

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 2012:

- ❖ 30 categories are considered as key ones both by level and trend;
- ❖ 44 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 2012:

- ❖ 25 categories are considered as key ones, both by level and trend;
- ❖ 17 categories are considered as key ones, only by level;
- ❖ 9 categories are considered as key ones, only by trend.

Taking into account the Tier 2 analysis and the exclusion of the LULUCF sector, in 2012:

- ❖ 25 categories are considered as key ones both by level and trend;
- ❖ 3 categories are considered as key ones, only by level;
- ❖ 12 categories are considered as key ones, only by trend.

Taking into account the Tier 2 analysis and the inclusion of the LULUCF sector, in 2012:

- ❖ 26 categories are considered as key ones, both by level and trend;
- ❖ 4 categories are considered as key ones, only by level;
- ❖ 11 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 (IPCC category 1.B.2.a);
- ❖ Ferroalloys Production (IPCC category 2.C.2);
- ❖ Solvent and Other Product Use (IPCC category 3);
- ❖ Residential-biomass fuels (IPCC category 1.A.4.b);
- ❖ Other AWMS (IPCC category 4.B.14);
- ❖ Refrigeration and Air Conditioning Equipment (IPCC category 2.F.1);
- ❖ Foam Blowing (IPCC category 2.F.2);
- ❖ Other (IPCC category 2.F.3).

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) – 2013-2014– May 2013.

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 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	CO2	39,436	13.8%	13.8%
1 A 2 c gaseous	Chemicals	CO2	23,891	8.4%	22.2%
1 A 1 a gaseous	Public Electricity and Heat Production	CO2	22,054	7.7%	30.0%
1 A 2 f gaseous	Other	CO2	14,211	5.0%	34.9%
1 A 1 a liquid	Public Electricity and Heat Production	CO2	12,215	4.3%	39.2%
1 A 2 f solid	Other	CO2	10,548	3.7%	42.9%
4 D 1	Direct Soil Emissions	N2O	10,260	3.6%	46.5%
1 A 2 f liquid	Other	CO2	10,015	3.5%	50.0%
4 A 1	Cattle	CH4	10,012	3.5%	53.5%
2 C 1	Iron and Steel Production	CO2	9,500	3.3%	56.9%
1 B 2 b	Natural gas	CH4	8,606	3.0%	59.9%
1 A 2 a gaseous	Iron and Steel	CO2	7,157	2.5%	62.4%
4 A 3	Sheep	CH4	6,561	2.3%	64.7%
4 D 3	Indirect Emissions	N2O	6,039	2.1%	66.8%
2 A 1	Cement Production	CO2	5,609	2.0%	68.8%
1 B 1 a	Coal Mining	CH4	5,485	1.9%	70.7%
2 B 2	Nitric Acid Production	N2O	5,464	1.9%	72.6%
1 A 3 b gasoline	Road Transportation	CO2	5,337	1.9%	74.5%
1 B 2 a	Oil	CH4	5,052	1.8%	76.3%
1 A 4 b gaseous	Residential	CO2	5,027	1.8%	78.0%
1 A 1 b liquid	Petroleum refining	CO2	4,481	1.6%	79.6%
1 A 2 a solid	Iron and Steel	CO2	4,429	1.6%	81.2%
2 B 1	Ammonia Production	CO2	4,404	1.5%	82.7%
1 A 4 c liquid	Agriculture/Forestry/Fisheries	CO2	3,624	1.3%	84.0%
1 A 3 b diesel oil	Road Transportation	CO2	3,389	1.2%	85.2%
2 C 3	Aluminium production	PFC	3,350	1.2%	86.4%
2 A 2	Lime Production	CO2	3,222	1.1%	87.5%
6 B	WASTEWATER HANDLING	CH4	2,816	1.0%	88.5%
1 A 4 b solid	Residential	CO2	2,688	0.9%	89.4%
1 B 2 c Venting	Venting	CH4	2,615	0.9%	90.3%
4 D 2	Pasture, Range and Paddock Manure	N2O	2,078	0.7%	91.1%
1 A 4 c gaseous	Agriculture/Forestry/Fisheries	CO2	1,964	0.7%	91.8%

4 B 13	Solid Storage and Dry Lot	N2O	1,731	0.6%	92.4%
2 A 3	Limestone and Dolomite Use	CO2	1,483	0.5%	92.9%
1 A 3 d residual oil	Navigation	CO2	1,458	0.5%	93.4%
1 A 5 a liquid	Stationary	CO2	1,356	0.5%	93.9%
6 A	SOLID WASTE DISPOSAL ON LAND	CH4	1,241	0.4%	94.3%
1 A 5 a solid	Stationary	CO2	1,128	0.4%	94.7%
4 B 8	Swine	CH4	1,026	0.4%	95.1%

Table 2 Tier 1 - Level Assessment of the key category analysis excluding LULUCF for the year 2012

IPCC Category Code	IPCC Category	Greenhouse Gas	Year 2012 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	CO2	22,403	18.9%	18.9%
1 A 3 b diesel oil	Road Transportation	CO2	9,617	8.1%	27.0%
1 A 4 b gaseous	Residential	CO2	5,919	5.0%	31.9%
1 A 1 a gaseous	Public Electricity and Heat Production	CO2	5,616	4.7%	36.7%
4 D 1	Direct Soil Emissions	N2O	4,630	3.9%	40.6%
1 A 3 b gasoline	Road Transportation	CO2	4,253	3.6%	44.2%
4 A 3	Sheep	CH4	3,682	3.1%	47.3%
4 A 1	Cattle	CH4	3,199	2.7%	49.9%
2 A 1	Cement Production	CO2	3,150	2.7%	52.6%
1 B 2 b	Natural gas	CH4	3,141	2.6%	55.2%
6 A	SOLID WASTE DISPOSAL ON LAND	CH4	2,966	2.5%	57.7%
1 A 2 f gaseous	Other	CO2	2,870	2.4%	60.2%
4 D 3	Indirect Emissions	N2O	2,788	2.3%	62.5%
2 B 1	Ammonia Production	CO2	2,728	2.3%	64.8%
1 A 2 c gaseous	Chemicals	CO2	2,468	2.1%	66.9%
1 A 2 f solid	Other	CO2	2,356	2.0%	68.9%
6 B	WASTEWATER HANDLING	CH4	2,261	1.9%	70.8%
1 B 2 a	Oil	CH4	2,242	1.9%	72.7%
1 A 2 f liquid	Other	CO2	2,211	1.9%	74.5%
2 C 1	Iron and Steel Production	CO2	2,185	1.8%	76.4%
1 A 2 a solid	Iron and Steel	CO2	1,960	1.7%	78.0%
1 A 4 a gaseous	Commercial/Institutional	CO2	1,778	1.5%	79.5%

1 A 1 b liquid	Petroleum refining	CO2	1,423	1.2%	80.7%
2 A 2	Lime Production	CO2	1,281	1.1%	81.8%
1 B 2 c Venting	Venting	CH4	1,101	0.9%	82.7%
1 A 2 a gaseous	Iron and Steel	CO2	1,055	0.9%	83.6%
1 A 1 a liquid	Public Electricity and Heat Production	CO2	995	0.8%	84.4%
2 F 1	Refrigeration and Air Conditioning Equipment	HFC	986	0.8%	85.3%
1 A 4 c liquid	Agriculture/Forestry/Fisheries	CO2	975	0.8%	86.1%
2 B 2	Nitric Acid Production	N2O	953	0.8%	86.9%
1 A 4 b biomass	Residential	CH4	866	0.7%	87.6%
4 D 2	Pasture, Range and Paddock Manure	N2O	834	0.7%	88.3%
1 B 1 a	Coal Mining	CH4	810	0.7%	89.0%
4 B 13	Solid Storage and Dry Lot	N2O	777	0.7%	89.7%
1 A 2 e gaseous	Food Processing, Beverages and Tobacco	CO2	727	0.6%	90.3%
1 A 1 c liquid	Manufacture of Solid fuels and Other Energy Industries	CO2	701	0.6%	90.9%
1 A 1 c gaseous	Manufacture of Solid fuels and Other Energy Industries	CO2	686	0.6%	91.4%
6 B	WASTEWATER HANDLING	N2O	614	0.5%	92.0%
1 A 2 c liquid	Chemicals	CO2	579	0.5%	92.4%
1 A 3 c liquid	Railways	CO2	567	0.5%	92.9%
1 A 1 b gaseous	Petroleum refining	CO2	561	0.5%	93.4%
1 A 5 a liquid	Stationary	CO2	558	0.5%	93.9%
1 A 4 b liquid	Residential	CO2	524	0.4%	94.3%
4 A 4	Goats	CH4	455	0.4%	94.7%
1 A 2 c solid	Chemicals	CO2	453	0.4%	95.1%

Table 3 Tier 1 - Trend Assessment of the key category analysis excluding LULUCF for the trend 1989–2012 period

IPCC Category Code	IPCC Category	Greenhouse Gas	Base Year (1989) Estimate $E_{x,0}$	Latest Year (2012) Estimate $E_{x,t}$	Trend Assessment $T_{x,t}$	% Contribution to Trend	Cumulative Total of $L_{x,t}$
1 A 3 b diesel oil	Road Transportation	CO2	3,389	9,617	0.166	12.1%	12.1%
1 A 2 c gaseous	Chemicals	CO2	23,891	2,468	0.151	11.0%	23.0%
1 A 1 a solid	Public Electricity and Heat Production	CO2	39,436	22,403	0.121	8.8%	31.8%
1 A 1 a liquid	Public Electricity and Heat	CO2	12,215	995	0.083	6.0%	37.8%

	Production						
1 A 4 b gaseous	Residential	CO2	5,027	5,919	0.077	5.6%	43.5%
1 A 1 a gaseous	Public Electricity and Heat Production	CO2	22,054	5,616	0.072	5.2%	48.7%
1 A 2 f gaseous	Other	CO2	14,211	2,870	0.062	4.5%	53.2%
6 A	SOLID WASTE DISPOSAL ON LAND	CH4	1,241	2,966	0.049	3.6%	56.8%
1 A 2 f solid	Other	CO2	10,548	2,356	0.041	3.0%	59.8%
1 A 3 b gasoline	Road Transportation	CO2	5,337	4,253	0.041	3.0%	62.8%
1 A 2 f liquid	Other	CO2	10,015	2,211	0.040	2.9%	65.6%
1 A 2 a gaseous	Iron and Steel	CO2	7,157	1,055	0.039	2.8%	68.5%
2 C 1	Iron and Steel Production	CO2	9,500	2,185	0.036	2.6%	71.1%
1 B 1 a	Coal Mining	CH4	5,485	810	0.030	2.2%	73.2%
2 C 3	Aluminium production	PFC	3,350	6	0.028	2.0%	75.3%
2 B 2	Nitric Acid Production	N2O	5,464	953	0.027	1.9%	77.2%
6 B	WASTEWATER HANDLING	CH4	2,816	2,261	0.022	1.6%	78.8%
1 A 4 b solid	Residential	CO2	2,688	91	0.021	1.5%	80.3%
2 F 1	Refrigeration and Air Conditioning Equipment	HFC	0	986	0.020	1.4%	81.8%
4 A 1	Cattle	CH4	10,012	3,199	0.020	1.4%	83.2%
4 A 3	Sheep	CH4	6,561	3,682	0.019	1.4%	84.6%
2 B 1	Ammonia Production	CO2	4,404	2,728	0.018	1.3%	85.9%
2 A 1	Cement Production	CO2	5,609	3,150	0.016	1.2%	87.1%
1 A 4 b biomass	Residential	CH4	164	866	0.016	1.2%	88.3%
1 A 4 c gaseous	Agriculture/Forestry/Fisheries	CO2	1,964	174	0.013	0.9%	89.2%
1 A 4 c liquid	Agriculture/Forestry/Fisheries	CO2	3,624	975	0.011	0.8%	90.0%
1 B 2 b	Natural gas	CH4	8,606	3,141	0.009	0.7%	90.7%
1 A 1 b liquid	Petroleum refining	CO2	4,481	1,423	0.009	0.7%	91.3%
1 A 1 c solid	Manufacture of Solid fuels and Other Energy Industries	CO2	1,002	4	0.008	0.6%	91.9%
1 A 3 c liquid	Railways	CO2	384	567	0.008	0.6%	92.5%
6 B	WASTEWATER HANDLING	N2O	599	614	0.007	0.5%	93.1%
4 D 1	Direct Soil Emissions	N2O	10,260	4,630	0.007	0.5%	93.6%
1 A 1 c liquid	Manufacture of Solid fuels and Other Energy Industries	CO2	950	701	0.006	0.4%	94.0%
4 A 4	Goats	CH4	363	455	0.006	0.4%	94.5%
4 D 3	Indirect Emissions	N2O	6,039	2,788	0.005	0.4%	94.9%
4 A 6	Horses	CH4	515	447	0.005	0.3%	95.2%

