UNFCCC.

d) The method to identify **key source categories** follows the Tier 1 method – quantitative approach described in the IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (IPCC GPG), Chapter 7 "Methodological Choice and Recalculation". The key source identification of the Austrian inventory includes all reported greenhouse gases CO_2, CH_4, N_2O, HFC, PFC and SF_6, and all IPCC source categories, except LULUCF. The key source analysis is performed by the Umweltbundesamt with data for greenhouse gas emissions of the corresponding current submission and comprises a level assessment for all years between 1990 and the last reported year and trend assessments for the trend of the 8 latest reported years with respect to base year emissions.

Emissions and removals from LULUCF are included in the key category analysis which is performed according to the IPCC Good Practice Guidance for Land Use, Land-Use Change and Forestry.

e) Recalculations of previously submitted inventory data are performed following the IPCC GPG, Chapter 7 "Methodological Choice and Recalculation" with the unique purpose to improve the GHG inventory. Therefore, most recalculations are a direct result of inconsistencies documented in the improvement plan.

As part of the QMS ("Corrective and Preventive Actions") an efficient process is established to grant transparency when collecting and analyzing findings by UNFCCC review experts or any other issues concerning the quality of activity data, emission factors, methods and other relevant technical elements of inventories. Any findings and discrepancies are documented; responsibilities, resources and a time schedule are attributed to each of these in the improvement plan. Measures are taken by the sector experts, which include possible recalculations. When recalculations are necessary due to a change of methodology or change of emission factor, recalculations have to be previously approved by the head of the Inspection body for GHG inventory.

For the inventory management a reliable data management has been established to fulfil the data collecting and reporting requirements. This ensures the necessary documentation and archiving for future reconstruction of the inventory and consequently enables an easy access to up-to-date and previously submitted data for the quantitative evaluation of recalculations.

f) For **quality assurance and quality control**, a quality management system has been designed to contribute to the objectives of good practice guidance, namely to improve transparency, consistency, comparability, completeness and confidence in national inventories of emissions estimates. The implemented QMS is based on the International Standard ISO 17020. Since January 2006 the Umweltbundesamt is accredited as Inspection body for Greenhouse Gas Inventories.

The implementation of QA/QC procedures as required by IPCC GPG supports the development of national greenhouse gas inventories that can be readily assessed in terms of quality and completeness. A QMS goes beyond QA/QC activities and comprises supporting and management processes in addition to the QA/QC procedures in inventory compilation. A system of standard operating procedures (SOPs) ensures agreed standards as well as transparency within (i) the inventory compilation process, (ii) supporting processes (e.g. archiving) and (iii) management processes (e.g. annual management reviews, internal audits, regular training of personnel, error prevention).

The QA/QC procedures comply with the recommendations of IPCC GPG Chapter 8 on “Quality Assurance and Quality Control” and are part of the QMS. Priority is given to key categories. For all categories, fundamental checks such as completeness of estimates, time series consistencies, data transcription and documentation are performed. For key categories, activity data, emission factors, emissions and uncertainty analysis are assessed using the Tier 1 checklist. In addition Tier 2 QC procedures are employed, where applicable. Special attention is given to documentation, archiving and reporting as outlined in chapter 8.10 of IPCC GPG.

g) A process for **official consideration and approval of the inventory** prior to its submission has been established. The inventory information is provided by the Umweltbundesamt to the Federal Ministry of Agriculture, Forestry, Environment and Water Management. The inventory is then submitted by the Ministry to the UNFCCC secretariat.

2.F National registry

A Party to the Kyoto Protocol must provide a description of its national registry, reported in accordance with the guidelines for the preparation of the information, as set down in Decision 15/CMP.1, part II ("Reporting of supplementary information under Article 7, paragraph 2", E. National registries).

The registry administrator designated by Austria to maintain the national registry is Umweltbundesamt GmbH. The registry is operational since June 2005. Currently 220 accounts are installed. Detailed information about the national registry concerning the following subjects can be found in Annex 3:

a) The name and contact information of the registry administrator designated by the Party to maintain the national registry,

b) The names of the other Parties with which the Party cooperates by maintaining their national registries in a consolidated system,

c) A description of the database structure and capacity of the national registry,

d) A description of how the national registry conforms to the technical standards for data exchange between registry systems for the purpose of ensuring the accurate, transparent and efficient exchange of data between national registries, the clean development mechanism registry and the transaction log (decision 19/CP.7, paragraph 1),

e) A description of the procedures employed in the national registry to minimize discrepancies in the issuance, transfer, acquisition, cancellation and retirement of ERUs, CERs, tCERs, lCERs, AAUs and/or RMUs, and replacement of tCERs and lCERs, and of the steps taken to terminate transactions where a discrepancy is notified and to correct problems in the event of a failure in terminating the transactions,

f) An overview of security measures employed in the national registry to prevent unauthorized manipulations and to prevent operator error, and of how these measures are kept up to date,

g) A list of the information publicly accessible by means of the user interface to the national registry,

h) The Internet address of the interface to its national registry,

i) A description of measures taken to safeguard, maintain and recover data in order to ensure the integrity of data storage and the recovery of registry services in the event of a disaster,

j) The results of any test procedures that might be available or developed with the aim of testing the performance, procedures and security measures of the national registry undertaken pursuant to the provisions of decision 19/CP.7 relating to the technical standards for data exchange between registry systems.

Annex 1

Detailed greenhouse gas emission time series

Table A1.1: Emission trends CO_2

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1990 (Base year)	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	(Gg)														
1. Energy	**54.043,98**	**57.800,73**	**52.907,13**	**53.363,29**	**53.399,77**	**56.080,09**	**60.064,39**	**59.281,94**	**59.337,49**	**58.110,22**	**58.225,76**	**62.278,63**	**63.477,08**	**69.154,62**	**68.815,52**
A. Fuel Combustion (Sectoral Approach)	53.941,96	57.689,70	52.787,10	53.251,27	53.272,25	55.953,06	59.993,36	59.161,43	59.195,66	57.939,69	58.061,23	62.095,90	63.310,05	68.921,58	68.605,49
1. Energy Industries	13.662,77	14.456,60	11.318,07	11.356,34	11.614,62	12.640,16	13.739,10	13.836,36	12.855,01	12.479,51	12.401,82	13.660,15	13.440,89	16.165,18	15.535,20
2. Manufacturing Industries and Construction	13.452,56	13.721,55	12.583,18	12.958,60	13.962,89	14.145,86	14.207,64	16.003,89	14.948,22	13.973,17	14.525,89	14.089,85	14.750,13	14.558,85	15.327,95
3. Transport	12.400,34	13.993,27	13.937,17	14.115,58	14.078,36	14.462,60	16.038,79	14.975,68	17.170,95	16.596,83	17.734,54	19.037,45	20.986,18	22.849,66	23.454,78
4. Other Sectors	14.391,26	15.481,17	14.914,98	14.781,30	13.574,77	14.671,84	15.968,89	14.308,37	14.179,03	14.848,56	13.354,02	15.185,57	14.091,83	15.258,58	14.180,97
5. Other	35,02	37,11	33,70	39,43	41,60	32,60	38,94	37,13	42,45	41,62	44,95	122,88	41,02	89,31	106,59
B. Fugitive Emissions from Fuels	102,03	111,03	120,03	112,03	127,53	127,03	71,03	120,51	141,83	170,53	164,53	182,73	167,03	233,04	210,04
1. Solid Fuels	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	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO
2. Oil and Natural Gas	102,03	111,03	120,03	112,03	127,53	127,03	71,03	120,51	141,83	170,53	164,53	182,73	167,03	233,04	210,04
2. Industrial Processes	**7.579,85**	**7.424,94**	**6.938,18**	**6.854,08**	**7.184,39**	**7.383,41**	**7.082,17**	**7.671,75**	**7.315,61**	**7.163,26**	**7.766,91**	**7.694,53**	**8.261,52**	**8.203,85**	**8.085,80**
A. Mineral Products	3.269,05	3.127,22	3.147,24	3.081,86	3.196,46	2.856,93	2.769,36	2.968,65	2.815,30	2.801,11	2.958,13	2.976,77	3.085,41	3.070,77	3.125,45
B. Chemical Industry	585,85	610,08	633,23	606,73	555,99	584,64	591,16	583,86	580,68	583,94	588,08	540,28	552,17	593,25	528,84
C. Metal Production	3.724,95	3.687,63	3.157,71	3.165,49	3.431,94	3.941,84	3.721,65	4.119,24	3.919,62	3.778,22	4.220,70	4.177,48	4.623,93	4.539,83	4.431,51
D. Other Production	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
E. Production of Halocarbons and SF_6															
F. Consumption of Halocarbons and SF_6															
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	282,67	236,77	187,74	187,35	171,54	189,88	172,81	190,09	172,24	158,37	181,02	193,60	192,35	191,10	189,84
4. Agriculture															
A. Enteric Fermentation															
B. Manure Management															
C. Rice Cultivation															
D. Agricultural Soils [(2)]															
E. Prescribed Burning of Savannas															
F. Field Burning of Agricultural Residues															
G. Other															
5. Land Use, Land-Use Change and Forestry	**-11.972,35**	**-17.901,38**	**-12.710,20**	**-16.532,60**	**-15.437,71**	**-14.422,57**	**-9.706,64**	**-18.794,43**	**-16.911,47**	**-21.385,88**	**-16.036,72**	**-18.775,35**	**-15.135,72**	**-16.606,38**	**-16.641,30**
A. Forest Land	-12.146,22	-18.071,93	-12.892,08	-16.722,11	-15.620,14	-14.783,72	-10.035,26	-19.136,07	-17.284,29	-21.776,74	-16.436,67	-19.211,48	-15.493,50	-17.047,22	-17.047,22
B. Cropland	-524,77	-529,18	-517,95	-454,48	-461,64	-281,52	-259,51	-246,21	-214,31	-196,26	-187,47	-192,35	-198,95	-136,14	-131,85
C. Grassland	449,87	450,96	451,06	420,55	420,61	419,21	389,99	389,70	389,00	388,98	389,28	430,34	358,59	378,84	339,63
D. Wetlands	18,48	18,48	18,48	16,63	16,63	16,63	14,78	14,78	14,78	14,78	14,78	14,78	14,78	14,78	14,78
E. Settlements	90,45	90,45	90,45	81,41	81,41	81,41	72,36	72,36	72,36	72,36	72,36	72,36	72,36	72,36	72,36
F. Other Land	139,83	139,83	139,83	125,41	125,41	125,41	110,99	110,99	110,99	110,99	110,99	110,99	110,99	110,99	110,99
G. Other	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
6. Waste	**26,89**	**23,40**	**10,86**	**10,60**	**10,65**	**10,97**	**11,30**	**11,62**	**11,94**	**12,26**	**12,26**	**12,26**	**12,26**	**12,26**	**12,26**
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	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
B. Waste-water Handling															
C. Waste Incineration	26,89	23,40	10,86	10,60	10,65	10,97	11,30	11,62	11,94	12,26	12,26	12,26	12,26	12,26	12,26
D. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7. Other *(please specify)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Total Emissions/Removals with LULUCF	**49.961,04**	**47.584,45**	**47.333,70**	**43.882,72**	**45.328,64**	**49.241,78**	**57.624,02**	**48.360,96**	**49.925,82**	**44.058,24**	**50.149,24**	**51.403,67**	**56.807,50**	**60.955,45**	**60.462,14**
Total Emissions without LULUCF	**61.933,39**	**65.485,82**	**60.043,91**	**60.415,32**	**60.766,35**	**63.664,36**	**67.330,66**	**67.155,39**	**66.837,28**	**65.444,12**	**66.185,96**	**70.179,02**	**71.943,21**	**77.561,83**	**77.103,43**
Memo Items:															
International Bunkers	**885,97**	**993,88**	**1.077,44**	**1.139,98**	**1.185,65**	**1.327,42**	**1.466,42**	**1.525,57**	**1.578,21**	**1.541,67**	**1.674,93**	**1.409,06**	**1.526,13**	**1.305,01**	**1.531,80**
Aviation	885,97	993,88	1.077,44	1.139,98	1.185,65	1.327,42	1.466,42	1.525,57	1.578,21	1.541,67	1.674,93	1.409,06	1.526,13	1.305,01	1.531,80
Marine	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
Multilateral Operations	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
CO_2 Emissions from Biomass	9.750,24	10.612,42	10.345,66	10.897,74	10.528,76	11.192,76	11.915,67	11.996,42	11.409,13	12.727,22	11.911,28	13.199,37	12.758,54	14.360,55	14.456,04

Table A1.2: Emission trends CH_4

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1990 (Base year)	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	(Gg)														
Total Emissions/Removals with LULUCF	**437,10**	**435,74**	**421,78**	**420,48**	**411,28**	**405,72**	**396,81**	**383,68**	**377,93**	**369,51**	**361,85**	**356,08**	**349,35**	**350,69**	**353,05**
Total Emissions without LULUCF	**437,09**	**435,73**	**421,77**	**420,47**	**411,27**	**405,72**	**396,81**	**383,68**	**377,93**	**369,51**	**361,85**	**356,08**	**349,34**	**350,69**	**353,05**
1. Energy	40,28	42,46	41,23	41,58	40,39	41,94	44,07	40,49	40,44	41,36	41,07	42,28	41,96	43,17	45,23
A. Fuel Combustion (Sectoral Approach)	21,96	23,47	21,40	20,85	19,00	19,45	20,33	15,87	15,29	15,19	14,14	14,95	13,54	14,18	14,13
1. Energy Industries	0,16	0,18	0,15	0,16	0,15	0,15	0,18	0,19	0,18	0,16	0,16	0,18	0,20	0,25	0,28
2. Manufacturing Industries and Construction	0,41	0,43	0,44	0,42	0,45	0,45	0,46	0,49	0,47	0,46	0,47	0,47	0,48	0,49	0,49
3. Transport	2,91	2,87	2,61	2,40	2,19	1,99	1,81	1,62	1,56	1,39	1,28	1,20	1,14	1,08	1,00
4. Other Sectors	18,48	19,98	18,19	17,87	16,21	16,86	17,88	13,57	13,08	13,16	12,23	13,11	11,72	12,35	12,37
5. Other	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
B. Fugitive Emissions from Fuels	18,32	18,99	19,84	20,73	21,39	22,48	23,74	24,62	25,15	26,17	26,93	27,32	28,42	28,98	31,10
1. Solid Fuels	0,52	0,45	0,37	0,36	0,29	0,28	0,24	0,24	0,24	0,24	0,27	0,26	0,30	0,25	0,05
2. Oil and Natural Gas	17,80	18,54	19,46	20,37	21,10	22,21	23,50	24,38	24,91	25,93	26,66	27,07	28,11	28,74	31,05
2. Industrial Processes	**0,71**	**0,70**	**0,67**	**0,70**	**0,71**	**0,69**	**0,70**	**0,71**	**0,74**	**0,70**	**0,70**	**0,67**	**0,71**	**0,70**	**0,70**
A. Mineral Products	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA
B. Chemical Industry	0,70	0,70	0,66	0,70	0,71	0,68	0,69	0,70	0,73	0,69	0,70	0,67	0,70	0,69	0,70
C. Metal Production	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
D. Other Production															
E. Production of Halocarbons and SF_6															
F. Consumption of Halocarbons and SF_6															
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use															
4. Agriculture	**230,02**	**226,80**	**218,33**	**218,81**	**219,12**	**220,14**	**216,81**	**213,78**	**212,92**	**208,82**	**206,62**	**204,44**	**200,09**	**199,20**	**198,34**
A. Enteric Fermentation	179,13	176,62	168,94	168,88	169,79	171,16	168,75	165,79	164,47	162,84	161,87	159,48	156,59	155,55	155,94
B. Manure Management	50,49	49,78	49,02	49,39	48,86	48,48	47,55	47,48	47,94	45,47	44,23	44,46	43,05	43,18	41,89
C. Rice Cultivation	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
D. Agricultural Soils	0,33	0,33	0,31	0,47	0,40	0,44	0,45	0,45	0,45	0,45	0,45	0,43	0,38	0,41	0,42
E. Prescribed Burning of Savannas	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Field Burning of Agricultural Residues	0,07	0,07	0,06	0,06	0,06	0,07	0,06	0,07	0,07	0,07	0,06	0,07	0,07	0,06	0,09
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5. Land Use, Land-Use Change and Forestry	**0,01**	**0,00**	**0,01**	**0,01**	**0,00**	**0,00**	**0,00**	**0,00**	**0,01**	**0,00**	**0,00**	**0,00**	**0,01**	**0,00**	**0,00**
A. Forest Land	0,01	0,00	0,01	0,01	0,00	0,00	0,00	0,00	0,01	0,00	0,00	0,00	0,01	0,00	0,00
B. Cropland	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
C. Grassland	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
D. Wetlands	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
E. Settlements	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
F. Other Land	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6. Waste	**166,08**	**165,78**	**161,54**	**159,38**	**151,05**	**142,95**	**135,23**	**128,69**	**123,83**	**118,63**	**113,47**	**108,68**	**106,59**	**107,62**	**108,78**
A. Solid Waste Disposal on Land	160,71	160,40	156,19	154,00	145,68	137,71	130,27	124,08	119,52	114,52	109,63	105,09	103,23	104,50	105,66
B. Waste-water Handling	4,85	4,84	4,70	4,56	4,39	4,21	3,87	3,53	3,19	2,93	2,68	2,42	2,18	1,93	1,93
C. Waste Incineration	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
D. Other	0,52	0,54	0,65	0,82	0,98	1,04	1,09	1,08	1,12	1,18	1,16	1,17	1,17	1,19	1,19
7. Other *(please specify)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items:															
International Bunkers	0,01	0,02	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,03	0,03	0,02	0,03	0,02	0,03
Aviation	0,01	0,02	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,03	0,03	0,02	0,03	0,02	0,03
Marine	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
Multilateral Operations	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
CO_2 Emissions from Biomass															

