LITHUANIA‘S NATIONAL INVENTORY REPORT 2015

GREENHOUSE GAS EMISSIONS 1990-2013

ANNEXES

VILNIUS, 2015

ANNEX I. Tier 1 and Tier 2 key categories analysis

Approach 1 Level Assessment for 1990

IPCC Category	Greenhouse gas	*GHG emissions, kt CO_2 eqv*	Level assessment	Cumulative total
4.A.1 Forest land remaining forest land - carbon stock change in biomass	CO_2	6680.01	0.10	10.3%
1.A.1.a Public electricity and heat production - Liquid Fuels	CO_2	6021.25	0.09	19.6%
1.A.1.a Public electricity and heat production - Gaseous Fuels	CO_2	5806.05	0.09	28.6%
1.A.3.b Road transportation	CO_2	5247.15	0.08	36.7%
4.B.2 Land converted to cropland - net carbon stock change in mineral soils	CO_2	4615.45	0.07	43.9%
3.A.1 Enteric Fermentation - Cattle	CH_4	4118.23	0.06	50.2%
1.A.2 Manufacturing industries and construction-Liquid fuels	CO_2	3500.92	0.05	55.7%
1.A.4 Other sectors-Solid fuels	CO_2	2760.55	0.04	59.9%
4.C.2 Land converted to grassland - net carbon stock change in mineral soils	CO_2	2082.10	0.03	63.1%
1.A.2 Manufacturing industries and construction-Gaseous fuels	CO_2	2048.76	0.03	66.3%
1.A.3.e Other transportation	CO_2	1764.11	0.03	69.0%
2.A.1 Cement Production	CO_2	1668.07	0.03	71.6%
1.A.1.b Petroleum refining - Liquid Fuels	CO_2	1497.75	0.02	73.9%
1.A.4 Other sectors-Liquid fuels	CO_2	1429.58	0.02	76.1%
1.A.4 Other sectors-Gaseous fuels	CO_2	1381.52	0.02	78.3%
2.B.1 Ammonia Production	CO_2	1255.82	0.02	80.2%
5.A Solid Waste Disposal	CH_4	1028.83	0.02	81.8%
3.D.1.1 Direct N_2O Emissions From Managed Soils - Inorganic N Fertilizers	N_2O	992.77	0.02	83.4%
2.B.2 Nitric Acid Production	N_2O	893.01	0.01	84.7%
4.A.2 Land converted to forest land - carbon stock change in biomass	CO_2	585.97	0.01	85.6%
3.D.1.6 Direct N_2O Emissions From Managed Soils - Cultivation of organic soils	N_2O	542.52	0.01	86.5%
5.D Wastewater Treatment and Discharge	CH_4	541.86	0.01	87.3%
4.D.1 Wetland remaining wetlands -net carbon stock change in organic soils	CO_2	517.33	0.01	88.1%
4.A.1 Forest land remaining forest land - net carbon stock change in dead wood	CO_2	474.03	0.01	88.8%
4.A.2 Land converted to forest land - net carbon stock change in litter	CO_2	448.14	0.01	89.5%
3.D.1.3 Direct N_2O Emissions From Managed	N_2O	422.12	0.01	90.2%

IPCC Category	Greenhouse gas	*GHG emissions, kt CO_2 eqv*	Level assessment	Cumulative total
Soils - Urine and dung deposited by grazing animals				
4.A Forest land-4(II) organic soils	CO_2	406.04	0.01	90.8%
3.D.1.2 Direct N_2O Emissions From Managed Soils - Organic N Fertilizers	N_2O	395.87	0.01	91.4%
3.D.2.2 Indirect N_2O Emissions From Managed Soils - Nitrogen leaching and run-off	N_2O	392.09	0.01	92.0%
3.B.1.3 Manure Management - Swine	CH_4	355.08	0.01	92.6%
1.A.3.c Railways	CO_2	349.97	0.01	93.1%
4.B.1 Cropland remaining cropland - net carbon stock change in mineral soils	CO_2	281.82	0.00	93.6%
3.B.1.1 Manure Management - Cattle	CH_4	255.03	0.00	94.0%
2.A.4 Other process use of carbonates	CO_2	239.52	0.00	94.3%
3.B.2 Manure Management - Indirect N_2O Emissions	N_2O	229.98	0.00	94.7%
3.D.2.1 Indirect N_2O Emissions From Managed Soils - Atmospheric deposition	N_2O	222.80	0.00	95.0%
2.A.2 Lime Production	CO_2	222.68	0.00	95.4%
3.B.2 Manure Management - Cattle	N_2O	204.47	0.00	95.7%
1.A.3.e Other transportation	N_2O	186.55	0.00	96.0%
4.B.1 Cropland remaining cropland - net carbon stock change in organic soils	CO_2	178.17	0.00	96.3%
1.A.1. Energy industries-Solid fuels	CO_2	174.05	0.00	96.5%
1.A.2 Manufacturing industries and construction-Solid fuels	CO_2	171.63	0.00	96.8%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH_4	165.79	0.00	97.0%
4.B.2 Land converted to cropland- net carbon stock change in organic soils	CO_2	133.17	0.00	97.3%
3.D.1.4 Direct N_2O Emissions From Managed Soils - Crop Residues	N_2O	131.85	0.00	97.5%
1.A.4 Other sectors-Solid fuels	CH_4	128.56	0.00	97.7%
3.A. Enteric Fermentation - Others	CH_4	118.06	0.00	97.8%
3.B.1 Manure Management - Other	N_2O	109.48	0.00	98.0%
4.B.2 Land converted to cropland- carbon stock change in biomass	CO_2	98.41	0.00	98.2%
4.G Harvested wood products	CO_2	95.65	0.00	98.3%
2.G Other product manufacture and use	N_2O	93.35	0.00	98.5%
4.C.1 Grassland remaining grassland	CO_2	80.81	0.00	98.6%
2. D Non-energy products from fuels and solvent use	CO_2	77.50	0.00	98.7%

IPCC Category	Greenhouse gas	*GHG emissions, kt CO_2 eqv*	Level assessment	Cumulative total
4.B.1 Cropland remaining cropland - carbon stock change in biomass	CO_2	77.39	0.00	98.8%
3.B.1 Manure Management - Other	CH_4	75.24	0.00	98.9%
1.A.4 Other sectors-Biomass	CH_4	70.28	0.00	99.0%
5.D Wastewater Treatment and Discharge	N_2O	67.21	0.00	99.1%
4.C.2 Land converted to grassland- net carbon stock change in organic soils	CO_2	57.14	0.00	99.2%
1.A.3.b Road transportation	CH_4	48.11	0.00	99.3%
1.A.3.c Railways	N_2O	40.92	0.00	99.4%
1.A.3.b Road transportation	N_2O	39.09	0.00	99.4%
3.H Urea Application	CO_2	35.68	0.00	99.5%
1.A.4 Other sectors-Peat	CO_2	27.13	0.00	99.5%
2.B.8.a Methanol	CO_2	24.35	0.00	99.6%
4.A Forest land	N_2O	21.63	0.00	99.6%
3.G Liming	CO_2	20.59	0.00	99.6%
1.A.2 Manufacturing industries and construction-Peat	CO_2	17.53	0.00	99.7%
1.A.1. Energy industries-Liquid fuels	N_2O	16.11	0.00	99.7%
1.A.3.d Domestic Navigation	CO_2	15.49	0.00	99.7%
2.C.1 Iron and Steel Production	CO_2	14.57	0.00	99.7%
1.A.4 Other sectors-Solid fuels	N_2O	13.00	0.00	99.8%
1.A.4 Other sectors-Biomass	N_2O	12.97	0.00	99.8%
4.D Wetlands	N_2O	11.92	0.00	99.8%
2.A.3 Glass Production	CO_2	11.70	0.00	99.8%
1.A.1. Energy industries-Peat	CO_2	11.06	0.00	99.8%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH_4	10.94	0.00	99.8%
1. Miscellaneous	CO_2	9.69	0.00	99.9%
2.H Other	CO_2	9.66	0.00	99.9%
1.A.3.a Domestic aviation	CO_2	8.16	0.00	99.9%
1.A.2 Manufacturing industries and construction-Liquid fuels	N_2O	8.06	0.00	99.9%
1.A.1. Energy industries-Liquid fuels	CH_4	6.90	0.00	99.9%
2.B.8.a Methanol	CH_4	5.24	0.00	99.9%
1.A.3.e Other transportation	CH_4	4.30	0.00	99.9%
4.A.1 Forest land remaining forest land	CO_2	4.28	0.00	99.9%
1.A.4 Other sectors-Liquid fuels	CH_4	4.17	0.00	99.9%
5.B Biological Treatment of Solid Waste	CH_4	4.04	0.00	99.9%
5.B Biological Treatment of Solid Waste	N_2O	3.61	0.00	99.9%

IPCC Category	Greenhouse gas	*GHG emissions, kt CO_2 eqv*	Level assessment	Cumulative total
1.A.2 Manufacturing industries and construction-Liquid fuels	CH_4	3.38	0.00	100.0%
1.A.1. Energy industries-Gaseous fuels	N_2O	3.13	0.00	100.0%
1.A.4 Other sectors-Gaseous fuels	CH_4	3.13	0.00	100.0%
1.A.4 Other sectors-Liquid fuels	N_2O	2.67	0.00	100.0%
5.C Incineration and Open Burning of Waste	CO_2	2.66	0.00	100.0%
1.A.1. Energy industries-Gaseous fuels	CH_4	2.63	0.00	100.0%
4.C Grassland	N_2O	2.31	0.00	100.0%
4.C Grassland	CH_4	2.12	0.00	100.0%
1.A.4 Other sectors-Peat	CH_4	1.12	0.00	100.0%
1.A.2 Manufacturing industries and construction-Gaseous fuels	N_2O	1.11	0.00	100.0%
1.A.2 Manufacturing industries and construction-Gaseous fuels	CH_4	0.93	0.00	100.0%
1.A.1. Energy industries-Solid fuels	N_2O	0.82	0.00	100.0%
1.A.2 Manufacturing industries and construction-Solid fuels	N_2O	0.81	0.00	100.0%
1.A.4 Other sectors-Gaseous fuels	N_2O	0.75	0.00	100.0%
4.A Forest land	CH_4	0.71	0.00	100.0%
1.B.2 Oil, natural gas and other emissions from energy production	CO_2	0.66	0.00	100.0%
1.A.1. Energy industries-Biomass	N_2O	0.63	0.00	100.0%
4.B Cropland	N_2O	0.60	0.00	100.0%
1.A.2 Manufacturing industries and construction-Biomass	N_2O	0.60	0.00	100.0%
1.A.3.c Railways	CH_4	0.50	0.00	100.0%
1.A.2 Manufacturing industries and construction-Solid fuels	CH_4	0.45	0.00	100.0%
1.A.1. Energy industries-Biomass	CH_4	0.40	0.00	100.0%
1.A.2 Manufacturing industries and construction-Biomass	CH_4	0.38	0.00	100.0%
1.B.2.c Fugitive Emissions from Fuels - Venting and flaring	CH_4	0.26	0.00	100.0%
1.A.4 Other sectors-Peat	N_2O	0.11	0.00	100.0%
5.C Incineration and Open Burning of Waste	N_2O	0.08	0.00	100.0%
1.A.2 Manufacturing industries and construction-Peat	N_2O	0.08	0.00	100.0%
1.A.3.a Domestic aviation	N_2O	0.07	0.00	100.0%
4.B Cropland	CH_4	0.05	0.00	100.0%
1.A.1. Energy industries-Peat	N_2O	0.05	0.00	100.0%

IPCC Category	Greenhouse gas	*GHG emissions, kt CO_2 eqv*	Level assessment	Cumulative total
1.A.1. Energy industries-Solid fuels	CH_4	0.05	0.00	100.0%
1.A.3.d Domestic Navigation	N_2O	0.04	0.00	100.0%
1.A.3.d Domestic Navigation	CH_4	0.03	0.00	100.0%
1.A.2 Manufacturing industries and construction-Peat	CH_4	0.01	0.00	100.0%
5.C Incineration and Open Burning of Waste	CH_4	0.00	0.00	100.0%
1.B.2 Oil, natural gas and other emissions from energy production	N_2O	0.00	0.00	100.0%
1.A.1. Energy industries-Peat	CH_4	0.00	0.00	100.0%
1.A.3.a Domestic aviation	CH_4	0.00	0.00	100.0%
1.A.1. Energy industries-Other fossil fuels	CO_2	0.00	0.00	100.0%
1.A.1. Energy industries-Biomass	CO_2	0.00	0.00	100.0%
1.A.2 Manufacturing industries and construction-Other fossil fuels	CO_2	0.00	0.00	100.0%
1.A.1. Energy industries-Other fossil fuels	CH_4	0.00	0.00	100.0%
1.A.2 Manufacturing industries and construction-Other fossil fuels	CH_4	0.00	0.00	100.0%
1.A.1. Energy industries-Other fossil fuels	N_2O	0.00	0.00	100.0%
1.A.2 Manufacturing industries and construction-Other fossil fuels	N_2O	0.00	0.00	100.0%
2. E Electronic Industry	SF_6, NF_3	0.00	0.00	100.0%
2.F.1 Refrigeration and Air Conditioning Equipment	HFCs	0.00	0.00	100.0%
2.F.2 Foam Blowing Agents	HFCs	0.00	0.00	100.0%
2.F.3 Fire Protection	HFCs	0.00	0.00	100.0%
2.F.4 Aerosols/metered dose inhalers	HFCs	0.00	0.00	100.0%
2.G Other product manufacture and use	SF_6	0.00	0.00	100.0%
4.D.2 Land converted to wetlands	CO_2	0.00	0.00	100.0%
4.E.1 Settlements remaining settlements	CO_2	0.00	0.00	100.0%
4.E.2 Land converted to settlements	CO_2	0.00	0.00	100.0%
4.F Other land	CO_2	0.00	0.00	100.0%
Total		***64663.76***		

Approach 1 Level Assessment for 1990 using a subset (LULUCF was excluded from analysis)

IPCC Category	Greenhouse gas	*GHG emissions, kt CO_2 eqv*	Level assessment	Cumulative total
1.A.1.a Public electricity and heat production - Liquid Fuels	CO_2	6021.25	0.13	12.6%
1.A.1.a Public electricity and heat production - Gaseous Fuels	CO_2	5806.05	0.12	24.7%
1.A.3.b Road transportation	CO_2	5247.15	0.11	35.7%
3.A.1 Enteric Fermentation - Cattle	CH_4	4118.23	0.09	44.3%
1.A.2 Manufacturing industries and construction- Liquid fuels	CO_2	3500.92	0.07	51.7%
1.A.4 Other sectors-Solid fuels	CO_2	2760.55	0.06	57.4%
1.A.2 Manufacturing industries and construction- Gaseous fuels	CO_2	2048.76	0.04	61.7%
1.A.3.e Other transportation	CO_2	1764.11	0.04	65.4%
2.A.1 Cement Production	CO_2	1668.07	0.03	68.9%
1.A.1.b Petroleum refining - Liquid Fuels	CO_2	1497.75	0.03	72.0%
1.A.4 Other sectors-Liquid fuels	CO_2	1429.58	0.03	75.0%
1.A.4 Other sectors-Gaseous fuels	CO_2	1381.52	0.03	77.9%
2.B.1 Ammonia Production	CO_2	1255.82	0.03	80.5%
5.A Solid Waste Disposal	CH_4	1028.83	0.02	82.7%
3.D.1.1 Direct N_2O Emissions From Managed Soils - Inorganic N Fertilizers	N_2O	992.77	0.02	84.8%
2.B.2 Nitric Acid Production	N_2O	893.01	0.02	86.6%
3.D.1.6 Direct N_2O Emissions From Managed Soils - Cultivation of organic soils	N_2O	542.52	0.01	87.8%
5.D Wastewater Treatment and Discharge	CH_4	541.86	0.01	88.9%
3.D.1.3 Direct N_2O Emissions From Managed Soils - Urine and dung deposited by grazing animals	N_2O	422.12	0.01	89.8%
3.D.1.2 Direct N_2O Emissions From Managed Soils - Organic N Fertilizers	N_2O	395.87	0.01	90.6%
3.D.2.2 Indirect N_2O Emissions From Managed Soils - Nitrogen leaching and run-off	N_2O	392.09	0.01	91.4%
3.B.1.3 Manure Management - Swine	CH_4	355.08	0.01	92.2%
1.A.3.c Railways	CO_2	349.97	0.01	92.9%
3.B.1.1 Manure Management - Cattle	CH_4	255.03	0.01	93.4%
2.A.4 Other process use of carbonates	CO_2	239.52	0.01	93.9%
3.B.2 Manure Management - Indirect N_2O Emissions	N_2O	229.98	0.00	94.4%
3.D.2.1 Indirect N_2O Emissions From Managed Soils - Atmospheric deposition	N_2O	222.80	0.00	94.9%
2.A.2 Lime Production	CO_2	222.68	0.00	95.3%
3.B.2 Manure Management - Cattle	N_2O	204.47	0.00	95.8%
1.A.3.e Other transportation	N_2O	186.55	0.00	96.2%
1.A.1. Energy industries-Solid fuels	CO_2	174.05	0.00	96.5%
1.A.2 Manufacturing industries and construction- Solid fuels	CO_2	171.63	0.00	96.9%

IPCC Category	Greenhouse gas	*GHG emissions, kt CO_2 eqv*	Level assessment	Cumulative total
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH_4	165.79	0.00	97.2%
3.D.1.4 Direct N_2O Emissions From Managed Soils - Crop Residues	N_2O	131.85	0.00	97.5%
1.A.4 Other sectors-Solid fuels	CH_4	128.56	0.00	97.8%
3.A. Enteric Fermentation - Others	CH_4	118.06	0.00	98.0%
3.B.1 Manure Management - Other	N_2O	109.48	0.00	98.3%
2.G Other product manufacture and use	N_2O	93.35	0.00	98.5%
2. D Non-energy products from fuels and solvent use	CO_2	77.50	0.00	98.6%
3.B.1 Manure Management - Other	CH_4	75.24	0.00	98.8%
1.A.4 Other sectors-Biomass	CH_4	70.28	0.00	98.9%
5.D Wastewater Treatment and Discharge	N_2O	67.21	0.00	99.1%
1.A.3.b Road transportation	CH_4	48.11	0.00	99.2%
1.A.3.c Railways	N_2O	40.92	0.00	99.2%
1.A.3.b Road transportation	N_2O	39.09	0.00	99.3%
3.H Urea Application	CO_2	35.68	0.00	99.4%
1.A.4 Other sectors-Peat	CO_2	27.13	0.00	99.5%
2.B.8.a Methanol	CO_2	24.35	0.00	99.5%
3.G Liming	CO_2	20.59	0.00	99.6%
1.A.2 Manufacturing industries and construction-Peat	CO_2	17.53	0.00	99.6%
1.A.1. Energy industries-Liquid fuels	N_2O	16.11	0.00	99.6%
1.A.3.d Domestic Navigation	CO_2	15.49	0.00	99.7%
2.C.1 Iron and Steel Production	CO_2	14.57	0.00	99.7%
1.A.4 Other sectors-Solid fuels	N_2O	13.00	0.00	99.7%
1.A.4 Other sectors-Biomass	N_2O	12.97	0.00	99.7%
2.A.3 Glass Production	CO_2	11.70	0.00	99.8%
1.A.1. Energy industries-Peat	CO_2	11.06	0.00	99.8%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH_4	10.94	0.00	99.8%
1. Miscellaneous	CO_2	9.69	0.00	99.8%
2.H Other	CO_2	9.66	0.00	99.8%
1.A.3.a Domestic aviation	CO_2	8.16	0.00	99.9%
1.A.2 Manufacturing industries and construction-Liquid fuels	N_2O	8.06	0.00	99.9%
1.A.1. Energy industries-Liquid fuels	CH_4	6.90	0.00	99.9%
2.B.8.a Methanol	CH_4	5.24	0.00	99.9%
1.A.3.e Other transportation	CH_4	4.30	0.00	99.9%
1.A.4 Other sectors-Liquid fuels	CH_4	4.17	0.00	99.9%
5.B Biological Treatment of Solid Waste	CH_4	4.04	0.00	99.9%
5.B Biological Treatment of Solid Waste	N_2O	3.61	0.00	99.9%
1.A.2 Manufacturing industries and construction-Liquid fuels	CH_4	3.38	0.00	99.9%

IPCC Category	Greenhouse gas	*GHG emissions, kt CO_2 eqv*	Level assessment	Cumulative total
1.A.1. Energy industries-Gaseous fuels	N_2O	3.13	0.00	100.0%
1.A.4 Other sectors-Gaseous fuels	CH_4	3.13	0.00	100.0%
1.A.4 Other sectors-Liquid fuels	N_2O	2.67	0.00	100.0%
5.C Incineration and Open Burning of Waste	CO_2	2.66	0.00	100.0%
1.A.1. Energy industries-Gaseous fuels	CH_4	2.63	0.00	100.0%
1.A.4 Other sectors-Peat	CH_4	1.12	0.00	100.0%
1.A.2 Manufacturing industries and construction-Gaseous fuels	N_2O	1.11	0.00	100.0%
1.A.2 Manufacturing industries and construction-Gaseous fuels	CH_4	0.93	0.00	100.0%
1.A.1. Energy industries-Solid fuels	N_2O	0.82	0.00	100.0%
1.A.2 Manufacturing industries and construction-Solid fuels	N_2O	0.81	0.00	100.0%
1.A.4 Other sectors-Gaseous fuels	N_2O	0.75	0.00	100.0%
1.B.2 Oil, natural gas and other emissions from energy production	CO_2	0.66	0.00	100.0%
1.A.1. Energy industries-Biomass	N_2O	0.63	0.00	100.0%
1.A.2 Manufacturing industries and construction-Biomass	N_2O	0.60	0.00	100.0%
1.A.3.c Railways	CH_4	0.50	0.00	100.0%
1.A.2 Manufacturing industries and construction-Solid fuels	CH_4	0.45	0.00	100.0%
1.A.1. Energy industries-Biomass	CH_4	0.40	0.00	100.0%
1.A.2 Manufacturing industries and construction-Biomass	CH_4	0.38	0.00	100.0%
1.B.2.c Fugitive Emissions from Fuels - Venting and flaring	CH_4	0.26	0.00	100.0%
1.A.4 Other sectors-Peat	N_2O	0.11	0.00	100.0%
5.C Incineration and Open Burning of Waste	N_2O	0.08	0.00	100.0%
1.A.2 Manufacturing industries and construction-Peat	N_2O	0.08	0.00	100.0%
1.A.3.a Domestic aviation	N_2O	0.07	0.00	100.0%
1.A.1. Energy industries-Peat	N_2O	0.05	0.00	100.0%
1.A.1. Energy industries-Solid fuels	CH_4	0.05	0.00	100.0%
1.A.3.d Domestic Navigation	N_2O	0.04	0.00	100.0%
1.A.3.d Domestic Navigation	CH_4	0.03	0.00	100.0%
1.A.2 Manufacturing industries and construction-Peat	CH_4	0.01	0.00	100.0%
5.C Incineration and Open Burning of Waste	CH_4	0.00	0.00	100.0%
1.B.2 Oil, natural gas and other emissions from energy production	N_2O	0.00	0.00	100.0%
1.A.1. Energy industries-Peat	CH_4	0.00	0.00	100.0%
1.A.3.a Domestic aviation	CH_4	0.00	0.00	100.0%
1.A.1. Energy industries-Other fossil fuels	CO_2	0.00	0.00	100.0%
1.A.1. Energy industries-Biomass	CO_2	0.00	0.00	100.0%

IPCC Category	Greenhouse gas	*GHG emissions, kt CO_2 eqv*	Level assessment	Cumulative total
1.A.2 Manufacturing industries and construction-Other fossil fuels	CO_2	0.00	0.00	100.0%
1.A.1. Energy industries-Other fossil fuels	CH_4	0.00	0.00	100.0%
1.A.2 Manufacturing industries and construction-Other fossil fuels	CH_4	0.00	0.00	100.0%
1.A.1. Energy industries-Other fossil fuels	N_2O	0.00	0.00	100.0%
1.A.2 Manufacturing industries and construction-Other fossil fuels	N_2O	0.00	0.00	100.0%
2. E Electronic Industry	SF_6, NF_3	0.00	0.00	100.0%
2.F.1 Refrigeration and Air Conditioning Equipment	HFCs	0.00	0.00	100.0%
2.F.2 Foam Blowing Agents	HFCs	0.00	0.00	100.0%
2.F.3 Fire Protection	HFCs	0.00	0.00	100.0%
2.F.4 Aerosols/metered dose inhalers	HFCs	0.00	0.00	100.0%
2.G Other product manufacture and use	SF_6	0.00	0.00	100.0%
Total		***47808.50***		

Approach 1 Level Assessment for 2013

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv.*	*Level assessment*	*Cumulative total*
4.A.1 Forest land remaining forest land - carbon stock change in biomass	CO_2	10420.28	0.25	25.1
1.A.3.b Road transportation	CO_2	4077.87	0.10	35.0
4.B.2 Land converted to cropland - net carbon stock change in mineral soils	CO_2	3367.02	0.08	43.1
4.C.2 Land converted to grassland - net carbon stock change in mineral soils	CO_2	3049.78	0.07	50.5
1.A.1.a Public electricity and heat production - Gaseous Fuels	CO_2	1960.61	0.05	55.2
2.B.1 Ammonia Production	CO_2	1673.02	0.04	59.2
3.A.1 Enteric Fermentation - Cattle	CH_4	1480.85	0.04	62.8
1.A.1.b Petroleum refining - Liquid Fuels	CO_2	1441.53	0.03	66.3
4.G Harvested wood products	CO_2	955.24	0.02	68.6
5.A Solid Waste Disposal	CH_4	900.12	0.02	70.8
4.D.1 Wetlands remaining wetlands -net carbon stock change in organic soils	CO_2	876.66	0.02	72.9
3.D.1.1 Direct N_2O Emissions From Managed Soils - Inorganic N Fertilizers	N_2O	721.16	0.02	74.6
4.A.2 Land converted to forest land - carbon stock change in biomass	CO_2	646.68	0.02	76.2
3.D.1.6 Direct N_2O Emissions From Managed Soils - Cultivation of organic soils	N_2O	621.20	0.01	77.7
1.A.2 Manufacturing industries and construction-Gaseous fuels	CO_2	583.34	0.01	79.1
1.A.2 Manufacturing industries and construction-Solid fuels	CO_2	549.11	0.01	80.4
4.A.2 Land converted to forest land - net carbon stock change in litter	CO_2	495.59	0.01	81.6
1.A.4 Other sectors-Gaseous fuels	CO_2	489.89	0.01	82.8
2.A.1 Cement Production	CO_2	460.79	0.01	83.9
4.A Forest land-4(II) organic soils	CO_2	431.21	0.01	84.9
1.A.4 Other sectors-Solid fuels	CO_2	352.17	0.01	85.8
2.B.2 Nitric Acid Production	N_2O	335.92	0.01	86.6
3.D.1.4 Direct N_2O Emissions From Managed Soils - Crop Residues	N_2O	327.30	0.01	87.4
4.E.2 Land converted to settlements	CO_2	317.79	0.01	88.2
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH_4	301.69	0.01	88.9
2.F.1 Refrigeration and Air Conditioning Equipment	HFCs	291.95	0.01	89.6

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv.*	*Level assessment*	*Cumulative total*
3.D.2.2 Indirect N_2O Emissions From Managed Soils - Nitrogen leaching and run-off	N_2O	291.52	0.01	90.3
4.B.2 Land converted to cropland- carbon stock change in biomass	CO_2	254.83	0.01	90.9
1.A.1.a Public electricity and heat production - Liquid Fuels	CO_2	247.33	0.01	91.5
1.A.3.e Other transportation	CO_2	234.07	0.01	92.1
5.D Wastewater Treatment and Discharge	CH_4	220.15	0.01	92.6
1.A.4 Other sectors-Liquid fuels	CO_2	177.64	0.00	93.0
4.B.1 Cropland remaining cropland - net carbon stock change in organic soils	CO_2	175.86	0.00	93.5
3.D.1.3 Direct N_2O Emissions From Managed Soils - Urine and dung deposited by grazing animals	N_2O	174.46	0.00	93.9
1.A.3.c Railways	CO_2	166.33	0.00	94.3
1.A.4 Other sectors-Biomass	CH_4	159.17	0.00	94.7
3.D.1.2 Direct N_2O Emissions From Managed Soils - Organic N Fertilizers	N_2O	156.76	0.00	95.0
3.B.1.1 Manure Management - Cattle	CH_4	127.51	0.00	95.3
1.A.4 Other sectors-Peat	CO_2	123.75	0.00	95.6
3.D.2.1 Indirect N_2O Emissions From Managed Soils - Atmospheric deposition	N_2O	119.77	0.00	95.9
3.B.1.3 Manure Management - Swine	CH_4	119.55	0.00	96.2
4.B.2 Land converted to cropland- net carbon stock change in organic soils	CO_2	112.14	0.00	96.5
1.A.1. Energy industries-Other fossil fuels	CO_2	107.35	0.00	96.8
4.C.1 Grassland remaining grassland	CO_2	81.81	0.00	97.0
3.B.2 Manure Management - Indirect N_2O Emissions	N_2O	81.52	0.00	97.1
4.B.1 Cropland remaining cropland - net carbon stock change in mineral soils	CO_2	77.66	0.00	97.3
3.B.2 Manure Management - Cattle	N_2O	73.67	0.00	97.5
2. D Non-energy products from fuels and solvent use	CO_2	73.11	0.00	97.7
4.A.1 Forest land remaining forest land - net carbon stock change in dead wood	CO_2	71.62	0.00	97.9
1.A.2 Manufacturing industries and construction-Liquid fuels	CO_2	70.92	0.00	98.0
4.C.2 Land converted to grassland- net carbon stock change in organic soils	CO_2	66.98	0.00	98.2
3.A. Enteric Fermentation - Others	CH_4	62.80	0.00	98.3
4.F Other land	CO_2	48.33	0.00	98.5

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv.*	*Level assessment*	*Cumulative total*
1.A.1. Energy industries-Peat	CO_2	46.64	0.00	98.6
5.D Wastewater Treatment and Discharge	N_2O	45.66	0.00	98.7
1.A.3.b Road transportation	N_2O	35.46	0.00	98.8
1. Miscellaneous	CO_2	33.91	0.00	98.9
2.A.2 Lime Production	CO_2	29.29	0.00	98.9
1.A.4 Other sectors-Biomass	N_2O	29.25	0.00	99.0
3.B.1 Manure Management - Other	CH_4	27.07	0.00	99.1
1.A.2 Manufacturing industries and construction-Other fossil fuels	CO_2	22.46	0.00	99.1
4.A Forest land	N_2O	22.38	0.00	99.2
1.A.3.c Railways	N_2O	19.45	0.00	99.2
1.A.3.e Other transportation	N_2O	18.76	0.00	99.3
2.A.4 Other process use of carbonates	CO_2	18.41	0.00	99.3
1.A.1. Energy industries-Biomass	N_2O	17.73	0.00	99.3
3.G Liming	CO_2	16.71	0.00	99.4
1.A.4 Other sectors-Solid fuels	CH_4	16.26	0.00	99.4
3.H Urea Application	CO_2	15.72	0.00	99.5
1.A.3.b Road transportation	CH_4	15.39	0.00	99.5
1.A.3.d Domestic Navigation	CO_2	14.29	0.00	99.5
4.B.1 Cropland remaining cropland - carbon stock change in biomass	CO_2	14.23	0.00	99.6
2.F.2 Foam Blowing Agents	HFCs	12.97	0.00	99.6
5.B Biological Treatment of Solid Waste	CH_4	12.18	0.00	99.6
2.H Other	CO_2	11.67	0.00	99.7
3.B.1 Manure Management - Other	N_2O	11.59	0.00	99.7
1.A.1. Energy industries-Biomass	CH_4	11.16	0.00	99.7
5.B Biological Treatment of Solid Waste	N_2O	10.89	0.00	99.7
1.A.1. Energy industries-Solid fuels	CO_2	10.27	0.00	99.8
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH_4	9.62	0.00	99.8
4.D Wetlands	N_2O	9.54	0.00	99.8
2.A.3 Glass Production	CO_2	8.13	0.00	99.8
2.F.4 Aerosols/metered dose inhalers	HFCs	7.26	0.00	99.9
1.A.2 Manufacturing industries and construction-Peat	CO_2	7.10	0.00	99.9
2. E Electronic Industry	SF_6, NF_3	5.98	0.00	99.9
1.A.4 Other sectors-Peat	CH_4	5.82	0.00	99.9
1.A.2 Manufacturing industries and construction-Biomass	N_2O	4.20	0.00	99.9

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv.*	*Level assessment*	*Cumulative total*
1.B.2 Oil, natural gas and other emissions from energy production	CO_2	4.10	0.00	99.9
1.A.2 Manufacturing industries and construction-Biomass	CH_4	2.64	0.00	99.9
2.G Other product manufacture and use	N_2O	2.60	0.00	99.9
1.A.2 Manufacturing industries and construction-Solid fuels	N_2O	2.55	0.00	99.9
2.C.1 Iron and Steel Production	CO_2	2.40	0.00	99.9
1.A.1. Energy industries-Liquid fuels	N_2O	2.25	0.00	99.9
2.F.3 Fire Protection	HFCs	2.06	0.00	100.0
1.B.2.c Fugitive Emissions from Fuels - Venting and flaring	CH_4	1.82	0.00	100.0
1.A.3.a Domestic aviation	CO_2	1.72	0.00	100.0
1.A.4 Other sectors-Solid fuels	N_2O	1.66	0.00	100.0
1.A.2 Manufacturing industries and construction-Solid fuels	CH_4	1.42	0.00	100.0
1.A.1. Energy industries-Other fossil fuels	N_2O	1.29	0.00	100.0
1.A.1. Energy industries-Liquid fuels	CH_4	1.13	0.00	100.0
1.A.4 Other sectors-Gaseous fuels	CH_4	1.11	0.00	100.0
1.A.1. Energy industries-Gaseous fuels	N_2O	1.06	0.00	100.0
1.A.1. Energy industries-Gaseous fuels	CH_4	0.89	0.00	100.0
1.A.1. Energy industries-Other fossil fuels	CH_4	0.81	0.00	100.0
4.C Grassland	N_2O	0.77	0.00	100.0
5.C Incineration and Open Burning of Waste	CO_2	0.77	0.00	100.0
4.C Grassland	CH_4	0.73	0.00	100.0
4.A.1 Forest land remaining forest land	CO_2	0.55	0.00	100.0
1.A.4 Other sectors-Peat	N_2O	0.49	0.00	100.0
4.B Cropland	N_2O	0.44	0.00	100.0
1.A.4 Other sectors-Liquid fuels	CH_4	0.44	0.00	100.0
2.G Other product manufacture and use	SF_6	0.39	0.00	100.0
1.A.3.e Other transportation	CH_4	0.38	0.00	100.0
1.A.2 Manufacturing industries and construction-Gaseous fuels	N_2O	0.31	0.00	100.0
1.A.2 Manufacturing industries and construction-Other fossil fuels	N_2O	0.31	0.00	100.0
1.A.4 Other sectors-Gaseous fuels	N_2O	0.26	0.00	100.0
1.A.2 Manufacturing industries and construction-Gaseous fuels	CH_4	0.26	0.00	100.0
1.A.3.c Railways	CH_4	0.24	0.00	100.0
1.A.4 Other sectors-Liquid fuels	N_2O	0.21	0.00	100.0

