

Annex 1 – Key categories

Description of methodology used

The key category analysis has been performed according to the provisions in Chapter 7 of IPCC GPG 2000 and Chapter 5 of IPCC GPG 2003, both following the Tier 1 and Tier 2 approach. Separate key category analysis were conducted taking into account both the exclusion and inclusion of the LULUCF sector and also both level and trend criteria.

KCA was implemented using an integrated software application developed in 2012 by the Environment Agency of Austria-University of Graz consortium, in the context of the study “Environmental Integrated Informational System”, implemented by the SC Asesoft International SA-SC Team Net International SA-SC Star Storage SRL consortium; the application allow for:

- automatic data import from the CRF Reporter application, through the use of CRF Tables;
- integrate both key category and uncertainty analysis performed following both Tier 1 and Tier 2 approach;

automatic export of results, data and information, within the relevant reporting templates.

Information on level of disaggregation

All IPCC sectors and categories, sources and sinks (as suggested in Table 7.1 of IPCC GPG 2000 and in Table 5.4.1 of IPCC GPG 2003), and gases were analyzed. The categories considered and the associated GHG emissions, expressed in Gg CO₂ equivalent, are listed in Table 17. KCA was conducted for every year of the characterized period.

Key categories analysis results

Taking into account the Tier 1 analysis and the exclusion of the LULUCF sector, in 2011:

- ❖ 30 categories are considered as key ones both by level and trend;
- ❖ 45 categories are considered as key ones, only by level;
- ❖ 37 categories are considered as key ones, only by trend.

Taking into account the Tier 1 analysis and the inclusion of the LULUCF sector, in 2011:

- ❖ 29 categories are considered as key ones, both by level and trend;
- ❖ 48 categories are considered as key ones, only by level;
- ❖ 41 categories are considered as key ones, only by trend.

Taking into account the Tier 2 analysis and the exclusion of the LULUCF sector, in 2011:

- ❖ 23 categories are considered as key ones both by level and trend;
- ❖ 29 categories are considered as key ones, only by level;
- ❖ 36 categories are considered as key ones, only by trend.

Taking into account the Tier 2 analysis and the inclusion of the LULUCF sector, in 2011:

- ❖ 26 categories are considered as key ones, both by level and trend;
- ❖ 30 categories are considered as key ones, only by level;
- ❖ 38 categories are considered as key ones, only by trend.

The following categories were identified as key categories following the Tier 2 analysis and additionally to the Tier 1 related key categories:

- ❖ Oil-CO₂ emissions (IPCC category 1.B.2.a);
- ❖ Solvent and Other Product Use-CO₂ emissions (IPCC category 3);
- ❖ Land converted to Grassland-CO₂ emissions (IPCC category 5.C.2);
- ❖ Residential-biomass fuels-N₂O emissions (IPCC category 1.A.4.b);
- ❖ Other AWMS-N₂O emissions (IPCC category 4.B.14);
- ❖ Refrigeration and Air Conditioning Equipment-HFCs emissions (IPCC category 2.F.1);
- ❖ Foam Blowing-HFCs emissions (IPCC category 2.F.2);
- ❖ Other-HFCs emissions (IPCC category 2.F.9).

The results of the key category analysis are presented in Tables 1-16.

KCA is used for prioritize efforts for improving the quality of the NGHGI-the relevant implemented and future studies referring mainly to the use of higher Tier methods in key categories; the KCA results were considered within activities part of the Romanian inventory improvement plan (including the prioritization plan for moving to higher tier methods for key categories) – 2012-2013 – May 2012.

Table 1 Tier 1 - Level Assessment of the key category analysis excluding LULUCF for the base year, 1989

IPCC Category Code	IPCC Category	Greenhouse Gas	Year 1989 Estimate Ex,t [t CO₂-e units]	Level Assessment L_{x,t}	Cumulative Total of L_{x,t}
1 A 1 a solid	Public Electricity and Heat Production	CO ₂	33,170	12.1%	12.1%
1 A 2 c gaseous	Chemicals	CO ₂	23,891	8.7%	20.9%
1 A 1 a gaseous	Public Electricity and Heat Production	CO ₂	22,054	8.1%	29.0%
1 A 2 f gaseous	Other	CO ₂	14,211	5.2%	34.2%
1 A 1 a liquid	Public Electricity and Heat Production	CO ₂	12,159	4.5%	38.6%
4 D 1	Direct Soil Emissions	N ₂ O	10,260	3.8%	42.4%
4 A 1	Cattle	CH ₄	10,012	3.7%	46.0%
1 A 2 f liquid	Other	CO ₂	9,990	3.7%	49.7%
2 C 1	Iron and Steel Production	CO ₂	9,500	3.5%	53.2%
1 A 2 f solid	Other	CO ₂	9,324	3.4%	56.6%
1 B 2 b	Natural gas	CH ₄	8,606	3.1%	59.7%
1 A 2 a gaseous	Iron and Steel	CO ₂	7,157	2.6%	62.3%
4 A 3	Sheep	CH ₄	6,561	2.4%	64.7%
4 D 3	Indirect Emissions	N ₂ O	6,039	2.2%	67.0%
2 A 1	Cement Production	CO ₂	5,609	2.1%	69.0%
1 B 1 a	Coal Mining	CH ₄	5,485	2.0%	71.0%
2 B 2	Nitric Acid Production	N ₂ O	5,464	2.0%	73.0%
1 A 3 b gasoline	Road Transportation	CO ₂	5,258	1.9%	74.9%
1 B 2 a	Oil	CH ₄	5,052	1.8%	76.8%
1 A 4 b gaseous	Residential	CO ₂	5,027	1.8%	78.6%
1 A 1 b liquid	Petroleum refining	CO ₂	4,780	1.7%	80.4%
2 B 1	Ammonia Production	CO ₂	4,404	1.6%	82.0%
1 A 2 a solid	Iron and Steel	CO ₂	4,101	1.5%	83.5%
1 A 4 c liquid	Agriculture/Forestry/Fisheries	CO ₂	3,634	1.3%	84.8%
2 C 3	Aluminium production	PFC	3,350	1.2%	86.0%

2 A 2	Lime Production	CO ₂	3,222	1.2%	87.2%
6 B	WASTEWATER HANDLING	CH ₄	2,816	1.0%	88.3%
1 B 2 c Venting	Venting	CH ₄	2,615	1.0%	89.2%
1 A 4 b solid	Residential	CO ₂	2,472	0.9%	90.1%
4 D 2	Pasture, Range and Paddock Manure	N ₂ O	2,078	0.8%	90.9%
1 A 4 c gaseous	Agriculture/Forestry/Fisheries	CO ₂	1,964	0.7%	91.6%
4 B 13	Solid Storage and Dry Lot	N ₂ O	1,731	0.6%	92.2%
2 A 3	Limestone and Dolomite Use	CO ₂	1,483	0.5%	92.8%
1 A 3 d residual oil	Navigation	CO ₂	1,452	0.5%	93.3%
1 A 5 a liquid	Stationary	CO ₂	1,360	0.5%	93.8%
6 A	SOLID WASTE DISPOSAL ON LAND	CH ₄	1,255	0.5%	94.3%
4 B 8	Swine	CH ₄	1,026	0.4%	94.6%
1 A 1 c solid	Manufacture of Solid fuels and Other Energy Industries	CO ₂	1,002	0.4%	95.0%

Table 2 Tier 1 - Level Assessment of the key category analysis excluding LULUCF for the year 2011

IPCC Category Code	IPCC Category	Greenhouse Gas	Year 2011 Estimate Ex,t [t CO ₂ -e units]	Level Assessment L _{x,t}	Cumulative Total of L _{x,t}
1 A 1 a solid	Public Electricity and Heat Production	CO ₂	24,378	19.8%	19.8%
1 A 3 b diesel oil	Road Transportation	CO ₂	9,093	7.4%	27.1%
1 A 1 a gaseous	Public Electricity and Heat Production	CO ₂	6,443	5.2%	32.4%
1 A 4 b gaseous	Residential	CO ₂	5,421	4.4%	36.8%
4 D 1	Direct Soil Emissions	N ₂ O	5,349	4.3%	41.1%
1 A 3 b gasoline	Road Transportation	CO ₂	4,002	3.2%	44.3%
4 A 3	Sheep	CH ₄	3,557	2.9%	47.2%
1 B 2 b	Natural gas	CH ₄	3,427	2.8%	50.0%
4 A 1	Cattle	CH ₄	3,178	2.6%	52.6%
2 A 1	Cement Production	CO ₂	3,089	2.5%	55.1%
2 B 1	Ammonia Production	CO ₂	3,020	2.4%	57.5%
1 A 2 c gaseous	Chemicals	CO ₂	2,964	2.4%	59.9%
4 D 3	Indirect Emissions	N ₂ O	2,892	2.3%	62.3%
2 C 1	Iron and Steel Production	CO ₂	2,632	2.1%	64.4%
1 A 2 f gaseous	Other	CO ₂	2,485	2.0%	66.4%
1 A 2 a solid	Iron and Steel	CO ₂	2,483	2.0%	68.4%
6 A	SOLID WASTE DISPOSAL ON LAND	CH ₄	2,476	2.0%	70.4%
1 B 2 a	Oil	CH ₄	2,428	2.0%	72.4%
6 B	WASTEWATER HANDLING	CH ₄	2,253	1.8%	74.2%
1 A 1 b liquid	Petroleum refining	CO ₂	2,210	1.8%	76.0%
1 A 2 f solid	Other	CO ₂	2,121	1.7%	77.7%
1 A 2 f liquid	Other	CO ₂	1,963	1.6%	79.3%
1 A 4 a gaseous	Commercial/Institutional	CO ₂	1,757	1.4%	80.8%
2 A 2	Lime Production	CO ₂	1,260	1.0%	81.8%
2 B 2	Nitric Acid Production	N ₂ O	1,210	1.0%	82.8%
1 A 2 a gaseous	Iron and Steel	CO ₂	1,191	1.0%	83.7%

1 B 2 c Venting	Venting	CH ₄	1,166	0.9%	84.7%
1 A 1 a liquid	Public Electricity and Heat Production	CO ₂	1,114	0.9%	85.6%
1 B 1 a	Coal Mining	CH ₄	879	0.7%	86.3%
1 A 1 b gaseous	Petroleum refining	CO ₂	861	0.7%	87.0%
4 D 2	Pasture, Range and Paddock Manure	N ₂ O	831	0.7%	87.7%
1 A 4 b biomass	Residential	CH ₄	830	0.7%	88.3%
1 A 4 c liquid	Agriculture/Forestry/Fisheries	CO ₂	826	0.7%	89.0%
4 B 13	Solid Storage and Dry Lot	N ₂ O	772	0.6%	89.6%
1 A 1 c liquid	Manufacture of Solid fuels and Other Energy Industries	CO ₂	762	0.6%	90.3%
1 A 2 e gaseous	Food Processing, Beverages and Tobacco	CO ₂	761	0.6%	90.9%
1 A 2 c liquid	Chemicals	CO ₂	734	0.6%	91.5%
1 A 1 c gaseous	Manufacture of Solid fuels and Other Energy Industries	CO ₂	696	0.6%	92.0%
6 B	WASTEWATER HANDLING	N ₂ O	627	0.5%	92.5%
1 A 4 b liquid	Residential	CO ₂	614	0.5%	93.0%
1 A 3 c liquid	Railways	CO ₂	593	0.5%	93.5%
1 A 5 a liquid	Stationary	CO ₂	542	0.4%	94.0%
1 A 2 c solid	Chemicals	CO ₂	477	0.4%	94.3%
4 A 6	Horses	CH ₄	464	0.4%	94.7%
4 A 4	Goats	CH ₄	445	0.4%	95.1%

Table 3 Tier 1 - Trend Assessment of the key category analysis excluding LULUCF for the trend 1989–2011 period

IPCC Category Code	IPCC Category	Greenhouse Gas	Base Year (1989) Estimate $E_{x,0}$	Latest Year (2011) Estimate $E_{x,t}$	Trend Assessment $T_{x,t}$	% Contribution to Trend	Cumulative Total of $L_{x,t}$
1 A 1 a solid	Public Electricity and Heat Production	CO ₂	33,170	24,378	0.169	14.6%	14.6%
1 A 2 c gaseous	Chemicals	CO ₂	23,891	2,964	0.140	12.2%	26.8%
1 A 1 a liquid	Public Electricity and Heat Production	CO ₂	12,159	1,114	0.079	6.8%	33.6%
1 A 2 f gaseous	Other	CO ₂	14,211	2,485	0.071	6.1%	39.8%
1 A 1 a gaseous	Public Electricity and Heat Production	CO ₂	22,054	6,443	0.063	5.5%	45.2%
1 A 4 b gaseous	Residential	CO ₂	5,027	5,421	0.057	4.9%	50.2%
1 A 2 f liquid	Other	CO ₂	9,990	1,963	0.046	4.0%	54.1%
1 A 2 f solid	Other	CO ₂	9,324	2,121	0.038	3.3%	57.4%
1 A 2 a gaseous	Iron and Steel	CO ₂	7,157	1,191	0.037	3.2%	60.6%
6 A	SOLID WASTE DISPOSAL ON LAND	CH ₄	1,255	2,476	0.034	3.0%	63.5%
2 C 1	Iron and Steel Production	CO ₂	9,500	2,632	0.030	2.6%	66.1%
1 A 3 b gasoline	Road Transportation	CO ₂	5,258	4,002	0.029	2.5%	68.6%
1 B 1 a	Coal Mining	CH ₄	5,485	879	0.029	2.5%	71.1%
2 C 3	Aluminium production	PFC	3,350	11	0.027	2.3%	73.5%
4 A 1	Cattle	CH ₄	10,012	3,178	0.024	2.1%	75.6%
2 B 2	Nitric Acid Production	N ₂ O	5,464	1,210	0.023	2.0%	77.5%
1 A 4 b solid	Residential	CO ₂	2,472	71	0.019	1.6%	79.1%
2 B 1	Ammonia Production	CO ₂	4,404	3,020	0.019	1.6%	80.8%
6 B	WASTEWATER HANDLING	CH ₄	2,816	2,253	0.018	1.5%	82.3%
1 A 4 c liquid	Agriculture/Forestry/Fisheries	CO ₂	3,634	826	0.015	1.3%	83.6%
1 A 4 b biomass	Residential	CH ₄	164	830	0.014	1.2%	84.7%
1 A 4 c gaseous	Agriculture/Forestry/Fisheries	CO ₂	1,964	131	0.014	1.2%	85.9%
4 D 1	Direct Soil Emissions	N ₂ O	10,260	5,349	0.013	1.1%	87.0%
1 A 2 a solid	Iron and Steel	CO ₂	4,101	2,483	0.011	1.0%	88.0%
4 A 3	Sheep	CH ₄	6,561	3,557	0.011	0.9%	88.9%
2 A 1	Cement Production	CO ₂	5,609	3,089	0.010	0.9%	89.8%

1 B 2 b	Natural gas	CH ₄	8,606	3,427	0.008	0.7%	90.5%
1 A 1 c solid	Manufacture of Solid fuels and Other Energy Industries	CO ₂	1,002	5	0.008	0.7%	91.2%
6 B	WASTEWATER HANDLING	N ₂ O	599	627	0.006	0.6%	91.8%
1 A 1 c liquid	Manufacture of Solid fuels and Other Energy Industries	CO ₂	953	762	0.006	0.5%	92.3%
1 A 3 c liquid	Railways	CO ₂	661	593	0.005	0.5%	92.8%
4 A 4	Goats	CH ₄	363	445	0.005	0.4%	93.2%
1 A 3 a jet kerosene	Civil Aviation	CO ₂	26	282	0.005	0.4%	93.6%
2 A 3	Limestone and Dolomite Use	CO ₂	1,483	399	0.005	0.4%	94.0%
1 A 4 b liquid	Residential	CO ₂	782	614	0.005	0.4%	94.4%
4 A 6	Horses	CH ₄	515	464	0.004	0.4%	94.8%
2 F 1	Refrigeration and Air Conditioning Equipment	HFC	0	206	0.004	0.3%	95.1%