Table A1.3: Emission trends N_2O

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1990 (Base year)	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	(Gg)														
Total Emissions/Removals with LULUCF	**20,17**	**21,25**	**20,01**	**19,46**	**20,87**	**21,25**	**20,27**	**20,32**	**20,63**	**20,38**	**20,01**	**19,64**	**19,61**	**19,51**	**17,08**
Total Emissions without LULUCF	**20,14**	**21,21**	**19,97**	**19,42**	**20,83**	**21,21**	**20,23**	**20,29**	**20,59**	**20,34**	**19,97**	**19,60**	**19,58**	**19,48**	**17,04**
1. Energy	**2,47**	**2,71**	**2,72**	**2,80**	**2,82**	**2,80**	**2,81**	**2,76**	**2,80**	**2,72**	**2,59**	**2,69**	**2,68**	**2,73**	**2,63**
A. Fuel Combustion (Sectoral Approach)	2,47	2,71	2,72	2,80	2,82	2,80	2,81	2,76	2,80	2,72	2,59	2,69	2,68	2,73	2,63
1. Energy Industries	0,15	0,17	0,13	0,14	0,14	0,16	0,15	0,15	0,16	0,17	0,17	0,20	0,19	0,23	0,24
2. Manufacturing Industries and Construction	0,52	0,54	0,54	0,54	0,56	0,55	0,54	0,59	0,57	0,58	0,56	0,55	0,55	0,54	0,49
3. Transport	0,85	1,04	1,11	1,17	1,18	1,14	1,09	1,00	1,06	0,96	0,93	0,94	0,98	0,99	0,94
4. Other Sectors	0,94	0,95	0,94	0,95	0,93	0,94	1,03	1,02	1,00	1,01	0,92	0,99	0,95	0,97	0,96
5. Other	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,01	0,00	0,01	0,01
B. Fugitive Emissions from Fuels	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA
1. Solid Fuels	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA
2. Oil and Natural Gas	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA
2. Industrial Processes	**2,94**	**2,99**	**2,70**	**2,83**	**2,66**	**2,77**	**2,82**	**2,78**	**2,89**	**2,98**	**3,07**	**2,54**	**2,60**	**2,85**	**0,91**
A. Mineral Products	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA	IE,NA
B. Chemical Industry	2,94	2,99	2,70	2,83	2,66	2,77	2,82	2,78	2,89	2,98	3,07	2,54	2,60	2,85	0,91
C. Metal Production	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D. Other Production															
E. Production of Halocarbons and SF_6															
F. Consumption of Halocarbons and SF_6															
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**0,75**	**0,75**	**0,75**	**0,75**	**0,75**	**0,75**	**0,75**	**0,75**	**0,75**	**0,75**	**0,75**	**0,75**	**0,75**	**0,75**	**0,75**
4. Agriculture	**13,85**	**14,63**	**13,64**	**12,86**	**14,34**	**14,55**	**13,44**	**13,54**	**13,61**	**13,29**	**12,89**	**12,83**	**12,76**	**12,33**	**11,93**
A. Enteric Fermentation															
B. Manure Management	3,24	3,20	3,08	3,09	3,09	3,16	3,10	3,07	3,06	3,02	2,98	2,95	2,89	2,87	2,86
C. Rice Cultivation															
D. Agricultural Soils	10,60	11,42	10,55	9,77	11,25	11,39	10,33	10,47	10,55	10,27	9,91	9,87	9,87	9,46	9,07
E. Prescribed Burning of Savannas	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Field Burning of Agricultural Residues	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5. Land Use, Land-Use Change and Forestry	**0,04**	**0,04**	**0,04**	**0,04**	**0,04**	**0,04**	**0,04**	**0,04**	**0,04**	**0,04**	**0,04**	**0,04**	**0,03**	**0,03**	**0,04**
A. Forest Land	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
B. Cropland	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,03	0,03	0,04
C. Grassland	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
D. Wetlands	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
E. Settlements	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
F. Other Land	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6. Waste	**0,13**	**0,14**	**0,16**	**0,18**	**0,26**	**0,34**	**0,42**	**0,45**	**0,54**	**0,61**	**0,68**	**0,79**	**0,79**	**0,82**	**0,82**
A. Solid Waste Disposal on Land															
B. Waste-water Handling	0,05	0,06	0,06	0,06	0,12	0,19	0,26	0,30	0,38	0,44	0,51	0,62	0,62	0,64	0,65
C. Waste Incineration	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
D. Other	0,08	0,08	0,10	0,12	0,14	0,15	0,16	0,15	0,16	0,17	0,17	0,17	0,17	0,18	0,18
7. Other *(please specify)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items:															
International Bunkers	**0,03**	**0,03**	**0,04**	**0,04**	**0,04**	**0,05**	**0,05**	**0,05**	**0,06**	**0,05**	**0,06**	**0,05**	**0,05**	**0,05**	**0,05**
Aviation	0,03	0,03	0,04	0,04	0,04	0,05	0,05	0,05	0,06	0,05	0,06	0,05	0,05	0,05	0,05
Marine	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
Multilateral Operations	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
CO_2 Emissions from Biomass															

Table A1.4: Emission trends HFCs, PFCs and SF_6

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1990 (Base year)	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	(Gg)														
Emissions of HFCs - CO_2 equivalent (Gg)	**23.03**	**45.21**	**48.68**	**157.34**	**206.83**	**267.34**	**346.84**	**427.42**	**494.89**	**542.20**	**596.26**	**695.10**	**782.44**	**864.92**	**904.39**
HFC-23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-32	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO	0.00	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	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
HFC-43-10mee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-125	NA,NO	NA,NO	NA,NO	NA,NO	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.05
HFC-134	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
HFC-134a	0.00	0.00	0.00	0.08	0.11	0.15	0.19	0.23	0.27	0.30	0.31	0.33	0.35	0.37	0.35
HFC-152a	NA,NO	NA,NO	NA,NO	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.24	0.35	0.43	0.53
HFC-143	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	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	0.01	0.01	0.01	0.01	0.02	0.03	0.03	0.04
HFC-227ea	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-236fa	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	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	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
Unspecified mix of listed HFCs[5] - (Gg CO2 equivalent)	18.88	38.44	39.58	40.11	40.71	41.64	42.58	43.53	44.71	46.25	47.79	49.91	51.53	52.57	54.80
Emissions of PFCs - CO_2 equivalent (Gg)	**1 079.24**	**1 087.08**	**462.67**	**52.92**	**58.65**	**68.74**	**66.27**	**96.83**	**44.75**	**64.54**	**72.33**	**82.15**	**86.87**	**102.54**	**114.72**
CF_4	0.14	0.14	0.06	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.01
C_2F_6	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
C_3F_8	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	0.00	0.00	0.00
C_4F_{10}	NA,NO	NA,NO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-C_4F_8	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	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	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	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
Emissions of SF_6 - CO_2 equivalent (Gg)	**502.58**	**653.36**	**697.85**	**793.71**	**985.70**	**1 139.16**	**1 218.05**	**1 120.15**	**907.99**	**683.96**	**633.31**	**636.62**	**640.83**	**593.52**	**512.51**
SF_6	0.02	0.03	0.03	0.03	0.04	0.05	0.05	0.05	0.04	0.03	0.03	0.03	0.03	0.02	0.02

Annex 2

Report on the national system

umweltbundesamt

NISA
NATIONAL INVENTORY SYSTEM AUSTRIA

Implementation Report

REPORT
REP-0004

Vienna, 2005

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ZUSAMMENFASSUNG

Artikel 5 des Kyoto-Protokolls verpflichtet Österreich zur Einrichtung eines Nationalen Inventursystems. Ziel dieses Systems ist die Qualitätssicherung der nationalen Inventur bei Planung, Erstellung und Management von Treibhausgasdaten in Österreich.

Der vorliegende Bericht dokumentiert das bestehende Nationale Inventursystem in Österreich (NISA), analysiert die Übereinstimmung mit den Richtlinien für nationale Inventursysteme nach Artikel 5 des Kyoto Protokolls und zeigt erforderliche Verbesserungen auf.

Die wichtigsten Anforderungen des Kyoto Protokolls an das österreichische Inventursystem (NISA) sind:

(1) Festlegung und Dokumentation von institutionellen Einrichtungen und bestehenden rechtlichen Vereinbarungen;

(2) Festlegung einer nationalen Koordinierungsstelle für die Emissionsberichterstattung sowie die Definition der Verantwortlichkeiten im Entstehungsprozess der Inventur;

(3) Erstellung des Qualitätssicherungs- und Qualitätskontroll-Plans;

(4) Sicherstellung der Konformität der Inventur-Erstellung mit den IPCC-Richtlinien (Intergovernmental Panel on Climate Change);

(5) Sicherstellung der Datenverfügbarkeit bei Überprüfung der nationalen Treibhausgasinventur durch internationale UN-Überprüfungsteams.

Der vorliegende Bericht dokumentiert die Erfüllung der Anforderungen durch folgende Rahmenbedingungen:

- Die institutionelle Einrichtung mit Verantwortlichkeit in der Inventur-Erstellung ist das *Umweltbundesamt*.
- Das *Umweltbundesamt* ist durch das Umweltkontrollgesetz als nationale Koordinierungsstelle zur Emissionsberichterstattung bestimmt. Die Verantwortlichkeiten für Planung, Erstellung und Management der Inventur sind im Rahmen eines Umweltbundesamt-internen Qualitätsmanagements geregelt und werden von den an der Emissionsinventur beteiligten Mitarbeitern des *Umweltbundesamt* wahrgenommen.
- Die nationale Treibhausgasinventur wird vom *Umweltbundesamt* in der Organisationseinheit Überwachungsstelle *Emissionsbilanzen* durchgeführt, für welche eine Akkreditierung nach EN/ISO 17020 (*Allgemeine Kriterien für den Betrieb verschiedener Typen von Stellen, die Inspektionen durchführen)* in naher Zukunft erfolgt. Das Akkreditierungsaudit des *Umweltbundesamt* als Überwachungsstelle für die Erstellung von Treibhausgasemissionsinventuren fand im September 2005 statt. Die Akkreditierung durch Bescheid ausgestellt vom Bundesministerium für Wirtschaft und Arbeit wird voraussichtlich Anfang 2006 erfolgen.
- Das Qualitätsmanagementsystem (QMS) umfasst die notwendigen Prozesse, um eine kontinuierliche Qualitätsverbesserung der Treibhausgasmissionsinventur zu garantieren. Diese Verfahren gewährleisten die Dokumentation und Definition der Verantwortlichkeit von jeder identifizierten Unstimmigkeit und im speziellen der Anmerkungen im Rahmen der internationalen Überprüfung der Inventur (UNFCCC Review Process).

- Die Erstellung der Inventur, die die Methodenwahl, die Berechnung der Emissionen, die Identifizierung von Hauptkategorien, Unsicherheitsbestimm-ungen der Emissionen und Qualitätskontroll-Verfahren umfasst, wird im NISA nach den Richtlinien der IPCC (Intergovernmental Panel on Climate Change) , der GPG (Good Practice Guidance) sowie der EN/ISO 17020 durchgeführt.
- Das Inventur-Management als Teil des QMS beinhaltet ein Kontrollsystem für Eingangsdaten sowie für die Emissionsberechnungen, regelt die erforderlichen Aufzeichnungen sowie die Archivierung sämtlicher Daten, Dokumente und Aufzeichnungen. Dadurch ist die notwendige Dokumentation gewährleistet, um eine künftige Rekonstruktion der Inventur und eine zügige Antwort auf die Rückfragen während der internationalen Überprüfung der Inventur zu ermöglichen.
- Ein Teil der rechtlichen Vereinbarungen als Grundlage des nationalen Systems betrifft die Datenverfügbarkeit für die jährliche Zusammenstellung der Treibhausgas-Inventur. Die wichtigste Datenquelle für die Erstellung der Österreichischen Inventur ist Statistik Austria. Die Erstellung zahlreicher Statistiken ist gesetzlich geregelt; die Erstellung der nationalen Energiebilanz wird durch Verträge in Auftrag gegeben.
- Andere Datenquellen sind Meldepflichten aufgrund nationaler und Europäischer Verordnungen und die Meldungen von Firmen und Fachverbänden. Eine Dokumentation dieser Vereinbarungen findet sich in dem vorliegenden Bericht.

Neben diesen erfüllten Anforderungen zeigt der vorliegende Bericht auch die folgenden Möglichkeiten zu einer verbesserten Umsetzung des Artikel 5 des Kyoto Protokolls auf:

- Die vorliegenden Daten zur Unsicherheit der Inventur beruhen auf einer Erhebung aus dem Jahr 1999. Es wird empfohlen, diese Unsicherheitsabschätzung im kommenden Jahr zu aktualisieren, da es seit 1999 zu methodischen Änderungen bei der Emissionsberechnung in einigen Sektoren gekommen ist.
- Im Jahr 2003 wurden 75 % der gesamten Treibhausgas-Emissionen durch fossilen Brennstoffeinsatz verursacht. Die Datengrundlage für diesen Sektor ist die Energiebilanz, die aufgrund eines fünfjährigen Vertrages zwischen dem BMLFUW und der Statistik Austria und einem entsprechenden Vertrag zwischen dem BMWA und der Statistik Austria erstellt wird. Um die langfristige Datenverfügbarkeit für diesen wichtigen Sektor zu gewährleisten, sollte ein Vertrag abgeschlossen werden, der die Kyoto-Periode 2008-2012 abdeckt. Weiters sollten in diesen Vertrag halbjährliche Treffen mit dem Verantwortlichen bei Statistik Austria und dem Experten des Umweltbundesamt aufgenommen werden. Diese Treffen sollen dazu dienen, die Energiebilanz hinsichtlich der Anforderungen in der Erstellung der nationalen Inventur zu optimieren.
- 2003 wurden 14 % der gesamten Treibhausgas-Emissionen (ohne LULUCF) durch die Senken des LULUCF Sektors (Waldbestand) kompensiert. Um die langfristige Datenverfügbarkeit für diese für Österreich sehr wichtige Senke zu gewährleisten, sollte die regelmäßige Erstellung der Österreichischen Waldinventur gesetzlich verankert werden.

EXECUTIVE SUMMARY

This report presents an overview of the National Inventory System Austria (NISA) and evaluates its compliance with the guidelines for national systems under Article 5, paragraph 1, of the Kyoto Protocol.

As a Party to the United Nations Framework Convention on Climate Change (UNFCCC), Austria is required to produce and regularly update National Greenhouse Gas (GHG) Inventories. The *Umweltbundesamt* is identified as the single national entity with overall responsibility for the national inventory by law. The responsibilities for the inventory planning, preparation and management are specified and are all allocated within the *Umweltbundesamt*.

The national greenhouse gas inventory is prepared by the inspection body for GHG inventories within the *Umweltbundesamt* which will soon be accredited as inspection body according to the International Standard ISO 17020 *General Criteria for the operation of various types of bodies performing inspections*. The accreditation audit of the *Umweltbundesamt* as inspection body took place in September 2005. Official conclusion of the accreditation is foreseen for early 2006. The Quality Management System (QMS) also includes the necessary procedures to ensure quality improvement of the emission inventory. These comprise documentation and attribution of responsibilities of any discrepancy found and of the findings by UNFCCC review experts in particular.

The inventory preparation, including identification of key categories, uncertainty estimates and QC procedures, is performed according to the 2000 Intergovernmental Panel on Climate Change (IPCC) Good Practice Guidance and Uncertainty Management of Greenhouse Gas Inventories. An update of uncertainty estimates is planned for 2006.

The inventory management as part of the QMS includes a control system for data and calculations, for records and their archiving as well as documentation on QA/QC activities. This ensures the necessary documentation and archiving for future reconstruction of the inventory and for the timely response to requests during the review process.

Part of the legal and institutional arrangements in place as basis for the national system concerns the data availability for the annual compilation of the GHG inventory. The main data source for the Austrian inventory preparation is the Austrian statistical office (*Statistik Austria*). The compilation of several statistics is regulated by law; the compilation of the national energy balance is regulated by contracts only. Other data sources include reporting obligations under national and European regulations and reports of companies and associations.

CONTENTS

1 INTRODUCTION

As a Party to the United Nations Framework Convention on Climate Change (UNFCCC), Austria is required to produce and regularly update National Greenhouse Gas (GHG) Inventories. The emission inventories have to be compiled according to specific guidelines and are subject to annual reviews.

Under the Kyoto Protocol, which sets emission targets for Annex I countries, the parties to the protocol have to comply with new and more stringent regulations. Member States are required to carry out transparent, comparable, complete, consistent and precise emissions calculations. In particular, as a result of integration of flexible mechanisms within the Kyoto Protocol, specific requirements have been formulated for the implementation of these aims. Introduction of Joint Implementation, Clean Development Mechanisms and emissions trading will ultimately give emissions monetary value, with the result that a number of procedures will be required to make the Protocol's provisions enter into force and to deal with issues of monitoring and control of compliance. Only when the independent review of a party's inventory has been successfully completed can it be certified for the use of flexible mechanisms.

The Kyoto Protocol (Article 5.1) as specified under the Marrakesh Accord (see decision 20/CP.7) requires that the parties have a National System in place by the end of 2006 at the latest. This system should ensure the quality for estimating anthropogenic greenhouse gas emissions by sources and removals by sinks and for reporting and archiving the results.

In Decision 280/2004/EC of the European Parliament and of the Council concerning a mechanism for monitoring Community greenhouse gas emissions it is required that Member Countries establish a national greenhouse gas inventory system as fast as possible and at latest by the end of 2005 with the aim of the Commission's adoption of the EC inventory system by 30 June 2006.

Austria's aim is to set up a national system that fulfils all the requirements of the Kyoto Protocol and also works as an efficient system to fulfil all the other obligations regarding air emission inventories Austria has to comply with. Figure 1 illustrates the structure of the emission inventory system in Austria.

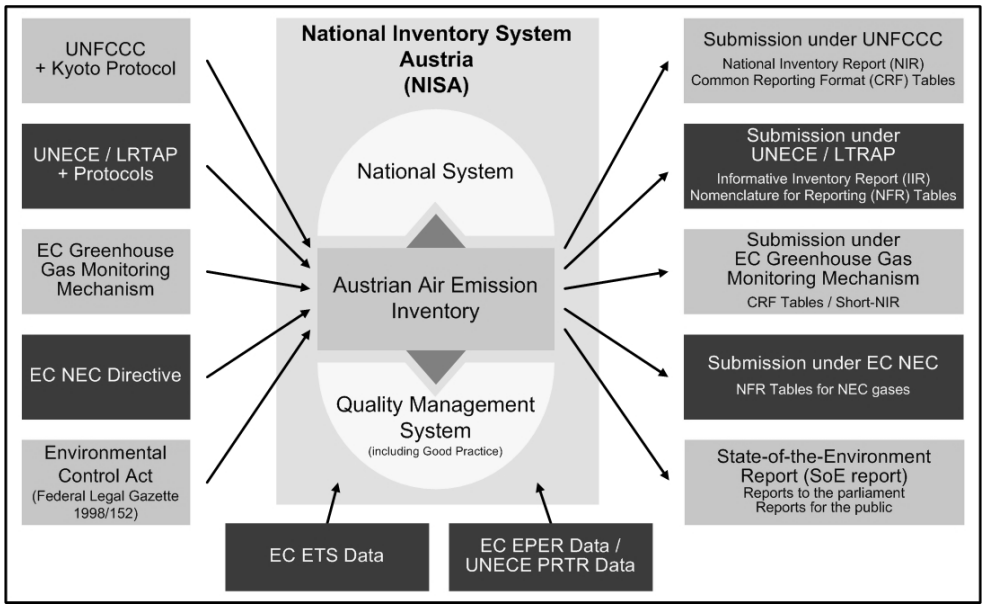

Figure 1: Structure of the emission inventory system in Austria

This report gives an overview of the National Inventory System Austria (NISA) and evaluates its compliance with the guidelines for national systems under Article 5, paragraph 1, of the Kyoto Protocol as specified under the Marrakesh Accord (see decision 20/CP.7).

2 REQUIREMENTS AND FUNCTIONS OF NATIONAL SYSTEMS

2.1 General Requirements

The overall goal of National Systems is to ensure the quality of the inventory through planning, preparation and management of inventory activities.

National Systems should enable Parties to estimate emissions in accordance with the relevant inventory guidelines [IPCC Guidelines and Good Practice Guidance (GPG)] to comply with the requirements of the Kyoto Protocol.

General quality principles for National Inventories are:

- Transparency
- Accuracy
- Completeness
- Comparability
- Consistency
- Timeliness

The general functions of the National System are

- to establish and maintain the institutional, legal, and procedural arrangements defined in the guidelines for national systems between the government agencies and other entities,
- to ensure sufficient capacity for timely performance,
- to designate a single national entity with overall responsibility for the national inventory,
- to prepare national annual inventories and supplementary information in timely manner and
- to provide information necessary to meet the reporting requirements.