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	CO2	39,436	39,436	12.6%	12.6%
1 A 2 c gaseous	Chemicals	CO2	23,891	23,891	7.7%	20.3%
1 A 1 a gaseous	Public Electricity and Heat Production	CO2	22,054	22,054	7.1%	27.4%
5 A 1	Forest land remaining forest land	CO2	-18,623	18,623	6.0%	33.3%
1 A 2 f gaseous	Other	CO2	14,211	14,211	4.6%	37.9%
1 A 1 a liquid	Public Electricity and Heat Production	CO2	12,215	12,215	3.9%	41.8%
1 A 2 f solid	Other	CO2	10,548	10,548	3.4%	45.2%
4 D 1	Direct Soil Emissions	N2O	10,260	10,260	3.3%	48.5%
1 A 2 f liquid	Other	CO2	10,015	10,015	3.2%	51.7%
4 A 1	Cattle	CH4	10,012	10,012	3.2%	54.9%
2 C 1	Iron and Steel Production	CO2	9,500	9,500	3.0%	57.9%
1 B 2 b	Natural gas	CH4	8,606	8,606	2.8%	60.7%
1 A 2 a gaseous	Iron and Steel	CO2	7,157	7,157	2.3%	63.0%
4 A 3	Sheep	CH4	6,561	6,561	2.1%	65.1%
4 D 3	Indirect Emissions	N2O	6,039	6,039	1.9%	67.0%
5 E 2	Land converted to Settlements	CO2	5,664	5,664	1.8%	68.8%
2 A 1	Cement Production	CO2	5,609	5,609	1.8%	70.6%
1 B 1 a	Coal Mining	CH4	5,485	5,485	1.8%	72.4%
2 B 2	Nitric Acid Production	N2O	5,464	5,464	1.8%	74.1%
1 A 3 b gasoline	Road Transportation	CO2	5,337	5,337	1.7%	75.9%
1 B 2 a	Oil	CH4	5,052	5,052	1.6%	77.5%
1 A 4 b gaseous	Residential	CO2	5,027	5,027	1.6%	79.1%
1 A 1 b liquid	Petroleum refining	CO2	4,481	4,481	1.4%	80.5%
1 A 2 a solid	Iron and Steel	CO2	4,429	4,429	1.4%	81.9%
2 B 1	Ammonia Production	CO2	4,404	4,404	1.4%	83.3%
1 A 4 c liquid	Agriculture/Forestry/Fisheries	CO2	3,624	3,624	1.2%	84.5%
1 A 3 b diesel oil	Road Transportation	CO2	3,389	3,389	1.1%	85.6%
2 C 3	Aluminium production	PFC	3,350	3,350	1.1%	86.7%
2 A 2	Lime Production	CO2	3,222	3,222	1.0%	87.7%
6 B	WASTEWATER HANDLING	CH4	2,816	2,816	0.9%	88.6%
1 A 4 b solid	Residential	CO2	2,688	2,688	0.9%	89.5%

1 B 2 c Venting	Venting	CH4	2,615	2,615	0.8%	90.3%
5 B 1	Cropland remaining cropland	CO2	-2,220	2,220	0.7%	91.0%
4 D 2	Pasture, Range and Paddock Manure	N2O	2,078	2,078	0.7%	91.7%
1 A 4 c gaseous	Agriculture/Forestry/Fisheries	CO2	1,964	1,964	0.6%	92.3%
4 B 13	Solid Storage and Dry Lot	N2O	1,731	1,731	0.6%	92.9%
2 A 3	Limestone and Dolomite Use	CO2	1,483	1,483	0.5%	93.3%
1 A 3 d residual oil	Navigation	CO2	1,458	1,458	0.5%	93.8%
1 A 5 a liquid	Stationary	CO2	1,356	1,356	0.4%	94.2%
6 A	SOLID WASTE DISPOSAL ON LAND	CH4	1,241	1,241	0.4%	94.6%
1 A 5 a solid	Stationary	CO2	1,128	1,128	0.4%	95.0%

Table 5 Tier 1 - Level Assessment of the key category analysis including LULUCF for the year 2012

IPCC Category Code	IPCC Category	Greenhouse Gas	Year 2012 Estimate Ex,t [t CO2-e units]	Absolute Value of Year 2012 Estimate Ex,t	Level Assessment L_{x,t}	Cumulative Total of L_{x,t}
1 A 1 a solid	Public Electricity and Heat Production	CO2	22,403	22,403	15.3%	15.3%
5 A 1	Forest land remaining forest land	CO2	-19,482	19,482	13.3%	28.6%
1 A 3 b diesel oil	Road Transportation	CO2	9,617	9,617	6.6%	35.1%
1 A 4 b gaseous	Residential	CO2	5,919	5,919	4.0%	39.2%
1 A 1 a gaseous	Public Electricity and Heat Production	CO2	5,616	5,616	3.8%	43.0%
4 D 1	Direct Soil Emissions	N2O	4,630	4,630	3.2%	46.2%
1 A 3 b gasoline	Road Transportation	CO2	4,253	4,253	2.9%	49.1%
4 A 3	Sheep	CH4	3,682	3,682	2.5%	51.6%
4 A 1	Cattle	CH4	3,199	3,199	2.2%	53.8%
2 A 1	Cement Production	CO2	3,150	3,150	2.1%	55.9%
1 B 2 b	Natural gas	CH4	3,141	3,141	2.1%	58.1%
5 A 2	Land converted to forest land	CO2	-3,034	3,034	2.1%	60.1%
6 A	SOLID WASTE DISPOSAL ON LAND	CH4	2,966	2,966	2.0%	62.1%
1 A 2 f gaseous	Other	CO2	2,870	2,870	2.0%	64.1%
4 D 3	Indirect Emissions	N2O	2,788	2,788	1.9%	66.0%
2 B 1	Ammonia Production	CO2	2,728	2,728	1.9%	67.9%
1 A 2 c gaseous	Chemicals	CO2	2,468	2,468	1.7%	69.6%

1 A 2 f solid	Other	CO2	2,356	2,356	1.6%	71.2%
6 B	WASTEWATER HANDLING	CH4	2,261	2,261	1.5%	72.7%
1 B 2 a	Oil	CH4	2,242	2,242	1.5%	74.2%
1 A 2 f liquid	Other	CO2	2,211	2,211	1.5%	75.7%
2 C 1	Iron and Steel Production	CO2	2,185	2,185	1.5%	77.2%
1 A 2 a solid	Iron and Steel	CO2	1,960	1,960	1.3%	78.6%
1 A 4 a gaseous	Commercial/Institutional	CO2	1,778	1,778	1.2%	79.8%
5 D 2	Land converted to Wetlands	CO2	1,750	1,750	1.2%	81.0%
5 B 1	Cropland remaining cropland	CO2	-1,661	1,661	1.1%	82.1%
1 A 1 b liquid	Petroleum refining	CO2	1,423	1,423	1.0%	83.1%
2 A 2	Lime Production	CO2	1,281	1,281	0.9%	84.0%
1 B 2 c Venting	Venting	CH4	1,101	1,101	0.8%	84.7%
1 A 2 a gaseous	Iron and Steel	CO2	1,055	1,055	0.7%	85.4%
1 A 1 a liquid	Public Electricity and Heat Production	CO2	995	995	0.7%	86.1%
2 F 1	Refrigeration and Air Conditioning Equipment	HFC	986	986	0.7%	86.8%
1 A 4 c liquid	Agriculture/Forestry/Fisheries	CO2	975	975	0.7%	87.4%
2 B 2	Nitric Acid Production	N2O	953	953	0.7%	88.1%
5 F 2	Land converted to Other land	CO2	877	877	0.6%	88.7%
1 A 4 b biomass	Residential	CH4	866	866	0.6%	89.3%
4 D 2	Pasture, Range and Paddock Manure	N2O	834	834	0.6%	89.9%
1 B 1 a	Coal Mining	CH4	810	810	0.6%	90.4%
4 B 13	Solid Storage and Dry Lot	N2O	777	777	0.5%	90.9%
1 A 2 e gaseous	Food Processing, Beverages and Tobacco	CO2	727	727	0.5%	91.4%
1 A 1 c liquid	Manufacture of Solid fuels and Other Energy Industries	CO2	701	701	0.5%	91.9%
1 A 1 c gaseous	Manufacture of Solid fuels and Other Energy Industries	CO2	686	686	0.5%	92.4%
6 B	WASTEWATER HANDLING	N2O	614	614	0.4%	92.8%
1 A 2 c liquid	Chemicals	CO2	579	579	0.4%	93.2%
1 A 3 c liquid	Railways	CO2	567	567	0.4%	93.6%
1 A 1 b gaseous	Petroleum refining	CO2	561	561	0.4%	94.0%
1 A 5 a liquid	Stationary	CO2	558	558	0.4%	94.3%
1 A 4 b liquid	Residential	CO2	524	524	0.4%	94.7%
4 A 4	Goats	CH4	455	455	0.3%	95.0%
1 A 1 a solid	Public Electricity and Heat Production	CO2	22,403	22,403	15.3%	15.3%

Table 6 Tier 1 - Trend Assessment of the key category analysis including LULUCF for the trend 1989 – 2012 period

IPCC Category Code	IPCC Category	Greenhouse Gas	Base Year (1989) Estimate $E_{x,0}$	Latest Year (2012) 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	CO2	18,623	19,482	0.156	11.6%	11.6%
1 A 2 c gaseous	Chemicals	CO2	23,891	2,468	0.127	9.5%	21.2%
1 A 3 b diesel oil	Road Transportation	CO2	3,389	9,617	0.117	8.7%	29.9%
1 A 1 a gaseous	Public Electricity and Heat Production	CO2	22,054	5,616	0.069	5.1%	35.0%
1 A 1 a liquid	Public Electricity and Heat Production	CO2	12,215	995	0.069	5.1%	40.2%
1 A 1 a solid	Public Electricity and Heat Production	CO2	39,436	22,403	0.056	4.2%	44.4%
1 A 2 f gaseous	Other	CO2	14,211	2,870	0.055	4.1%	48.5%
1 A 4 b gaseous	Residential	CO2	5,027	5,919	0.052	3.9%	52.4%
5 A 2	Land converted to forest land	CO2	139	3,034	0.043	3.2%	55.6%
1 A 2 f solid	Other	CO2	10,548	2,356	0.038	2.8%	58.4%
1 A 2 f liquid	Other	CO2	10,015	2,211	0.036	2.7%	61.1%
6 A	SOLID WASTE DISPOSAL ON LAND	CH4	1,241	2,966	0.035	2.6%	63.7%
1 A 2 a gaseous	Iron and Steel	CO2	7,157	1,055	0.034	2.5%	66.2%
2 C 1	Iron and Steel Production	CO2	9,500	2,185	0.033	2.5%	68.7%
5 E 2	Land converted to Settlements	CO2	5,664	422	0.033	2.4%	71.1%
1 B 1 a	Coal Mining	CH4	5,485	810	0.026	1.9%	73.0%
1 A 3 b gasoline	Road Transportation	CO2	5,337	4,253	0.025	1.9%	74.9%
5 D 2	Land converted to Wetlands	CO2	215	1,750	0.024	1.8%	76.7%
2 B 2	Nitric Acid Production	N2O	5,464	953	0.023	1.8%	78.4%
2 C 3	Aluminium production	PFC	3,350	6	0.023	1.7%	80.2%
4 A 1	Cattle	CH4	10,012	3,199	0.022	1.6%	81.8%
1 A 4 b solid	Residential	CO2	2,688	91	0.017	1.3%	83.1%
2 F 1	Refrigeration and Air Conditioning Equipment	HFC	0	986	0.014	1.1%	84.1%
6 B	WASTEWATER HANDLING	CH4	2,816	2,261	0.014	1.0%	85.1%
1 B 2 b	Natural gas	CH4	8,606	3,141	0.013	1.0%	86.1%
5 F 2	Land converted to Other land	CO2	30	877	0.013	0.9%	87.1%
1 A 4 b biomass	Residential	CH4	164	866	0.011	0.9%	87.9%