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv.*	*Level assessment*	*Cumulative total*
1.A.1. Energy industries-Peat	N_2O	0.20	0.00	100.0
1.A.2 Manufacturing industries and construction-Other fossil fuels	CH_4	0.20	0.00	100.0
1.A.2 Manufacturing industries and construction-Liquid fuels	N_2O	0.12	0.00	100.0
1.A.3.d Domestic Navigation	N_2O	0.12	0.00	100.0
1.A.2 Manufacturing industries and construction-Liquid fuels	CH_4	0.06	0.00	100.0
4.A Forest land	CH_4	0.05	0.00	100.0
1.A.1. Energy industries-Solid fuels	N_2O	0.05	0.00	100.0
1.A.3.d Domestic Navigation	CH_4	0.03	0.00	100.0
1.A.2 Manufacturing industries and construction-Peat	N_2O	0.03	0.00	100.0
5.C Incineration and Open Burning of Waste	N_2O	0.02	0.00	100.0
1.B.2 Oil, natural gas and other emissions from energy production	N_2O	0.02	0.00	100.0
1.A.3.a Domestic aviation	N_2O	0.01	0.00	100.0
1.A.1. Energy industries-Peat	CH_4	0.01	0.00	100.0
1.A.2 Manufacturing industries and construction-Peat	CH_4	0.00	0.00	100.0
1.A.1. Energy industries-Solid fuels	CH_4	0.00	0.00	100.0
4.B Cropland	CH_4	0.00	0.00	100.0
5.C Incineration and Open Burning of Waste	CH_4	0.00	0.00	100.0
1.A.3.a Domestic aviation	CH_4	0.00	0.00	100.0
1.A.1. Energy industries-Biomass	CO_2	0.00	0.00	100.0
2.B.8.a Methanol	CO_2	0.00	0.00	100.0
2.B.8.a Methanol	CH_4	0.00	0.00	100.0
4.D.2 Land converted to wetlands	CO_2	0.00	0.00	100.0
4.E.1 Settlements remaining settlements	CO_2	0.00	0.00	100.0
Total		***41441.83***		

Approach 1 Level Assessment for 2013 using a subset (LULUCF was excluded from analysis)

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv.*	*Level assessment*	*Cumulative total*
1.A.3.b Road transportation	CO_2	4077.87	0.20	20.4
1.A.1.a Public electricity and heat production - Gaseous Fuels	CO_2	1960.61	0.10	30.3
2.B.1 Ammonia Production	CO_2	1673.02	0.08	38.7
3.A.1 Enteric Fermentation - Cattle	CH_4	1480.85	0.07	46.1
1.A.1.b Petroleum refining - Liquid Fuels	CO_2	1441.53	0.07	53.3
5.A Solid Waste Disposal	CH_4	900.12	0.05	57.8
3.D.1.1 Direct N_2O Emissions From Managed Soils - Inorganic N Fertilizers	N_2O	721.16	0.04	61.4
3.D.1.6 Direct N_2O Emissions From Managed Soils - Cultivation of organic soils	N_2O	621.20	0.03	64.6
1.A.2 Manufacturing industries and construction-Gaseous fuels	CO_2	583.34	0.03	67.5
1.A.2 Manufacturing industries and construction-Solid fuels	CO_2	549.11	0.03	70.2
1.A.4 Other sectors-Gaseous fuels	CO_2	489.89	0.02	72.7
2.A.1 Cement Production	CO_2	460.79	0.02	75.0
1.A.4 Other sectors-Solid fuels	CO_2	352.17	0.02	76.8
2.B.2 Nitric Acid Production	N_2O	335.92	0.02	78.5
3.D.1.4 Direct N_2O Emissions From Managed Soils - Crop Residues	N_2O	327.30	0.02	80.1
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH_4	301.69	0.02	81.6
2.F.1 Refrigeration and Air Conditioning Equipment	HFCs	291.95	0.01	83.1
3.D.2.2 Indirect N_2O Emissions From Managed Soils - Nitrogen leaching and run-off	N_2O	291.52	0.01	84.5
1.A.1.a Public electricity and heat production - Liquid Fuels	CO_2	247.33	0.01	85.8
1.A.3.e Other transportation	CO_2	234.07	0.01	87.0
5.D Wastewater Treatment and Discharge	CH_4	220.15	0.01	88.1
1.A.4 Other sectors-Liquid fuels	CO_2	177.64	0.01	88.9
3.D.1.3 Direct N_2O Emissions From Managed Soils - Urine and dung deposited by grazing animals	N_2O	174.46	0.01	89.8
1.A.3.c Railways	CO_2	166.33	0.01	90.7
1.A.4 Other sectors-Biomass	CH_4	159.17	0.01	91.5
3.D.1.2 Direct N_2O Emissions From Managed Soils - Organic N Fertilizers	N_2O	156.76	0.01	92.2
3.B.1.1 Manure Management - Cattle	CH_4	127.51	0.01	92.9

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv.*	*Level assessment*	*Cumulative total*
1.A.4 Other sectors-Peat	CO_2	123.75	0.01	93.5
3.D.2.1 Indirect N_2O Emissions From Managed Soils - Atmospheric deposition	N_2O	119.77	0.01	94.1
3.B.1.3 Manure Management - Swine	CH_4	119.55	0.01	94.7
1.A.1. Energy industries-Other fossil fuels	CO_2	107.35	0.01	95.2
3.B.2 Manure Management - Indirect N_2O Emissions	N_2O	81.52	0.00	95.6
3.B.2 Manure Management - Cattle	N_2O	73.67	0.00	96.0
2. D Non-energy products from fuels and solvent use	CO_2	73.11	0.00	96.4
1.A.2 Manufacturing industries and construction-Liquid fuels	CO_2	70.92	0.00	96.7
3.A. Enteric Fermentation - Others	CH_4	62.80	0.00	97.1
1.A.1. Energy industries-Peat	CO_2	46.64	0.00	97.3
5.D Wastewater Treatment and Discharge	N_2O	45.66	0.00	97.5
1.A.3.b Road transportation	N_2O	35.46	0.00	97.7
1. Miscellaneous	CO_2	33.91	0.00	97.9
2.A.2 Lime Production	CO_2	29.29	0.00	98.0
1.A.4 Other sectors-Biomass	N_2O	29.25	0.00	98.2
3.B.1 Manure Management - Other	CH_4	27.07	0.00	98.3
1.A.2 Manufacturing industries and construction-Other fossil fuels	CO_2	22.46	0.00	98.4
1.A.3.c Railways	N_2O	19.45	0.00	98.5
1.A.3.e Other transportation	N_2O	18.76	0.00	98.6
2.A.4 Other process use of carbonates	CO_2	18.41	0.00	98.7
1.A.1. Energy industries-Biomass	N_2O	17.73	0.00	98.8
3.G Liming	CO_2	16.71	0.00	98.9
1.A.4 Other sectors-Solid fuels	CH_4	16.26	0.00	98.9
3.H Urea Application	CO_2	15.72	0.00	99.0
1.A.3.b Road transportation	CH_4	15.39	0.00	99.1
1.A.3.d Domestic Navigation	CO_2	14.29	0.00	99.2
2.F.2 Foam Blowing Agents	HFCs	12.97	0.00	99.2
5.B Biological Treatment of Solid Waste	CH_4	12.18	0.00	99.3
2.H Other	CO_2	11.67	0.00	99.4
3.B.1 Manure Management - Other	N_2O	11.59	0.00	99.4
1.A.1. Energy industries-Biomass	CH_4	11.16	0.00	99.5
5.B Biological Treatment of Solid Waste	N_2O	10.89	0.00	99.5
1.A.1. Energy industries-Solid fuels	CO_2	10.27	0.00	99.6

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv.*	*Level assessment*	*Cumulative total*
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH_4	9.62	0.00	99.6
2.A.3 Glass Production	CO_2	8.13	0.00	99.7
2.F.4 Aerosols/metered dose inhalers	HFCs	7.26	0.00	99.7
1.A.2 Manufacturing industries and construction-Peat	CO_2	7.10	0.00	99.7
2. E Electronic Industry	SF_6, NF_3	5.98	0.00	99.8
1.A.4 Other sectors-Peat	CH_4	5.82	0.00	99.8
1.A.2 Manufacturing industries and construction-Biomass	N_2O	4.20	0.00	99.8
1.B.2 Oil, natural gas and other emissions from energy production	CO_2	4.10	0.00	99.8
1.A.2 Manufacturing industries and construction-Biomass	CH_4	2.64	0.00	99.9
2.G Other product manufacture and use	N_2O	2.60	0.00	99.9
1.A.2 Manufacturing industries and construction-Solid fuels	N_2O	2.55	0.00	99.9
2.C.1 Iron and Steel Production	CO_2	2.40	0.00	99.9
1.A.1. Energy industries-Liquid fuels	N_2O	2.25	0.00	99.9
2.F.3 Fire Protection	HFCs	2.06	0.00	99.9
1.B.2.c Fugitive Emissions from Fuels - Venting and flaring	CH_4	1.82	0.00	99.9
1.A.3.a Domestic aviation	CO_2	1.72	0.00	99.9
1.A.4 Other sectors-Solid fuels	N_2O	1.66	0.00	99.9
1.A.2 Manufacturing industries and construction-Solid fuels	CH_4	1.42	0.00	99.9
1.A.1. Energy industries-Other fossil fuels	N_2O	1.29	0.00	100.0
1.A.1. Energy industries-Liquid fuels	CH_4	1.13	0.00	100.0
1.A.4 Other sectors-Gaseous fuels	CH_4	1.11	0.00	100.0
1.A.1. Energy industries-Gaseous fuels	N_2O	1.06	0.00	100.0
1.A.1. Energy industries-Gaseous fuels	CH_4	0.89	0.00	100.0
1.A.1. Energy industries-Other fossil fuels	CH_4	0.81	0.00	100.0
5.C Incineration and Open Burning of Waste	CO_2	0.77	0.00	100.0
1.A.4 Other sectors-Peat	N_2O	0.49	0.00	100.0
1.A.4 Other sectors-Liquid fuels	CH_4	0.44	0.00	100.0
2.G Other product manufacture and use	SF_6	0.39	0.00	100.0
1.A.3.e Other transportation	CH_4	0.38	0.00	100.0
1.A.2 Manufacturing industries and construction-Gaseous fuels	N_2O	0.31	0.00	100.0

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv.*	*Level assessment*	*Cumulative total*
1.A.2 Manufacturing industries and construction-Other fossil fuels	N_2O	0.31	0.00	100.0
1.A.4 Other sectors-Gaseous fuels	N_2O	0.26	0.00	100.0
1.A.2 Manufacturing industries and construction-Gaseous fuels	CH_4	0.26	0.00	100.0
1.A.3.c Railways	CH_4	0.24	0.00	100.0
1.A.4 Other sectors-Liquid fuels	N_2O	0.21	0.00	100.0
1.A.1. Energy industries-Peat	N_2O	0.20	0.00	100.0
1.A.2 Manufacturing industries and construction-Other fossil fuels	CH_4	0.20	0.00	100.0
1.A.2 Manufacturing industries and construction-Liquid fuels	N_2O	0.12	0.00	100.0
1.A.3.d Domestic Navigation	N_2O	0.12	0.00	100.0
1.A.2 Manufacturing industries and construction-Liquid fuels	CH_4	0.06	0.00	100.0
1.A.1. Energy industries-Solid fuels	N_2O	0.05	0.00	100.0
1.A.3.d Domestic Navigation	CH_4	0.03	0.00	100.0
1.A.2 Manufacturing industries and construction-Peat	N_2O	0.03	0.00	100.0
5.C Incineration and Open Burning of Waste	N_2O	0.02	0.00	100.0
1.B.2 Oil, natural gas and other emissions from energy production	N_2O	0.02	0.00	100.0
1.A.3.a Domestic aviation	N_2O	0.01	0.00	100.0
1.A.1. Energy industries-Peat	CH_4	0.01	0.00	100.0
1.A.2 Manufacturing industries and construction-Peat	CH_4	0.00	0.00	100.0
1.A.1. Energy industries-Solid fuels	CH_4	0.00	0.00	100.0
5.C Incineration and Open Burning of Waste	CH_4	0.00	0.00	100.0
1.A.3.a Domestic aviation	CH_4	0.00	0.00	100.0
1.A.1. Energy industries-Biomass	CO_2	0.00	0.00	100.0
2.B.8.a Methanol	CO_2	0.00	0.00	100.0
2.B.8.a Methanol	CH_4	0.00	0.00	100.0
Total		***19943.65***		

Approach 1 Trend Assessment for 2013

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment*	*% Contribution to Trend*	*Cumulative total*
4.A.1 Forest land remaining forest land - carbon stock change in biomass	CO_2	6680.01	10420.28	0.2	17.21	17.2
1.A.1.a Public electricity and heat production - Liquid Fuels	CO_2	6021.25	247.33	0.1	13.08	30.3
1.A.2 Manufacturing industries and construction-Liquid fuels	CO_2	3500.92	70.92	0.1	7.83	38.1
1.A.1.a Public electricity and heat production - Gaseous Fuels	CO_2	5806.05	1960.61	0.1	7.23	45.4
1.A.4 Other sectors-Solid fuels	CO_2	2760.55	352.17	0.1	5.25	50.6
3.A.1 Enteric Fermentation - Cattle	CH_4	4118.23	1480.85	0.1	4.84	55.4
4.C.2 Land converted to grassland - net carbon stock change in mineral soils	CO_2	2082.10	3049.78	0.0	4.75	60.2
1.A.3.e Other transportation	CO_2	1764.11	234.07	0.0	3.33	63.5
1.A.2 Manufacturing industries and construction-Gaseous fuels	CO_2	2048.76	583.34	0.0	2.89	66.4
4.G Harvested wood products	CO_2	95.65	955.24	0.0	2.77	69.2
1.A.4 Other sectors-Liquid fuels	CO_2	1429.58	177.64	0.0	2.73	71.9
2.A.1 Cement Production	CO_2	1668.07	460.79	0.0	2.40	74.3
2.B.1 Ammonia Production	CO_2	1255.82	1673.02	0.0	2.34	76.6
1.A.4 Other sectors-Gaseous fuels	CO_2	1381.52	489.89	0.0	1.65	78.3
4.D.1 Wetlands remaining wetlands -net carbon stock change in organic soils	CO_2	517.33	876.66	0.0	1.55	79.8
1.A.2 Manufacturing industries and construction-Solid fuels	CO_2	171.63	549.11	0.0	1.32	81.2
1.A.1.b Petroleum refining - Liquid Fuels	CO_2	1497.75	1441.53	0.0	1.06	82.2
2.B.2 Nitric Acid Production	N_2O	893.01	335.92	0.0	1.00	83.2
4.E.2 Land converted to settlements	CO_2	0.00	317.79	0.0	0.99	84.2
2.F.1 Refrigeration and Air Conditioning Equipment	HFCs	2.44	291.95	0.0	0.91	85.1
4.A.1 Forest land remaining forest land - net carbon stock change in dead wood	CO_2	474.03	71.62	0.0	0.87	86.0
3.D.1.4 Direct N_2O Emissions From Managed Soils - Crop Residues	N_2O	131.85	327.30	0.0	0.72	86.7
3.D.1.6 Direct N_2O Emissions From Managed Soils - Cultivation of organic soils	N_2O	542.52	621.20	0.0	0.69	87.4
1.A.3.b Road transportation	CO_2	5247.15	4077.87	0.0	0.68	88.1
4.A.2 Land converted to forest land - carbon stock change in biomass	CO_2	585.97	646.68	0.0	0.67	88.8

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment*	*% Contribution to Trend*	*Cumulative total*
4.B.2 Land converted to cropland- carbon stock change in biomass	CO_2	98.41	254.83	0.0	0.57	89.3
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH_4	165.79	301.69	0.0	0.56	89.9
5.D Wastewater Treatment and Discharge	CH_4	541.86	220.15	0.0	0.56	90.5
4.A.2 Land converted to forest land - net carbon stock change in litter	CO_2	448.14	495.59	0.0	0.52	91.0
2.A.4 Other process use of carbonates	CO_2	239.52	18.41	0.0	0.49	91.5
5.A Solid Waste Disposal	CH_4	1028.83	900.12	0.0	0.45	91.9
3.B.1.3 Manure Management - Swine	CH_4	355.08	119.55	0.0	0.44	92.4
3.D.1.3 Direct N_2O Emissions From Managed Soils - Urine and dung deposited by grazing animals	N_2O	422.12	174.46	0.0	0.43	92.8
2.A.2 Lime Production	CO_2	222.68	29.29	0.0	0.42	93.2
3.D.1.2 Direct N_2O Emissions From Managed Soils - Organic N Fertilizers	N_2O	395.87	156.76	0.0	0.42	93.6
4.A Forest land-4(II) organic soils	CO_2	406.04	431.21	0.0	0.41	94.0
4.B.1 Cropland remaining cropland - net carbon stock change in mineral soils	CO_2	281.82	77.66	0.0	0.41	94.4
1.A.3.e Other transportation	N_2O	186.55	18.76	0.0	0.37	94.8
1.A.1. Energy industries-Solid fuels	CO_2	174.05	10.27	0.0	0.37	95.2
1.A.4 Other sectors-Biomass	CH_4	70.28	159.17	0.0	0.34	95.5
1.A.1. Energy industries-Other fossil fuels	CO_2	0.00	107.35	0.0	0.34	95.9
1.A.4 Other sectors-Peat	CO_2	27.13	123.75	0.0	0.32	96.2
1.A.3.c Railways	CO_2	349.97	166.33	0.0	0.29	96.5
3.B.2 Manure Management - Indirect N_2O Emissions	N_2O	229.98	81.52	0.0	0.27	96.7
1.A.4 Other sectors-Solid fuels	CH_4	128.56	16.26	0.0	0.24	97.0
3.B.2 Manure Management - Cattle	N_2O	204.47	73.67	0.0	0.24	97.2
3.B.1 Manure Management - Other	N_2O	109.48	11.59	0.0	0.22	97.4
2.G Other product manufacture and use	N_2O	93.35	2.60	0.0	0.21	97.6
3.B.1.1 Manure Management - Cattle	CH_4	255.03	127.51	0.0	0.19	97.8
4.F Other land	CO_2	0.00	48.33	0.0	0.15	98.0

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment*	*% Contribution to Trend*	*Cumulative total*
4.B.1 Cropland remaining cropland - net carbon stock change in organic soils	CO_2	178.17	175.86	0.0	0.14	98.1
3.D.2.1 Indirect N_2O Emissions From Managed Soils - Atmospheric deposition	N_2O	222.80	119.77	0.0	0.14	98.3
4.B.1 Cropland remaining cropland - carbon stock change in biomass	CO_2	77.39	14.23	0.0	0.13	98.4
1.A.1. Energy industries-Peat	CO_2	11.06	46.64	0.0	0.12	98.5
4.B.2 Land converted to cropland - net carbon stock change in mineral soils	CO_2	4615.45	3367.02	0.0	0.09	98.6
3.B.1 Manure Management - Other	CH_4	75.24	27.07	0.0	0.09	98.7
1. Miscellaneous	CO_2	9.69	33.91	0.0	0.08	98.8
4.C.2 Land converted to grassland- net carbon stock change in organic soils	CO_2	57.14	66.98	0.0	0.08	98.9
3.A. Enteric Fermentation - Others	CH_4	118.06	62.80	0.0	0.08	98.9
1.A.2 Manufacturing industries and construction-Other fossil fuels	CO_2	0.00	22.46	0.0	0.07	99.0
4.C.1 Grassland remaining grassland	CO_2	80.81	81.81	0.0	0.07	99.1
1.A.3.b Road transportation	CH_4	48.11	15.39	0.0	0.06	99.1
1.A.4 Other sectors-Biomass	N_2O	12.97	29.25	0.0	0.06	99.2
1.A.1. Energy industries-Biomass	N_2O	0.63	17.73	0.0	0.05	99.3
2. D Non-energy products from fuels and solvent use	CO_2	77.50	73.11	0.0	0.05	99.3
4.B.2 Land converted to cropland- net carbon stock change in organic soils	CO_2	133.17	112.14	0.0	0.04	99.3
2.F.2 Foam Blowing Agents	HFCs	0.00	12.97	0.0	0.04	99.4
1.A.1. Energy industries-Biomass	CH_4	0.40	11.16	0.0	0.03	99.4
1.A.3.c Railways	N_2O	40.92	19.45	0.0	0.03	99.5
3.H Urea Application	CO_2	35.68	15.72	0.0	0.03	99.5
1.A.1. Energy industries-Liquid fuels	N_2O	16.11	2.25	0.0	0.03	99.5
3.D.1.1 Direct N_2O Emissions From Managed Soils - Inorganic N Fertilizers	N_2O	992.77	721.16	0.0	0.03	99.5
5.B Biological Treatment of Solid Waste	CH_4	4.04	12.18	0.0	0.03	99.6
2.C.1 Iron and Steel Production	CO_2	14.57	2.40	0.0	0.03	99.6
5.B Biological Treatment of Solid Waste	N_2O	3.61	10.89	0.0	0.03	99.6
1.A.4 Other sectors-Solid fuels	N_2O	13.00	1.66	0.0	0.02	99.7

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment*	*% Contribution to Trend*	*Cumulative total*
1.A.3.b Road transportation	N_2O	39.09	35.46	0.0	0.02	99.7
2.F.4 Aerosols/metered dose inhalers	HFCs	0.85	7.26	0.0	0.02	99.7
4.A Forest land	N_2O	21.63	22.38	0.0	0.02	99.7
2. E Electronic Industry	SF_6, NF_3	0.00	5.98	0.0	0.02	99.7
1.A.2 Manufacturing industries and construction-Liquid fuels	N_2O	8.06	0.12	0.0	0.02	99.8
1.A.2 Manufacturing industries and construction-Peat	CO_2	17.53	7.10	0.0	0.02	99.8
1.A.4 Other sectors-Peat	CH_4	1.12	5.82	0.0	0.02	99.8
2.H Other	CO_2	9.66	11.67	0.0	0.01	99.8
1.A.3.a Domestic aviation	CO_2	8.16	1.72	0.0	0.01	99.8
1.A.1. Energy industries-Liquid fuels	CH_4	6.90	1.13	0.0	0.01	99.8
5.D Wastewater Treatment and Discharge	N_2O	67.21	45.66	0.0	0.01	99.8
1.A.2 Manufacturing industries and construction-Biomass	N_2O	0.60	4.20	0.0	0.01	99.9
1.B.2 Oil, natural gas and other emissions from energy production	CO_2	0.66	4.10	0.0	0.01	99.9
3.D.2.2 Indirect N_2O Emissions From Managed Soils - Nitrogen leaching and run-off	N_2O	392.09	291.52	0.0	0.01	99.9
1.A.3.d Domestic Navigation	CO_2	15.49	14.29	0.0	0.01	99.9
1.A.3.e Other transportation	CH_4	4.30	0.38	0.0	0.01	99.9
1.A.4 Other sectors-Liquid fuels	CH_4	4.17	0.44	0.0	0.01	99.9
4.A.1 Forest land remaining forest land	CO_2	4.28	0.55	0.0	0.01	99.9
1.A.2 Manufacturing industries and construction-Liquid fuels	CH_4	3.38	0.06	0.0	0.01	99.9
1.A.2 Manufacturing industries and construction-Biomass	CH_4	0.38	2.64	0.0	0.01	99.9
2.F.3 Fire Protection	HFCs	0.00	2.06	0.0	0.01	99.9
1.A.2 Manufacturing industries and construction-Solid fuels	N_2O	0.81	2.55	0.0	0.01	99.9
1.A.4 Other sectors-Liquid fuels	N_2O	2.67	0.21	0.0	0.01	99.9
1.B.2.c Fugitive Emissions from Fuels - Venting and flaring	CH_4	0.26	1.82	0.0	0.01	99.9
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH_4	10.94	9.62	0.0	0.00	99.9
3.G Liming	CO_2	20.59	16.71	0.0	0.00	100.0

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment*	*% Contribution to Trend*	*Cumulative total*
1.A.1. Energy industries-Other fossil fuels	N_2O	0.00	1.29	0.0	0.00	100.0
1.A.1. Energy industries-Gaseous fuels	N_2O	3.13	1.06	0.0	0.00	100.0
1.A.4 Other sectors-Gaseous fuels	CH_4	3.13	1.11	0.0	0.00	100.0
5.C Incineration and Open Burning of Waste	CO_2	2.66	0.77	0.0	0.00	100.0
1.A.2 Manufacturing industries and construction-Solid fuels	CH_4	0.45	1.42	0.0	0.00	100.0
1.A.1. Energy industries-Gaseous fuels	CH_4	2.63	0.89	0.0	0.00	100.0
4.C Grassland	N_2O	2.31	0.77	0.0	0.00	100.0
4.C Grassland	CH_4	2.12	0.73	0.0	0.00	100.0
1.A.1. Energy industries-Other fossil fuels	CH_4	0.00	0.81	0.0	0.00	100.0
4.D Wetlands	N_2O	11.92	9.54	0.0	0.00	100.0
1.A.1. Energy industries-Solid fuels	N_2O	0.82	0.05	0.0	0.00	100.0
1.A.2 Manufacturing industries and construction-Gaseous fuels	N_2O	1.11	0.31	0.0	0.00	100.0
2.A.3 Glass Production	CO_2	11.70	8.13	0.0	0.00	100.0
4.A Forest land	CH_4	0.71	0.05	0.0	0.00	100.0
1.A.2 Manufacturing industries and construction-Gaseous fuels	CH_4	0.93	0.26	0.0	0.00	100.0
1.A.4 Other sectors-Peat	N_2O	0.11	0.49	0.0	0.00	100.0
2.G Other product manufacture and use	SF_6	0.05	0.39	0.0	0.00	100.0
1.A.2 Manufacturing industries and construction-Other fossil fuels	N_2O	0.00	0.31	0.0	0.00	100.0
1.A.4 Other sectors-Gaseous fuels	N_2O	0.75	0.26	0.0	0.00	100.0
1.A.2 Manufacturing industries and construction-Other fossil fuels	CH_4	0.00	0.20	0.0	0.00	100.0
1.A.1. Energy industries-Peat	N_2O	0.05	0.20	0.0	0.00	100.0
1.A.3.c Railways	CH_4	0.50	0.24	0.0	0.00	100.0
1.A.3.d Domestic Navigation	N_2O	0.04	0.12	0.0	0.00	100.0
5.C Incineration and Open Burning of Waste	N_2O	0.08	0.02	0.0	0.00	100.0
1.A.3.a Domestic aviation	N_2O	0.07	0.01	0.0	0.00	100.0
4.B Cropland	CH_4	0.05	0.00	0.0	0.00	100.0

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment*	*% Contribution to Trend*	*Cumulative total*
1.A.1. Energy industries-Solid fuels	CH_4	0.05	0.00	0.0	0.00	100.0
1.A.2 Manufacturing industries and construction-Peat	N_2O	0.08	0.03	0.0	0.00	100.0
1.B.2 Oil, natural gas and other emissions from energy production	N_2O	0.00	0.02	0.0	0.00	100.0
1.A.3.d Domestic Navigation	CH_4	0.03	0.03	0.0	0.00	100.0
1.A.1. Energy industries-Peat	CH_4	0.00	0.01	0.0	0.00	100.0
4.B Cropland	N_2O	0.60	0.44	0.0	0.00	100.0
1.A.2 Manufacturing industries and construction-Peat	CH_4	0.01	0.00	0.0	0.00	100.0
5.C Incineration and Open Burning of Waste	CH_4	0.00	0.00	0.0	0.00	100.0
1.A.3.a Domestic aviation	CH_4	0.00	0.00	0.0	0.00	100.0
1.A.1. Energy industries-Biomass	CO_2	0.00	0.00	0.0	0.00	100.0
2.B.8.a Methanol	CO_2	24.35	0.00	0.0	0.00	100.0
2.B.8.a Methanol	CH_4	5.24	0.00	0.0	0.00	100.0
4.D.2 Land converted to wetlands	CO_2	0.00	0.00	0.0	0.00	100.0
4.E.1 Settlements remaining settlements	CO_2	0.00	0.00	0.0	0.00	100.0
Total				***1.05***	***1.00***	

Approach 1 Trend Assessment for 2013 using a subset (LULUCF was excluded from analysis)

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment*	*% Contribution to Trend*	*Cumulative total*
1.A.1.a Public electricity and heat production - Liquid Fuels	CO_2	6021.25	247.33	0.3	15.8	15.8
1.A.3.b Road transportation	CO_2	5247.15	4077.87	0.2	13.1	28.9
1.A.2 Manufacturing industries and construction-Liquid fuels	CO_2	3500.92	70.92	0.2	9.7	38.6
2.B.1 Ammonia Production	CO_2	1255.82	1673.02	0.1	8.0	46.6
1.A.1.b Petroleum refining - Liquid Fuels	CO_2	1497.75	1441.53	0.1	5.7	52.2
1.A.4 Other sectors-Solid fuels	CO_2	2760.55	352.17	0.1	5.6	57.8
1.A.3.e Other transportation	CO_2	1764.11	234.07	0.1	3.5	61.3
1.A.2 Manufacturing industries and construction-Solid fuels	CO_2	171.63	549.11	0.1	3.3	64.6
5.A Solid Waste Disposal	CH_4	1028.83	900.12	0.1	3.3	67.9
1.A.1.a Public electricity and heat production - Gaseous Fuels	CO_2	5806.05	1960.61	0.1	3.2	71.1
1.A.4 Other sectors-Liquid fuels	CO_2	1429.58	177.64	0.1	2.9	74.0
3.D.1.6 Direct N_2O Emissions From Managed Soils - Cultivation of organic soils	N_2O	542.52	621.20	0.0	2.7	76.8
3.D.1.1 Direct N_2O Emissions From Managed Soils - Inorganic N Fertilizers	N_2O	992.77	721.16	0.0	2.1	78.9
2.F.1 Refrigeration and Air Conditioning Equipment	HFCs	2.44	291.95	0.0	2.0	80.9
3.D.1.4 Direct N_2O Emissions From Managed Soils - Crop Residues	N_2O	131.85	327.30	0.0	1.9	82.8
1.A.2 Manufacturing industries and construction-Gaseous fuels	CO_2	2048.76	583.34	0.0	1.9	84.7
3.A.1 Enteric Fermentation - Cattle	CH_4	4118.23	1480.85	0.0	1.6	86.4
2.A.1 Cement Production	CO_2	1668.07	460.79	0.0	1.6	88.0
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH_4	165.79	301.69	0.0	1.6	89.6
1.A.4 Other sectors-Biomass	CH_4	70.28	159.17	0.0	0.9	90.5
3.D.2.2 Indirect N_2O Emissions From Managed Soils - Nitrogen leaching and run-off	N_2O	392.09	291.52	0.0	0.9	91.4
1.A.4 Other sectors-Peat	CO_2	27.13	123.75	0.0	0.8	92.2

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment*	*% Contribution to Trend*	*Cumulative total*
1.A.1. Energy industries-Other fossil fuels	CO_2	0.00	107.35	0.0	0.7	92.9
1.A.4 Other sectors-Gaseous fuels	CO_2	1381.52	489.89	0.0	0.6	93.5
2.A.4 Other process use of carbonates	CO_2	239.52	18.41	0.0	0.6	94.1
2.A.2 Lime Production	CO_2	222.68	29.29	0.0	0.4	94.5
1.A.1. Energy industries-Solid fuels	CO_2	174.05	10.27	0.0	0.4	95.0
1.A.3.e Other transportation	N_2O	186.55	18.76	0.0	0.4	95.4
1.A.1. Energy industries-Peat	CO_2	11.06	46.64	0.0	0.3	95.7
2. D Non-energy products from fuels and solvent use	CO_2	77.50	73.11	0.0	0.3	96.0
1.A.4 Other sectors-Solid fuels	CH_4	128.56	16.26	0.0	0.3	96.2
2.B.2 Nitric Acid Production	N_2O	893.01	335.92	0.0	0.3	96.5
2.G Other product manufacture and use	N_2O	93.35	2.60	0.0	0.3	96.7
3.B.1 Manure Management - Other	N_2O	109.48	11.59	0.0	0.2	97.0
1. Miscellaneous	CO_2	9.69	33.91	0.0	0.2	97.2
3.B.1.3 Manure Management - Swine	CH_4	355.08	119.55	0.0	0.2	97.4
3.D.2.1 Indirect N_2O Emissions From Managed Soils - Atmospheric deposition	N_2O	222.80	119.77	0.0	0.2	97.6
1.A.4 Other sectors-Biomass	N_2O	12.97	29.25	0.0	0.2	97.7
1.A.2 Manufacturing industries and construction-Other fossil fuels	CO_2	0.00	22.46	0.0	0.2	97.9
3.B.1.1 Manure Management - Cattle	CH_4	255.03	127.51	0.0	0.1	98.0
1.A.3.c Railways	CO_2	349.97	166.33	0.0	0.1	98.2
1.A.3.b Road transportation	N_2O	39.09	35.46	0.0	0.1	98.3
5.D Wastewater Treatment and Discharge	N_2O	67.21	45.66	0.0	0.1	98.4
1.A.1. Energy industries-Biomass	N_2O	0.63	17.73	0.0	0.1	98.6
3.B.2 Manure Management - Indirect N_2O Emissions	N_2O	229.98	81.52	0.0	0.1	98.7

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment*	*% Contribution to Trend*	*Cumulative total*
3.A. Enteric Fermentation - Others	CH_4	118.06	62.80	0.0	0.1	98.7
2.F.2 Foam Blowing Agents	HFCs	0.00	12.97	0.0	0.1	98.8
3.B.2 Manure Management - Cattle	N_2O	204.47	73.67	0.0	0.1	98.9
1.A.1. Energy industries-Biomass	CH_4	0.40	11.16	0.0	0.1	99.0
5.B Biological Treatment of Solid Waste	CH_4	4.04	12.18	0.0	0.1	99.1
5.B Biological Treatment of Solid Waste	N_2O	3.61	10.89	0.0	0.1	99.1
3.D.1.2 Direct N_2O Emissions From Managed Soils - Organic N Fertilizers	N_2O	395.87	156.76	0.0	0.1	99.2
3.G Liming	CO_2	20.59	16.71	0.0	0.1	99.2
1.A.3.d Domestic Navigation	CO_2	15.49	14.29	0.0	0.1	99.3
2.H Other	CO_2	9.66	11.67	0.0	0.1	99.4
2.F.4 Aerosols/metered dose inhalers	HFCs	0.85	7.26	0.0	0.0	99.4
2. E Electronic Industry	SF_6, NF_3	0.00	5.98	0.0	0.0	99.4
5.D Wastewater Treatment and Discharge	CH_4	541.86	220.15	0.0	0.0	99.5
1.A.4 Other sectors-Peat	CH_4	1.12	5.82	0.0	0.0	99.5
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH_4	10.94	9.62	0.0	0.0	99.6
1.A.3.b Road transportation	CH_4	48.11	15.39	0.0	0.0	99.6
1.A.1. Energy industries-Liquid fuels	N_2O	16.11	2.25	0.0	0.0	99.6
3.B.1 Manure Management - Other	CH_4	75.24	27.07	0.0	0.0	99.7
1.A.2 Manufacturing industries and construction-Biomass	N_2O	0.60	4.20	0.0	0.0	99.7
1.B.2 Oil, natural gas and other emissions from energy production	CO_2	0.66	4.10	0.0	0.0	99.7
1.A.4 Other sectors-Solid fuels	N_2O	13.00	1.66	0.0	0.0	99.7
2.C.1 Iron and Steel Production	CO_2	14.57	2.40	0.0	0.0	99.8
2.A.3 Glass Production	CO_2	11.70	8.13	0.0	0.0	99.8