2.2 Specific Requirements

Sections 12 to 17 of the guidelines for national systems (UNFCCC Decision 20/CP.7) list the specific functions related to the inventory planning, preparation and management intended to be performed by the national system, which will assist in the attainment of the objectives set for the national systems and in the performance of their general functions. The full version of the Decision 20/CP.7 can be found in chapter 5 Annex: Guidelines for National Systems. The specific functions are summarized below.

- For inventory planning Parties shall designate a single national entity with the overall responsibility for the national inventory, define and allocate specific responsibilities in the inventory development process, elaborate an inventory QA/QC plan, establish processes for the official consideration and approval of the inventory, and consider ways to improve quality of inventories.

- For inventory preparation Parties shall select methods and prepare estimates following the IPCC good practice guidance; identify key sources, make a quantitative uncertainty estimate, compile the national inventory and implement general inventory QC procedures in accordance with the IPCC good practice guidance.
- As part of the inventory preparation Parties should apply source category specific QC procedures for key sources, and should provide for a review of the inventory by personnel that have not been involved in the inventory development and should periodically re-evaluate the inventory planning process in order to meet the established quality objectives.
- As part of the inventory management Parties shall archive inventory information for each year, provide review teams with access to this information and respond to requests for clarifying inventory information resulting from the different stages of the review process.

3 COMPLIANCE WITH THE FUNCTIONS OF NATIONAL SYSTEMS IN AUSTRIA

3.1 General functions

One of the major requirements of national systems is the establishment and maintenance of the institutional, legal and procedural arrangements between the government agencies and other entities responsible for the performance of all functions defined in the guidelines for national systems. A detailed description of existing arrangements is outlined in this chapter.

Fulfilment of Para 10(a)

Following internal *Umweltbundesamt* quality management regulation, a yearly plan is implemented to ensure capacity for timely performance of the functions defined in the guidelines for national systems. The technical competence of the staff involved in the inventory process is ensured due to arrangements in the *Umweltbundesamt* internal training plan.

Fulfilment of Para 10(b)

The compliance with the other general functions of national systems concerning inventory preparation is addressed in detail in chapter 3.2.

Fulfilment of Para 10(d) (e)

3.1.1 Responsibilities

Fulfilment of Para 10(c) and 12(c)

The responsibilities in the Austrian National System are visualized in Figure 2.

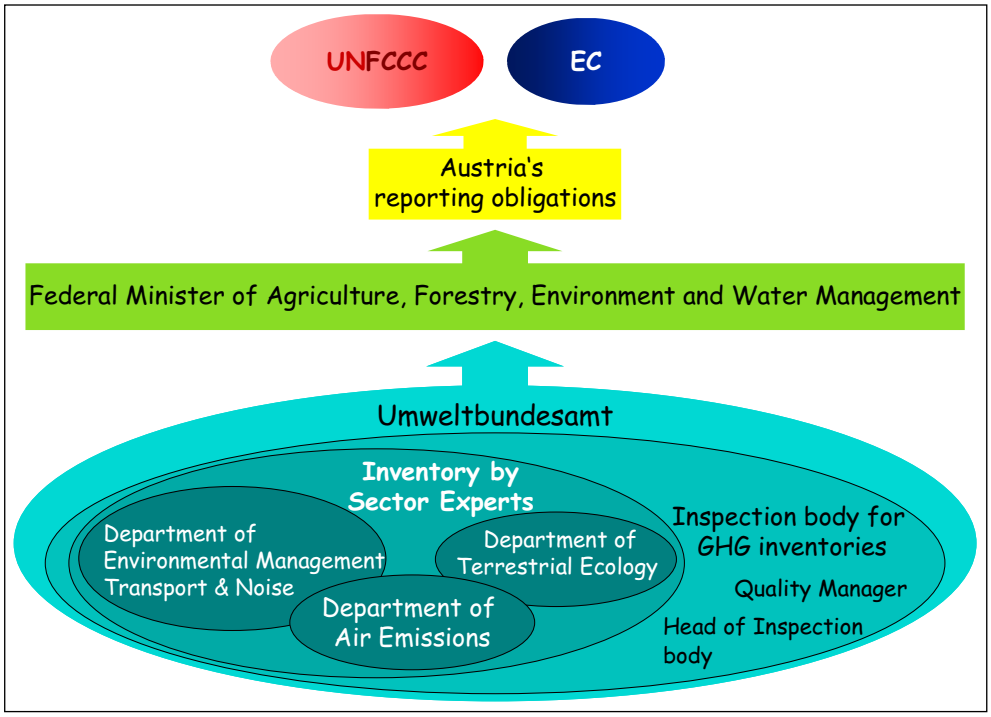

Figure 2: Responsibilities in the Austrian National System for Greenhouse Gas Inventories

Austria's reporting obligations to the UNFCCC and EC are administered by the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW). The *Umweltbundesamt* is identified as single national entity with overall

responsibility for inventory preparation by law. Within the *Umweltbundesamt* the department of air emissions is responsible for preparation of the Austrian air emission inventory ("Österreichische Luftschadstoff-Inventur OLI") and all work related to inventory preparation. Responsibilities are divided by sectors between sector experts from Departments within the *Umweltbundesamt* (see Table 1). The "Inspection body for GHG inventory" within the *Umweltbundesamt* is responsible for the compilation of the greenhouse gas inventory. The quality system is maintained relevant and current under the responsibility of the Quality Manager. The Quality Manager within the "Inspection body for GHG inventory" has irrespective of other duties defined authority and responsibility for quality assurance within the inspection body. The Quality Manager has direct access to top management.

Table 1: Responsibilities for the air emission inventory per sector in 2005

IPCC Sector	Sector expert from
1 A Fuel Combustion Activities	Department of Air Emissions
1 A 3 Transport	Department of Environmental Management, Transport and Noise
1 B Fugitive Emissions	Department of Air Emissions
2 Industrial Processes	Department of Air Emissions
3 Solvent and other product use	Department of Air Emissions
4 Agriculture	Department of Air Emissions
5 Land use, Land use change and forestry	Department of Terrestrial Ecology
6 Waste	Department of Air Emissions

3.1.2 Institutional and legal arrangements

Fulfilment of Para 10(a)

3.1.2.1 Legal basis of the inventory system Austria

The main basis for NISA is the Austrian Environmental Control Act (Umweltkontrollgesetz)[1], which sets the main responsibility for inventory preparation; it is outlined below.

Outline of the Austrian law to designate a single national entity for inventory preparation

The "Umweltkontrollgesetz" regulates responsibilities regarding environmental control in Austria and is also the basis for the outsourcing of the "*Umweltbundesamt* GmbH" (Austrian federal environment agency ltd.) that took place in 1999.

[1] The "Umweltkontrollgesetz" (Federal Law Gazette 152/ 1998) can be found at the homepage of the Umweltbundesamt: http://www.umweltbundesamt.at/umweltkontrolle

An English excerpt can also be found at the homepage of the Umweltbundesamt:

http://ta1.umweltbundesamt.at/fileadmin/site/umweltkontrolle/gesetze/ukg-e.pdf

Relevant paragraphs for NISA (National Inventory System Austria) are:

- **para. 6 (regulates tasks of the Umweltbundesamt GmbH) (2) 15:**
  …the *Umweltbundesamt* is obliged to prepare "technical expertise for *compliance* with […] the UNFCCC and the Kyoto Protocol, including the preparation of emission inventories".
- **para. 11 (regulates financing of the Umweltbundesamt GmbH):**
  …ensures financial resources for preparation of tasks as referred to in para 6.
- **para. 7 (regulates issues related to data security):**
  …the *Umweltbundesamt* is a public authority and can therefore process (confidential) personal data and can exchange these data with other public authorities.

3.1.2.2 Legal arrangements and other agreements

Fulfilment of Para 10(a)

Besides the Environmental Control Act there are some other legal and institutional arrangements in place as basis for the national system:

- The ordinance to the Austrian Emissions Trading Law[2] that regulates monitoring and reporting in the context of the EU Emissions Trading scheme in Austria; it is outlined below.

  Ordinance regarding Monitoring and Reporting of Greenhouse Gas Emissions[3]
  Paragraph 15 of this ordinance is designed to ensure consistency of emission trading data with the national inventory. It states that the *Umweltbundesamt* has to incorporate, as far as necessary, the emission reports of the emissions trading scheme into the national greenhouse gas inventory in order to comply with requirements of the EU Monitoring Mechanism Decision (280/2004/EC) and the UNFCCC. First data from the EU Emissions Trading scheme will be available for the year 2005; these data will be considered in the National Inventory Report 2007.
- The Austrian statistical office (Statistik Austria) is required by contract with the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) and with the Federal Ministry of Economics and Labour (BMWA) to annually prepare the national energy balance (the contracts also cover some quality aspects). The energy balance is prepared consistent with the methodology of the Organisation for Economic Co-operation and Development (OECD) and is submitted annually to the International Energy Agency (IEA) (IEA/EUROSTAT Joint Questionnaire (JQ) Submission). The national energy balance is the most important data basis for the Austrian Air Emissions Inventory.
- According to national legislation (Bundesstatistikgesetz[4]), the Austrian statistical office has to prepare annually import/export statistics, production statistics and statistics on agricultural issues (livestock counts etc.), which is an important data basis for calculating emissions from the sectors *Industrial Processes*, *Solvents and Other Product Use* and *Agriculture*.

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[2] "*Emissionszertifikate-Gesetz*", Federal Law Gazette 46/2004

[3] „*Verordnung des Bundesministers für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft über die Überwachung und Berichterstattung betreffend Emissionen von Treibhausgasen*", Federal Law Gazette 458/2004

[4] *"Bundesstatistikgesetz"*, Federal Law Gazette 163/1999

- In order to comply with the reporting obligations, the *Umweltbundesamt* has the possibility to obtain confidential data from the national statistical institute (of course this data has to be treated confidential). The legal basis for this data exchange is the "Bundesstatistikgesetz"[4] (federal statistics law), which allows the national statistical office to provide confidential data to authorities that have a legal obligation for the processing of these data.
- According to the Landfill Ordinance (Deponieverordnung)[5], which came into force in 1997, the operators of landfill sites have to report their activity data annually to the *Umweltbundesamt*, where they are stored in the database for solid waste disposals (*Deponiedatenbank*). This data is the main data basis for calculating emissions from the sector *Waste*.
- Since 2004 there is also a reporting obligation under the Austrian Fluorinated Compounds (FC)-regulation[6] to the BMLFUW for users of FCs in the following applications: refrigeration and air-conditioning, foam blowing, semiconductor manufacture, electrical equipment, fire extinguishers and aerosols. These data are used for estimating emissions from the consumption of fluorinated compounds (*IPCC sector 2 F*).

Fulfilment of Para 10(a)

3.1.2.3 Data basis per sector

This chapter describes data sources and availability necessary for the annual inventory compilation. Thus it concentrates on the data basis of activity data. The applied methodologies for emission calculation and the choices of emission factors for each IPCC category are described in detail in the National Inventory Report that is submitted annually to the UNFCCC.

Energy Sector

Arrangements relevant for the Energy Sector

A national energy balance compatible with requirements of the International Energy Agency (IEA Joint Questionnaires) is the main data source for this sector. Its annual preparation by *Statistik Austria* is ensured by a contract between Statistik Austria and the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) and an analogous contract between Statistik Austria and the Federal Ministry of Economics and Labour (BMWA).

Data from Industry, studies and from the annual steam boiler inventory (reporting is obligatory according to para 10 (7) of LRG-K[7]), are used to verify the data from the national energy balance.

With the commencement of the Austrian Emissions Trading Law and the respective Ordinance regarding Monitoring and Reporting of Greenhouse Gas Emissions[3] more detailed information on emissions from combustion of fuels than provided in the national energy balance will be available. This means for the Energy sector that the fuel inputs can be compared with data of the national energy balance, and if

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[5] *„Deponieverordnung",* Federal Law Gazette 164/1996

[6] *„Industriegas-Verordnung (HFKW-FKW-SF6-VO");* Federal Law Gazette 447/2002

[7] *"LRG-K"*, Federal Law Gazette 380/1988

necessary the data of the emissions trading scheme can be used to improve e.g. the sectoral division of the energy balance. Additionally, plant specific emissions factors reported for emissions trading can be used for the national inventory to improve the data quality (especially for non-standard fuels).

For the sub-sector *Transport* statistical data (*Statistik Austria* is obliged to compile these data by law[4,8]) are used for the allocation of sold fuel (from the energy balance) to the specific applications.

Data Sources/Data Availability

Table 2: Data sources/Data Availability in the Energy sector

IPCC Category (share in national total GHG emissions 2003)	Data Source	Availability ensured long-term?	How?
1 A 1 Energy Industries (11.5%)	IEA JQ*	yes	quinquennial contract
1 A 2 Manufacturing Industries and Construction (9.3%)	IEA JQ	yes	quinquennial contract
1 A 3 a Civil aviation (0.1%)	IEA JQ	yes	quinquennial contract
1 A 3 b Road Transport (24.2%)	IEA JQ	yes	quinquennial contract
1 A 3 c Railways (0.2%)	IEA JQ	yes	quinquennial contract
1 A 3 d e Navigation and Other Transportation (0.1%)	IEA JQ	yes	quinquennial contract
1 A 4 Other sectors (11.6%)	IEA JQ	yes	quinquennial contract
1 A 5 Other sectors (0.04%)	IEA JQ	yes	quinquennial contract
1 A Stationary Fuel Combustion (gaseous) (18.1%)	IEA JQ	yes	quinquennial contract
1 B (0.6%)	IEA JQ	yes	quinquennial contract
	Industry**	no	

* *International Energy Agency Joint Questionnaire*

***Association of the Austrian Petroleum Industry*

Industrial Processes Sector

Arrangements relevant for the Industrial Processes Sector

National import/export statistics and production statistics are important data sources for this sector. Their availability is ensured by the "Bundesstatistikgesetz"[4] (federal statistics law). For fluorinated compounds (IPCC Category 2 F) in particular exists a reporting obligation[6] since 2004.

Other important data sources for this sector are the voluntary reports of companies and associations including production figures and emissions. Several specific regulations in the Austrian legislation exist concerning measurement and documentation of emission data that also concern verification for Quality Assurance and Quality Control.

[8] *"Straßen- und Schienenverkehrsstatistikgesetz"*, Federal Law Gazette 142/1983

The ordinance that regulates monitoring and reporting in the context of the EU Emissions Trading scheme in Austria will ensure data availability (activity and emission data) for the most key sources. Data will be reported from plant operators from all mineral products (IPCC Category 2 A) as well as from the iron and steel industry (IPCC Category 2 C) as from 2005.

Data Sources/Data Availability

Table 3: Data sources/Data Availability in the Industry sector

IPCC Category (share in national total GHG emissions 2003)	Data Source	Availability ensured long-term?	How? / Comment
2 A 1 Cement production (1.9%)	Studies on behalf of the cement industry[9]	no	Activity data could be obtained from Statistik Austria alternatively
2 A 2 Lime production (0.6%)	Association of Stone & Ceramic Industry	no	Activity data could be obtained from Statistik Austria alternatively
2 A 3 Limestone and Dolomite Use (0.3%)	Association of Glass Industry & Iron and Steel Producer	no	Activity data could be obtained from Statistik Austria alternatively
2 A 4 Soda Ash Use (0.02%)	Association of Glass Industry	no	Activity data could be obtained from Statistik Austria alternatively
2 A 7 Other mineral products (0.5%)	Statistik Austria	yes	Bundesstatistikgesetz[4]
2 B 1 Ammonia production (0.5%)	Ammonia Producer	no	Activity data could be obtained from Statistik Austria alternatively
2 B 2 Nitric Acid production (1%)	Nitric Acid Producer	no	Activity data could be obtained from Statistik Austria alternatively
2 B 4 Calcium Carbide production (0.04%)	Carbide Producer	no	Activity data could be obtained from Statistik Austria alternatively
2 B 5 Production of fertilizers and urea (0.03%)	Fertilizer and Urea Producer	no	Activity data could be obtained from Statistik Austria alternatively
2 C 1 Iron and Steel production (4.9%)	Statistik Austria Iron and Steel Producer	yes	Bundesstatistikgesetz[4]
2 F Consumption of halocarbons and SF6 (2.2%)	Reported Statistik Austria	yes	FC-regulation[6]

[9] Hackl, A.; Mauschitz, G. (1995/1997/2001/2004): Emissionen aus Anlagen der Österreichischen Zementindustrie

Solvent Sector

Arrangements relevant for the Solvent Sector

Import/export statistics and production statistics are the data sources for this sector. Their availability is ensured by the "Bundesstatistikgesetz"[4] (federal statistics law).

Data Sources/ Data Availability

Table 4: Data sources/Data Availability in the Solvent sector

IPCC Category (share in national total GHG emissions 2003)	Data Source	Availability ensured long-term?	How?
3 solvent and other product use (0.5%)	Statistik Austria	yes	Bundesstatistik-gesetz[4]

Agriculture Sector

Arrangements relevant for the Agriculture Sector

Statistics on agricultural issues (livestock counts etc.) are the data sources for this sector. Their availability is ensured by the "Bundesstatistikgesetz"[4] (federal statistics law). Each year the Minister of Agriculture and Forestry has to prepare and publish a report (Grüner Bericht) according to para 9 of the "Landwirtschaftsgesetz[10]" (agriculture law) that contains the business situation of agriculture. This report contains the main statistical data for the sector *Agriculture*.

Every third year the ministry of agriculture and forestry has to prepare and publish a status report on the Austrian water bodies (Gewässerschutzbericht) according to para 33e of the "Wasserrechtsgesetz[11]".

[10] *"Landwirtschaftsgesetz"*, Federal Law Gazette 375/1992

[11] *"Wasserrechtsgesetz"*, Federal Law Gazette 87/2005

Data Sources/ Data Availability

Table 5: Data sources/Data Availability in the Agriculture sector

IPCC Category (share in national total GHG emissions 2003)	Data Source	Availability ensured long-term?	How?
4 A Enteric Fermentation (3.4%)	Grüner Bericht	yes	Landwirtschafts-gesetz[10]
	Statistik Austria	yes	Bundesstatistik-gesetz[4]
4 B Manure Management (1.7%)	Grüner Bericht	yes	Landwirtschafts-gesetz[10]
	Statistik Austria	yes	Bundesstatistik-gesetz[4]
4 D Agricultural Soils (2.9%)	Grüner Bericht	yes	Landwirtschafts-gesetz[10]
	Statistik Austria	yes	Bundesstatistik-gesetz[4]
	Gewässer-schutzbericht	yes	Wasserrechts-gesetz[11]

Land Use, Land Use Change and Forestry (LULUCF) Sector

Arrangements relevant for the LULUCF Sector

Legal arrangements do not exist to ensure data availability for IPCC Sector 5 A Forest Land. Data sources are the Austrian National Forest Inventory (published in irregular intervals) that is compiled by the Federal forest office (BFW), the annually reported records of wood harvested (Österreichische Waldberichte; Jahresberichte über die Forstwirtschaft) that are published by the Federal Institute of Agricultural Economics (BMLF) and the Austrian wood balance (Ökobilanz Wald) published 1995 by Statistik Austria.

Statistics on agriculture and agricultural structure are the data sources for the subsectors Cropland and Grassland. Their availability is ensured by the "Bundesstatistikgesetz"[4] (federal statistics law). These statistical data have to be published according to the European Council Regulation on the organization of Community surveys on the structure of agricultural holdings[12]. Another data source is INVEKOS (Integriertes Verwaltungs- und Kontrollsystem). The legal basis for INVEKOS is the European Council Regulation establishing an integrated administration and control system for certain European Community aid schemes[13].