1 A 4 c gaseous	Agriculture/Forestry/Fisheries	CO2	1,964	174	0.011	0.8%	88.7%
1 A 4 c liquid	Agriculture/Forestry/Fisheries	CO2	3,624	975	0.011	0.8%	89.5%
1 A 1 b liquid	Petroleum refining	CO2	4,481	1,423	0.010	0.7%	90.3%
2 B 1	Ammonia Production	CO2	4,404	2,728	0.010	0.7%	91.0%
5 B 1	Cropland remaining cropland	CO2	2,220	1,661	0.009	0.7%	91.6%
4 A 3	Sheep	CH4	6,561	3,682	0.009	0.7%	92.3%
2 A 1	Cement Production	CO2	5,609	3,150	0.007	0.6%	92.9%
1 A 1 c solid	Manufacture of Solid fuels and Other Energy Industries	CO2	1,002	4	0.007	0.5%	93.4%
1 A 3 c liquid	Railways	CO2	384	567	0.006	0.4%	93.8%
5 C 1	Grassland remaining Grassland	CO2	45	358	0.005	0.4%	94.1%
6 B	WASTEWATER HANDLING	N2O	599	614	0.005	0.4%	94.5%
4 A 4	Goats	CH4	363	455	0.004	0.3%	94.8%
2 A 3	Limestone and Dolomite Use	CO2	1,483	431	0.004	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 2012	Trend Assessment 1989-2012	Base Year (1989) Estimate $E_{x,0}$	Latest Year (2012) Estimate $E_{x,t}$	Share Latest Year (2012)
1 A 1 a liquid	Public Electricity and Heat Production	CO2	5	27	4	12,215	995	0.8%
1 A 1 a solid	Public Electricity and Heat Production	CO2	1	1	3	39,436	22,403	18.9%
1 A 1 a gaseous	Public Electricity and Heat Production	CO2	3	4	6	22,054	5,616	4.7%
1 A 1 b liquid	Petroleum refining	CO2	21	23	28	4,481	1,423	1.2%
1 A 1 b gaseous	Petroleum refining	CO2		41		-	561	0.5%
1 A 1 c liquid	Manufacture of Solid fuels and Other Energy Industries	CO2		36	33	950	701	0.6%
1 A 1 c solid	Manufacture of Solid fuels and Other Energy Industries	CO2			29	1,002	4	0.0%
1 A 1 c gaseous	Manufacture of Solid fuels and Other Energy Industries	CO2		37		-	686	0.6%
1 A 2 a solid	Iron and Steel	CO2	22	21		4,429	1,960	1.7%

1 A 2 a gaseous	Iron and Steel	CO2	12	26	12	7,157	1,055	0.9%
1 A 2 c liquid	Chemicals	CO2		39		-	579	0.5%
1 A 2 c solid	Chemicals	CO2		45		803	453	0.4%
1 A 2 c gaseous	Chemicals	CO2	2	15	2	23,891	2,468	2.1%
1 A 2 e gaseous	Food Processing, Beverages and Tobacco	CO2		35		-	727	0.6%
1 A 2 f liquid	Other	CO2	8	19	11	10,015	2,211	1.9%
1 A 2 f solid	Other	CO2	6	16	9	10,548	2,356	2.0%
1 A 2 f gaseous	Other	CO2	4	12	7	14,211	2,870	2.4%
1 A 3 b gasoline	Road Transportation	CO2	18	6	10	5,337	4,253	3.6%
1 A 3 b diesel oil	Road Transportation	CO2	25	2	1	3,389	9,617	8.1%
1 A 3 c liquid	Railways	CO2		40	30	384	567	0.5%
1 A 3 d residual oil	Navigation	CO2	35			1,458	-	0.0%
1 A 4 a gaseous	Commercial/Institutional	CO2		22		-	1,778	1.5%
1 A 4 b liquid	Residential	CO2		43		782	524	0.4%
1 A 4 b solid	Residential	CO2	29		18	2,688	91	0.1%
1 A 4 b gaseous	Residential	CO2	20	3	5	5,027	5,919	5.0%
1 A 4 c liquid	Agriculture/Forestry/Fisheries	CO2	24	29	26	3,624	975	0.8%
1 A 4 c gaseous	Agriculture/Forestry/Fisheries	CO2	32		25	1,964	174	0.1%
1 A 5 a liquid	Stationary	CO2	36	42		1,356	558	0.5%
1 A 5 a solid	Stationary	CO2	38			1,128	-	0.0%
2 A 1	Cement Production	CO2	15	9	23	5,609	3,150	2.7%
2 A 2	Lime Production	CO2	27	24		3,222	1,281	1.1%
2 A 3	Limestone and Dolomite Use	CO2	34			1,483	431	0.4%
2 B 1	Ammonia Production	CO2	23	14	22	4,404	2,728	2.3%
2 C 1	Iron and Steel Production	CO2	10	20	13	9,500	2,185	1.8%
1 A 4 b biomass	Residential	CH4		31	24	164	866	0.7%
1 B 1 a	Coal Mining	CH4	16	33	14	5,485	810	0.7%
1 B 2 a	Oil	CH4	19	18		5,052	2,242	1.9%
1 B 2 b	Natural gas	CH4	11	10	27	8,606	3,141	2.6%
1 B 2 c Venting	Venting	CH4	30	25		2,615	1,101	0.9%
4 A 1	Cattle	CH4	9	8	20	10,012	3,199	2.7%
4 A 3	Sheep	CH4	13	7	21	6,561	3,682	3.1%
4 A 4	Goats	CH4		44	34	363	455	0.4%
4 A 6	Horses	CH4			36	515	447	0.4%
4 B 8	Swine	CH4	39			1,026	336	0.3%
6 A	SOLID WASTE DISPOSAL ON LAND	CH4	37	11	8	1,241	2,966	2.5%

6 B	WASTEWATER HANDLING	CH4	28	17	17	2,816	2,261	1.9%
2 B 2	Nitric Acid Production	N2O	17	30	16	5,464	953	0.8%
4 B 13	Solid Storage and Dry Lot	N2O	33	34		1,731	777	0.7%
4 D 1	Direct Soil Emissions	N2O	7	5	32	10,260	4,630	3.9%
4 D 2	Pasture, Range and Paddock Manure	N2O	31	32		2,078	834	0.7%
4 D 3	Indirect Emissions	N2O	14	13	35	6,039	2,788	2.3%
6 B	WASTEWATER HANDLING	N2O		38	31	599	614	0.5%
2 F 1	Refrigeration and Air Conditioning Equipment	HFC		28	19	0	986	0.8%
2 C 3	Aluminium production	PFC	26		15	3,350	6	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 2012	Trend Assessment 1989-2012	Base Year (1989) Estimate E _{x,0}	Latest Year (2012) Estimate E _{x,t}
1 A 1 a liquid	Public Electricity and Heat Production	CO2	6	31	5	12,215	995
1 A 1 a solid	Public Electricity and Heat Production	CO2	1	1	6	39,436	22,403
1 A 1 a gaseous	Public Electricity and Heat Production	CO2	3	5	4	22,054	5,616
1 A 1 b liquid	Petroleum refining	CO2	23	27	30	4,481	1,423
1 A 1 b gaseous	Petroleum refining	CO2		46		-	561
1 A 1 c liquid	Manufacture of Solid fuels and Other Energy Industries	CO2		41		950	701
1 A 1 c solid	Manufacture of Solid fuels and Other Energy Industries	CO2			35	1,002	4
1 A 1 c gaseous	Manufacture of Solid fuels and Other Energy Industries	CO2		42		-	686
1 A 2 a solid	Iron and Steel	CO2	24	23		4,429	1,960
1 A 2 a gaseous	Iron and Steel	CO2	13	30	13	7,157	1,055

1 A 2 c liquid	Chemicals	CO2		44		-	579
1 A 2 c gaseous	Chemicals	CO2	2	17	2	23,891	2,468
1 A 2 e gaseous	Food Processing, Beverages and Tobacco	CO2		40		-	727
1 A 2 f liquid	Other	CO2	9	21	11	10,015	2,211
1 A 2 f solid	Other	CO2	7	18	10	10,548	2,356
1 A 2 f gaseous	Other	CO2	5	14	7	14,211	2,870
1 A 3 b gasoline	Road Transportation	CO2	20	7	17	5,337	4,253
1 A 3 b diesel oil	Road Transportation	CO2	27	3	3	3,389	9,617
1 A 3 c liquid	Railways	CO2		45	36	384	567
1 A 3 d residual oil	Navigation	CO2	38			1,458	-
1 A 4 a gaseous	Commercial/Institutional	CO2		24		-	1,778
1 A 4 b liquid	Residential	CO2		48		782	524
1 A 4 b solid	Residential	CO2	31		22	2,688	91
1 A 4 b gaseous	Residential	CO2	22	4	8	5,027	5,919
1 A 4 c liquid	Agriculture/Forestry/Fisheries	CO2	26	33	29	3,624	975
1 A 4 c gaseous	Agriculture/Forestry/Fisheries	CO2	35		28	1,964	174
1 A 5 a liquid	Stationary	CO2	39	47		1,356	558
1 A 5 a solid	Stationary	CO2	41			1,128	-
2 A 1	Cement Production	CO2	17	10	34	5,609	3,150
2 A 2	Lime Production	CO2	29	28		3,222	1,281
2 A 3	Limestone and Dolomite Use	CO2	37		40	1,483	431
2 B 1	Ammonia Production	CO2	25	16	31	4,404	2,728
2 C 1	Iron and Steel Production	CO2	11	22	14	9,500	2,185
5 A 1	Forest land remaining forest land	CO2	4	2	1	-18,623	-19,482
5 A 2	Land converted to forest land	CO2		12	9	139	-3,034
5 B 1	Cropland remaining cropland	CO2	33	26	32	-2,220	-1,661
5 C 1	Grassland remaining Grassland	CO2			37	45	358
5 D 2	Land converted to Wetlands	CO2		25	18	-215	1,750
5 E 2	Land converted to Settlements	CO2	16		15	5,664	422
5 F 2	Land converted to Other land	CO2		35	26	-30	877
1 A 4 b biomass	Residential	CH4		36	27	164	866
1 B 1 a	Coal Mining	CH4	18	38	16	5,485	810
1 B 2 a	Oil	CH4	21	20		5,052	2,242
1 B 2 b	Natural gas	CH4	12	11	25	8,606	3,141
1 B 2 c Venting	Venting	CH4	32	29		2,615	1,101
4 A 1	Cattle	CH4	10	9	21	10,012	3,199
4 A 3	Sheep	CH4	14	8	33	6,561	3,682

4 A 4	Goats	CH4		49	39	363	455
6 A	SOLID WASTE DISPOSAL ON LAND	CH4	40	13	12	1,241	2,966
6 B	WASTEWATER HANDLING	CH4	30	19	24	2,816	2,261
2 B 2	Nitric Acid Production	N2O	19	34	19	5,464	953
4 B 13	Solid Storage and Dry Lot	N2O	36	39		1,731	777
4 D 1	Direct Soil Emissions	N2O	8	6		10,260	4,630
4 D 2	Pasture, Range and Paddock Manure	N2O	34	37		2,078	834
4 D 3	Indirect Emissions	N2O	15	15		6,039	2,788
6 B	WASTEWATER HANDLING	N2O		43	38	599	614
2 F 1	Refrigeration and Air Conditioning Equipment	HFC		32	23	0	986
2 C 3	Aluminium production	PFC	28		20	3,350	6

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	N2O	10,260	0.285	28.5%
4 D 3	Indirect Emissions	N2O	6,039	0.168	45.3%
1 B 1 a	Coal Mining	CH4	5,485	0.101	55.4%
4 D 2	Pasture, Range and Paddock Manure	N2O	2,078	0.058	61.2%
1 B 2 b	Natural gas	CH4	8,606	0.040	65.2%
4 B 13	Solid Storage and Dry Lot	N2O	1,731	0.032	68.4%
1 A 1 a solid	Public Electricity and Heat Production	CO2	39,436	0.026	71.0%
1 B 2 a	Oil	CH4	5,052	0.023	73.4%
4 A 1	Cattle	CH4	10,012	0.021	75.4%
2 B 2	Nitric Acid Production	N2O	5,464	0.020	77.5%
3	SOLVENT AND OTHER PRODUCT USE	CO2	646	0.018	79.3%
2 C 3	Aluminium production	PFC	3,350	0.016	80.9%
4 A 3	Sheep	CH4	6,561	0.014	82.2%
6 B	WASTEWATER HANDLING	CH4	2,816	0.014	83.6%
1 A 2 c gaseous	Chemicals	CO2	23,891	0.013	84.9%
1 A 1 a gaseous	Public Electricity and Heat Production	CO2	22,054	0.012	86.1%
1 B 2 c Venting	Venting	CH4	2,615	0.012	87.4%

2 C 1	Iron and Steel Production	CO2	9,500	0.010	88.4%
4 B 14	Other AWMS	N2O	530	0.010	89.4%
1 A 2 f gaseous	Other	CO2	14,211	0.008	90.2%
1 A 2 f solid	Other	CO2	10,548	0.007	90.9%
1 A 1 a liquid	Public Electricity and Heat Production	CO2	12,215	0.007	91.5%
1 A 2 f liquid	Other	CO2	10,015	0.006	92.1%
6 A	SOLID WASTE DISPOSAL ON LAND	CH4	1,255	0.005	92.6%
2 B 1	Ammonia Production	CO2	4,404	0.005	93.1%
2 A 2	Lime Production	CO2	3,222	0.005	93.6%
1 B 2 a	Oil	CO2	865	0.004	94.0%
1 A 2 a gaseous	Iron and Steel	CO2	7,157	0.004	94.4%
1 A 3 b gasoline	Road Transportation	CO2	5,337	0.004	94.7%
6 B	WASTEWATER HANDLING	N2O	599	0.003	95.1%

