

Appendices to the Report

Global Anthropogenic Non-CO₂ Greenhouse Gas Emissions: 1990–2030

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Appendix A: Total Emissions by Country

Table A-1: Total Non-CO₂ Emissions by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	4.8	3.4	3.5	2.9	2.8	2.8	2.8	2.9	3.0
Algeria	32.1	29.7	37.1	42.8	47.7	57.5	63.1	68.1	72.4
Argentina	138.4	147.9	160.0	171.4	179.3	191.8	202.4	213.2	223.2
Armenia	3.4	2.7	2.0	2.4	2.8	3.1	3.3	3.6	3.9
Australia	162.1	150.0	174.6	156.2	159.7	169.8	178.1	188.1	197.5
Austria	16.1	15.5	14.1	12.8	12.9	13.5	14.0	14.5	14.7
Azerbaijan	17.7	13.2	16.1	20.9	34.1	41.6	44.5	46.5	49.2
Bangladesh	49.7	54.7	58.7	63.7	70.8	78.0	86.7	97.1	109.2
Belarus	36.1	26.0	26.7	28.4	30.3	30.1	30.1	30.2	30.2
Belgium	21.0	21.8	20.5	17.7	17.5	18.5	19.3	20.4	21.6
Bolivia	38.5	36.3	34.5	45.3	46.6	47.8	48.9	50.1	51.4
Brazil	509.2	523.6	514.3	715.2	682.2	710.9	727.2	745.1	760.1
Bulgaria	28.1	18.7	16.5	15.4	15.3	15.5	15.7	16.0	16.3
Burma	162.6	180.4	139.1	144.1	151.7	156.8	162.6	168.8	175.5
Cambodia	12.7	14.9	13.8	21.0	21.9	23.1	24.1	25.5	26.9
Canada	134.1	185.3	157.9	168.0	173.8	191.7	204.6	220.7	233.6
Chile	15.9	20.9	19.4	21.0	22.4	23.9	25.5	27.7	29.6
China	1,006.0	1,136.8	1,146.6	1,401.8	1,489.9	1,628.7	1,876.9	2,224.5	2,644.7
Colombia	77.8	85.8	92.3	96.7	102.9	110.4	117.0	123.0	129.9
Congo (Kinshasa)	237.2	211.6	174.9	166.1	168.1	170.1	172.3	174.8	177.3
Croatia	8.4	6.0	6.2	6.9	7.1	7.5	7.7	8.2	8.5
Czech Republic	32.1	23.0	21.2	20.8	20.2	20.6	21.1	21.9	22.4
Denmark	15.4	15.0	14.4	13.0	10.8	11.2	11.3	11.9	12.1
Ecuador	14.4	17.2	16.7	17.7	18.1	19.3	20.2	21.5	22.7
Egypt	39.0	45.5	59.2	65.1	73.2	81.1	89.4	98.8	107.4
Estonia	5.1	2.9	2.9	2.9	2.9	2.8	2.9	2.9	2.9
Ethiopia	73.5	71.3	78.6	95.4	116.2	128.8	139.3	150.2	161.3
Finland	18.6	18.4	16.7	14.1	13.9	14.6	15.0	15.4	15.7
France	163.4	162.3	153.9	144.2	147.4	156.5	161.2	166.2	169.1
Georgia	13.6	6.7	8.7	8.4	7.6	7.9	8.3	8.9	9.4
Germany	202.2	183.8	149.7	136.8	118.5	111.0	114.8	121.9	130.6
Greece	21.7	22.7	23.0	20.1	17.5	16.7	16.3	16.0	15.7
Hungary	24.9	17.2	18.7	19.0	16.6	17.3	17.9	18.8	19.3
Iceland	1.2	0.9	1.0	0.9	1.0	1.1	1.1	1.2	1.3
India	465.7	496.1	529.8	578.7	615.3	664.9	748.6	814.4	882.3
Indonesia	274.1	302.5	311.5	362.8	383.7	402.1	419.8	439.6	463.1
Iran	57.0	80.3	105.2	127.9	135.0	141.8	148.6	159.2	170.4