[12] Council Regulation 88/571/EEC on the organization of Community surveys on the structure of agricultural holdings

[13] Council Regulation 92/3508/EEC establishing an integrated administration and control system for certain Community aid schemes

Data Sources/ Data Availability

Table 6: Data sources/Data Availability in the LULUCF sector

IPCC Category	Data Source	Availability ensured long-term?	How?
5 A Forest Land	BFW	no	
	Waldberichte	no	
	Ökobilanz Wald	no	
5 B Cropland 5 C Grassland	Statistik Austria	yes	Bundesstatistik-gesetz[4]
	INVEKOS	yes	EC Regulation[13]

Waste Sector

Arrangements relevant for the Waste Sector

The "Deponieverordnung"[5] is the most important legal arrangement for this sector. Activity data are reported by the operators of landfill sites and are collected in the "Deponiedatenbank", which is the main data basis for calculating emissions from the IPCC sub-sector 6 A.

Another relevant legal arrangement is the European Commission Directive on Urban Waste Water Treatment[14]. The biennial reporting obligation (Article 16) is fullfilled by Austria with the help of the "Kläranlagendatenbank" where all relevant data are collected.

Data Sources/ Data Availability

Table 7: Data sources/Data Availability in the Waste sector

IPCC Category (share in national total GHG emissions 2003)	Data Source	Availability ensured long-term?	How?
6 A Solid waste disposal on land (3.1%)	Deponiedaten-bank	yes	Deponie-verordnung[5]
6 B Waste water handling (0.5%)	Statistik Austria	yes	Bundesstatistik-gesetz[4]
	Kläranlagendaten-bank	yes	EC directive[14]
	Gewässer-schutzberichte	yes	Wasserrechts-gesetz[11]
6 D Other Waste (0.1%)	Several studies	no	

[14] Directive 91/271/EEC on Urban Waste Water Treatment

3.2 Specific functions

3.2.1 Inventory planning

Fulfilment of Para 12(a)

Single national entity

As mentioned before the *Umweltbundesamt* is designated as single national entity responsible for preparation of the annual greenhouse gas inventory by law. The Environmental Control Act regulates responsibilities of environmental control in Austria and lists the tasks of the *Umweltbundesamt* (see chapter 0 for more detailed information). Thus the *Umweltbundesamt* prepares and annually updates the Austrian air emission inventory which covers greenhouse gases and emissions of other air pollutants. The *Umweltbundesamt* is also responsible for gathering all the (supplementary) information necessary to meet the reporting requirements defined in the guidelines under Article 7 of the Kyoto Protocol.

Fulfilment of Para 12(b)

The postal and electronic addresses of the single national entity are:

Umweltbundesamt
Spittelauer Lände 5
1090 Wien/Austria
office@umweltbundesamt.at
www.umweltbundesamt.at

Fulfilment of Para 12(c)

Responsibilities

An overview of the general responsibilities in the inventory development and reporting process is given in chapter 3.1.1. As mentioned before, the *Umweltbundesamt* has the overall responsibility for the national inventory, comprising greenhouse gases as well as other air pollutants. Within the inventory system specific responsibilities for the different emission source categories are defined (“sector experts”), as well as for all activities related to the preparation of the inventory, including QA/QC, data management and reporting.

The sector experts are in charge of specific responsibilities related to choice of methods, data collection, processing and archiving. As part of the quality management system the head of the “Inspection body for GHG inventory“ approves the methodological choices. Sector experts are also responsible for performing Quality Control (QC) activities that are incorporated in the Quality Management System (QMS).

Fulfilment of Para 12(d)

QA/QC

The quality management system (QMS) has been designed to contribute to the objectives of *good practice guidance*, namely to improve transparency, consistency, comparability, completeness and confidence in national inventories of emissions estimates. The Quality Assurance and Quality Control (QA/QC) procedures within the QMS correspond to the QA/QC system outlined in IPCC-GPG Chapter 8 “Quality Assurance and Quality Control”.

The implemented QMS is based on the International Standard ISO 17020 *General Criteria for the operation of various types of bodies performing inspections*. The QMS ensures the fulfilment of requirements as stipulated in Chapter 8 of the IPCC-GPG. The accreditation audit of the *Umweltbundesamt* as inspection body took place in September 2005. Formal accreditation is foreseen for early 2006.

The implementation of QA/QC procedures as required by IPCC-GPG support the development of national greenhouse gas inventories that can be readily assessed in terms of quality and completeness. A QMS goes beyond QA/QC activities and comprises supporting and management processes in addition to the QA/QC procedures in inventory compilation. A system of standard operating procedures (SOPs) ensures agreed standards as well as transparency within (i) the inventory compilation process (ii) supporting processes (e.g. archiving) and (iii) management processes (e.g. annual management reviews, internal audits, regular training of personnel, error prevention).

The QMS is characterized by a *process based approach*, referring to the application of three processes within its organisation, along with the identification and interactions of these processes and their management. A scheme of the QMS of the Austrian emission inventory can be found in Figure 3

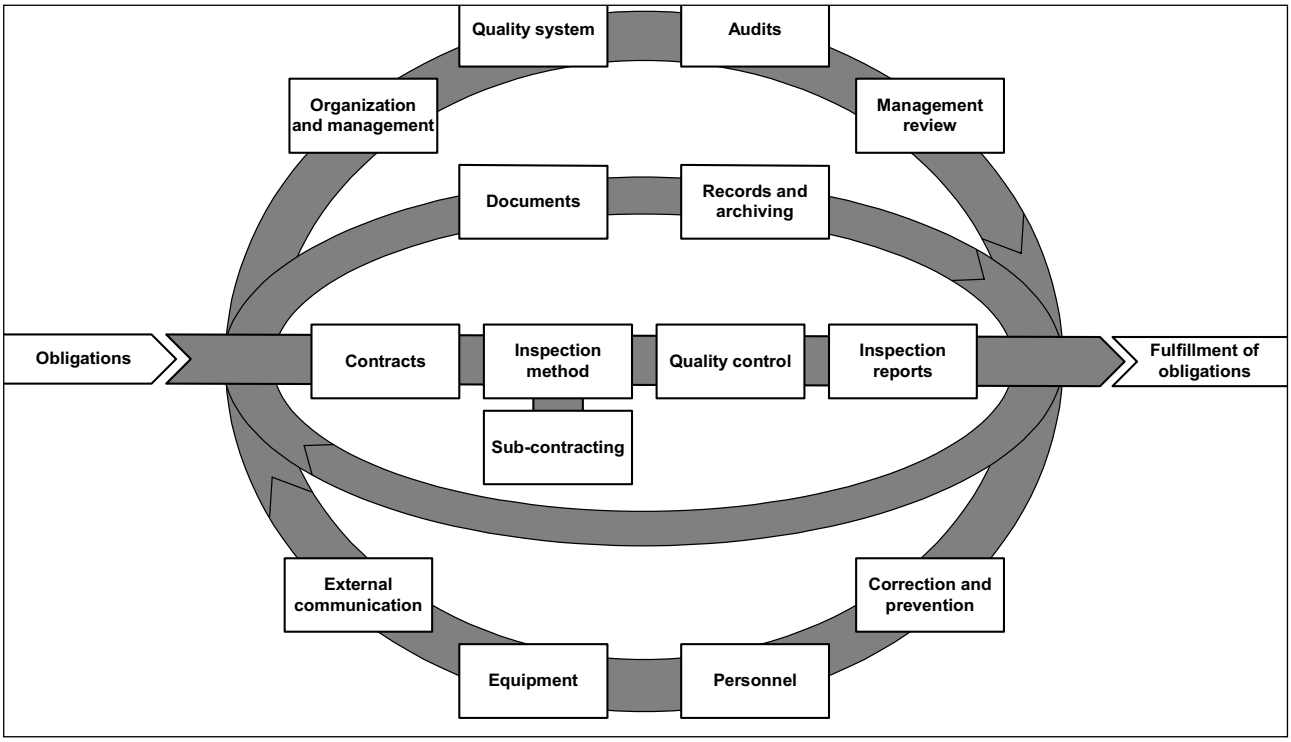

Figure 3: Process-based QMS. The outer circle corresponds to management processes, the straight line to realisation processes and the inner circle to supporting processes.

Official consideration and approval

Fulfilment of Para 12(e)

A process for official consideration and approval of the inventory prior to its submission is established. The *Umweltbundesamt* informs the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) about the inventory, which is then submitted by the Minister to the UNFCCC secretariat.

Review process

Fulfilment of Para 12(e)

The responses to any issues raised by the inventory review process under Article 8 of the Kyoto Protocol are coordinated by the head of the “Inspection body for GHG inventory” and conducted by the sector experts post submission.

Fulfilment of Para 13

Quality improvement

As part of the QMS (Corrective and Preventive Actions) an efficient process is established to gain transparency when collecting and analyzing findings by UNFCCC reviews experts or any other discrepancies concerning the quality of activity data, emission factors, methods and other relevant technical elements of inventories. Any findings and discrepancies are documented; responsibilities, resources and a time schedule are attributed to each of these in the improvement plan. A periodic review assesses the progress of the inventory improvement process.

3.2.2 Inventory preparation

Fulfilment of Para 14(b) (c) (e) (f)

The most recent Austrian greenhouse gas inventory for the period 1990 to 2003 (NIR 2005) was compiled according to the recommendations for inventories set out in the UNFCCC reporting guidelines according to Decision 18/CP.8, the Common Reporting Format (CRF)[15] (version 1.01), Decision 13/CP.9, the new CRF for the Land Use Change and Forestry Sector, the IPCC 1996 Guidelines for National Greenhouse Gas Inventories, which specify the reporting obligations according to Articles 4 and 12 of the UNFCCC [IPCC Guidelines, 1997] as well as the IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories [IPCC GPG, 2000].

As mentioned before sector experts collect activity data, emission factors and all relevant information needed for finally estimating emissions. The sector experts are also responsible for methodological choices (with release by the head of the "Inspection body for GHG inventory") and for contracting studies, if needed.

Fulfilment of Para 14(a)

Key source categories

The method to identify key source categories followed the Tier 1 method - quantitative approach described in the Good Practice Guidance [IPCC-GPG, 2000], Chapter 7 *Methodological Choice and Recalculation*.

Fulfilment of Para 14(d)

Uncertainty

In the last submission uncertainty estimates for all key sources were presented. They are mainly based on results from the first comprehensive uncertainty analysis that was performed in 2001 based on data from submission 1999[16].

Fulfilment of Para 14(g) and 15(a)

QC procedures

QC procedures follow the recommendations of IPCC-GPG chapter 8 on *Quality Assurance and Quality Control* and are part of the QMS. Priority is given to key sources. For all sources, fundamental checks such as completeness of estimates, time series consistencies, data transcription and documentation are performed. For

[15] http://www.unfccc.de/resource/CRFV1_01o01.zip

[16] WINIWARTER, W.; RYPDAL, K. (2001): Assessing the Uncertainty Associated with National Greenhouse Gas Emission Inventories: A Case Study for Austria, Accepted for publication in Atmospheric Environment.

key sources, activity data, emission factors, emissions and uncertainty analysis are assessed using the Tier 1 checklist. In addition Tier 2 QC procedures are employed where applicable. Special attention is given to documentation, archiving and reporting as outlined in chapter 8.10 of IPCC-GPG.

3.2.3 Inventory management

Fulfilment of Para 16(a) (b) (c) and 17

For the inventory management a reliable data management to fulfil the data collecting and reporting requirements is needed. As mentioned above, data collection is performed by the different sector experts and the reporting requirements grow rapidly and may change over time. Data management is carried out by using MS Excel™ spreadsheets in combination with Visual Basic™ macros, which is a very flexible system that can easily be adjusted to new requirements. The data is stored on a central network server which is backed up daily for the needs of data security. Furthermore as part of the QMS backups of the entire inventory information are made twice a year on write-protected dvds. The inventory management as part of the QMS includes a control system for all documents and data, for records and their archiving as well as documentation on QA/QC activities.

This ensures the necessary documentation and archiving for future reconstruction of the inventory and for the timely response to requests during the review process.

3.3 Summary

Requirements of national systems as mentioned in Decision 20/CP.7 Guidelines for national systems under Article 5, paragraph1, of the Kyoto Protocol, and their fulfilment in the Austrian National Inventory System are summarized in Table 8. The full version of the Decision 20/CP.7 can be found in chapter 5 Annex: Guidelines for National Systems.

Table 8: Requirements of national system and their fulfilment in NISA

Decision 20/CP.7 Guidelines	Requirement	Requirement complied with?	How? Comment or Recommendation
Para 10 (a)	Institutional, legal, procedural arrangements	Partly	See Para 12 (c)
Para 10 (b)	Ensure sufficient capacity for timely performance	Yes	Internal Umweltbundesamt regulation is being implemented
Para 10 (c),(d),(e)	General	Yes	See following paragraphs
Para 12 (a),(b)	Single national entity	Yes	Umweltbundesamt under the Environmental Control Act
Para 12 (c)	Define and allocate specific responsibilities	Yes	Sector experts and quality manager; responsibilities defined in the QMS
	Institutional, legal, procedural arrangements	Partly	Long-term availability of activity data for inventory preparation still needs to be ensured in some sectors (see chapter 3.1.2.3)
Para 12 (d)	QA/QC plan	Yes	QMS based on ISO 17020 and 2000 IPCC-GPG
Para 12 (e)	Official consideration and approval of the inventory prior to submission	Yes	Approval and submission by the Minister of Agriculture, Forestry, Environment and Water Management
Para 13	Quality improvement	Yes	QMS, improvement plan; ”should requirement”
Para 14 (a)	Key source categories	Yes	Tier 1
Para 14 (b),(c), (e),(f),	Estimates in accordance with IPCC guidelines	Yes	See NIR 2005 and accordingly reports from the inventory review process
Para 14 (d)	Uncertainty	Partly	At the moment based on data from 1999. An update of uncertainty estimates is planned.
Para 14 (g)	QC procedures	Yes	For all sources Tier 1 QC
Para 15 (a)	QC procedures	Yes	Tier 2 QC procedures, where applicable; ”should requirement”
Para 15 (b),(c),(d)	Review of independent party before submission	No	”should requirement”
Para 16 (a),(b),(c)	Archiving of inventory information	Yes	Regulated in the QMS; backups
Para 17	Collecting of inventory information at a single location	Yes	Data are stored on a central network server; daily backups; ”should requirement”

4 RECOMMENDATIONS

- **Steps should be taken to further investigate possibilities to establish a national expert review of the inventory prior to its submission by personnel that have not been involved in the inventory development.** The guidelines furthermore recommend that key source categories should be reviewed more extensively. Nevertheless, the corresponding paragraphs (para 15 (b),(c),(d)) are ”should requirements” and the following points have to be considered for their fulfilment: (1) the timeliness of the inventory must be ensured, (2) the additional benefit of this review to the obligatory review by the UNFCCC experts and (3) the additional costs.
- **It is recommended to update uncertainty estimates.** Current estimates are based on the inventory 1999. Due to methodological changes in the emission calculation of some sectors, the uncertainties in the sectors concerned and the uncertainty of the whole inventory should be re-evaluated. This update could be included in the inventory planning 2006, if the necessary resources are provided.
- **It is recommended to ensure more formalised relations with the energy balance.** In the year 2003 75% of total Greenhouse Gas (GHG) emissions were caused by fossil fuel combustion. The data basis for this sector is the energy balance which is prepared due to a quinquennial contract between Statistik Austria and the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) and an analogous contract between Statistik Austria and the Federal Ministry of Economics and Labour (BMWA). To assure data availability for this most important sector a contract is recommended to cover the Kyoto-period 2008-2012. Furthermore it is necessary to ensure correspondence between allocation of fuel input in the energy balance and the sectoral division necessary for preparing the inventory according to the IPCC guidelines. For this the contract should include a paragraph that provides for semi-annual meetings between the responsible person of Statistik Austria and the sector expert from the *Umweltbundesamt*. These meetings shall be used to furthermore improve the consistency between the energy balance and the GHG inventory.
- **It is recommended to formalise relations with the forest inventory.** In the year 2003 CO_2 removals from the sector LULUCF accounted for a sink of 14% of the total GHG emissions. All removals from this sector came from subcategory Forrest Land. Setting-up a legal basis for the preparation of the Austrian National Forest Inventory would help to ensure annual data availability for this subcategory.

5 ANNEX: GUIDELINES FOR NATIONAL SYSTEMS

Guidelines for national systems for the estimation of anthropogenic greenhouse gas emissions by sources and removals by sinks under Article 5, paragraph 1, of the Kyoto Protocol[17]

I. APPLICABILITY

1. The provisions of these guidelines shall apply for each Party included in Annex I which is also a Party to the Kyoto Protocol. Parties' implementation of national system requirements may differ according to national circumstances, but shall include the elements described in these guidelines. Any differences in implementation shall not impair the performance of the functions described in these guidelines.

II. DEFINITIONS

A. Definition of national system

2. A national system includes all institutional, legal and procedural arrangements made within a Party included in Annex I for estimating anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and for reporting and archiving inventory information.

B. Other definitions

3. The meaning of the following terms in these guidelines for national systems[18] is the same as in the glossary of the Intergovernmental Panel on Climate Change (IPCC) good practice guidance[19], accepted by the IPCC at its sixteenth session[20]:

(a) Good practice is a set of procedures intended to ensure that greenhouse gas inventories are accurate in the sense that they are systematically neither over- nor underestimated as far as can be judged, and that uncertainties are reduced as far as possible. Good practice covers choice of estimation methods appropriate to national circumstances, quality assurance and quality control at the national level, quantification of uncertainties, and data archiving and reporting to promote transparency;

(b) Quality control (QC) is a system of routine technical activities to measure and control the quality of the inventory as it is being developed. The QC system is designed to:

(i) Provide routine and consistent checks to ensure data integrity, correctness and completeness;

(ii) Identify and address errors and omissions;

(iii) Document and archive inventory material and record all QC activities.

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[17] "Article" in these guidelines refers to an Article of the Kyoto Protocol, unless otherwise specified.

[18] The guidelines for national systems for the estimation of anthropogenic greenhouse gas emissions by sources and removals by sinks under Article 5, paragraph 1, of the Kyoto Protocol are referred to herein as "guidelines for national systems".

[19] The IPCC "*Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*" is referred to as the "IPCC good practice guidance" in these guidelines for national systems.

[20] Montreal, 1-8 May 2000.

Quality control activities include general methods such as accuracy checks on data acquisition and calculations and the use of approved standardized procedures for emission calculations, measurements, estimating uncertainties, archiving information and reporting. Higher tier QC activities also include technical reviews of source categories, activity and emission factor data and methods;

(c) Quality assurance (QA) activities include a planned system of review procedures conducted by personnel not directly involved in the inventory compilation development process, to verify that data quality objectives were met, ensure that the inventory represents the best possible estimate of emissions and sinks given the current state of scientific knowledge and data available, and support the effectiveness of the QC programme;

(d) Key source category is one that is prioritized within the national inventory because its estimate has a significant influence on a country's total inventory of direct greenhouse gases in terms of the absolute level of emissions, the trend in emissions, or both;

(e) Decision tree is a flow-chart describing the specific ordered steps which need to be followed to develop an inventory or an inventory component in accordance with the principles of good practice.

4. Recalculation, consistent with the UNFCCC reporting guidelines on annual inventories[21], is a procedure for re-estimating anthropogenic greenhouse gas (GHG)[22] emissions by sources and removals by sinks of previously submitted inventories[23] as a consequence of changes in methodologies, changes in the manner in which emission factors and activity data are obtained and used, or the inclusion of new source and sink categories.