Table 10 Tier 2 - Level Assessment of the key category analysis excluding LULUCF for the year 2012

IPCC Category Code	IPCC Category	Greenhouse Gas	Latest Year (2012) Estimate Ex,t	Level Assessment with Uncertainty LU _{x,t}	Cumulative Total of L _{x,t}
4 D 1	Direct Soil Emissions	N2O	4,630	0.312	31.2%
4 D 3	Indirect Emissions	N2O	2,788	0.188	50.0%
4 D 2	Pasture, Range and Paddock Manure	N2O	834	0.056	55.6%
2 F 1	Refrigeration and Air Conditioning Equipment	HFC	986	0.039	59.5%
1 B 1 a	Coal Mining	CH4	810	0.036	63.1%
1 B 2 b	Natural gas	CH4	3,141	0.035	66.7%
4 B 13	Solid Storage and Dry Lot	N2O	777	0.035	70.2%
6 A	SOLID WASTE DISPOSAL ON LAND	CH4	2,932	0.027	72.9%
6 B	WASTEWATER HANDLING	CH4	2,261	0.026	75.5%
1 B 2 a	Oil	CH4	2,242	0.025	78.0%
1 A 1 a solid	Public Electricity and Heat Production	CO2	22,403	0.025	80.5%
4 B 14	Other AWMS	N2O	418	0.019	82.4%
4 A 3	Sheep	CH4	3,682	0.018	84.2%
4 A 1	Cattle	CH4	3,199	0.016	85.9%
1 B 2 c Venting	Venting	CH4	1,101	0.012	87.1%

1 A 3 b diesel oil	Road Transportation	CO2	9,617	0.011	88.2%
1 A 4 b biomass	Residential	CH4	866	0.010	89.1%
2 B 2	Nitric Acid Production	N2O	953	0.009	90.0%
3	SOLVENT AND OTHER PRODUCT USE	CO2	128	0.009	90.9%
6 B	WASTEWATER HANDLING	N2O	614	0.008	91.7%
2 B 1	Ammonia Production	CO2	2,728	0.007	92.3%
1 A 3 b gasoline	Road Transportation	CO2	4,253	0.006	92.9%
2 C 1	Iron and Steel Production	CO2	2,185	0.005	93.4%
1 B 2 a	Oil	CO2	387	0.004	93.8%
1 A 4 b gaseous	Residential	CO2	5,919	0.004	94.2%
1 A 1 a gaseous	Public Electricity and Heat Production	CO2	5,616	0.004	94.6%
1 A 2 f solid	Other	CO2	2,356	0.003	94.9%
4 B 8	Swine	CH4	336	0.002	95.1%

Table 11 Tier 2 - Trend Assessment of the key category analysis excluding LULUCF for the trend 1989 – 2012 period

IPCC Category Code	IPCC Category	Greenhouse Gas	Base Year (1989) Estimate E _{x,0}	Latest Year (2012) 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	CH4	5,485	810	5.965	20.0%	20.0%
2 F 1	Refrigeration and Air Conditioning Equipment	HFC	0	986	3.486	11.7%	31.7%
4 D 1	Direct Soil Emissions	N2O	10,260	4,630	2.159	7.2%	38.9%
6 A	SOLID WASTE DISPOSAL ON LAND	CH4	1,241	2,966	2.040	6.8%	45.7%
4 D 3	Indirect Emissions	N2O	6,039	2,788	1.653	5.5%	51.3%
2 C 3	Aluminium production	PFC	3,350	6	1.411	4.7%	56.0%
6 B	WASTEWATER HANDLING	CH4	2,816	2,261	1.142	3.8%	59.8%
2 B 2	Nitric Acid Production	N2O	5,464	953	1.078	3.6%	63.4%
3	SOLVENT AND OTHER PRODUCT USE	CO2	646	128	0.859	2.9%	66.3%
1 A 3 b diesel oil	Road Transportation	CO2	3,389	9,617	0.829	2.8%	69.1%
1 A 4 b biomass	Residential	CH4	164	866	0.807	2.7%	71.8%
4 B 14	Other AWMS	N2O	530	418	0.798	2.7%	74.5%

1 A 1 a solid	Public Electricity and Heat Production	CO2	39,436	22,403	0.603	2.0%	76.5%
1 A 2 c gaseous	Chemicals	CO2	23,891	2,468	0.460	1.5%	78.0%
1 B 2 b	Natural gas	CH4	8,606	3,141	0.450	1.5%	79.6%
4 A 1	Cattle	CH4	10,012	3,199	0.439	1.5%	81.0%
6 B	WASTEWATER HANDLING	N2O	599	614	0.429	1.4%	82.5%
4 A 3	Sheep	CH4	6,561	3,682	0.429	1.4%	83.9%
2 C 1	Iron and Steel Production	CO2	9,500	2,185	0.360	1.2%	85.1%
1 A 1 a liquid	Public Electricity and Heat Production	CO2	12,215	995	0.257	0.9%	86.0%
1 A 3 b gasoline	Road Transportation	CO2	5,337	4,253	0.239	0.8%	86.8%
1 A 4 b gaseous	Residential	CO2	5,027	5,919	0.235	0.8%	87.6%
4 B 13	Solid Storage and Dry Lot	N2O	1,731	777	0.225	0.8%	88.3%
1 A 1 a gaseous	Public Electricity and Heat Production	CO2	22,054	5,616	0.220	0.7%	89.0%
1 A 2 f solid	Other	CO2	10,548	2,356	0.206	0.7%	89.7%
2 B 1	Ammonia Production	CO2	4,404	2,728	0.202	0.7%	90.4%
4 D 2	Pasture, Range and Paddock Manure	N2O	2,078	834	0.191	0.6%	91.1%
1 A 2 f gaseous	Other	CO2	14,211	2,870	0.187	0.6%	91.7%
1 A 4 b biomass	Residential	N2O	32	170	0.159	0.5%	92.2%
2 F 8	Electrical Equipment	SF6	0	41	0.144	0.5%	92.7%
1 B 2 a	Oil	CH4	5,052	2,242	0.139	0.5%	93.2%
4 A 4	Goats	CH4	363	455	0.137	0.5%	93.6%
1 A 2 f liquid	Other	CO2	10,015	2,211	0.123	0.4%	94.0%
1 A 2 a gaseous	Iron and Steel	CO2	7,157	1,055	0.118	0.4%	94.4%
2 C 2	Ferroalloys Production	CO2	474	23	0.107	0.4%	94.8%
4 A 6	Horses	CH4	515	447	0.105	0.4%	95.1%

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	N2O	10,260	10,260	0.257	25.7%
4 D 3	Indirect Emissions	N2O	6,039	6,039	0.151	40.8%
1 B 1 a	Coal Mining	CH4	5,485	5,485	0.091	49.9%
5 A 1	Forest land remaining forest land	CO2	-18,623	18,623	0.079	57.8%
4 D 2	Pasture, Range and Paddock Manure	N2O	2,078	2,078	0.052	63.0%
1 B 2 b	Natural gas	CH4	8,606	8,606	0.036	66.6%
4 B 13	Solid Storage and Dry Lot	N2O	1,731	1,731	0.029	69.5%
1 A 1 a solid	Public Electricity and Heat Production	CO2	39,436	39,436	0.024	71.8%
1 B 2 a	Oil	CH4	5,052	5,052	0.021	73.9%
4 A 1	Cattle	CH4	10,012	10,012	0.019	75.8%
2 B 2	Nitric Acid Production	N2O	5,464	5,464	0.018	77.6%
3	SOLVENT AND OTHER PRODUCT USE	CO2	646	646	0.016	79.2%
2 C 3	Aluminium production	PFC	3,350	3,350	0.015	80.7%
5 E 2	Land converted to Settlements	CO2	5,664	5,664	0.014	82.1%
4 A 3	Sheep	CH4	6,561	6,561	0.012	83.3%
6 B	WASTEWATER HANDLING	CH4	2,816	2,816	0.012	84.5%
1 A 2 c gaseous	Chemicals	CO2	23,891	23,891	0.012	85.7%
1 A 1 a gaseous	Public Electricity and Heat Production	CO2	22,054	22,054	0.011	86.8%
1 B 2 c Venting	Venting	CH4	2,615	2,615	0.011	87.9%
2 C 1	Iron and Steel Production	CO2	9,500	9,500	0.009	88.9%
4 B 14	Other AWMS	N2O	530	530	0.009	89.7%
1 A 2 f gaseous	Other	CO2	14,211	14,211	0.007	90.4%
1 A 2 f solid	Other	CO2	10,548	10,548	0.006	91.1%
1 A 1 a liquid	Public Electricity and Heat Production	CO2	12,215	12,215	0.006	91.7%
5 B 1	Cropland remaining cropland	CO2	-2,220	2,220	0.006	92.2%
1 A 2 f liquid	Other	CO2	10,015	10,015	0.005	92.8%
6 A	SOLID WASTE DISPOSAL ON LAND	CH4	1,241	1,241	0.005	93.2%
2 B 1	Ammonia Production	CO2	4,404	4,404	0.004	93.6%

2 A 2	Lime Production	CO2	3,222	3,222	0.004	94.1%
1 B 2 a	Oil	CO2	865	865	0.004	94.4%
1 A 2 a gaseous	Iron and Steel	CO2	7,157	7,157	0.004	94.8%
1 A 3 b gasoline	Road Transportation	CO2	5,337	5,337	0.003	95.1%

Table 13 Tier 2 - Level Assessment of the key category analysis including LULUCF for the year 2012

IPCC Category Code	IPCC Category	Greenhouse Gas	Latest Year (2012) Estimate Ex,t	Absolute Value of Year 2012 Estimate Ex,t	Level Assessment with Uncertainty LUX,t	Cumulative Total of L _{x,t}
4 D 1	Direct Soil Emissions	N2O	4,630	4,630	0.241	24.1%
5 A 1	Forest land remaining forest land	CO2	-19,482	19,482	0.172	41.4%
4 D 3	Indirect Emissions	N2O	2,788	2,788	0.145	55.9%
4 D 2	Pasture, Range and Paddock Manure	N2O	834	834	0.043	60.2%
2 F 1	Refrigeration and Air Conditioning Equipment	HFC	986	986	0.030	63.2%
1 B 1 a	Coal Mining	CH4	810	810	0.028	66.0%
1 B 2 b	Natural gas	CH4	3,141	3,141	0.027	68.8%
4 B 13	Solid Storage and Dry Lot	N2O	777	777	0.027	71.5%
5 A 2	Land converted to forest land	CO2	-3,034	3,034	0.027	74.1%
6 A	SOLID WASTE DISPOSAL ON LAND	CH4	2,966	2,966	0.021	76.3%
6 B	WASTEWATER HANDLING	CH4	2,261	2,261	0.020	78.3%
1 B 2 a	Oil	CH4	2,242	2,242	0.019	80.2%
1 A 1 a solid	Public Electricity and Heat Production	CO2	22,403	22,403	0.019	82.2%
4 B 14	Other AWMS	N2O	418	418	0.015	83.6%
4 A 3	Sheep	CH4	3,682	3,682	0.014	85.1%
4 A 1	Cattle	CH4	3,199	3,199	0.012	86.3%
1 B 2 c Venting	Venting	CH4	1,101	1,101	0.010	87.3%
5 D 2	Land converted to Wetlands	CO2	1,750	1,750	0.009	88.2%
5 B 1	Cropland remaining cropland	CO2	-1,661	1,661	0.009	89.0%
1 A 3 b diesel oil	Road Transportation	CO2	9,617	9,617	0.008	89.9%
1 A 4 b biomass	Residential	CH4	866	866	0.008	90.6%
2 B 2	Nitric Acid Production	N2O	953	953	0.007	91.3%
3	SOLVENT AND OTHER PRODUCT USE	CO2	128	128	0.007	92.0%
6 B	WASTEWATER HANDLING	N2O	614	614	0.006	92.6%
2 B 1	Ammonia Production	CO2	2,728	2,728	0.005	93.1%

5 F 2	Land converted to Other land	CO2	877	877	0.005	93.6%
1 A 3 b gasoline	Road Transportation	CO2	4,253	4,253	0.004	94.0%
2 C 1	Iron and Steel Production	CO2	2,185	2,185	0.004	94.4%
1 B 2 a	Oil	CO2	387	387	0.003	94.7%
1 A 4 b gaseous	Residential	CO2	5,919	5,919	0.003	95.0%