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment*	*% Contribution to Trend*	*Cumulative total*
1.A.2 Manufacturing industries and construction-Liquid fuels	N_2O	8.06	0.12	0.0	0.0	99.8
1.A.2 Manufacturing industries and construction-Biomass	CH_4	0.38	2.64	0.0	0.0	99.8
1.A.3.c Railways	N_2O	40.92	19.45	0.0	0.0	99.8
1.A.2 Manufacturing industries and construction-Solid fuels	N_2O	0.81	2.55	0.0	0.0	99.9
2.F.3 Fire Protection	HFCs	0.00	2.06	0.0	0.0	99.9
1.A.1. Energy industries-Liquid fuels	CH_4	6.90	1.13	0.0	0.0	99.9
1.B.2.c Fugitive Emissions from Fuels - Venting and flaring	CH_4	0.26	1.82	0.0	0.0	99.9
1.A.3.a Domestic aviation	CO_2	8.16	1.72	0.0	0.0	99.9
3.D.1.3 Direct N_2O Emissions From Managed Soils - Urine and dung deposited by grazing animals	N_2O	422.12	174.46	0.0	0.0	99.9
1.A.3.e Other transportation	CH_4	4.30	0.38	0.0	0.0	99.9
1.A.2 Manufacturing industries and construction-Liquid fuels	CH_4	3.38	0.06	0.0	0.0	99.9
1.A.4 Other sectors-Liquid fuels	CH_4	4.17	0.44	0.0	0.0	99.9
1.A.1. Energy industries-Other fossil fuels	N_2O	0.00	1.29	0.0	0.0	99.9
1.A.2 Manufacturing industries and construction-Solid fuels	CH_4	0.45	1.42	0.0	0.0	100.0
1.A.4 Other sectors-Liquid fuels	N_2O	2.67	0.21	0.0	0.0	100.0
3.H Urea Application	CO_2	35.68	15.72	0.0	0.0	100.0
1.A.1. Energy industries-Other fossil fuels	CH_4	0.00	0.81	0.0	0.0	100.0
1.A.4 Other sectors-Peat	N_2O	0.11	0.49	0.0	0.0	100.0
2.G Other product manufacture and use	SF_6	0.05	0.39	0.0	0.0	100.0
5.C Incineration and Open Burning of Waste	CO_2	2.66	0.77	0.0	0.0	100.0
1.A.2 Manufacturing industries and construction-Other fossil fuels	N_2O	0.00	0.31	0.0	0.0	100.0
1.A.1. Energy industries-Solid fuels	N_2O	0.82	0.05	0.0	0.0	100.0

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment*	*% Contribution to Trend*	*Cumulative total*
1.A.1. Energy industries-Gaseous fuels	N_2O	3.13	1.06	0.0	0.0	100.0
1.A.2 Manufacturing industries and construction-Peat	CO_2	17.53	7.10	0.0	0.0	100.0
1.A.1. Energy industries-Gaseous fuels	CH_4	2.63	0.89	0.0	0.0	100.0
1.A.2 Manufacturing industries and construction-Other fossil fuels	CH_4	0.00	0.20	0.0	0.0	100.0
1.A.4 Other sectors-Gaseous fuels	CH_4	3.13	1.11	0.0	0.0	100.0
1.A.1. Energy industries-Peat	N_2O	0.05	0.20	0.0	0.0	100.0
1.A.2 Manufacturing industries and construction-Gaseous fuels	N_2O	1.11	0.31	0.0	0.0	100.0
1.A.2 Manufacturing industries and construction-Gaseous fuels	CH_4	0.93	0.26	0.0	0.0	100.0
1.A.3.d Domestic Navigation	N_2O	0.04	0.12	0.0	0.0	100.0
1.A.4 Other sectors-Gaseous fuels	N_2O	0.75	0.26	0.0	0.0	100.0
1.A.3.c Railways	CH_4	0.50	0.24	0.0	0.0	100.0
1.A.3.d Domestic Navigation	CH_4	0.03	0.03	0.0	0.0	100.0
1.B.2 Oil, natural gas and other emissions from energy production	N_2O	0.00	0.02	0.0	0.0	100.0
1.A.1. Energy industries-Solid fuels	CH_4	0.05	0.00	0.0	0.0	100.0
1.A.3.a Domestic aviation	N_2O	0.07	0.01	0.0	0.0	100.0
5.C Incineration and Open Burning of Waste	N_2O	0.08	0.02	0.0	0.0	100.0
1.A.1. Energy industries-Peat	CH_4	0.00	0.01	0.0	0.0	100.0
1.A.2 Manufacturing industries and construction-Peat	N_2O	0.08	0.03	0.0	0.0	100.0
5.C Incineration and Open Burning of Waste	CH_4	0.00	0.00	0.0	0.0	100.0
1.A.3.a Domestic aviation	CH_4	0.00	0.00	0.0	0.0	100.0
1.A.2 Manufacturing industries and construction-Peat	CH_4	0.01	0.00	0.0	0.0	100.0
1.A.1. Energy industries-Biomass	CO_2	0.00	0.00	0.0	0.0	100.0

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment*	*% Contribution to Trend*	*Cumulative total*
2.B.8.a Methanol	CO_2	24.35	0.00	0.0	0.0	100.0
2.B.8.a Methanol	CH_4	5.24	0.00	0.0	0.0	100.0
Total				***1.73***	***1.00***	

Approach 2 Level Assessment for 1990

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
4.B.2 Land converted to cropland - net carbon stock change in mineral soils	CO_2	4615.45	0.21	21.3
4.A.1 Forest land remaining forest land - carbon stock change in biomass	CO_2	6680.01	0.12	33.4
4.C.2 Land converted to grassland - net carbon stock change in mineral soils	CO_2	2082.10	0.10	43.0
5.A Solid Waste Disposal	CH_4	1028.83	0.07	49.7
3.D.1.1 Direct N_2O Emissions From Managed Soils - Inorganic N Fertilizers	N_2O	992.77	0.04	54.0
3.A.1 Enteric Fermentation - Cattle	CH_4	4118.23	0.04	58.4
3.B.2 Manure Management - Indirect N_2O Emissions	N_2O	229.98	0.03	61.3
5.D Wastewater Treatment and Discharge	CH_4	541.86	0.03	63.8
3.D.2.2 Indirect N_2O Emissions From Managed Soils - Nitrogen leaching and run-off	N_2O	392.09	0.03	66.4
3.D.1.6 Direct N_2O Emissions From Managed Soils - Cultivation of organic soils	N_2O	542.52	0.02	68.7
4.D.1 Wetlands remaining wetlands -net carbon stock change in organic soils	CO_2	517.33	0.02	70.9
4.A Forest land-4(II) organic soils	CO_2	406.04	0.02	72.8
3.D.1.3 Direct N_2O Emissions From Managed Soils - Urine and dung deposited by grazing animals	N_2O	422.12	0.02	74.7
3.D.1.2 Direct N_2O Emissions From Managed Soils - Organic N Fertilizers	N_2O	395.87	0.02	76.4
3.D.2.1 Indirect N_2O Emissions From Managed Soils - Atmospheric deposition	N_2O	222.80	0.01	77.8
4.B.1 Cropland remaining cropland - net carbon stock change in mineral soils	CO_2	281.82	0.01	79.1
4.A.2 Land converted to forest land - carbon stock change in biomass	CO_2	585.97	0.01	80.3
1.A.4 Other sectors-Solid fuels	CO_2	2760.55	0.01	81.4
1.A.1.a Public electricity and heat production - Liquid Fuels	CO_2	6021.25	0.01	82.4
3.B.2 Manure Management - Cattle	N_2O	204.47	0.01	83.3
1.A.1.a Public electricity and heat production - Gaseous Fuels	CO_2	5806.05	0.01	84.3
4.A.2 Land converted to forest land - net carbon stock change in litter	CO_2	448.14	0.01	85.2
4.A.1 Forest land remaining forest land - net carbon stock change in dead wood	CO_2	474.03	0.01	86.1

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
4.B.1 Cropland remaining cropland - net carbon stock change in organic soils	CO_2	178.17	0.01	86.9
1.A.3.b Road transportation	CO_2	5247.15	0.01	87.6
1.A.3.e Other transportation	CO_2	1764.11	0.01	88.4
4.B.2 Land converted to cropland- net carbon stock change in organic soils	CO_2	133.17	0.01	89.0
3.D.1.4 Direct N_2O Emissions From Managed Soils - Crop Residues	N_2O	131.85	0.01	89.6
1.A.2 Manufacturing industries and construction-Liquid fuels	CO_2	3500.92	0.01	90.1
1.A.4 Other sectors-Biomass	CH_4	70.28	0.01	90.7
3.B.1 Manure Management - Other	N_2O	109.48	0.01	91.2
3.B.1.3 Manure Management - Swine	CH_4	355.08	0.00	91.7
1.A.3.e Other transportation	N_2O	186.55	0.00	92.2
2.B.2 Nitric Acid Production	N_2O	893.01	0.00	92.7
2.A.1 Cement Production	CO_2	1668.07	0.00	93.1
4.B.2 Land converted to cropland- carbon stock change in biomass	CO_2	98.41	0.00	93.6
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH_4	165.79	0.00	94.0
4.C.1 Grassland remaining grassland	CO_2	80.81	0.00	94.4
3.B.1.1 Manure Management - Cattle	CH_4	255.03	0.00	94.8
4.B.1 Cropland remaining cropland - carbon stock change in biomass	CO_2	77.39	0.00	95.1
2.A.2 Lime Production	CO_2	222.68	0.00	95.5
1.A.2 Manufacturing industries and construction-Gaseous fuels	CO_2	2048.76	0.00	95.8
1.A.4 Other sectors-Solid fuels	CH_4	128.56	0.00	96.1
4.G Harvested wood products	CO_2	95.65	0.00	96.4
1.A.4 Other sectors-Liquid fuels	CO_2	1429.58	0.00	96.7
1.A.4 Other sectors-Gaseous fuels	CO_2	1381.52	0.00	97.0
4.C.2 Land converted to grassland- net carbon stock change in organic soils	CO_2	57.14	0.00	97.3
1.A.1.b Petroleum refining - Liquid Fuels	CO_2	1497.75	0.00	97.5
2.B.1 Ammonia Production	CO_2	1255.82	0.00	97.7
5.D Wastewater Treatment and Discharge	N_2O	67.21	0.00	97.9
1.A.3.b Road transportation	CH_4	48.11	0.00	98.1
4.A Forest land	N_2O	21.63	0.00	98.3
1.A.3.c Railways	N_2O	40.92	0.00	98.4
1.A.3.c Railways	CO_2	349.97	0.00	98.6

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
3.A. Enteric Fermentation - Others	CH_4	118.06	0.00	98.7
2. D Non-energy products from fuels and solvent use	CO_2	77.50	0.00	98.8
3.H Urea Application	CO_2	35.68	0.00	98.9
3.B.1 Manure Management - Other	CH_4	75.24	0.00	99.0
1.A.4 Other sectors-Biomass	N_2O	12.97	0.00	99.1
1.A.3.b Road transportation	N_2O	39.09	0.00	99.2
2.A.4 Other process use of carbonates	CO_2	239.52	0.00	99.3
4.D Wetlands	N_2O	11.92	0.00	99.4
1.A.1. Energy industries-Solid fuels	CO_2	174.05	0.00	99.4
1.A.2 Manufacturing industries and construction-Solid fuels	CO_2	171.63	0.00	99.5
3.G Liming	CO_2	20.59	0.00	99.6
1.A.1. Energy industries-Liquid fuels	N_2O	16.11	0.00	99.6
2.B.8.a Methanol	CO_2	24.35	0.00	99.6
2.G Other product manufacture and use	N_2O	93.35	0.00	99.7
1.A.4 Other sectors-Solid fuels	N_2O	13.00	0.00	99.7
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH_4	10.94	0.00	99.7
5.B Biological Treatment of Solid Waste	CH_4	4.04	0.00	99.8
1.A.2 Manufacturing industries and construction-Liquid fuels	N_2O	8.06	0.00	99.8
5.B Biological Treatment of Solid Waste	N_2O	3.61	0.00	99.8
1.A.1. Energy industries-Liquid fuels	CH_4	6.90	0.00	99.8
1.A.4 Other sectors-Liquid fuels	CH_4	4.17	0.00	99.8
1.A.4 Other sectors-Peat	CO_2	27.13	0.00	99.8
2.C.1 Iron and Steel Production	CO_2	14.57	0.00	99.8
5.C Incineration and Open Burning of Waste	CO_2	2.66	0.00	99.9
1.A.2 Manufacturing industries and construction-Liquid fuels	CH_4	3.38	0.00	99.9
1.A.3.e Other transportation	CH_4	4.30	0.00	99.9
4.C Grassland	N_2O	2.31	0.00	99.9
2.B.8.a Methanol	CH_4	5.24	0.00	99.9
1.A.1. Energy industries-Gaseous fuels	N_2O	3.13	0.00	99.9
1.A.4 Other sectors-Gaseous fuels	CH_4	3.13	0.00	99.9
4.A.1 Forest land remaining forest land	CO_2	4.28	0.00	99.9
4.C Grassland	CH_4	2.12	0.00	99.9
1.A.4 Other sectors-Liquid fuels	N_2O	2.67	0.00	99.9

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
1.A.1. Energy industries-Gaseous fuels	CH_4	2.63	0.00	99.9
1.A.2 Manufacturing industries and construction-Peat	CO_2	17.53	0.00	99.9
2.A.3 Glass Production	CO_2	11.70	0.00	99.9
1.A.1. Energy industries-Biomass	N_2O	0.63	0.00	99.9
1.A.2 Manufacturing industries and construction-Biomass	N_2O	0.60	0.00	100.0
1.A.3.d Domestic Navigation	CO_2	15.49	0.00	100.0
1.A.3.a Domestic aviation	CO_2	8.16	0.00	100.0
1.A.1. Energy industries-Peat	CO_2	11.06	0.00	100.0
2.H Other	CO_2	9.66	0.00	100.0
1.A.1. Energy industries-Biomass	CH_4	0.40	0.00	100.0
1.A.2 Manufacturing industries and construction-Biomass	CH_4	0.38	0.00	100.0
1.A.4 Other sectors-Peat	CH_4	1.12	0.00	100.0
4.A Forest land	CH_4	0.71	0.00	100.0
1.A.2 Manufacturing industries and construction-Gaseous fuels	N_2O	1.11	0.00	100.0
1.B.2 Oil, natural gas and other emissions from energy production	CO_2	0.66	0.00	100.0
1.A.2 Manufacturing industries and construction-Gaseous fuels	CH_4	0.93	0.00	100.0
1.A.1. Energy industries-Solid fuels	N_2O	0.82	0.00	100.0
1.A.2 Manufacturing industries and construction-Solid fuels	N_2O	0.81	0.00	100.0
1.A.3.c Railways	CH_4	0.50	0.00	100.0
1.A.4 Other sectors-Gaseous fuels	N_2O	0.75	0.00	100.0
1.A.2 Manufacturing industries and construction-Solid fuels	CH_4	0.45	0.00	100.0
1.B.2.c Fugitive Emissions from Fuels - Venting and flaring	CH_4	0.26	0.00	100.0
4.B Cropland	N_2O	0.60	0.00	100.0
1.A.3.a Domestic aviation	N_2O	0.07	0.00	100.0
5.C Incineration and Open Burning of Waste	N_2O	0.08	0.00	100.0
1.A.4 Other sectors-Peat	N_2O	0.11	0.00	100.0
1.A.2 Manufacturing industries and construction-Peat	N_2O	0.08	0.00	100.0
1.A.3.d Domestic Navigation	N_2O	0.04	0.00	100.0
1.A.1. Energy industries-Peat	N_2O	0.05	0.00	100.0
1.A.1. Energy industries-Solid fuels	CH_4	0.05	0.00	100.0

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
4.B Cropland	CH_4	0.05	0.00	100.0
1.A.3.d Domestic Navigation	CH_4	0.03	0.00	100.0
1.A.2 Manufacturing industries and construction-Peat	CH_4	0.01	0.00	100.0
5.C Incineration and Open Burning of Waste	CH_4	0.00	0.00	100.0
1.B.2 Oil, natural gas and other emissions from energy production	N_2O	0.00	0.00	100.0
1.A.1. Energy industries-Peat	CH_4	0.00	0.00	100.0
1.A.3.a Domestic aviation	CH_4	0.00	0.00	100.0
1.A.1. Energy industries-Other fossil fuels	CO_2	0.00	0.00	100.0
1.A.1. Energy industries-Biomass	CO_2	0.00	0.00	100.0
1.A.2 Manufacturing industries and construction-Other fossil fuels	CO_2	0.00	0.00	100.0
1.A.1. Energy industries-Other fossil fuels	CH_4	0.00	0.00	100.0
1.A.2 Manufacturing industries and construction-Other fossil fuels	CH_4	0.00	0.00	100.0
1.A.1. Energy industries-Other fossil fuels	N_2O	0.00	0.00	100.0
1.A.2 Manufacturing industries and construction-Other fossil fuels	N_2O	0.00	0.00	100.0
2. E Electronic Industry	SF_6, NF_3	0.00	0.00	100.0
2.F.1 Refrigeration and Air Conditioning Equipment	HFCs	0.00	0.00	100.0
2.F.2 Foam Blowing Agents	HFCs	0.00	0.00	100.0
2.F.3 Fire Protection	HFCs	0.00	0.00	100.0
2.F.4 Aerosols/metered dose inhalers	HFCs	0.00	0.00	100.0
2.G Other product manufacture and use	SF_6	0.00	0.00	100.0
4.D.2 Land converted to wetlands	CO_2	0.00	0.00	100.0
4.E.1 Settlements remaining settlements	CO_2	0.00	0.00	100.0
4.E.2 Land converted to settlements	CO_2	0.00	0.00	100.0
4.F Other land	CO_2	0.00	0.00	100.0
Total		***64654.07***		

Approach 2 Level Assessment for 1990 using a subset (LULUCF was excluded from analysis)

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
5.A Solid Waste Disposal	CH_4	1028.83	0.15	14.7
3.D.1.1 Direct N_2O Emissions From Managed Soils - Inorganic N Fertilizers	N_2O	992.77	0.10	24.3
3.A.1 Enteric Fermentation - Cattle	CH_4	4118.23	0.10	33.9
3.B.2 Manure Management - Indirect N_2O Emissions	N_2O	229.98	0.06	40.3
5.D Wastewater Treatment and Discharge	CH_4	541.86	0.06	46.0
3.D.2.2 Indirect N_2O Emissions From Managed Soils - Nitrogen leaching and run-off	N_2O	392.09	0.06	51.6
3.D.1.6 Direct N_2O Emissions From Managed Soils - Cultivation of organic soils	N_2O	542.52	0.05	56.9
3.D.1.3 Direct N_2O Emissions From Managed Soils - Urine and dung deposited by grazing animals	N_2O	422.12	0.04	61.0
3.D.1.2 Direct N_2O Emissions From Managed Soils - Organic N Fertilizers	N_2O	395.87	0.04	64.8
3.D.2.1 Indirect N_2O Emissions From Managed Soils - Atmospheric deposition	N_2O	222.80	0.03	68.0
1.A.4 Other sectors-Solid fuels	CO_2	2760.55	0.02	70.4
1.A.1.a Public electricity and heat production - Liquid Fuels	CO_2	6021.25	0.02	72.6
3.B.2 Manure Management - Cattle	N_2O	204.47	0.02	74.7
1.A.1.a Public electricity and heat production - Gaseous Fuels	CO_2	5806.05	0.02	76.8
1.A.3.b Road transportation	CO_2	5247.15	0.02	78.5
1.A.3.e Other transportation	CO_2	1764.11	0.02	80.1
3.D.1.4 Direct N_2O Emissions From Managed Soils - Crop Residues	N_2O	131.85	0.01	81.4
1.A.2 Manufacturing industries and construction-Liquid fuels	CO_2	3500.92	0.01	82.7
1.A.4 Other sectors-Biomass	CH_4	70.28	0.01	84.0
3.B.1 Manure Management - Other	N_2O	109.48	0.01	85.1
3.B.1.3 Manure Management - Swine	CH_4	355.08	0.01	86.2
1.A.3.e Other transportation	N_2O	186.55	0.01	87.3
2.B.2 Nitric Acid Production	N_2O	893.01	0.01	88.3
2.A.1 Cement Production	CO_2	1668.07	0.01	89.3
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH_4	165.79	0.01	90.3
3.B.1.1 Manure Management - Cattle	CH_4	255.03	0.01	91.1
2.A.2 Lime Production	CO_2	222.68	0.01	91.8

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
1.A.2 Manufacturing industries and construction-Gaseous fuels	CO_2	2048.76	0.01	92.6
1.A.4 Other sectors-Solid fuels	CH_4	128.56	0.01	93.3
1.A.4 Other sectors-Liquid fuels	CO_2	1429.58	0.01	93.9
1.A.4 Other sectors-Gaseous fuels	CO_2	1381.52	0.01	94.6
1.A.1.b Petroleum refining - Liquid Fuels	CO_2	1497.75	0.01	95.1
2.B.1 Ammonia Production	CO_2	1255.82	0.00	95.5
5.D Wastewater Treatment and Discharge	N_2O	67.21	0.00	96.0
1.A.3.b Road transportation	CH_4	48.11	0.00	96.4
1.A.3.c Railways	N_2O	40.92	0.00	96.8
1.A.3.c Railways	CO_2	349.97	0.00	97.1
3.A. Enteric Fermentation - Others	CH_4	118.06	0.00	97.3
2. D Non-energy products from fuels and solvent use	CO_2	77.50	0.00	97.6
3.H Urea Application	CO_2	35.68	0.00	97.8
3.B.1 Manure Management - Other	CH_4	75.24	0.00	98.1
1.A.4 Other sectors-Biomass	N_2O	12.97	0.00	98.3
1.A.3.b Road transportation	N_2O	39.09	0.00	98.5
2.A.4 Other process use of carbonates	CO_2	239.52	0.00	98.7
1.A.1. Energy industries-Solid fuels	CO_2	174.05	0.00	98.8
1.A.2 Manufacturing industries and construction-Solid fuels	CO_2	171.63	0.00	99.0
3.G Liming	CO_2	20.59	0.00	99.1
1.A.1. Energy industries-Liquid fuels	N_2O	16.11	0.00	99.2
2.B.8.a Methanol	CO_2	24.35	0.00	99.3
2.G Other product manufacture and use	N_2O	93.35	0.00	99.3
1.A.4 Other sectors-Solid fuels	N_2O	13.00	0.00	99.4
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH_4	10.94	0.00	99.5
5.B Biological Treatment of Solid Waste	CH_4	4.04	0.00	99.5
1.A.2 Manufacturing industries and construction-Liquid fuels	N_2O	8.06	0.00	99.6
5.B Biological Treatment of Solid Waste	N_2O	3.61	0.00	99.6
1.A.1. Energy industries-Liquid fuels	CH_4	6.90	0.00	99.6
1.A.4 Other sectors-Liquid fuels	CH_4	4.17	0.00	99.7
1.A.4 Other sectors-Peat	CO_2	27.13	0.00	99.7
2.C.1 Iron and Steel Production	CO_2	14.57	0.00	99.7
5.C Incineration and Open Burning of Waste	CO_2	2.66	0.00	99.7

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
1.A.2 Manufacturing industries and construction-Liquid fuels	CH_4	3.38	0.00	99.8
1.A.3.e Other transportation	CH_4	4.30	0.00	99.8
2.B.8.a Methanol	CH_4	5.24	0.00	99.8
1.A.1. Energy industries-Gaseous fuels	N_2O	3.13	0.00	99.8
1.A.4 Other sectors-Gaseous fuels	CH_4	3.13	0.00	99.8
1.A.4 Other sectors-Liquid fuels	N_2O	2.67	0.00	99.8
1.A.1. Energy industries-Gaseous fuels	CH_4	2.63	0.00	99.9
1.A.2 Manufacturing industries and construction-Peat	CO_2	17.53	0.00	99.9
2.A.3 Glass Production	CO_2	11.70	0.00	99.9
1.A.1. Energy industries-Biomass	N_2O	0.63	0.00	99.9
1.A.2 Manufacturing industries and construction-Biomass	N_2O	0.60	0.00	99.9
1.A.3.d Domestic Navigation	CO_2	15.49	0.00	99.9
1.A.3.a Domestic aviation	CO_2	8.16	0.00	99.9
1.A.1. Energy industries-Peat	CO_2	11.06	0.00	99.9
2.H Other	CO_2	9.66	0.00	99.9
1.A.1. Energy industries-Biomass	CH_4	0.40	0.00	99.9
1.A.2 Manufacturing industries and construction-Biomass	CH_4	0.38	0.00	100.0
1.A.4 Other sectors-Peat	CH_4	1.12	0.00	100.0
1.A.2 Manufacturing industries and construction-Gaseous fuels	N_2O	1.11	0.00	100.0
1.B.2 Oil, natural gas and other emissions from energy production	CO_2	0.66	0.00	100.0
1.A.2 Manufacturing industries and construction-Gaseous fuels	CH_4	0.93	0.00	100.0
1.A.1. Energy industries-Solid fuels	N_2O	0.82	0.00	100.0
1.A.2 Manufacturing industries and construction-Solid fuels	N_2O	0.81	0.00	100.0
1.A.3.c Railways	CH_4	0.50	0.00	100.0
1.A.4 Other sectors-Gaseous fuels	N_2O	0.75	0.00	100.0
1.A.2 Manufacturing industries and construction-Solid fuels	CH_4	0.45	0.00	100.0
1.B.2.c Fugitive Emissions from Fuels - Venting and flaring	CH_4	0.26	0.00	100.0
1.A.3.a Domestic aviation	N_2O	0.07	0.00	100.0
5.C Incineration and Open Burning of Waste	N_2O	0.08	0.00	100.0
1.A.4 Other sectors-Peat	N_2O	0.11	0.00	100.0

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
1.A.2 Manufacturing industries and construction-Peat	N_2O	0.08	0.00	100.0
1.A.3.d Domestic Navigation	N_2O	0.04	0.00	100.0
1.A.1. Energy industries-Peat	N_2O	0.05	0.00	100.0
1.A.1. Energy industries-Solid fuels	CH_4	0.05	0.00	100.0
1.A.3.d Domestic Navigation	CH_4	0.03	0.00	100.0
1.A.2 Manufacturing industries and construction-Peat	CH_4	0.01	0.00	100.0
5.C Incineration and Open Burning of Waste	CH_4	0.00	0.00	100.0
1.B.2 Oil, natural gas and other emissions from energy production	N_2O	0.00	0.00	100.0
1.A.1. Energy industries-Peat	CH_4	0.00	0.00	100.0
1.A.3.a Domestic aviation	CH_4	0.00	0.00	100.0
1.A.1. Energy industries-Other fossil fuels	CO_2	0.00	0.00	100.0
1.A.1. Energy industries-Biomass	CO_2	0.00	0.00	100.0
1.A.2 Manufacturing industries and construction-Other fossil fuels	CO_2	0.00	0.00	100.0
1.A.1. Energy industries-Other fossil fuels	CH_4	0.00	0.00	100.0
1.A.2 Manufacturing industries and construction-Other fossil fuels	CH_4	0.00	0.00	100.0
1.A.1. Energy industries-Other fossil fuels	N_2O	0.00	0.00	100.0
1.A.2 Manufacturing industries and construction-Other fossil fuels	N_2O	0.00	0.00	100.0
2. E Electronic Industry	SF_6, NF_3	0.00	0.00	100.0
2.F.1 Refrigeration and Air Conditioning Equipment	HFCs	0.00	0.00	100.0
2.F.2 Foam Blowing Agents	HFCs	0.00	0.00	100.0
2.F.3 Fire Protection	HFCs	0.00	0.00	100.0
2.F.4 Aerosols/metered dose inhalers	HFCs	0.00	0.00	100.0
2.G Other product manufacture and use	SF_6	0.00	0.00	100.0
Total		***47798.81***		

Approach 2 Level Assessment for 2013

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
4.A.1 Forest land remaining forest land - carbon stock change in biomass	CO_2	10420.28	0.20	20.4
4.B.2 Land converted to cropland - net carbon stock change in mineral soils	CO_2	3367.02	0.17	37.0
4.C.2 Land converted to grassland - net carbon stock change in mineral soils	CO_2	3049.78	0.15	52.1
5.A Solid Waste Disposal	CH_4	900.12	0.06	58.3
4.D.1 Wetlands remaining wetlands -net carbon stock change in organic soils	CO_2	876.66	0.04	62.3
3.D.1.1 Direct N_2O Emissions From Managed Soils - Inorganic N Fertilizers	N_2O	721.16	0.03	65.7
4.G Harvested wood products	CO_2	955.24	0.03	68.9
3.D.1.6 Direct N_2O Emissions From Managed Soils - Cultivation of organic soils	N_2O	621.20	0.03	71.8
4.A Forest land-4(II) organic soils	CO_2	431.21	0.02	73.9
3.D.2.2 Indirect N_2O Emissions From Managed Soils - Nitrogen leaching and run-off	N_2O	291.52	0.02	75.9
3.A.1 Enteric Fermentation - Cattle	CH_4	1480.85	0.02	77.6
3.D.1.4 Direct N_2O Emissions From Managed Soils - Crop Residues	N_2O	327.30	0.02	79.2
4.E.2 Land converted to settlements	CO_2	317.79	0.01	80.6
4.A.2 Land converted to forest land - carbon stock change in biomass	CO_2	646.68	0.01	82.0
1.A.4 Other sectors-Biomass	CH_4	159.17	0.01	83.4
4.B.2 Land converted to cropland- carbon stock change in biomass	CO_2	254.83	0.01	84.6
5.D Wastewater Treatment and Discharge	CH_4	220.15	0.01	85.8
3.B.2 Manure Management - Indirect N_2O Emissions	N_2O	81.52	0.01	86.9
4.A.2 Land converted to forest land - net carbon stock change in litter	CO_2	495.59	0.01	87.9
4.B.1 Cropland remaining cropland - net carbon stock change in organic soils	CO_2	175.86	0.01	88.8
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH_4	301.69	0.01	89.6

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
3.D.2.1 Indirect N_2O Emissions From Managed Soils - Atmospheric deposition	N_2O	119.77	0.01	90.5
3.D.1.3 Direct N_2O Emissions From Managed Soils - Urine and dung deposited by grazing animals	N_2O	174.46	0.01	91.3
3.D.1.2 Direct N_2O Emissions From Managed Soils - Organic N Fertilizers	N_2O	156.76	0.01	92.0
1.A.3.b Road transportation	CO_2	4077.87	0.01	92.6
4.B.2 Land converted to cropland- net carbon stock change in organic soils	CO_2	112.14	0.01	93.2
4.C.1 Grassland remaining grassland	CO_2	81.81	0.00	93.6
4.B.1 Cropland remaining cropland - net carbon stock change in mineral soils	CO_2	77.66	0.00	94.0
3.B.2 Manure Management - Cattle	N_2O	73.67	0.00	94.4
1.A.1.a Public electricity and heat production - Gaseous Fuels	CO_2	1960.61	0.00	94.7
4.C.2 Land converted to grassland- net carbon stock change in organic soils	CO_2	66.98	0.00	95.0
2.B.1 Ammonia Production	CO_2	1673.02	0.00	95.3
1.A.4 Other sectors-Biomass	N_2O	29.25	0.00	95.6
1.A.1.b Petroleum refining - Liquid Fuels	CO_2	1441.53	0.00	95.8
4.F Other land	CO_2	48.33	0.00	96.1
2.F.1 Refrigeration and Air Conditioning Equipment	HFCs	291.95	0.00	96.3
1.A.2 Manufacturing industries and construction-Solid fuels	CO_2	549.11	0.00	96.5
4.A Forest land	N_2O	22.38	0.00	96.7
3.B.1.1 Manure Management - Cattle	CH_4	127.51	0.00	96.9
2.B.2 Nitric Acid Production	N_2O	335.92	0.00	97.1
3.B.1.3 Manure Management - Swine	CH_4	119.55	0.00	97.3
1.A.1. Energy industries-Biomass	N_2O	17.73	0.00	97.4
1.A.4 Other sectors-Solid fuels	CO_2	352.17	0.00	97.6

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
5.D Wastewater Treatment and Discharge	N_2O	45.66	0.00	97.7
4.A.1 Forest land remaining forest land - net carbon stock change in dead wood	CO_2	71.62	0.00	97.9
2.A.1 Cement Production	CO_2	460.79	0.00	98.0
2. D Non-energy products from fuels and solvent use	CO_2	73.11	0.00	98.1
1.A.3.e Other transportation	CO_2	234.07	0.00	98.2
1.A.4 Other sectors-Gaseous fuels	CO_2	489.89	0.00	98.3
1.A.2 Manufacturing industries and construction-Gaseous fuels	CO_2	583.34	0.00	98.5
1.A.3.b Road transportation	N_2O	35.46	0.00	98.5
1.A.1. Energy industries-Biomass	CH_4	11.16	0.00	98.6
1.A.3.c Railways	N_2O	19.45	0.00	98.7
5.B Biological Treatment of Solid Waste	CH_4	12.18	0.00	98.8
3.A. Enteric Fermentation - Others	CH_4	62.80	0.00	98.9
4.B.1 Cropland remaining cropland - carbon stock change in biomass	CO_2	14.23	0.00	98.9
1.A.3.b Road transportation	CH_4	15.39	0.00	99.0
1.A.3.c Railways	CO_2	166.33	0.00	99.1
5.B Biological Treatment of Solid Waste	N_2O	10.89	0.00	99.1
3.B.1 Manure Management - Other	N_2O	11.59	0.00	99.2
4.D Wetlands	N_2O	9.54	0.00	99.2
1.A.3.e Other transportation	N_2O	18.76	0.00	99.3
1.A.4 Other sectors-Peat	CO_2	123.75	0.00	99.4
3.H Urea Application	CO_2	15.72	0.00	99.4
2.A.2 Lime Production	CO_2	29.29	0.00	99.5

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
3.G Liming	CO_2	16.71	0.00	99.5
1.A.4 Other sectors-Solid fuels	CH_4	16.26	0.00	99.5
1.A.1.a Public electricity and heat production - Liquid Fuels	CO_2	247.33	0.00	99.6
1.A.1. Energy industries-Other fossil fuels	CO_2	107.35	0.00	99.6
3.B.1 Manure Management - Other	CH_4	27.07	0.00	99.7
1.A.4 Other sectors-Liquid fuels	CO_2	177.64	0.00	99.7
1.A.2 Manufacturing industries and construction-Biomass	N_2O	4.20	0.00	99.7
2.F.2 Foam Blowing Agents	HFCs	12.97	0.00	99.8
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH_4	9.62	0.00	99.8
1.A.2 Manufacturing industries and construction-Biomass	CH_4	2.64	0.00	99.8
1.A.1. Energy industries-Peat	CO_2	46.64	0.00	99.8
1.B.2 Oil, natural gas and other emissions from energy production	CO_2	4.10	0.00	99.9
1.A.4 Other sectors-Peat	CH_4	5.82	0.00	99.9
1.A.2 Manufacturing industries and construction-Liquid fuels	CO_2	70.92	0.00	99.9
1.A.2 Manufacturing industries and construction-Other fossil fuels	CO_2	22.46	0.00	99.9
1.B.2.c Fugitive Emissions from Fuels - Venting and flaring	CH_4	1.82	0.00	99.9
1.A.2 Manufacturing industries and construction-Solid fuels	N_2O	2.55	0.00	99.9
1.A.1. Energy industries-Liquid fuels	N_2O	2.25	0.00	99.9
2.A.4 Other process use of carbonates	CO_2	18.41	0.00	99.9
1.A.3.d Domestic Navigation	CO_2	14.29	0.00	99.9
1.A.4 Other sectors-Solid fuels	N_2O	1.66	0.00	99.9
2.H Other	CO_2	11.67	0.00	99.9