III. OBJECTIVES

5. The objectives of national systems under Article 5, paragraph 1, for the estimation of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, referred to below as national systems, are:

(a) To enable Parties included in Annex I to estimate anthropogenic GHG emissions by sources and removals by sinks, as required by Article 5, and to report these emissions by sources and removals by sinks in accordance with Article 7, paragraph 1, and relevant decisions of the Conference of the Parties (COP) and/or the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (COP/MOP);

(b) To assist Parties included in Annex I in meeting their commitments under Articles 3 and 7;

(c) To facilitate the review of the information submitted under Article 7 by Parties included in Annex I, as required by Article 8;

(d) To assist Parties included in Annex I to ensure and improve the quality of their inventories.

IV. CHARACTERISTICS

[21] FCCC/CP/1999/7.

[22] References to greenhouse gases (GHG) in these guidelines for national systems refer to GHGs not controlled by the Montreal Protocol.

[23] "National GHG inventories" are referred to simply as "inventories" in these guidelines for the sake of brevity.

6. National systems should be designed and operated to ensure the transparency, consistency, comparability, completeness and accuracy of inventories as defined in the guidelines for the preparation of inventories by Parties included in Annex I, in accordance with relevant decisions of the COP and/or COP/MOP.

7. National systems should be designed and operated to ensure the quality of the inventory through planning, preparation and management of inventory activities. Inventory activities include collecting activity data, selecting methods and emission factors appropriately, estimating anthropogenic GHG emissions by sources and removals by sinks, implementing uncertainty assessment and quality assurance/quality control (QA/QC) activities, and carrying out procedures for the verification of the inventory data at the national level, as described in these guidelines for national systems.

8. National systems should be designed and operated to support compliance with Kyoto Protocol commitments related to the estimation of anthropogenic GHG emissions by sources and removals by sinks.

9. National systems should be designed and operated to enable Parties included in Annex I to consistently estimate anthropogenic emissions by all sources and removals by all sinks of all GHGs, as covered by the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* and IPCC good practice guidance, in accordance with relevant decisions of the COP and/or COP/MOP.

V. GENERAL FUNCTIONS

10. In the implementation of its national system, each Party included in Annex I shall:

(a) Establish and maintain the institutional, legal and procedural arrangements necessary to perform the functions defined in these guidelines for national systems, as appropriate, between the government agencies and other entities responsible for the performance of all functions defined in these guidelines;

(b) Ensure sufficient capacity for timely performance of the functions defined in these guidelines for national systems, including data collection for estimating anthropogenic GHG emissions by sources and removals by sinks and arrangements for technical competence of the staff involved in the inventory development process;

(c) Designate a single national entity with overall responsibility for the national inventory;

(d) Prepare national annual inventories and supplementary information in a timely manner in accordance with Article 5 and Article 7, paragraphs 1 and 2, and relevant decisions of the COP and/or COP/MOP;

(e) Provide information necessary to meet the reporting requirements defined in the guidelines under Article 7 in accordance with the relevant decisions of the COP and/or COP/MOP.

VI. SPECIFIC FUNCTIONS

11. In order to meet the objectives and perform the general functions described above, each Party included in Annex I shall undertake specific functions related to inventory planning, preparation and management.[24]

A. Inventory planning

12. As part of its inventory planning, each Party included in Annex I shall:

(a) Designate a single national entity with overall responsibility for the national inventory;

(b) Make available the postal and electronic addresses of the national entity responsible for the inventory;

(c) Define and allocate specific responsibilities in the inventory development process, including those related to choice of methods, data collection, particularly activity data and emission factors from statistical services and other entities, processing and archiving, and QC and QA. This definition shall specify the roles of, and cooperation between, government agencies and other entities involved in the preparation of the inventory, as well as the institutional, legal and procedural arrangements made to prepare the inventory;

(d) Elaborate an inventory QA/QC plan which describes specific QC procedures to be implemented during the inventory development process, facilitate the overall QA procedures to be conducted, to the extent possible, on the entire inventory and establish quality objectives;

(e) Establish processes for the official consideration and approval of the inventory, including any recalculations, prior to its submission and to respond to any issues raised by the inventory review process under Article 8.

13. As part of its inventory planning, each Party included in Annex I should consider ways to improve the quality of activity data, emission factors, methods and other relevant technical elements of inventories. Information obtained from the implementation of the QA/QC programme, the review process under Article 8 and other reviews should be considered in the development and/or revision of the QA/QC plan and the quality objectives.

B. Inventory preparation

14. As part of its inventory preparation, each Party included in Annex I shall:

(a) Identify key source categories following the methods described in the IPCC good practice guidance (chapter 7, section 7.2);

(b) Prepare estimates in accordance with the methods described in the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, as elaborated by the IPCC good practice guidance, and ensure that appropriate methods are used to estimate emissions from key source categories;

(c) Collect sufficient activity data, process information, and emission factors as are necessary to support the methods selected for estimating anthropogenic GHG emissions by sources and removals by sinks;

(d) Make a quantitative estimate of inventory uncertainty for each source category and for the inventory in total, following the IPCC good practice guidance;

[24] For the purpose of these guidelines for national systems, the inventory development process encompasses inventory planning, preparation and management. These steps of the inventory development process are considered in these guidelines only in order to clearly identify the functions to be performed by the national systems, as described in paragraphs 12 to 17 of the present guidelines.

(e) Ensure that any recalculations of previously submitted estimates of anthropogenic GHG emissions by sources and removals by sinks are prepared in accordance with the IPCC good practice guidance and relevant decisions of the COP and/or COP/MOP;

(f) Compile the national inventory in accordance with Article 7, paragraph 1, and relevant decisions of the COP and/or COP/MOP;

(g) Implement general inventory QC procedures (tier 1) in accordance with ist QA/QC plan following the IPCC good practice guidance.

15. As part of its inventory preparation, each Party included in Annex I should:

(a) Apply source category specific QC procedures (tier 2) for key source categories and for those individual source categories in which significant methodological and/or data revisions have occurred, in accordance with the IPCC good practice guidance;

(b) Provide for a basic review of the inventory by personnel that have not been involved in the inventory development, preferably an independent third party, before the submission of the inventory, in accordance with the planned QA procedures referred to in paragraph 12 (d) above;

(c) Provide for a more extensive review of the inventory for key source categories, as well as source categories where significant changes in methods or data have been made;

(d) Based on the reviews described in paragraphs 15 (b) and 15 (c) above and periodic internal evaluations of the inventory preparation process, re-evaluate the inventory planning process in order to meet the established quality objectives referred to in paragraph 12 (d).

C. Inventory management

16. As part of its inventory management, each Party included in Annex I shall:

(a) Archive inventory information for each year in accordance with relevant decisions of the COP and/or COP/MOP. This information shall include all disaggregated emission factors, activity data, and documentation about how these factors and data have been generated and aggregated for the preparation of the inventory. This information shall also include internal documentation on QA/QC procedures, external and internal reviews, documentation on annual key sources and key source identification and planned inventory improvements;

(b) Provide review teams under Article 8 with access to all archived information used by the Party to prepare the inventory, in accordance with relevant decisions of the COP and/or COP/MOP;

(c) Respond to requests for clarifying inventory information resulting from the different stages of the review process of the inventory information, and information on the national system, in a timely manner in accordance with Article 8.

17. As part of its inventory management, each Party included in Annex I should make the archived information accessible by collecting and gathering it at a single location.

VII. UPDATING OF THE GUIDELINES

18. These guidelines shall be reviewed and revised, as appropriate, by consensus, in accordance with decisions of the COP/MOP, taking into account any relevant decisions of the COP.

Annex 3

Report on the national registry

umweltbundesamt

NATIONAL REGISTRY AUSTRIA

Information required under Article 7 of the Kyoto Protocol
Description of the National Registry

Verena Lorenz-Meyer
Dr. Johann Weigl

Vienna, 2006

Project management
Verena Lorenz-Meyer

Author
Verena Lorenz-Meyer
Dr. Johann Weigl

For further information about the publications of the Umweltbundesamt please go to:
http://www.umweltbundesamt.at/

CONTENTS

1 DESCRIPTION OF THE NATIONAL REGISTRY

1.1 Registry Administrator

1.1.1 The name and contact information of the registry administrator designated by the Party to maintain the national registry

Registry administrator:

Name	Umweltbundesamt GmbH
Address	Spittelauer Lände 5
City	Vienna
Postcode	1090
Country	Austria
Telephone number	+43 1 31304 5930
Facsimile number	+43 1 31304 5959
E-mail	verena.lorenz-meyer@umweltbundesamt.at johann.weigl@umweltbundesamt.at

1.2 Consolidated System with other Parties

1.2.1 The names of the other Parties with which the Party cooperates by maintaining their national registries in a consolidated system

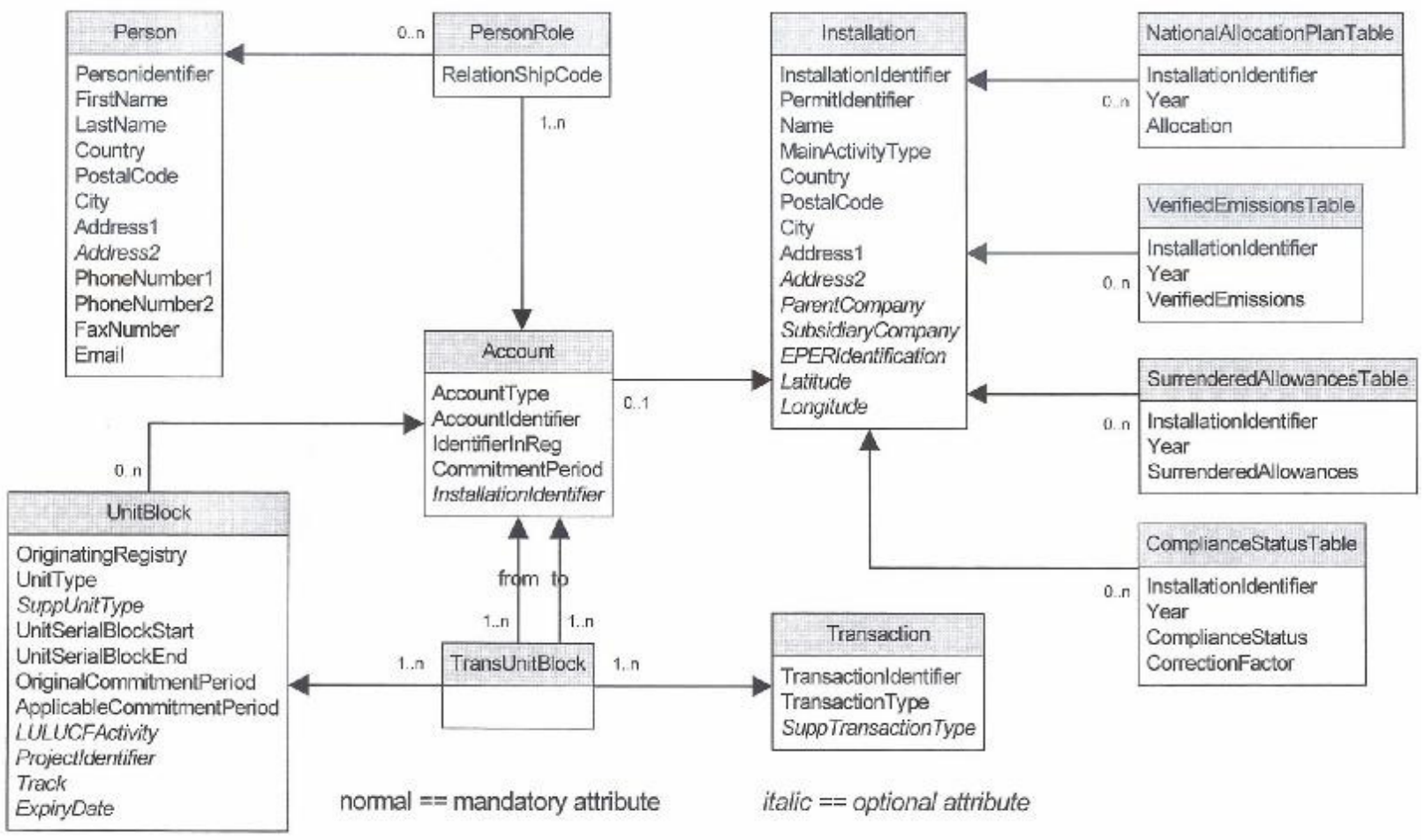
Austria cooperates with the member states of the European Union and with the supplementary transaction log (STL) and the registry of the European Community by maintaining the national registries in a consolidated system. The names of the other member states are: Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden and United Kingdom.

1.3 Database Structure and Capacity

1.3.1 A description of the database structure of the national registry

An overview of the database structure is shown in figure 1.

Figure 1: Structure of the database (overview)



1.3.2 The capacity of the national registry

The capacity of the registry is designed for 5000 accounts. 220 Accounts are currently installed.

1.4 Conformity with Data Exchange Standards

1.4.1 A description of how the national registry conforms to the technical standards for data exchange between registry systems for the purpose of ensuring the accurate, transparent and efficient exchange of data between national registries, the clean development mechanism registry and the transaction log (decision 19/CP.7, paragraph 1)

The software version 1.1.9.2 of the Austrian national registry which is currently used is programmed according to the data exchange standards for registry systems under the Kyoto Protocol (DES), technical specifications Version 1.0. Version 1.1.10.0 of the registry software, which will be tested with the International Transaction Log (ITL) in the beginning of 2007 according to the ITL test schedule, will be programmed according to the DES, technical specifications Version Draft 1.1b.

1) A description of the formats used in the national registry for account numbers, serial numbers for ERUs, CERs, AAUs and RMUs, including project identifiers and transaction numbers:

   The formats in the national registry are used according to DES 1.0 Annex F – Definition of Identifiers.

2) A list, and the electronic format, of the information transmitted electronically when transferring ERUs, CERs, AAUs and/or RMUs to other registries:

   The formats for information transmitted electronically to the transaction log and other registries are used as specified for messages in DES 1.0.

3) A list, and the electronic format, of the information transmitted electronically when acquiring ERUs, CERs, AAUs and/or RMUs from other national registries or the CDM registry;

   The formats for information transmitted electronically to the transaction log and other registries when acquiring Kyoto units are used as specified for acquiring messages in DES 1.0.

4) A list, and the electronic format, of the information transmitted electronically from the national registry to the independent transaction log when issuing, transferring, acquiring, cancelling and retiring ERUs, CERs, AAUs and/or RMUs:

   The formats for information transmitted electronically to the transaction log and other registries are used as specified for messages in DES 1.0.

The supplementary transactions log (STL) of the European Community is based on DES 1.0. With test procedures that have been performed with the Austrian national registry and the European STL, the accuracy of the implementation accord-

ing to the DES has been tested. Table 1 in Annex 2.1 shows the sections of the data exchange standards that have been checked by each test step.

Some of the registry procedures will be implemented in the registry software version 1.1.10.0 which is planned for 19.02.2007 and will then be tested with the ITL test environment according to the ITL test schedule. These procedures are:

- Handling of tCERs and lCERs (such as replacement, expiry date change, cancellations),
- Carry-over,
- Notification log and handling of notifications,
- Net-source cancellations, non-compliance cancellations, excess issuance cancellations and other procedures like expiry date change of tCER and lCER that are performed after notifications from the ITL,
- Commitment period reserve checks.

1.5 Minimisation of Discrepancies

1.5.1 A description of the procedures employed in the national registry to minimize discrepancies in the issuance, transfer, acquisition, cancellation and retirement of ERUs, CERs, tCERs, lCERs, AAUs and/or RMUs, and replacement of tCERs and lCERs, and of the steps taken to terminate transactions where a discrepancy is notified and to correct problems in the event of a failure in terminating the transactions

To prevent discrepancies, internal checks and routines are implemented as far as possible. Table 2 in Annex 2.2 shows a list of the discrepancies prevented by internal procedures or checks of the Austrian national registry.

As regards checks of the following transactions, Table 2 in Annex 2.2 indicates the projected status of the registry software version 1.1.10.0 which is planned to be available for initialisation tests by 19.02.2007:

- Checks concerning the handling of tCERs and lCERs (such as replacement, expiry date change, cancellations),
- Checks concerning carry-over procedures,
- Checks concerning the handling of notifications,
- Checks concerning net source cancellations and non-compliance cancellations and other procedures that are performed after notification from the ITL,
- Commitment period reserve checks.

The following measures have been implemented to correct problems in the event of a discrepancy or a communication problem between registry and ITL or STL:

1.5.1.1 Measures to deal with discrepancies

1) Whenever a possible discrepancy is detected by the internal checks listed in Annex 2.2, no transaction will be started.
2) Unit blocks involved in a pending transaction are locked for use in any other transaction.
3) There will be an automatic termination of the transaction that has caused the discrepancy (i.e. response code sent by ITL or STL in a web service request).
4) In the event of a failure to terminate the transaction, an inconsistency with the ITL or STL will be detected during the subsequent reconciliation process. The ITL or STL will then block any transaction involving the related blocks. The status of the blocks will afterwards be corrected manually by the registry administrator with the help of a manual intervention function. This intervention will be logged automatically in the registry. If no inconsistencies are detected during the next reconciliation process with the ITL or STL, the related unit blocks will be unblocked so that further transactions with these blocks will be possible.

1.5.1.2 Measures to prevent or handle communication problems with the ITL or STL

1) In case of communication or connection problems (response message of web service, time-out or negative acknowledgement of the message) if this problem continues after some retries, the transaction stays pending to avoid inconsistent transaction statuses between the registry and ITL or STL. In this case the registry operator can retry the message manually after fixing the connection problem or he can start a rollback of the transaction manually (only if there is no automatic deletion of the transaction by the ITL or STL).
2) Deletion of transactions after 24 hours upon request by STL.

1.5.1.3 Measures to prevent the reoccurrence of discrepancies

To prevent the reoccurrence of any type of discrepancies, the following measures will be taken by the technical staff of the Austrian registry service administrator:

1) Locate the error (error hypothesis, repetition of the steps in the test environments if necessary, contact with the European ITL/STL helpdesk, isolation of individual processes to identify the factor causing the error),
2) Check the related part of the data exchange standards for registry systems under the Kyoto Protocol, technical specifications (current version),
3) If necessary: correction of the error,
4) Regression test on the test system.
5) Implementation of the corrected software version in the productive system.

1.6 Security Measures

1.6.1 An overview of security measures employed in the national registry to prevent unauthorized manipulations and to prevent operator error, and of how these measures are kept up to date

The security features comprise those features that ensure the protection of the product against intervention from outside.

1.6.1.1 Identification and Authentication

Every user of the system is identified by an unambiguous Login name and authenticated via a personal password of at least 8 characters and must contain at least three of the four categories: small letters, capital letters, numbers and special characters. Passwords are stored with the help of one-way coding, which ensures that the plain text of the passwords cannot be viewed by anyone (not even by administrators).

The identification and authentication take place before any other interaction with the system. Queries referred to the system via the WEB Services defined in the specification are authenticated by means of certificates.

1.6.1.2 Access Control

The system manages access rights to those objects that are subject to administrative rights (accounts and installations) for each user and for a particular role to the user. Only users with the role ”Register Administrator“ are authorised to set up, delete or change these objects and to assign access rights themselves. Users with the role ”Operator of an installation“ are only allowed to view their own objects. Changes to the account balance are only possible indirectly through the initiation of transactions. Further roles are possible according to the specification. With each access to an object or with the initiation of transactions, it is first verified whether the user has the corresponding rights.