Table 14 Tier 2 - Trend Assessment of the key category analysis including LULUCF for the trend 1989 – 2012 period

IPCC Category Code	IPCC Category	Greenhouse Gas	Base Year (1989) Estimate E _{x,0}	Latest Year (2012) 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	CO2	18,623	19,482	7.950	23.0%	23.0%
1 B 1 a	Coal Mining	CH4	5,485	810	5.133	14.8%	37.8%
2 F 1	Refrigeration and Air Conditioning Equipment	HFC	0	986	2.505	7.2%	45.0%
5 A 2	Land converted to forest land	CO2	139	3,034	2.199	6.4%	51.4%
6 A	SOLID WASTE DISPOSAL ON LAND	CH4	1,241	2,966	1.427	4.1%	55.5%
2 C 3	Aluminium production	PFC	3,350	6	1.144	3.3%	58.8%
5 E 2	Land converted to Settlements	CO2	5,664	422	0.975	2.8%	61.6%
2 B 2	Nitric Acid Production	N2O	5,464	953	0.945	2.7%	64.3%
4 D 1	Direct Soil Emissions	N2O	10,260	4,630	0.827	2.4%	66.7%
3	SOLVENT AND OTHER PRODUCT USE	CO2	646	128	0.767	2.2%	68.9%
5 D 2	Land converted to Wetlands	CO2	215	1,750	0.719	2.1%	71.0%
6 B	WASTEWATER HANDLING	CH4	2,816	2,261	0.708	2.0%	73.1%
1 B 2 b	Natural gas	CH4	8,606	3,141	0.655	1.9%	75.0%
4 D 2	Pasture, Range and Paddock Manure	N2O	2,078	834	0.619	1.8%	76.7%
1 A 3 b diesel oil	Road Transportation	CO2	3,389	9,617	0.583	1.7%	78.4%
1 A 4 b biomass	Residential	CH4	164	866	0.574	1.7%	80.1%
4 B 14	Other AWMS	N2O	530	418	0.492	1.4%	81.5%
4 A 1	Cattle	CH4	10,012	3,199	0.488	1.4%	82.9%
1 A 2 c gaseous	Chemicals	CO2	23,891	2,468	0.387	1.1%	84.0%

5 F 2	Land converted to Other land	CO2	30	877	0.376	1.1%	85.1%
2 C 1	Iron and Steel Production	CO2	9,500	2,185	0.332	1.0%	86.1%
1 A 1 a solid	Public Electricity and Heat Production	CO2	39,436	22,403	0.282	0.8%	86.9%
6 B	WASTEWATER HANDLING	N2O	599	614	0.281	0.8%	87.7%
5 B 1	Cropland remaining cropland	CO2	2,220	1,661	0.269	0.8%	88.5%
1 A 1 a liquid	Public Electricity and Heat Production	CO2	12,215	995	0.214	0.6%	89.1%
4 D 3	Indirect Emissions	N2O	6,039	2,788	0.212	0.6%	89.7%
1 A 1 a gaseous	Public Electricity and Heat Production	CO2	22,054	5,616	0.210	0.6%	90.3%
4 A 3	Sheep	CH4	6,561	3,682	0.195	0.6%	90.9%
1 A 2 f solid	Other	CO2	10,548	2,356	0.189	0.5%	91.4%
1 A 2 f gaseous	Other	CO2	14,211	2,870	0.168	0.5%	91.9%
1 A 4 b gaseous	Residential	CO2	5,027	5,919	0.157	0.5%	92.4%
1 A 3 b gasoline	Road Transportation	CO2	5,337	4,253	0.148	0.4%	92.8%
5 C 1	Grassland remaining Grassland	CO2	45	358	0.147	0.4%	93.2%
1 A 4 b biomass	Residential	N2O	32	170	0.113	0.3%	93.5%
1 A 2 f liquid	Other	CO2	10,015	2,211	0.112	0.3%	93.9%
2 B 1	Ammonia Production	CO2	4,404	2,728	0.107	0.3%	94.2%
4 B 13	Solid Storage and Dry Lot	N2O	1,731	777	0.106	0.3%	94.5%
2 F 8	Electrical Equipment	SF6	0	41	0.103	0.3%	94.8%
1 A 2 a gaseous	Iron and Steel	CO2	7,157	1,055	0.102	0.3%	95.1%

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 2012	Trend Assessment 1989-2012	Level Assessment 1989	Level Assessment 2012	Trend Assessment 1989-2012	Base Year (1989) Estimate E _{x,0}	Latest Year (2012) Estimate E _{x,t}	Share Latest Year (2012)
1 A 1 a liquid	Public Electricity and Heat Production	CO2	5	27	4	5		20	12,215	995	0.8%

1 A 1 a solid	Public Electricity and Heat Production	CO2	1	1	3	1	1	13	39,436	22,403	18.9%
1 A 1 a gaseous	Public Electricity and Heat Production	CO2	3	4	6	3	4	24	22,054	5,616	4.7%
1 A 1 b liquid	Petroleum refining	CO2	21	23	28				4,481	1,423	1.2%
1 A 1 b gaseous	Petroleum refining	CO2		41					-	561	0.5%
1 A 1 c liquid	Manufacture of Solid fuels and Other Energy Industries	CO2		36	33				950	701	0.6%
1 A 1 c solid	Manufacture of Solid fuels and Other Energy Industries	CO2			29				1,002	4	0.0%
1 A 1 c gaseous	Manufacture of Solid fuels and Other Energy Industries	CO2		37					-	686	0.6%
1 A 2 a solid	Iron and Steel	CO2	22	21					4,429	1,960	1.7%
1 A 2 a gaseous	Iron and Steel	CO2	12	26	12	12		34	7,157	1,055	0.9%

1 A 2 c liquid	Chemicals	CO2		39					-	579	0.5%
1 A 2 c solid	Chemicals	CO2		45					803	453	0.4%
1 A 2 c gaseous	Chemicals	CO2	2	15	2	2		14	23,891	2,468	2.1%
1 A 2 e gaseous	Food Processing, Beverages and Tobacco	CO2		35					-	727	0.6%
1 A 2 f liquid	Other	CO2	8	19	11	8		33	10,015	2,211	1.9%
1 A 2 f solid	Other	CO2	6	16	9	6	13	25	10,548	2,356	2.0%
1 A 2 f gaseous	Other	CO2	4	12	7	4		28	14,211	2,870	2.4%
1 A 3 b gasoline	Road Transportatio n	CO2	18	6	10	17	6	21	5,337	4,253	3.6%
1 A 3 b diesel oil	Road Transportatio n	CO2	25	2	1		2	10	3,389	9,617	8.1%
1 A 3 c liquid	Railways	CO2		40	30				384	567	0.5%

1 A 3 d residual oil	Navigation	CO2	35						1,458	-	0.0%
1 A 4 a gaseous	Commercial/ Institutional	CO2		22					-	1,778	1.5%
1 A 4 b liquid	Residential	CO2		43					782	524	0.4%
1 A 4 b solid	Residential	CO2	29		18				2,688	91	0.1%
1 A 4 b gaseous	Residential	CO2	20	3	5		3	22	5,027	5,919	5.0%
1 A 4 c liquid	Agriculture/F orestry/Fishe ries	CO2	24	29	26				3,624	975	0.8%
1 A 4 c gaseous	Agriculture/F orestry/Fishe ries	CO2	32		25				1,964	174	0.1%
1 A 5 a liquid	Stationary	CO2	36	42					1,356	558	0.5%
1 A 5 a solid	Stationary	CO2	38						1,128	-	0.0%
1 B 2 a	Oil	CO2				27	26		865	387	0.3%

2 A 1	Cement Production	CO2	15	9	23				5,609	3,150	2.7%
2 A 2	Lime Production	CO2	27	24		21			3,222	1,281	1.1%
2 A 3	Limestone and Dolomite Use	CO2	34						1,483	431	0.4%
2 B 1	Ammonia Production	CO2	23	14	22	19	12	26	4,404	2,728	2.3%
2 C 1	Iron and Steel Production	CO2	10	20	13	10	16	19	9,500	2,185	1.8%
2 C 2	Ferroalloys Production	CO2						35	474	23	0.0%
3	SOLVENT AND OTHER PRODUCT USE	CO2				28	28	9	646	128	0.1%
1 A 4 b biomass	Residential	CH4		31	24		20	11	164	866	0.7%
1 B 1 a	Coal Mining	CH4	16	33	14	15	22	1	5,485	810	0.7%
1 B 2 a	Oil	CH4	19	18		18	15	31	5,052	2,242	1.9%

1 B 2 b	Natural gas	CH4	11	10	27	11	9	15	8,606	3,141	2.6%
1 B 2 c Venting	Venting	CH4	30	25		23	17		2,615	1,101	0.9%
4 A 1	Cattle	CH4	9	8	20	9	8	16	10,012	3,199	2.7%
4 A 3	Sheep	CH4	13	7	21	13	7	18	6,561	3,682	3.1%
4 A 4	Goats	CH4		44	34			32	363	455	0.4%
4 A 6	Horses	CH4			36			36	515	447	0.4%
4 B 8	Swine	CH4	39				27		1,026	336	0.3%
6 A	SOLID WASTE DISPOSAL ON LAND	CH4	37	11	8	26	10	4	1,241	2,966	2.5%
6 B	WASTEWATER HANDLING	CH4	28	17	17	22	14	7	2,816	2,261	1.9%
1 A 4 b biomass	Residential	N2O						29	32	170	0.1%

2 B 2	Nitric Acid Production	N2O	17	30	16	16	19	8	5,464	953	0.8%
4 B 13	Solid Storage and Dry Lot	N2O	33	34		25	23	23	1,731	777	0.7%
4 B 14	Other AWMS	N2O				30	25	12	530	418	0.4%
4 D 1	Direct Soil Emissions	N2O	7	5	32	7	5	3	10,260	4,630	3.9%
4 D 2	Pasture, Range and Paddock Manure	N2O	31	32		24	21	27	2,078	834	0.7%
4 D 3	Indirect Emissions	N2O	14	13	35	14	11	5	6,039	2,788	2.3%
6 B	WASTEWATER HANDLING	N2O		38	31	29	24	17	599	614	0.5%
2 F 1	Refrigeration and Air Conditioning Equipment	HFC		28	19		18	2	0	986	0.8%
2 C 3	Aluminium production	PFC	26		15	20		6	3,350	6	0.0%
2 F 8	Electrical Equipment	SF6						30	0	41	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 2012	Trend Assessment 1989-2012	Level Assessment 1989	Level Assessment 2012	Trend Assessment 1989-2012	Base Year (1989) Estimate E _{x,0}	Latest Year (2012) Estimate E _{x,t}
1 A 1 a liquid	Public Electricity and Heat Production	CO2	6	31	5	6		25	12,215	995
1 A 1 a solid	Public Electricity and Heat Production	CO2	1	1	6	1	1	22	39,436	22,403
1 A 1 a gaseous	Public Electricity and Heat Production	CO2	3	5	4	3		27	22,054	5,616
1 A 1 b liquid	Petroleum refining	CO2	23	27	30				4,481	1,423
1 A 1 b gaseous	Petroleum refining	CO2		46					-	561
1 A 1 c liquid	Manufacture of Solid fuels and Other Energy Industries	CO2		41					950	701
1 A 1 c solid	Manufacture of Solid fuels and Other Energy Industries	CO2			35				1,002	4
1 A 1 c gaseous	Manufacture of Solid fuels and Other Energy Industries	CO2		42					-	686
1 A 2 a solid	Iron and Steel	CO2	24	23					4,429	1,960
1 A 2 a gaseous	Iron and Steel	CO2	13	30	13	13		39	7,157	1,055
1 A 2 c liquid	Chemicals	CO2		44					-	579
1 A 2 c gaseous	Chemicals	CO2	2	17	2	2		19	23,891	2,468
1 A 2 e gaseous	Food Processing, Beverages and Tobacco	CO2		40					-	727