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
1.A.1. Energy industries-Solid fuels	CO_2	10.27	0.00	99.9
1.A.2 Manufacturing industries and construction-Solid fuels	CH_4	1.42	0.00	99.9
2.A.3 Glass Production	CO_2	8.13	0.00	99.9
1.A.1. Energy industries-Other fossil fuels	N_2O	1.29	0.00	99.9
2.F.3 Fire Protection	HFCs	2.06	0.00	100.0
1.A.1. Energy industries-Liquid fuels	CH_4	1.13	0.00	100.0
5.C Incineration and Open Burning of Waste	CO_2	0.77	0.00	100.0
1.A.4 Other sectors-Gaseous fuels	CH_4	1.11	0.00	100.0
4.C Grassland	N_2O	0.77	0.00	100.0
1.A.1. Energy industries-Gaseous fuels	N_2O	1.06	0.00	100.0
1.A.2 Manufacturing industries and construction-Peat	CO_2	7.10	0.00	100.0
2.F.4 Aerosols/metered dose inhalers	HFCs	7.26	0.00	100.0
4.C Grassland	CH_4	0.73	0.00	100.0
1.A.1. Energy industries-Gaseous fuels	CH_4	0.89	0.00	100.0
2. E Electronic Industry	SF_6, NF_3	5.98	0.00	100.0
1.A.1. Energy industries-Other fossil fuels	CH_4	0.81	0.00	100.0
2.C.1 Iron and Steel Production	CO_2	2.40	0.00	100.0
1.A.4 Other sectors-Peat	N_2O	0.49	0.00	100.0
1.A.4 Other sectors-Liquid fuels	CH_4	0.44	0.00	100.0
4.A.1 Forest land remaining forest land	CO_2	0.55	0.00	100.0
2.G Other product manufacture and use	N_2O	2.60	0.00	100.0
1.A.3.c Railways	CH_4	0.24	0.00	100.0

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
1.A.3.a Domestic aviation	CO_2	1.72	0.00	100.0
1.A.2 Manufacturing industries and construction-Gaseous fuels	N_2O	0.31	0.00	100.0
1.A.2 Manufacturing industries and construction-Other fossil fuels	N_2O	0.31	0.00	100.0
1.A.3.e Other transportation	CH_4	0.38	0.00	100.0
1.A.4 Other sectors-Gaseous fuels	N_2O	0.26	0.00	100.0
1.A.2 Manufacturing industries and construction-Gaseous fuels	CH_4	0.26	0.00	100.0
4.B Cropland	N_2O	0.44	0.00	100.0
1.A.3.d Domestic Navigation	N_2O	0.12	0.00	100.0
1.A.4 Other sectors-Liquid fuels	N_2O	0.21	0.00	100.0
1.A.1. Energy industries-Peat	N_2O	0.20	0.00	100.0
1.A.2 Manufacturing industries and construction-Other fossil fuels	CH_4	0.20	0.00	100.0
1.A.2 Manufacturing industries and construction-Liquid fuels	N_2O	0.12	0.00	100.0
4.A Forest land	CH_4	0.05	0.00	100.0
1.A.2 Manufacturing industries and construction-Liquid fuels	CH_4	0.06	0.00	100.0
1.A.1. Energy industries-Solid fuels	N_2O	0.05	0.00	100.0
2.G Other product manufacture and use	SF_6	0.39	0.00	100.0
1.A.3.d Domestic Navigation	CH_4	0.03	0.00	100.0
1.A.3.a Domestic aviation	N_2O	0.01	0.00	100.0
5.C Incineration and Open Burning of Waste	N_2O	0.02	0.00	100.0
1.A.2 Manufacturing industries and construction-Peat	N_2O	0.03	0.00	100.0
1.B.2 Oil, natural gas and other emissions from energy production	N_2O	0.02	0.00	100.0
1.A.1. Energy industries-Peat	CH_4	0.01	0.00	100.0

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
1.A.2 Manufacturing industries and construction-Peat	CH_4	0.00	0.00	100.0
1.A.1. Energy industries-Solid fuels	CH_4	0.00	0.00	100.0
5.C Incineration and Open Burning of Waste	CH_4	0.00	0.00	100.0
4.B Cropland	CH_4	0.00	0.00	100.0
1.A.3.a Domestic aviation	CH_4	0.00	0.00	100.0
1.A.1. Energy industries-Biomass	CO_2	0.00	0.00	100.0
2.B.8.a Methanol	CO_2	0.00	0.00	100.0
2.B.8.a Methanol	CH_4	0.00	0.00	100.0
4.D.2 Land converted to wetlands	CO_2	0.00	0.00	100.0
4.E.1 Settlements remaining settlements	CO_2	0.00	0.00	100.0
Total		***41407.91***		

Approach 2 Level Assessment for 2013 using a subset (LULUCF was excluded from analysis)

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
5.A Solid Waste Disposal	CH_4	900.12	0.21	20.7
3.D.1.1 Direct N_2O Emissions From Managed Soils - Inorganic N Fertilizers	N_2O	721.16	0.11	31.9
3.D.1.6 Direct N_2O Emissions From Managed Soils - Cultivation of organic soils	N_2O	621.20	0.10	41.6
3.D.2.2 Indirect N_2O Emissions From Managed Soils - Nitrogen leaching and run-off	N_2O	291.52	0.07	48.2
3.A.1 Enteric Fermentation - Cattle	CH_4	1480.85	0.06	53.8
3.D.1.4 Direct N_2O Emissions From Managed Soils - Crop Residues	N_2O	327.30	0.05	58.9
1.A.4 Other sectors-Biomass	CH_4	159.17	0.05	63.4
5.D Wastewater Treatment and Discharge	CH_4	220.15	0.04	67.2
3.B.2 Manure Management - Indirect N_2O Emissions	N_2O	81.52	0.04	70.8
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH_4	301.69	0.03	73.6
3.D.2.1 Indirect N_2O Emissions From Managed Soils - Atmospheric deposition	N_2O	119.77	0.03	76.3
3.D.1.3 Direct N_2O Emissions From Managed Soils - Urine and dung deposited by grazing animals	N_2O	174.46	0.03	79.0
3.D.1.2 Direct N_2O Emissions From Managed Soils - Organic N Fertilizers	N_2O	156.76	0.02	81.5
1.A.3.b Road transportation	CO_2	4077.87	0.02	83.6
3.B.2 Manure Management - Cattle	N_2O	73.67	0.01	84.8
1.A.1.a Public electricity and heat production - Gaseous Fuels	CO_2	1960.61	0.01	86.0
2.B.1 Ammonia Production	CO_2	1673.02	0.01	86.9
1.A.4 Other sectors-Biomass	N_2O	29.25	0.01	87.8
1.A.1.b Petroleum refining - Liquid Fuels	CO_2	1441.53	0.01	88.6
2.F.1 Refrigeration and Air Conditioning Equipment	HFCs	291.95	0.01	89.4
1.A.2 Manufacturing industries and construction-Solid fuels	CO_2	549.11	0.01	90.1

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
3.B.1.1 Manure Management - Cattle	CH_4	127.51	0.01	90.7
2.B.2 Nitric Acid Production	N_2O	335.92	0.01	91.4
3.B.1.3 Manure Management - Swine	CH_4	119.55	0.01	92.0
1.A.1. Energy industries-Biomass	N_2O	17.73	0.00	92.5
1.A.4 Other sectors-Solid fuels	CO_2	352.17	0.00	92.9
5.D Wastewater Treatment and Discharge	N_2O	45.66	0.00	93.4
2.A.1 Cement Production	CO_2	460.79	0.00	93.9
2. D Non-energy products from fuels and solvent use	CO_2	73.11	0.00	94.3
1.A.3.e Other transportation	CO_2	234.07	0.00	94.6
1.A.4 Other sectors-Gaseous fuels	CO_2	489.89	0.00	95.0
1.A.2 Manufacturing industries and construction-Gaseous fuels	CO_2	583.34	0.00	95.3
1.A.3.b Road transportation	N_2O	35.46	0.00	95.6
1.A.1. Energy industries-Biomass	CH_4	11.16	0.00	96.0
1.A.3.c Railways	N_2O	19.45	0.00	96.2
5.B Biological Treatment of Solid Waste	CH_4	12.18	0.00	96.5
3.A. Enteric Fermentation - Others	CH_4	62.80	0.00	96.7
1.A.3.b Road transportation	CH_4	15.39	0.00	96.9
1.A.3.c Railways	CO_2	166.33	0.00	97.1
5.B Biological Treatment of Solid Waste	N_2O	10.89	0.00	97.3
3.B.1 Manure Management - Other	N_2O	11.59	0.00	97.5
1.A.3.e Other transportation	N_2O	18.76	0.00	97.7
1.A.4 Other sectors-Peat	CO_2	123.75	0.00	97.9

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
3.H Urea Application	CO_2	15.72	0.00	98.0
2.A.2 Lime Production	CO_2	29.29	0.00	98.2
3.G Liming	CO_2	16.71	0.00	98.4
1.A.4 Other sectors-Solid fuels	CH_4	16.26	0.00	98.5
1.A.1.a Public electricity and heat production - Liquid Fuels	CO_2	247.33	0.00	98.7
1.A.1. Energy industries-Other fossil fuels	CO_2	107.35	0.00	98.8
3.B.1 Manure Management - Other	CH_4	27.07	0.00	98.9
1.A.4 Other sectors-Liquid fuels	CO_2	177.64	0.00	99.1
1.A.2 Manufacturing industries and construction-Biomass	N_2O	4.20	0.00	99.2
2.F.2 Foam Blowing Agents	HFCs	12.97	0.00	99.3
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH_4	9.62	0.00	99.4
1.A.2 Manufacturing industries and construction-Biomass	CH_4	2.64	0.00	99.4
1.A.1. Energy industries-Peat	CO_2	46.64	0.00	99.5
1.B.2 Oil, natural gas and other emissions from energy production	CO_2	4.10	0.00	99.5
1.A.4 Other sectors-Peat	CH_4	5.82	0.00	99.6
1.A.2 Manufacturing industries and construction-Liquid fuels	CO_2	70.92	0.00	99.6
1.A.2 Manufacturing industries and construction-Other fossil fuels	CO_2	22.46	0.00	99.7
1.B.2.c Fugitive Emissions from Fuels - Venting and flaring	CH_4	1.82	0.00	99.7
1.A.2 Manufacturing industries and construction-Solid fuels	N_2O	2.55	0.00	99.7
1.A.1. Energy industries-Liquid fuels	N_2O	2.25	0.00	99.7
2.A.4 Other process use of carbonates	CO_2	18.41	0.00	99.8
1.A.3.d Domestic Navigation	CO_2	14.29	0.00	99.8

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
1.A.4 Other sectors-Solid fuels	N_2O	1.66	0.00	99.8
2.H Other	CO_2	11.67	0.00	99.8
1.A.1. Energy industries-Solid fuels	CO_2	10.27	0.00	99.8
1.A.2 Manufacturing industries and construction-Solid fuels	CH_4	1.42	0.00	99.8
2.A.3 Glass Production	CO_2	8.13	0.00	99.8
1.A.1. Energy industries-Other fossil fuels	N_2O	1.29	0.00	99.9
2.F.3 Fire Protection	HFCs	2.06	0.00	99.9
1.A.1. Energy industries-Liquid fuels	CH_4	1.13	0.00	99.9
5.C Incineration and Open Burning of Waste	CO_2	0.77	0.00	99.9
1.A.4 Other sectors-Gaseous fuels	CH_4	1.11	0.00	99.9
1.A.1. Energy industries-Gaseous fuels	N_2O	1.06	0.00	99.9
1.A.2 Manufacturing industries and construction-Peat	CO_2	7.10	0.00	99.9
2.F.4 Aerosols/metered dose inhalers	HFCs	7.26	0.00	99.9
1.A.1. Energy industries-Gaseous fuels	CH_4	0.89	0.00	99.9
2. E Electronic Industry	SF_6, NF_3	5.98	0.00	99.9
1.A.1. Energy industries-Other fossil fuels	CH_4	0.81	0.00	100.0
2.C.1 Iron and Steel Production	CO_2	2.40	0.00	100.0
1.A.4 Other sectors-Peat	N_2O	0.49	0.00	100.0
1.A.4 Other sectors-Liquid fuels	CH_4	0.44	0.00	100.0
2.G Other product manufacture and use	N_2O	2.60	0.00	100.0
1.A.3.c Railways	CH_4	0.24	0.00	100.0
1.A.3.a Domestic aviation	CO_2	1.72	0.00	100.0

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
1.A.2 Manufacturing industries and construction-Gaseous fuels	N_2O	0.31	0.00	100.0
1.A.2 Manufacturing industries and construction-Other fossil fuels	N_2O	0.31	0.00	100.0
1.A.3.e Other transportation	CH_4	0.38	0.00	100.0
1.A.4 Other sectors-Gaseous fuels	N_2O	0.26	0.00	100.0
1.A.2 Manufacturing industries and construction-Gaseous fuels	CH_4	0.26	0.00	100.0
1.A.3.d Domestic Navigation	N_2O	0.12	0.00	100.0
1.A.4 Other sectors-Liquid fuels	N_2O	0.21	0.00	100.0
1.A.1. Energy industries-Peat	N_2O	0.20	0.00	100.0
1.A.2 Manufacturing industries and construction-Other fossil fuels	CH_4	0.20	0.00	100.0
1.A.2 Manufacturing industries and construction-Liquid fuels	N_2O	0.12	0.00	100.0
1.A.2 Manufacturing industries and construction-Liquid fuels	CH_4	0.06	0.00	100.0
1.A.1. Energy industries-Solid fuels	N_2O	0.05	0.00	100.0
2.G Other product manufacture and use	SF_6	0.39	0.00	100.0
1.A.3.d Domestic Navigation	CH_4	0.03	0.00	100.0
1.A.3.a Domestic aviation	N_2O	0.01	0.00	100.0
5.C Incineration and Open Burning of Waste	N_2O	0.02	0.00	100.0
1.A.2 Manufacturing industries and construction-Peat	N_2O	0.03	0.00	100.0
1.B.2 Oil, natural gas and other emissions from energy production	N_2O	0.02	0.00	100.0
1.A.1. Energy industries-Peat	CH_4	0.01	0.00	100.0
1.A.2 Manufacturing industries and construction-Peat	CH_4	0.00	0.00	100.0
1.A.1. Energy industries-Solid fuels	CH_4	0.00	0.00	100.0
5.C Incineration and Open Burning of Waste	CH_4	0.00	0.00	100.0

IPCC Category	*Greenhouse gas*	*GHG emissions, kt CO_2 eqv*	*Level assessment with uncertainty*	*Cumulative total*
1.A.3.a Domestic aviation	CH_4	0.00	0.00	100.0
1.A.1. Energy industries-Biomass	CO_2	0.00	0.00	100.0
2.B.8.a Methanol	CO_2	0.00	0.00	100.0
2.B.8.a Methanol	CH_4	0.00	0.00	100.0
Total		***19909.74***		

Approach 2 Trend Assessment for 2013

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment with uncertainty*	*% Contribution to Trend*	*Cumulative total*
4.A.1 Forest land remaining forest land - carbon stock change in biomass	CO_2	6680.01	10420.28	0.08	0.23	23.5
4.C.2 Land converted to grassland - net carbon stock change in mineral soils	CO_2	2082.10	3049.78	0.06	0.17	40.0
4.G Harvested wood products	CO_2	95.65	955.24	0.02	0.06	45.9
4.D.1 Wetlands remaining wetlands -net carbon stock change in organic soils	CO_2	517.33	876.66	0.02	0.05	50.7
4.B.2 Land converted to cropland - net carbon stock change in mineral soils	CO_2	4615.45	3367.02	0.01	0.04	54.7
5.A Solid Waste Disposal	CH_4	1028.83	900.12	0.01	0.03	57.9
4.E.2 Land converted to settlements	CO_2	0.00	317.79	0.01	0.03	60.7
3.A.1 Enteric Fermentation - Cattle	CH_4	4118.23	1480.85	0.01	0.03	63.3
3.D.1.6 Direct N_2O Emissions From Managed Soils - Cultivation of organic soils	N_2O	542.52	621.20	0.01	0.03	65.8
3.D.1.4 Direct N_2O Emissions From Managed Soils - Crop Residues	N_2O	131.85	327.30	0.01	0.02	68.0
1.A.4 Other sectors-Biomass	CH_4	70.28	159.17	0.01	0.02	70.0
4.B.2 Land converted to cropland- carbon stock change in biomass	CO_2	98.41	254.83	0.01	0.02	71.8
3.B.2 Manure Management - Indirect N_2O Emissions	N_2O	229.98	81.52	0.01	0.02	73.5
4.A Forest land-4(II) organic soils	CO_2	406.04	431.21	0.01	0.02	75.2
5.D Wastewater Treatment and Discharge	CH_4	541.86	220.15	0.00	0.01	76.5
1.A.1.a Public electricity and heat production - Liquid Fuels	CO_2	6021.25	247.33	0.00	0.01	77.7
1.A.4 Other sectors-Solid fuels	CO_2	2760.55	352.17	0.00	0.01	78.9
4.A.2 Land converted to forest land - carbon stock change in biomass	CO_2	585.97	646.68	0.00	0.01	80.0
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH_4	165.79	301.69	0.00	0.01	81.1
4.B.1 Cropland remaining cropland - net carbon stock change in mineral soils	CO_2	281.82	77.66	0.00	0.01	82.1

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment with uncertainty*	*% Contribution to Trend*	*Cumulative total*
3.D.1.2 Direct N_2O Emissions From Managed Soils - Organic N Fertilizers	N_2O	395.87	156.76	0.00	0.01	83.0
4.A.1 Forest land remaining forest land - net carbon stock change in dead wood	CO_2	474.03	71.62	0.00	0.01	83.8
3.D.1.3 Direct N_2O Emissions From Managed Soils - Urine and dung deposited by grazing animals	N_2O	422.12	174.46	0.00	0.01	84.7
4.A.2 Land converted to forest land - net carbon stock change in litter	CO_2	448.14	495.59	0.00	0.01	85.6
1.A.3.e Other transportation	CO_2	1764.11	234.07	0.00	0.01	86.4
3.D.1.1 Direct N_2O Emissions From Managed Soils - Inorganic N Fertilizers	N_2O	992.77	721.16	0.00	0.01	87.2
1.A.2 Manufacturing industries and construction-Liquid fuels	CO_2	3500.92	70.92	0.00	0.01	87.9
1.A.1.a Public electricity and heat production - Gaseous Fuels	CO_2	5806.05	1960.61	0.00	0.01	88.5
4.B.1 Cropland remaining cropland - net carbon stock change in organic soils	CO_2	178.17	175.86	0.00	0.01	89.1
3.B.1 Manure Management - Other	N_2O	109.48	11.59	0.00	0.01	89.7
3.B.2 Manure Management - Cattle	N_2O	204.47	73.67	0.00	0.01	90.3
1.A.3.e Other transportation	N_2O	186.55	18.76	0.00	0.01	90.8
3.D.2.2 Indirect N_2O Emissions From Managed Soils - Nitrogen leaching and run-off	N_2O	392.09	291.52	0.00	0.01	91.4
4.F Other land	CO_2	0.00	48.33	0.00	0.00	91.8
2.F.1 Refrigeration and Air Conditioning Equipment	HFCs	0.00	291.95	0.00	0.00	92.3
2.A.2 Lime Production	CO_2	222.68	29.29	0.00	0.00	92.7
1.A.4 Other sectors-Biomass	N_2O	12.97	29.25	0.00	0.00	93.0
1.A.4 Other sectors-Solid fuels	CH_4	128.56	16.26	0.00	0.00	93.4
2.A.1 Cement Production	CO_2	1668.07	460.79	0.00	0.00	93.7
1.A.2 Manufacturing industries and construction-Solid fuels	CO_2	171.63	549.11	0.00	0.00	94.1

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment with uncertainty*	*% Contribution to Trend*	*Cumulative total*
4.B.1 Cropland remaining cropland - carbon stock change in biomass	CO_2	77.39	14.23	0.00	0.00	94.4
3.B.1.3 Manure Management - Swine	CH_4	355.08	119.55	0.00	0.00	94.7
3.D.2.1 Indirect N_2O Emissions From Managed Soils - Atmospheric deposition	N_2O	222.80	119.77	0.00	0.00	95.0
1.A.4 Other sectors-Liquid fuels	CO_2	1429.58	177.64	0.00	0.00	95.4
2.B.1 Ammonia Production	CO_2	1255.82	1673.02	0.00	0.00	95.6
4.C.2 Land converted to grassland- net carbon stock change in organic soils	CO_2	57.14	66.98	0.00	0.00	95.9
4.C.1 Grassland remaining grassland	CO_2	80.81	81.81	0.00	0.00	96.2
1.A.1. Energy industries-Biomass	N_2O	0.63	17.73	0.00	0.00	96.5
4.B.2 Land converted to cropland- net carbon stock change in organic soils	CO_2	133.17	112.14	0.00	0.00	96.8
2.B.2 Nitric Acid Production	N_2O	893.01	335.92	0.00	0.00	97.0
1.A.2 Manufacturing industries and construction-Gaseous fuels	CO_2	2048.76	583.34	0.00	0.00	97.3
1.A.3.b Road transportation	CO_2	5247.15	4077.87	0.00	0.00	97.5
1.A.1. Energy industries-Biomass	CH_4	0.40	11.16	0.00	0.00	97.7
1.A.1.b Petroleum refining - Liquid Fuels	CO_2	1497.75	1441.53	0.00	0.00	97.8
1.A.4 Other sectors-Gaseous fuels	CO_2	1381.52	489.89	0.00	0.00	98.0
4.A Forest land	N_2O	21.63	22.38	0.00	0.00	98.2
1.A.3.b Road transportation	CH_4	48.11	15.39	0.00	0.00	98.3
5.B Biological Treatment of Solid Waste	CH_4	4.04	12.18	0.00	0.00	98.4
3.B.1.1 Manure Management - Cattle	CH_4	255.03	127.51	0.00	0.00	98.5
5.B Biological Treatment of Solid Waste	N_2O	3.61	10.89	0.00	0.00	98.6
2.A.4 Other process use of carbonates	CO_2	239.52	18.41	0.00	0.00	98.7

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment with uncertainty*	*% Contribution to Trend*	*Cumulative total*
1.A.4 Other sectors-Peat	CO_2	27.13	123.75	0.00	0.00	98.8
1.A.1. Energy industries-Other fossil fuels	CO_2	0.00	107.35	0.00	0.00	98.9
1.A.1. Energy industries-Solid fuels	CO_2	174.05	10.27	0.00	0.00	98.9
2. D Non-energy products from fuels and solvent use	CO_2	77.50	73.11	0.00	0.00	99.0
1.A.2 Manufacturing industries and construction-Biomass	N_2O	0.60	4.20	0.00	0.00	99.1
3.B.1 Manure Management - Other	CH_4	75.24	27.07	0.00	0.00	99.1
2.F.2 Foam Blowing Agents	HFCs	0.00	12.97	0.00	0.00	99.2
1.A.3.b Road transportation	N_2O	39.09	35.46	0.00	0.00	99.3
1.A.3.c Railways	N_2O	40.92	19.45	0.00	0.00	99.3
3.H Urea Application	CO_2	35.68	15.72	0.00	0.00	99.4
1.A.3.c Railways	CO_2	349.97	166.33	0.00	0.00	99.4
2.G Other product manufacture and use	N_2O	93.35	2.60	0.00	0.00	99.4
1.A.1. Energy industries-Liquid fuels	N_2O	16.11	2.25	0.00	0.00	99.5
1.A.2 Manufacturing industries and construction-Biomass	CH_4	0.38	2.64	0.00	0.00	99.5
1.A.4 Other sectors-Solid fuels	N_2O	13.00	1.66	0.00	0.00	99.6
1.A.1. Energy industries-Peat	CO_2	11.06	46.64	0.00	0.00	99.6
1.B.2 Oil, natural gas and other emissions from energy production	CO_2	0.66	4.10	0.00	0.00	99.6
3.A. Enteric Fermentation - Others	CH_4	118.06	62.80	0.00	0.00	99.7
1.A.4 Other sectors-Peat	CH_4	1.12	5.82	0.00	0.00	99.7
1.A.2 Manufacturing industries and construction-Liquid fuels	N_2O	8.06	0.12	0.00	0.00	99.7
4.D Wetlands	N_2O	11.92	9.54	0.00	0.00	99.7

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment with uncertainty*	*% Contribution to Trend*	*Cumulative total*
3.G Liming	CO_2	20.59	16.71	0.00	0.00	99.8
1.A.1. Energy industries-Liquid fuels	CH_4	6.90	1.13	0.00	0.00	99.8
1.A.2 Manufacturing industries and construction-Other fossil fuels	CO_2	0.00	22.46	0.00	0.00	99.8
5.D Wastewater Treatment and Discharge	N_2O	67.21	45.66	0.00	0.00	99.8
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH_4	10.94	9.62	0.00	0.00	99.8
1.B.2.c Fugitive Emissions from Fuels - Venting and flaring	CH_4	0.26	1.82	0.00	0.00	99.8
1.A.4 Other sectors-Liquid fuels	CH_4	4.17	0.44	0.00	0.00	99.8
1.A.2 Manufacturing industries and construction-Liquid fuels	CH_4	3.38	0.06	0.00	0.00	99.9
1.A.2 Manufacturing industries and construction-Solid fuels	N_2O	0.81	2.55	0.00	0.00	99.9
2.C.1 Iron and Steel Production	CO_2	14.57	2.40	0.00	0.00	99.9
1.A.3.e Other transportation	CH_4	4.30	0.38	0.00	0.00	99.9
4.A.1 Forest land remaining forest land	CO_2	4.28	0.55	0.00	0.00	99.9
1.A.4 Other sectors-Liquid fuels	N_2O	2.67	0.21	0.00	0.00	99.9
5.C Incineration and Open Burning of Waste	CO_2	2.66	0.77	0.00	0.00	99.9
1.A.1. Energy industries-Other fossil fuels	N_2O	0.00	1.29	0.00	0.00	99.9
2.F.3 Fire Protection	HFCs	0.00	2.06	0.00	0.00	99.9
1.A.2 Manufacturing industries and construction-Solid fuels	CH_4	0.45	1.42	0.00	0.00	99.9
2.F.4 Aerosols/metered dose inhalers	HFCs	0.00	7.26	0.00	0.00	99.9
4.C Grassland	N_2O	2.31	0.77	0.00	0.00	99.9
1.A.1. Energy industries-Gaseous fuels	N_2O	3.13	1.06	0.00	0.00	99.9
1.A.4 Other sectors-Gaseous fuels	CH_4	3.13	1.11	0.00	0.00	99.9

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment with uncertainty*	*% Contribution to Trend*	*Cumulative total*
4.C Grassland	CH_4	2.12	0.73	0.00	0.00	100.0
2. E Electronic Industry	SF_6, NF_3	0.00	5.98	0.00	0.00	100.0
1.A.1. Energy industries-Other fossil fuels	CH_4	0.00	0.81	0.00	0.00	100.0
1.A.1. Energy industries-Gaseous fuels	CH_4	2.63	0.89	0.00	0.00	100.0
2.H Other	CO_2	9.66	11.67	0.00	0.00	100.0
1.A.3.a Domestic aviation	CO_2	8.16	1.72	0.00	0.00	100.0
4.A Forest land	CH_4	0.71	0.05	0.00	0.00	100.0
1.A.2 Manufacturing industries and construction-Peat	CO_2	17.53	7.10	0.00	0.00	100.0
1.A.3.d Domestic Navigation	CO_2	15.49	14.29	0.00	0.00	100.0
1.A.1. Energy industries-Solid fuels	N_2O	0.82	0.05	0.00	0.00	100.0
1.A.4 Other sectors-Peat	N_2O	0.11	0.49	0.00	0.00	100.0
1.A.2 Manufacturing industries and construction-Gaseous fuels	N_2O	1.11	0.31	0.00	0.00	100.0
1.A.2 Manufacturing industries and construction-Gaseous fuels	CH_4	0.93	0.26	0.00	0.00	100.0
1.A.2 Manufacturing industries and construction-Other fossil fuels	N_2O	0.00	0.31	0.00	0.00	100.0
1.A.4 Other sectors-Gaseous fuels	N_2O	0.75	0.26	0.00	0.00	100.0
1.A.2 Manufacturing industries and construction-Other fossil fuels	CH_4	0.00	0.20	0.00	0.00	100.0
1.A.1. Energy industries-Peat	N_2O	0.05	0.20	0.00	0.00	100.0
1.A.3.d Domestic Navigation	N_2O	0.04	0.12	0.00	0.00	100.0
1.A.3.c Railways	CH_4	0.50	0.24	0.00	0.00	100.0
2.A.3 Glass Production	CO_2	11.70	8.13	0.00	0.00	100.0
1.A.3.a Domestic aviation	N_2O	0.07	0.01	0.00	0.00	100.0

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment with uncertainty*	*% Contribution to Trend*	*Cumulative total*
5.C Incineration and Open Burning of Waste	N_2O	0.08	0.02	0.00	0.00	100.0
2.G Other product manufacture and use	SF_6	0.00	0.39	0.00	0.00	100.0
4.B Cropland	N_2O	0.60	0.44	0.00	0.00	100.0
1.A.1. Energy industries-Solid fuels	CH_4	0.05	0.00	0.00	0.00	100.0
1.B.2 Oil, natural gas and other emissions from energy production	N_2O	0.00	0.02	0.00	0.00	100.0
1.A.2 Manufacturing industries and construction-Peat	N_2O	0.08	0.03	0.00	0.00	100.0
1.A.3.d Domestic Navigation	CH_4	0.03	0.03	0.00	0.00	100.0
4.B Cropland	CH_4	0.05	0.00	0.00	0.00	100.0
1.A.1. Energy industries-Peat	CH_4	0.00	0.01	0.00	0.00	100.0
5.C Incineration and Open Burning of Waste	CH_4	0.00	0.00	0.00	0.00	100.0
1.A.2 Manufacturing industries and construction-Peat	CH_4	0.01	0.00	0.00	0.00	100.0
1.A.3.a Domestic aviation	CH_4	0.00	0.00	0.00	0.00	100.0
1.A.1. Energy industries-Biomass	CO_2	0.00	0.00	0.00	0.00	100.0
2.B.8.a Methanol	CO_2	24.35	0.00	0.00	0.00	100.0
2.B.8.a Methanol	CH_4	5.24	0.00	0.00	0.00	100.0
4.D.2 Land converted to wetlands	CO_2	0.00	0.00	0.00	0.00	100.0
4.E.1 Settlements remaining settlements	CO_2	0.00	0.00	0.00	0.00	100.0
Total				***0.35***	***1.00***	

Approach 2 Trend Assessment for 2013 using a subset (LULUCF was excluded from analysis)

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment with uncertainty*	*% Contribution to Trend*	*Cumulative total*
5.A Solid Waste Disposal	CH_4	1028.83	900.12	0.07	0.21	20.8
3.D.1.6 Direct N_2O Emissions From Managed Soils - Cultivation of organic soils	N_2O	542.52	621.20	0.04	0.12	32.6
3.D.1.1 Direct N_2O Emissions From Managed Soils - Inorganic N Fertilizers	N_2O	992.77	721.16	0.03	0.09	41.8
3.D.1.4 Direct N_2O Emissions From Managed Soils - Crop Residues	N_2O	131.85	327.30	0.03	0.08	49.9
1.A.4 Other sectors-Biomass	CH_4	70.28	159.17	0.02	0.07	57.1
3.D.2.2 Indirect N_2O Emissions From Managed Soils - Nitrogen leaching and run-off	N_2O	392.09	291.52	0.02	0.06	62.7
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH_4	165.79	301.69	0.01	0.04	66.8
1.A.1.a Public electricity and heat production - Liquid Fuels	CO_2	6021.25	247.33	0.01	0.03	69.3
1.A.4 Other sectors-Solid fuels	CO_2	2760.55	352.17	0.01	0.02	71.4
1.A.3.b Road transportation	CO_2	5247.15	4077.87	0.01	0.02	73.3
3.A.1 Enteric Fermentation - Cattle	CH_4	4118.23	1480.85	0.01	0.02	75.0
1.A.2 Manufacturing industries and construction-Liquid fuels	CO_2	3500.92	70.92	0.01	0.02	76.5
2.F.1 Refrigeration and Air Conditioning Equipment	HFCs	2.44	291.95	0.01	0.01	78.0
1.A.3.e Other transportation	CO_2	1764.11	234.07	0.00	0.01	79.5
1.A.4 Other sectors-Biomass	N_2O	12.97	29.25	0.00	0.01	80.8
2.B.1 Ammonia Production	CO_2	1255.82	1673.02	0.00	0.01	82.1
3.B.2 Manure Management - Indirect N_2O Emissions	N_2O	229.98	81.52	0.00	0.01	83.3
1.A.2 Manufacturing industries and construction-Solid fuels	CO_2	171.63	549.11	0.00	0.01	84.5
3.D.2.1 Indirect N_2O Emissions From Managed Soils - Atmospheric deposition	N_2O	222.80	119.77	0.00	0.01	85.7
3.B.1 Manure Management - Other	N_2O	109.48	11.59	0.00	0.01	86.8

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment with uncertainty*	*% Contribution to Trend*	*Cumulative total*
1.A.3.e Other transportation	N_2O	186.55	18.76	0.00	0.01	87.9
1.A.1. Energy industries-Biomass	N_2O	0.63	17.73	0.00	0.01	88.8
1.A.1.b Petroleum refining - Liquid Fuels	CO_2	1497.75	1441.53	0.00	0.01	89.7
2.A.2 Lime Production	CO_2	222.68	29.29	0.00	0.01	90.4
1.A.4 Other sectors-Solid fuels	CH_4	128.56	16.26	0.00	0.01	91.0
1.A.1. Energy industries-Biomass	CH_4	0.40	11.16	0.00	0.01	91.6
1.A.4 Other sectors-Liquid fuels	CO_2	1429.58	177.64	0.00	0.01	92.2
1.A.1.a Public electricity and heat production - Gaseous Fuels	CO_2	5806.05	1960.61	0.00	0.01	92.7
2.A.1 Cement Production	CO_2	1668.07	460.79	0.00	0.00	93.1
2. D Non-energy products from fuels and solvent use	CO_2	77.50	73.11	0.00	0.00	93.6
5.B Biological Treatment of Solid Waste	CH_4	4.04	12.18	0.00	0.00	94.0
3.B.2 Manure Management - Cattle	N_2O	204.47	73.67	0.00	0.00	94.3
5.D Wastewater Treatment and Discharge	N_2O	67.21	45.66	0.00	0.00	94.7
5.B Biological Treatment of Solid Waste	N_2O	3.61	10.89	0.00	0.00	95.0
1.A.3.b Road transportation	N_2O	39.09	35.46	0.00	0.00	95.4
1.A.2 Manufacturing industries and construction-Gaseous fuels	CO_2	2048.76	583.34	0.00	0.00	95.7
1.A.4 Other sectors-Peat	CO_2	27.13	123.75	0.00	0.00	96.0
3.B.1.3 Manure Management - Swine	CH_4	355.08	119.55	0.00	0.00	96.3
1.A.1. Energy industries-Other fossil fuels	CO_2	0.00	107.35	0.00	0.00	96.5
3.D.1.2 Direct N_2O Emissions From Managed Soils - Organic N Fertilizers	N_2O	395.87	156.76	0.00	0.00	96.8
1.A.2 Manufacturing industries and construction-Biomass	N_2O	0.60	4.20	0.00	0.00	97.0