Authentication attempts and access to objects are correspondingly logged with the Login name or ID, date and time, type of access as well as success or failure of the access (“Audit Trailing“). With authentification attempts, the identification of the client (IP-address) is also logged. The system provides corresponding tools with which the above mentioned logs can be analysed (filter by user, time range and type of access).

1.6.1.3 Access Protection

Apart from the measures within the software for the identification and authentication of authorised users (described in the previous section), the following technical and organisational measures are also in place, in order to prevent access to the data by third parties:

- SSL-based encoding of the data transmission in the WEB and user authentication to gain entry to the system,
- Employment of continuously updated virus-scanner software on the servers and the clients of the registry administration,
- Continuous security updates of the system software, multi-stage access control for the staff of the computer centre:
    - Duty of identification when entering the premises,
    - Electronic access control before entering the staff offices in the computer centre,
    - Security channel in front of the computer rooms,
    - Lockable computer rooms,
- Network infrastructure with hardware firewalls of renowned manufacturers and setup of a demilitarised zone for the interfacing of the WEB server with the Internet,
- Continuous check of the firewall logs for attack attempts,
- All persons employed in the operation and maintenance of the emission trading registry system have appropriate clauses in their service contracts regarding confidentiality when handling data.

1.7 Publicly Accessible Information

1.7.1 A list of the information publicly accessible by means of the user interface to the national registry

1. The following information for each account is displayed in the week after the account has been created in a registry, and is updated on a weekly basis:

(a) Account holder name: the holder of the account (person, operator, Party);

(b) Alphanumeric identifier: the identifier specified by the account holder assigned to each account;

(c) Name, address, city, postcode, country, telephone number, facsimile number and email address of the primary and secondary authorised representatives of the account specified by the account holder for that account.

2. The following additional information for each operator holding account is displayed in the week after the account has been created in the registry, and is updated on a weekly basis:

(a) Installation parent company, installation subsidiary company and EPER identification;

(b) Permit identification code: the code assigned to the installation related to the operator holding account comprising the elements set out in Annex VI, Regulation (EC) No 2216/2004 of the European Commission;

(c) Installation identification code: the code assigned to the installation related to the operator holding account comprising the elements set out in Annex VI, Regulation (EC) No 2216/2004 of the European Commission;

(d) Allowances and any force majeure allowances allocated to the installation related to the operator holding account, which is part of the national allocation plan table or is a new entrant, under Article 11 of Directive 2003/87/EC of the European Commission.

3. The following additional information for each operator holding account for the years 2005 onwards is displayed in accordance with the following specified dates:

(a) Verified emissions figure for the installation related to the operator holding account for year X is displayed from 15 May onwards of year (X+1);

(b) Allowances surrendered pursuant to Articles 52, 53 and 54, by unit identification code, for year X are displayed from 15 May onwards of year (X+1);

(c) A symbol identifying whether the installation related to the operator holding account is or is not in breach of its obligation under Article 6(2)(e) of Directive 2003/87/EC of the European Commission for year X is displayed from 15 May onwards of year (X+1).

4. The following information for each project identifier for a project activity implemented pursuant to Article 6 of the Kyoto Protocol against which the Party has issued ERUs is displayed in the week after the issue has taken place:

(a) Project name: a unique name for the project;

(b) Project location: Party and town or region in which the project is located;

(c) Years of ERU issuance: the years in which ERUs have been issued as a result of the project activity implemented pursuant to Article 6 of the Kyoto Protocol;

(d) Reports: downloadable electronic versions of all publicly available documentation relating to the project, including proposals, monitoring, verification and issuance of ERUs, where relevant, subject to the confidentiality provisions in Decision -9/CMP.1 [Article 6] of the Conference of the Parties to the UNFCCC serving as the meeting of the Parties to the Kyoto Protocol.

5. The following holding and transaction information, by unit identification code comprising the elements set out in Annex VI, Regulation (EC) No 2216/2004 of the European Commission, relevant for that registry for the years 2005 onwards is displayed in accordance with the following specified dates:

(a) The total quantity of ERUs, CERs, AAUs and RMUs held in each account (person holding, operator holding, Party holding, cancellation, replacement or retirement) on 1 January of year X is displayed from 15 January onwards of year (X+5);

(b) The total quantity of AAUs issued in year X on the basis of the assigned amount pursuant to Article 7 of Decision No 280/2004/EC of the European Commission is displayed from 15 January onwards of year (X+1);

(c) The total quantity of ERUs issued in year X on the basis of project activity implemented pursuant to Article 6 of the Kyoto Protocol is displayed from 15 January onwards of year (X+1);

(d) The total quantity of ERUs, CERs, AAUs and RMUs acquired from other registries in year X and the identity of the transferring accounts and registries is displayed from 15 January onwards of year (X+5);

(e) The total quantity of RMUs issued in year X on the basis of each activity under Article 3, paragraphs 3 and 4 of the Kyoto Protocol is displayed from 15 January onwards of year (X+1);

(f) The total quantity of ERUs, CERs, AAUs and RMUs transferred to other registries in year X and the identity of the acquiring accounts and registries is displayed from 15 January onwards of year (X+5);

(g) The total quantity of ERUs, CERs, AAUs and RMUs cancelled in year X on the basis of activities under Article 3, paragraphs 3 and 4 of the Kyoto Protocol is displayed from 15 January onwards of year (X+1);

(h) The total quantity of ERUs, CERs, AAUs and RMUs cancelled in year X following determination by the compliance committee under the Kyoto Protocol that the Party is not in compliance with its commitment under Article 3, paragraph 1 of the Kyoto Protocol is displayed from 15 January onwards of year (X+1);

(i) The total quantity of other ERUs, CERs, AAUs and RMUs, or allowances, cancelled in year X and the reference to the Article pursuant to which these Kyoto units or allowances were cancelled under Regulation (EC) No 2216/2004 of the European Commission is displayed from 15 January onwards of year (X+1);

(j) The total quantity of ERUs, CERs, AAUs, RMUs and allowances retired in year X is displayed from 15 January onwards of year (X+1);

(k) The total quantity of ERUs, CERs, AAUs carried over in year X from the previous commitment period is displayed from 15 January onwards of year (X+1);

(l) The total quantity of allowances from the previous commitment period cancelled and replaced in year X is displayed from 15 May onwards of year X;

(m) Current holdings of ERUs, CERs, AAUs and RMUs in each account (person holding, operator holding, Party holding, cancellation or retirement) on 31 December of year X are displayed from 15 January onwards of year (X+5).

6. The list of persons authorised by the Party to hold ERUs, CERs, AAUs and/or RMUs under its responsibility is displayed in the week after such authorisations have been given, and is updated on a weekly basis.

7. The total number of CERs and ERUs which operators are allowed to use for each period pursuant to Article 11a (1) of Directive 2003/87/EC of the European Commission is displayed in accordance with Article 30 (3) of Directive 2003/87/EC of the European Commission.

8. The commitment period reserve, calculated in accordance with Decision 18/CP.7 of the Conference of the Parties to the UNFCCC as 90 % of the Party's assigned amount or 100 % of five times its most recently reviewed inventory, whichever is lowest, and the number of Kyoto units by which the Party is exceeding, and therefore in compliance with, its commitment period reserve is displayed on request.

1.8 Internet address

1.8.1 The Internet address of the interface to the national registry

The internet address of the national registry is:

http://www.emissionshandelsregister.at

1.9 Safeguard and Recovery of Data

1.9.1 A description of measures taken to safeguard, maintain and recover data in order to ensure the integrity of data storage and the recovery of registry services in the event of a disaster

1.9.1.1 Safety Features (safety)

The safety features comprise those characteristics that ensure the safety of the system. Hence, those features limit the possibility of damage following a software error or system failure. Therefore, the following measures are implemented:

- All database transactions are logged with database resources. These „Database-Logs“ are secured together with the daily data backup and enable, after a system crash, a continuous and consistent restoration of the data stock up to the last completed transaction before the crash. Database logs reside on a different hardware RAID system. Therefore they should not be affected by a system failure on the database server itself.
- Daily incremental and weekly total backups of the whole system. This enables a fast recovery of individual servers („Disaster Recovery“).

- The backup hardware (tape robot) is located separately from the computer hardware. With that, even following a destruction of the computer room, e.g. due to fire, the data stock is protected. Based on the above described measures, the data recovery can be executed in the following way: If the database has been corrupted due to a hardware or software failure, the system and the data are recovered from the latest backup tape onto the repaired or replaced hardware. If the database logs can be restored from the RAID system, a data recovery up to the last completed transaction before the crash is carried out. Only if database logs are lost, the data can be recovered only up to the time of last night's backup before the system crash.

1.9.1.2 Stability Features (reliability)

The stability features comprise defined characteristics providing information about the reliability and availability of the system.

- Power supply from the public power supply network through two separate feeding points.
- Uninterruptible power supply on battery basis.
- Guarantee of the supply through diesel emergency power aggregate in the event of prolonged failure of the public power supply network.
- All servers (Database, Application Server and WEB Server) exist two-folded.
- All essential hardware components of the server are implemented with redundancy (power supply, multiprocessor, hard-disks RAID). In the event of a failure of one component, operation is still possible with reduced performance. If necessary, the components can be exchanged while the operation is in progress without any interruption of the operation.
- The interfacing to the Internet takes place via WAN Ports implemented with redundancy in different locations. The WAN Ports are connected via separate routes to two different telephone exchanges. Interconnection with the two telephone exchanges is ensured via backbone networks of different providers. Regarding the choice of providers, attention was paid to the fact that their backbone networks are as independent of each other as possible.
- The database servers are operated as a cluster. This guarantees fast switchover.
- The WEB and Application servers are operated with Load Balancing and Fail Over. Therefore, in the event of a failure of one of the two servers, uninterrupted operation can be guaranteed. This concept also ensures simple scalability with increased demands (e.g. an increase in the number of accesses to the system).
- All important services are monitored 24 x 7 hours to permit the timely detection of errors. WEB service monitoring takes place by including the Internet interface.

1.10 Test Procedures

1.10.1 The results of any test procedures that might be available or developed with the aim of testing the performance, procedures and security measures of the national registry undertaken pursuant to the provisions of decision 19/CP.7 relating to the technical standards for data exchange between registry systems.

1.10.1.1 Test according to test book phase-10-tests of the European Commission, 27 April 2005 - 28 April 2005

Step 1 – Step 22 as described in Annex 2.3 regarding commitment period 0 of the European Emission Trading Scheme.

Step 23 – Step 32 as described in Annex 2.3 concerning the issuance, cancellation and replacement, retirement, conversion, external transfer, allocation and update of verified emissions, as well as the surrender and retirement in Commitment Period 1 (the first Kyoto commitment period).

All test steps, except for step 23, of the test book phase-10-tests were completed successfully in April 2005.

1.10.1.2 Tests according to test book phase-12-tests of the European Commission, 28 October 2005– 8 December 2005

Step 1 – Step 23 as described in Annex 2.4 regarding commitment period 0 of the European Emission Trading Scheme.

Step 23 – Step 32 as described in Annex 2.4 concerning the issuance, cancellation and replacement, retirement, conversion, external transfer, allocation and update of verified emissions, as well as the surrender and retirement in Commitment Period 1 (the first Kyoto commitment period).

Step 33 - Issuance, in a Party holding account within the national registry of Austria, of AAUs having 2 as both original and applicable commitment period.

Step 34 - Cancellation and replacement of allowances having 1 as both original and applicable commitment period into allowances having 2 as both original and applicable commitment period.

Step 35 - Retirement of allowances having 1 as both original and applicable commitment from a Party holding account to a retirement account having 1 as applicable commitment period.

Step 36 – Negative reconciliation.

Step 37 – Positive reconciliation.

All test steps of the test book phase-12-tests have been completed successfully.

1.10.1.3 Tests according Annex H of DES 1.0

The test steps according to Annex H of DES 1.0 as described in Annex 2.5 of this report are planned to be performed with the test environment of the International Transaction Log (ITL) in the beginning of 2007 according to the ITL test schedule.

Additional test cases which will be elaborated in DES 1.1 will be included in the test procedures.

1.10.1.4 Security Checks

In addition to the security features described in section 1.7, the following security checks have been performed:

- Inspection of the physical location of the hardware in the data centre by a representative of the European Commission on 27 April 2005.
- Continuous ”hack attempts“ by the staff of a special security department of the registries’ data centre in order to monitor access protection permanently.

2 ANNEX

2.1 Sections of Data Exchange Standard being checked by test steps

Table 1: Test steps to check the accuracy of the implementation of the related sections of the data exchange standards for registry systems under the Kyoto Protocol, technical specifications (Version 1.0)

Test step	Description of test step	Sections of data exchange standard being checked
Step 6	Creation of Party holding accounts, cancellation accounts and retirement accounts	Annex D: Web Services for Administrative Processes Annex F: Section 5: Account Numbers Annex G: List of Codes, Figure G2: Account type code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L27: Create Account Request, L28: Create Account Response, Figure L35: Receive Account Operation Outcome Request, L36: Receive Account Operation Outcome Response
Step 7	Creation of two operator holding accounts and their related installations and two person holding accounts	Annex F: Section 5: Account Numbers Annex G: List of Codes, Figure G2: Account type code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L27: Create Account Request, L28: Create Account Response, Figure L35: Receive Account Operation Outcome Request, L36: Receive Account Operation Outcome Response

Test step	Description of test step	Sections of data exchange standard being checked
Step 8	Issuance of allowances for commitment period 0 (2005-7)	Annex B: Web Service Functions for Transaction Processing Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 6: Transaction Numbers, Annex G: List of Codes: Figure C3. Account Type Code, Figure G3: Commitment Period Code, Figure G7: Party Type Codes, Figure G9: Transaction Status Code, Figure G10: Transaction Type Code, Figure G11: Unit Type Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L5: Issue of Allowances 2005 – 2007
Step 9	Allocation of allowances to operators during commitment period 0 (2005-7)	Annex B: Web Service Functions for Transaction Processing Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 6: Transaction Numbers, Annex G: List of Codes: Figure G2: Account Type Code, Figure G3: Commitment Period Code, Figure G7: Party Type Codes, Figure G9: Transaction Status Code, Figure G10: Transaction Type Code, Figure G11: Unit Type Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L18: Allocation of Allowances 2005-2007

Test step	Description of test step	Sections of data exchange standard being checked
Step 10	Internal transfer of allowances having 0 as both original and applicable commitment period from a Party holding account to an operator holding account	Annex B: Web Service Functions for Transaction Processing Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 6: Transaction Numbers, Annex G: List of Codes: Figure G2: Account Type Code, Figure G3: Commitment Period Code, Figure G7: Party Type Codes, Figure G9: Transaction Status Code, Figure G10: Transaction Type Code, Figure G11: Unit Type Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L16: Internal Transfer
Step 11	Internal transfer of allowances having 0 as both original and applicable commitment period between 2 operator holding accounts	Annex B: Web Service Functions for Transaction Processing Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 6: Transaction Numbers, Annex G: List of Codes: Figure G2: Account Type Code, Figure G3: Commitment Period Code, Figure G7: Party Type Codes, Figure G9: Transaction Status Code, Figure G10: Transaction Type Code, Figure G11: Unit Type Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L16: Internal Transfer

Test step	Description of test step	Sections of data exchange standard being checked
Step 12	Issuance of additional allowances having 0 as both original and applicable commitment period	Annex B: Web Service Functions for Transaction Processing Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 6: Transaction Numbers, Annex G: List of Codes: Figure C3. Account Type Code, Figure G3: Commitment Period Code, Figure G7: Party Type Codes, Figure G9: Transaction Status Code, Figure G10: Transaction Type Code, Figure G11: Unit Type Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L5: Issue of Allowances 2005 – 2007
Step 14	Correction of allowances having 0 as both original and applicable commitment period from a Party holding account to an appropriate national cancellation account	Annex B: Web Service Functions for Transaction Processing Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 6: Transaction Numbers, Annex G: List of Codes: Figure G2: Account Type Code, Figure G3: Commitment Period Code, Figure G7: Party Type Codes, Figure G9: Transaction Status Code, Figure G10: Transaction Type Code, Figure G11: Unit Type Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L19 Correction to allowance

Test step	Description of test step	Sections of data exchange standard being checked
Step 15	External transfer of allowances having 0 as both original and applicable commitment period	Annex B: Web Service Functions for Transaction Processing Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 6: Transaction Numbers, Annex G: List of Codes: Figure G2: Account Type Code, Figure G3: Commitment Period Code, Figure G7: Party Type Codes, Figure G9: Transaction Status Code, Figure G10: Transaction Type Code, Figure G11: Unit Type Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L9: External Transfer 2005-2007
Step 16	Update of account	Annex F: Section 5: Account Numbers Annex G: List of Codes, Figure G2: Account type code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L29: Update Account Request, L30: Update Account Response, Figure L35: Receive Account Operation Outcome Request, L36: Receive Account Operation Outcome Response
Step 17	Update of verified emissions	Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L33: Update Verified Emissions Request, L34: Update Verified Emissions Response

Test step	Description of test step	Sections of data exchange standard being checked
Step 18	Account closure	Annex F: Section 5: Account Numbers Annex G: List of Codes, Figure G2: Account type code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L31: Close Account Request, L32: Close Account Response, Figure L35: Receive Account Operation Outcome Request, L36: Receive Account Operation Outcome Response
Step 19	Get transaction status	Annex D: Web Services for Administrative Processes Annex F: Section 4: Section 6: Transaction Numbers, Annex G: List of Codes: Transaction Status Code, Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation
Step 20	Time synchronisation	Annex D: Web Services for Administrative Processes Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation
Step 21	Issuance of 40,000 force majeure allowances having 0 as both original and applicable commitment period	Annex B: Web Service Functions for Transaction Processing Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 6: Transaction Numbers, Annex G: List of Codes: Figure C3. Account Type Code, Figure G3: Commitment Period Code, Figure G7: Party Type Codes, Figure G9: Transaction Status Code, Figure G10: Transaction Type Code, Figure G11: Unit Type Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L6: Issue of Force Majeure Allowances

Test step	Description of test step	Sections of data exchange standard being checked
Step 22	Cancellation of allowances having 0 as both original and applicable commitment period from an operator holding account to an adequate cancellation account	Annex B: Web Service Functions for Transaction Processing Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 6: Transaction Numbers, Annex G: List of Codes: Figure G2: Account Type Code, Figure G3: Commitment Period Code, Figure G7: Party Type Codes, Figure G9: Transaction Status Code, Figure G10: Transaction Type Code, Figure G11: Unit Type Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L20: Cancellation of Allowances 2005 – 2007
Step 23	Surrender of allowances having 0 as both original and applicable commitment period from an operator holding account to a Party holding account	Annex B: Web Service Functions for Transaction Processing Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 6: Transaction Numbers, Annex G: List of Codes: Figure G2: Account Type Code, Figure G3: Commitment Period Code, Figure G7: Party Type Codes, Figure G9: Transaction Status Code, Figure G10: Transaction Type Code, Figure G11: Unit Type Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L21: Surrender of Allowances