1 A 2 f liquid	Other	CO2	9	21	11	9		35	10,015	2,211
1 A 2 f solid	Other	CO2	7	18	10	7		29	10,548	2,356
1 A 2 f gaseous	Other	CO2	5	14	7	5		30	14,211	2,870
1 A 3 b gasoline	Road Transportation	CO2	20	7	17	19	6	32	5,337	4,253
1 A 3 b diesel oil	Road Transportation	CO2	27	3	3		3	15	3,389	9,617
1 A 3 c liquid	Railways	CO2		45	36				384	567
1 A 3 d residual oil	Navigation	CO2	38						1,458	-
1 A 4 a gaseous	Commercial/Institutional	CO2		24					-	1,778
1 A 4 b liquid	Residential	CO2		48					782	524
1 A 4 b solid	Residential	CO2	31		22				2,688	91
1 A 4 b gaseous	Residential	CO2	22	4	8		4	31	5,027	5,919
1 A 4 c liquid	Agriculture/Forestry/Fisheries	CO2	26	33	29				3,624	975
1 A 4 c gaseous	Agriculture/Forestry/Fisheries	CO2	35		28				1,964	174
1 A 5 a liquid	Stationary	CO2	39	47					1,356	558
1 A 5 a solid	Stationary	CO2	41						1,128	-
1 B 2 a	Oil	CO2				30	29		865	387
2 A 1	Cement Production	CO2	17	10	34				5,609	3,150
2 A 2	Lime Production	CO2	29	28		23			3,222	1,281
2 A 3	Limestone and Dolomite Use	CO2	37		40				1,483	431
2 B 1	Ammonia Production	CO2	25	16	31	21	13	36	4,404	2,728
2 C 1	Iron and Steel Production	CO2	11	22	14	11	16	21	9,500	2,185
3	SOLVENT AND	CO2				31	30	10	646	128

	OTHER PRODUCT USE									
5 A 1	Forest land remaining forest land	CO2	4	2	1	4	2	1	-18,623	-19,482
5 A 2	Land converted to forest land	CO2		12	9		10	4	139	-3,034
5 B 1	Cropland remaining cropland	CO2	33	26	32	26	18	24	-2,220	-1,661
5 C 1	Grassland remaining Grassland	CO2			37			33	45	358
5 D 2	Land converted to Wetlands	CO2		25	18		17	11	-215	1,750
5 E 2	Land converted to Settlements	CO2	16		15	16		7	5,664	422
5 F 2	Land converted to Other land	CO2		35	26		22	20	-30	877
1 A 4 b biomass	Residential	CH4		36	27		23	16	164	866
1 B 1 a	Coal Mining	CH4	18	38	16	17	25	2	5,485	810
1 B 2 a	Oil	CH4	21	20		20	15		5,052	2,242
1 B 2 b	Natural gas	CH4	12	11	25	12	9	13	8,606	3,141
1 B 2 c Venting	Venting	CH4	32	29		25	19		2,615	1,101
4 A 1	Cattle	CH4	10	9	21	10	8	18	10,012	3,199
4 A 3	Sheep	CH4	14	8	33	14	7	28	6,561	3,682
4 A 4	Goats	CH4		49	39				363	455
6 A	SOLID WASTE DISPOSAL ON LAND	CH4	40	13	12	29	11	5	1,241	2,966
6 B	WASTEWATER HANDLING	CH4	30	19	24	24	14	12	2,816	2,261
1 A 4 b biomass	Residential	N2O						34	32	170
2 B 2	Nitric Acid Production	N2O	19	34	19	18	21	8	5,464	953
4 B 13	Solid Storage and Dry Lot	N2O	36	39		28	26	37	1,731	777
4 B 14	Other AWMS	N2O				32	28	17	530	418
4 D 1	Direct Soil Emissions	N2O	8	6		8	5	9	10,260	4,630
4 D 2	Pasture, Range and	N2O	34	37		27	24	14	2,078	834

	Paddock Manure									
4 D 3	Indirect Emissions	N2O	15	15		15	12	26	6,039	2,788
6 B	WASTEWATER HANDLING	N2O		43	38		27	23	599	614
2 F 1	Refrigeration and Air Conditioning Equipment	HFC		32	23		20	3	0	986
2 C 3	Aluminium production	PFC	28		20	22		6	3,350	6
2 F 8	Electrical Equipment	SF6						38	0	41

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	2005	2006	2007	2008	2009	2010	2011	2012
1 A 1 a liquid	Liquid Fuels	Public Electricity and Heat Production	CO2	Gg	12215	20353	9774	5743	2572	1980	1088	839	1307	989	1067	995
1 A 1 a solid	Solid Fuels	Public Electricity and Heat Production	CO2	Gg	39436	26429	30925	21485	23033	26756	28341	27455	23587	20707	24286	22403
1 A 1 a gaseous	Gaseous Fuels	Public Electricity and Heat Production	CO2	Gg	22054	20789	14197	9505	8919	9275	8967	8077	6372	6162	6443	5616
1 A 1 a other	Other Fuels	Public Electricity and Heat Production	CO2	Gg	NO	NO	32	3	6	NO	NO	2	NO	NO	4	NO
1 A 1 b liquid	Liquid Fuels	Petroleum refining	CO2	Gg	4481	4277	2676	2173	2375	2103	1743	1922	1499	1703	1422	1423
1 A 1 b gaseous	Gaseous Fuels	Petroleum refining	CO2	Gg	NO	NO	647	1158	694	755	1103	939	760	770	712	561
1 A 1 c liquid	Liquid Fuels	Manufacture of Solid fuels and Other Energy Industries	CO2	Gg	950	698	1436	789	1653	1013	1217	1332	700	820	749	701

1 A 1 c solid	Solid Fuels	Manufacture of Solid fuels and Other Energy Industries	CO2	Gg	1002	NO	307	80	329	294	267	252	86	6	5	4
1 A 1 c gaseous	Gaseous Fuels	Manufacture of Solid fuels and Other Energy Industries	CO2	Gg	NO	NO	1896	1677	1551	1015	457	589	609	849	696	686
1 A 2 a liquid	Liquid Fuels	Iron and Steel	CO2	Gg	NO	NO	550	699	676	796	91	43	126	6	9	9
1 A 2 a solid	Solid Fuels	Iron and Steel	CO2	Gg	4429	2184	2201	921	1806	2006	1727	1363	969	1312	1319	1960
1 A 2 a gaseous	Gaseous Fuels	Iron and Steel	CO2	Gg	7157	6661	3042	1991	1499	1460	1612	1523	987	1100	1191	1055
1 A 2 a other	Other Fuels	Iron and Steel	CO2	Gg	NO	NO	31	25	23	19	16	60	8	9	11	6
1 A 2 b liquid	Liquid Fuels	Non-ferrous Metals	CO2	Gg	IE	IE	IE	IE	IE	IE	3	IE	IE	IE	IE	IE
1 A 2 b solid	Solid Fuels	Non-ferrous Metals	CO2	Gg	211	79	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
1 A 2 c liquid	Liquid Fuels	Chemicals	CO2	Gg	NO	NO	1515	670	293	304	862	729	719	626	654	579
1 A 2 c solid	Solid Fuels	Chemicals	CO2	Gg	803	625	62	619	601	541	467	497	527	496	499	453
1 A 2 c gaseous	Gaseous Fuels	Chemicals	CO2	Gg	23891	18499	6934	2995	3561	2993	2637	3605	2677	2658	2964	2468
1 A 2 c other	Other Fuels	Chemicals	CO2	Gg	NO	NO	486	67	173	132	104	92	48	64	62	56
1 A 2 d liquid	Liquid Fuels	Pulp, Paper and Print	CO2	Gg	NO	NO	194	94	31	28	76	3	NO	15	NO	9
1 A 2 d solid	Solid Fuels	Pulp, Paper and Print	CO2	Gg	1	NO	2	2	NO	NO	NO	NO	NO	NO	NO	NO
1 A 2 d gaseous	Gaseous Fuels	Pulp, Paper and Print	CO2	Gg	NO	NO	369	284	255	205	212	145	107	247	62	86

1 A 2 d other	Other Fuels	Pulp, Paper and Print	CO2	Gg	NO	NO	14	8	NO	NO	NO	NO	NO	NO	NO	0
1 A 2 e liquid	Liquid Fuels	Food Processing, Beverages and Tobacco	CO2	Gg	NO	NO	737	455	220	300	567	474	149	142	128	151
1 A 2 e solid	Solid Fuels	Food Processing, Beverages and Tobacco	CO2	Gg	291	125	100	15	8	5	6	NO	NO	5	2	49
1 A 2 e gaseous	Gaseous Fuels	Food Processing, Beverages and Tobacco	CO2	Gg	NO	NO	2129	667	1368	638	782	779	688	724	761	727
1 A 2 e other	Other Fuels	Food Processing, Beverages and Tobacco	CO2	Gg	NO	NO	13	9	NO	NO	NO	NO	3	34	18	27
1 A 2 f liquid	Liquid Fuels	Other	CO2	Gg	10015	6906	3882	3362	2649	2948	2728	2379	1567	1321	1881	2211
1 A 2 f solid	Solid Fuels	Other	CO2	Gg	10548	7513	372	887	2010	2116	2754	2795	1895	1869	2218	2356
1 A 2 f gaseous	Gaseous Fuels	Other	CO2	Gg	14211	13635	7313	5029	3152	3425	2985	3326	2239	2343	2485	2870
1 A 2 f other	Other Fuels	Other	CO2	Gg	NO	NO	308	59	16	9	97	115	106	146	192	198
1 A 3 a aviation gasoline	Aviation Gasoline	Civil Aviation	CO2	Gg	0	0	6	19	31	6	68	154	12	15	15	3
1 A 3 a jet kerosen e	Jet Kerosene	Civil Aviation	CO2	Gg	26	25	25	8	327	388	234	234	237	314	230	119
1 A 3 b gasoline	Gasoline	Road Transportation	CO2	Gg	5337	6591	3201	3915	4858	4505	4532	4442	4455	4198	4002	4253
1 A 3 b diesel oil	Diesel Oil	Road Transportation	CO2	Gg	3389	3648	3755	4317	6658	7593	7518	9071	9278	8885	9093	9617
1 A 3 b LPG	Liquefied Petroleum Gases (LPG)	Road Transportation	CO2	Gg	NO	NO	NO	NO	151	50	100	136	202	53	222	159
1 A 3 b other liquid	Other Liquid Fuels (please specify)		CO2	Gg	NO	125	21	6	6	12	15	12	6	NO	NO	NO

1 A 3 b gaseous	Gaseous Fuels	Road Transportation	CO2	Gg	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
1 A 3 c liquid	Liquid Fuels	Railways	CO2	Gg	384	413	863	874	210	216	564	519	389	438	588	567
1 A 3 c solid	Solid Fuels	Railways	CO2	Gg	NO	32	5	NO	NO	NO	NO	NO	NO	NO	NO	NO
1 A 3 d residual oil	Residual Oil (Residual Fuel Oil)	Navigation	CO2	Gg	1458	1017	168	190	3	3	NO	NO	NO	NO	NO	NO
1 A 3 d gas/dies el oil	Gas/Diesel Oil	Navigation	CO2	Gg	115	123	154	157	123	120	256	214	166	177	155	130
1 A 3 d gasoline	Gasoline	Navigation	CO2	Gg	1	1	0	1	0	0	1	2	1	4	1	2
1 A 3 e liquid	Liquid Fuels	Other	CO2	Gg	9	11	3	3	36	67	81	159	16	14	14	2
1 A 3 e gaseous	Gaseous Fuels	Other	CO2	Gg	NO	NO	6	68	85	80	98	129	138	27	24	25
1 A 4 a liquid	Liquid Fuels	Commercial/Insti tutional	CO2	Gg	NO	NO	16	274	700	428	624	251	189	214	324	226
1 A 4 a solid	Solid Fuels	Commercial/Insti tutional	CO2	Gg	NO	NO	NO	15	2	13	6	2	1	2	3	1
1 A 4 a gaseous	Gaseous Fuels	Commercial/Insti tutional	CO2	Gg	NO	NO	781	543	1809	3693	2476	1882	2151	2171	1757	1778
1 A 4 a other	Other Fuels	Commercial/Insti tutional	CO2	Gg	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
1 A 4 b liquid	Liquid Fuels	Residential	CO2	Gg	782	912	845	1233	1847	1295	1677	834	839	620	614	524
1 A 4 b solid	Solid Fuels	Residential	CO2	Gg	2688	2829	240	173	59	44	44	185	55	38	75	91
1 A 4 b gaseous	Gaseous Fuels	Residential	CO2	Gg	5027	5225	4142	5129	5323	5895	4737	5099	4971	5119	5421	5919
1 A 4 c liquid	Liquid Fuels	Agriculture/Forest ry/Fisheries	CO2	Gg	3624	3477	1581	797	353	487	400	474	703	676	821	975