Table 4 Tier 1 - Level Assessment of the key category analysis including LULUCF for the base year, 1989

IPCC Category Code	IPCC Category	Greenhouse Gas	Year 1989 Estimate Ex,t [t CO2-e units]	Absolute Value of Year 1989 Estimate Ex,t	Level Assessment L_{x,t}	Cumulative Total of L_{x,t}
1 A 1 a solid	Public Electricity and Heat Production	CO ₂	33,170	33,170	10.9%	10.9%
1 A 2 c gaseous	Chemicals	CO ₂	23,891	23,891	7.9%	18.8%
1 A 1 a gaseous	Public Electricity and Heat Production	CO ₂	22,054	22,054	7.3%	26.1%
5 A 1	Forest land remaining forest land	CO ₂	-18,860	18,860	6.2%	32.3%
1 A 2 f gaseous	Other	CO ₂	14,211	14,211	4.7%	37.0%
1 A 1 a liquid	Public Electricity and Heat Production	CO ₂	12,159	12,159	4.0%	41.0%
4 D 1	Direct Soil Emissions	N ₂ O	10,260	10,260	3.4%	44.4%
4 A 1	Cattle	CH ₄	10,012	10,012	3.3%	47.7%
1 A 2 f liquid	Other	CO ₂	9,990	9,990	3.3%	51.0%
2 C 1	Iron and Steel Production	CO ₂	9,500	9,500	3.1%	54.1%
1 A 2 f solid	Other	CO ₂	9,324	9,324	3.1%	57.2%
1 B 2 b	Natural gas	CH ₄	8,606	8,606	2.8%	60.1%
1 A 2 a gaseous	Iron and Steel	CO ₂	7,157	7,157	2.4%	62.4%
4 A 3	Sheep	CH ₄	6,561	6,561	2.2%	64.6%
4 D 3	Indirect Emissions	N ₂ O	6,039	6,039	2.0%	66.6%
5 B 1	Cropland remaining cropland	CO ₂	-5,784	5,784	1.9%	68.5%
2 A 1	Cement Production	CO ₂	5,609	5,609	1.9%	70.3%
1 B 1 a	Coal Mining	CH ₄	5,485	5,485	1.8%	72.1%
2 B 2	Nitric Acid Production	N ₂ O	5,464	5,464	1.8%	74.0%
1 A 3 b gasoline	Road Transportation	CO ₂	5,258	5,258	1.7%	75.7%
1 B 2 a	Oil	CH ₄	5,052	5,052	1.7%	77.4%
1 A 4 b gaseous	Residential	CO ₂	5,027	5,027	1.7%	79.0%
1 A 1 b liquid	Petroleum refining	CO ₂	4,780	4,780	1.6%	80.6%
2 B 1	Ammonia Production	CO ₂	4,404	4,404	1.5%	82.0%
5 E 2	Land converted to Settlements	CO ₂	4,125	4,125	1.4%	83.4%
1 A 2 a solid	Iron and Steel	CO ₂	4,101	4,101	1.4%	84.8%
1 A 4 c liquid	Agriculture/Forestry/Fisheries	CO ₂	3,634	3,634	1.2%	86.0%
2 C 3	Aluminium production	PFC	3,350	3,350	1.1%	87.1%

2 A 2	Lime Production	CO ₂	3,222	3,222	1.1%	88.1%
6 B	WASTEWATER HANDLING	CH ₄	2,816	2,816	0.9%	89.1%
1 B 2 c Venting	Venting	CH ₄	2,615	2,615	0.9%	89.9%
1 A 4 b solid	Residential	CO ₂	2,472	2,472	0.8%	90.7%
4 D 2	Pasture, Range and Paddock Manure	N ₂ O	2,078	2,078	0.7%	91.4%
1 A 4 c gaseous	Agriculture/Forestry/Fisheries	CO ₂	1,964	1,964	0.6%	92.1%
4 B 13	Solid Storage and Dry Lot	N ₂ O	1,731	1,731	0.6%	92.6%
2 A 3	Limestone and Dolomite Use	CO ₂	1,483	1,483	0.5%	93.1%
1 A 3 d residual oil	Navigation	CO ₂	1,452	1,452	0.5%	93.6%
1 A 5 a liquid	Stationary	CO ₂	1,360	1,360	0.4%	94.1%
6 A	SOLID WASTE DISPOSAL ON LAND	CH ₄	1,255	1,255	0.4%	94.5%
4 B 8	Swine	CH ₄	1,026	1,026	0.3%	94.8%
1 A 1 c solid	Manufacture of Solid fuels and Other Energy Industries	CO ₂	1,002	1,002	0.3%	95.1%

Table 5 Tier 1 - Level Assessment of the key category analysis including LULUCF for the year 2011

IPCC Category Code	IPCC Category	Greenhouse Gas	Year 2011 Estimate Ex,t [t CO₂-e units]	Absolute Value of Year 2011 Estimate Ex,t	Level Assessment L_{x,t}	Cumulative Total of L_{x,t}
1 A 1 a solid	Public Electricity and Heat Production	CO ₂	24,378	24,378	16.1%	16.1%
5 A 1	Forest land remaining forest land	CO ₂	-20,292	20,292	13.4%	29.5%
1 A 3 b diesel oil	Road Transportation	CO ₂	9,093	9,093	6.0%	35.5%
1 A 1 a gaseous	Public Electricity and Heat Production	CO ₂	6,443	6,443	4.3%	39.8%
1 A 4 b gaseous	Residential	CO ₂	5,421	5,421	3.6%	43.3%
4 D 1	Direct Soil Emissions	N ₂ O	5,349	5,349	3.5%	46.9%
1 A 3 b gasoline	Road Transportation	CO ₂	4,002	4,002	2.6%	49.5%
4 A 3	Sheep	CH ₄	3,557	3,557	2.3%	51.9%
1 B 2 b	Natural gas	CH ₄	3,427	3,427	2.3%	54.1%
5 B 1	Cropland remaining cropland	CO ₂	-3,223	3,223	2.1%	56.2%
4 A 1	Cattle	CH ₄	3,178	3,178	2.1%	58.3%
2 A 1	Cement Production	CO ₂	3,089	3,089	2.0%	60.4%
5 A 2	Land converted to forest land	CO ₂	-3,061	3,061	2.0%	62.4%
2 B 1	Ammonia Production	CO ₂	3,020	3,020	2.0%	64.4%
1 A 2 c gaseous	Chemicals	CO ₂	2,964	2,964	2.0%	66.4%
4 D 3	Indirect Emissions	N ₂ O	2,892	2,892	1.9%	68.3%
2 C 1	Iron and Steel Production	CO ₂	2,632	2,632	1.7%	70.0%
1 A 2 f gaseous	Other	CO ₂	2,485	2,485	1.6%	71.6%
1 A 2 a solid	Iron and Steel	CO ₂	2,483	2,483	1.6%	73.3%
6 A	SOLID WASTE DISPOSAL ON LAND	CH ₄	2,476	2,476	1.6%	74.9%
1 B 2 a	Oil	CH ₄	2,428	2,428	1.6%	76.5%
6 B	WASTEWATER HANDLING	CH ₄	2,253	2,253	1.5%	78.0%
1 A 1 b liquid	Petroleum refining	CO ₂	2,210	2,210	1.5%	79.5%
1 A 2 f solid	Other	CO ₂	2,121	2,121	1.4%	80.9%
1 A 2 f liquid	Other	CO ₂	1,963	1,963	1.3%	82.2%
1 A 4 a gaseous	Commercial/Institutional	CO ₂	1,757	1,757	1.2%	83.3%
2 A 2	Lime Production	CO ₂	1,260	1,260	0.8%	84.2%

2 B 2	Nitric Acid Production	N ₂ O	1,210	1,210	0.8%	85.0%
1 A 2 a gaseous	Iron and Steel	CO ₂	1,191	1,191	0.8%	85.7%
1 B 2 c Venting	Venting	CH ₄	1,166	1,166	0.8%	86.5%
1 A 1 a liquid	Public Electricity and Heat Production	CO ₂	1,114	1,114	0.7%	87.2%
1 B 1 a	Coal Mining	CH ₄	879	879	0.6%	87.8%
1 A 1 b gaseous	Petroleum refining	CO ₂	861	861	0.6%	88.4%
5 F 2	Land converted to Other land	CO ₂	835	835	0.6%	88.9%
4 D 2	Pasture, Range and Paddock Manure	N ₂ O	831	831	0.5%	89.5%
1 A 4 b biomass	Residential	CH ₄	830	830	0.5%	90.0%
1 A 4 c liquid	Agriculture/Forestry/Fisheries	CO ₂	826	826	0.5%	90.6%
4 B 13	Solid Storage and Dry Lot	N ₂ O	772	772	0.5%	91.1%
1 A 1 c liquid	Manufacture of Solid fuels and Other Energy Industries	CO ₂	762	762	0.5%	91.6%
1 A 2 e gaseous	Food Processing, Beverages and Tobacco	CO ₂	761	761	0.5%	92.1%
1 A 2 c liquid	Chemicals	CO ₂	734	734	0.5%	92.6%
1 A 1 c gaseous	Manufacture of Solid fuels and Other Energy Industries	CO ₂	696	696	0.5%	93.0%
6 B	WASTEWATER HANDLING	N ₂ O	627	627	0.4%	93.5%
1 A 4 b liquid	Residential	CO ₂	614	614	0.4%	93.9%
1 A 3 c liquid	Railways	CO ₂	593	593	0.4%	94.3%
1 A 5 a liquid	Stationary	CO ₂	542	542	0.4%	94.6%
1 A 2 c solid	Chemicals	CO ₂	477	477	0.3%	94.9%
4 A 6	Horses	CH ₄	464	464	0.3%	95.2%

Table 6 Tier 1 - Trend Assessment of the key category analysis including LULUCF for the trend 1989–2011 period

IPCC Category Code	IPCC Category	Greenhouse Gas	Base Year (1989) Estimate $E_{x,0}$	Latest Year (2011) Estimate $E_{x,t}$	Trend Assessment $T_{x,t}$	% Contribution to Trend	Cumulative Total of $L_{x,t}$
5 A 1	Forest land remaining forest land	CO ₂	18,860	20,292	0.144	12.8%	12.8%
1 A 2 c gaseous	Chemicals	CO ₂	23,891	2,964	0.119	10.5%	23.3%
1 A 1 a solid	Public Electricity and Heat Production	CO ₂	33,170	24,378	0.103	9.2%	32.5%
1 A 1 a liquid	Public Electricity and Heat Production	CO ₂	12,159	1,114	0.066	5.8%	38.3%
1 A 2 f gaseous	Other	CO ₂	14,211	2,485	0.061	5.4%	43.7%
1 A 1 a gaseous	Public Electricity and Heat Production	CO ₂	22,054	6,443	0.060	5.4%	49.1%
1 A 2 f liquid	Other	CO ₂	9,990	1,963	0.040	3.6%	52.7%
5 A 2	Land converted to forest land	CO ₂	122	3,061	0.040	3.5%	56.2%
1 A 4 b gaseous	Residential	CO ₂	5,027	5,421	0.038	3.4%	59.6%
1 A 2 f solid	Other	CO ₂	9,324	2,121	0.034	3.0%	62.6%
1 A 2 a gaseous	Iron and Steel	CO ₂	7,157	1,191	0.032	2.8%	65.4%
2 C 1	Iron and Steel Production	CO ₂	9,500	2,632	0.028	2.5%	67.9%
1 B 1 a	Coal Mining	CH ₄	5,485	879	0.025	2.2%	70.0%
6 A	SOLID WASTE DISPOSAL ON LAND	CH ₄	1,255	2,476	0.024	2.2%	72.2%
4 A 1	Cattle	CH ₄	10,012	3,178	0.024	2.1%	74.4%
2 C 3	Aluminium production	PFC	3,350	11	0.022	2.0%	76.3%
5 E 2	Land converted to Settlements	CO ₂	4,125	410	0.022	1.9%	78.3%
2 B 2	Nitric Acid Production	N ₂ O	5,464	1,210	0.020	1.8%	80.0%
1 A 3 b gasoline	Road Transportation	CO ₂	5,258	4,002	0.018	1.6%	81.7%
1 A 4 b solid	Residential	CO ₂	2,472	71	0.015	1.4%	83.0%
1 A 4 c liquid	Agriculture/Forestry/Fisheries	CO ₂	3,634	826	0.013	1.2%	84.2%
1 B 2 b	Natural gas	CH ₄	8,606	3,427	0.012	1.0%	85.2%
1 A 4 c gaseous	Agriculture/Forestry/Fisheries	CO ₂	1,964	131	0.011	1.0%	86.2%

6 B	WASTEWATER HANDLING	CH ₄	2,816	2,253	0.011	1.0%	87.2%
5 F 2	Land converted to Other land	CO ₂	30	835	0.011	1.0%	88.2%
2 B 1	Ammonia Production	CO ₂	4,404	3,020	0.011	1.0%	89.1%
1 A 4 b biomass	Residential	CH ₄	164	830	0.010	0.9%	90.0%
1 A 1 c solid	Manufacture of Solid fuels and Other Energy Industries	CO ₂	1,002	5	0.007	0.6%	90.6%
1 A 2 a solid	Iron and Steel	CO ₂	4,101	2,483	0.006	0.5%	91.1%
2 A 2	Lime Production	CO ₂	3,222	1,260	0.005	0.4%	91.5%
2 A 3	Limestone and Dolomite Use	CO ₂	1,483	399	0.005	0.4%	91.9%
5 B 1	Cropland remaining cropland	CO ₂	5,784	3,223	0.004	0.4%	92.3%
6 B	WASTEWATER HANDLING	N ₂ O	599	627	0.004	0.4%	92.7%
1 A 1 c liquid	Manufacture of Solid fuels and Other Energy Industries	CO ₂	953	762	0.004	0.3%	93.0%
2 A 1	Cement Production	CO ₂	5,609	3,089	0.004	0.3%	93.4%
4 A 3	Sheep	CH ₄	6,561	3,557	0.004	0.3%	93.7%
1 A 3 a jet kerosene	Civil Aviation	CO ₂	26	282	0.004	0.3%	94.0%
4 A 4	Goats	CH ₄	363	445	0.003	0.3%	94.3%
1 A 3 c liquid	Railways	CO ₂	661	593	0.003	0.3%	94.6%
1 A 4 b liquid	Residential	CO ₂	782	614	0.003	0.3%	94.9%
4 D 1	Direct Soil Emissions	N ₂ O	10,260	5,349	0.003	0.3%	95.1%

Table 7 Tier 1 - Key categories identified including their ranking in the level and trend assessment for the KCA excluding LULUCF