Iraq	89.7	34.0	109.9	84.1	108.1	124.9	175.4	192.3	209.3
Ireland	22.5	23.4	23.3	21.5	21.0	22.2	22.3	22.6	22.7
Israel	8.1	10.2	13.4	13.6	16.3	20.4	25.1	33.8	39.9
Italy	83.6	86.0	91.9	87.9	79.7	84.6	89.0	94.1	98.4
Japan	93.8	103.9	103.7	94.8	93.4	105.4	122.0	144.7	165.5
Jordan	7.2	8.2	3.4	3.9	5.1	5.6	6.4	7.5	8.4
Kazakhstan	109.7	60.2	46.4	54.2	63.8	68.9	71.8	74.9	79.1
Kuwait	48.8	83.6	86.8	106.1	109.0	111.1	109.7	117.7	128.7
Kyrgyzstan	6.8	3.4	3.1	3.2	3.5	3.8	4.0	4.3	4.5
Laos	14.0	14.5	12.8	19.1	19.9	20.7	21.3	21.9	22.7
Latvia	7.6	3.7	3.5	4.0	4.3	4.5	4.8	5.4	5.9
Lithuania	13.3	6.8	7.7	9.4	7.8	8.1	8.4	9.1	9.5
Luxembourg	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.2	1.2
Macedonia	3.2	3.1	3.0	3.2	3.7	4.3	4.8	5.8	6.5
Mexico	129.7	146.7	172.3	224.0	238.8	249.6	273.8	294.1	312.6
Moldova	8.3	6.0	4.8	4.6	4.4	4.5	4.7	4.9	5.1

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Mongolia	12.0	12.7	12.6	10.9	15.5	18.9	23.5	29.9	38.8
Nepal	23.5	26.2	29.3	30.6	33.2	36.9	40.8	45.4	50.9
Netherlands	51.6	51.6	41.8	34.5	29.6	30.9	32.0	33.5	35.1
New Zealand	34.0	35.0	37.4	39.2	39.3	41.4	43.2	45.3	47.3
Nigeria	154.1	166.5	193.2	217.8	236.3	257.9	274.6	290.9	306.8
North Korea	34.2	25.5	23.2	25.9	27.5	30.7	34.7	41.2	47.9
Norway	15.6	12.6	12.5	11.3	9.8	10.3	10.9	11.6	12.7
Pakistan	86.3	99.0	113.4	131.6	154.5	169.5	184.5	201.7	220.5
Peru	30.8	30.2	34.1	31.8	33.8	36.2	38.5	41.4	44.1
Philippines	42.8	47.7	53.1	57.4	62.7	68.3	75.2	85.8	96.3
Poland	84.4	74.3	69.3	68.9	64.6	67.9	70.5	73.2	79.6
Portugal	15.7	16.9	18.3	19.5	19.2	19.7	20.1	20.4	20.6
Romania	80.1	59.9	48.3	49.7	49.7	50.3	50.6	51.6	52.6
Russia	903.7	646.8	632.5	640.8	658.7	676.1	725.6	769.2	805.1
Saudi Arabia	27.1	33.4	40.3	46.2	50.3	56.4	62.2	70.8	79.1
Senegal	9.7	11.0	13.2	14.1	15.4	16.6	17.9	19.3	20.7
Singapore	1.2	2.1	3.9	4.8	5.8	7.5	10.1	15.5	22.8
Slovakia	11.4	8.5	8.1	8.7	6.8	6.8	7.0	7.4	7.7
Slovenia	3.7	3.5	3.7	3.8	3.7	4.0	4.2	4.6	4.9
South Africa	73.4	71.2	71.3	74.7	81.2	87.9	95.1	108.9	119.0
South Korea	43.4	43.7	56.2	66.7	73.7	85.4	102.6	133.3	158.4
Spain	58.6	62.9	76.0	68.7	70.7	74.1	76.4	79.1	81.6
Sweden	15.7	15.7	14.9	14.4	13.4	13.3	13.4	13.7	13.8
Switzerland	8.6	8.0	7.6	7.7	8.1	8.5	8.8	9.2	9.5
Tajikistan	6.8	5.8	5.0	6.3	7.8	8.3	8.9	9.5	10.2
Thailand	74.5	75.6	76.6	82.8	91.9	98.2	105.8	118.9	132.3
Turkey	63.8	80.0	86.5	82.2	85.1	91.0	96.9	103.8	110.1