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment with uncertainty*	*% Contribution to Trend*	*Cumulative total*
3.B.1.1 Manure Management - Cattle	CH_4	255.03	127.51	0.00	0.00	97.2
2.F.2 Foam Blowing Agents	HFCs	0.00	12.97	0.00	0.00	97.4
5.D Wastewater Treatment and Discharge	CH_4	541.86	220.15	0.00	0.00	97.5
2.A.4 Other process use of carbonates	CO_2	239.52	18.41	0.00	0.00	97.7
1.A.1. Energy industries-Solid fuels	CO_2	174.05	10.27	0.00	0.00	97.9
3.G Liming	CO_2	20.59	16.71	0.00	0.00	98.0
1.A.2 Manufacturing industries and construction-Biomass	CH_4	0.38	2.64	0.00	0.00	98.2
1.A.3.b Road transportation	CH_4	48.11	15.39	0.00	0.00	98.3
2.B.2 Nitric Acid Production	N_2O	893.01	335.92	0.00	0.00	98.4
1.A.4 Other sectors-Gaseous fuels	CO_2	1381.52	489.89	0.00	0.00	98.5
1.A.1. Energy industries-Peat	CO_2	11.06	46.64	0.00	0.00	98.6
1.B.2 Oil, natural gas and other emissions from energy production	CO_2	0.66	4.10	0.00	0.00	98.7
3.A. Enteric Fermentation - Others	CH_4	118.06	62.80	0.00	0.00	98.8
1.A.4 Other sectors-Peat	CH_4	1.12	5.82	0.00	0.00	98.9
2.G Other product manufacture and use	N_2O	93.35	2.60	0.00	0.00	99.0
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH_4	10.94	9.62	0.00	0.00	99.1
1.A.1. Energy industries-Liquid fuels	N_2O	16.11	2.25	0.00	0.00	99.2
1.A.4 Other sectors-Solid fuels	N_2O	13.00	1.66	0.00	0.00	99.2
1.A.3.c Railways	N_2O	40.92	19.45	0.00	0.00	99.3
1.A.2 Manufacturing industries and construction-Other fossil fuels	CO_2	0.00	22.46	0.00	0.00	99.4
1.A.2 Manufacturing industries and construction-Liquid fuels	N_2O	8.06	0.12	0.00	0.00	99.4

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment with uncertainty*	*% Contribution to Trend*	*Cumulative total*
1.A.3.c Railways	CO_2	349.97	166.33	0.00	0.00	99.5
1.B.2.c Fugitive Emissions from Fuels - Venting and flaring	CH_4	0.26	1.82	0.00	0.00	99.5
3.B.1 Manure Management - Other	CH_4	75.24	27.07	0.00	0.00	99.6
3.D.1.3 Direct N_2O Emissions From Managed Soils - Urine and dung deposited by grazing animals	N_2O	422.12	174.46	0.00	0.00	99.6
1.A.2 Manufacturing industries and construction-Solid fuels	N_2O	0.81	2.55	0.00	0.00	99.6
1.A.1. Energy industries-Liquid fuels	CH_4	6.90	1.13	0.00	0.00	99.7
1.A.2 Manufacturing industries and construction-Liquid fuels	CH_4	3.38	0.06	0.00	0.00	99.7
1.A.4 Other sectors-Liquid fuels	CH_4	4.17	0.44	0.00	0.00	99.7
1.A.1. Energy industries-Other fossil fuels	N_2O	0.00	1.29	0.00	0.00	99.7
1.A.2 Manufacturing industries and construction-Solid fuels	CH_4	0.45	1.42	0.00	0.00	99.8
2.F.3 Fire Protection	HFCs	0.00	2.06	0.00	0.00	99.8
2.H Other	CO_2	9.66	11.67	0.00	0.00	99.8
1.A.3.e Other transportation	CH_4	4.30	0.38	0.00	0.00	99.8
2.C.1 Iron and Steel Production	CO_2	14.57	2.40	0.00	0.00	99.8
3.H Urea Application	CO_2	35.68	15.72	0.00	0.00	99.8
2.F.4 Aerosols/metered dose inhalers	HFCs	0.85	7.26	0.00	0.00	99.9
1.A.3.d Domestic Navigation	CO_2	15.49	14.29	0.00	0.00	99.9
1.A.4 Other sectors-Liquid fuels	N_2O	2.67	0.21	0.00	0.00	99.9
2. E Electronic Industry	SF_6, NF_3	0.00	5.98	0.00	0.00	99.9
1.A.1. Energy industries-Other fossil fuels	CH_4	0.00	0.81	0.00	0.00	99.9

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment with uncertainty*	*% Contribution to Trend*	*Cumulative total*
2.A.3 Glass Production	CO_2	11.70	8.13	0.00	0.00	99.9
5.C Incineration and Open Burning of Waste	CO_2	2.66	0.77	0.00	0.00	99.9
1.A.4 Other sectors-Peat	N_2O	0.11	0.49	0.00	0.00	100.0
1.A.3.a Domestic aviation	CO_2	8.16	1.72	0.00	0.00	100.0
1.A.2 Manufacturing industries and construction-Other fossil fuels	N_2O	0.00	0.31	0.00	0.00	100.0
1.A.1. Energy industries-Solid fuels	N_2O	0.82	0.05	0.00	0.00	100.0
1.A.1. Energy industries-Gaseous fuels	N_2O	3.13	1.06	0.00	0.00	100.0
1.A.1. Energy industries-Gaseous fuels	CH_4	2.63	0.89	0.00	0.00	100.0
1.A.2 Manufacturing industries and construction-Other fossil fuels	CH_4	0.00	0.20	0.00	0.00	100.0
1.A.4 Other sectors-Gaseous fuels	CH_4	3.13	1.11	0.00	0.00	100.0
1.A.3.d Domestic Navigation	N_2O	0.04	0.12	0.00	0.00	100.0
1.A.1. Energy industries-Peat	N_2O	0.05	0.20	0.00	0.00	100.0
1.A.2 Manufacturing industries and construction-Gaseous fuels	N_2O	1.11	0.31	0.00	0.00	100.0
1.A.2 Manufacturing industries and construction-Gaseous fuels	CH_4	0.93	0.26	0.00	0.00	100.0
1.A.4 Other sectors-Gaseous fuels	N_2O	0.75	0.26	0.00	0.00	100.0
1.A.3.c Railways	CH_4	0.50	0.24	0.00	0.00	100.0
2.G Other product manufacture and use	SF_6	0.05	0.39	0.00	0.00	100.0
1.A.2 Manufacturing industries and construction-Peat	CO_2	17.53	7.10	0.00	0.00	100.0
1.A.3.a Domestic aviation	N_2O	0.07	0.01	0.00	0.00	100.0
1.B.2 Oil, natural gas and other emissions from energy production	N_2O	0.00	0.02	0.00	0.00	100.0
1.A.3.d Domestic Navigation	CH_4	0.03	0.03	0.00	0.00	100.0

IPCC Category	*Greenhouse gas*	*1990 kt CO_2 eqv.*	*2013 kt CO_2 eqv.*	*Trend assessment with uncertainty*	*% Contribution to Trend*	*Cumulative total*
1.A.1. Energy industries-Solid fuels	CH_4	0.05	0.00	0.00	0.00	100.0
5.C Incineration and Open Burning of Waste	N_2O	0.08	0.02	0.00	0.00	100.0
1.A.1. Energy industries-Peat	CH_4	0.00	0.01	0.00	0.00	100.0
1.A.2 Manufacturing industries and construction-Peat	N_2O	0.08	0.03	0.00	0.00	100.0
5.C Incineration and Open Burning of Waste	CH_4	0.00	0.00	0.00	0.00	100.0
1.A.3.a Domestic aviation	CH_4	0.00	0.00	0.00	0.00	100.0
1.A.2 Manufacturing industries and construction-Peat	CH_4	0.01	0.00	0.00	0.00	100.0
1.A.1. Energy industries-Biomass	CO_2	0.00	0.00	0.00	0.00	100.0
2.B.8.a Methanol	CO_2	24.35	0.00	0.00	0.00	100.0
2.B.8.a Methanol	CH_4	5.24	0.00	0.00	0.00	100.0
Total				***0.28***	***1.00***	

ANNEX II. Tier 1 Uncertainty assessment

Table 1a. Uncertainty evaluation including LULUCF

IPCC Source category	Gas	Base year (1990) emissions*	Emissions in 2013	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
		kt CO_2 eq	kt CO_2 eq	%	%	%	%	%	%	%	%	%
1.A.1 Energy Industries - Liquid Fuels	CO_2	7528.33	1701.38	2	3	3	0.00	0.00	0.04	0.00	0.00	0.00
1.A.1 Energy Industries - Liquid Fuels	CH_4	6.90	1.13	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Liquid Fuels	N_2O	16.11	2.25	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Solid Fuels	CO_2	174.05	10.27	2	7	7	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Solid Fuels	CH_4	0.05	0.00	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Solid Fuels	N_2O	0.82	0.05	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Gaseous Fuels	CO_2	5806.05	1964.59	2	3	3	0.00	0.01	0.04	0.00	0.00	0.00
1.A.1 Energy Industries - Gaseous Fuels	CH_4	2.63	0.89	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Gaseous Fuels	N_2O	3.13	1.06	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Other Fossil Fuels	CO_2	0.00	107.35	2	7	7	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Other Fossil Fuels	CH_4	0.00	0.81	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Other Fossil Fuels	N_2O	0.00	1.29	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Peat	CO_2	11.06	46.64	2	7	7	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Peat	CH_4	0.00	0.01	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Peat	N_2O	0.05	0.20	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Biomass	CO_2			30	50	58	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Biomass	CH_4	0.40	11.16	30	150	153	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Biomass	N_2O	0.63	17.73	30	150	153	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Liquid Fuels	CO_2	3500.92	70.92	2	3	3	0.00	0.02	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and	CH_4	3.38	0.06	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00

IPCC Source category	Gas	Base year (1990) emissions*	Emissions in 2013	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
		kt CO_2 eq	kt CO_2 eq	%	%	%	%	%	%	%	%	%
Construction - Liquid Fuels												
1.A.2 Manufacturing Industries and Construction - Liquid Fuels	N_2O	8.06	0.12	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Solid Fuels	CO_2	171.63	549.11	2	7	7	0.00	0.01	0.01	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Solid Fuels	CH_4	0.45	1.42	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Solid Fuels	N_2O	0.81	2.55	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Gaseous Fuels	CO_2	2048.76	583.34	2	3	3	0.00	0.00	0.01	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Gaseous Fuels	CH_4	0.93	0.26	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Gaseous Fuels	N_2O	1.11	0.31	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Peat	CO_2	17.53	7.10	2	7	7	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Peat	CH_4	0.01	0.00	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Peat	N_2O	0.08	0.03	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Biomass	CO_2			30	50	58	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Biomass	CH_4	0.38	2.64	30	150	153	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Biomass	N_2O	0.60	4.20	30	150	153	0.00	0.00	0.00	0.00	0.00	0.00

IPCC Source category	Gas	Base year (1990) emissions*	Emissions in 2013	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
		kt CO_2 eq	kt CO_2 eq	%	%	%	%	%	%	%	%	%
1.A.3.a Domestic Aviation	CO_2	8.16	1.72	10	2	10	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.a Domestic Aviation	CH_4	0.00	0.00	10	79	79	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.a Domestic Aviation	N_2O	0.07	0.01	10	110	110	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.b Road Transportation	CO_2	5247.15	4077.87	2	2	3	0.00	0.07	0.09	0.00	0.00	0.00
1.A.3.b Road Transportation	CH_4	48.11	15.39	2	40	40	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.b Road Transportation	N_2O	39.09	35.46	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.c Railways	CO_2	349.97	166.33	5	5	7	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.c Railways	CH_4	0.50	0.24	5	75	75	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.c Railways	N_2O	40.92	19.45	5	75	75	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.d Domestic Navigation - Liquid Fuels	CO_2	15.49	14.29	5	3	6	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.d Domestic Navigation - Liquid Fuels	CH_4	0.03	0.03	5	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.d Domestic Navigation - Liquid Fuels	N_2O	0.04	0.12	5	90	90	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.e.i Other Transportation - Pipeline Transportation	CO_2	85.50	69.04	5	7	9	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.e.i Other Transportation - Pipeline Transportation	CH_4	0.04	0.03	5	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.e.i Other Transportation - Pipeline Transportation	N_2O	0.05	0.04	5	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.e.ii Other Transportation - Off-road transport	CO_2	1678.61	165.03	10	5	11	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.e.ii Other Transportation - Off-road transport	CH_4	4.26	0.34	10	40	41	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.e.ii Other Transportation - Off-road transport	N_2O	186.51	18.72	10	50	51	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors - Liquid Fuels	CO_2	1429.58	177.64	3	3	4	0.00	0.00	0.00	0.00	0.00	0.00

IPCC Source category	Gas	Base year (1990) emissions*	Emissions in 2013	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
		kt CO_2 eq	kt CO_2 eq	%	%	%	%	%	%	%	%	%
1.A.4 Other Sectors - Liquid Fuels	CH_4	4.17	0.44	3	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors - Liquid Fuels	N_2O	2.67	0.21	3	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors - Solid Fuels	CO_2	2760.55	352.17	3	7	8	0.00	0.01	0.01	0.00	0.00	0.00
1.A.4 Other Sectors - Solid Fuels	CH_4	128.56	16.26	3	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors - Solid Fuels	N_2O	13.00	1.66	3	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors - Gaseous Fuels	CO_2	1381.52	489.89	3	3	4	0.00	0.00	0.01	0.00	0.00	0.00
1.A.4 Other Sectors - Gaseous Fuels	CH_4	3.13	1.11	3	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors - Gaseous Fuels	N_2O	0.75	0.26	3	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors - Peat	CO_2	27.13	123.75	3	7	8	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors - Peat	CH_4	1.12	5.82	3	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors - Peat	N_2O	0.11	0.49	3	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors- Biomass	CO_2			50	50	71	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors- Biomass	CH_4	70.28	159.17	50	150	158	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors- Biomass	N_2O	12.97	29.25	50	150	158	0.00	0.00	0.00	0.00	0.00	0.00
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CO_2	0.05	0.04	5	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH_4	10.94	9.62	5	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	N_2O	0.00	0.00	5	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CO_2	0.03	0.05	5	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH_4	165.79	301.69	5	50	50	0.00	0.01	0.01	0.00	0.00	0.00
1.B.2.c Fugitive Emissions from Fuels - Venting and flaring	CO_2	0.58	4.01	5	75	75	0.00	0.00	0.00	0.00	0.00	0.00

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		kt CO_2 eq	kt CO_2 eq	%	%	%	%	%	%	%	%	%
1.B.2.c Fugitive Emissions from Fuels - Venting and flaring	CH_4	0.26	1.82	5	75	75	0.00	0.00	0.00	0.00	0.00	0.00
1.B.2.c Fugitive Emissions from Fuels - Venting and flaring	N_2O	0.00	0.02	5	75	75	0.00	0.00	0.00	0.00	0.00	0.00
2.A.1 Cement Production	CO_2	1668.07	460.79	2	5	5	0.00	0.00	0.01	0.00	0.00	0.00
2.A.2 Lime Production	CO_2	222.68	29.29	5	30	31	0.00	0.00	0.00	0.00	0.00	0.00
2.A.3 Glass Production	CO_2	11.70	8.13	7	5	9	0.00	0.00	0.00	0.00	0.00	0.00
2.A.4.a Ceramics	CO_2	227.92	5.21	5	5	7	0.00	0.00	0.00	0.00	0.00	0.00
2.A.4.b Other use of soda ash	CO_2	5.32	1.29	15	5	16	0.00	0.00	0.00	0.00	0.00	0.00
2.A.4.d Mineral wool production	CO_2	6.28	11.90	7	5	9	0.00	0.00	0.00	0.00	0.00	0.00
2.B.1 Ammonia Production	CO_2	1255.82	1673.02	2	3	3	0.00	0.03	0.04	0.00	0.00	0.00
2.B.2 Nitric Acid Production	N_2O	893.01	335.92	2	10	10	0.00	0.00	0.01	0.00	0.00	0.00
2.B.8.a Methanol	CO_2	24.35	0.00	5	30	30	0.00	0.00	0.00	0.00	0.00	0.00
2.B.8.a Methanol	CH_4	5.24	0.00	5	30	30	0.00	0.00	0.00	0.00	0.00	0.00
2.C.1 Iron and Steel Production	CO_2	14.57	2.40	10	10	14	0.00	0.00	0.00	0.00	0.00	0.00
2.D.1 Lubricant use	CO_2	6.06	12.82	5	50	50	0.00	0.00	0.00	0.00	0.00	0.00
2.D.2 Paraffin wax use	CO_2	0.00	2.07	5	100	100	0.00	0.00	0.00	0.00	0.00	0.00
2.D.3 Solvent use	CO_2	71.42	57.12	30	20	36	0.00	0.00	0.00	0.00	0.00	0.00
2.D.3 Asphalt roofing	CO_2	0.02	0.01	5	25	25	0.00	0.00	0.00	0.00	0.00	0.00
2.D.3 Road paving with asphalt	CO_2	0.00	0.00	20	50	54	0.00	0.00	0.00	0.00	0.00	0.00
2.D.3 Urea-based catalyst	CO_2	0.00	1.08	50	2	50	0.00	0.00	0.00	0.00	0.00	0.00
2.E.1 Semiconductor	SF_6	0.00	5.93	5	5	7	0.00	0.00	0.00	0.00	0.00	0.00
2.E.3 Photovoltaics	NF_3	0.00	0.06	5	5	7	0.00	0.00	0.00	0.00	0.00	0.00
2.F.1.a Domestic Refrigeration	HFCs	0.24	1.94	14	28	32	0.00	0.00	0.00	0.00	0.00	0.00
2.F.1.a Commercial Refrigeration	HFCs	1.15	54.67	36	21	42	0.00	0.00	0.00	0.00	0.00	0.00

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		kt CO_2 eq	kt CO_2 eq	%	%	%	%	%	%	%	%	%
2.F.1.a Transport Refrigeration	HFCs	0.14	80.42	11	21	23	0.00	0.00	0.00	0.00	0.00	0.00
2.F.1.a Industrial Refrigeration	HFCs	0.29	13.56	30	15	34	0.00	0.00	0.00	0.00	0.00	0.00
2.F.1.a Stationary Air-Conditioning	HFCs	0.15	14.68	36	28	46	0.00	0.00	0.00	0.00	0.00	0.00
2.F.1.b Mobile Air-Conditioning	HFCs	0.47	126.69	11	21	23	0.00	0.00	0.00	0.00	0.00	0.00
2.F.2 Foam Blowing Agents	HFCs	0.00	12.97	30	30	42	0.00	0.00	0.00	0.00	0.00	0.00
2.F.3 Fire Protection	HFCs	0.00	2.06	20	20	28	0.00	0.00	0.00	0.00	0.00	0.00
2.F.4 Aerosols/metered dose inhalers	HFCs	0.85	7.26	5	5	7	0.00	0.00	0.00	0.00	0.00	0.00
2.G.1 Manufacture of electrical equipment	SF_6	0.05	0.24	5	5	7	0.00	0.00	0.00	0.00	0.00	0.00
2.G.2.b Accelerators	SF_6	0.00	0.16	5	5	7	0.00	0.00	0.00	0.00	0.00	0.00
2.G.3.a Medical applications	N_2O	93.35	2.60	5	5	7	0.00	0.00	0.00	0.00	0.00	0.00
2.H.2 Food and beverage industry	CO_2	9.66	11.67	5	5	7	0.00	0.00	0.00	0.00	0.00	0.00
3.A Enteric Fermentation	CH_4	4236.29	1543.65	5	20	21	0.00	0.01	0.04	0.00	0.00	0.00
3.B Manure Management	CH_4	685.35	274.13	19	20	27	0.00	0.00	0.01	0.00	0.00	0.00
3.B Manure Management	N_2O	543.93	166.77	39	123	129	0.00	0.00	0.00	0.00	0.00	0.00
3.D.1 Direct N_2O Emissions From Managed Soils	N_2O	2485.55	2001.16	8	85	86	0.03	0.03	0.05	0.03	0.01	0.00
3.D.2 Indirect N_2O Emissions From Managed Soils	N_2O	614.89	411.29	14	125	126	0.00	0.01	0.01	0.01	0.00	0.00
3.G Liming	CO_2	20.59	16.71	10	50	51	0.00	0.00	0.00	0.00	0.00	0.00
3.H Urea Application	CO_2	35.68	15.72	30	50	58	0.00	0.00	0.00	0.00	0.00	0.00
4.A.1 Forest Land Remaining Forest Land	CO_2	-7149.77	-10491.35	4	36	36	0.14	0.20	0.24	0.07	0.01	0.01
4.A.1 Forest Land Remaining Forest Land	CH_4	0.68	0.05	35	70	78	0.00	0.00	0.00	0.00	0.00	0.00
4.A.1 Forest Land Remaining Forest Land	N_2O	0.45	0.03	11	172	172	0.00	0.00	0.00	0.00	0.00	0.00
4.A.2 Land Converted to Forest Land	CO_2	-1033.95	-1142.25	17	35	39	0.00	0.02	0.03	0.01	0.01	0.00
4.A.2 Land Converted to Forest Land	CH_4	0.04	0.00	35	70	78	0.00	0.00	0.00	0.00	0.00	0.00

IPCC Source category	Gas	Base year (1990) emissions*	Emissions in 2013	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
		kt CO_2 eq	kt CO_2 eq	%	%	%	%	%	%	%	%	%
4.A.2 Land Converted to Forest Land	N_2O	0.02	0.00	11	172	172	0.00	0.00	0.00	0.00	0.00	0.00
4(II) Emissions and removals from drainage and rewetting and other management of organic and mineral soils	CO_2	406.04	431.21	11	90	91	0.00	0.01	0.01	0.01	0.00	0.00
4(II) Emissions and removals from drainage and rewetting and other management of organic and mineral soils	N_2O	21.16	22.35	11	173	173	0.00	0.00	0.00	0.00	0.00	0.00
4.B Cropland	CO_2	5384.42	3817.96	2	90	90	0.12	0.06	0.09	0.05	0.00	0.00
4.B Cropland	CH_4	0.05	0.00	20	20	28	0.00	0.00	0.00	0.00	0.00	0.00
4.B Cropland	N_2O	0.60	0.44	20	20	28	0.00	0.00	0.00	0.00	0.00	0.00
4.C Grassland	CO_2	-1944.15	-2900.99	1	90	90	0.07	0.06	0.07	0.05	0.00	0.00
4.C Grassland	CH_4	2.12	0.73	50	50	71	0.00	0.00	0.00	0.00	0.00	0.00
4.C Grassland	N_2O	2.31	0.77	50	50	71	0.00	0.00	0.00	0.00	0.00	0.00
4.D Wetlands	CO_2	517.33	876.66	80	20	82	0.01	0.02	0.02	0.00	0.02	0.00
4.D Wetlands	N_2O	11.92	9.54	50	100	112	0.00	0.00	0.00	0.00	0.00	0.00
4.E Settlements	CO_2	0.00	317.79	80	20	82	0.00	0.01	0.01	0.00	0.01	0.00
4.F Other Land	CO_2	0.00	48.33	50	75	90	0.00	0.00	0.00	0.00	0.00	0.00
4.G Harvested Wood Products	CO_2	-95.65	-955.24	15	59	61	0.00	0.02	0.02	0.01	0.00	0.00
5.A Solid Waste Disposal	CH_4	1028.83	900.12	30	123	126	0.01	0.02	0.02	0.02	0.01	0.00
5.B Biological Treatment of Solid Waste	CH_4	4.04	12.18	40	100	108	0.00	0.00	0.00	0.00	0.00	0.00
5.B Biological Treatment of Solid Waste	N_2O	3.61	10.89	40	100	108	0.00	0.00	0.00	0.00	0.00	0.00
5.C Incineration and Open Burning of Waste	CO_2	2.66	0.77	40	60	72	0.00	0.00	0.00	0.00	0.00	0.00
5.C Incineration and Open Burning of Waste	CH_4	0.00	0.00	40	60	72	0.00	0.00	0.00	0.00	0.00	0.00

IPCC Source category	Gas	Base year (1990) emissions*	Emissions in 2013	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
		kt CO_2 eq	**kt CO_2 eq**	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**
5.C Incineration and Open Burning of Waste	N_2O	0.08	0.02	40	60	72	0.00	0.00	0.00	0.00	0.00	0.00
5.D Wastewater Treatment and Discharge	CH_4	541.86	220.15	59	73	93	0.00	0.00	0.01	0.00	0.00	0.00
5.D Wastewater Treatment and Discharge	N_2O	67.21	45.66	30	50	58	0.00	0.00	0.00	0.00	0.00	0.00
Total emission		***43935.50***	***9939.59***	**Overall uncertainty (%)**			**62.6**	**Trend uncertainty (%)**				**11.4**

* Base year for F-gases is 1995

Table 1b. Uncertainty evaluation excluding LULUCF

IPCC Source category	Gas	Base year (1990) emissions*	Emissions in 2013	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
		kt CO_2 eq	kt CO_2 eq	%	%	%	%	%	%	%	%	%
1.A.1 Energy Industries - Liquid Fuels	CO_2	7528.33	1701.38	2	3	3	0.00	0.03	0.04	0.00	0.00	0.00
1.A.1 Energy Industries - Liquid Fuels	CH_4	6.90	1.13	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Liquid Fuels	N_2O	16.11	2.25	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Solid Fuels	CO_2	174.05	10.27	2	7	7	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Solid Fuels	CH_4	0.05	0.00	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Solid Fuels	N_2O	0.82	0.05	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Gaseous Fuels	CO_2	5806.05	1964.59	2	3	3	0.00	0.01	0.04	0.00	0.00	0.00
1.A.1 Energy Industries - Gaseous Fuels	CH_4	2.63	0.89	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Gaseous Fuels	N_2O	3.13	1.06	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Other Fossil Fuels	CO_2	0.00	107.35	2	7	7	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Other Fossil Fuels	CH_4	0.00	0.81	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Other Fossil Fuels	N_2O	0.00	1.29	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Peat	CO_2	11.06	46.64	2	7	7	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Peat	CH_4	0.00	0.01	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Peat	N_2O	0.05	0.20	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Biomass	CO_2			30	50	58	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Biomass	CH_4	0.40	11.16	30	150	153	0.00	0.00	0.00	0.00	0.00	0.00
1.A.1 Energy Industries - Biomass	N_2O	0.63	17.73	30	150	153	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Liquid Fuels	CO_2	3500.92	70.92	2	3	3	0.00	0.03	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Liquid Fuels	CH_4	3.38	0.06	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Liquid Fuels	N_2O	8.06	0.12	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00

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		kt CO_2 eq	kt CO_2 eq	%	%	%	%	%	%	%	%	%
1.A.2 Manufacturing Industries and Construction - Solid Fuels	CO_2	171.63	549.11	2	7	7	0.00	0.01	0.01	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Solid Fuels	CH_4	0.45	1.42	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Solid Fuels	N_2O	0.81	2.55	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Gaseous Fuels	CO_2	2048.76	583.34	2	3	3	0.00	0.01	0.01	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Gaseous Fuels	CH_4	0.93	0.26	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Gaseous Fuels	N_2O	1.11	0.31	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Peat	CO_2	17.53	7.10	2	7	7	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Peat	CH_4	0.01	0.00	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Peat	N_2O	0.08	0.03	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Biomass	CO_2			30	50	58	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Biomass	CH_4	0.38	2.64	30	150	153	0.00	0.00	0.00	0.00	0.00	0.00
1.A.2 Manufacturing Industries and Construction - Biomass	N_2O	0.60	4.20	30	150	153	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.a Domestic Aviation	CO_2	8.16	1.72	10	2	10	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.a Domestic Aviation	CH_4	0.00	0.00	10	79	79	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.a Domestic Aviation	N_2O	0.07	0.01	10	110	110	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.b Road Transportation	CO_2	5247.15	4077.87	2	2	3	0.00	0.04	0.09	0.00	0.00	0.00
1.A.3.b Road Transportation	CH_4	48.11	15.39	2	40	40	0.00	0.00	0.00	0.00	0.00	0.00

IPCC Source category	Gas	Base year (1990) emissions*	Emissions in 2013	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
		kt CO_2 eq	kt CO_2 eq	%	%	%	%	%	%	%	%	%
1.A.3.b Road Transportation	N_2O	39.09	35.46	2	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.c Railways	CO_2	349.97	166.33	5	5	7	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.c Railways	CH_4	0.50	0.24	5	75	75	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.c Railways	N_2O	40.92	19.45	5	75	75	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.d Domestic Navigation - Liquid Fuels	CO_2	15.49	14.29	5	3	6	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.d Domestic Navigation - Liquid Fuels	CH_4	0.03	0.03	5	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.d Domestic Navigation - Liquid Fuels	N_2O	0.04	0.12	5	90	90	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.e.i Other Transportation - Pipeline Transportation	CO_2	85.50	69.04	5	7	9	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.e.i Other Transportation - Pipeline Transportation	CH_4	0.04	0.03	5	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.e.i Other Transportation - Pipeline Transportation	N_2O	0.05	0.04	5	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.e.ii Other Transportation - Off-road transport	CO_2	1678.61	165.03	10	5	11	0.00	0.01	0.00	0.00	0.00	0.00
1.A.3.e.ii Other Transportation - Off-road transport	CH_4	4.26	0.34	10	40	41	0.00	0.00	0.00	0.00	0.00	0.00
1.A.3.e.ii Other Transportation - Off-road transport	N_2O	186.51	18.72	10	50	51	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors - Liquid Fuels	CO_2	1429.58	177.64	3	3	4	0.00	0.01	0.00	0.00	0.00	0.00
1.A.4 Other Sectors - Liquid Fuels	CH_4	4.17	0.44	3	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors - Liquid Fuels	N_2O	2.67	0.21	3	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors - Solid Fuels	CO_2	2760.55	352.17	3	7	8	0.00	0.02	0.01	0.00	0.00	0.00
1.A.4 Other Sectors - Solid Fuels	CH_4	128.56	16.26	3	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors - Solid Fuels	N_2O	13.00	1.66	3	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors - Gaseous Fuels	CO_2	1381.52	489.89	3	3	4	0.00	0.00	0.01	0.00	0.00	0.00
1.A.4 Other Sectors - Gaseous Fuels	CH_4	3.13	1.11	3	50	50	0.00	0.00	0.00	0.00	0.00	0.00

IPCC Source category	Gas	Base year (1990) emissions*	Emissions in 2013	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
		kt CO_2 eq	kt CO_2 eq	%	%	%	%	%	%	%	%	%
1.A.4 Other Sectors - Gaseous Fuels	N_2O	0.75	0.26	3	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors - Peat	CO_2	27.13	123.75	3	7	8	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors - Peat	CH_4	1.12	5.82	3	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors - Peat	N_2O	0.11	0.49	3	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors- Biomass	CO_2			50	50	71	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors- Biomass	CH_4	70.28	159.17	50	150	158	0.00	0.00	0.00	0.00	0.00	0.00
1.A.4 Other Sectors- Biomass	N_2O	12.97	29.25	50	150	158	0.00	0.00	0.00	0.00	0.00	0.00
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CO_2	0.05	0.04	5	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH_4	10.94	9.62	5	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	N_2O	0.00	0.00	5	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CO_2	0.03	0.05	5	50	50	0.00	0.00	0.00	0.00	0.00	0.00
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH_4	165.79	301.69	5	50	50	0.00	0.00	0.01	0.00	0.00	0.00
1.B.2.c Fugitive Emissions from Fuels - Venting and flaring	CO_2	0.58	4.01	5	75	75	0.00	0.00	0.00	0.00	0.00	0.00
1.B.2.c Fugitive Emissions from Fuels - Venting and flaring	CH_4	0.26	1.82	5	75	75	0.00	0.00	0.00	0.00	0.00	0.00
1.B.2.c Fugitive Emissions from Fuels - Venting and flaring	N_2O	0.00	0.02	5	75	75	0.00	0.00	0.00	0.00	0.00	0.00
2.A.1 Cement Production	CO_2	1668.07	460.79	2	5	5	0.00	0.00	0.01	0.00	0.00	0.00
2.A.2 Lime Production	CO_2	222.68	29.29	5	30	31	0.00	0.00	0.00	0.00	0.00	0.00
2.A.3 Glass Production	CO_2	11.70	8.13	7	5	9	0.00	0.00	0.00	0.00	0.00	0.00
2.A.4.a Ceramics	CO_2	227.92	5.21	5	5	7	0.00	0.00	0.00	0.00	0.00	0.00
2.A.4.b Other use of soda ash	CO_2	5.32	1.29	15	5	16	0.00	0.00	0.00	0.00	0.00	0.00

IPCC Source category	Gas	Base year (1990) emissions*	Emissions in 2013	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
		kt CO_2 eq	kt CO_2 eq	%	%	%	%	%	%	%	%	%
2.A.4.d Mineral wool production	CO_2	6.28	11.90	7	5	9	0.00	0.00	0.00	0.00	0.00	0.00
2.B.1 Ammonia Production	CO_2	1255.82	1673.02	2	3	3	0.00	0.02	0.03	0.00	0.00	0.00
2.B.2 Nitric Acid Production	N_2O	893.01	335.92	2	10	10	0.00	0.00	0.01	0.00	0.00	0.00
2.B.8.a Methanol	CO_2	24.35	0.00	5	30	30	0.00	0.00	0.00	0.00	0.00	0.00
2.B.8.a Methanol	CH_4	5.24	0.00	5	30	30	0.00	0.00	0.00	0.00	0.00	0.00
2.C.1 Iron and Steel Production	CO_2	14.57	2.40	10	10	14	0.00	0.00	0.00	0.00	0.00	0.00
2.D.1 Lubricant use	CO_2	6.06	12.82	5	50	50	0.00	0.00	0.00	0.00	0.00	0.00
2.D.2 Parafin wax use	CO_2	0.00	2.07	5	100	100	0.00	0.00	0.00	0.00	0.00	0.00
2.D.3 Solvent use	CO_2	71.42	57.12	30	20	36	0.00	0.00	0.00	0.00	0.00	0.00
2.D.3 Asphalt roofing	CO_2	0.02	0.01	5	25	25	0.00	0.00	0.00	0.00	0.00	0.00
2.D.3 Road paving with asphalt	CO_2	0.00	0.00	20	50	54	0.00	0.00	0.00	0.00	0.00	0.00
2.D.3 Urea-based catalyst	CO_2	0.00	1.08	50	2	50	0.00	0.00	0.00	0.00	0.00	0.00
2.E.1 Semiconductor	SF_6	0.00	5.93	5	5	7	0.00	0.00	0.00	0.00	0.00	0.00
2.E.3 Photovoltaics	NF_3	0.00	0.06	5	5	7	0.00	0.00	0.00	0.00	0.00	0.00
2.F.1.a Domestic Refrigeration	HFCs	0.24	1.94	14	28	32	0.00	0.00	0.00	0.00	0.00	0.00
2.F.1.a Commercial Refrigeration	HFCs	1.15	54.67	36	21	42	0.00	0.00	0.00	0.00	0.00	0.00
2.F.1.a Transport Refrigeration	HFCs	0.14	80.42	11	21	23	0.00	0.00	0.00	0.00	0.00	0.00
2.F.1.a Industrial Refrigeration	HFCs	0.29	13.56	30	15	34	0.00	0.00	0.00	0.00	0.00	0.00
2.F.1.a Stationary Air-Conditioning	HFCs	0.15	14.68	36	28	46	0.00	0.00	0.00	0.00	0.00	0.00
2.F.1.b Mobile Air-Conditioning	HFCs	0.47	126.69	11	21	23	0.00	0.00	0.00	0.00	0.00	0.00
2.F.2 Foam Blowing Agents	HFCs	0.00	12.97	30	30	42	0.00	0.00	0.00	0.00	0.00	0.00
2.F.3 Fire Protection	HFCs	0.00	2.06	20	20	28	0.00	0.00	0.00	0.00	0.00	0.00
2.F.4 Aerosols/metered dose inhalers	HFCs	0.85	7.26	5	5	7	0.00	0.00	0.00	0.00	0.00	0.00
2.G.1 Manufacture of electrical equipment	SF_6	0.05	0.24	5	5	7	0.00	0.00	0.00	0.00	0.00	0.00
2.G.2.b Accelerators	SF_6	0.00	0.16	5	5	7	0.00	0.00	0.00	0.00	0.00	0.00