			Tier 1	Tier 1	Tier 1			
IPCC Category Code	IPCC Category	Greenhouse Gas	Level Assessment 1989	Level Assessment 2011	Trend Assessment 1989-2011	Base Year (1989) Estimate E_{x,0}	Latest Year (2011) Estimate E_{x,t}	Share Latest Year (2011)
1 A 1 a liquid	Public Electricity and Heat Production	CO ₂	5	28	3	12,159	1,114	0.9%
1 A 1 a solid	Public Electricity and Heat Production	CO ₂	1	1	1	33,170	24,378	19.8%
1 A 1 a gaseous	Public Electricity and Heat Production	CO ₂	3	3	5	22,054	6,443	5.2%
1 A 1 b liquid	Petroleum refining	CO ₂	21	20		4,780	2,210	1.8%
1 A 1 b gaseous	Petroleum refining	CO ₂		30		-	861	0.7%
1 A 1 c liquid	Manufacture of Solid fuels and Other Energy Industries	CO ₂		35	30	953	762	0.6%
1 A 1 c solid	Manufacture of Solid fuels and Other Energy Industries	CO ₂	38		28	1,002	5	0.0%
1 A 1 c gaseous	Manufacture of Solid fuels and Other Energy Industries	CO ₂		38		-	696	0.6%
1 A 2 a solid	Iron and Steel	CO ₂	23	16	24	4,101	2,483	2.0%
1 A 2 a gaseous	Iron and Steel	CO ₂	12	26	9	7,157	1,191	1.0%
1 A 2 c liquid	Chemicals	CO ₂		37		-	734	0.6%
1 A 2 c solid	Chemicals	CO ₂		43		719	477	0.4%
1 A 2 c gaseous	Chemicals	CO ₂	2	12	2	23,891	2,964	2.4%
1 A 2 e gaseous	Food Processing, Beverages and Tobacco	CO ₂		36		-	761	0.6%
1 A 2 f liquid	Other	CO ₂	8	22	7	9,990	1,963	1.6%
1 A 2 f solid	Other	CO ₂	10	21	8	9,324	2,121	1.7%
1 A 2 f gaseous	Other	CO ₂	4	15	4	14,211	2,485	2.0%
1 A 3 a jet kerosene	Civil Aviation	CO ₂			33	26	282	0.2%
1 A 3 b gasoline	Road Transportation	CO ₂	18	6	12	5,258	4,002	3.2%
1 A 3 b diesel oil	Road Transportation	CO ₂		2		-	9,093	7.4%

1 A 3 c liquid	Railways	CO ₂		41	31	661	593	0.5%
1 A 3 d residual oil	Navigation	CO ₂	34			1,452	-	0.0%
1 A 4 a gaseous	Commercial/Institutional	CO ₂		23		-	1,757	1.4%
1 A 4 b liquid	Residential	CO ₂		40	35	782	614	0.5%
1 A 4 b solid	Residential	CO ₂	29		17	2,472	71	0.1%
1 A 4 b gaseous	Residential	CO ₂	20	4	6	5,027	5,421	4.4%
1 A 4 c liquid	Agriculture/Forestry/Fisheries	CO ₂	24	33	20	3,634	826	0.7%
1 A 4 c gaseous	Agriculture/Forestry/Fisheries	CO ₂	31		22	1,964	131	0.1%
1 A 5 a liquid	Stationary	CO ₂	35	42		1,360	542	0.4%
2 A 1	Cement Production	CO ₂	15	10	26	5,609	3,089	2.5%
2 A 2	Lime Production	CO ₂	26	24		3,222	1,260	1.0%
2 A 3	Limestone and Dolomite Use	CO ₂	33		34	1,483	399	0.3%
2 B 1	Ammonia Production	CO ₂	22	11	18	4,404	3,020	2.4%
2 C 1	Iron and Steel Production	CO ₂	9	14	11	9,500	2,632	2.1%
1 A 4 b biomass	Residential	CH ₄		32	21	164	830	0.7%
1 B 1 a	Coal Mining	CH ₄	16	29	13	5,485	879	0.7%
1 B 2 a	Oil	CH ₄	19	18		5,052	2,428	2.0%
1 B 2 b	Natural gas	CH ₄	11	8	27	8,606	3,427	2.8%
1 B 2 c Venting	Venting	CH ₄	28	27		2,615	1,166	0.9%
4 A 1	Cattle	CH ₄	7	9	15	10,012	3,178	2.6%
4 A 3	Sheep	CH ₄	13	7	25	6,561	3,557	2.9%
4 A 4	Goats	CH ₄		45	32	363	445	0.4%
4 A 6	Horses	CH ₄		44	36	515	464	0.4%
4 B 8	Swine	CH ₄	37			1,026	350	0.3%
6 A	SOLID WASTE DISPOSAL ON LAND	CH ₄	36	17	10	1,255	2,476	2.0%
6 B	WASTEWATER HANDLING	CH ₄	27	19	19	2,816	2,253	1.8%
2 B 2	Nitric Acid Production	N ₂ O	17	25	16	5,464	1,210	1.0%
4 B 13	Solid Storage and Dry Lot	N ₂ O	32	34		1,731	772	0.6%
4 D 1	Direct Soil Emissions	N ₂ O	6	5	23	10,260	5,349	4.3%
4 D 2	Pasture, Range and Paddock Manure	N ₂ O	30	31		2,078	831	0.7%
4 D 3	Indirect Emissions	N ₂ O	14	13		6,039	2,892	2.3%
6 B	WASTEWATER HANDLING	N ₂ O		39	29	599	627	0.5%
2 F 1	Refrigeration and Air Conditioning Equipment	HFC			37	0	206	0.2%
2 C 3	Aluminium production	PFC	25		14	3,350	11	0.0%

Table 8 Tier 1 - Key categories identified including their ranking in the level and trend assessment for the KCA including LULUCF

			Tier 1	Tier 1	Tier 1		
IPCC Category Code	IPCC Category	Greenhouse Gas	Level Assessment 1989	Level Assessment 2011	Trend Assessment 1989-2011	Base Year (1989) Estimate E_{x,0}	Latest Year (2011) Estimate Ex,t
1 A 1 a liquid	Public Electricity and Heat Production	CO ₂	6	31	4	12,159	1,114
1 A 1 a solid	Public Electricity and Heat Production	CO ₂	1	1	3	33,170	24,378
1 A 1 a gaseous	Public Electricity and Heat Production	CO ₂	3	4	6	22,054	6,443
1 A 1 b liquid	Petroleum refining	CO ₂	23	23		4,780	2,210
1 A 1 b gaseous	Petroleum refining	CO ₂		33		-	861
1 A 1 c liquid	Manufacture of Solid fuels and Other Energy Industries	CO ₂		39	34	953	762
1 A 1 c solid	Manufacture of Solid fuels and Other Energy Industries	CO ₂	41		28	1,002	5
1 A 1 c gaseous	Manufacture of Solid fuels and Other Energy Industries	CO ₂		42		-	696
1 A 2 a solid	Iron and Steel	CO ₂	26	19	29	4,101	2,483
1 A 2 a gaseous	Iron and Steel	CO ₂	13	29	11	7,157	1,191
1 A 2 c liquid	Chemicals	CO ₂		41		-	734
1 A 2 c solid	Chemicals	CO ₂		47		719	477
1 A 2 c gaseous	Chemicals	CO ₂	2	15	2	23,891	2,964
1 A 2 e gaseous	Food Processing, Beverages and Tobacco	CO ₂		40		-	761
1 A 2 f liquid	Other	CO ₂	9	25	7	9,990	1,963
1 A 2 f solid	Other	CO ₂	11	24	10	9,324	2,121
1 A 2 f gaseous	Other	CO ₂	5	18	5	14,211	2,485
1 A 3 a jet kerosene	Civil Aviation	CO ₂			37	26	282
1 A 3 b gasoline	Road Transportation	CO ₂	20	7	19	5,258	4,002
1 A 3 b diesel oil	Road Transportation	CO ₂		3		-	9,093
1 A 3 c liquid	Railways	CO ₂		45	39	661	593
1 A 3 d residual	Navigation	CO ₂	37			1,452	-

oil							
1 A 4 a gaseous	Commercial/Institutional	CO ₂		26		-	1,757
1 A 4 b liquid	Residential	CO ₂		44	40	782	614
1 A 4 b solid	Residential	CO ₂	32		20	2,472	71
1 A 4 b gaseous	Residential	CO ₂	22	5	9	5,027	5,421
1 A 4 c liquid	Agriculture/Forestry/Fisheries	CO ₂	27	37	21	3,634	826
1 A 4 c gaseous	Agriculture/Forestry/Fisheries	CO ₂	34		23	1,964	131
1 A 5 a liquid	Stationary	CO ₂	38	46		1,360	542
2 A 1	Cement Production	CO ₂	17	12	35	5,609	3,089
2 A 2	Lime Production	CO ₂	29	27	30	3,222	1,260
2 A 3	Limestone and Dolomite Use	CO ₂	36		31	1,483	399
2 B 1	Ammonia Production	CO ₂	24	14	26	4,404	3,020
2 C 1	Iron and Steel Production	CO ₂	10	17	12	9,500	2,632
5 A 1	Forest land remaining forest land	CO ₂	4	2	1	-18,860	-20,292
5 A 2	Land converted to forest land	CO ₂		13	8	-122	-3,061
5 B 1	Cropland remaining cropland	CO ₂	16	10	32	-5,784	-3,223
5 E 2	Land converted to Settlements	CO ₂	25		17	4,125	410
5 F 2	Land converted to Other land	CO ₂		34	25	-30	835
1 A 4 b biomass	Residential	CH ₄		36	27	164	830
1 B 1 a	Coal Mining	CH ₄	18	32	13	5,485	879
1 B 2 a	Oil	CH ₄	21	21		5,052	2,428
1 B 2 b	Natural gas	CH ₄	12	9	22	8,606	3,427
1 B 2 c Venting	Venting	CH ₄	31	30		2,615	1,166
4 A 1	Cattle	CH ₄	8	11	15	10,012	3,178
4 A 3	Sheep	CH ₄	14	8	36	6,561	3,557
4 A 4	Goats	CH ₄			38	363	445
4 A 6	Horses	CH ₄		48		515	464
4 B 8	Swine	CH ₄	40			1,026	350
6 A	SOLID WASTE DISPOSAL ON LAND	CH ₄	39	20	14	1,255	2,476
6 B	WASTEWATER HANDLING	CH ₄	30	22	24	2,816	2,253
2 B 2	Nitric Acid Production	N ₂ O	19	28	18	5,464	1,210
4 B 13	Solid Storage and Dry Lot	N ₂ O	35	38		1,731	772
4 D 1	Direct Soil Emissions	N ₂ O	7	6	41	10,260	5,349
4 D 2	Pasture, Range and Paddock Manure	N ₂ O	33	35		2,078	831
4 D 3	Indirect Emissions	N ₂ O	15	16		6,039	2,892
6 B	WASTEWATER HANDLING	N ₂ O		43	33	599	627
2 C 3	Aluminium production	PFC	28		16	3,350	11

Table 9 Tier 2 - Level Assessment of the key category analysis excluding LULUCF for the base year, 1989

IPCC Category Code	IPCC Category	Greenhouse Gas	Latest Year (1989) Estimate Ex,t	Level Assessment with Uncertainty LU_{x,t}	Cumulative Total of L_{x,t}
4 D 1	Direct Soil Emissions	N ₂ O	10,260	0.288	28.8%
4 D 3	Indirect Emissions	N ₂ O	6,039	0.169	45.7%
1 B 1 a	Coal Mining	CH ₄	5,485	0.102	56.0%
4 D 2	Pasture, Range and Paddock Manure	N ₂ O	2,078	0.058	61.8%
1 B 2 b	Natural gas	CH ₄	8,606	0.040	65.8%
4 B 13	Solid Storage and Dry Lot	N ₂ O	1,731	0.032	69.1%
1 B 2 a	Oil	CH ₄	5,052	0.024	71.4%
1 A 1 a solid	Public Electricity and Heat Production	CO ₂	33,170	0.022	73.7%
4 A 1	Cattle	CH ₄	10,012	0.021	75.8%
2 B 2	Nitric Acid Production	N ₂ O	5,464	0.021	77.8%
3	SOLVENT AND OTHER PRODUCT USE	CO ₂	646	0.018	79.6%
2 C 3	Aluminium production	PFC	3,350	0.016	81.3%
4 A 3	Sheep	CH ₄	6,561	0.014	82.6%
6 B	WASTEWATER HANDLING	CH ₄	2,816	0.014	84.0%
1 A 2 c gaseous	Chemicals	CO ₂	23,891	0.013	85.3%
1 A 1 a gaseous	Public Electricity and Heat Production	CO ₂	22,054	0.012	86.6%
1 B 2 c Venting	Venting	CH ₄	2,615	0.012	87.8%
2 C 1	Iron and Steel Production	CO ₂	9,500	0.010	88.8%
4 B 14	Other AWMS	N ₂ O	530	0.010	89.8%
1 A 2 f gaseous	Other	CO ₂	14,211	0.008	90.6%
1 A 1 a liquid	Public Electricity and Heat Production	CO ₂	12,159	0.007	91.3%
1 A 2 f solid	Other	CO ₂	9,324	0.006	91.9%
1 A 2 f liquid	Other	CO ₂	9,990	0.006	92.5%
6 A	SOLID WASTE DISPOSAL ON LAND	CH ₄	1,255	0.005	93.1%
2 B 1	Ammonia Production	CO ₂	4,404	0.005	93.5%
2 A 2	Lime Production	CO ₂	3,222	0.005	94.0%
1 B 2 a	Oil	CO ₂	865	0.004	94.4%
1 A 2 a gaseous	Iron and Steel	CO ₂	7,157	0.004	94.8%
1 A 3 b gasoline	Road Transportation	CO ₂	5,258	0.004	95.2%

Table 10 Tier 2 - Level Assessment of the key category analysis excluding LULUCF for the year 2011

IPCC Category Code	IPCC Category	Greenhouse Gas	Latest Year (2011) Estimate Ex,t	Level Assessment with Uncertainty LU_{x,t}	Cumulative Total of L_{x,t}
4 D 1	Direct Soil Emissions	N ₂ O	5,349	0.342	34.2%
4 D 3	Indirect Emissions	N ₂ O	2,892	0.185	52.6%
4 D 2	Pasture, Range and Paddock Manure	N ₂ O	831	0.053	58.0%
1 B 1 a	Coal Mining	CH ₄	879	0.037	61.7%
1 B 2 b	Natural gas	CH ₄	3,427	0.036	65.3%
4 B 13	Solid Storage and Dry Lot	N ₂ O	772	0.033	68.6%
1 A 1 a solid	Public Electricity and Heat Production	CO ₂	24,378	0.026	71.2%
1 B 2 a	Oil	CH ₄	2,428	0.026	73.8%
6 B	WASTEWATER HANDLING	CH ₄	2,253	0.025	76.3%
6 A	SOLID WASTE DISPOSAL ON LAND	CH ₄	2,476	0.022	78.5%
4 B 14	Other AWMS	N ₂ O	416	0.018	80.2%
4 A 3	Sheep	CH ₄	3,557	0.017	81.9%
4 A 1	Cattle	CH ₄	3,178	0.015	83.4%
2 F 1	Refrigeration and Air Conditioning Equipment	HFC	206	0.013	84.7%
2 F 9	Other	HFC	200	0.013	86.0%
1 B 2 c Venting	Venting	CH ₄	1,166	0.012	87.3%
2 B 2	Nitric Acid Production	N ₂ O	1,210	0.010	88.3%
1 A 3 b diesel oil	Road Transportation	CO ₂	9,093	0.010	89.3%
1 A 4 b biomass	Residential	CH ₄	830	0.009	90.1%
3	SOLVENT AND OTHER PRODUCT USE	CO ₂	126	0.008	90.9%
6 B	WASTEWATER HANDLING	N ₂ O	627	0.008	91.7%
2 B 1	Ammonia Production	CO ₂	3,020	0.007	92.4%
2 C 1	Iron and Steel Production	CO ₂	2,632	0.006	93.0%
1 A 3 b gasoline	Road Transportation	CO ₂	4,002	0.005	93.5%
1 B 2 a	Oil	CO ₂	412	0.004	93.9%
1 A 1 a gaseous	Public Electricity and Heat Production	CO ₂	6,443	0.004	94.4%
1 A 4 b gaseous	Residential	CO ₂	5,421	0.004	94.7%
1 A 2 a solid	Iron and Steel	CO ₂	2,483	0.003	95.0%
4 B 8	Swine	CH ₄	350	0.002	95.2%

Table 11 Tier 2 - Trend Assessment of the key category analysis excluding LULUCF for the trend 1989–2011 period