Test step	Description of test step	Sections of data exchange standard being checked
Step 24	Issuance, in a Party holding account within the national registry of Austria, of AAUs having 1 as both original and applicable commitment period	Annex B: Web Service Functions for Transaction Processing Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 6: Transaction Numbers Annex G: List of Codes: Figure C3. Account Type Code, Figure G3: Commitment Period Code, Figure G7: Party Type Codes, Figure G9: Transaction Status Code, Figure G10: Transaction Type Code, Figure G11: Unit Type Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L4: Issuance of AAUs
Step 25	Cancellation and replacement of allowances having 0 as both original and applicable commitment period into allowances having 1 as both original and applicable commitment period	Annex B: Web Service Functions for Transaction Processing Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 6: Transaction Numbers, Annex G: List of Codes: Figure G2: Account Type Code, Figure G3: Commitment Period Code, Figure G7: Party Type Codes, Figure G9: Transaction Status Code, Figure G10: Transaction Type Code, Figure G11: Unit Type Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L22: Cancellation and Replacement

Test step	Description of test step	Sections of data exchange standard being checked
Step 26	Retirement of allowances having 0 as both original and applicable commitment period from a Party holding account to the appropriate retirement account having 0 as applicable commitment period	Annex B: Web Service Functions for Transaction Processing Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 6: Transaction Numbers, Annex G: List of Codes: Figure G2: Account Type Code, Figure G3: Commitment Period Code, Figure G7: Party Type Codes, Figure G9: Transaction Status Code, Figure G10: Transaction Type Code, Figure G11: Unit Type Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L11: Retirement 2005 – 2007
Step 27	Conversion, into a Party holding account within the national registry of Austria, of AAUs having 1 as both original and applicable commitment period into ERUs having 1 as both original and applicable commitment period, in the context of a project having 222 as unique project identification number and 2 as track number	Annex B: Web Service Functions for Transaction Processing Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 6: Transaction Numbers, Section 8: Project Numbers Annex G: List of Codes: Figure C3. Account Type Code, Figure G3: Commitment Period Code, Figure G7: Party Type Codes, Figure G9: Transaction Status Code, Figure G10: Transaction Type Code, Figure G11: Unit Type Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L7: Conversion of AAUs and RMUs to ERUs

Test step	Description of test step	Sections of data exchange standard being checked
Step 28	External transfer of AAUs having 1 as both original and applicable commitment period, from a Party holding account within the national registry of Austria to a Party holding account within the national registry of Belgium	Annex B: Web Service Functions for Transaction Processing Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 6: Transaction Numbers, Annex G: List of Codes: Figure G2: Account Type Code, Figure G3: Commitment Period Code, Figure G7: Party Type Codes, Figure G9: Transaction Status Code, Figure G10: Transaction Type Code, Figure G11: Unit Type Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L8: External Transfer of AAUs,
Step 29	Issuance, in a Party holding account within the national registry of Austria, of allowances having 1 as both original and applicable commitment period	Annex B: Web Service Functions for Transaction Processing Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 6: Transaction Numbers Annex G: List of Codes: Figure C3. Account Type Code, Figure G3: Commitment Period Code, Figure G7: Party Type Codes, Figure G9: Transaction Status Code, Figure G10: Transaction Type Code, Figure G11: Unit Type Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L17 Issue of Allowances 2008 – 2012

Test step	Description of test step	Sections of data exchange standard being checked
Step 31	Correction of allowances having 1 as both original and applicable commitment period in a Party holding account by converting back to AAUs	Annex B: Web Service Functions for Transaction Processing Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 6: Transaction Numbers, Annex G: List of Codes: Figure G2: Account Type Code, Figure G3: Commitment Period Code, Figure G7: Party Type Codes, Figure G9: Transaction Status Code, Figure G10: Transaction Type Code, Figure G11: Unit Type Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L19 Correction to allowance
Step 32	Surrender, for the year 2010, of allowances having 1 as both original and applicable commitment period from an operator holding account to a Party holding account	Annex B: Web Service Functions for Transaction Processing Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 6: Transaction Numbers, Annex G: List of Codes: Figure G2: Account Type Code, Figure G3: Commitment Period Code, Figure G7: Party Type Codes, Figure G9: Transaction Status Code, Figure G10: Transaction Type Code, Figure G11: Unit Type Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L21: Surrender of Allowances

Test step	Description of test step	Sections of data exchange standard being checked
Step 33	Issuance, in a Party holding account within the national registry of Austria, of AAUs having 2 as both original and applicable commitment period	Annex B: Web Service Functions for Transaction Processing Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 6: Transaction Numbers Annex G: List of Codes: Figure C3. Account Type Code, Figure G3: Commitment Period Code, Figure G7: Party Type Codes, Figure G9: Transaction Status Code, Figure G10: Transaction Type Code, Figure G11: Unit Type Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L4: Issuance of AAUs
Step 34	Cancellation and replacement of allowances having 1 as both original and applicable commitment period into allowances having 2 as both original and applicable commitment period	Annex B: Web Service Functions for Transaction Processing Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 6: Transaction Numbers, Annex G: List of Codes: Figure G2: Account Type Code, Figure G3: Commitment Period Code, Figure G7: Party Type Codes, Figure G9: Transaction Status Code, Figure G10: Transaction Type Code, Figure G11: Unit Type Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L22: Cancellation and Replacement

Test step	Description of test step	Sections of data exchange standard being checked
Step 35	Retirement of allowances having 1 as both original and applicable commitment period from a Party holding account to a retirement account having 1 as applicable commitment period	Annex B: Web Service Functions for Transaction Processing Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 6: Transaction Numbers, Annex G: List of Codes: Figure G2: Account Type Code, Figure G3: Commitment Period Code, Figure G7: Party Type Codes, Figure G9: Transaction Status Code, Figure G10: Transaction Type Code, Figure G11: Unit Type Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation Annex L: Figure L12 Retirement 2008– 2012
Step 36	Negative reconciliation	Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 7: Reconciliation Numbers Annex G: List of Codes: Figure G2: Account Type Code, Figure G3: Commitment Period Code, Figure G8: Reconciliation Status Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation
Step 37	Positive reconciliation	Annex F: Section 4: Serial Numbers, Section 5: Account Numbers, Section 7: Reconciliation Numbers Annex G: List of Codes: Figure G2: Account Type Code, Figure G3: Commitment Period Code, Figure G8: Reconciliation Status Code Annex I: Messaging Service Specifications Annex K: Description Language (WSDL) Documentation

2.2 Discrepancies being prevented by checks or internal procedures in the national registry Austria

For some checks table 2 indicates the projected status of registry software version 1.1.10.0 which is planned to be available for initialisation tests with the ITL by 19.02.2007. These checks are marked with * and include:

- Checks concerning the handling of tCERs and lCERs (such as replacement, expiry date change, cancellations),
- Checks concerning carry-over procedures,
- Checks concerning the handling of notifications,
- Checks concerning net source cancellations and non-compliance cancellations and other procedures that are performed after notification from the ITL,
- Commitment period reserve checks.

Table 2: Description of discrepancies being prevented by internal procedures or checks in the national registry of Austria

Response-code (for checks marked with * the table indicates the projected status of the registry version 1.1.10.0 which is planned for 19.02.2007)	**Description of the discrepancy or technical standard specification**	**Internal procedure or check in the Austrian national registry to prevent this discrepancy**	**Comment**
3001	Transaction ID for proposed-transactions must not already exist in the ITL.	Yes	Transaction IDs are only used for one transaction and cannot be used again.
3002	Transaction ID for ongoing transactions must already exist in the ITL.	Yes	Transaction IDs are not changed during a transaction.
3003	Previously completed transactions cannot be completed again.	Yes	The completion of a transaction can only be done once for each transaction.
3004	Previously rejected transactions cannot be completed.	Yes	Rejected transactions cannot be completed.

Response-code (for checks marked with * the table indicates the projected status of the registry version 1.1.10.0 which is planned for 19.02.2007)	**Description of the discrepancy or technical standard specification**	**Internal procedure or check in the Austrian national registry to prevent this discrepancy**	**Comment**
3005	Transactions for which an ITL discrepancy has been previously identified cannot be completed.	Yes	It is not possible to complete a transaction after a discrepancy has been detected by the ITL.
3006	Transactions for which an STL discrepancy has been previously identified cannot be completed.	Yes	It is not possible to complete a transaction after a discrepancy has been detected by the STL.
3007	Previously terminated transactions cannot be completed.	Yes	Terminated transactions cannot be completed.
3008	Previously cancelled transactions cannot be completed.	Yes	Cancelled transactions cannot be completed.
3009	Previously accepted external transactions cannot be terminated.	Yes	The acceptance of a transaction is the final step in the acquiring registry; termination afterwards is not possible.
3010	Transaction status of accepted or rejected is not valid for nonexternal transactions.	Yes	For all internal transactions the status of accepted and rejected is not possible.
3011	Transaction status from initiating registry must indicate status of proposed, completed, or terminated.	Yes	Only these three indicated statuses are allowed when the registry initiates a transaction.

Response-code (for checks marked with * the table indicates the projected status of the registry version 1.1.10.0 which is planned for 19.02.2007)	**Description of the discrepancy or technical standard specification**	**Internal procedure or check in the Austrian national registry to prevent this discrepancy**	**Comment**
3012	Transaction status from acquiring registry must indicate status of rejected or accepted.	Yes	For the procedure of acquiring units only the transaction statuses rejected or accepted are possible.
3013	Previously completed, cancelled, or terminated transactions cannot have their status changed by subsequent notifications.	Yes	Notifications do not change the status of previously completed, cancelled or terminated transactions.
3014	Previously rejected transactions cannot be accepted.	Yes	After a rejection, transactions cannot be accepted.
3015	Transactions for which an ITL discrepancy has been previously identified cannot be accepted.	Yes	After a discrepancy message reaches the registry, the related transactions can only be terminated.
3016	Transactions for which an STL discrepancy has been previously identified cannot be accepted.	Yes	After a discrepancy message reaches the registry, the related transactions can only be terminated.
3502	Transaction ID for ongoing transactions must exist in ITL.	Yes	Transactions cannot be performed without communicating the transaction ID to the ITL.
4003	Units identified in the transaction must be held by Initiating Registry.	Yes	The initiating registry cannot transfer units that are not held in it.

Response-code (for checks marked with * the table indicates the projected status of the registry version 1.1.10.0 which is planned for 19.02.2007)	**Description of the discrepancy or technical standard specification**	**Internal procedure or check in the Austrian national registry to prevent this discrepancy**	**Comment**
4004	All attributes of all unit blocks must be consistent with ITL unit block attributes except where attributes are changed by the current transaction.	Yes	Inconsistency check
4005	All unit blocks in the transaction must be for a single applicable commitment period.	Yes	Technical standard check
4006	For all transactions except for external transfers, the initiating and acquiring registries must be the same.	Yes	All internal transactions can only be done within same initiating and acquiring registry.
4007	For external transfers, the initiating and acquiring registries must be different.	Yes	External transfers can only be performed between different initiating and acquiring registries.
4010	Units identified in the transaction must not be involved in another transaction.	Yes	Units proposed for transactions are blocked from other transactions.
4011	Cancelled units must not be subject to further transactions.	Yes	Transactions from cancellation accounts are not possible.
4012	Retired units must not be subject to further transactions.	Yes	Transactions from retirement accounts are not possible.
4014*	Units previously used to replace tCERs or lCERs must not be subject to further transactions.	Yes	Transactions from replacement accounts are not possible.

Response-code (for checks marked with * the table indicates the projected status of the registry version 1.1.10.0 which is planned for 19.02.2007)	**Description of the discrepancy or technical standard specification**	**Internal procedure or check in the Austrian national registry to prevent this discrepancy**	**Comment**
4015*	lCERs must not be transferred to a holding or retirement account where the CDM Executive Board has notified a replacement requirement for the associated project.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	After a replacement notification has been received, the related lCERs are blocked from transfers to retirement or holding accounts.
4016*	A transaction proposal must contain at least one unit block	Yes	Transaction proposals always contain at least one unit block
5002*	ERUs cannot be issued.	Yes	ERUs can only be created through conversion.
5003*	CERs, tCERs and lCERs must be issued by the CDM Registry.	Yes	There is no procedure for issuing CERs, tCERs and lCERs in the national registry.
5005	The original commitment period must be the same for all units issued by the transaction.	Yes	Issuance is only possible with the same original commitment period for all units of the transaction.
5006	The applicable commitment period must be the same as the original commitment period for all units issued by the transaction.	Yes	Issuance can only create units with the same applicable and original commitment period.
5007	Serial numbers for proposed issuance must not already exist in the ITL.	Yes	Only units with new serial numbers can be issued.
5008	The quantity of AAUs issued must not exceed allowed quantity for the commitment period.	Yes	Issuance of AAUs is only possible up to the previously entered allowed quantity for the commitment period

Response-code (for checks marked with * the table indicates the projected status of the registry version 1.1.10.0 which is planned for 19.02.2007)	**Description of the discrepancy or technical standard specification**	**Internal procedure or check in the Austrian national registry to prevent this discrepancy**	**Comment**
5009	The quantity of RMUs issued for each LULUCF activity type must not exceed the allowed quantity for that LULUCF activity type and commitment period.	Yes	For each LULUCF activity type the maximal allowed quantity of RMU issuance will be enterd into the registry and issuances of RMU will be checked against these numbers
5017	The acquiring account for an issuance transaction involving AAUs or RMUs must be a holding account.	Yes	The issuance of AAUs and RMUs always involves Party holding accounts as acquiring accounts.
5052	The initiating account for a conversion transaction must be a holding account.	Yes	Conversions can be initiated only from holding accounts.
5053	If the unit is a track 1 ERU, the Party of the initiating registry must be determined to meet eligibility criteria 1 through 6.	Yes	The eligiblity status of Parties will be entered into the registry and for initiating the conversion of track 1 ERU, the party of the registry must meet eligiblity criteria 1 through 6.
5054	If the unit is a track 2 ERU, the Party of the initiating registry must be determined to meet eligibility criteria 1,2 and 4.	Yes	The eligiblity status of Parties will be entered into the registry and for initiating the conversion of track 2 ERU, the party of the registry must meet eligiblity criteria 1,2 and 4.

Response-code (for checks marked with * the table indicates the projected status of the registry version 1.1.10.0 which is planned for 19.02.2007)	**Description of the discrepancy or technical standard specification**	**Internal procedure or check in the Austrian national registry to prevent this discrepancy**	**Comment**
5056	Units for conversion must be AAUs or RMUs.	Yes	Only AAUs and RMUs can be converted to ERUs.
5101*	The Party of an initiating national registry must be determined to meet eligibility criteria 1 through 6, except for the first external transfer of a track 2 ERU which the registry has converted, or for transfers to the excess issuance cancellation account at the CDM registry.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	External transfers of Kyoto units (except for the first external transfer of a track 2 ERU which the registry has converted or for transfers to the excess issuance cancellation account of the CDM registry) are only allowed if eligibility criteria 1 through 6 are met.
5102*	If the transaction is the first external transfer of a track 2 ERU which the registry has converted, the Party of the initiating national registry must be determined to meet eligibitlity criteria 1,2 and 4.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	For the first external transfer of a track 2 ERU which the registry has converted, eligibility criteria 1,2 and 4 must be met by the Party of the transferring registry.
5103*	The Party of an acquiring national registry must be determined to meet eligibility criteria 1 through 6, except for transfers initiated by the CMD Registry or for transfers to the excess issuance cancellation account in the CDM registry.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	Acquiring external transfers of Kyoto units in the national registry (except for transfers from the CDM registry) is only allowed if eligibility criteria 1 through 6 are met.

Response-code (for checks marked with * the table indicates the projected status of the registry version 1.1.10.0 which is planned for 19.02.2007)	**Description of the discrepancy or technical standard specification**	**Internal procedure or check in the Austrian national registry to prevent this discrepancy**	**Comment**
5104*	The total quantity of all units held in a national registry, which may be used for compliance for the applicable commitment period of a transaction, must not fall below the CPR level for the Party for that commitment period, except where the transaction is a first transfer of Track 2 ERUs converted by the registry or a transfer to the Excess Issuance Account in the CDM Registry.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	The national registry prevents any external transfers (except first transfer of Track 2 ERUs converted by the registry or transfers to the Excess Issuance Account in the CDM Registry) that do not comply with the CPR.
5105*	CDM Registry can only receive external transfers to cancellation accounts for compensating excess issuance of CERs, tCERs and lCERs.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	Any external transfers to the CDM registry (except transfers to the Excess Issuance Account) are blocked.
5106*	The Party of an initiating national registry must not have been suspended from making external transfers as a result of not meeting its emission target for the previous commitment period.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	If the Party of the initiating registry is suspended from making external transfers because it has not met its emission target for the previous commitment period, external transfers from the Party's registry will be blocked.

Response-code (for checks marked with * the table indicates the projected status of the registry version 1.1.10.0 which is planned for 19.02.2007)	**Description of the discrepancy or technical standard specification**	**Internal procedure or check in the Austrian national registry to prevent this discrepancy**	**Comment**
5107*	Any unit blocks cancelled by means of an external transfer to the excess issuance cancellation account in the CMD registry must have the same applicable commitment period as the cancellation account.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	Units can only be transferred to an excess issuance cancellation account which has the same applicable commitment period as the units.
5108*	tCERs and lCERs may only be transferred to the excess issuance cancellation account in the CMD registry in the case that excess issuance is being compensated pursuant to an excess issuance notification.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	The provided notification ID for the transaction will be checked by the registry against existing notification IDs for excess issuance.
5110*	If there exists an outstanding expiry date change notification affecting the tCERs or lCERs to be transferred, the units' expiry date must match the target expiry date specified in the notification.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	The expiry date change procedure will change the expiry date to the date indicated in the notification. The units are blocked from transfers until the expiry date is changed.
5152	Cancellation to excess issuance cancellation account must not take place in a national registry.	Yes	Cancellation for excess issuance is designed as external transfer to the excess issuance cancellation account in the CDM registry.
5153	The acquiring account for a cancellation transaction must be a cancellation account.	Yes	Cancellation transactions cannot be performed to other accounts than cancellation accounts.

Response-code (for checks marked with * the table indicates the projected status of the registry version 1.1.10.0 which is planned for 19.02.2007)	**Description of the discrepancy or technical standard specification**	**Internal procedure or check in the Austrian national registry to prevent this discrepancy**	**Comment**
5154	Account identifiers must be provided for acquiring accounts in cancellation transactions.	Yes	Cancellations are performed including the identifier of an acquiring account.
5155	The unit blocks to be cancelled must have the same applicable commitment period as the cancellation account.	Yes	The system identifies the correct commitment period of the account; the operator cannot change it.
5156*	tCERs and lCERs cannot be transferred to net-source cancellation accounts or non-compliance cancellation accounts.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	tCERs and lCERs may not be transferred to net-source cancellation accounts or non-compliance cancellation accounts.
5157*	tCERs may only be transferred to the excess issuance cancellation account in the CDM registry in the case that excess tCER issuance is being compensated pursuant to an excess issuance notification. lCERs may only be transferred to the excess issuance cancellation account in the CDM registry in the case where excess lCER issuance is being compensated pursuant to an excess issuance cancellation notification referencing the same project as the lCERs being cancelled.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	An excess issuance cancellation can only be performed with the number of an excess issuance notification. Excess issuance cancellation in case of lCER excess issuance can only be performed with lCER cancellation if they have the same project number as the lCERs referred to in the excess issuance notification.