Turkmenistan	24.6	21.4	26.5	40.6	43.9	49.6	53.2	55.3	57.6
Uganda	17.0	17.8	17.6	23.2	24.1	25.3	26.6	27.9	29.3
Ukraine	211.5	134.4	104.3	104.3	104.5	105.9	107.2	108.3	110.0
United Arab Emirates	19.3	22.6	26.0	30.4	34.4	37.5	39.9	43.7	47.6
United Kingdom	183.0	151.4	118.7	96.9	94.8	98.9	101.7	104.8	106.5
United States	1,078.2	1,111.8	1,110.3	1,080.3	1,196.7	1,298.6	1,409.8	1,540.9	1,625.2
Uruguay	20.6	23.5	24.2	24.4	26.2	28.9	31.3	34.2	36.9
Uzbekistan	69.8	85.9	92.7	99.7	110.5	122.9	131.2	135.0	138.9
Venezuela	70.1	78.3	85.8	85.4	84.1	89.7	99.6	111.1	121.2
Vietnam	56.7	71.5	88.7	101.7	108.1	115.1	121.1	127.8	134.8
Rest of Africa	940.0	940.4	985.9	1,143.9	1,251.3	1,307.0	1,348.5	1,412.9	1,483.6
Rest of Central and South	124.9	122.2	154.4	155.5	169.8	183.1	195.6	211.7	226.3
Rest of Middle East	63.3	79.6	89.0	87.3	92.3	103.3	102.1	111.6	117.1
Rest of Non-OECD Asia	118.0	132.0	136.2	148.4	158.2	173.2	189.3	212.4	240.3
Rest of Non-OECD Europe and	25.8	23.9	27.0	24.1	22.3	22.9	23.5	24.6	25.5
Africa	1,576.1	1,564.9	1,631.1	1,843.1	2,013.6	2,132.4	2,226.9	2,351.8	2,477.8
Central and South America	1,024.7	1,065.0	1,116.3	1,343.4	1,342.9	1,418.1	1,480.8	1,551.4	1,615.9
Middle East	312.6	341.6	460.6	486.0	534.2	580.6	644.2	702.8	760.7
OECD	2,835.3	2,883.9	2,851.8	2,790.3	2,897.9	3,100.6	3,330.9	3,615.9	3,836.6
Non-OECD Asia	2,434.1	2,692.3	2,749.3	3,185.5	3,410.7	3,692.8	4,125.1	4,670.3	5,308.9
Non-OECD Europe &	1,588.5	1,141.0	1,087.3	1,132.4	1,187.9	1,241.5	1,314.0	1,377.2	1,433.9
EU	1,181.8	1,067.9	979.2	907.2	861.3	886.4	912.8	948.8	983.4
OPEC	699.9	728.7	890.8	987.2	1,101.8	1,178.1	1,267.1	1,356.1	1,449.2
World Totals	9,771.2	9,668.7	9,896.5	10,780.7	11,387.3	12,166.0	13,121.9	14,269.4	15,433.8

Table A-2: Total CH₄ Emissions by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	3.6	2.5	2.4	2.1	2.0	2.0	2.1	2.1	2.1
Algeria	18.3	21.2	33.1	39.0	41.9	49.2	53.0	55.2	57.3
Argentina	80.4	85.2	87.8	92.0	96.2	101.4	105.9	110.6	115.3
Armenia	3.2	2.5	1.7	1.9	2.3	2.3	2.4	2.4	2.4
Australia	123.3	115.2	124.3	113.8	116.0	121.9	126.6	132.2	138.4
Austria	8.4	7.6	6.7	6.1	5.6	5.6	5.7	5.7	5.7
Azerbaijan	15.2	11.4	14.1	18.4	31.3	38.7	41.3	43.0	45.4
Bangladesh	37.9	39.4	42.0	44.1	47.5	51.0	55.4	60.4	66.0
Belarus	16.0	12.5	12.2	13.8	15.5	15.1	15.0	14.7	14.5
Belgium	10.0	9.6	8.3	6.8	6.3	6.3	6.3	6.2	6.1
Bolivia	19.7	19.2	18.2	22.8	24.0	25.0	26.0	27.1	28.1