IPCC Category Code	IPCC Category	Greenhouse Gas	Base Year (1989) Estimate E_{x,0}	Latest Year (2011) Estimate E_{x,t}	Trend Assessment with Uncertainty TU_{x,t}	% Contribution to Trend	Cumulative Total of TU_{x,t}
1 B 1 a	Coal Mining	CH ₄	5,485	879	5.738	21.3%	21.3%
4 D 1	Direct Soil Emissions	N ₂ O	10,260	5,349	3.875	14.4%	35.7%
6 A	SOLID WASTE DISPOSAL ON LAND	CH ₄	1,255	2,476	1.414	5.2%	40.9%
2 C 3	Aluminium production	PFC	3,350	11	1.355	5.0%	46.0%
2 F 1	Refrigeration and Air Conditioning Equipment	HFC	0	206	1.112	4.1%	50.1%
2 F 9	Other	HFC	0	200	1.080	4.0%	54.1%
6 B	WASTEWATER HANDLING	CH ₄	2,816	2,253	0.916	3.4%	57.5%
2 B 2	Nitric Acid Production	N ₂ O	5,464	1,210	0.910	3.4%	60.9%
4 D 3	Indirect Emissions	N ₂ O	6,039	2,892	0.898	3.3%	64.2%
3	SOLVENT AND OTHER PRODUCT USE	CO ₂	646	126	0.896	3.3%	67.6%
1 A 1 a solid	Public Electricity and Heat Production	CO ₂	33,170	24,378	0.844	3.1%	70.7%
1 A 4 b biomass	Residential	CH ₄	164	830	0.680	2.5%	73.2%
4 B 14	Other AWMS	N ₂ O	530	416	0.634	2.4%	75.6%
4 D 2	Pasture, Range and Paddock Manure	N ₂ O	2,078	831	0.579	2.2%	77.7%
4 A 1	Cattle	CH ₄	10,012	3,178	0.539	2.0%	79.7%
1 A 2 c gaseous	Chemicals	CO ₂	23,891	2,964	0.427	1.6%	81.3%
1 B 2 b	Natural gas	CH ₄	8,606	3,427	0.412	1.5%	82.8%
6 B	WASTEWATER HANDLING	N ₂ O	599	627	0.374	1.4%	84.2%
2 C 1	Iron and Steel Production	CO ₂	9,500	2,632	0.299	1.1%	85.3%
1 A 1 a liquid	Public Electricity and Heat Production	CO ₂	12,159	1,114	0.244	0.9%	86.2%

4 A 3	Sheep	CH ₄	6,561	3,557	0.239	0.9%	87.1%
1 A 2 f gaseous	Other	CO ₂	14,211	2,485	0.215	0.8%	87.9%
2 B 1	Ammonia Production	CO ₂	4,404	3,020	0.207	0.8%	88.7%
1 A 1 a gaseous	Public Electricity and Heat Production	CO ₂	22,054	6,443	0.192	0.7%	89.4%
1 A 2 f solid	Other	CO ₂	9,324	2,121	0.188	0.7%	90.1%
1 A 4 b gaseous	Residential	CO ₂	5,027	5,421	0.172	0.6%	90.8%
1 A 3 b gasoline	Road Transportation	CO ₂	5,258	4,002	0.171	0.6%	91.4%
1 A 2 f liquid	Other	CO ₂	9,990	1,963	0.142	0.5%	91.9%
1 A 4 b biomass	Residential	N ₂ O	32	163	0.134	0.5%	92.4%
1 B 2 a	Oil	CH ₄	5,052	2,428	0.132	0.5%	92.9%
2 F 2	Foam Blowing	HFC	0	23	0.122	0.5%	93.4%
4 A 4	Goats	CH ₄	363	445	0.113	0.4%	93.8%
1 A 2 a gaseous	Iron and Steel	CO ₂	7,157	1,191	0.111	0.4%	94.2%
2 C 2	Ferroalloys Production	CO ₂	474	40	0.095	0.4%	94.5%
1 A 4 b solid	Residential	CO ₂	2,472	71	0.094	0.3%	94.9%
4 A 6	Horses	CH ₄	515	464	0.093	0.3%	95.2%

Table 12 Tier 2 - Level Assessment of the key category analysis including LULUCF for the base year, 1989

IPCC Category Code	IPCC Category	Greenhouse Gas	Latest Year (1989) Estimate E _{x,t}	Absolute Value of Year 1989 Estimate Ex,t	Level Assessment with Uncertainty LU _{x,t}	Cumulative Total of L _{x,t}
4 D 1	Direct Soil Emissions	N ₂ O	10,260	10,260	0.257	25.7%
4 D 3	Indirect Emissions	N ₂ O	6,039	6,039	0.151	40.8%
1 B 1 a	Coal Mining	CH ₄	5,485	5,485	0.091	50.0%
5 A 1	Forest land remaining forest land	CO ₂	-18,860	18,860	0.080	58.0%
4 D 2	Pasture, Range and Paddock Manure	N ₂ O	2,078	2,078	0.052	63.2%
1 B 2 b	Natural gas	CH ₄	8,606	8,606	0.036	66.8%
4 B 13	Solid Storage and Dry Lot	N ₂ O	1,731	1,731	0.029	69.6%
1 B 2 a	Oil	CH ₄	5,052	5,052	0.021	71.7%
1 A 1 a solid	Public Electricity and Heat Production	CO ₂	33,170	33,170	0.020	73.7%
4 A 1	Cattle	CH ₄	10,012	10,012	0.019	75.6%
2 B 2	Nitric Acid Production	N ₂ O	5,464	5,464	0.018	77.4%
3	SOLVENT AND OTHER PRODUCT USE	CO ₂	646	646	0.016	79.1%
2 C 3	Aluminium production	PFC	3,350	3,350	0.015	80.5%
5 B 1	Cropland remaining cropland	CO ₂	-5,784	5,784	0.014	82.0%
4 A 3	Sheep	CH ₄	6,561	6,561	0.012	83.2%
6 B	WASTEWATER HANDLING	CH ₄	2,816	2,816	0.012	84.4%
1 A 2 c gaseous	Chemicals	CO ₂	23,891	23,891	0.012	85.6%
1 A 1 a gaseous	Public Electricity and Heat Production	CO ₂	22,054	22,054	0.011	86.7%
1 B 2 c Venting	Venting	CH ₄	2,615	2,615	0.011	87.8%
5 E 2	Land converted to Settlements	CO ₂	4,125	4,125	0.010	88.8%
2 C 1	Iron and Steel Production	CO ₂	9,500	9,500	0.009	89.7%
4 B 14	Other AWMS	N ₂ O	530	530	0.009	90.6%
1 A 2 f gaseous	Other	CO ₂	14,211	14,211	0.007	91.3%
1 A 1 a liquid	Public Electricity and Heat Production	CO ₂	12,159	12,159	0.006	92.0%
1 A 2 f solid	Other	CO ₂	9,324	9,324	0.006	92.5%
1 A 2 f liquid	Other	CO ₂	9,990	9,990	0.005	93.0%

6 A	SOLID WASTE DISPOSAL ON LAND	CH ₄	1,255	1,255	0.005	93.5%
2 B 1	Ammonia Production	CO ₂	4,404	4,404	0.004	93.9%
2 A 2	Lime Production	CO ₂	3,222	3,222	0.004	94.3%
1 B 2 a	Oil	CO ₂	865	865	0.004	94.7%
1 A 2 a gaseous	Iron and Steel	CO ₂	7,157	7,157	0.004	95.0%

Table 13 Tier 2 - Level Assessment of the key category analysis including LULUCF for the year 2011

IPCC Category Code	IPCC Category	Greenhouse Gas	Latest Year (2011) Estimate Ex,t	Absolute Value of Year 2011 Estimate Ex,t	Level Assessment with Uncertainty LUX,t	Cumulative Total of L_{x,t}
4 D 1	Direct Soil Emissions	N ₂ O	5,349	5,349	0.266	26.6%
5 A 1	Forest land remaining forest land	CO ₂	-20,292	20,292	0.171	43.8%
4 D 3	Indirect Emissions	N ₂ O	2,892	2,892	0.144	58.1%
4 D 2	Pasture, Range and Paddock Manure	N ₂ O	831	831	0.041	62.3%
1 B 1 a	Coal Mining	CH ₄	879	879	0.029	65.2%
1 B 2 b	Natural gas	CH ₄	3,427	3,427	0.028	68.0%
5 A 2	Land converted to forest land	CO ₂	-3,061	3,061	0.026	70.6%
4 B 13	Solid Storage and Dry Lot	N ₂ O	772	772	0.026	73.2%
1 A 1 a solid	Public Electricity and Heat Production	CO ₂	24,378	24,378	0.020	75.2%
1 B 2 a	Oil	CH ₄	2,428	2,428	0.020	77.2%
6 B	WASTEWATER HANDLING	CH ₄	2,253	2,253	0.019	79.1%
6 A	SOLID WASTE DISPOSAL ON LAND	CH ₄	2,476	2,476	0.017	80.8%
5 B 1	Cropland remaining cropland	CO ₂	-3,223	3,223	0.016	82.4%
4 B 14	Other AWMS	N ₂ O	416	416	0.014	83.8%
4 A 3	Sheep	CH ₄	3,557	3,557	0.013	85.1%
4 A 1	Cattle	CH ₄	3,178	3,178	0.012	86.3%
2 F 1	Refrigeration and Air Conditioning Equipment	HFC	206	206	0.010	87.3%
2 F 9	Other	HFC	200	200	0.010	88.3%
1 B 2 c Venting	Venting	CH ₄	1,166	1,166	0.010	89.3%
2 B 2	Nitric Acid Production	N ₂ O	1,210	1,210	0.008	90.1%
1 A 3 b diesel oil	Road Transportation	CO ₂	9,093	9,093	0.008	90.9%
1 A 4 b biomass	Residential	CH ₄	830	830	0.007	91.5%
3	SOLVENT AND OTHER PRODUCT USE	CO ₂	126	126	0.006	92.2%
6 B	WASTEWATER HANDLING	N ₂ O	627	627	0.006	92.8%
2 B 1	Ammonia Production	CO ₂	3,020	3,020	0.006	93.3%
2 C 1	Iron and Steel Production	CO ₂	2,632	2,632	0.004	93.8%
5 F 2	Land converted to Other land	CO ₂	835	835	0.004	94.2%
1 A 3 b gasoline	Road Transportation	CO ₂	4,002	4,002	0.004	94.6%
1 B 2 a	Oil	CO ₂	412	412	0.003	94.9%
1 A 1 a gaseous	Public Electricity and Heat Production	CO ₂	6,443	6,443	0.003	95.2%

Table 14 Tier 2 - Trend Assessment of the key category analysis including LULUCF for the trend 1989–2011 period

IPCC Category Code	IPCC Category	Greenhouse Gas	Base Year (1989) Estimate $E_{x,0}$	Latest Year (2011) Estimate $E_{x,t}$	Trend Assessment with Uncertainty $TU_{x,t}$	% Contribution to Trend	Cumulative Total of $TU_{x,t}$
5 A 1	Forest land remaining forest land	CO ₂	18,860	20,292	7.322	24.2%	24.2%
1 B 1 a	Coal Mining	CH ₄	5,485	879	4.921	16.3%	40.5%
5 A 2	Land converted to forest land	CO ₂	122	3,061	2.021	6.7%	47.2%
2 C 3	Aluminium production	PFC	3,350	11	1.104	3.7%	50.8%
6 A	SOLID WASTE DISPOSAL ON LAND	CH ₄	1,255	2,476	1.007	3.3%	54.1%
4 D 1	Direct Soil Emissions	N ₂ O	10,260	5,349	0.883	2.9%	57.1%
4 D 2	Pasture, Range and Paddock Manure	N ₂ O	2,078	831	0.825	2.7%	59.8%
2 F 1	Refrigeration and Air Conditioning Equipment	HFC	0	206	0.818	2.7%	62.5%
2 B 2	Nitric Acid Production	N ₂ O	5,464	1,210	0.810	2.7%	65.2%
2 F 9	Other	HFC	0	200	0.794	2.6%	67.8%
3	SOLVENT AND OTHER PRODUCT USE	CO ₂	646	126	0.783	2.6%	70.4%
5 E 2	Land converted to Settlements	CO ₂	4,125	410	0.655	2.2%	72.5%
6 B	WASTEWATER HANDLING	CH ₄	2,816	2,253	0.581	1.9%	74.5%
1 B 2 b	Natural gas	CH ₄	8,606	3,427	0.578	1.9%	76.4%
4 A 1	Cattle	CH ₄	10,012	3,178	0.539	1.8%	78.2%
1 A 1 a solid	Public Electricity and Heat Production	CO ₂	33,170	24,378	0.516	1.7%	79.9%
4 D 3	Indirect Emissions	N ₂ O	6,039	2,892	0.497	1.6%	81.5%
1 A 4 b biomass	Residential	CH ₄	164	830	0.495	1.6%	83.1%
4 B 14	Other AWMS	N ₂ O	530	416	0.398	1.3%	84.5%
1 A 2 c gaseous	Chemicals	CO ₂	23,891	2,964	0.361	1.2%	85.7%
5 F 2	Land converted to Other land	CO ₂	30	835	0.325	1.1%	86.7%
2 C 1	Iron and Steel Production	CO ₂	9,500	2,632	0.281	0.9%	87.7%
6 B	WASTEWATER HANDLING	N ₂ O	599	627	0.253	0.8%	88.5%

4 B 13	Solid Storage and Dry Lot	N ₂ O	1,731	772	0.245	0.8%	89.3%
1 A 1 a liquid	Public Electricity and Heat Production	CO ₂	12,159	1,114	0.204	0.7%	90.0%
1 A 2 f gaseous	Other	CO ₂	14,211	2,485	0.186	0.6%	90.6%
1 A 1 a gaseous	Public Electricity and Heat Production	CO ₂	22,054	6,443	0.184	0.6%	91.2%
1 A 2 f solid	Other	CO ₂	9,324	2,121	0.168	0.6%	91.8%
5 B 1	Cropland remaining cropland	CO ₂	5,784	3,223	0.132	0.4%	92.2%
1 A 2 f liquid	Other	CO ₂	9,990	1,963	0.124	0.4%	92.6%
2 B 1	Ammonia Production	CO ₂	4,404	3,020	0.121	0.4%	93.0%
1 A 4 b gaseous	Residential	CO ₂	5,027	5,421	0.117	0.4%	93.4%
1 A 3 b gasoline	Road Transportation	CO ₂	5,258	4,002	0.106	0.4%	93.7%
1 A 4 b biomass	Residential	N ₂ O	32	163	0.097	0.3%	94.1%
1 A 2 a gaseous	Iron and Steel	CO ₂	7,157	1,191	0.096	0.3%	94.4%
1 B 2 c Venting	Venting	CH ₄	2,615	1,166	0.093	0.3%	94.7%
2 F 2	Foam Blowing	HFC	0	23	0.090	0.3%	95.0%
5 C 2	Land converted to grassland	CO ₂	654	118	0.083	0.3%	95.3%

Table 15 Tier 2 - Key categories identified including their ranking in the level and trend assessment for the KCA excluding LULUCF

			Tier 1	Tier 1	Tier 1	Tier 2	Tier 2	Tier 2			
IPCC Category Code	IPCC Category	Greenhouse Gas	Level Assessment 1989	Level Assessment 2011	Trend Assessment 1989-2011	Level Assessment 1989	Level Assessment 2011	Trend Assessment 1989-2011	Base Year (1989) Estimate $E_{x,0}$	Latest Year (2011) Estimate $E_{x,t}$	Share Latest Year (2011)
1 A 1 a liquid	Public Electricity and Heat Production	CO ₂	5	28	3	5		20	12,159	1,114	0.9%
1 A 1 a solid	Public Electricity and Heat Production	CO ₂	1	1	1	1	1	11	33,170	24,378	19.8%
1 A 1 a gaseous	Public Electricity and Heat Production	CO ₂	3	3	5	3	3	24	22,054	6,443	5.2%
1 A 1 b liquid	Petroleum refining	CO ₂	21	20					4,780	2,210	1.8%
1 A 1 b gaseous	Petroleum refining	CO ₂		30					-	861	0.7%
1 A 1 c liquid	Manufacture of Solid fuels and Other Energy Industries	CO ₂		35	30				953	762	0.6%
1 A 1 c solid	Manufacture of Solid fuels and Other Energy Industries	CO ₂	38		28				1,002	5	0.0%
1 A 1 c gaseous	Manufacture of Solid fuels and Other Energy Industries	CO ₂		38					-	696	0.6%
1 A 2 a solid	Iron and Steel	CO ₂	23	16	24		13		4,101	2,483	2.0%
1 A 2 a gaseous	Iron and Steel	CO ₂	12	26	9	12		33	7,157	1,191	1.0%
1 A 2 c liquid	Chemicals	CO ₂		37					-	734	0.6%
1 A 2 c solid	Chemicals	CO ₂		43					719	477	0.4%