Response-code (for checks marked with * the table indicates the projected status of the registry version 1.1.10.0 which is planned for 19.02.2007)	**Description of the discrepancy or technical standard specification**	**Internal procedure or check in the Austrian national registry to prevent this discrepancy**	**Comment**
5158*	Units may only be transferred to a net-source cancellation account if a notification has been received from the ITL and this ID is reported in the transaction.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	A net-source cancellation can only be performed with a notification ID for this transaction.
5159*	Units may only be transferred to a non-compliance cancellation account if a notification has been received from the ITL and this ID is reported in the transaction.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	A non-compliance cancellation can only be performed with a notification ID for this transaction.
5160*	A valid notification ID must be provided for cancellation upon reversal of storage for a CDM project.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	A cancellation upon reversal of storage for a CDM project can only be performed with a valid notification ID.
5161*	A valid notification ID must be provided for cancellation upon non-submission of certification report for a CDM project.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	A cancellation upon non-submssion of certification report for a CDM project can only be performed with a valid notification ID.
5202*	The acquiring account for a replacement transaction involving tCERs must be a tCER replacement account.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	tCER replacements always use tCER replacement accounts as acquiring accounts.

Response-code (for checks marked with * the table indicates the projected status of the registry version 1.1.10.0 which is planned for 19.02.2007)	**Description of the discrepancy or technical standard specification**	**Internal procedure or check in the Austrian national registry to prevent this discrepancy**	**Comment**
5203*	The acquiring account for a replacement transaction involving lCERs must be an lCER replacement account.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	lCER replacements always use lCER replacement accounts as acquiring accounts.
5204*	Account identifiers must be provided for acquiring accounts in replacement transactions.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	Replacement transactions always include the numbers of acquiring accounts
5205*	The unit blocks used for replacement must have the same applicable commitment period as the replacement account.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	The applicable commitment period of the units will be checked and it must be the same as the replacement account.
5206*	Units to be replaced must be tCERs or lCERs.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	Only tCERs and lCERs can be replaced.
5207*	A unit may be replaced only once.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	Units that have been replaced will be marked as “replaced” and cannot be replaced again.

Response-code (for checks marked with * the table indicates the projected status of the registry version 1.1.10.0 which is planned for 19.02.2007)	**Description of the discrepancy or technical standard specification**	**Internal procedure or check in the Austrian national registry to prevent this discrepancy**	**Comment**
5208*	The registry holding the units to be replaced and the replacing units must be the same.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	Replacemant is an internal transaction within the registry.
5209*	The quantity of units replaced must equal the quantity of replacing units.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	In a replacement transaction the same number of replacing units will be used to replace the amount of tCERs and lCERs which need to be replaced.
5211*	tCERs to be replaced must be held in a retirement account or a tCER Replacement account.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	tCERs in accounts other than retirement or replacement accounts cannot be replaced.
5212*	lCERs to be replaced must not be held in cancellation accounts.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	lCERs in cancellation accounts cannot be replaced.
5213*	lCER replacement accounts (upon expiry) cannot acquire tCERs or lCERs.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	tCERs and lCERs cannot be used for replacement of lCERs upon expiry.

Response-code (for checks marked with * the table indicates the projected status of the registry version 1.1.10.0 which is planned for 19.02.2007)	**Description of the discrepancy or technical standard specification**	**Internal procedure or check in the Austrian national registry to prevent this discrepancy**	**Comment**
5214*	tCER replacement accounts (for unit expiry) cannot acquire lCERs.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	lCERs cannot be used for replacement of tCERs upon unit expiry.
5215*	lCER replacement accounts (for reversal of storage) may not acquire tCERs and may not acquire lCERs with a project number other than that specified in the replacement notification.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	Only AAUs, RMUs, ERUs, CERs and lCERs of the same project may be used for replacement of lCERs for reversal in storage.
5216*	If provided, the replacement notification ID must be valid and must be for replacement upon tCER expiry.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	For replacement transactions the message can only be sent if a valid notification ID of the same type is included.
5217*	If provided, the replacement notification ID must be valid and must be for replacement upon lCER expiry.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	For replacement transactions the message can only be sent if a valid notification ID of the same type is included.
5218*	A valid replacement notification ID must be provided for replacement upon reversal of storage for a CDM project.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	A replacement transaction can only be started if a valid notification ID of the same type is provided.

Response-code (for checks marked with * the table indicates the projected status of the registry version 1.1.10.0 which is planned for 19.02.2007)	**Description of the discrepancy or technical standard specification**	**Internal procedure or check in the Austrian national registry to prevent this discrepancy**	**Comment**
5219*	A valid replacement notification ID must be provided for replacement upon non-submission of certification report for a CDM project.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	A replacement transaction can only be started if a valid notification ID of the same type is provided.
5220*	For lCER replacement transactions upon reversal of storage or lack of a certification report, the project ID for the lCERs to be replaced must be consistent with the project ID contained in the replacement notification.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	Only lCER with the same project ID may be used for replacement of lCER for reversal in storage or lack of certification report.
5252	The acquiring account for a retirement transaction must be a retirement account.	Yes	Retirement transactions can only be performed with retirement accounts as acquiring accounts.
5253	Account identifiers must be provided for acquiring accounts in retirement transactions.	Yes	In retirement transactions account identifiers are always provided.
5254	The unit blocks retired must have the same applicable commitment period as the retirement account.	Yes	The system identifies the correct commitment period of the account, the operator cannot change it.
5256*	tCER and lCER retirement must not exceed allowed quantity.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	tCER and lCER retirement cannot exceed 1 % of the base year emissions times five, calculated on the basis of the assigned amount.

Response-code (for checks marked with * the table indicates the projected status of the registry version 1.1.10.0 which is planned for 19.02.2007)	**Description of the discrepancy or technical standard specification**	**Internal procedure or check in the Austrian national registry to prevent this discrepancy**	**Comment**
5302*	The initiating account for a carry-over transaction must be a holding account.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	The unit carry-over transaction can only be performed with a holding account as initiating account.
5303*	Units may be carried over only to the next subsequent commitment period.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	The unit carry-over procedure can only be performed from one commitment period to the subsequent commitment period.
5304*	The quantity of units carried over must not exceed the limit for carry-over established by the Compliance Committee for the Party and reported to the registry in the unit carry-over notification.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	Units can only be carried over up to the quantity indicated in the carry-over notification.
5305*	RMUs may not be carried over.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	RMUs cannot be carried over.
5306*	ERUs converted from RMUs may not be carried over.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	ERUs converted from RMUs cannot be carried over.

Response-code (for checks marked with * the table indicates the projected status of the registry version 1.1.10.0 which is planned for 19.02.2007)	**Description of the discrepancy or technical standard specification**	**Internal procedure or check in the Austrian national registry to prevent this discrepancy**	**Comment**
5307*	tCERs or lCERs may not be carried over.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	tCERs and lCERs cannot be carried over.
5310*	Units may only be carried over if a notification has been received from the ITL and this ID is reported in the transaction.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	A carry-over transaction can only be started if a valid notification ID of a carry-over notification is provided.
5312*	The quantity of ERUs (which have not been converted from RMUs) carried over by the Party must not exceed 2.5 % of that Party's allowed quantity of AAU issuance for the commitment period.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	Only 2.5 % of ERUs (which are converted from AAU) of the assigned amount can be carried over.
5313*	The quantity of CERs carried over by the Party must not exceed 2.5 % of that Party's allowed quantity of AAU issuance for the commitment period.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	Only 2.5 % of CERs of the assigned amount can be carried over.
5453*	An expiry date change may only take place if it is pursuant to a valid expiry date change notification from the ITL.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	An expiry date change procedure can only be started if a valid notification ID of an expiry date change notification is provided.

Response-code (for checks marked with * the table indicates the projected status of the registry version 1.1.10.0 which is planned for 19.02.2007)	**Description of the discrepancy or technical standard specification**	**Internal procedure or check in the Austrian national registry to prevent this discrepancy**	**Comment**
5454*	The units for expiry date change must be the units referenced in the ITL expiry date change notification.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	After receiving an expiry date change notification the registry will perform the expiry date change only with the units referred to in the notification.
5902	Acquiring account does not exist.	Yes (for internal transfers)	For internal transfers there is a check that stops a transaction if the acquiring account does not exist.
5903*	Acquiring account is not eligible to receive units.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	For acquiring units in external transfers the Party of the acquiring registry needs to meet eligibility criteria 1 through 6.
5904*	Transaction inconsistent with Party policy.	Will be implemented in registry version 1.1.10.0 planned for 19.02.2007	The registry system administrator can mark those Parties that are in a trading system with Austria and other Parties with which trading agreements with Austria exist. Only with these Parties are external transfers possible.
5906	Account has been closed.	Yes (for internal transfers)	For internal transfers there is a check that stops a transaction if the acquiring account is closed.

2.3 Test steps according to test book phase-10-tests of the European Commission, 27 April – 28 April 2005

Step 1 - NAP upload from national registry of Austria for commitment period 0.

Step 2 - NAP upload from national registry of Austria for commitment period 1.

Step 3 - Upload of corrected NAP from national registry of Austria for commitment period 0.

Step 4 - Upload of corrected NAP from national registry of Austria for commitment period 1.

Step 5 - Creation of Party holding accounts, cancellation accounts and retirement accounts.

Step 6 - Creation of two operator holding accounts and their related installations and two person holding accounts.

Step 7 - Issuance of allowances for commitment period 0 (2005-2007).

Step 8 - Allocation of allowances to operators during commitment period 0 (2005-2007).

Step 9 - Internal transfer of allowances having 0 as both original and applicable commitment period from a Party holding account to an operator holding account.

Step 10 - Internal transfer of allowances having 0 as both original and applicable commitment period between 2 operator holding accounts.

Step 11 - Issuance of additional allowances having 0 as both original and applicable commitment period.

Step 12 - Upload of corrected NAP from the national registry of Austria for commitment period 0.

Step 13 - Correction of allowances having 0 as both original and applicable commitment period from a Party holding account to an appropriate national cancellation account.

Step 14 - External transfer of allowances having 0 as both original and applicable commitment period.

Step 15 - Update of account.

Step 16 - Update of verified emissions.

Step 17 - Account closure.

Step 18 - Get transaction status.

Step 19 - Time synchronisation.

Step 20 - Issuance of 40,000 force majeure allowances having 0 as both original and applicable commitment period.

Step 21 - Cancellation of allowances having 0 as both original and applicable commitment period from an operator holding account to an adequate cancellation account.

Step 22 - Surrender of allowances having 0 as both original and applicable commitment period from an operator holding account to a Party holding account.

Step 23 - Issuance, in a Party holding account within the national registry of Austria, of AAUs having 1 as both original and applicable commitment period.

Step 24 - Cancellation and replacement of allowances having 0 as both original and applicable commitment period into allowances having 1 as both original and applicable commitment period.

Step 25 - Retirement of allowances having 0 as both original and applicable commitment period from a Party holding account to the appropriate retirement account having 0 as applicable commitment period.

Step 26 - Conversion, into a Party holding account within the national registry of Austria, of AAUs having 1 as both original and applicable commitment period into ERUs having 1 as both original and applicable commitment period, in the context of a project having 222 as project unique identification number and 2 as track number.

Step 27 - External transfer of AAUs having 1 as both original and applicable commitment period, from a Party holding account within the national registry of Austria to a Party holding account within the national registry of Belgium.

Step 28 - Issuance, in a Party holding account within the national registry of Austria, of allowances having 1 as both original and applicable commitment period.

Step 29 - Allocation of allowances to operators during commitment period 1 (2008-2012).

Step 30 - Update of verified emissions.

Step 31 - Surrender, for the year 2010, of allowances having 1 as both original and applicable commitment period from an operator holding account to a Party holding account.

Step 32 - Retirement of allowances having 1 as both original and applicable commitment from a Party holding account to a retirement account having 1 as applicable commitment period.

2.4 Test steps according to test book phase-12-tests of the European Commission, 28 October 2005 – 8 December 2005

Step 1 - NAP upload from the national registry of Austria for commitment period 0.

Step 2 - NAP upload from the national registry of Austria for commitment period 1.

Step 3 - Upload of corrected NAP from the national registry of Austria for commitment period 1.

Step 4 - Upload of corrected NAP from the national registry of Austria for commitment period 0.

Step 5 - Upload of corrected NAP from the national registry of Austria for commitment period 1.

Step 6 - Creation of Party holding accounts, cancellation accounts and retirement accounts.

Step 7 - Creation of two operator holding accounts and their related installations and two person holding accounts.

Step 8 - Issuance of allowances for commitment period 0 (2005-2007).

Step 9 - Allocation of allowances to operators during commitment period 0 (2005-2007).

Step 10 - Internal transfer of allowances having 0 as both original and applicable commitment period from a Party holding account to an operator holding account.

Step 11 - Internal transfer of allowances having 0 as both original and applicable commitment period between 2 operator holding accounts.

Step 12 - Issuance of additional allowances having 0 as both original and applicable commitment period.

Step 13 - Upload of corrected NAP from the national registry of Austria for commitment period 0.

Step 14 - Correction of allowances having 0 as both original and applicable commitment period from a Party holding account to an appropriate national cancellation account.

Step 15 - External transfer of allowances having 0 as both original and applicable commitment period.

Step 16 - Update of account.

Step 17 - Update of verified emissions.

Step 18 - Account closure.

Step 19 - Get transaction status.

Step 20 - Time synchronisation.

Step 21 - Issuance of 40,000 force majeure allowances having 0 as both original and applicable commitment period

Step 22 - Cancellation of allowances having 0 as both original and applicable commitment period from an operator holding account to an adequate cancellation account.

Step 23 - Surrender of allowances having 0 as both original and applicable commitment period from an operator holding account to a Party holding account.

Step 24 - Issuance, in a Party holding account within the national registry of Austria, of AAUs having 1 as both original and applicable commitment period.

Step 25 - Cancellation and replacement of allowances having 0 as both original and applicable commitment period into allowances having 1 as both original and applicable commitment period.

Step 26 - Retirement of allowances having 0 as both original and applicable commitment period from a Party holding account to the appropriate retirement account having 0 as applicable commitment period.

Step 27 - Conversion, into a Party holding account within the national registry of Austria, of AAUs having 1 as both original and applicable commitment period into ERUs having 1 as both original and applicable commitment period, in the context

of a project having 222 as project unique identification number and 2 as track number.

Step 28 - External transfer of AAUs having 1 as both original and applicable commitment period, from a Party holding account within the national registry of Austria to a Party holding account within the national registry of Belgium.

Step 29 - Issuance, in a Party holding account within the national registry of Austria, of allowances having 1 as both original and applicable commitment period.

Step 31 - Correction of allowances having 1 as both original and applicable commitment period in a Party holding account by converting them back to AAUs.

Step 32 - Surrender, for the year 2010, of allowances having 1 as both original and applicable commitment period from an operator holding account to a Party holding account.

Step 33 - Issuance, in a Party holding account within the national registry of Austria, of AAUs having 2 as both original and applicable commitment period.

Step 34 - Cancellation and replacement of allowances having 1 as both original and applicable commitment period into allowances having 2 as both original and applicable commitment period.

Step 35 - Retirement of allowances having 1 as both original and applicable commitment from a Party holding account to a retirement account having 1 as applicable commitment period.

Step 36 - Negative reconciliation.

Step 37 - Positive reconciliation.

2.5 Test steps according to Annex H of DES 1.0

Test ID 100 - Test to verify the registry can access the internet.

Test ID 101 - Validate that the ITL and registry VPN hardware can see each other.

Test ID 102 - Registry acquires a digital certificate from a third party certificate authority and installs the appropriate files. The ITL receives the public key of the certificate either from the certificate authority or from the registry, and an authentication test of the digital certificate is initiated by the sending and receiving of these public keys.

Test ID 110 - Verify that the registry can access the ITL public website for the purpose of querying unit transparent data.

Test ID 111 - Verify that the registry can access the ITL extranet which hosts information regarding change management files or patches, as well as XML datasets of all response codes and key identifier tables.

Test ID 116 – The registry is expected to download and import all response code data as well as data for all key identifier lookup tables into its system.

Test ID 117 - Verify time synchronization web service.

Figure 2: Account Data that have to be created in the registry for the tests

Code	Account Type	Qty	ID(s)
100	Holding Account	2	1, 2
110	Pending Account	2	3, 4
120	Operator Holding Account	1	5
121	Person Holding Account	1	6
210	Net Source Cancellation Account (national registry only)	1	7
220	Non-compliance Cancellation Account (national registry only)	1	8
230	Voluntary Cancellation Account (national registry only)	1	9
240	Excess Issuance Cancellation Account (CDM Registry only)	1	10
250	Mandatory Cancellation Account	1	11
300	Retirement Account	1	12
411	tCER Replacement Account for Expiry	1	13
412	tCER Replacement Account for Reversal in Carbon Storage	1	14
413	tCER Replacement Account for Failure to Submit Certification Report	1	15
421	lCER Replacement Account for Expiry	1	16
422	lCER Replacement Account for Reversal in Carbon Storage	1	17
423	lCER Replacement Account for Failure to Submit Certification Report	1	18

Creation of accounts as described in Figure 2.

Test ID 120 - Issue 500 AAUs to holding account.

Test ID 121 - Issue 100 RMUs to holding account of registry AT.

Test ID 122 - Issue 500 AAUs to holding account.

Test ID 123 - ITL requests totals.

Test ID 124 - ITL requests unit blocks.

Test ID 130 - Convert 100 of the holding account's AAUs into ERUs.

Test ID 131 - ITL requests totals.

Test ID 132 - ITL requests unit blocks.

Test ID 150- Transfer 100 AAUs to an external third party (holding account of country YY). YY agrees to the transaction.

Test ID 151 - YY has proposed a transaction transferring the same 100 AAUs back to the AT registry.

Test ID 152 - Transfer 100 of the holding account's AAUs to an external third party holding account of country YY. YY rejects the transaction.

Test ID 153 - The ITL receives from the CDM lCERs to transfer to the registry.

Test ID 154 - The ITL receives from the CDM tCERs to transfer to the registry.

Test ID 155 - ITL requests totals.

Test ID 156 - ITL requests unit blocks.

Test ID 160 - Holding account of AT will attempt to cancel 100 AAUs.

Test ID 161 - ITL requests totals.

Test ID 162 - ITL requests unit blocks.

Test ID 170 - Holding account will retire 100 AAUs.

Test ID 171 - ITL requests totals.

Test ID 172 - ITL requests unit blocks.

Test ID 180 - Holding account #2 will retire the lCERs.

Test ID 181 - Receipt of the message through AcceptITLNotice.

Test ID 182 - Replacement transaction.

Test ID 183 - ITL requests totals.

Test ID 184 - ITL requests unit blocks.

Test ID 190- ITL will send and AcceptITLNotice notification to the registry for its AAUs.

Test ID 191 - Holding account of AT will carry AAUs over to the next commitment period.

Test ID 192 - Holding account of AT will attempt to carry the following RMUs over to the next commitment period.

Test ID 193 - Holding account of AT will attempt to carry the remaining AAUs over to the next commitment period.

Test ID 194 - ITL will send an updated AcceptITLNotice notification to the registry.

Test ID 195 - ITL requests totals.

Test ID 196 - ITL requests unit blocks.

Test ID 201 - The registry will extend the expiry date on the tCERs.

Test ID 202 - ITL requests totals.

Test ID 203 - ITL requests unit blocks.

Test ID 300 - ITL initiates reconcilation.

Test ID 301 - ITL requests totals.

Test ID 302 - The ITL will request totals for a specific unit type.

Test ID 303 - The ITL will request totals for a specific account type.

Test ID 330 - ITL will request all unit blocks.

Test ID 331 - The ITL will request unit blocks for a specific unit type.

Test ID 332 - The ITL will request unit blocks for a specific account type.

Test ID 360 - The ITL will request the audit trail for a specific unit type.

Test ID 361 - The ITL will request the audit trail for a specific accountType.

Test ID 362 - The ITL will request the audit trail for a specific unit block.