Brazil	294.2	300.5	295.4	424.9	398.2	414.5	421.3	424.9	428.0
Bulgaria	15.4	12.0	10.9	9.8	9.3	9.1	8.9	8.7	8.6
Burma	86.2	94.3	71.7	81.1	87.1	90.9	95.2	99.8	104.7
Cambodia	8.6	10.1	9.6	13.9	14.3	15.0	15.5	16.0	16.7
Canada	74.6	104.2	96.5	102.0	108.1	117.3	122.6	129.2	135.5
Chile	12.7	13.3	11.3	12.1	12.6	13.3	13.9	14.6	15.2
China	727.1	798.7	767.8	879.0	920.6	955.8	998.6	1,049.7	1,094.1
Colombia	47.0	50.7	52.4	54.7	58.9	63.5	67.6	70.4	74.7
Congo (Kinshasa)	98.8	81.6	63.3	57.7	59.6	61.4	63.5	65.7	68.0
Croatia	3.5	2.9	2.7	3.1	3.1	3.0	3.0	3.0	2.9
Czech Republic	18.5	13.7	12.1	11.7	11.2	11.2	11.2	11.1	11.1
Denmark	5.7	6.0	5.9	5.8	5.6	5.6	5.6	5.7	5.7
Ecuador	10.8	13.0	12.2	13.2	13.3	14.0	14.4	14.9	15.4
Egypt	22.0	26.3	38.2	43.1	48.4	53.2	58.3	63.3	68.1
Estonia	3.1	1.9	2.0	2.0	2.0	1.9	1.9	1.8	1.8
Ethiopia	44.3	44.0	48.9	58.7	71.5	79.3	85.9	92.7	99.6
Finland	6.3	6.1	5.4	4.5	4.3	4.3	4.3	4.4	4.4
France	67.0	68.7	68.9	65.8	66.2	66.4	66.4	66.4	66.2
Georgia	11.8	5.1	6.8	5.8	5.1	5.2	5.2	5.3	5.3
Germany	105.6	90.0	72.1	57.2	42.6	39.7	37.6	36.2	34.9
Greece	9.9	10.0	10.0	9.2	7.8	7.4	7.0	6.7	6.6
Hungary	11.8	9.5	9.7	9.1	8.3	8.2	8.1	8.0	8.0
Iceland	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.6	0.6
India	397.1	419.1	435.2	460.1	487.8	513.6	541.5	573.1	604.1
Indonesia	189.4	199.6	199.0	220.0	234.7	247.7	259.6	272.1	287.6
Iran	46.9	57.0	75.7	85.3	88.7	90.3	91.4	94.8	99.2
Iraq	86.1	30.6	106.2	81.1	104.7	121.0	171.1	187.7	204.3
Ireland	13.6	13.9	13.4	13.0	12.3	12.8	12.7	12.7	12.7
Israel	7.0	8.4	8.9	6.6	7.3	7.9	8.4	8.9	9.3
Italy	43.8	44.2	45.8	41.0	37.1	36.8	36.7	36.5	36.3
Japan	32.1	29.8	25.8	22.7	21.1	20.5	20.0	19.3	18.7
Jordan	6.8	7.6	2.7	3.1	3.8	3.9	4.3	4.7	5.1
Kazakhstan	82.1	47.8	37.3	42.6	50.6	54.9	56.8	58.6	61.5
Kuwait	48.6	83.3	86.2	104.8	107.0	108.1	105.1	109.7	117.7
Kyrgyzstan	6.3	3.2	2.9	3.0	3.3	3.5	3.8	4.0	4.2
Laos	9.0	9.0	8.4	11.6	12.2	12.8	13.1	13.5	13.9
Latvia	3.8	2.2	1.9	2.0	2.0	2.0	2.0	2.0	1.9
Lithuania	6.4	3.8	3.4	3.7	3.6	3.5	3.5	3.4	3.3
Luxembourg	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Macedonia	1.7	1.8	1.7	2.0	2.0	2.1	2.1	2.1	2.2
Mexico	110.7	128.8	146.6	182.5	191.8	194.2	200.1	209.6	220.4
Moldova	4.9	4.0	3.3	3.0	2.9	3.0	3.0	3.0	3.0
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	6.8	7.2	7.1	6.8	9.4	11.2	13.7	17.1	21.8
Nepal	19.9	22.1	24.7	26.0	27.9	30.9	33.8	37.2	41.3