1 A 2 c gaseous	Chemicals	CO ₂	2	12	2	2		16	23,891	2,964	2.4%
1 A 2 e gaseous	Food Processing, Beverages and Tobacco	CO ₂		36					-	761	0.6%
1 A 2 f liquid	Other	CO ₂	8	22	7	8		28	9,990	1,963	1.6%
1 A 2 f solid	Other	CO ₂	10	21	8	10		25	9,324	2,121	1.7%
1 A 2 f gaseous	Other	CO ₂	4	15	4	4		22	14,211	2,485	2.0%
1 A 3 a jet kerosene	Civil Aviation	CO ₂			33				26	282	0.2%
1 A 3 b gasoline	Road Transportation	CO ₂	18	6	12	17	6	27	5,258	4,002	3.2%
1 A 3 b diesel oil	Road Transportation	CO ₂		2			2		-	9,093	7.4%
1 A 3 c liquid	Railways	CO ₂		41	31				661	593	0.5%
1 A 3 d residual oil	Navigation	CO ₂	34						1,452	-	0.0%
1 A 4 a gaseous	Commercial/I nstitutional	CO ₂		23					-	1,757	1.4%
1 A 4 b liquid	Residential	CO ₂		40	35				782	614	0.5%
1 A 4 b solid	Residential	CO ₂	29		17			35	2,472	71	0.1%
1 A 4 b gaseous	Residential	CO ₂	20	4	6		4	26	5,027	5,421	4.4%
1 A 4 c liquid	Agriculture/F orestry/Fisheries	CO ₂	24	33	20				3,634	826	0.7%
1 A 4 c gaseous	Agriculture/F orestry/Fisheries	CO ₂	31		22				1,964	131	0.1%
1 A 5 a liquid	Stationary	CO ₂	35	42					1,360	542	0.4%
1 B 2 a	Oil	CO ₂				27	25		865	412	0.3%
2 A 1	Cement Production	CO ₂	15	10	26				5,609	3,089	2.5%
2 A 2	Lime Production	CO ₂	26	24		21			3,222	1,260	1.0%
2 A 3	Limestone and Dolomite Use	CO ₂	33		34				1,483	399	0.3%
2 B 1	Ammonia Production	CO ₂	22	11	18	19	10	23	4,404	3,020	2.4%
2 C 1	Iron and Steel Production	CO ₂	9	14	11	9	12	19	9,500	2,632	2.1%

2 C 2	Ferroalloys Production	CO ₂						34	474	40	0.0%
3	SOLVENT AND OTHER PRODUCT USE	CO ₂				28	29	10	646	126	0.1%
1 A 4 b biomass	Residential	CH ₄		32	21		21	12	164	830	0.7%
1 B 1 a	Coal Mining	CH ₄	16	29	13	15	19	1	5,485	879	0.7%
1 B 2 a	Oil	CH ₄	19	18		18	15	30	5,052	2,428	2.0%
1 B 2 b	Natural gas	CH ₄	11	8	27	11	8	17	8,606	3,427	2.8%
1 B 2 c Venting	Venting	CH ₄	28	27		23	18		2,615	1,166	0.9%
4 A 1	Cattle	CH ₄	7	9	15	7	9	15	10,012	3,178	2.6%
4 A 3	Sheep	CH ₄	13	7	25	13	7	21	6,561	3,557	2.9%
4 A 4	Goats	CH ₄		45	32			32	363	445	0.4%
4 A 6	Horses	CH ₄		44	36			36	515	464	0.4%
4 B 8	Swine	CH ₄	37				26		1,026	350	0.3%
6 A	SOLID WASTE DISPOSAL ON LAND	CH ₄	36	17	10	26	14	3	1,255	2,476	2.0%
6 B	WASTEWATER HANDLING	CH ₄	27	19	19	22	16	7	2,816	2,253	1.8%
1 A 4 b biomass	Residential	N ₂ O						29	32	163	0.1%
2 B 2	Nitric Acid Production	N ₂ O	17	25	16	16	17	8	5,464	1,210	1.0%
4 B 13	Solid Storage and Dry Lot	N ₂ O	32	34		25	22		1,731	772	0.6%
4 B 14	Other AWMS	N ₂ O				29	24	13	530	416	0.3%
4 D 1	Direct Soil Emissions	N ₂ O	6	5	23	6	5	2	10,260	5,349	4.3%
4 D 2	Pasture, Range and Paddock Manure	N ₂ O	30	31		24	20	14	2,078	831	0.7%
4 D 3	Indirect Emissions	N ₂ O	14	13		14	11	9	6,039	2,892	2.3%
6 B	WASTEWATER HANDLING	N ₂ O		39	29		23	18	599	627	0.5%

2 F 1	Refrigeration and Air Conditioning Equipment	HFC			37		27	5	0	206	0.2%
2 F 2	Foam Blowing	HFC						31	0	23	0.0%
2 F 9	Other	HFC					28	6	0	200	0.2%
2 C 3	Aluminium production	PFC	25		14	20		4	3,350	11	0.0%

Table 16 Tier 2 - Key categories identified including their ranking in the level and trend assessment for the KCA including LULUCF

			Tier 1	Tier 1	Tier 1	Tier 2	Tier 2	Tier 2		
IPCC Category Code	IPCC Category	Greenhouse Gas	Level Assessment 1989	Level Assessment 2011	Trend Assessment 1989-2011	Level Assessment 1989	Level Assessment 2011	Trend Assessment 1989-2011	Base Year (1989) Estimate E _{x,0}	Latest Year (2011) Estimate E _{x,t}
1 A 1 a liquid	Public Electricity and Heat Production	CO ₂	6	31	4	6		25	12,159	1,114
1 A 1 a solid	Public Electricity and Heat Production	CO ₂	1	1	3	1	1	16	33,170	24,378
1 A 1 a gaseous	Public Electricity and Heat Production	CO ₂	3	4	6	3	4	27	22,054	6,443
1 A 1 b liquid	Petroleum refining	CO ₂	23	23					4,780	2,210
1 A 1 b gaseous	Petroleum refining	CO ₂		33					-	861
1 A 1 c liquid	Manufacture of Solid fuels and Other Energy Industries	CO ₂		39	34				953	762
1 A 1 c solid	Manufacture of Solid fuels and Other Energy Industries	CO ₂	41		28				1,002	5
1 A 1 c gaseous	Manufacture of Solid fuels and Other Energy Industries	CO ₂		42					-	696
1 A 2 a solid	Iron and Steel	CO ₂	26	19	29				4,101	2,483
1 A 2 a gaseous	Iron and Steel	CO ₂	13	29	11	13		35	7,157	1,191
1 A 2 c liquid	Chemicals	CO ₂		41					-	734
1 A 2 c	Chemicals	CO ₂		47					719	477

solid										
1 A 2 c gaseous	Chemicals	CO ₂	2	15	2	2		20	23,891	2,964
1 A 2 e gaseous	Food Processing, Beverages and Tobacco	CO ₂		40					-	761
1 A 2 f liquid	Other	CO ₂	9	25	7	9		30	9,990	1,963
1 A 2 f solid	Other	CO ₂	11	24	10	11		28	9,324	2,121
1 A 2 f gaseous	Other	CO ₂	5	18	5	5		26	14,211	2,485
1 A 3 a jet kerosene	Civil Aviation	CO ₂			37				26	282
1 A 3 b gasoline	Road Transportation	CO ₂	20	7	19		6	33	5,258	4,002
1 A 3 b diesel oil	Road Transportation	CO ₂		3			3		-	9,093
1 A 3 c liquid	Railways	CO ₂		45	39				661	593
1 A 3 d residual oil	Navigation	CO ₂	37						1,452	-
1 A 4 a gaseous	Commercial/Institutional	CO ₂		26					-	1,757
1 A 4 b liquid	Residential	CO ₂		44	40				782	614
1 A 4 b solid	Residential	CO ₂	32		20				2,472	71
1 A 4 b gaseous	Residential	CO ₂	22	5	9			32	5,027	5,421
1 A 4 c liquid	Agriculture/Forestry/ Fisheries	CO ₂	27	37	21				3,634	826
1 A 4 c gaseous	Agriculture/Forestry/ Fisheries	CO ₂	34		23				1,964	131
1 A 5 a liquid	Stationary	CO ₂	38	46					1,360	542
1 B 2 a	Oil	CO ₂				29	27		865	412
2 A 1	Cement Production	CO ₂	17	12	35				5,609	3,089

2 A 2	Lime Production	CO ₂	29	27	30	23			3,222	1,260
2 A 3	Limestone and Dolomite Use	CO ₂	36		31				1,483	399
2 B 1	Ammonia Production	CO ₂	24	14	26	20	12	31	4,404	3,020
2 C 1	Iron and Steel Production	CO ₂	10	17	12	10	14	22	9,500	2,632
3	SOLVENT AND OTHER PRODUCT USE	CO ₂				30	30	11	646	126
5 A 1	Forest land remaining forest land	CO ₂	4	2	1	4	2	1	-18,860	-20,292
5 A 2	Land converted to forest land	CO ₂		13	8		11	3	-122	-3,061
5 B 1	Cropland remaining cropland	CO ₂	16	10	32	16	9	29	-5,784	-3,223
5 C 2	Land converted to grassland	CO ₂						38	-654	118
5 E 2	Land converted to Settlements	CO ₂	25		17	21		12	4,125	410
5 F 2	Land converted to Other land	CO ₂		34	25		21	21	-30	835
1 A 4 b biomass	Residential	CH ₄		36	27		23	18	164	830
1 B 1 a	Coal Mining	CH ₄	18	32	13	17	20	2	5,485	879
1 B 2 a	Oil	CH ₄	21	21		19	16		5,052	2,428
1 B 2 b	Natural gas	CH ₄	12	9	22	12	8	14	8,606	3,427
1 B 2 c Venting	Venting	CH ₄	31	30		25	19	36	2,615	1,166
4 A 1	Cattle	CH ₄	8	11	15	8	10	15	10,012	3,178
4 A 3	Sheep	CH ₄	14	8	36	14	7		6,561	3,557
4 A 4	Goats	CH ₄			38				363	445
4 A 6	Horses	CH ₄		48					515	464
4 B 8	Swine	CH ₄	40						1,026	350
6 A	SOLID WASTE DISPOSAL ON LAND	CH ₄	39	20	14	28	15	5	1,255	2,476
6 B	WASTEWATER HANDLING	CH ₄	30	22	24	24	17	13	2,816	2,253

1 A 4 b biomass	Residential	N ₂ O						34	32	163
2 B 2	Nitric Acid Production	N ₂ O	19	28	18	18	18	9	5,464	1,210
4 B 13	Solid Storage and Dry Lot	N ₂ O	35	38		27	24	24	1,731	772
4 B 14	Other AWMS	N ₂ O				31	26	19	530	416
4 D 1	Direct Soil Emissions	N ₂ O	7	6	41	7	5	6	10,260	5,349
4 D 2	Pasture, Range and Paddock Manure	N ₂ O	33	35		26	22	7	2,078	831
4 D 3	Indirect Emissions	N ₂ O	15	16		15	13	17	6,039	2,892
6 B	WASTEWATER HANDLING	N ₂ O		43	33		25	23	599	627
2 F 1	Refrigeration and Air Conditioning Equipment	HFC					28	8	0	206
2 F 2	Foam Blowing	HFC						37	0	23
2 F 9	Other	HFC					29	10	0	200
2 C 3	Aluminium production	PFC	28		16	22		4	3,350	11

Table 17 Source/sink categories and emissions/removals for key category analysis

IPCC Category Code	Fuel / Cat.	IPCC Category	Gas	Unit	1989	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
1 A 1 a liquid	Liquid Fuels	Public Electricity and Heat Production	CO ₂	Gg	12159	19932	9580	5629	7852	5438	4968	2998	2519	1936	1051	823	1276	1005	1114
1 A 1 a solid	Solid Fuels	Public Electricity and Heat Production	CO ₂	Gg	33170	25086	29018	20873	20695	20754	24954	23161	22169	26228	27437	26974	23090	20561	24378
1 A 1 a gaseous	Gaseous Fuels	Public Electricity and Heat Production	CO ₂	Gg	22054	20789	14197	9505	8142	8312	10308	9575	8919	9275	8967	8077	6372	6162	6443
1 A 1 a other	Other Fuels	Public Electricity and Heat Production	CO ₂	Gg	NO	NO	32	3	20	25	8	5	6	NO	NO	2	NO	NO	4
1 A 1 b liquid	Liquid Fuels	Petroleum refining	CO ₂	Gg	4780	4473	2790	2906	2547	2114	2486	2673	3365	3386	2770	3051	2481	2720	2210
1 A 1 b gaseous	Gaseous Fuels	Petroleum refining	CO ₂	Gg	NO	NO	647	1158	591	1739	1018	915	694	755	1151	1058	909	911	861
1 A 1 c liquid	Liquid Fuels	Manufacture of Solid fuels and Other Energy Industries	CO ₂	Gg	953	699	1436	790	817	1588	1211	1796	1652	1015	1212	1330	705	825	762
1 A 1 c solid	Solid Fuels	Manufacture of Solid fuels and Other Energy Industries	CO ₂	Gg	1002	NO	307	80	272	343	1192	576	329	294	267	252	86	6	5
1 A 1 c gaseous	Gaseous Fuels	Manufacture of Solid fuels and Other Energy Industries	CO ₂	Gg	NO	NO	1896	1677	1818	1777	1621	1367	1551	1015	457	589	609	849	696
1 A 2 a liquid	Liquid Fuels	Iron and Steel	CO ₂	Gg	NO	NO	542	440	333	219	85	199	664	781	90	42	123	6	10
1 A 2 a solid	Solid Fuels	Iron and Steel	CO ₂	Gg	4101	2113	2128	891	271	329	607	1207	1792	1968	1591	1348	927	1320	2483
1 A 2 a gaseous	Gaseous Fuels	Iron and Steel	CO ₂	Gg	7157	6661	3042	1991	1801	1578	1553	1690	1499	1460	1612	1523	987	1100	1191
1 A 2 a other	Other Fuels	Iron and Steel	CO ₂	Gg	NO	NO	31	25	26	25	8	29	23	19	16	60	8	9	11