1 A 4 c solid	Solid Fuels	Agriculture/Forestry/Fisheries	CO2	Gg	107	73	8	1	16	27	22	37	39	35	35	2
1 A 4 c gaseous	Gaseous Fuels	Agriculture/Forestry/Fisheries	CO2	Gg	1964	1919	262	49	84	69	58	111	145	171	131	174
1 A 4 c other	Other Fuels	Agriculture/Forestry/Fisheries	CO2	Gg	NO	NO	4	0	0	0	NO	NO	NO	NO	NO	NO
1 A 5 a liquid	Liquid Fuels	Stationary	CO2	Gg	1356	1310	433	172	1117	496	951	812	271	268	538	558
1 A 5 a solid	Solid Fuels	Stationary	CO2	Gg	1128	1207	32	NO	39	NO	NO	NO	NO	NO	NO	NO
1 A 5 a other	Other Fuels	Stationary	CO2	Gg	NO	NO	93	66	4	6	NO	NO	NO	NO	NO	NO
1 B 2 a	Oil	Oil	CO2	Gg	865	769	683	617	579	590	491	463	436	416	412	387
1 B 2 b	Natural Gas	Natural gas	CO2	Gg	4	3	2	1	1	1	1	1	1	1	1	1
1 B 2 c Venting	Venting	Venting	CO2	Gg	26	22	19	17	16	16	14	13	12	12	12	11
1 B 2 c Flaring	Flaring	flaring	CO2	Gg	499	416	362	325	303	310	260	245	232	222	220	208
1 B 2 d	Other	Other	CO2	Gg	5	3	2	2	2	2	2	2	1	1	1	1
2 A 1	Cement Production	Cement Production	CO2	Gg	5609	4445	3146	2656	3175	3656	4054	4143	3093	2778	3089	3150
2 A 2	Lime Production	Lime Production	CO2	Gg	3222	2389	1391	1347	1483	1645	1941	1759	1186	1275	1260	1281
2 A 3	Limestone and Dolomite Use	Limestone and Dolomite Use	CO2	Gg	1483	1061	861	636	799	817	834	565	306	427	399	431
2 A 4	Soda Ash Production and Use	Soda Ash Production and use	CO2	Gg	136	99	79	63	63	87	80	81	70	70	74	81
2 A 7	Glass	Other	CO2	Gg	219	179	118	75	77	73	69	74	56	59	59	57

2 B 1	Ammonia Production	Ammonia Production	CO2	Gg	4404	3438	3187	2163	2667	2305	2121	2381	1671	2543	3020	2728
2 B 4	Carbide Production	Carbide Production	CO2	Gg	426	322	232	134	87	58	22	13	16	18	14	9
2 C 1	Iron and Steel Production	Iron and Steel Production	CO2	Gg	9500	6154	6738	4644	5702	7062	7383	5022	3287	3003	2632	2185
2 C 2	Ferroalloys Production	Ferroalloys Production	CO2	Gg	474	331	238	142	201	96	46	22	20	49	40	23
2 C 3	Aluminium Production	Aluminium production	CO2	Gg	398	252	211	260	373	397	402	400	299	315	336	385
2 C 4	SF6 Used in Aluminium and Magnesium Foundries	SF6 Used in Aluminium and Magnesium Foundries	CO2	Gg	0	0	0	0	0	0	0	0	0	0	0	0
3	Solvent and Other Product Use	SOLVENT AND OTHER PRODUCT USE	CO2	Gg	646	541	229	224	270	208	138	135	122	125	126	128
5 A 1	Forest Land remaining Forest Land	Forest land remaining forest land	CO2	Gg	-18623	-21719	-24973	-24289	-22944	-23044	-21803	-22150	-22519	-22020	-20055	-19482
5 A 2	Land converted to Forest Land	Land converted to forest land	CO2	Gg	139	-165	-404	-786	-1161	-1620	-2255	-2477	-2606	-2801	-2917	-3034
5 B 1	Cropland remaining Cropland	Cropland remaining cropland	CO2	Gg	-2220	-2190	-1841	-1914	-1719	-1662	-1515	-1644	-1683	-1527	-1607	-1661
5 B 2	Land converted to Cropland	Land converted to cropland	CO2	Gg	-17	-17	-18	25	-5	52	-2	0	45	18	20	61
5 C 1	Grassland remaining Grassland	Grassland remaining Grassland	CO2	Gg	45	30	11	30	40	40	36	23	34	26	15	358
5 C 2	Land converted to Grassland	Land converted to grassland	CO2	Gg	-36	-628	-654	-645	-581	-581	-565	426	112	135	188	138
5 D 2	Land converted to Wetlands	Land converted to Wetlands	CO2	Gg	-215	-216	-213	-87	-336	-336	-344	-256	-82	-112	-130	1750

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1 A 1 c solid	Solid Fuels	Manufacture of Solid fuels and Other Energy Industries	CH4	Gg CO2 e	0	NO	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	CH4	Gg CO2 e	NO	NO	1	1	1	0	0	0	0	0	0	0
1 A 1 c biomass	Biomass	Manufacture of Solid fuels and Other Energy Industries	CH4	Gg CO2 e	NO	NO	NO	0	0	0	0	NO	0	0	NO	0
1 A 1 c other	Other Fuels		CH4	Gg CO2 e	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
1 A 2 a liquid	Liquid Fuels	Iron and Steel	CH4	Gg CO2 e	NO	NO	0	0	0	0	0	0	0	0	0	0
1 A 2 a solid	Solid Fuels	Iron and Steel	CH4	Gg CO2 e	10	5	5	2	4	5	4	3	2	3	3	4
1 A 2 a gaseous	Gaseous Fuels	Iron and Steel	CH4	Gg CO2 e	14	13	6	4	3	3	3	3	2	2	2	2
1 A 2 a biomass	Biomass	Iron and Steel	CH4	Gg CO2 e	NO	NO	0	0	NO	0	0	NO	NO	NO	0	NA,NO
1 A 2 a other	Other Fuels	Iron and Steel	CH4	Gg CO2 e	NO	NO	0	0	0	0	0	0	0	0	0	0
1 A 2 b liquid	Liquid Fuels	Non-ferrous Metals	CH4	Gg CO2 e	IE	IE	IE	IE	IE	IE	0	IE	IE	IE	IE	IE
1 A 2 b solid	Solid Fuels	Non-ferrous Metals	CH4	Gg CO2 e	0	0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
1 A 2 c liquid	Liquid Fuels	Chemicals	CH4	Gg CO2 e	NO	NO	2	1	0	0	1	1	1	1	1	1
1 A 2 c solid	Solid Fuels	Chemicals	CH4	Gg CO2 e	2	1	0	1	1	1	1	1	1	1	1	1
1 A 2 c gaseous	Gaseous Fuels	Chemicals	CH4	Gg CO2 e	45	35	13	6	7	6	5	7	5	5	6	5

1 A 2 c biomass	Biomass	Chemicals	CH4	Gg CO2 e	NO	NO	0	0	0	NO	0	0	0	1	1	1
1 A 2 c other	Other Fuels	Chemicals	CH4	Gg CO2 e	NO	NO	4	1	1	1	1	1	0	0	0	0
1 A 2 d liquid	Liquid Fuels	Pulp, Paper and Print	CH4	Gg CO2 e	NO	NO	0	0	0	0	0	0	NO	0	NO	0
1 A 2 d solid	Solid Fuels	Pulp, Paper and Print	CH4	Gg CO2 e	0	NO	0	0	NO	NO	NO	NO	NO	NO	NO	NO
1 A 2 d gaseous	Gaseous Fuels	Pulp, Paper and Print	CH4	Gg CO2 e	NO	NO	1	1	0	0	0	0	0	0	0	0
1 A 2 d biomass	Biomass	Pulp, Paper and Print	CH4	Gg CO2 e	NO	NO	1	2	2	3	2	0	0	0	0	0
1 A 2 d other	Other Fuels	Pulp, Paper and Print	CH4	Gg CO2 e	NO	NO	0	0	NO	NO	NO	NO	NO	NO	NO	0
1 A 2 e liquid	Liquid Fuels	Food Processing, Beverages and Tobacco	CH4	Gg CO2 e	NO	NO	0	0	0	0	0	0	0	0	0	0
1 A 2 e solid	Solid Fuels	Food Processing, Beverages and Tobacco	CH4	Gg CO2 e	1	0	0	0	0	0	0	-	-	0	0	0
1 A 2 e gaseous	Gaseous Fuels	Food Processing, Beverages and Tobacco	CH4	Gg CO2 e	NO	NO	4	1	3	1	1	1	1	1	1	1
1 A 2 e biomass	Biomass	Food Processing, Beverages and Tobacco	CH4	Gg CO2 e	NO	NO	0	0	0	1	1	0	1	1	1	2
1 A 2 e other	Other Fuels	Food Processing, Beverages and Tobacco	CH4	Gg CO2 e	NO	NO	0	0	NO	NO	NO	NO	0	0	0	0
1 A 2 f liquid	Liquid Fuels	Other	CH4	Gg CO2 e	5	4	2	2	1	2	2	1	1	1	1	1
1 A 2 f solid	Solid Fuels	Other	CH4	Gg CO2 e	22	16	1	2	4	4	6	6	4	4	5	6
1 A 2 f gaseous	Gaseous Fuels	Other	CH4	Gg CO2 e	27	26	14	10	6	7	6	6	4	4	5	5

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1 A 4 c biomass	Biomass	Agriculture/Forestry/Fisheries	CH4	Gg CO2 e	NO	NO	2	1	1	2	10	4	3	2	1	1
1 A 4 c other	Other Fuels	Agriculture/Forestry/Fisheries	CH4	Gg CO2 e	NO	NO	0	0	0	0	NO	NO	NO	NO	NO	NO
1 A 5 a liquid	Liquid Fuels	Stationary	CH4	Gg CO2 e	1	1	0	0	1	0	1	0	0	0	0	0
1 A 5 a solid	Solid Fuels	Stationary	CH4	Gg CO2 e	2	3	0	NO	0	NO	NO	NO	NO	NO	NO	NO
1 A 5 a biomass	Biomass	Stationary	CH4	Gg CO2 e	NO	NO	10	4	49	46	40	37	33	34	47	20
1 A 5 a other	Other Fuels	Stationary	CH4	Gg CO2 e	NO	NO	7	5	0	0	NO	NO	NO	NO	NO	NO
1 B 1 a	Coal Mining and Handling	Coal Mining	CH4	Gg CO2 e	5485	3240	2670	2666	2022	1785	1142	1037	900	761	860	810
1 B 1 b	Solid Fuel Transformation	Solid fuel transformation	CH4	Gg CO2 e	56	35	38	17	18	19	18	12	4	0	NO	NO
1 B 2 a	Oil	Oil	CH4	Gg CO2 e	5052	7871	4898	3838	3511	3176	2933	2950	2704	2502	2428	2242
1 B 2 b	Natural Gas	Natural gas	CH4	Gg CO2 e	8606	7088	4465	3530	3716	3591	3430	3553	3246	3334	3409	3141
1 B 2 c Venting	Venting	Venting	CH4	Gg CO2 e	2615	2189	1919	1723	1611	1645	1377	1300	1229	1175	1166	1101
1 B 2 c Flaring	Flaring	flaring	CH4	Gg CO2 e	15	11	8	7	6	6	6	6	5	5	5	5
2 B 4	Carbide Production	Carbide Production	CH4	Gg CO2 e	NE	NE	NE	NE	18	16	NO	13	6	10	12	12
2 B 5	Other	CHEMICAL INDUSTRY	CH4	Gg CO2 e	103	70	53	38	42	46	31	22	9	8	2	3
4 A 1	Cattle	Cattle	CH4	Gg CO2 e	10012	8564	5564	4568	4553	4642	4469	4252	4001	3218	3178	3199

4 A 2	Buffalo	Buffalo	CH4	Gg CO2 e	146	125	81	66	86	77	61	58	58	50	41	40
4 A 3	Sheep	Sheep	CH4	Gg CO2 e	6561	5959	4367	3215	3177	3205	3534	3708	3816	3510	3557	3682
4 A 4	Goats	Goats	CH4	Gg CO2 e	363	358	252	193	247	262	311	323	330	447	445	455
4 A 6	Horses	Horses	CH4	Gg CO2 e	515	521	627	673	648	626	670	638	594	474	464	447
4 A 7	Mules and Asses	Mules and Asses	CH4	Gg CO2 e	22	22	20	19	18	18	18	18	19	19	19	19
4 A 8	Swine	Swine	CH4	Gg CO2 e	376	386	256	154	216	221	212	200	188	177	173	167
4 B 1	Cattle	Cattle	CH4	Gg CO2 e	634	542	169	146	167	354	277	227	188	125	123	124
4 B 2	Buffalo	Buffalo	CH4	Gg CO2 e	2	2	1	1	1	1	1	1	1	1	1	1
4 B 3	Sheep	Sheep	CH4	Gg CO2 e	96	88	82	60	60	61	67	70	72	66	67	70
4 B 4	Goats	Goats	CH4	Gg CO2 e	10	10	7	5	7	7	8	9	9	12	12	12
4 B 6	Horses	Horses	CH4	Gg CO2 e	25	26	23	25	40	41	42	39	34	25	25	24
4 B 7	Mules and Asses	Mules and Asses	CH4	Gg CO2 e	2	2	2	2	2	2	2	2	2	2	2	2
4 B 8	Swine	Swine	CH4	Gg CO2 e	1026	1002	376	160	428	494	457	446	414	362	350	336
4 B 9	Poultry	Poultry	CH4	Gg CO2 e	18	19	8	2	16	16	16	17	17	16	16	16
4 C 1	Irrigated	RICE CULTIVATION	CH4	Gg CO2 e	62	50	9	2	6	8	13	15	28	19	19	17