IPCC Source category	Gas	Base year (1990) emissions*	Emissions in 2013	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
		kt CO_2 eq	kt CO_2 eq	%	%	%	%	%	%	%	%	%
2.G.3.a Medical applications	N_2O	93.35	2.60	5	5	7	0.00	0.00	0.00	0.00	0.00	0.00
2.H.2 Food and beverage industry	CO_2	9.66	11.67	5	5	7	0.00	0.00	0.00	0.00	0.00	0.00
3.A Enteric Fermentation	CH_4	4236.29	1543.65	5	20	21	0.00	0.00	0.03	0.00	0.00	0.00
3.B Manure Management	CH_4	685.35	274.13	19	20	27	0.00	0.00	0.01	0.00	0.00	0.00
3.B Manure Management	N_2O	543.93	166.77	39	123	129	0.00	0.00	0.00	0.00	0.00	0.00
3.D.1 Direct N_2O Emissions From Managed Soils	N_2O	2485.55	2001.16	8	85	86	0.01	0.02	0.04	0.02	0.00	0.00
3.D.2 Indirect N_2O Emissions From Managed Soils	N_2O	614.89	411.29	14	125	126	0.00	0.00	0.01	0.00	0.00	0.00
3.G Liming	CO_2	20.59	16.71	10	50	51	0.00	0.00	0.00	0.00	0.00	0.00
3.H Urea Application	CO_2	35.68	15.72	30	50	58	0.00	0.00	0.00	0.00	0.00	0.00
5.A Solid Waste Disposal	CH_4	1028.83	900.12	30	123	126	0.00	0.01	0.02	0.01	0.01	0.00
5.B Biological Treatment of Solid Waste	CH_4	4.04	12.18	40	100	108	0.00	0.00	0.00	0.00	0.00	0.00
5.B Biological Treatment of Solid Waste	N_2O	3.61	10.89	40	100	108	0.00	0.00	0.00	0.00	0.00	0.00
5.C Incineration and Open Burning of Waste	CO_2	2.66	0.77	40	60	72	0.00	0.00	0.00	0.00	0.00	0.00
5.C Incineration and Open Burning of Waste	CH_4	0.00	0.00	40	60	72	0.00	0.00	0.00	0.00	0.00	0.00
5.C Incineration and Open Burning of Waste	N_2O	0.08	0.02	40	60	72	0.00	0.00	0.00	0.00	0.00	0.00
5.D Wastewater Treatment and Discharge	CH_4	541.86	220.15	59	73	93	0.00	0.00	0.00	0.00	0.00	0.00
5.D Wastewater Treatment and Discharge	N_2O	67.21	45.66	30	50	58	0.00	0.00	0.00	0.00	0.00	0.00
Total emission		**47811.9**	**19903.6**	**Overall uncertainty (%)**			**11.0**	**Trend uncertainty (%)**				**2.5**

ANNEX III. Lithuanian energy balance according to the fuel type

Table 3-1. Balance of crude oil, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production	502	5 358	13 491	9 217	7 718	6 595	5 465	4 918	4 909	4 892	4 379	3 560
Biofuel blended												
Import	396 707	131 189	199 709	380 035	349 532	203 786	390 555	358 659	385 276	382 015	364 146	383 408
Export		335	13 254	6 312	4 907	6 649	5 512	4 831	4 736	3 438	3 408	2 863
International marine bunkers												
Changes in stocks	2 093	-4 730	-1 169	9 169	-10 033	-890	4 826	904	-1 081	1 857	-90	1 345
Gross inland consumption	**399 302**	**131 482**	**198 777**	**392 109**	**342 310**	**202 842**	**395 334**	**359 650**	**384 368**	**385 326**	**365 027**	**385 450**
Statistical difference		-42										
Transformed in power, heat and other plants:	399 302	131 440	198 777	392 101	342 307	202 835	395 334	359 631	384 357	385 326	365 019	385 450
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant												
-in public heat plant	84	167	99									
- in geothermal plants												
- in other industries	399 218	131 273	198 678	392 101	342 307	202 835	395 334	359 631	384 357	385 326	365 019	385 450
Consumed in energy sector, total:				3	3	3						
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries				3	3	3						
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses				5		4		19	11		8	0
Final consumption:												
- in industry												
- in construction												
- in transport												
- in agriculture												
- in fishing												
- in commercial / public services												
- in households												

Table 3-2. Balance of motor gasoline, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production	87 988	37 709	68 838	112 699	98 505	72 271	123 381	119 393	123 626	124 021	115 648	116 610
Biofuel blended				26	220	483	714	655	445	610	528	433
Import	220	14 328	736	1 115	3 836	365	303	405	2 616	1 141	996	667
Export	42 104	23 601	50 765	95 698	89 376	54 162	104 168	105 355	114 237	114 611	105 566	110 591
International marine bunkers												
Changes in stocks	-2 725	-1 758	-2 012	-3 193	2 699	275	-1 087	982	506	151	-1 479	1 999
Gross inland consumption	**43 379**	**26 678**	**16 797**	**14 949**	**15 884**	**19 232**	**19 143**	**16 080**	**12 956**	**11 312**	**10 127**	**9 118**
Statistical difference												
Transformed in power, heat and other plants:												
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:			15	5	3						3	3
- in peat extraction enterprises				1	1							
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises			15	4	2						3	3
Non-energy use												
Distribution and transmission losses	308	176	68	61	71	33	29	27	22	17	17	10
Final consumption:	**43 071**	**26 502**	**16 714**	**14 883**	**15 810**	**19 199**	**19 114**	**16 053**	**12 934**	**11 295**	**10 107**	**9 105**
- in industry	44	88	48	31	30	21	28	18	15	17	14	13
- in construction	439	176	101	69	56	47	50	34	28	29	24	17
- in transport	41 840	25 887	16 337	14 711	15 652	19 059	18 965	15 948	12 841	11 201	10 025	9 033
- in agriculture	440	307	170	53	59	62	52	41	43	38	33	32
- in fishing												
- in commercial / public services	308	44	58	19	13	10	19	12	7	10	11	10
- in households												

Table 3-3. Balance of aviation gasoline, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production												
Biofuel blended												
Import			14	20	20	22	23	17	18	18	18	16
Export												
International marine bunkers												
Changes in stocks								1				
Gross inland consumption			**14**	**20**	**20**	**22**	**23**	**18**	**18**	**18**	**18**	**16**
Statistical difference												
Transformed in power, heat and other plants:												
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses												
Final consumption:			**14**	**20**	**20**	**22**	**23**	**18**	**18**	**18**	**18**	**16**
- in industry												
- in construction												
- in transport			14	20	20	22	23	18	18	18	18	16
- in agriculture												
- in fishing												
- in commercial / public services												
- in households												

Table 3-4. Balance of gasoline type jet fuel, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production						-36	-14					
Biofuel blended												
Import			65	3	22	26	5					
Export								5				
International marine bunkers												
Changes in stocks			-65		-22	10	9	5				
Gross inland consumption				**3**								
Statistical difference												
Transformed in power, heat and other plants:												
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses												
Final consumption:				**3**								
- in industry												
- in construction												
- in transport				3								
- in agriculture												
- in fishing												
- in commercial / public services												
- in households												

Table 3-5. Balance of kerosene type jet fuel, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production	28 125	9 088	18 566	24 705	23 467	6 495	20 850	9 668	10 352	11 862	10 874	12 168
Biofuel blended												
Import	387	948	846		584	669		5	837	303	7 263	2 078
Export	22 956	8 442	16 673	21 406	22 091	4 669	17 443	8 090	9 062	9 882	14 527	11 876
International marine bunkers												
Changes in stocks	86	129	-1 651	-1 185	419	502	-11	117	115	222	-846	799
Gross inland consumption	**5 642**	**1 723**	**1 088**	**2 114**	**2 379**	**2 997**	**3 396**	**1 700**	**2 242**	**2 505**	**2 764**	**3 169**
Statistical difference												
Transformed in power, heat and other plants:												
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses				14	14	4	12	4	5	9		
Final consumption:	**5 642**	**1 723**	**1 088**	**2 100**	**2 365**	**2 993**	**3 384**	**1 696**	**2 237**	**2 496**	**2 764**	**3 169**
- in industry												
- in construction												
- in transport	5 642	1 723	1 080	2 100	2 365	2 993	3 384	1 696	2 237	2 496	2 764	3 169
- in agriculture												
- in fishing												
- in commercial / public services			5									
- in households			3									

Table 3-6. Balance of transport diesel, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production	107 712	42 490	56 232	127 985	103 670	78 465	135 302	134 283	150 168	156 497	150 528	161 248
Biofuel blended				119	589	1 761	2 127	1 597	1 478	1 600	2 142	2 174
Import	8 923	9 475	1 670	2 840	3 113	11 840	7 336	5 127	7 882	15 451	19 016	31 433
Export	49 416	27 364	28 516	92 877	69 973	43 871	94 200	103 262	116 251	128 505	128 727	146 569
International marine bunkers			942									
Changes in stocks	-1 997	1 573	-4 819	-2 586	724	-1 773	-2 979	661	31	178	1 961	-2 156
Gross inland consumption	**65 222**	**26 174**	**23 625**	**35 481**	**38 123**	**46 422**	**47 586**	**38 406**	**43 308**	**45 221**	**44 920**	**46 130**
Statistical difference		213	853									
Transformed in power, heat and other plants:	7 521	1 742	36									
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant	7 521	1 615	28									
-in public heat plant		127	8									
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:	128	43	136	194	174	127	140	167	144	150	133	181
- in peat extraction enterprises	128	43	60	125	110	93	110	131	109	107	99	144
- in crude oil extraction enterprises			22	49	44	24	20	25	23	27	23	25
- in refineries			5		2	2						
- in electricity, gas, steam and air conditioning enterprises			49	20	18	8	10	11	12	16	11	12
Non-energy use			6									
Distribution and transmission losses	297	128	55	122	89	74	80	69	73	81	70	28
Final consumption:	**57 276**	**24 474**	**24 245**	**35 165**	**37 860**	**46 221**	**47 366**	**38 170**	**43 091**	**44 990**	**44 717**	**45 921**
- in industry	2 124	1 827	510	499	453	378	263	196	190	191	174	223
- in construction	2 507	935	613	589	601	615	670	367	382	425	472	406
- in transport	34 289	14 489	21 476	32 515	35 362	43 721	44 808	36 197	41 030	42 814	42 412	43 719
- in agriculture	14 277	4 207	1 327	1 362	1 325	1 429	1 487	1 354	1 444	1 472	1 587	1 503
- in fishing				14	7	4	4	7	5	9	10	10
- in commercial / public services	2 889	2 804	319	186	112	74	134	52	40	79	62	60
- in households	1 190	212										

Table 3-7. Balance of heating and other gasoil, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production				2 125	1 824	1 033	1 155	932	1 130	1 216	4 020	3 397
Biofuel blended								3	2		104	89
Import		717		915	818	660	585	617	854	934	874	674
Export				985	1 075	192	108	9		6		
International marine bunkers				770	637	617	617	693	756	867	850	577
Changes in stocks		-717	65	-225	-17	-48	-45	28	-7	-59	-150	79
Gross inland consumption			**65**	**1 060**	**913**	**836**	**970**	**878**	**1 223**	**1 218**	**3 998**	**3 662**
Statistical difference												
Transformed in power, heat and other plants:			22	102	26	33	31	33	55	40	51	58
- in public CHP plant									1		9	
- in auto-producer heat plant												
- in auto-producer CHP plant			22	64	20	30	27	29	52	38	41	56
-in public heat plant				38	6	3	4	4	2	2	1	2
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:									5	3	3	3
- in peat extraction enterprises									5	3	3	3
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses					8							
Final consumption:			**43**	**958**	**879**	**803**	**940**	**845**	**1 163**	**1 175**	**3 944**	**3 601**
- in industry			7	405	240	198	233	188	220	214	240	200
- in construction			7	25	22	31	33	26	47	49	63	60
- in transport				226	247	235	251	214	235	179	2 686	2 478
- in agriculture			23	137	122	153	174	167	230	237	287	268
- in fishing				59	157	108	101	79	73	65	72	73
- in commercial / public services			6	55	53	58	77	57	69	72	87	97
- in households				51	38	20	71	111	289	359	509	425

Table 3-8. Balance of liquefied petroleum gases (LPG), TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production	12 006	7 636	11 026	21 046	18 812	13 254	18 439	12 679	12 720	11 507	10 235	11 742
Biofuel blended												
Import	2 208	1 056	3 972	3 110	4 182	5 621	3 725	4 008	5 024	5 202	5 208	4 927
Export	7 038	4 646	5 793	11 596	10 235	6 928	11 363	7 183	8 114	7 526	6 647	8 303
International marine bunkers												
Changes in stocks	46	230	-420	163	-59	-44	-74	231	-111	-27	100	-34
Gross inland consumption	**7 222**	**4 276**	**8 785**	**12 723**	**12 700**	**11 903**	**10 727**	**9 735**	**9 519**	**9 156**	**8 896**	**8 332**
Statistical difference												
Transformed in power, heat and other plants:	46		51	90	101	80	78	88	90	79	80	79
- in public CHP plant								1	3			2
- in auto-producer heat plant												
- in auto-producer CHP plant			21	19	19	17	16	17	18	30	31	30
-in public heat plant	46		31	71	82	63	62	70	69	49	49	47
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:	552	138	36	4	2	3						
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries	552	138	22			2						
- in electricity, gas, steam and air conditioning enterprises			14	4	2	1						
Non-energy use												
Distribution and transmission losses	322	92	103	47	47	38	32	39	26	15	21	17
Final consumption:	**6 302**	**4 046**	**8 595**	**12 580**	**12 550**	**11 782**	**10 617**	**9 608**	**9 403**	**9 062**	**8 795**	**8 236**
- in industry			201	229	292	324	292	250	273	259	320	325
- in construction	92	46	74	77	93	94	133	98	122	48	32	35
- in transport	920	1 058	5 032	9 593	9 810	9 708	8 615	7 681	7 275	6 790	6 400	6 147
- in agriculture	230	46	19	38	41	43	43	46	41	63	68	65
- in fishing												
- in commercial / public services	460	92	62	23	22	22	16	8	6	25	14	23
- in households	4 600	2 804	3 207	2 620	2 292	1 591	1 518	1 525	1 686	1 877	1 961	1 641

Table 3-9. Balance of fuel oil – high sulphur (>1%), TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production	133 867	33 356	39 422	71 994	77 669	55 306	72 632	61 764	65 373	67 961	66 546	72 862
Biofuel blended												
Import	293 464	47 887	4 110	5 056	4 860	3 748	3 059	6 288	7 883	1 707	813	315
Export	277 769	8 148	16 608	56 627	66 524	44 361	68 981	56 675	60 139	64 685	63 173	68 752
International marine bunkers	3 894	5 780	2 857	4 712	4 471	3 622	2 878	4 017	2 801	1 281	812	46
Changes in stocks	-8 951	-11 159	-4 689	-1 824	2 202	159	3 576	994	-3 450	1 270	5 997	543
Gross inland consumption	**136 717**	**56 156**	**19 378**	**13 887**	**13 736**	**11 230**	**7 408**	**8 354**	**6 866**	**4 972**	**9 371**	**4 922**
Statistical difference		40	5 592									
Transformed in power, heat and other plants:	70 406	39 377	14 650	5 536	6 668	3 439	2 954	4 742	4 648	1 564	5 811	1 938
- in public CHP plant	44 195	20 511	7 233	3 837	5 201	666	2 383	4 160	4 157	942	5 284	1 349
- in auto-producer heat plant	642	201	27		2	1 400				405	279	418
- in auto-producer CHP plant	20 190	16 618	6 813	1 659	1 429	1 314	542	581	491	217	248	171
-in public heat plant	5 379	2 047	577	40	36	59	29	1				
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:	8 068	3 693	4 899	6 716	5 746	7 474	4 136	3 468	2 005	3 255	3 396	2 865
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries	8 068	3 693	4 899	6 716	5 746	7 474	4 136	3 468	2 005	3 255	3 392	2 865
- in electricity, gas, steam and air conditioning enterprises											4	
Non-energy use												
Distribution and transmission losses	361			38	3	2	4				3	3
Final consumption:	**57 882**	**13 126**	**5 421**	**1 597**	**1 319**	**315**	**314**	**144**	**213**	**153**	**161**	**116**
- in industry	43 993	11 520	5 202	1 486	1 238	241	245	140	148	79	155	115
- in construction	1 044	201	11	17	14	9	9					
- in transport			3	4	10	6	4	4				
- in agriculture	1 084	201	114	80	50	44	35		41	40		
- in fishing												
- in commercial / public services	11 641	1 204	91	10	7	15	21		24	34	6	1
- in households	120											

Table 3-10. Balance of fuel oil – low sulphur (<1%), TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production						183	4 838	5 028	4 306	2 413	1 563	382
Biofuel blended												
Import			1 407	1 191	1 105	1 634	1 821	1 123	2 779	4 630	5 339	3 589
Export				23		2		6	40	46	55	15
International marine bunkers			29	451	573	705	227	575	2 224	3 735	3 344	3 003
Changes in stocks			56	-60	23	-449	-585	447	-308	-338	-1 515	637
Gross inland consumption			**1 434**	**657**	**555**	**661**	**5 847**	**6 017**	**4 513**	**2 924**	**1 988**	**1 590**
Statistical difference												
Transformed in power, heat and other plants:			755	328	468	296	1 547	2 090	1 232	818	727	1 040
- in public CHP plant							292	377	18		262	819
- in auto-producer heat plant							987	1 426	1 017	602	181	37
- in auto-producer CHP plant			713	318	468	274	268	263	197	213	282	183
-in public heat plant			42	10		22		24		3	2	1
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:							4 022	3 697	3 042	1 787	948	280
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries							4 022	3 697	3 042	1 787	948	280
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses						5						
Final consumption:			**679**	**329**	**87**	**360**	**278**	**231**	**239**	**319**	**313**	**270**
- in industry			363	220	40	241	162	153	147	210	237	213
- in construction			47	93	38	87	100	54	75	72	35	37
- in transport					4	3	4	7				
- in agriculture			15	2	2	13	5	4	5	22	19	15
- in fishing				9								
- in commercial / public services			254	5	3	16	7	13	12	15	22	5
- in households												

Table 3-11. Balance of refinery gas (not liquefied), TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production	11 032	5 318	8 253	15 250	12 884	9 409	14 029	13 418	14 127	13 324	13 300	14 875
Biofuel blended												
Import												
Export												
International marine bunkers												
Changes in stocks												
Gross inland consumption	**11 032**	**5 318**	**8 253**	**15 250**	**12 884**	**9 409**	**14 029**	**13 418**	**14 127**	**13 324**	**13 300**	**14 875**
Statistical difference												
Transformed in power, heat and other plants:						71	92	88	109	101	172	121
- in public CHP plant												
- in auto-producer heat plant											172	121
- in auto-producer CHP plant												
-in public heat plant						71	92	88	109	101		
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:	11 032	5 318	8 253	15 250	12 884	9 338	13 937	13 330	14 018	13 223	13 128	14 754
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries	11 032	5 318	8 253	15 250	12 884	9 338	13 937	13 330	14 018	13 223	13 128	14 754
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses												
Final consumption:												
- in industry												
- in construction												
- in transport												
- in agriculture												
- in fishing												
- in commercial / public services												
- in households												

Table 3-12. Balance of bitumen, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production	9 534	1 108	3 117	6 804	6 421	3 957	5 829	4 576	4 938	5 158	4 288	4 904
Biofuel blended												
Import	40	791	474	1 150	1 836	3 965	3 321	828	1 814	2 208	1 623	1 792
Export	1 662	356	839	2 587	2 746	1 729	2 884	2 359	2 896	3 736	2 757	3 444
International marine bunkers												
Changes in stocks	40	39	71	28	-35	-155	176	110	-165	162	-286	164
Gross inland consumption	**7 952**	**1 582**	**2 823**	**5 395**	**5 476**	**6 038**	**6 442**	**3 155**	**3 691**	**3 792**	**2 868**	**3 416**
Statistical difference												
Transformed in power, heat and other plants:												
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use	7 952	1 582	2 823	5 395	5 476	6 038	6 442	3 155	3 691	3 792	2 868	3 416
Distribution and transmission losses												
Final consumption:												
- in industry												
- in construction												
- in transport												
- in agriculture												
- in fishing												
- in commercial / public services												
- in households												

Table 3-13. Balance of lubricants, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production			1 226	847	931	1 093	1 218	1 257	1 504	1 675	1 790	1 755
Biofuel blended												
Import	413	620	602	1 121	1 296	1 252	1 175	1 150	1 709	2 181	2 891	1 641
Export			924	843	1 113	1 352	1 444	1 711	2 350	2 950	3 795	2 555
International marine bunkers					12							
Changes in stocks			129	-14	-53	16	39	58	-17	-34	-53	33
Gross inland consumption	**413**	**620**	**1 033**	**1 111**	**1 049**	**1 009**	**988**	**754**	**846**	**872**	**833**	**874**
Statistical difference			-84									
Transformed in power, heat and other plants:												
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use	413	620	949	1 111	1 049	1 009	988	754	846	872	833	874
Distribution and transmission losses												
Final consumption:												
- in industry												
- in construction												
- in transport												
- in agriculture												
- in fishing												
- in commercial / public services												
- in households												

Table 3-14. Balance of petroleum coke, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production	1 962	1 393	2 740	3 940	3 345	3 199	4 113	3 892	3 856	3 883	3 433	3 738
Biofuel blended												
Import				1 100			1 006		9		13	
Export												
International marine bunkers												
Changes in stocks				-1 054	325	793	-788	685	102			
Gross inland consumption	**1 962**	**1 393**	**2 740**	**3 986**	**3 670**	**3 992**	**4 331**	**4 577**	**3 967**	**3 883**	**3 446**	**3 738**
Statistical difference												
Transformed in power, heat and other plants:												
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:	1 962	1 393	2 740	3 940	3 345	3 199	4 113	3 892	3 856	3 883	3 433	3 737
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries	1 962	1 393	2 740	3 940	3 345	3 199	4 113	3 892	3 856	3 883	3 433	3 737
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses												
Final consumption:				**46**	**325**	**793**	**218**	**685**	**111**		**13**	**1**
- in industry				46	325	793	218	685	111		13	1
- in construction												
- in transport												
- in agriculture												
- in fishing												
- in commercial / public services												
- in households												

Table 3-15. Balance of refinery feedstock, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production		8 513	418	1 827	1 108	34	370	126				365
Biofuel blended												
Import	1 304	17 209	13 934	3 568	13 464	44 038	13 120	12 327	12 171	18 931	23 087	25 134
Export											9	6
International marine bunkers												
Changes in stocks	-1 220	-8 470	213	-1 121	-1 335	663	152	670	614	673	-352	-434
Gross inland consumption	**84**	**17 252**	**14 565**	**4 274**	**13 237**	**44 735**	**13 642**	**13 123**	**12 785**	**19 604**	**22 726**	**25 059**
Statistical difference		-43										
Transformed in power, heat and other plants:	84	17 209	14 565	4 274	13 237	44 735	13 642	13 123	12 785	19 604	22 726	25 059
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries	84	17 209	14 565	4 274	13 237	44 735	13 642	13 123	12 785	19 604	22 726	25 059
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses												
Final consumption:												
- in industry												
- in construction												
- in transport												
- in agriculture												
- in fishing												
- in commercial / public services												
- in households												

Table 3-16. Balance of naphtha, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production				3 477	2 436	2 071	1 890	2 031				
Biofuel blended												
Import												
Export				3 257	2 656	2 071	1 890	2 031				
International marine bunkers												
Changes in stocks				-220	220							
Gross inland consumption												
Statistical difference												
Transformed in power, heat and other plants:												
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses												
Final consumption:												
- in industry												
- in construction												
- in transport												
- in agriculture												
- in fishing												
- in commercial / public services												
- in households												

Table 3-17. Balance of orimulsion, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production												
Biofuel blended												
Import		729	1 383	1 681	1 655							
Export												
International marine bunkers												
Changes in stocks			-734	700	-461	1 508	40					
Gross inland consumption		**729**	**649**	**2 381**	**1 194**	**1 508**	**40**					
Statistical difference												
Transformed in power, heat and other plants:		729	649	2 381	1 194	1 508	40					
- in public CHP plant		729	649	2 381	1 194	1 508	40					
- in auto-producer heat plant												
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses												
Final consumption:												
- in industry												
- in construction												
- in transport												
- in agriculture												
- in fishing												
- in commercial / public services												
- in households												

Table 3-18. Balance of shale oil, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production												
Biofuel blended												
Import				73	90	81	172	103	19			
Export							77	36	18			
International marine bunkers												
Changes in stocks				-7	-2	-7	-9	-7	31			
Gross inland consumption				**66**	**88**	**73**	**86**	**60**	**32**			
Statistical difference												
Transformed in power, heat and other plants:				9	29	18	8	9	10			
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant				9	8	8		1	1			
-in public heat plant					21	10	8	8	9			
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:							7					
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises							7					
Non-energy use												
Distribution and transmission losses												
Final consumption:				**57**	**59**	**55**	**71**	**51**	**22**			
- in industry				13	40	22	27					
- in construction												
- in transport												
- in agriculture				23		4	8	15	4			
- in fishing												
- in commercial / public services				21	19	29	36	36	18			
- in households												

Table 3-19. Balance of coking coal, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production												
Biofuel blended												
Import	31 752	6 506	176	53	176	25	728	2 167	4 343	8 929	8 010	10 427
Export		50						27	438	464	575	865
International marine bunkers												
Changes in stocks	980	2 889							-275	-970	-4	-730
Gross inland consumption	**32 732**	**9 345**	**176**	**53**	**176**	**25**	**728**	**2 140**	**3 630**	**7 495**	**7 431**	**8 832**
Statistical difference												
Transformed in power, heat and other plants:	1 834	452	25	53	50	25	50	58	55	51	71	81
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant	904	126	25	53	50	25	50	58	32	44	71	81
-in public heat plant	930	326							23	7		
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use		25										
Distribution and transmission losses		25							0	8	9	10
Final consumption:	**30 898**	**8 843**	**151**		**126**		**678**	**2 082**	**3 575**	**7 436**	**7 351**	**8 741**
- in industry	1 583	703	137		126		301	1 240	2 860	3 750	4 353	5 083
- in construction	226	25	14						0	11	7	7
- in transport												
- in agriculture	1 557	50							3	23	16	35
- in fishing												
- in commercial / public services	12 359	6 632					176	566	406	2 105	1 302	1 583
- in households	15 173	1 433					201	276	305	1 547	1 673	2 033

Table 3-20. Balance of anthracite, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production												
Biofuel blended												
Import			100				75	396	90	21	33	62
Export									1	1	5	5
International marine bunkers												
Changes in stocks									-74	71	-4	-15
Gross inland consumption			**100**				**75**	**396**	**15**	**91**	**24**	**42**
Statistical difference												
Transformed in power, heat and other plants:			100					24				
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant			100									
-in public heat plant								24				
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses												
Final consumption:							**75**	**372**	**15**	**91**	**24**	**42**
- in industry							75	372	5	91	24	42
- in construction									2			
- in transport												
- in agriculture									3			
- in fishing												
- in commercial / public services									4			
- in households									1			

Table 3-21. Balance of sub-bituminous coal, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production												
Biofuel blended												
Import			2 698	6 618	8 781	8 193	7 960	2 567	3 248	857	24	58
Export				37	71	181	195	359	406	127		2
International marine bunkers												
Changes in stocks			11	-168	115	579	-1 133	1 009	672	-46	346	10
Gross inland consumption			**2 709**	**6 413**	**8 825**	**8 591**	**6 632**	**3 217**	**3 514**	**684**	**370**	**66**
Statistical difference												
Transformed in power, heat and other plants:			150	207	205	200	141	52	100	85	49	27
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant			81	147	141	133	92	36	66	85	49	27
-in public heat plant			69	60	64	67	49	16	34			
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:			4									
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises			4									
Non-energy use			7	3								
Distribution and transmission losses			11	6	17	12	7	10	8			
Final consumption:			**2 537**	**6 197**	**8 603**	**8 379**	**6 484**	**3 155**	**3 406**	**599**	**321**	**39**
- in industry			5	3 059	4 316	4 610	3 736	688	207	16	19	4
- in construction				18	23	17	11	5	2	1	1	
- in transport												
- in agriculture			14	36	50	19	15	14	8	3	2	
- in fishing												
- in commercial / public services			1 867	2 036	2 762	2 053	1 290	1 257	1 417	22	6	5
- in households			651	1 048	1 452	1 680	1 432	1 191	1 772	557	293	30

Table 3-22. Balance of coke, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production												
Biofuel blended												
Import			445	440	786	712	456	294	466	517	543	551
Export												
International marine bunkers												
Changes in stocks			-52	96	-69	-2	31	27	7	5	11	10
Gross inland consumption			**393**	**536**	**717**	**710**	**487**	**321**	**473**	**522**	**554**	**561**
Statistical difference												
Transformed in power, heat and other plants:												
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use			47	2								
Distribution and transmission losses												
Final consumption:			**346**	**534**	**717**	**710**	**487**	**321**	**473**	**522**	**554**	**561**
- in industry			346	534	717	710	487	321	473	522	554	561
- in construction												
- in transport												
- in agriculture												
- in fishing												
- in commercial / public services												
- in households												

Table 3-23. Balance of lignite, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production												
Biofuel blended												
Import			15	40	36		1		14	22		22
Export												
International marine bunkers												
Changes in stocks			1	2	4	3			-6	-10	2	1
Gross inland consumption			**16**	**42**	**40**	**3**	**1**		**8**	**12**	**2**	**23**
Statistical difference												
Transformed in power, heat and other plants:												
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses												
Final consumption:			**16**	**42**	**40**	**3**	**1**		**8**	**12**	**2**	**23**
- in industry												
- in construction												
- in transport												
- in agriculture												
- in fishing												
- in commercial / public services			16	25	28	2	1			4		6
- in households				17	12	1			8	8	2	17

Table 3-24. Balance of peat, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production	580	600	494	825	640	616	790	616	364	492	709	985
Biofuel blended												
Import					6					2		
Export			76	1	36	14	59	81	104	142	153	137
International marine bunkers												
Changes in stocks	116	222	51	-235	-60	182	-282	-159	94	140	-68	-44
Gross inland consumption	**696**	**822**	**469**	**589**	**550**	**784**	**449**	**376**	**354**	**492**	**488**	**804**
Statistical difference												
Transformed in power, heat and other plants:	445	357	258	299	380	688	345	285	202	248	188	551
- in public CHP plant					22	302	6	1			4	
- in auto-producer heat plant												
- in auto-producer CHP plant	67	96	80	128	133	149	111	135	102	132	99	438
-in public heat plant	39	10	14			40				3		
- in geothermal plants												
- in other industries	339	251	163	171	225	197	228	149	100	113	85	113
Consumed in energy sector, total:		126	36	11	7	3				13	25	6
- in peat extraction enterprises			20	11	5	3						6
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises		126	15		2					13	25	
Non-energy use												
Distribution and transmission losses	9	10	5	7		24						
Final consumption:	**242**	**329**	**170**	**272**	**163**	**69**	**104**	**91**	**152**	**231**	**275**	**247**
- in industry	155	174	43	7	3	5	6	5	9	37	40	40
- in construction												
- in transport												
- in agriculture												
- in fishing												
- in commercial / public services	87	58		21	15	10	26	24	44	85	112	99
- in households		97	127	244	145	54	72	62	99	109	123	108

Table 3-25. Balance of peat briquettes and peat pellets, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production	239	186	138	147	191	176	201	128	84	101	73	96
Biofuel blended												
Import		119	2	143	192	314	466	532	696	899	1 009	1 150
Export					5	2	1	1		22	168	116
International marine bunkers												
Changes in stocks	-53	-13	-1	-35	5	-2	-16	37	-44	-160	64	-120
Gross inland consumption	**186**	**292**	**139**	**255**	**383**	**486**	**650**	**696**	**736**	**818**	**978**	**1 010**
Statistical difference												
Transformed in power, heat and other plants:				9	2		5	13	3		3	3
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant				2	1		3	3	1		2	3
-in public heat plant				7	1		2	10	2		1	
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:			2									
- in peat extraction enterprises			2									
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses					1							
Final consumption:	**186**	**293**	**137**	**246**	**380**	**486**	**645**	**683**	**733**	**818**	**975**	**1 007**
- in industry	13	53		8	11	19	16	7	27	27	34	28
- in construction						1						
- in transport												
- in agriculture				3	3	11	7	4	16	17	18	21
- in fishing												
- in commercial / public services	27	53	1	28	39	113	156	185	193	238	295	325
- in households	146	186	136	207	327	343	466	487	497	536	628	633

Table 3-26. Balance of paraffin and waxes, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production												
Biofuel blended												
Import				176	151	165	249	295	520	857	1 139	1 264
Export				106	101	79	153	204	384	647	906	1 161
International marine bunkers												
Changes in stocks					4	-1		2	3	-46	-61	38
Gross inland consumption				**70**	**54**	**85**	**96**	**93**	**139**	**164**	**172**	**141**
Statistical difference												
Transformed in power, heat and other plants:												
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use				70	54	85	96	93	139	164	172	141
Distribution and transmission losses												
Final consumption:												
- in industry												
- in construction												
- in transport												
- in agriculture												
- in fishing												
- in commercial / public services												
- in households												