1 A 2 b liquid	Liquid Fuels	Non-ferrous Metals	CO ₂	Gg	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	3	IE	IE	IE	IE
1 A 2 b solid	Solid Fuels	Non-ferrous Metals	CO ₂	Gg	189	75	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
1 A 2 c liquid	Liquid Fuels	Chemicals	CO ₂	Gg	NO	NO	1559	669	1267	1205	715	467	303	305	932	726	760	667	734
1 A 2 c solid	Solid Fuels	Chemicals	CO ₂	Gg	719	594	62	558	645	607	645	560	582	519	434	486	513	485	477
1 A 2 c gaseous	Gaseous Fuels	Chemicals	CO ₂	Gg	23891	18499	6934	2995	3452	3923	4989	3614	3561	2993	2637	3605	2677	2658	2964
1 A 2 c other	Other Fuels	Chemicals	CO ₂	Gg	NO	NO	486	67	169	242	177	198	173	132	104	92	48	64	62
1 A 2 d liquid	Liquid Fuels	Pulp, Paper and Print	CO ₂	Gg	NO	NO	190	92	104	71	80	71	31	28	74	3	NO	15	NO
1 A 2 d solid	Solid Fuels	Pulp, Paper and Print	CO ₂	Gg	1	NO	2	1	2	NO	2	NO	NO	NO	NO	NO	NO	NO	NO
1 A 2 d gaseous	Gaseous Fuels	Pulp, Paper and Print	CO ₂	Gg	NO	NO	369	284	257	290	327	208	255	205	212	145	107	247	62
1 A 2 d other	Other Fuels	Pulp, Paper and Print	CO ₂	Gg	NO	NO	14	8	NO	2	NO	NO	NO	NO	NO	NO	NO	NO	NO
1 A 2 e liquid	Liquid Fuels	Food Processing, Beverages and Tobacco	CO ₂	Gg	NO	NO	717	444	457	550	299	309	215	296	556	475	148	141	126
1 A 2 e solid	Solid Fuels	Food Processing, Beverages and Tobacco	CO ₂	Gg	259	118	94	14	7	13	10	15	7	5	5	NO	NO	5	3
1 A 2 e gaseous	Gaseous Fuels	Food Processing, Beverages and Tobacco	CO ₂	Gg	NO	NO	2129	667	1039	648	742	800	1368	638	782	779	688	724	761
1 A 2 e other	Other Fuels	Food Processing, Beverages and Tobacco	CO ₂	Gg	NO	NO	13	9	8	0	NO	NO	NO	NO	NO	NO	3	34	18
1 A 2 f liquid	Liquid Fuels	Other	CO ₂	Gg	9990	6861	3846	3625	3970	3893	2954	3522	2734	2998	2745	2423	1606	1347	1963

1 A 2 f solid	Solid Fuels	Other	CO ₂	Gg	9324	6985	361	784	1057	1464	1572	2277	1929	2000	2483	2703	1834	1818	2121
1 A 2 f gaseous	Gaseous Fuels	Other	CO ₂	Gg	14211	13635	7313	5029	4720	5092	3968	3885	3152	3425	2985	3326	2239	2343	2485
1 A 2 f other	Other Fuels	Other	CO ₂	Gg	NO	NO	308	59	59	45	25	17	16	9	98	118	108	147	192
1 A 3 a aviation gasoline	Aviation Gasoline	Civil Aviation	CO ₂	Gg	0	0	6	19	9	6	6	9	31	6	68	154	12	15	15
1 A 3 a jet kerosene	Jet Kerosene	Civil Aviation	CO ₂	Gg	26	25	25	8	8	8	14	274	327	388	234	234	237	314	282
1 A 3 b gasoline	Gasoline	Road Transportation	CO ₂	Gg	5258	6414	3112	3797	4863	4743	4823	4995	4893	4505	4532	4442	4455	4198	4002
1 A 3 b diesel oil	Diesel Oil	Road Transportation	CO ₂	Gg	NO	3573	3698	4227	5480	5837	6607	6675	6658	7593	7518	9075	9281	8886	9093
1 A 3 b LPG	Liquefied Petroleum Gases (LPG)	Road Transportation	CO ₂	Gg	NO	NO	NO	NO	NO	11	26	299	151	50	100	136	202	53	222
1 A 3 b gaseous	Gaseous Fuels	Road Transportation	CO ₂	Gg	NO	NO	NO	NO	155	51	NO	NO	NO	NO	NO	NO	NO	NO	NO
1 A 3 c liquid	Liquid Fuels	Railways	CO ₂	Gg	661	710	860	876	433	585	524	601	210	216	554	520	386	440	593
1 A 3 c solid	Solid Fuels	Railways	CO ₂	Gg	NO	32	4	NO	2	NO	1	2	NO	NO	NO	NO	NO	NO	NO
1 A 3 d residual oil	Residual Oil (Residual Fuel Oil)	Navigation	CO ₂	Gg	1452	996	164	186	277	228	174	67	3	3	NO	NO	NO	NO	NO
1 A 3 d gas/diesel oil	Gas/Diesel Oil	Navigation	CO ₂	Gg	115	123	154	157	36	92	40	62	123	120	252	214	165	178	156
1 A 3 d gasoline	Gasoline	Navigation	CO ₂	Gg	1	1	0	1	2	2	2	1	0	0	1	2	1	4	1
1 A 3 e liquid	Liquid Fuels	Other	CO ₂	Gg	9	11	3	3	10	7	7	21	36	68	81	160	16	14	13

1 A 3 e gaseous	Gaseous Fuels	Other	CO ₂	Gg	NO	NO	6	68	60	82	57	63	85	80	98	129	138	27	24
1 A 4 a liquid	Liquid Fuels	Commercial/Institutional	CO ₂	Gg	NO	NO	16	271	341	626	503	600	694	427	622	250	186	211	319
1 A 4 a solid	Solid Fuels	Commercial/Institutional	CO ₂	Gg	NO	NO	NO	15	31	18	12	5	2	12	6	2	1	2	3
1 A 4 a gaseous	Gaseous Fuels	Commercial/Institutional	CO ₂	Gg	NO	NO	781	543	1198	212	1069	1561	1809	3693	2476	1882	2151	2171	1757
1 A 4 a other	Other Fuels	Commercial/Institutional	CO ₂	Gg	NO	NO	NO	NO	NO	NO	1	1	NO	NO	NO	NO	NO	NO	NO
1 A 4 b liquid	Liquid Fuels	Residential	CO ₂	Gg	782	912	835	1217	981	881	1213	1190	1840	1290	1665	833	839	620	614
1 A 4 b solid	Solid Fuels	Residential	CO ₂	Gg	2472	2706	235	170	30	97	66	152	56	42	44	185	53	37	71
1 A 4 b gaseous	Gaseous Fuels	Residential	CO ₂	Gg	5027	5225	4142	5129	4616	5442	5926	5885	5323	5895	4737	5099	4971	5119	5421
1 A 4 c liquid	Liquid Fuels	Agriculture/Forestry/Fisheries	CO ₂	Gg	3634	3483	1582	798	535	473	391	404	354	488	395	476	704	682	826
1 A 4 c solid	Solid Fuels	Agriculture/Forestry/Fisheries	CO ₂	Gg	90	67	8	1	1	12	19	8	16	27	22	37	39	35	35
1 A 4 c gaseous	Gaseous Fuels	Agriculture/Forestry/Fisheries	CO ₂	Gg	1964	1919	262	49	35	76	52	80	84	69	58	111	145	171	131
1 A 4 c other	Other Fuels	Agriculture/Forestry/Fisheries	CO ₂	Gg	NO	NO	4	0	0	NO	0	0	0	0	NO	NO	NO	NO	NO
1 A 5 a liquid	Liquid Fuels	Stationary	CO ₂	Gg	1360	1312	429	172	326	247	360	596	1193	564	939	817	271	271	542
1 A 5 a solid	Solid Fuels	Stationary	CO ₂	Gg	815	1191	30	NO	NO	2	NO	69	39	NO	NO	NO	NO	NO	NO
1 A 5 a other	Other Fuels	Stationary	CO ₂	Gg	NO	NO	93	66	57	20	18	17	4	6	NO	NO	NO	NO	NO

1 B 2 a	Oil	Oil	CO ₂	Gg	865	769	683	617	611	787	766	562	579	590	491	463	436	416	412
1 B 2 b	Natural Gas	Natural gas	CO ₂	Gg	4	3	2	1	1	1	1	1	1	1	1	1	1	1	1
1 B 2 c Venting	Venting	Venting	CO ₂	Gg	26	22	19	17	17	22	21	16	16	16	14	13	12	12	12
1 B 2 c Flaring	Flaring	flaring	CO ₂	Gg	499	416	362	325	321	410	399	296	303	310	260	245	232	222	220
1 B 2 d	Other	Other	CO ₂	Gg	5	3	2	2	2	2	2	2	2	2	2	2	1	1	1
2 A 1	Cement Production	Cement Production	CO ₂	Gg	5609	4445	3146	2656	2768	2642	2650	2992	3175	3656	4054	4143	3093	2778	3089
2 A 2	Lime Production	Lime Production	CO ₂	Gg	3222	2389	1391	1347	1621	1578	1581	1686	1483	1645	1941	1759	1186	1275	1260
2 A 3	Limestone and Dolomite Use	Limestone and Dolomite Use	CO ₂	Gg	1483	1061	861	636	739	848	716	862	799	817	834	565	306	427	399
2 A 4	Soda Ash Production and Use	Soda Ash Production and use	CO ₂	Gg	136	99	79	63	72	82	71	72	63	87	80	81	70	70	74
2 A 7	Glass	Other	CO ₂	Gg	219	179	118	75	78	78	154	88	77	73	69	74	56	59	59
2 B 1	Ammonia Production	Ammonia Production	CO ₂	Gg	4404	3438	3187	2163	2113	1998	2519	2442	2667	2305	2121	2381	1671	2543	3020
2 B 4	Carbide Production	Carbide Production	CO ₂	Gg	333	239	167	102	98	98	83	117	63	37	NO	IE,NO	IE,NO	IE,NO	IE,NO
2 C 1	Iron and Steel Production	Iron and Steel Production	CO ₂	Gg	9500	6154	6738	4644	4190	5713	4936	5154	5702	7062	7383	5022	3287	3003	2632
2 C 2	Ferroalloys Production	Ferroalloys Production	CO ₂	Gg	474	331	238	142	146	144	242	331	201	96	46	22	20	49	40
2 C 3	Aluminium Production	Aluminium production	CO ₂	Gg	398	252	211	260	270	280	335	362	373	397	402	400	299	315	336

3	Solvent and Other Product Use	SOLVENT AND OTHER PRODUCT USE	CO ₂	Gg	646	541	229	224	201	222	280	277	270	208	138	135	122	125	126
5 A 1	Forest Land remaining Forest Land	Forest land remaining forest land	CO ₂	Gg	-18860	-21956	-25210	-24522	-25568	-22626	-22264	-21457	-23182	-23281	-22038	-22388	-22756	-22257	-20292
5 A 2	Land converted to Forest Land	Land converted to forest land	CO ₂	Gg	-122	-153	-316	-630	-694	-712	-781	-849	-976	-1500	-2108	-2191	-2302	-2498	-3061
5 B 1	Cropland remaining Cropland	Cropland remaining cropland	CO ₂	Gg	-5784	-4895	-1590	-5085	-5235	-722	5172	-1528	-4056	-3307	-1505	-3547	-4376	-2336	-3223
5 B 2	Land converted to Cropland	Land converted to cropland	CO ₂	Gg	-17	-17	-18	23	0	-20	41	23	-6	49	-2	0	43	18	20
5 C 1	Grassland remaining Grassland	Grassland remaining Grassland	CO ₂	Gg	45	30	11	30	34	27	35	39	40	40	36	23	34	26	15
5 C 2	Land converted to Grassland	Land converted to grassland	CO ₂	Gg	-654	-673	-708	-645	1671	296	-579	-581	-581	-581	-584	1229	112	130	118
5 D 2	Land converted to Wetlands	Land converted to Wetlands	CO ₂	Gg	-215	-216	-196	36	127	-238	-278	-320	-336	-336	-344	-286	-45	-126	-130
5 E 2	Land converted to Settlements	Land converted to Settlements	CO ₂	Gg	4125	415	445	453	441	480	528	578	629	637	673	680	384	419	410
5 F 2	Land converted to Other Land	Land converted to Other land	CO ₂	Gg	-30	111	390	1120	205	1145	1727	1152	403	413	649	2165	648	789	835
6 C	Waste Incineration	WASTE INCINERATION	CO ₂	Gg	NE,NO	NE,NO	27	66	75	78	86	107	179	364	11	9	8	11	11
1 A 1 a liquid	Liquid Fuels	Public Electricity and Heat Production	CH ₄	Gg CO ₂ e	10	16	8	5	6	4	4	2	2	2	1	1	1	1	1
1 A 1 a solid	Solid Fuels	Public Electricity and Heat Production	CH ₄	Gg CO ₂ e	7	6	7	5	5	5	6	5	5	6	6	6	5	5	6
1 A 1 a gaseous	Gaseous Fuels	Public Electricity and Heat Production	CH ₄	Gg CO ₂ e	8	8	5	4	3	3	4	4	3	4	3	3	2	2	2
1 A 1 a biomass	Biomass	Public Electricity and Heat Production	CH ₄	Gg CO ₂ e	NO	NO	0	0	0	0	0	0	0	0	1	0	0	1	1

1 A 1 a other	Other Fuels	Public Electricity and Heat Production	CH ₄	Gg CO ₂ e	NO	NO	0	0	0	0	0	0	0	NO	NO	0	NO	NO	0
1 A 1 b liquid	Liquid Fuels	Petroleum refining	CH ₄	Gg CO ₂ e	2	2	2	2	1	1	1	1	2	2	2	2	1	2	1
1 A 1 b gaseous	Gaseous Fuels	Petroleum refining	CH ₄	Gg CO ₂ e	NO	NO	0	0	0	1	0	0	0	0	0	0	0	0	0
1 A 1 c liquid	Liquid Fuels	Manufacture of Solid fuels and Other Energy Industries	CH ₄	Gg CO ₂ e	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1
1 A 1 c solid	Solid Fuels	Manufacture of Solid fuels and Other Energy Industries	CH ₄	Gg CO ₂ e	0	NO	0	0	0	0	0	0	0	0	0	0	0	0	0
1 A 1 c gaseous	Gaseous Fuels	Manufacture of Solid fuels and Other Energy Industries	CH ₄	Gg CO ₂ e	NO	NO	1	1	1	1	1	1	1	0	0	0	0	0	0
1 A 1 c biomass	Biomass	Manufacture of Solid fuels and Other Energy Industries	CH ₄	Gg CO ₂ e	NO	NO	NO	0	0	0	0	0	0	0	0	NO	0	0	NO
1 A 2 a liquid	Liquid Fuels	Iron and Steel	CH ₄	Gg CO ₂ e	NO	NO	0	0	0	0	0	0	0	0	0	0	0	0	0
1 A 2 a solid	Solid Fuels	Iron and Steel	CH ₄	Gg CO ₂ e	9	5	5	2	1	1	1	3	4	4	4	3	2	3	6
1 A 2 a gaseous	Gaseous Fuels	Iron and Steel	CH ₄	Gg CO ₂ e	14	13	6	4	3	3	3	3	3	3	3	3	2	2	2
1 A 2 a biomass	Biomass	Iron and Steel	CH ₄	Gg CO ₂ e	NO	NO	0	0	0	0	0	NO	NO	0	0	NO	NO	NO	0
1 A 2 a other	Other Fuels	Iron and Steel	CH ₄	Gg CO ₂ e	NO	NO	0	0	0	0	0	0	0	0	0	0	0	0	0
1 A 2 b liquid	Liquid Fuels	Non-ferrous Metals	CH ₄	Gg CO ₂ e	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	0	IE	IE	IE,	IE
1 A 2 b solid	Solid Fuels	Non-ferrous Metals	CH ₄	Gg CO ₂ e	0	0	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
1 A 2 c liquid	Liquid Fuels	Chemicals	CH ₄	Gg CO ₂ e	NO	NO	2	1	1	2	1	1	0	0	1	1	1	1	1