4 F	Field Burning of Agricultural Residues	FIELD BURNING OF AGRICULTURAL RESIDUES	CH4	Gg CO2e	120	107	119	68	120	101	52	105	92	102	127	74
5 A 1	Forest Land remaining Forest Land	Forest land remaining forest land	CH4	Gg CO2e	0	1	1	9	1	2	8	2	3	1	8	17
6 A	Solid Waste Disposal on Land	SOLID WASTE DISPOSAL ON LAND	CH4	Gg CO2e	1255	1292	1529	1914	2478	2534	2675	2781	2883	2926	2445	2932
6 B	Waste-water Handling	WASTEWATER HANDLING	CH4	Gg CO2e	2816	2687	2596	2540	2212	2186	2237	2203	2153	2150	2253	2261
1 A 1 a liquid	Liquid Fuels	Public Electricity and Heat Production	N2O	Gg CO2E	29	49	23	14	6	5	2	2	3	2	2	2
1 A 1 a solid	Solid Fuels	Public Electricity and Heat Production	N2O	Gg CO2E	184	123	144	100	107	124	126	126	112	101	121	110
1 A 1 a gaseous	Gaseous Fuels	Public Electricity and Heat Production	N2O	Gg CO2E	12	12	8	5	5	5	5	4	4	3	4	3
1 A 1 a biomass	Biomass	Public Electricity and Heat Production	N2O	Gg CO2E	NO	NO	0	0	0	1	1	1	1	2	2	2
1 A 1 a other	Other Fuels	Public Electricity and Heat Production	N2O	Gg CO2E	NO	NO	0	0	0	NO	NO	0	NO	NO	0	NO
1 A 1 b liquid	Liquid Fuels	Petroleum refining	N2O	Gg CO2E	5	4	3	2	2	2	2	2	1	2	2	2
1 A 1 b gaseous	Gaseous Fuels	Petroleum refining	N2O	Gg CO2E	NO	NO	0	1	0	0	1	1	0	0	0	0
1 A 1 c liquid	Liquid Fuels	Manufacture of Solid fuels and Other Energy Industries	N2O	Gg CO2E	2	2	4	2	4	2	3	3	1	2	2	1
1 A 1 c solid	Solid Fuels	Manufacture of Solid fuels and Other Energy Industries	N2O	Gg CO2E	5	NO	1	0	0	0	0	0	0	0	0	0
1 A 1 c gaseous	Gaseous Fuels	Manufacture of Solid fuels and Other Energy	N2O	Gg CO2E	NO	NO	1	1	1	1	0	0	0	0	0	0

		Industries														
1 A 1 c biomass	Biomass	Manufacture of Solid fuels and Other Energy Industries	N2O	Gg CO2 E	NO	NO	NO	0	0	0	0	NO	0	0	NO	0
1 A 2 a liquid	Liquid Fuels	Iron and Steel	N2O	Gg CO2 E	NO	NO	1	2	2	2	0	0	0	0	0	0
1 A 2 a solid	Solid Fuels	Iron and Steel	N2O	Gg CO2 E	16	7	7	3	7	8	7	6	4	6	6	9
1 A 2 a gaseous	Gaseous Fuels	Iron and Steel	N2O	Gg CO2 E	4	4	2	1	1	1	1	1	1	1	1	1
1 A 2 a biomass	Biomass	Iron and Steel	N2O	Gg CO2 E	NO	NO	0	0	-	0	0	NO	NO	NO	0	NA,NO
1 A 2 a other	Other Fuels	Iron and Steel	N2O	Gg CO2 E	NO	NO	0	0	0	0	0	1	0	0	0	0
1 A 2 b liquid	Liquid Fuels	Non-ferrous Metals	N2O	Gg CO2 E	IE	IE	IE	IE	IE	IE	0	IE	IE	IE	IE	IE
1 A 2 b solid	Solid Fuels	Non-ferrous Metals	N2O	Gg CO2 E	1	0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
1 A 2 c liquid	Liquid Fuels	Chemicals	N2O	Gg CO2 E	NO	NO	2	1	1	1	1	1	1	0	0	0
1 A 2 c solid	Solid Fuels	Chemicals	N2O	Gg CO2 E	4	3	0	3	3	2	2	2	2	2	2	2
1 A 2 c gaseous	Gaseous Fuels	Chemicals	N2O	Gg CO2 E	13	10	4	2	2	2	1	2	2	1	2	1
1 A 2 c biomass	Biomass	Chemicals	N2O	Gg CO2 E	NO	NO	0	0	0	NO	0	0	0	1	2	1
1 A 2 c other	Other Fuels	Chemicals	N2O	Gg CO2 E	NO	NO	7	1	3	2	2	1	1	1	1	1

1 A 2 d liquid	Liquid Fuels	Pulp, Paper and Print	N2O	Gg CO2 E	NO	NO	0	0	0	0	0	0	0	NO	0	NO	0
1 A 2 d solid	Solid Fuels	Pulp, Paper and Print	N2O	Gg CO2 E	0	NO	0	0	NO	NO	NO	NO	NO	NO	NO	NO	NO
1 A 2 d gaseous	Gaseous Fuels	Pulp, Paper and Print	N2O	Gg CO2 E	NO	NO	0	0	0	0	0	0	0	0	0	0	0
1 A 2 d biomass	Biomass	Pulp, Paper and Print	N2O	Gg CO2 E	NO	NO	3	4	5	5	4	1	0	0	0	0	0
1 A 2 d other	Other Fuels	Pulp, Paper and Print	N2O	Gg CO2 E	NO	NO	0	0	NO	NO	NO	NO	NO	NO	NO	NO	0
1 A 2 e liquid	Liquid Fuels	Food Processing, Beverages and Tobacco	N2O	Gg CO2 E	NO	NO	2	1	0	1	1	1	0	0	0	0	0
1 A 2 e solid	Solid Fuels	Food Processing, Beverages and Tobacco	N2O	Gg CO2 E	1	1	0	0	0	0	0	NO	NO	0	0	0	0
1 A 2 e gaseous	Gaseous Fuels	Food Processing, Beverages and Tobacco	N2O	Gg CO2 E	NO	NO	1	0	1	0	0	0	0	0	0	0	0
1 A 2 e biomass	Biomass	Food Processing, Beverages and Tobacco	N2O	Gg CO2 E	NO	NO	1	1	1	1	1	1	2	2	2	2	3
1 A 2 e other	Other Fuels	Food Processing, Beverages and Tobacco	N2O	Gg CO2 E	NO	NO	0	0	NO	NO	NO	NO	0	1	0	0	0
1 A 2 f liquid	Liquid Fuels	Other	N2O	Gg CO2 E	24	17	9	8	6	6	6	5	3	3	3	4	5
1 A 2 f solid	Solid Fuels	Other	N2O	Gg CO2 E	46	33	1	4	9	9	12	13	9	9	9	11	12
1 A 2 f gaseous	Gaseous Fuels	Other	N2O	Gg CO2 E	8	8	4	3	2	2	2	2	1	1	1	1	2
1 A 2 f biomass	Biomass	Other	N2O	Gg CO2 E	1	1	11	9	8	13	14	11	11	14	17	17	24
1 A 2 f other	Other Fuels	Other	N2O	Gg CO2 E	NO	NO	5	1	0	0	1	2	2	2	2	3	3

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1 A 3 e gaseous	Gaseous Fuels	Other	N2O	Gg CO2 E	NO	NO	0	0	0	0	0	0	0	0	0	0
1 A 3 e biomass	Biomass	Other	N2O	Gg CO2 E	NO	1	0	0	0	0	0	0	0	NO	0	0
1 A 4 a liquid	Liquid Fuels	Commercial/Insti tutional	N2O	Gg CO2 E	NO	NO	0	1	1	1	1	1	0	0	1	0
1 A 4 a solid	Solid Fuels	Commercial/Insti tutional	N2O	Gg CO2 E	NO	NO	NO	0	0	0	0	0	0	0	0	0
1 A 4 a gaseous	Gaseous Fuels	Commercial/Insti tutional	N2O	Gg CO2 E	NO	NO	0	0	1	2	1	1	1	1	1	1
1 A 4 b liquid	Liquid Fuels	Residential	N2O	Gg CO2 E	1	1	1	2	2	2	2	1	0	0	0	0
1 A 4 b solid	Solid Fuels	Residential	N2O	Gg CO2 E	12	13	1	1	0	0	0	1	0	0	0	0
1 A 4 b gaseous	Gaseous Fuels	Residential	N2O	Gg CO2 E	3	3	2	3	3	3	3	3	3	3	3	3
1 A 4 b biomass	Biomass	Residential	N2O	Gg CO2 E	32	30	52	127	142	133	139	178	176	183	163	170
1 A 4 c liquid	Liquid Fuels	Agriculture/Forest ry/Fisheries	N2O	Gg CO2 E	9	9	4	2	1	1	1	1	2	2	2	2
1 A 4 c solid	Solid Fuels	Agriculture/Forest ry/Fisheries	N2O	Gg CO2 E	0	0	0	0	0	0	0	0	0	0	0	0
1 A 4 c gaseous	Gaseous Fuels	Agriculture/Forest ry/Fisheries	N2O	Gg CO2 E	1	1	0	0	0	0	0	0	0	0	0	0
1 A 4 c biomass	Biomass	Agriculture/Forest ry/Fisheries	N2O	Gg CO2 E	NO	NO	0	0	0	0	2	1	1	0	0	0
1 A 4 c other	Other Fuels	Agriculture/Forest ry/Fisheries	N2O	Gg CO2 E	NO	NO	0	0	0	0	NO	NO	NO	NO	NO	NO
1 A 5 a liquid	Liquid Fuels	Stationary	N2O	Gg CO2 E	3	3	1	0	3	1	2	2	1	1	1	1

1 A 5 a solid	Solid Fuels	Stationary	N2O	Gg CO2 E	5	5	0	NO	0	NO	NO	NO	NO	NO	NO	NO
1 A 5 a biomass	Biomass	Stationary	N2O	Gg CO2 E	NO	NO	2	1	10	9	8	7	7	7	12	4
1 A 5 a other	Other Fuels	Stationary	N2O	Gg CO2 E	NO	NO	1	1	0	0	NO	NO	NO	NO	NO	NO
1 B 2 a	Oil	Oil	N2O	Gg CO2 E	2	2	1	1	1	1	1	1	1	1	1	1
1 B 2 c Flaring	Flaring	flaring	N2O	Gg CO2 E	2	2	2	2	1	1	1	1	1	1	1	1
2 B 2	Nitric Acid Production	Nitric Acid Production	N2O	Gg CO2 E	5464	3460	2690	2351	2919	2334	2719	2530	517	1152	1210	953
2 B 3	Adipic Acid Production	Adipic Acid Production	N2O	Gg CO2 E	678	574	592	862	NO	NO	NO	NO	NO	NO	NO	NO
4 B 11	Anaerobic Lagoons	Anaerobic	N2O	Gg CO2 E	58	58	22	10	22	27	25	24	23	20	19	19
4 B 12	Liquid Systems	Liquid Systems	N2O	Gg CO2 E	6	5	1	1	1	4	3	2	1	1	1	1
4 B 13	Solid Storage and Dry Lot	Solid Storage and Dry Lot	N2O	Gg CO2 E	1731	1478	1137	858	1083	1004	1020	1027	893	780	772	777
4 B 14	Other AWMS	Other AWMS	N2O	Gg CO2 E	530	579	240	27	349	339	412	468	480	432	416	418
4 D 1	Direct Soil Emissions	Direct Soil Emissions	N2O	Gg CO2 E	10260	9088	5948	4387	5449	5250	4455	5018	5053	5144	5349	4630
4 D 2	Pasture, Range and Paddock Manure	Pasture, Range and Paddock Manure	N2O	Gg CO2 E	2078	1824	1335	1095	1035	1079	1076	1023	981	840	831	834
4 D 3	Indirect Emissions	Indirect Emissions	N2O	Gg CO2 E	6039	5858	3448	2697	3174	2987	3017	3032	3029	2885	2892	2788
4 F	Field Burning of Agricultural Residues	FIELD BURNING OF AGRICULTURA	N2O	Gg CO2 E	43	37	41	23	43	37	19	35	32	36	44	25

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Table NIR. 3, as contained in the Annex to Decision 6/CMP. 3 (and containing information associated with KP - LULUCF and 2012 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