Netherlands	25.5	24.1	19.8	17.3	16.3	16.3	16.2	16.2	16.1
New Zealand	25.3	25.8	27.3	27.5	27.4	28.4	29.3	30.3	31.4
Nigeria	129.8	141.1	163.7	184.9	201.9	221.1	235.4	248.8	261.5
North Korea	21.7	17.0	15.4	17.2	18.6	20.0	21.6	23.5	25.4
Norway	4.6	4.9	4.7	4.4	4.2	4.2	4.2	4.3	4.4
Pakistan	60.2	67.1	77.8	89.0	106.8	117.7	128.7	140.9	154.8
Peru	13.5	14.8	20.0	20.4	21.6	23.1	24.3	25.7	27.0
Philippines	31.3	35.1	38.1	40.2	42.9	45.5	48.3	51.4	54.8
Poland	46.2	43.1	39.0	37.6	35.0	35.4	36.4	36.9	38.2
Portugal	10.2	11.3	11.8	13.2	13.1	13.3	13.3	13.4	13.4
Romania	44.1	33.3	27.2	27.0	26.2	25.8	25.4	25.3	25.4
Russia	624.1	476.1	465.8	493.3	506.6	516.9	555.2	571.6	586.2
Saudi Arabia	16.5	22.0	27.5	31.3	32.8	35.6	37.5	39.7	42.5
Senegal	5.6	6.5	7.5	7.5	8.2	9.0	9.7	10.4	11.2
Singapore	0.7	0.9	1.6	1.9	2.3	2.6	2.9	3.3	3.7
Slovakia	4.9	4.3	4.5	4.6	4.5	4.4	4.4	4.4	4.4
Slovenia	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.0
South Africa	46.4	46.6	49.2	52.2	53.8	55.0	55.8	57.2	58.6
South Korea	28.9	24.9	25.7	26.9	29.1	29.6	29.9	30.2	30.1
Spain	26.6	29.1	33.6	35.4	36.8	36.9	37.0	37.0	37.0
Sweden	7.1	7.0	6.5	6.0	5.2	5.0	4.9	5.0	5.0
Switzerland	4.8	4.3	3.9	3.8	3.8	3.8	3.8	3.7	3.7
Tajikistan	3.7	2.7	2.4	4.0	5.1	5.4	5.7	6.0	6.3
Thailand	50.6	54.3	61.3	67.6	73.7	76.4	79.3	82.3	86.0
Turkey	36.9	50.1	56.6	54.5	56.9	59.7	62.6	65.2	67.7
Turkmenistan	24.1	20.5	25.3	38.7	41.6	47.2	50.7	52.6	54.8
Uganda	8.3	9.0	8.9	11.4	11.4	11.9	12.5	13.1	13.7
Ukraine	151.3	95.2	77.8	77.0	73.9	74.1	74.4	74.1	74.5
United Arab Emirates	15.7	18.3	21.0	23.5	26.2	27.5	28.1	29.1	29.8
United Kingdom	110.4	90.4	67.0	48.8	46.1	44.8	43.6	42.9	42.1
United States	670.6	666.4	642.0	618.8	682.7	699.4	726.7	759.1	774.6
Uruguay	13.8	16.2	17.3	16.6	17.7	19.4	20.8	22.4	23.9
Uzbekistan	56.7	74.3	81.7	89.4	99.2	111.1	118.6	121.6	124.7
Venezuela	50.1	60.3	67.7	64.3	60.4	63.1	69.8	75.5	81.0
Vietnam	48.3	57.2	69.6	75.8	79.3	83.3	86.8	90.5	94.4
Rest of Africa	467.2	469.8	497.8	582.2	657.4	685.8	701.1	734.3	771.3
Rest of Central and South	76.1	78.8	91.4	86.2	94.0	100.4	105.9	111.9	117.6
Rest of Middle East	56.1	71.7	80.2	76.0	78.0	85.7	81.4	85.8	86.4
Rest of Non-OECD Asia	89.7	101.7	106.5	115.5	122.0	131.8	140.7	149.2	159.7
Rest of Non-OECD Europe and	14.0	13.5	15.2	14.4	13.4	13.5	13.5	13.5	13.5
Africa	840.6	845.9	910.5	1,036.7	1,154.1	1,226.0	1,275.2	1,340.8	1,409.4