1 A 2 c solid	Solid Fuels	Chemicals	CH ₄	Gg CO ₂ e	2	1	0	1	1	1	1	1	1	1	1	1	1	1	1
1 A 2 c gaseous	Gaseous Fuels	Chemicals	CH ₄	Gg CO ₂ e	45	35	13	6	7	7	9	7	7	6	5	7	5	5	6
1 A 2 c biomass	Biomass	Chemicals	CH ₄	Gg CO ₂ e	NO	NO	0	0	0	0	0	0	0	NO	0	0	0	1	1
1 A 2 c other	Other Fuels	Chemicals	CH ₄	Gg CO ₂ e	NO	NO	4	1	1	2	1	1	1	1	1	1	0	0	0
1 A 2 d liquid	Liquid Fuels	Pulp, Paper and Print	CH ₄	Gg CO ₂ e	NO	NO	0	0	0	0	0	0	0	0	0	0	NO	0	NO
1 A 2 d solid	Solid Fuels	Pulp, Paper and Print	CH ₄	Gg CO ₂ e	0	NO	0	0	0	NO	0	NO	NO	NO	NO	NO	NO	NO	NO
1 A 2 d gaseous	Gaseous Fuels	Pulp, Paper and Print	CH ₄	Gg CO ₂ e	NO	NO	1	1	0	1	1	0	0	0	0	0	0	0	0
1 A 2 d biomass	Biomass	Pulp, Paper and Print	CH ₄	Gg CO ₂ e	NO	NO	1	2	2	4	6	3	2	3	2	0	0	0	0
1 A 2 d other	Other Fuels	Pulp, Paper and Print	CH ₄	Gg CO ₂ e	NO	NO	0	0	NO	0	NO	NO	NO	NO	NO	NO	NO	NO	NO
1 A 2 e liquid	Liquid Fuels	Food Processing, Beverages and Tobacco	CH ₄	Gg CO ₂ e	NO	NO	0	0	0	0	0	0	0	0	0	0	0	0	0
1 A 2 e solid	Solid Fuels	Food Processing, Beverages and Tobacco	CH ₄	Gg CO ₂ e	1	0	0	0	0	0	0	0	0	0	0	NO	NO	0	0
1 A 2 e gaseous	Gaseous Fuels	Food Processing, Beverages and Tobacco	CH ₄	Gg CO ₂ e	NO	NO	4	1	2	1	1	2	3	1	1	1	1	1	1
1 A 2 e biomass	Biomass	Food Processing, Beverages and Tobacco	CH ₄	Gg CO ₂ e	NO	NO	0	0	0	0	0	1	0	1	1	0	1	1	1
1 A 2 e other	Other Fuels	Food Processing, Beverages and Tobacco	CH ₄	Gg CO ₂ e	NO	NO	0	0	0	0	NO	NO	NO	NO	NO	NO	0	0	0
1 A 2 f liquid	Liquid Fuels	Other	CH ₄	Gg CO ₂ e	5	4	2	2	2	2	2	2	2	2	2	1	1	1	1

1 A 2 f solid	Solid Fuels	Other	CH ₄	Gg CO ₂ e	20	15	1	2	2	3	3	5	4	4	5	6	4	4	5
1 A 2 f gaseous	Gaseous Fuels	Other	CH ₄	Gg CO ₂ e	27	26	14	10	9	10	8	7	6	7	6	6	4	4	5
1 A 2 f biomass	Biomass	Other	CH ₄	Gg CO ₂ e	0	0	5	5	4	8	7	6	4	7	8	6	6	8	10
1 A 2 f other	Other Fuels	Other	CH ₄	Gg CO ₂ e	NO	NO	2	0	0	0	0	0	0	0	0	0	0	0	0
1 A 3 a aviation gasoline	Aviation Gasoline	Civil Aviation	CH ₄	Gg CO ₂ e	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 A 3 a jet kerosene	Jet Kerosene	Civil Aviation	CH ₄	Gg CO ₂ e	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 A 3 b gasoline	Gasoline	Road Transportation	CH ₄	Gg CO ₂ e	31	38	18	22	29	28	29	30	47	40	36	31	31	27	24
1 A 3 b diesel oil	Diesel Oil	Road Transportation	CH ₄	Gg CO ₂ e	NO	5	5	6	8	8	10	10	10	11	9	10	9	9	8
1 A 3 b LPG	Liquefied Petroleum Gases (LPG)	Road Transportation	CH ₄	Gg CO ₂ e	NO	NO	NO	NO	NO	0	0	2	1	0	1	1	1	0	1
1 A 3 b gaseous	Gaseous Fuels	Road Transportation	CH ₄	Gg CO ₂ e	NO	NO	NO	NO	3	1	NO	NO	NO	NO	NO	NO	NO	NO	NO
1 A 3 b biomass	Biomass	Road Transportation	CH ₄	Gg CO ₂ e	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	1	1	1	1
1 A 3 c liquid	Liquid Fuels	Railways	CH ₄	Gg CO ₂ e	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1
1 A 3 c solid	Solid Fuels	Railways	CH ₄	Gg CO ₂ e	NO	0	0	NO	0	NO	0	0	NO	NO	NO	NO	NO	NO	NO
1 A 3 d residual oil	Residual Oil (Residual Fuel Oil)	Navigation	CH ₄	Gg CO ₂ e	2	1	0	0	0	0	0	0	0	0	NO	NO	NO	NO	NO
1 A 3 d gas/diesel oil	Gas/Diesel Oil	Navigation	CH ₄	Gg CO ₂ e	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

1 A 3 d gasoline	Gasoline	Navigation	CH ₄	Gg CO ₂ e	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 A 3 e liquid	Liquid Fuels	Other	CH ₄	Gg CO ₂ e	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
1 A 3 e gaseous	Gaseous Fuels	Other	CH ₄	Gg CO ₂ e	NO	NO	0	0	0	0	0	0	0	0	0	0	0	0	0
1 A 3 e biomass	Biomass	Other	CH ₄	Gg CO ₂ e	NO	0	0	0	0	0	0	0	0	0	0	0	0	NO	0
1 A 4 a liquid	Liquid Fuels	Commercial/Institutional	CH ₄	Gg CO ₂ e	NO	NO	0	1	1	2	1	1	2	1	1	1	0	1	1
1 A 4 a solid	Solid Fuels	Commercial/Institutional	CH ₄	Gg CO ₂ e	NO	NO	NO	0	0	0	0	0	0	0	0	0	0	0	0
1 A 4 a gaseous	Gaseous Fuels	Commercial/Institutional	CH ₄	Gg CO ₂ e	NO	NO	1	1	2	0	2	3	3	7	5	4	4	4	3
1 A 4 a other	Other Fuels	Commercial/Institutional	CH ₄	Gg CO ₂ e	NO	NO	NO	NO	NO	NO	0	0	NO	NO	NO	NO	NO	NO	NO
1 A 4 b liquid	Liquid Fuels	Residential	CH ₄	Gg CO ₂ e	2	2	2	3	2	1	2	2	3	3	3	2	1	1	1
1 A 4 b solid	Solid Fuels	Residential	CH ₄	Gg CO ₂ e	162	178	16	11	2	6	4	10	4	3	3	12	4	3	5
1 A 4 b gaseous	Gaseous Fuels	Residential	CH ₄	Gg CO ₂ e	10	10	8	10	9	10	11	11	10	11	9	10	9	10	10
1 A 4 b biomass	Biomass	Residential	CH ₄	Gg CO ₂ e	164	152	265	647	462	468	578	702	721	678	707	903	895	930	830
1 A 4 c liquid	Liquid Fuels	Agriculture/Forestry/Fisheries	CH ₄	Gg CO ₂ e	10	10	5	2	2	1	1	1	1	1	1	1	2	2	2
1 A 4 c solid	Solid Fuels	Agriculture/Forestry/Fisheries	CH ₄	Gg CO ₂ e	6	4	1	0	0	1	1	0	1	2	1	2	2	2	2
1 A 4 c gaseous	Gaseous Fuels	Agriculture/Forestry/Fisheries	CH ₄	Gg CO ₂ e	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0

1 A 4 c biomass	Biomass	Agriculture/Forestry/Fisheries	CH ₄	Gg CO ₂ e	NO	NO	2	1	1	1	0	0	1	2	10	4	3	2	1
1 A 4 c other	Other Fuels	Agriculture/Forestry/Fisheries	CH ₄	Gg CO ₂ e	NO	NO	0	0	0	NO	0	0	0	0	NO	NO	NO	NO	NO
1 A 5 a liquid	Liquid Fuels	Stationary	CH ₄	Gg CO ₂ e	1	1	0	0	0	0	0	0	1	0	1	0	0	0	0
1 A 5 a solid	Solid Fuels	Stationary	CH ₄	Gg CO ₂ e	2	3	0	NO	NO	0	NO	0	0	NO	NO	NO	NO	NO	NO
1 A 5 a biomass	Biomass	Stationary	CH ₄	Gg CO ₂ e	NO	NO	10	4	35	40	39	32	49	46	40	37	33	34	47
1 A 5 a other	Other Fuels	Stationary	CH ₄	Gg CO ₂ e	NO	NO	7	5	4	1	1	1	0	0	NO	NO	NO	NO	NO
1 B 1 a	Coal Mining and Handling	Coal Mining	CH ₄	Gg CO ₂ e	5485	3240	2670	2666	2804	2589	2444	2231	2022	1785	1142	1037	900	761	879
1 B 1 b	Solid Fuel Transformation	Solid fuel transformation	CH ₄	Gg CO ₂ e	56	35	38	17	17	21	16	17	18	19	18	12	4	0	0
1 B 2 a	Oil	Oil	CH ₄	Gg CO ₂ e	5052	7871	4898	3838	3945	3882	3754	3575	3511	3176	2933	2950	2704	2502	2428
1 B 2 b	Natural Gas	Natural gas	CH ₄	Gg CO ₂ e	8606	7088	4465	3530	3570	3715	3773	3661	3716	3591	3436	3567	3264	3350	3427
1 B 2 c Venting	Venting	Venting	CH ₄	Gg CO ₂ e	2615	2189	1919	1723	1704	2180	2121	1572	1611	1645	1377	1300	1229	1175	1166
1 B 2 c Flaring	Flaring	flaring	CH ₄	Gg CO ₂ e	15	11	8	7	7	8	8	7	6	6	6	6	5	5	5
2 B 4	Carbide Production	Carbide Production	CH ₄	Gg CO ₂ e	NE	NE	NE	NE	NE	NE	4	12	18	16	NE	13	6	10	12
2 B 5	Other	CHEMICAL INDUSTRY	CH ₄	Gg CO ₂ e	103	70	53	38	31	39	42	47	42	46	31	22	9	8	2
4 A 1	Cattle	Cattle	CH ₄	Gg CO ₂ e	10012	8564	5564	4568	4456	4580	4611	4469	4553	4642	4469	4252	4001	3218	3178

4 A 2	Buffalo	Buffalo	CH ₄	Gg CO ₂ e	146	125	81	66	65	67	67	65	86	77	61	58	58	50	41
4 A 3	Sheep	Sheep	CH ₄	Gg CO ₂ e	6561	5959	4367	3215	3036	3064	3121	3102	3177	3205	3534	3708	3816	3510	3557
4 A 4	Goats	Goats	CH ₄	Gg CO ₂ e	363	358	252	193	188	226	242	238	247	262	311	323	330	447	445
4 A 6	Horses	Horses	CH ₄	Gg CO ₂ e	515	521	627	673	669	683	697	653	648	626	670	638	594	474	464
4 A 7	Mules and Asses	Mules and Asses	CH ₄	Gg CO ₂ e	22	22	20	19	19	17	17	17	18	18	18	18	19	19	19
4 A 8	Swine	Swine	CH ₄	Gg CO ₂ e	376	386	256	154	143	162	165	208	216	221	212	200	188	177	173
4 B 1	Cattle	Cattle	CH ₄	Gg CO ₂ e	634	542	169	146	216	300	342	332	167	354	277	227	188	125	123
4 B 2	Buffalo	Buffalo	CH ₄	Gg CO ₂ e	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1
4 B 3	Sheep	Sheep	CH ₄	Gg CO ₂ e	96	88	82	60	57	58	59	59	60	61	67	70	72	66	67
4 B 4	Goats	Goats	CH ₄	Gg CO ₂ e	10	10	7	5	5	6	7	6	7	7	8	9	9	12	12
4 B 6	Horses	Horses	CH ₄	Gg CO ₂ e	25	26	23	25	30	31	34	35	40	41	42	39	34	25	25
4 B 7	Mules and Asses	Mules and Asses	CH ₄	Gg CO ₂ e	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4 B 8	Swine	Swine	CH ₄	Gg CO ₂ e	1026	1002	376	160	199	248	271	362	428	494	457	446	414	362	350
4 B 9	Poultry	Poultry	CH ₄	Gg CO ₂ e	18	19	8	2	5	7	9	13	16	16	16	17	17	16	16
4 C 1	Irrigated	RICE CULTIVATION	CH ₄	Gg CO ₂ e	62	50	9	2	1	0	0	2	6	8	13	15	28	19	19

4 F	Field Burning of Agricultural Residues	FIELD BURNING OF AGRICULTURAL RESIDUES	CH ₄	Gg CO ₂ e	120	107	119	68	115	89	80	147	120	101	52	105	92	102	127
5 A 1	Forest Land remaining Forest Land	Forest land remaining forest land	CH ₄	Gg CO ₂ e	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 A	Solid Waste Disposal on Land	SOLID WASTE DISPOSAL ON LAND	CH ₄	Gg CO ₂ e	1255	1292	1529	1914	2013	2161	2267	2360	2478	2534	2675	2781	2883	2926	2476
6 B	Waste-water Handling	WASTEWATER HANDLING	CH ₄	Gg CO ₂ e	2816	2687	2596	2540	2496	2417	2381	2322	2212	2186	2237	2203	2153	2150	2253
1 A 1 a liquid	Liquid Fuels	Public Electricity and Heat Production	N ₂ O	Gg CO ₂ e	29	48	23	13	18	13	12	7	6	5	2	2	3	2	2
1 A 1 a solid	Solid Fuels	Public Electricity and Heat Production	N ₂ O	Gg CO ₂ e	155	117	135	97	96	96	116	108	103	122	122	124	109	100	121
1 A 1 a gaseous	Gaseous Fuels	Public Electricity and Heat Production	N ₂ O	Gg CO ₂ e	12	12	8	5	5	5	6	5	5	5	5	4	4	3	4
1 A 1 a biomass	Biomass	Public Electricity and Heat Production	N ₂ O	Gg CO ₂ e	NO	NO	0	0	0	0	0	0	0	1	1	1	1	2	2
1 A 1 a other	Other Fuels	Public Electricity and Heat Production	N ₂ O	Gg CO ₂ e	NO	NO	0	0	0	0	0	0	0	NO	NO	0	NO	NO	0
1 A 1 b liquid	Liquid Fuels	Petroleum refining	N ₂ O	Gg CO ₂ e	5	4	4	4	3	2	3	3	4	5	4	4	3	4	3
1 A 1 b gaseous	Gaseous Fuels	Petroleum refining	N ₂ O	Gg CO ₂ e	NO	NO	0	1	0	1	1	1	0	0	1	1	1	1	0
1 A 1 c liquid	Liquid Fuels	Manufacture of Solid fuels and Other Energy Industries	N ₂ O	Gg CO ₂ e	2	2	4	2	2	4	3	4	4	2	3	3	1	2	2
1 A 1 c solid	Solid Fuels	Manufacture of Solid fuels and Other Energy Industries	N ₂ O	Gg CO ₂ e	5	NO	1	0	0	0	5	1	0	0	0	0	0	0	0
1 A 1 c gaseous	Gaseous Fuels	Manufacture of Solid fuels and Other Energy Industries	N ₂ O	Gg CO ₂ e	NO	NO	1	1	1	1	1	1	1	1	0	0	0	0	0
1 A 1 c biomass	Biomass	Manufacture of Solid fuels and Other Energy Industries	N ₂ O	Gg CO ₂ e	NO	NO	NO	0	0	0	0	0	0	0	0	NO	0	0	NO