Table 3-27. Balance of natural gas, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production												
Biofuel blended												
Import	201 957	84 929	86 453	104 363	103 830	124 570	104 651	91 655	104 017	114 115	111 200	90 670
Export	6 102											
International marine bunkers												
Changes in stocks			-37	-671	-1 081	-3 501	4 022	-326	304	-298	-68	-62
Gross inland consumption	**195 855**	**84 929**	**86 416**	**103 692**	**102 749**	**121 069**	**108 673**	**91 329**	**104 321**	**113 817**	**111 132**	**90 608**
Statistical difference												
Transformed in power, heat and other plants:	105 124	41 480	47 241	57 134	53 699	50 067	45 905	45 311	58 186	48 005	43 280	35 499
- in public CHP plant	62 825	17 664	29 650	42 536	39 866	36 504	34 538	34 377	45 755	37 219	31 684	26 622
- in auto-producer heat plant	1 787	473	324	1 160	1 053	940	256	990	1 003	954	1 881	1 045
- in auto-producer CHP plant	34 248	21 952	16 272	11 414	11 391	11 918	10 034	8 818	10 525	8 994	8 977	7 317
-in public heat plant	6 265	1 391	688	667	578	590	746	521	558	568	470	391
- in geothermal plants				819	420	90	30	503	345	270	268	124
- in other industries			307	538	391	25	301	102				
Consumed in energy sector, total:			140	130	100	99	98	72	65	199	130	72
- in peat extraction enterprises												
- in crude oil extraction enterprises			3	3	3	3	2	2	3	3	3	2
- in refineries			28	28	5	5	1	6	4	2	19	20
- in electricity, gas, steam and air conditioning enterprises			109	99	92	91	95	64	58	194	108	50
Non-energy use	26 934	20 167	22 716	24 288	25 024	46 416	39 254	24 153	22 309	43 370	44 773	34 355
Distribution and transmission losses	1 688	1 935	1 119	420	69	30		4	5	4	3	
Final consumption:	**62 109**	**21 347**	**15 200**	**21 720**	**23 857**	**24 457**	**23 416**	**21 789**	**23 756**	**22 239**	**22 946**	**20 682**
- in industry	36 065	8 916	8 285	11 620	12 455	11 819	11 326	10 540	11 500	11 055	11 648	10 053
- in construction	1 030	219	266	513	611	655	677	424	501	459	490	509
- in transport				647	1 092	1 145	1 004	1 015	1 028	862	1 330	1 250
- in agriculture	2 946	1 197	991	1 192	1 581	1 653	1 431	1 132	1 309	1 273	1 156	1 058
- in fishing												
- in commercial / public services	12 831	3 319	1 302	2 118	2 254	3 020	2 874	2 603	2 793	2 520	2 652	2 656
- in households	9 237	7 696	4 356	5 630	5 864	6 165	6 104	6 075	6 625	6 070	5 670	5 156

Table 3-28. Balance of charcoal, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production				18	19	13	13	9	24	19	19	19
Biofuel blended												
Import				14	25	38	70	69	61	58	43	58
Export				15	16	16	18	43	38	36	34	36
International marine bunkers												
Changes in stocks				3	-4	1	-2	5	1			-3
Gross inland consumption				**20**	**24**	**36**	**63**	**40**	**48**	**41**	**28**	**38**
Statistical difference												
Transformed in power, heat and other plants:												
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses												
Final consumption:				**20**	**24**	**36**	**63**	**40**	**48**	**41**	**28**	**38**
- in industry												
- in construction												
- in transport												
- in agriculture												
- in fishing												
- in commercial / public services				20	24	36	63	40	48	41	28	38
- in households												

Table 3-29. Balance of wood and wood waste, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production	11 930	19 632	27 324	35 293	37 650	36 839	39 022	41 787	41 734	40 955	41 291	43 355
Biofuel blended												
Import		61	4	727	1 003	957	1 227	1 972	2 008	4 603	4 623	4 949
Export			255	710	1 695	1 923	2 224	4 705	5 102	5 431	4 871	5 427
International marine bunkers												
Changes in stocks	-14	-381	-54	-498	-503	15	-113	123	444	-2 044	722	-188
Gross inland consumption	**11 916**	**19 312**	**27 019**	**34 812**	**36 455**	**35 888**	**37 912**	**39 177**	**39 084**	**38 083**	**41 765**	**42 689**
Statistical difference				457	225							
Transformed in power, heat and other plants:	527	558	1 640	6 273	7 272	7 552	8 899	10 375	10 408	9 792	12 952	14 797
- in public CHP plant				191	784	1 597	1 864	2 331	2 472	2 359	3 785	6 073
- in auto-producer heat plant												
- in auto-producer CHP plant	274	156	1 060	4 906	5 501	4 927	6 195	7 349	7 121	6 691	7 976	7 679
-in public heat plant	253	402	580	1 128	939	992	813	680	772	706	1 149	1 002
- in geothermal plants												
- in other industries				48	48	36	27	15	43	36	42	43
Consumed in energy sector, total:			25	13	16	6	2	4	19	12	11	6
- in peat extraction enterprises				13	9	4		0	4	4	6	3
- in crude oil extraction enterprises												
- in refineries					4	1	1	1	1	2	4	3
- in electricity, gas, steam and air conditioning enterprises			25		3	1	1	3	14	6	1	0
Non-energy use												
Distribution and transmission losses			12	4	17							
Final consumption:	**11 389**	**18 754**	**25 342**	**28 979**	**29 375**	**28 330**	**29 011**	**28 798**	**28 657**	**28 279**	**28 802**	**27 886**
- in industry	453	756	1 218	4 007	3 586	3 480	3 273	2 631	2 920	3 027	3 400	3 380
- in construction	51	105	100	185	232	217	177	125	143	145	157	125
- in transport												
- in agriculture	187	211	272	253	264	320	371	400	399	463	437	400
- in fishing												
- in commercial / public services	1 699	1 104	1 703	1 278	1 256	1 189	1 197	1 185	1 178	1 276	1 344	1 390
- in households	8 999	16 578	22 049	23 256	24 037	23 124	23 993	24 457	24 017	23 368	23 464	22 591

Table 3-30. Balance of agricultural waste, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production				96	104	150	174	184	228	212	242	238
Biofuel blended												
Import												
Export												
International marine bunkers												
Changes in stocks				16	-31	33	-39	-9	11	-9	-34	24
Gross inland consumption				**112**	**73**	**183**	**135**	**175**	**239**	**203**	**208**	**262**
Statistical difference												
Transformed in power, heat and other plants:				64	60	63	88	109	144	113	112	99
- in public CHP plant											1	2
- in auto-producer heat plant												
- in auto-producer CHP plant				55	43	52	77	94	131	100	101	97
-in public heat plant				9	17	11	11	15	13	13	10	
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:					1			7	3	1		
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries								7				
- in electricity, gas, steam and air conditioning enterprises					1				3	1		
Non-energy use												
Distribution and transmission losses												
Final consumption:				**48**	**12**	**120**	**47**	**59**	**92**	**89**	**96**	**163**
- in industry				41	10	76	19	8	11	7	6	13
- in construction												
- in transport												
- in agriculture				2		44	28	51	56	56	59	88
- in fishing												
- in commercial / public services									18	25	28	58
- in households				5	2				7	1	3	4

Table 3-31. Balance of bioethanol, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production				195	268	402	463	661	1 060	565	656	730
Biofuel blended												
Import					70	116	250	94	106	234	286	214
Export				162	115	8	66	106	649	320	483	562
International marine bunkers												
Changes in stocks				-7	2	-16	9	-46	-3	-14	6	19
Gross inland consumption				**26**	**225**	**494**	**656**	**603**	**514**	**465**	**465**	**401**
Statistical difference												
Transformed in power, heat and other plants:					153	294	311	1				
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries					153	294	311	1				
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use							11	18	78	68	100	117
Distribution and transmission losses												
Final consumption:				**26**	**72**	**200**	**334**	**584**	**436**	**397**	**365**	**284**
- in industry												
- in construction												
- in transport				26	72	200	334	584	436	397	365	284
- in agriculture												
- in fishing												
- in commercial / public services												
- in households												

Table 3-32. Balance of biodiesel, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production				260	383	917	2 390	3 873	3 299	2 956	3 948	4 340
Biofuel blended												
Import					227	1 156	1 639	1 222	527	1 273	1 413	1 406
Export				168		235	1 955	3 434	2 538	2 726	3 131	3 571
International marine bunkers												
Changes in stocks				27	-21	-76	-158	-80	166	-22	-62	-2
Gross inland consumption				**119**	**589**	**1 762**	**1 916**	**1 581**	**1 454**	**1 481**	**2 168**	**2 173**
Statistical difference												
Transformed in power, heat and other plants:												
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses												
Final consumption:				**119**	**589**	**1 762**	**1 916**	**1 581**	**1 454**	**1 481**	**2 168**	**2 173**
- in industry												
- in construction												
- in transport				119	589	1 762	1 916	1 581	1 454	1 481	2 168	2 173
- in agriculture												
- in fishing												
- in commercial / public services												
- in households												

Table 3-33. Balance of sludge biogas, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production				57	62	69	70	89	125	129	130	150
Biofuel blended												
Import												
Export												
International marine bunkers												
Changes in stocks												
Gross inland consumption				**57**	**62**	**69**	**70**	**89**	**125**	**129**	**130**	**150**
Statistical difference												
Transformed in power, heat and other plants:				36	36	39	35	37	55	56	52	67
- in public CHP plant				17	30	33	21	9	8	13	10	14
- in auto-producer heat plant				3	6	6	14	28	47	43	42	53
- in auto-producer CHP plant				16								
-in public heat plant												
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses												
Final consumption:				**21**	**26**	**30**	**35**	**52**	**70**	**73**	**78**	**83**
- in industry												
- in construction												
- in transport												
- in agriculture												
- in fishing												
- in commercial / public services				21	26	30	35	52	70	73	78	83
- in households												

Table 3-34. Balance of landfill biogas, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production							17	56	83	245	257	299
Biofuel blended												
Import												
Export												
International marine bunkers												
Changes in stocks												
Gross inland consumption							**17**	**56**	**83**	**245**	**257**	**299**
Statistical difference												
Transformed in power, heat and other plants:							17	56	83	237	256	292
- in public CHP plant									35	152	124	226
- in auto-producer heat plant							17	56	48	85	132	66
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses												
Final consumption:									**0**	**8**	**1**	**7**
- in industry												2
- in construction												
- in transport												
- in agriculture												
- in fishing												
- in commercial / public services									0	8	1	5
- in households												

Table 3-35. Balance of other biogas from agricultural waste, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production				20	21	34	38	50	210	89	97	200
Biofuel blended												
Import												
Export												
International marine bunkers												
Changes in stocks												
Gross inland consumption				**20**	**21**	**34**	**38**	**50**	**210**	**89**	**97**	**200**
Statistical difference												
Transformed in power, heat and other plants:				7	6	9	14	15	91	42	45	114
- in public CHP plant												
- in auto-producer heat plant				7	6	9	14	15	91	42	45	114
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses												
Final consumption:				**13**	**15**	**25**	**24**	**35**	**119**	**47**	**52**	**86**
- in industry					6	13	10	18	104	41	52	86
- in construction												
- in transport												
- in agriculture				13	9	12	14	17	15	6		
- in fishing												
- in commercial / public services												
- in households												

Table 3-36. Balance of emulsified vacuum residue, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production							557			19		40
Biofuel blended												
Import												
Export										19		40
International marine bunkers												
Changes in stocks												
Gross inland consumption							**557**					
Statistical difference												
Transformed in power, heat and other plants:							557					
- in public CHP plant							557					
- in auto-producer heat plant												
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses												
Final consumption:												
- in industry												
- in construction												
- in transport												
- in agriculture												
- in fishing												
- in commercial / public services												
- in households												

Table 3-37. Balance of sulphur (from oil), TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production	960	400	1 228	2 971	2 445	1 705	2 956	2 789	2 939	3 068	2 922	3 258
Biofuel blended												
Import												
Export			14	154			38	561	49		19	
International marine bunkers												
Changes in stocks		-280	-101	-75	78	-90	102	11	6	3	-65	87
Gross inland consumption	**960**	**120**	**1 113**	**2 742**	**2 523**	**1 615**	**3 020**	**2 239**	**2 896**	**3 071**	**2 838**	**3 345**
Statistical difference		280										
Transformed in power, heat and other plants:												
- in public CHP plant												
- in auto-producer heat plant												
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use	960	400	1 113	2 742	2 523	1 615	3 020	2 239	2 896	3 071	2 838	3 345
Distribution and transmission losses												
Final consumption:												
- in industry												
- in construction												
- in transport												
- in agriculture												
- in fishing												
- in commercial / public services												
- in households												

Table 3-38. Balance of industrial waste, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production												155
Biofuel blended												
Import												
Export												
International marine bunkers												
Changes in stocks												
Gross inland consumption												**155**
Statistical difference												
Transformed in power, heat and other plants:												155
- in public CHP plant												155
- in auto-producer heat plant												
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses												
Final consumption:												
- in industry												
- in construction												
- in transport												
- in agriculture												
- in fishing												
- in commercial / public services												
- in households												

Table 3-39. Balance of municipal waste, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production												943
Biofuel blended												
Import												
Export												
International marine bunkers												
Changes in stocks												-14
Gross inland consumption												**929**
Statistical difference												
Transformed in power, heat and other plants:												929
- in public CHP plant												929
- in auto-producer heat plant												
- in auto-producer CHP plant												
-in public heat plant												
- in geothermal plants												
- in other industries												
Consumed in energy sector, total:												
- in peat extraction enterprises												
- in crude oil extraction enterprises												
- in refineries												
- in electricity, gas, steam and air conditioning enterprises												
Non-energy use												
Distribution and transmission losses												
Final consumption:												
- in industry												
- in construction												
- in transport												
- in agriculture												
- in fishing												
- in commercial / public services												
- in households												

ANNEX IV. Summary of the study "Determination of national GHG emission factors for energy sector", performed by Lithuanian Energy Institute on August 2012

During combustion a great share of carbon is removed immediately as CO_2, therefore conditions of combustion process practically have not influence on CO_2 emission factors. CO_2 emission factors depend on type of fuel, i.e. on the amount of carbon content in this fuel. After the summarization of performed comparative analysis of applied emission factors in other EU countries, summarization of data provided by the operators under the EU ETS system and aggregation of results provided by the accredited research laboratories, in this chapter of the study determined country specific CO_2 emission factors for energy sector (fuel combustion). Recommended values of country specific CO_2 emission factors are set considering to the results of analysis performed. Besides, determined values of emission factors have to assure low as possible uncertainty of emission factors.

CH_4 and N_2O emission factors are influenced by type of technology, operating conditions, age of equipment and other combustion conditions, therefore values of these emission factors significantly differ between the individual technologies. Seeking to precisely set country specific CH_4 and N_2O emission factors of energy technologies used in Lithuania, it is essential to perform comprehensive and multiplex measurements of emissions by differencing in accordance to the group of equipment and fuel type. However, the measurements have to be long-lasting, therefore in this study recommended values of CH_4 and N_2O emission factors are based in accordance to the results of analysis performed and default *IPCC* (1996) values.

Recommended CO_2, CH_4 and N_2O emission factors for energy sector are provided in Tables 1.

Recommended country specific CO_2 emission factor for natural gas is determined considering to the chemical composition of natural gas that was provided by Central Calibration and Test Laboratory of JSC "*Lietuvos dujos*", and considering the carbon content in natural gas.

Values of national CO_2 emission factors for coking coal, residual fuel oil, petroleum coke, orimulsion, non-liquefied petroleum gas and coke are set on the basis of data provided by the operators under EU ETS and considering to the *Tier 3* reliability that ensures the lowest uncertainty of emission factor. Sustaining to data base of EU ETS, in the some cases it is possible to apply emission factors set at the plant-specific level. For example, this can be applied for orimulsion combusted in Lithuania Thermal Power Plant or residual fuel oil combusted in CHP of the JSC "ORLEN Lietuva". For the national GHG inventory preparation it is essential to consider the possibility to apply plant-specific emission factors, because the application of these emission factors enables to use higher Tiers in national GHG inventory.

Values of national CO_2 emission factors for gasoline, diesel, gasoil, jet kerosene and liquefied petroleum gas are determined on the basis of measurement performed by accredited Laboratory of Quality Research Centre of JSC „ORLEN Lietuva".

Value of CO_2 emission factor for shale oil is based on national Estonian emission factor considering to the fact that shale oil is imported to Lithuania from Estonia.

Country specific CO_2 emission factors for crude oil, waste oil and peat are determined taking into consideration results of performed measurements and calculations provided in various national studies.

Country specific CO_2 emission factor for wood and wood waste is specified by performed measurements in Laboratory of Heat Equipment Research and Testing (Lithuanian Energy Institute).

Recommended value of CO_2 emission factor for biogas is chosen in accordance to the results of analysis on applied emission factors in other EU countries and considering to the results of long-lasting research analysis performed in other countries. However, seeking to ensure low uncertainty of emission factor for biogas, it is essential to perform long-lasting measurements for different types of biogas in Lithuania.

Table 4-1. Recommended GHG emission factors for energy industries

1.A.1 Energy industries	CO_2***, t/TJ***	CH_4***, t/TJ***	N_2O***, t/TJ***
Waste oil	77,11	0,003	0,0006
Gasoline	72,97	0,003	0,0006
Diesel	72,89	0,003	0,0006
Gasoil	72,89	0,003	0,0006
Residual fuel oil	77,60	0,003	0,0006
Petroleum coke	94,06	0,003	0,0006
Non liquefied petroleum gas	55,82	0,003	0,0006
Orimulsion	81,74	0,003	0,0006
Shale oil	77,40	0,003	0,0006
Liquefied petroleum gas	65,42	0,003	0,0006
Crude oil	77,74	0,003	0,0006
Coking coal	94,90	0,001	0,0014
Peat	104,34	0,001	0,0015
Natural gas	55,23	0,001	0,0001
Biogas	58,45	0,001	0,0001
Wood and wood waste	109,90	0,03	0,004

The reliabilities of recommended national CO_2 emission factors are assessed considering to the default *IPCC* (1996) emission factors and results of the comparative analysis of emission factors applied in other EU countries. The comparison of recommended national CO_2 emission factors with default *IPCC* (1996) emission factors is presented in Figure 1.

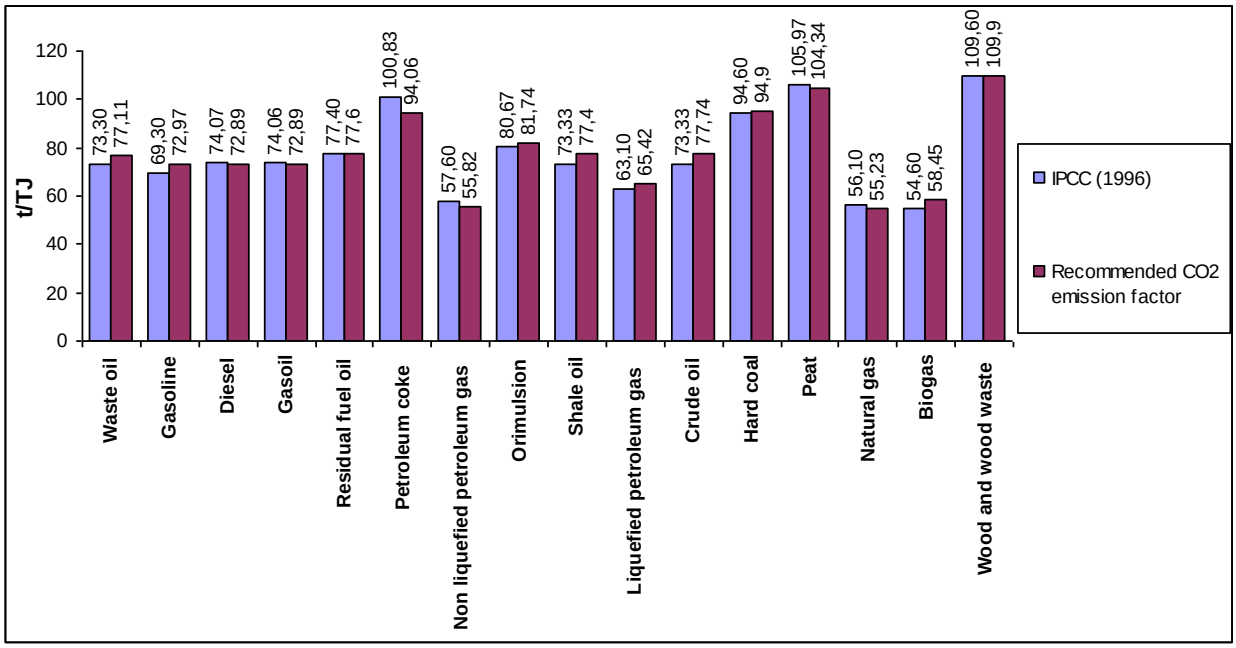

Figure 4-1. Comparison of recommended national CO_2 emission factors and default *IPCC* (1996) emission factors: energy industries

As it is seen from Figure 1, recommended values of national CO_2 emission factors are higher than default *IPCC* (1996) for many types of fuels. Recommended values of national CO_2 emission factors for diesel, gasoil, petroleum coke, non-liquefied petroleum gas, peat and natural gas are lower than default *IPCC* (1996) values. Recommended national CO_2 emission factors of petroleum coke and non-liquefied petroleum gas are lower than default values by 6,71% and 3,09%, respectively.

CO_2 emission factors for manufacturing industries and construction are recommended the same as for energy industries sector (Table 2). CH_4 and N_2O emission factors are selected considering to the results of analysis performed and default *IPCC* (1996) values.

Table 4-2. Recommended GHG emission factors for manufacturing industries and construction

1.A.2 Manufacturing industries and construction	CO_2***, t/TJ***	CH_4***, t/TJ***	N_2O***, t/TJ***
Gasoil	72,89	0,002	0,0006
Residual fuel oil	77,60	0,002	0,0006
Petroleum coke	94,06	0,002	0,0006
Shale oil	77,40	0,002	0,0006
Liquefied petroleum gas	65,42	0,002	0,0006
Jet kerosene	72,24	0,002	0,0006
Coking coal	94,90	0,01	0,0015
Peat	104,34	0,002	0,0015
Coke	109,11	0,01	0,0015
Natural gas	55,23	0,005	0,0001
Biogas	58,45	0,001	0,0001
Wood and wood waste	109,9	0,03	0,004

Recommended values of CO_2, CH_4 and N_2O emission factors for transport sector are presented in Table 3. CO_2 emission factors of fuels (except aviation gasoline) used in transport sector are

determined on the basis of measurement performed by accredited Laboratory of Quality Research Centre of JSC „ORLEN Lietuva“. Aviation gasoline is not produced in Lithuania. Minor volume of this fuel is imported from Sweden and other EU countries, therefore it is recommended for aviation gasoline to apply average value of emission factors applied in EU countries.

Table 4-3. Recommended GHG emission factors for transport sector

1.A.3 Transport	CO_2***, t/TJ***	CH_4***, t/TJ***	N_2O***, t/TJ***
Aviation gasoline	71,62	0,0005	0,002
Gasoline	72,97	0,02	0,0006
Diesel	72,89	0,005	0,0006
Residual fuel oil	77,60	0,005	0,0006
Liquefied petroleum gas	65,42	0,005	0,0006
Jet kerosene	72,24	0,0005	0,002

The comparison of recommended national CO_2 emission factors with default *IPCC* (1996) emission factors are presented in Figure 2.

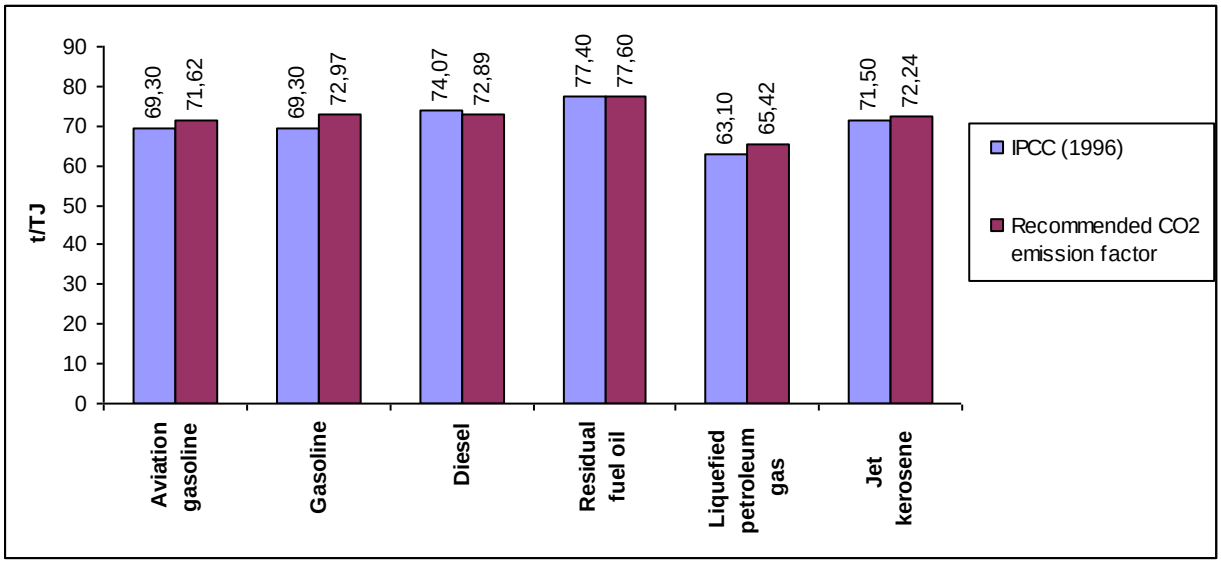

Figure 4-2. Comparison of recommended national CO2 emission factors with default IPCC (1996) emission factors: transport sector

As it is seen from Figure 2, only in the case of diesel, recommended value of national CO_2 emission factor is lower than the default value (by 1,59%). In all other cases, recommended values of national CO_2 emission factors exceed default *IPCC* (1996) values by 0,26% (residual fuel oil) – 5,30% (gasoline).

Recommended values of CO_2, CH_4 and N_2O emission factors for service, household, agriculture and fishing sector are presented in Table 4.

Table 4-4. Recommended GHG emission factors for commercial/institutional, household, agriculture and fishing sectors

1.A.4 Other sectors	*Fuel type*	CO_2, *t/TJ*	CH_4, *t/TJ*	N_2O, *t/TJ*
Commercial/ institutional sector	Coking coal	94,9	0,01	0,0014
	Biogas	58,45	0,005	0,0001
	Peat	104,34	0,01	0,0014
	Natural gas	55,23	0,005	0,0001
	Gasoil	72,89	0,01	0,0006
	Lignite	101,2	0,01	0,0014
	Wood and wood waste	109,9	0,3	0,004
	Residual fuel oil	77,6	0,01	0,0006
	Charcoal	109,9	0,2	0,001
	Shale oil	77,4	0,01	0,0006
	Liquefied petroleum gas	65,42	0,01	0,0006
Household sector	Coking coal	94,9	0,3	0,0014
	Peat	104,34	0,3	0,0014
	Natural gas	55,23	0,005	0,0001
	Gasoil	72,89	0,01	0,0006
	Lignite	101,2	0,3	0,0014
	Wood and wood waste	109,9	0,3	0,004
	Residual fuel oil	77,6	0,01	0,0006
	Liquefied petroleum gas	65,42	0,01	0,0006
Agriculture and fishing sector	Coking coal	94,9	0,3	0,0014
	Biogas	58,45	0,005	0,0001
	Peat	104,34	0,3	0,0014
	Natural gas	55,23	0,005	0,0001
	Gasoil	72,89	0,01	0,0006
	Wood and wood waste	109,9	0,3	0,004
	Residual fuel oil	77,6	0,01	0,0006
	Shale oil	77,4	0,01	0,0006
	Liquefied petroleum gas	65,42	0,01	0,0006

Recommended CO_2 emission factors for the main types of fuel are the same as for energy industries sector. Only in the case of lignite it is recommended to apply the default IPCC (1996) value.

Preparing the national GHG inventory, it is essential to evaluate the overall inventory uncertainty. For this purpose it is needed to have uncertainty estimates of emission factors, therefore in this study expert valuations of determined national emission factors uncertainties are performed.

Considering to international practice, uncertainty assessment of CO_2, N_2O and CH_4 emission factors is performed at aggregated sector-specific and fuel type-specific (liquid, solid, gaseous fuel and biomass) levels. Uncertainty estimations of recommended GHG emission factors are presented in Table 5.

Table 5. Uncertainties of recommended GHG emission factors

IPCC source category	***Fuel type***	CO_2	CH_4	N_2O
1.A.1 Energy industries	Liquid fuel	± 2,5%	± 50%	± 50%
	Solid fuel	± 7%	± 50%	± 50%
	Natural gas	± 2,5%	± 50%	± 50%
	Biomass	± 50%	± 150%	± 150%
1.A.2 Manufacturing industry and construction	Liquid fuel	± 2,5%	± 50%	± 50%
	Solid fuel	± 7%	± 50%	± 50%
	Natural gas	± 2,5%	± 50%	± 50%
	Biomass	± 50%	± 150%	± 150%
1.A.3 Transport	Liquid fuel	± 2,5%	± 100%	± 150%
1.A.4 Other sectors: commercial/institutional, household, agriculture and fishing	Liquid fuel	± 2,5%	± 50%	± 50%
	Solid fuel	± 7%	± 50%	± 50%
	Natural gas	± 2,5%	± 50%	± 50%
	Biomass	± 50%	± 150%	± 150%

Assessment of uncertainty of CO_2 emission factors is performed considering to the fact that carbon share of some types of fuels is relatively stable (for example, in the case of natural gas). Therefore uncertainties of CO_2 emission factors of these type of fuels are fairly small (±2,5%). Emission factors for liquid fuels mainly are identified at the accredited laboratory that satisfies the requirements of LST EN ISO/IEC 17025:2005 standard or are based on data provided by EU ETS applying the Tier 3. This has an influence on low uncertainties of emission factors for liquid fuel (±2,5%). Uncertainties of emission factors for solid fuel are remarkably higher, because, for example, carbon share in peat is variable, therefore uncertainties of emission factors for solid fuels are estimated considering to the recommendations provided in IPCC methodology. Uncertainty of CO_2 emission factor for biomass is the highest and reaches ±50%.

Uncertainties of aggregated CH_4 and N_2O emission factors are very high, since these emission factors highly depend on type of combustion technologies. Assessment of uncertainties of these emission factors are performed considering to IPCC Guidelines for National GHG inventories (2006).

ANNEX V. CO_2 emissions from the installations registered in the GHG Emission Allowance Registry, 2013

Table 5-1. CO_2 emissions from the installations registered in the GHG Emission Allowance Registry, 2013

No	Company	Name of the installation	EUA Allocations	Verified emissions, t CO_2	Corresponding CRF Sector (Fuel combustion)
1.	AB Akmenės cementas	Boiler house, cement production furnace	648923	955420	1.A.2.F Non-Metallic Minerals
2.	AB Naujasis kalcitas	Whitewash production furnace	46969	65178	1.A.2.F Non-Metallic Minerals
3.	UAB Švenčionėlių keramika	Furnace for ceramics	5579	1280	1.A.2.F Non-Metallic Minerals
4.	UAB Tauragės keramika	Ceramics combustion furnace	5461	0	1.A.2.F Non-Metallic Minerals
5.	UAB Rokų keramika	Ceramics combustion furnace	8478	1309	1.A.2.F Non-Metallic Minerals
6.	AB Palemono keramika	Ceramics combustion furnace	8675	3430	1.A.2.F Non-Metallic Minerals
7.	AB Dvarčionių keramika	Ceramics combustion furnace	12267	3420	1.A.2.F Non-Metallic Minerals
8.	AB Alytaus keramika	Ceramics combustion furnace	1587	457	1.A.2.F Non-Metallic Minerals
9.	UAB Kauno stiklas	Glass melting furnace	5908	15669	1.A.2.F Non-Metallic Minerals
10.	AB Kar Glass Lietuva	Glass melting furnace	11514	22123	1.A.2.F Non-Metallic Minerals
11.	AB ORLEN Lietuva	Oil refining factory	1436056	1812299	1.A.1.B Petroleum Refining / 1.A.1.A Public electricity and heat production
12.	AB Klaipėdos kartonas	Boiler house	25108	33578	1.A.2. D Pulp, Paper and Print
13.	AB Grigiškės	Boiler house	39614	254	1.A.2. D Pulp, Paper and Print
14.	AB Simega	Boiler house	4473	0	1.A.2.J Wood and Wood Products
15.	AB Achema	Boiler house	2095783	2387162	1.A.2.C Chemicals / 1.A.1.A Public electricity and heat production
16.	AB Nordic Sugar Kėdainiai	Boiler house, oilcake desiccation	30054	33837	1.A.2.E Food processing, Beverages and Tobacco
17.	AB Anykščių vynas	Boiler house	-	1896	1.A.2.E Food processing, Beverages and Tobacco
18.	AB Lifosa	Boiler house	179954	840	1.A.2.C Chemicals
19.	AB Klaipėdos nafta	Boiler house	21368	18239	1.A.1.A Public electricity and heat production
20.	Ą.B. Dembavos šiltnamiai	Boiler house	2666	0	1.A.4.C Agriculture/ Forestry/ Fisheries
21.	UAB ARVI cukrus	Boiler house	13327	20847	1.A.2.E Food processing, Beverages and Tobacco
22.	AB Įmonių grupė "Alita"	Boiler house, desiccation of apple oilcake	1207	1513	1.A.2.E Food processing, Beverages and Tobacco
23.	UAB Idavag Pasodėlė	Boiler house	2099	0	1.A.4.C Agriculture/ Forestry/ Fisheries
24.	AB Klaipėdos mediena	Boiler house	15324	4635	1.A.2.J Wood and Wood Products
25.	UAB Matuizų plytinė	Boiler house	6912	0	1.A.1.A Public electricity and heat production
26.	AB Jonavos šilumos tinklai	Jonava boiler house	25493	17179	1.A.1.A Public electricity and heat production

No	Company	Name of the installation	EUA Allocations	Verified emissions, t CO_2	Corresponding CRF Sector (Fuel combustion)
27.	AB Jonavos šilumos tinklai	Girele boiler house	6223	574	1.A.1.A Public electricity and heat production
28.	UAB Mažeikių šilumos tinklai	Mazeikiai boiler house	27110	4528	1.A1.A Public electricity and heat production
29.	UAB Raseinių šilumos tinklai	Raseiniai boiler house No 4	7427	5572	1.A.1.A Public electricity and heat production
30.	UAB Molėtų šiluma	Moletai boiler house	4732	0	1.A.1.A Public electricity and heat production
31.	UAB Šilutės šilumos tinklai	Šilute boiler house	13006	2020	1.A.1.A Public electricity and heat production
32.	UAB Vilniaus energija	Vilnius power plant No 2 (E-2)	318904	328795	1.A.1.A Public electricity and heat production
33.	UAB Vilniaus energija	Vilnius power plant No 3 (E-3)	208780	294442	1.A.1.A Public electricity and heat production
34.	UAB Vilniaus energija	Vilnius boiler house No 2	15015	4792	1.A.1.A Public electricity and heat production
35.	UAB Vilniaus energija	Vilnius boiler house No 8	1155	847	1.A.1.A Public electricity and heat production
36.	UAB Širvintų šiluma	Širvintu boiler house No 3	5133	6	1.A.1.A Public electricity and heat production
37.	AB Šiaulių energija	Šiauliai southern boiler house	85613	38912	1.A.1.A Public electricity and heat production
38.	AB Klaipėdos energija	Gargždai boiler house no. 4	7740	7792	1.A.1.A Public electricity and heat production
39.	AB Klaipėdos energija	Power plant	65996	39719	1.A.1.A Public electricity and heat production
40.	UAB Radviliškio šiluma	Radviliškis city boiler house	10635	1158	1.A.1.A Public electricity and heat production
41.	UAB Utenos šilumos tinklai	Utena boiler house	30589	3238	1.A.1.A Public electricity and heat production
42.	UAB Tauragės šilumos tinklai	Taurage - Berže boiler house	10347	789	1.A.1.A Public electricity and heat production
43.	UAB Šalčininkų šilumos tinklai	Šalcininkai boiler house	4475	5293	1.A.1.A Public electricity and heat production
44.	VI Pravieniškių 2-ieji pataisos namai	Katiline	3303	4027	1.A.1.A Public electricity and heat production
45.	UAB Varėnos šiluma	Varena boiler house	8752	55	1.A.1.A Public electricity and heat production
46.	AB Panevėžio energija	Panevežys boiler house No 2	36631	25145	1.A.1.A Public electricity and heat production
47.	AB Panevėžio energija	Rokiškis region boiler house	20504	3354	1.A.1.A Public electricity and heat production
48.	AB Panevėžio energija	Panevežys region boiler house No 1	41057	22995	1.A.1.A Public electricity and heat production
49.	AB Panevėžio energija	Pasvalys region boiler house	6141	4069	1.A.1.A Public electricity and heat production
50.	AB Panevėžio energija	Zarasai boiler house No 4	5640	851	1.A.1.A Public electricity and heat production
51.	UAB Geoterma	Klaipeda geothermal PP	24306	7034	1.A.1.A Public electricity and heat production
52.	AB Kauno energija	Petrašiunai PP	6098	6773	1.A.1.A Public electricity and heat production
53.	AB Kauno energija	Pergale boiler house	1344	14806	1.A.1.A Public electricity and heat production
54.	AB Kauno energija	Šilkas boiler house	2578	3696	1.A.1.A Public electricity and heat production
55.	AB Kauno energija	Noreikiškes region boiler house	4810	2690	1.A.1.A Public electricity and heat production
56.	AB Kauno energija	Garliava region boiler house	5788	333	1.A.1.A Public electricity and heat production