Central and South America	605.5	638.7	662.6	795.3	784.2	824.3	856.2	883.4	911.2
Middle East	276.6	290.5	399.5	405.0	441.1	472.2	519.0	551.5	584.8
OECD	1,666.2	1,668.1	1,617.2	1,572.0	1,628.4	1,663.4	1,708.4	1,765.1	1,806.7
Non-OECD Asia	1,784.3	1,932.8	1,935.7	2,149.9	2,286.8	2,406.2	2,534.7	2,680.1	2,828.8
Non-OECD Europe &	1,095.2	829.2	798.9	856.9	900.9	940.3	994.3	1,018.7	1,044.6
EU	607.8	545.4	489.3	441.2	410.9	406.0	402.5	400.1	398.7
OPEC	543.1	566.2	718.9	785.8	884.6	939.9	1,007.1	1,062.4	1,124.8
World Totals	6,268.5	6,205.0	6,324.4	6,815.8	7,195.6	7,532.4	7,887.9	8,239.5	8,585.6

Table A-3: Total N₂O Emissions by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	1.2	0.9	1.1	0.7	0.7	0.7	0.7	0.8	0.8
Algeria	13.8	8.4	3.6	2.6	2.7	2.8	3.0	3.1	3.2
Argentina	56.3	62.0	71.1	77.3	79.8	85.8	89.8	93.2	96.5
Armenia	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3
Australia	33.5	31.4	45.5	34.9	34.9	36.0	36.7	37.4	38.2
Austria	6.3	6.6	6.3	5.4	5.7	6.0	6.0	6.1	6.1
Azerbaijan	2.5	1.8	1.9	2.3	2.5	2.5	2.6	2.7	2.8
Bangladesh	11.8	15.3	16.7	19.5	22.8	26.2	30.2	35.2	41.4
Belarus	20.2	13.6	14.4	14.4	14.6	14.7	14.7	14.8	14.8
Belgium	10.9	11.8	11.2	9.4	9.5	9.9	9.9	10.0	10.0
Bolivia	18.8	17.1	16.3	22.4	22.6	22.7	22.8	22.9	23.1
Brazil	210.8	218.2	215.5	283.8	275.3	284.3	289.2	293.4	297.6
Bulgaria	12.7	6.6	5.5	5.2	5.5	5.6	5.7	5.8	6.0
Burma	76.4	86.1	67.4	63.1	64.6	65.9	67.4	69.0	70.8
Cambodia	4.1	4.8	4.2	7.1	7.5	7.9	8.4	9.0	9.7
Canada	51.7	72.9	49.8	52.6	53.1	57.6	60.6	63.6	66.6
Chile	3.2	7.6	7.9	8.3	8.9	9.4	9.9	10.5	11.0
China	273.6	326.2	329.8	385.1	415.9	447.3	475.3	505.6	537.7
Colombia	30.7	34.9	39.4	40.7	42.7	45.1	46.9	48.7	50.3
Congo (Kinshasa)	138.4	130.0	111.5	108.4	108.5	108.7	108.8	109.0	109.2
Croatia	4.0	3.1	3.3	3.5	3.5	3.5	3.6	3.7	3.7
Czech Republic	13.5	9.1	8.7	8.5	7.9	8.0	8.1	8.1	8.2
Denmark	9.7	8.7	7.8	6.3	4.1	4.1	3.9	3.9	3.8
Ecuador	3.6	4.2	4.4	4.3	4.4	4.7	5.0	5.4	5.8
Egypt	14.5	17.6	19.5	20.0	22.5	24.7	26.7	28.8	30.9
Estonia	2.0	0.9	1.0	0.9	0.9	0.9	0.9	0.9	1.0
Ethiopia	29.2	27.4	29.7	36.7	44.7	49.4	53.3	57.3	61.5
Finland	12.2	12.1	10.9	9.1	9.1	9.7	9.8	10.0	10.1
France	89.8	87.0	75.3	67.5	69.8	75.5	76.0	76.6	77.0
Georgia	1.7	1.5	1.9	2.4	2.2	2.2	2.2	2.2	2.2
Germany	90.1	85.8	67.2	65.3	59.9	50.7	50.2	49.6	49.1
Greece	10.6	9.2	8.7	8.0	8.9	8.4	8.0	7.5	7.0
Hungary	12.8	7.4	8.3	8.8	6.9	7.0	7.1	7.2	7.2