1 A 2 a liquid	Liquid Fuels	Iron and Steel	N ₂ O	Gg CO ₂ e	NO	NO	1	1	1	1	0	1	2	2	0	0	0	0	0
1 A 2 a solid	Solid Fuels	Iron and Steel	N ₂ O	Gg CO ₂ e	14	7	7	3	0	0	2	5	7	8	6	6	4	6	11
1 A 2 a gaseous	Gaseous Fuels	Iron and Steel	N ₂ O	Gg CO ₂ e	4	4	2	1	1	1	1	1	1	1	1	1	1	1	1
1 A 2 a biomass	Biomass	Iron and Steel	N ₂ O	Gg CO ₂ e	NO	NO	0	0	0	0	0	NO	NO	0	0	NO	NO	NO	0
1 A 2 a other	Other Fuels	Iron and Steel	N ₂ O	Gg CO ₂ e	NO	NO	0	0	0	0	0	0	0	0	0	1	0	0	0
1 A 2 b liquid	Liquid Fuels	Non-ferrous Metals	N ₂ O	Gg CO ₂ e	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	0	IE	IE	IE	IE
1 A 2 b solid	Solid Fuels	Non-ferrous Metals	N ₂ O	Gg CO ₂ e	1	0	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
1 A 2 c liquid	Liquid Fuels	Chemicals	N ₂ O	Gg CO ₂ e	NO	NO	2	1	2	1	1	1	1	1	1	1	1	0	0
1 A 2 c solid	Solid Fuels	Chemicals	N ₂ O	Gg CO ₂ e	3	3	0	3	3	3	3	3	3	2	2	2	2	2	2
1 A 2 c gaseous	Gaseous Fuels	Chemicals	N ₂ O	Gg CO ₂ e	13	10	4	2	2	2	3	2	2	2	1	2	2	1	2
1 A 2 c biomass	Biomass	Chemicals	N ₂ O	Gg CO ₂ e	NO	NO	0	0	0	0	0	0	0	-	0	0	0	1	2
1 A 2 c other	Other Fuels	Chemicals	N ₂ O	Gg CO ₂ e	NO	NO	7	1	3	4	3	3	3	2	2	1	1	1	1
1 A 2 d liquid	Liquid Fuels	Pulp, Paper and Print	N ₂ O	Gg CO ₂ e	NO	NO	0	0	0	0	0	0	0	0	0	0	NO	0	NO
1 A 2 d solid	Solid Fuels	Pulp, Paper and Print	N ₂ O	Gg CO ₂ e	0	NO	0	0	0	NO	0	NO	NO	NO	NO	NO	NO	NO	NO
1 A 2 d gaseous	Gaseous Fuels	Pulp, Paper and Print	N ₂ O	Gg CO ₂ e	NO	NO	0	0	0	0	0	0	0	0	0	0	0	0	0

1 A 2 d biomass	Biomass	Pulp, Paper and Print	N ₂ O	Gg CO ₂ e	NO	No	3	4	4	7	12	5	5	5	4	1	0	0	0
1 A 2 d other	Other Fuels	Pulp, Paper and Print	N ₂ O	Gg CO ₂ e	NO	NO	0	0	NO	0	NO	NO	NO	NO	NO	NO	NO	NO	NO
1 A 2 e liquid	Liquid Fuels	Food Processing, Beverages and Tobacco	N ₂ O	Gg CO ₂ e	NO	NO	2	1	1	1	1	1	0	1	1	1	0	0	0
1 A 2 e solid	Solid Fuels	Food Processing, Beverages and Tobacco	N ₂ O	Gg CO ₂ e	1	1	0	0	0	0	0	0	0	0	0	NO	NO	0	0
1 A 2 e gaseous	Gaseous Fuels	Food Processing, Beverages and Tobacco	N ₂ O	Gg CO ₂ e	NO	NO	1	0	1	0	0	0	1	0	0	0	0	0	0
1 A 2 e biomass	Biomass	Food Processing, Beverages and Tobacco	N ₂ O	Gg CO ₂ e	NO	NO	1	1	1	1	1	1	1	1	1	1	2	2	2
1 A 2 e other	Other Fuels	Food Processing, Beverages and Tobacco	N ₂ O	Gg CO ₂ e	NO	NO	0	0	0	0	NO	NO	NO	NO	NO	NO	0	1	0
1 A 2 f liquid	Liquid Fuels	Other	N ₂ O	Gg CO ₂ e	24	17	9	8	9	9	7	8	6	6	6	5	3	3	4
1 A 2 f solid	Solid Fuels	Other	N ₂ O	Gg CO ₂ e	41	31	1	3	5	6	7	10	8	9	11	12	9	9	10
1 A 2 f gaseous	Gaseous Fuels	Other	N ₂ O	Gg CO ₂ e	8	8	4	3	3	3	2	2	2	2	2	2	1	1	1
1 A 2 f biomass	Biomass	Other	N ₂ O	Gg CO ₂ e	1	1	11	9	8	15	13	11	8	13	15	12	11	14	17
1 A 2 f other	Other Fuels	Other	N ₂ O	Gg CO ₂ e	NO	NO	5	1	1	1	0	0	0	0	0	0	0	0	0
1 A 3 a aviation gasoline	Aviation Gasoline	Civil Aviation	N ₂ O	Gg CO ₂ e	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
1 A 3 a jet kerosene	Jet Kerosene	Civil Aviation	N ₂ O	Gg CO ₂ e	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
1 A 3 b gasoline	Gasoline	Road Transportation	N ₂ O	Gg CO ₂ e	14	17	8	10	13	12	13	13	69	61	55	51	44	41	38

1 A 3 b diesel oil	Diesel Oil	Road Transportation	N ₂ O	Gg CO ₂ e	NO	9	9	11	14	15	17	17	57	65	69	83	86	83	87
1 A 3 b LPG	Liquefied Petroleum Gases (LPG)	Road Transportation	N ₂ O	Gg CO ₂ e	NO	NO	NO	NO	NO	0	1	7	1	0	1	1	1	0	1
1 A 3 b gaseous	Gaseous Fuels	Road Transportation	N ₂ O	Gg CO ₂ e	NO	NO	NO	NO	0	0	NO	NO	NO	NO	NO	NO	NO	NO	NO
1 A 3 b biomass	Biomass	Road Transportation	N ₂ O	Gg CO ₂ e	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	2	6	8	6	11
1 A 3 c liquid	Liquid Fuels	Railways	N ₂ O	Gg CO ₂ e	2	2	2	2	1	2	1	2	1	1	1	1	1	1	2
1 A 3 c solid	Solid Fuels	Railways	N ₂ O	Gg CO ₂ e	NO	0	0	NO	0	NO	0	0	NO	NO	NO	NO	NO	NO	NO
1 A 3 d residual oil	Residual Oil (Residual Fuel Oil)	Navigation	N ₂ O	Gg CO ₂ e	3	2	0	0	1	1	0	0	0	0	NO	NO	NO	NO	NO
1 A 3 d gas/diesel oil	Gas/Diesel Oil	Navigation	N ₂ O	Gg CO ₂ e	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
1 A 3 d gasoline	Gasoline	Navigation	N ₂ O	Gg CO ₂ e	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 A 3 e liquid	Liquid Fuels	Other	N ₂ O	Gg CO ₂ e	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 A 3 e gaseous	Gaseous Fuels	Other	N ₂ O	Gg CO ₂ e	NO	NO	0	0	0	0	0	0	0	0	0	0	0	0	0
1 A 3 e biomass	Biomass	Other	N ₂ O	Gg CO ₂ e	NO	1	0	0	0	0	0	0	0	0	0	0	0	NO	0
1 A 4 a liquid	Liquid Fuels	Commercial/Institutiona l	N ₂ O	Gg CO ₂ e	NO	NO	0	1	1	2	1	1	1	1	1	1	0	0	1
1 A 4 a solid	Solid Fuels	Commercial/Institutiona l	N ₂ O	Gg CO ₂ e	NO	NO	NO	0	0	0	0	0	0	0	0	0	0	0	0
1 A 4 a gaseous	Gaseous Fuels	Commercial/Institutiona l	N ₂ O	Gg CO ₂ e	NO	No	0	0	1	0	1	1	1	2	1	1	1	1	1

1 A 4 a other	Other Fuels	Commercial/Institutional	N ₂ O	Gg CO ₂ e	NO	NO	NO	NO	NO	NO	0	0	NO	NO	NO	NO	NO	NO	NO
1 A 4 b liquid	Liquid Fuels	Residential	N ₂ O	Gg CO ₂ e	1	1	1	2	1	0	1	1	2	2	2	1	0	0	0
1 A 4 b solid	Solid Fuels	Residential	N ₂ O	Gg CO ₂ e	11	12	1	1	0	0	0	1	0	0	0	1	0	0	0
1 A 4 b gaseous	Gaseous Fuels	Residential	N ₂ O	Gg CO ₂ e	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3
1 A 4 b biomass	Biomass	Residential	N ₂ O	Gg CO ₂ e	32	30	52	127	91	92	114	138	142	133	139	178	176	183	163
1 A 4 c liquid	Liquid Fuels	Agriculture/Forestry/Fisheries	N ₂ O	Gg CO ₂ e	9	9	4	2	1	1	1	1	1	1	1	1	2	2	2
1 A 4 c solid	Solid Fuels	Agriculture/Forestry/Fisheries	N ₂ O	Gg CO ₂ e	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 A 4 c gaseous	Gaseous Fuels	Agriculture/Forestry/Fisheries	N ₂ O	Gg CO ₂ e	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
1 A 4 c biomass	Biomass	Agriculture/Forestry/Fisheries	N ₂ O	Gg CO ₂ e	NO	NO	0	0	0	0	0	0	0	0	2	1	1	0	0
1 A 4 c other	Other Fuels	Agriculture/Forestry/Fisheries	N ₂ O	Gg CO ₂ e	NO	NO	0	0	0	NO	0	0	0	0	NO	NO	NO	NO	NO
1 A 5 a liquid	Liquid Fuels	Stationary	N ₂ O	Gg CO ₂ e	3	3	1	0	1	1	1	2	3	1	2	2	1	1	1
1 A 5 a solid	Solid Fuels	Stationary	N ₂ O	Gg CO ₂ e	4	5	0	NO	NO	0	NO	0	0	NO	NO	NO	NO	NO	NO
1 A 5 a biomass	Biomass	Stationary	N ₂ O	Gg CO ₂ e	NO	NO	2	1	7	8	8	6	10	9	8	7	7	7	12
1 A 5 a other	Other Fuels	Stationary	N ₂ O	Gg CO ₂ e	NO	NO	1	1	1	0	0	0	0	0	NO	NO	NO	NO	NO
1 B 2 a	Oil	Oil	N ₂ O	Gg CO ₂ e	2	2	1	1	1	2	2	1	1	1	1	1	1	1	1

1 B 2 c Flaring	Flaring	flaring	N ₂ O	Gg CO ₂ e	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1
2 B 2	Nitric Acid Production	Nitric Acid Production	N ₂ O	Gg CO ₂ e	5464	3460	2690	2351	2047	2091	2568	2844	2919	2334	2719	2530	517	1152	1210
2 B 3	Adipic Acid Production	Adipic Acid Production	N ₂ O	Gg CO ₂ e	678	574	592	862	495	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
4 B 11	Anaerobic Lagoons	Anaerobic	N ₂ O	Gg CO ₂ e	58	58	22	10	12	14	15	20	22	27	25	24	23	20	19
4 B 12	Liquid Systems	Liquid Systems	N ₂ O	Gg CO ₂ e	6	5	1	1	2	3	3	3	1	4	3	2	1	1	1
4 B 13	Solid Storage and Dry Lot	Solid Storage and Dry Lot	N ₂ O	Gg CO ₂ e	1731	1478	1137	858	855	865	911	1012	1083	1004	1020	1027	893	780	772
4 B 14	Other AWMS	Other AWMS	N ₂ O	Gg CO ₂ e	530	579	240	27	91	146	190	276	349	339	412	468	480	432	416
4 D 1	Direct Soil Emissions	Direct Soil Emissions	N ₂ O	Gg CO ₂ e	10260	9088	5948	4387	5060	5097	5313	4982	5449	5250	4455	5018	5053	5144	5349
4 D 2	Pasture, Range and Paddock Manure	Pasture, Range and Paddock Manure	N ₂ O	Gg CO ₂ e	2078	1824	1335	1095	1058	1098	1061	991	1035	1079	1076	1023	981	840	831
4 D 3	Indirect Emissions	Indirect Emissions	N ₂ O	Gg CO ₂ e	6039	5858	3448	2697	2773	2755	2824	3024	3174	2987	3017	3032	3029	2885	2892
4 F	Field Burning of Agricultural Residues	FIELD BURNING OF AGRICULTURAL RESIDUES	N ₂ O	Gg CO ₂ e	43	37	41	23	39	31	30	52	43	37	19	35	32	36	44
5 A 1	Forest Land remaining Forest Land	Forest land remaining forest land	N ₂ O	Gg CO ₂ e	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 B 2	Land converted to Cropland	Land converted to cropland	N ₂ O	Gg CO ₂ e	NO	NO	NO	1	1	1	2	2	2	3	3	3	3	3	3
6 B	Waste-water Handling	WASTEWATER HANDLING	N ₂ O	Gg CO ₂ e	599	601	613	638	637	620	674	672	671	682	680	685	660	629	627
2 F 1	Refrigeration and Air Conditioning Equipment	Refrigeration and Air Conditioning Equipment	HFC	Gg CO ₂ e	0	0	16	109	149	179	244	298	387	500	708	762	601	591	206

2 F 2	Foam Blowing	Foam Blowing	HFC	Gg CO ₂ e	0	0	59	45	54	43	33	40	62	77	77	84	66	65	23
2 F 3	Fire Extinguishers	Fire Extinguishers	HFC	Gg CO ₂ e	0	0	19	1	2	2	3	4	6	6	9	10	8	8	3
2 F 4	Aerosols & Metered Dose Inhalers	Aerosols & Metered Dose Inhalers	HFC	Gg CO ₂ e	0	0	2	7	11	14	12	25	29	42	45	31	24	24	8
2 F 5	Solvents	Solvents	HFC	Gg CO ₂ e	0	0	0	0	0	0	0	0	0	15	0	0	0	0	0
2 F 8	Electrical Equipment	Electrical Equipment	HFC	Gg CO ₂ e	0	0	0	0	1	1	1	2	3	0	0	0	0	0	0
2 F 9	Other	Other	HFC	Gg CO ₂ e	0	0	0	0	0	0	0	0	0	1	1	4	4	8	200
2 C 3	Aluminium Production	Aluminium production	PFC	Gg CO ₂ e	3350	2116	1774	1292	1044	718	262	132	82	55	24	15	7	8	11
2 F 1	Refrigeration and Air Conditioning Equipment	Refrigeration and Air Conditioning Equipment	SF ₆	Gg CO ₂ e	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 F 3	Fire Extinguishers	Fire Extinguishers	SF ₆	Gg CO ₂ e	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3
2 F 8	Electrical Equipment	Electrical Equipment	SF ₆	Gg CO ₂ e	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2
2 F 9	Other	Other	SF ₆	Gg CO ₂ e	0	0	0	0	0	0	18	23	49	68	58	12	3	0	2

Table NIR. 3, as contained in the Annex to Decision 6/CMP. 3 (and containing information associated with KP - LULUCF and 2011 year)

KEY CATEGORIES OF EMISSIONS AND REMOVALS	GAS	CRITERIA USED FOR KEY CATEGORY IDENTIFICATION			COMMENTS (3)
		Associated category in UNFCCC inventory (1) is key (indicate which category)	Category contribution is greater than the smallest category considered key in the UNFCCC inventory (1), (4) (including LULUCF)	Other (2)	
Specify key categories according to the national level of disaggregation used(1)					
Forest Management	CO ₂	Forest Land remaining Forest Land	Yes	No other criteria needed	Key category level assessment including LULUCF
Afforestation and Reforestation	CO ₂	Conversion to Forest Land	Yes	No other criteria needed	Key category level assessment including LULUCF
Revegetation	CO ₂	Cropland remaining Cropland	No	No other criteria needed	Key category level assessment including LULUCF