No	Company	Name of the installation	EUA Allocations	Verified emissions, t CO_2	Corresponding CRF Sector (Fuel combustion)
57.	AB Kauno energija	Jurbarkas region boiler house	9760	7747	1.A.1.A Public electricity and heat production
58.	UAB Ignalinos šilumos tinklai	Ignalina boiler house No 2	-	0	1.A.1.A Public electricity and heat production
59.	UAB Plungės šilumos tinklai	Plunge boiler house No 1	10178	404	1.A.1.A Public electricity and heat production
60.	UAB Birštono šiluma	Birštonas region boiler house	3832	1351	1.A.1.A Public electricity and heat production
61.	UAB Litesko filialas "Druskininkų šiluma"	Druskininkai industry boiler house	22902	22631	1.A.1.A Public electricity and heat production
62.	UAB Litesko filialas "Biržų siluma"	Boiler house of Biržai city hall	2298	369	1.A.1.A Public electricity and heat production
63.	UAB Litesko filialas "Vilkaviškio šiluma"	Vilkaviškis boiler house	6035	3749	1.A.1.A Public electricity and heat production
64.	UAB Litesko filialas "Telšų šiluma"	Luoke boiler house	9448	5584	1.A.1.A Public electricity and heat production
65.	UAB Litesko filialas "Kelmės šiluma"	Mackevicius boiler house	4331	639	1.A.1.A Public electricity and heat production
66.	UAB Litesko filialas "Palangos šiluma"	Palanga boiler house	14824	5867	1.A.1.A Public electricity and heat production
67.	UAB Litesko filialas "Marijampolės šiluma"	Kazlu Ruda boiler house	3586	555	1.A.1.A Public electricity and heat production
68.	UAB Litesko filialas "Marijampolės šiluma"	Marijampole region boiler house	31224	15856	1.A.1.A Public electricity and heat production
69.	UAB Litesko filialas "Alytaus energija"	Alytus region boiler house	54283	24077	1.A.1.A Public electricity and heat production
70.	AB Lietuvos elektrinė	Lietuvos PP	31148	574801	1.A.1.A Public electricity and heat production
71.	UAB Kauno termofikacijos elektrinė	Kaunas PP	286505	303843	1.A.1.A Public electricity and heat production
72.	UAB Kaišiadorių šiluma	Kaišiadoriai boiler house	7101	1505	1.A.1.A Public electricity and heat production
73.	UAB Kretingos šilumos tinklai	Kretinga boiler house No 2	6575	0	1.A.1.A Public electricity and heat production
74.	AB Klaipėdos energija	Klaipeda region boiler house	59049	35997	1.A.1.A Public electricity and heat production
75.	AB Klaipėdos energija	Lypkiai regiopn boiler house	33024	18638	1.A.1.A Public electricity and heat production
76.	AB Klaipėdos energija	Gargždai boiler house	81	0	1.A.1.A Public electricity and heat production
77.	AB Pagirių šiltnamiai	Boiler house	14906	6	1.A.1.A Public electricity and heat production
78.	AB Prienų šilumos tinklai	Prienai boiler house No 2	-	0	1.A.1.A Public electricity and heat production
79.	UAB Pramonės energija	CHP-1	16469	0	1.A.1.A Public electricity and heat production
80.	VI Ignalinos atominė elektrinė	Boiler house	6975	5340	1.A.1.A Public electricity and heat production
81.	UAB Prienų energija	Lentvaris boiler house	2569	1528	1.A.1.A Public electricity and heat production
82.	UAB Gargždų plytų gamykla	Boiler house	2443	0	1.A.2.F Non-Metallic Minerals
83.	UAB Akmenės energija	Zalgiris boiler house	6279	1867	1.A.1.A Public electricity and heat production
84.	AB Panevėžio energija	Panevežys thermal PP	31974	35335	1.A.1.A Public electricity and heat production
85.	UAB Swedspan Girių Bizonas	Fuel combustion plants	41259	17358	1.A.2.J Wood and wood products
86.	UAB NEO GROUP	Boiler house	35827	40100	1.A.2.C Chemicals

No	Company	Name of the installation	EUA Allocations	Verified emissions, t CO_2	Corresponding CRF Sector (Fuel combustion)
87.	AB Panevėžio energija	Kėdainiai region boiler house	119	247	1.A.1.A Public electricity and heat production
88.	UAB Paroc	Plants producing stone-wool	35374	68585	1.A.2.F Non-Metallic Minerals
89.	AB Vilniaus gelžbetoninių konstrukcijų gamykla Nr. 3	Boiler house	1156	287	1.A.2.F Non-Metallic Minerals
90.	UAB Vilniaus energija	Region boiler house No 7	1	1	1.A.1.A Public electricity and heat production
91.	UAB Agro Neveronys	Boiler house	6145	0	1.A.4.C Agriculture/ Forestry/ Fisheries
92.	UAB Pramonės energija	Boiler house	16004	1745	1.A.1.A Public electricity and heat production
93.	VĮ "Visagino energija"	Thermal boiler house	74561	47950	1.A.1.A Public electricity and heat production
94.	AB Amilina	Boiler house and driers	-	15241	1.A.2.E Food processing, Beverages and Tobacco
95.	UAB Lignoterma	Boiler house	-	85	1.A.1.A Public electricity and heat production
		Total:	**6532876**	**7464155**	

ANNEX VI. LULUCF area matrices, resulted from studies presented in Chapter 6.1.1

1990

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2054182	399	3994	2396	399	0	**2061370**	7188
Cropland	0	2403666	22367	0	0	0	**2426033**	-39541
Grassland	0	61110	1246568	0	0	0	**1307678**	42339
Wetlands	0	0	0	363066	0	0	**363066**	-5193
Settlements	0	0	0	0	**324323**	0	**324323**	1198
Other land	0	0	0	0	0	47530	**47530**	-5991
Initial	***2054182***	***2465574***	***1265339***	***368259***	***323125***	***53521***	***6530000***	0

1991

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2061370	399	3994	2396	399	0	**2068559**	7189
Cropland	0	2362926	22367	0	799	399	**2386492**	-39541
Grassland	0	61110	1279719	3595	799	4793	**1350015**	42337
Wetlands	0	399	399	357075	0	0	**357874**	-5192
Settlements	0	1198	1198	0	322326	799	**325521**	1198
Other land	0	0	0	0	0	41539	**41539**	-5991
Initial	***2061370***	***2426033***	***1307678***	***363066***	***324323***	***47530***	***6530000***	0

1992

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2068559	399	3195	1997	0	399	**2074550**	5991
Cropland	0	2320189	25562	0	0	799	**2346550**	-39942
Grassland	0	62308	1320858	2396	1598	4793	**1391954**	41939
Wetlands	0	399	0	353480	0	2396	**356276**	-1598
Settlements	0	2396	399	0	323924	399	**327119**	1598
Other land	0	799	0	0	0	32752	**33551**	-7988
Initial	***2068559***	***2386492***	***1350015***	***357874***	***325521***	***41539***	***6530000***	0

1993

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2074550	1198	3994	0	0	0	**2079742**	5192
Cropland	0	2283842	23565	1198	799	1598	**2311003**	-35547
Grassland	0	59513	1363595	1598	1598	5192	**1431496**	39542
Wetlands	0	399	399	353480	0	399	**354679**	-1597
Settlements	0	799	399	0	324723	0	**325921**	-1198
Other land	0	799	0	0	0	26361	**27160**	-6391
Initial	***2074550***	***2346550***	***1391954***	***356276***	***327119***	***33551***	***6530000***	0

1994

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2079343	0	2396	399	399	0	**2082538**	2796
Cropland	0	2239508	29157	0	0	799	**2269464**	-41539
Grassland	0	67501	1398344	799	799	5592	**1473034**	41538
Wetlands	0	799	0	353480	0	399	**354679**	0
Settlements	0	2796	1598	0	324723	0	**329116**	3195
Other land	399	399	0	0	0	20370	**21169**	-5991
Initial	***2079742***	***2311003***	***1431496***	***354679***	***325921***	***27160***	***6530000***	0

1995

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2082538	0	1598	799	0	0	**2084935**	2397
Cropland	0	2206756	25962	0	0	399	**2233117**	-36347
Grassland	0	59513	1444277	2396	2796	4394	**1513375**	40341
Wetlands	0	799	1198	351483	0	1198	**354679**	0
Settlements	0	1997	0	0	326320	399	**328717**	-399
Other land	0	399	0	0	0	14778	**15178**	-5991
Initial	***2082538***	***2269464***	***1473034***	***354679***	***329116***	***21169***	***6530000***	0

1996

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2084935	399	3195	1598	0	0	**2090127**	5192
Cropland	0	2207555	8388	0	0	0	**2215942**	-17175
Grassland	0	25163	1501792	399	0	0	**1527355**	13980
Wetlands	0	0	0	352682	0	0	**352682**	-1997
Settlements	0	0	0	0	328717	0	**328717**	0
Other land	0	0	0	0	0	15178	**15178**	0
Initial	***2084935***	***2233117***	***1513375***	***354679***	***328717***	***15178***	***6530000***	0

1997

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2090127	799	2396	399	0	0	**2093722**	3595
Cropland	0	2163619	19571	0	0	399	**2183590**	-32352
Grassland	0	51125	1504588	0	0	0	**1555713**	28358
Wetlands	0	0	399	352282	0	0	**352682**	0
Settlements	0	399	399	0	328317	0	**329116**	399
Other land	0	0	0	0	399	14778	**15178**	0
Initial	***2090127***	***2215942***	***1527355***	***352682***	***328717***	***15178***	***6530000***	0

1998

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2093722	0	3195	0	0	399	**2097317**	3595
Cropland	0	2096518	37944	0	0	0	**2134462**	-49128
Grassland	0	86273	1514174	0	0	0	**1600447**	44734
Wetlands	0	0	0	352282	0	0	**352282**	-400
Settlements	0	399	399	399	329116	0	**330314**	1198
Other land	0	399	0	0	0	14778	**15178**	0
Initial	***2093722***	***2183590***	***1555713***	***352682***	***329116***	***15178***	***6530000***	0

1999

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2096917	399	1598	1198	0	0	**2100113**	2796
Cropland	0	2036606	51924	0	0	0	**2088530**	-45932
Grassland	0	97057	1546127	0	0	0	**1643184**	42737
Wetlands	399	0	0	351084	0	0	**351483**	-799
Settlements	0	399	799	0	330314	0	**331513**	1199
Other land	0	0	0	0	0	15178	**15178**	0
Initial	***2097317***	***2134462***	***1600447***	***352282***	***330314***	***15178***	***6530000***	0

2000

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2100113	399	2396	2396	0	399	**2105704**	5591
Cropland	0	1978292	51125	0	0	0	**2029416**	-59114
Grassland	0	107841	1588465	399	399	0	**1697105**	53921
Wetlands	0	0	0	348687	0	0	**348687**	-2796
Settlements	0	1997	1198	0	331113	0	**334309**	2796
Other land	0	0	0	0	0	14778	**14778**	-400
Initial	***2100113***	***2088530***	***1643184***	***351483***	***331513***	***15178***	***6530000***	0

2001

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2105704	799	2396	0	0	0	**2108900**	3196
Cropland	0	1925170	42338	0	0	0	**1967507**	-61909
Grassland	0	103049	1651572	399	399	399	**1755819**	58714
Wetlands	0	0	0	348288	0	0	**348288**	-399
Settlements	0	399	399	0	333909	399	**335107**	798
Other land	0	0	399	0	0	13979	**14379**	-399
Initial	***2105704***	***2029416***	***1697105***	***348687***	***334309***	***14778***	***6530000***	0

2002

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2108900	0	3994	399	0	0	**2113293**	4393
Cropland	0	1878438	40341	0	0	0	**1918779**	-48728
Grassland	0	88270	1711084	0	0	0	**1799355**	43536
Wetlands	0	0	399	347889	0	799	**349087**	799
Settlements	0	799	0	0	335107	0	**335906**	799
Other land	0	0	0	0	0	13580	**13580**	-799
Initial	***2108900***	***1967507***	***1755819***	***348288***	***335107***	***14379***	***6530000***	0

2003

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2112894	799	3595	1198	399	0	**2118885**	5592
Cropland	0	1853275	23565	0	0	0	**1876841**	-41938
Grassland	0	64705	1771396	0	0	399	**1836500**	37145
Wetlands	399	0	0	347889	0	0	**348288**	-799
Settlements	0	0	399	0	335507	0	**335906**	0
Other land	0	0	399	0	0	13181	**13580**	0
Initial	***2113293***	***1918779***	***1799355***	***349087***	***335906***	***13580***	***6530000***	0

2004

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2118486	399	6391	1598	0	0	**2126873**	7988
Cropland	0	1825716	29157	0	0	0	**1854873**	-21968
Grassland	0	50326	1800154	399	0	0	**1850879**	14379
Wetlands	399	0	799	346291	0	399	**347889**	-399
Settlements	0	399	0	0	335906	0	**336306**	400
Other land	0	0	0	0	0	13181	**13181**	-399
Initial	***2118885***	***1876841***	***1836500***	***348288***	***335906***	***13580***	***6530000***	0

2005

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2126474	799	5592	1598	0	399	**2134861**	7988
Cropland	0	1815331	19971	0	0	0	**1835302**	-19571
Grassland	0	37545	1824917	0	0	0	**1862462**	11583
Wetlands	0	0	399	346291	0	399	**347090**	-799
Settlements	399	1198	0	0	336306	0	**337903**	1597
Other land	0	0	0	0	0	12382	**12382**	-799
Initial	***2126873***	***1854873***	***1850879***	***347889***	***336306***	***13181***	***6530000***	0

2006

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2134063	799	5592	1598	0	0	**2142051**	7190
Cropland	0	1802949	90267	0	0	0	**1893217**	57915
Grassland	0	31154	1764206	799	0	0	**1796159**	-66303
Wetlands	0	399	399	344693	0	0	**345492**	-1598
Settlements	399	0	1598	0	337903	0	**339900**	1997
Other land	399	0	399	0	0	12382	**13181**	799
Initial	***2134861***	***1835302***	***1862462***	***347090***	***337903***	***12382***	***6530000***	0

2007

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2142051	2796	3195	1997	0	399	**2150439**	8388
Cropland	0	1866057	86673	0	0	0	**1952729**	59512
Grassland	0	24364	1705093	0	0	0	**1729457**	-66702
Wetlands	0	0	399	343495	0	0	**343894**	-1598
Settlements	0	0	799	0	339900	0	**340699**	799
Other land	0	0	0	0	0	12781	**12781**	-400
Initial	***2142051***	***1893217***	***1796159***	***345492***	***339900***	***13181***	***6530000***	0

2008

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2150439	1598	4793	399	0	0	**2157229**	6790
Cropland	0	1925969	100253	0	399	0	**2026621**	73892
Grassland	0	24764	1622015	399	0	0	**1647178**	-82279
Wetlands	0	0	799	343096	0	0	**343894**	0
Settlements	0	399	799	0	340300	0	**341498**	799
Other land	0	0	799	0	0	12781	**13580**	799
Initial	***2150439***	***1952729***	***1729457***	***343894***	***340699***	***12781***	***6530000***	0

2009

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	Net change
Forest land	2156829	0	3195	0	0	0	**2160024**	2795
Cropland	0	2009046	71495	0	0	0	**2080541**	53920
Grassland	0	17175	1570891	0	799	399	**1589264**	-57914
Wetlands	399	0	399	343894	0	0	**344693**	799
Settlements	0	399	799	0	340699	0	**341897**	399
Other land	0	0	399	0	0	13181	**13580**	0
Initial	***2157229***	***2026621***	***1647178***	***343894***	***341498***	***13580***	***6530000***	0

2010

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2160024	399	5592	399	0	0	**2166415**	6391
Cropland	0	2078944	5991	0	0	0	**2084935**	4394
Grassland	0	1198	1577681	799	0	0	**1579678**	-9586
Wetlands	0	0	0	343495	0	0	**343495**	-1198
Settlements	0	0	0	0	341897	0	**341897**	0
Other land	0	0	0	0	0	13580	**13580**	0
Initial	***2160024***	***2080541***	***1589264***	***344693***	***341897***	***13580***	***6530000***	0

2011

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2166415	1997	4793	0	0	0	2173205	6790
Cropland	0	2076547	13979	0	0	0	2090527	5592
Grassland	0	6391	1560905	399	0	0	1567695	-11983
Wetlands	0	0	0	343096	0	0	343096	-399
Settlements	0	0	0	0	341897	0	341897	0
Other land	0	0	0	0	0	13580	13580	0
Initial	***2166415***	***2084935***	***1579678***	***343495***	***341897***	***13580***	***6530000***	***0***

2012

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2173205	1997	8787	799	0	0	2184788	11583
Cropland	0	2083337	30355	0	0	0	2104107	23166
Grassland	0	5192	1527355	0	0	0	1542133	-35148
Wetlands	0	0	0	342297	0	0	342297	-799
Settlements	0	0	799	0	341897	0	342696	799
Other land	0	0	399	0	0	13580	13979	399
Initial	***2173205***	***2090527***	***1567695***	***343096***	***341897***	***13580***	***6530000***	***0***

2013

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	**Final**	**Net change**
Forest land	2184788	799	3595	0	0	0	2189182	4394
Cropland	0	2073352	57915	0	0	0	2131267	17574
Grassland	0	39142	1467043	399	399	0	1506985	-25562
Wetlands	0	0	399	341897	0	0	342297	0
Settlements	0	399	3595	0	342297	0	346291	3595
Other land	0	0	0	0	0	13979	13979	0
Initial	***2184788***	***2113693***	***1532547***	***342297***	***342696***	***13979***	***6530000***	***0***

ANNEX VII. Improvements in response to recommendations / encouragements provided in the 2014 ARR

Review recommendation/ encouragement	Review report paragraph	Lithuania`s response/ status of implementation	Chapter/ section in the NIR
Cross-cutting			
The Party has elaborated a QA/QC plan and has implemented tier 1 QA/QC procedures in accordance with that plan. The ERT finds that there are a number of inconsistencies between data reported in the CRF tables and the NIR, and recommends that the Party reinforce the implementation of appropriate tier 1 QC procedures. The ERT reiterates the recommendation made in the previous review report that Lithuania explain how the "basic internal review" referred to in the NIR and further elaborated during the review is used to make improvements to the inventory, and also recommends that the Party explain that the institutes carrying out the review are not directly involved in inventory preparation, in order to justify the basic internal review as a QA activity rather than a QC activity. The ERT encourages Lithuania to include the time-series checks (i.e. those carried out after data input to the CRF Reporter software) in the QA/QC plan, and summarize the checks done in the NIR, in line with information provided during the review.	Table 3	(i) More detailed information on QA system is provided in the NIR (ii) time-series checks are being carried out through CRF Reporter	(i) NIR Chapter 1.2.3.1
In its NIR, Lithuania does not report two of the annexes included in the 'structure of the national inventory report' presented in annex I to the UNFCCC reporting guidelines. In response to a question raised by the ERT during the review, the Party indicated that: (i) information on the national energy balance is provided in annex 3 of its NIR and detailed information on a comparison of sectoral approach with the reference approach is provided in its NIR (section 3.2.1); and (ii) information on general completeness of the inventory is provided in the NIR (section 1.8) and in CRF table 9(a). Lithuania also indicated that it would be possible to provide these annexes in its NIR. The ERT encourages the Party to report these annexes to improve the transparency of its NIR.	Para 12	The current available outline of the NIR structure does not require providing information (i) on comparison of sectoral and reference approach and information on general completeness (ii) in the annex. Therefore this information is provided in the NIR. Information on energy balance is provided in the Annex III.	(i) NIR Chapter 3.2.1
In the tier 2 analysis, Lithuania did not identify as key the first category exceeding the threshold of 90% for level (2012) and trend. The ERT recommends that the Party correct its key category analysis.	Table 4	The Approach 2 key categories analysis was performed in line with IPCC 2006 guidance in this submission.	NIR Chapter 1.5, Annex I

In response to a question raised by the ERT during the review, the Party stated that qualitative analysis was not carried out as it would identify categories that had already been identified as key through quantitative analysis. The ERT notes that it is good practice to carry out the qualitative analysis, and encourages the Party to do so.	Table 4	Qualitative analysis was carried out in this submission.	NIR Chaper 1.5
In response to a question raised by the ERT, the Party stated that the key category analysis is being used in order to prioritize the development and improvement of the inventory and that this is reflected in the inventory improvement plan. A copy of the plan was provided to the ERT. The ERT encourages the Party to provide a summary of the inventory improvement plan in its NIR, and to indicate where in the plan the key category analysis has been used to prioritize inventory improvements.	Table 4	Information on improvements planned is provided in each individual chapter for each category and summary on all improvements is provided in Chapter 10.2.	NIR Chapter 10.2
The ERT encourages the Party to improve transparency by providing references to the values of uncertainties ascribed to activity data and emission factors, and, where expert judgement is used to derive these values, to indicate this in the NIR.	Table 4	Lithuania has improved transparency in uncertainty estimation by providing references to most of uncertainty values and will continue improving reporting of uncertainties.	
Energy			
Mandatory: the Party has not estimated CO_2, CH_4 and N_2O emissions from other (fuel combustion activities) – mobile – military use of jet kerosene (for 1990-2000). The ERT recommends that the Party estimate and report emissions from all mandatory categories.	Table 3	Emissions of CO_2, CH_4 and N_2O were estimated in this submission. Data for 1990-2000 were extrapolated. The tendency of different extrapolation functions was compared and data were fitted with an exponential function of second order.	NIR Chapter 3.4.1
The ERT recommends that the Party improve its quality control (QC) procedures in order to ensure consistency between the values reported in the NIR and the CRF tables.	Para 20	According to the quality assurance/quality control plan checking of data inputs and references has been performed and consitency of data between categories and data repoted in the NIR and in the CRF tables has been checked.	

Correct the information in the NIR regarding use of jet kerosene for domestic/international aviation.	Para 23	The text was corrected: Following advice from experts[1] it was decided to distinguish GHG emissions from aviation bunkers in such a way that all aviation gasoline and part of kerosene type jet fuel is used for domestic purposes and the rest kerosene type jet fuel is used for international flights – the latter could therefore be considered as aviation bunkers. Activity data on aviation gasoline split between domestic and international aviation is available only from 2000. Following the recommendation of ERT in 2011 the estimates of aviation gasoline consumption were linearly interpolated for the period 1996-1999 since effect of annual fluctuations was considered negligible. Emissions were estimated by assuming a constant annual rate of growth in fuel consumption from 1995 to 2000 (*IPCC 2006, Vol. 1. General Guidance and Reporting*). Trend extrapolation of GHG from jet kerosene for 1990-2002 was evaluated in combination with surrogate data.	NIR Chapter 3.4.1
Include in the NIR the information regarding country-specific CO_2 EF for gas/diesel oil.	Para 24	Country-specific emission factors were developed in 2012 based on the results of the study "Determination of national GHG emission factors for energy sector" prepared by Lithuanian Energy Institute. Summary of the study is included in the Annex of the NIR.	NIR, Annex III
Correct the information regarding the refinery feedstocks in CRF table 1.A(d) and include relevant explanations in the NIR.	Para 25	The information regarding the refinery feedstocks is corrected in CRF table 1.A(d) and in the NIR.	

[1] ICR Lithuania 17-21 May, 2004, Branca Americano (Brazil); consultant Domas Balandis (Lithuania)

Include a more detailed explanation on the selection of the plant-specific EFs for public electricity and heat production and petroleum refining in the NIR.	Paras 26, 27	Plant specific emission factors are based on EU ETS data and considering to the Tier 3 reliability that ensures the lowest uncertainty of emission factor. Linear regression analysis was performed using EU ETS data and taking into account than R2 is small the averaged (over time) value was assumed to be valid for all year. A more detailed explanaition on the selection of the plant-specific EFs for public electricity and heat production and petroleum refining are provided in the NIR.	NIR Chapter 3.2.6 and 3.2.7
The ERT commends the Party for its efforts in searching for appropriate EFs for the category („Other sectors – biomass, CH4) and encourages the Party to continue its efforts in moving towards the tier 2 methodology and to provide a progress update in the NIR.	Para 28	In this submission country specific emission factor in "Other sectors - biomass, CH4" were determined based on internationally referenced sources and EFs from neighbouring countries appropriate to Lithuania's national circumstances. These EFs were estimated following recommendation provided by ERT in 2013 (Report of the individual review of the annual submission of Lithuania submitted in 2013, paragraph 31). More information are provided in the NIR.	NIR Chapter 3.5
Industrial processes			
Correct the errors in the NIR regarding the data and method used for the estimation of emissions from ammonia production.	Para 32	The errors regarding the data and method used for the estimation of emissions from ammonia production were corrected.	NIR Chapers 4.3.1.1 and 4.3.1.2
Correct the notation key in the CRF table summary 3 on the CO_2 EF for chemical industry, provide more accurate and transparent information on the EF in the NIR, improve QC procedures in order to rectify errors in the NIR and the CRF tables.	Para 33	The notation key in the CRF table Summary 3s1 on the CO_2 EF for chemical industry was corrected from "PS" (plant specific) to "CS" (country specific). More accurate information on the EF was provided in the NIR.	NIR Chaper 4.3.1.2
Lithuania did not report in the NIR on any category-specific QA/QC procedures for refrigeration and air-conditioning equipment. Therefore, the ERT encourages Lithuania to apply category-specific QC procedures for this category on an annual basis.	Para 35	General QA/QC procedures as described in the section 1.2.3 of the NIR were conducted. Category specific QC procedures for refrigeration and air conditioning equipment subcategory were not	NIR Chapers 1.2.3, 4.7.1.3 and 4.7.1.4

		conducted, but taking into account new legislation requirements, review of assumptions used to estimate F-gases emissions and country specific quality procedures will be implemented during the work with next submission.	
Lithuania provided revised estimates of CO_2 emissions from lime production in sugar refining plants, assuming that 86.0 per cent of CaO is recovered as $CaCO_3$. The ERT recommends to explain the methodology and data sources used to provide revised estimates.	Para 40	Explanation regarding the methodology and data sources is provided in this submission.	NIR Chapers 4.2.2.1 and 4.2.2.2
In order to increase the accuracy of the estimates and improve the time-series consistency, the ERT encourages Lithuania to collect data on soda ash use by end use and to use these data in the emission estimates.	Para 41	The possibility to collect data on soda ash use by end use is planned to investigate for the next submission.	
ERT recommends that Lithuania carry out an analysis of the potential overestimation and provide a discussion on this subject in the NIR (for instance, by providing a qualitative carbon balance showing carbonaceous inputs and outputs to demonstrate which reducing agents and fuel sources are consumed for cast iron production in both blast furnaces and iron foundries/EAFs in Lithuania).	Para 42	The analysis was made and the methodology of the estimation of emissions was provided in this submission.	NIR Chaper 4.4.1.2
The ERT welcomes the Party's plan to collect data and elaborate estimates on N_2O emissions from other (solvent and other product use) and encourages the Party to adhere to this plan in order to improve the completeness of its emissions inventory.	Para 43	N_2O emissions from the Other product manufacture and use category (aerosol cans) were estimated in this submission.	NIR Chapter 4.8.3
Agriculture			
The ERT reiterates the following recommendations made in the previous review report, that the Party: (i) improve the completeness and QC of reporting in the CRF tables (e.g. table 4.A, table 4.B(a) (see paras. 51 and 53 below) and table 4.D); (ii) provide in the NIR an explanation for the difference in animal population numbers between the inventory and the data of the Food and Agriculture Organization of the United Nations; (iii) continue to investigate the differences between the national data on synthetic fertilizer consumption provided by UAB Agrochema and the data provided by the International Fertilizer Industry Association.	Para 46	(i) Additional information is provided in the CRF. (ii) This information is provided in the NIR. (iii) Lithuania has recalculated emissions from application of synthetic N fertilizers using a single data source (IFA) as this database provides data for the whole time period and ensures time serries consistency.	(ii) NIR Chapter 5.2.2.2 (iii) NIR Chapter 5.6.1.1
Include in the NIR the information regarding how the overall AD uncertainties have been derived for manure management category.	Para 47	More detailed information is now provided in the NIR 2015.	NIR Chapter 5.3.3
The ERT recommends that Lithuania provide additional information in the NIR on the approach used to estimate DMI for sheep to improve transparency.	Para 48	This information is provided in the NIR. Methodology on calculations is provided for cattle,	NIR Chapter 5.2.2.3

		but the same methodology was used for sheep.	
The ERT recommends that Lithuania include in the NIR the specific animal and feed characteristics and DMIs per subcategory rather than the aggregate values, to improve the transparency of this country-specific method.	Para 49	This information is provided in the NIR for livestock categories whose emissions are being estimated using Tier 2 method: dairy cattle, non-dairy cattle, swine and sheep.	NIR Chapter 5.2.2 Table 5-15 Table 5-17 Table 5-22 Table 5-25
The ERT recommends that Lithuania provide the Ym values for sheep and swine in both the NIR and the CRF tables to improve transparency.	Para 51	This information is provided in the NIR and CRF Reporter where applicable.	NIR Chapter 5.2.2
The ERT recommends that, in order to improve transparency, Lithuania note in the NIR that the MCF of zero was based on information provided by the biogas plant that all CH_4 was collected and combusted.	Para 52	This information is provided in the NIR.	NIR Chapter 5.3.2.2
The ERT recommends that the Bo for sheep be reported in both the NIR and the CRF tables to improve transparency.	Para 53	This information is provided in the NIR. Unfortunately there is no possibility to enter B_o values in CRF as program does not provide this opportunity.	NIR Chapter 5.3.2.3
The ERT recommends that Lithuania explore the possibility of applying the tier 2 method for the manure management N_2O emissions from sheep.	Para 54	In theory it is possible to estimate N_2O emissions for sheep using actual N intake and default N retention for sheep, however demand of sheep wool and sheepskin have decreased and statistical data on this information is inaccurate therefore this might cause high uncertainty values. Lithuania will continue to explore possibility to obtaine more accurate statistical data.	
LULUCF			
The previous review report noted that Lithuania had improved its uncertainty analysis for several categories in the LULUCF sector and included a recommendation that Lithuania extend the improvements made in uncertainty analysis to all categories, also noting that the Party indicated that it plans to further improve uncertainty assessment	Para 58	Overall uncertainties are expected to be improved during the Norway Grants partnership project. It is expected that during the project improvements of uncertainty estimation methodology might be	

for cropland and grassland. In the 2014 annual submission, Lithuania reported the uncertainty assessment in the same manner as it did in its 2013 annual submission. In response to a question raised by the ERT during the review, the Party stated that the improvement of the uncertainty assessment is ongoing. Lithuania has planned to improve uncertainty estimates through the Norway Grants partnership project. The ERT commends the Party for its initiative and encourages Lithuania to use the outcomes of this project in its uncertainty analysis.		applied throught the sharing of experience with Norwegian experts.	
Further explore different opportunities regarding how the data presented in NFI could be allocated during the five-year inventory cycle.	Para 59	Lithuania still explores different opportunities to solve this issue.	
Lithuania has reported carbon stock changes in living biomass using the tier 1 method, and the estimate covers only perennial woody crops. The trend in carbon stock change in living biomass per area fluctuates and several large inter-annual changes have been identified during the period 2008–2012. The Party explained that these inter-annual changes occur due to its use of estimated distribution of age groups. Lithuania also stated that it plans to eliminate such variation by obtaining actual age group data from the NFI. The ERT encourages the Party to make efforts to obtain this data and use it for the calculation of carbon stock changes in living biomass.	Para 60	NFI data not available yet, but Lithuania is continuously improving reporting of carbon stock changes in living biomass by: - Expanding list of perennial woody crops (now including Salix plantations); - Reports higher Tier (Tier 2) estimates of annual change in carbon stocks in living biomass on Land converted to Cropland.	NIR Chapters 6.3.2.1 and 6.3.2.3
Report the carbon stock changes in living biomass in cropland and grassland converted to wetlands.	Para 61, Table 3	Carbon stock changes in living biomass for cropland and grassland converted to wetlands were estimated and reported in this submission.	NIR Chapter 6.3.2.2
Use the notation key “NO” instead of “NE” for the drainage of soils and wetlands in forest land – mineral soil.	Para 62	Correct notation keys (NO instead of NE) for drained mineral soils in Forest land are applied in this submission.	
Use the country-specific data and methodology that takes into account combustion efficiency values or use default values for combustion efficiency.	Para 64	Improvement has been made in estimations of GHG emissions from biomass burning according to ERT recommendation and the new estimates are presented in this submission.	NIR Chapter 6.3.2.1, 6.4.2.1
Waste			
The ERT recommends that Lithuania improve the transparency of its reporting by including the amount of solid waste disposed in each category of SWDS in the NIR.	Para 69	Amounts of solid waste disposed in each category of SWDS are provided in NIR.	NIR Table 7-26
ERT recommends that Lithuania improve the transparency of its reporting by including the amount of sewage sludge disposed in each category of SWDS in the NIR.	Para 70	Amounts of sewage sludge disposed in each category of SWDS are provided in NIR.	NIR Table 7-27
The ERT considers that the explanation provided in the NIR on the corrected BOD load	Para 71	Further information concerning data outlier	NIR Chapter

based on only per capita BOD generation is not appropriate, and therefore recommends that Lithuania include in its NIR the information on the contribution of BOD load from industrial wastewater in order to improve transparency.		including discussioin on potential input of industrial wastewater is provided in NIR Chapter 7.5.1.	7.5.1 (para 2-4 below the Table 7-40)
The ERT recommends that Lithuania report the percentages of handling systems for wastewater in CRF table 6.B or, if data are not available, provide a justification for the use of the notation key "NE" to improve transparency.	Para 72	Percentages of handling systems for wastewater are provided in NIR.	NIR Table 7-41
Minimization of adverse impacts in accordance with KP Article 3.14			
The ERT recommends that the Party report any change(s) in its information provided under Article 3, paragraph 14, in accordance with decision 15/CMP.1, annex, chapter I. H and/or further relevant decisions of the CMP.	Para 92	Implemented in this submission.	NIR Chapter 15