Iceland	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.5	0.5
India	66.1	68.3	75.4	80.0	89.8	98.7	108.6	120.5	134.0
Indonesia	83.8	102.2	111.9	141.7	147.3	151.7	156.5	162.1	168.3
Iran	9.7	22.8	28.8	40.8	43.9	48.2	52.6	57.2	61.8
Iraq	3.6	3.4	3.6	3.0	3.3	3.7	4.1	4.5	4.9
Ireland	8.9	9.2	9.2	7.9	8.1	8.7	8.8	8.9	8.9
Israel	1.0	1.1	1.2	1.2	1.4	1.6	1.7	1.9	2.1
Italy	37.5	38.2	39.6	37.6	32.3	34.2	34.6	35.1	35.7
Japan	30.7	31.7	27.9	23.3	23.1	22.9	22.9	22.9	22.9
Jordan	0.4	0.6	0.5	0.6	0.7	0.8	0.9	1.0	1.2
Kazakhstan	27.4	12.0	8.7	11.0	12.3	13.0	13.8	14.8	15.8
Kuwait	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.5
Kyrgyzstan	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Laos	5.0	5.5	4.5	7.5	7.7	7.9	8.2	8.4	8.7
Latvia	3.8	1.5	1.4	1.6	1.7	1.7	1.7	1.7	1.8
Lithuania	6.9	3.0	4.1	5.3	3.6	3.7	3.7	3.8	3.8
Luxembourg	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Macedonia	1.4	1.3	1.0	0.7	0.7	0.7	0.8	0.8	0.8
Mexico	13.6	14.4	17.8	23.9	28.0	28.8	29.5	30.1	30.6
Moldova	3.4	2.0	1.4	1.5	1.3	1.2	1.2	1.2	1.3
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	5.2	5.5	5.5	4.1	6.1	7.7	9.8	12.7	16.9
Nepal	3.6	4.1	4.6	4.7	5.3	6.0	6.9	8.0	9.4
Netherlands	19.2	19.0	16.4	14.7	10.4	10.9	11.0	11.0	11.1
New Zealand	8.1	8.9	9.6	10.8	10.7	11.4	11.9	12.5	13.1
Nigeria	24.2	25.4	29.4	32.8	34.1	36.4	38.5	40.8	43.4
North Korea	12.4	8.5	7.5	8.1	7.9	8.8	9.9	11.1	12.6
Norway	5.4	5.1	5.3	5.2	4.7	4.9	5.0	5.1	5.1
Pakistan	26.0	31.9	35.3	41.9	46.7	50.3	53.7	57.3	61.2
Peru	17.3	15.4	13.9	11.0	11.6	12.3	12.9	13.7	14.5
Philippines	11.4	12.4	14.1	15.1	16.4	17.8	19.2	20.8	22.6
Poland	38.0	30.6	29.2	29.2	26.6	28.0	28.2	28.5	32.4
Portugal	5.5	5.5	6.2	5.9	5.5	5.7	5.7	5.8	5.8
Romania	33.9	24.7	19.7	22.3	23.1	23.9	24.4	25.0	25.7
Russia	237.7	145.2	131.1	114.1	119.4	119.4	120.7	122.1	123.5
Saudi Arabia	10.5	11.1	11.8	12.5	13.4	14.7	16.0	17.3	18.8
Senegal	4.2	4.5	5.7	6.5	7.1	7.6	8.0	8.6	9.2
Singapore	0.3	0.9	1.0	1.1	1.2	1.3	1.4	1.7	1.9
Slovakia	6.3	4.1	3.5	3.8	1.8	1.8	1.9	2.0	2.1
Slovenia	1.3	1.2	1.3	1.2	1.2	1.3	1.3	1.4	1.5
South Africa	26.0	22.2	18.6	16.1	17.4	18.2	18.8	19.5	19.7
South Korea	13.4	14.6	16.9	18.1	21.4	23.9	26.7	30.1	33.8
Spain	28.6	27.1	33.0	28.9	28.8	30.7	30.9	31.2	31.5
Sweden	8.1	8.0	7.5	7.1	7.0	6.7	6.5	6.2	6.0
Switzerland	3.6	3.4	3.2	3.1	3.3	3.4	3.5	3.5	3.5
Tajikistan	3.0	2.4	2.0	1.9	2.5	2.6	2.9	3.1	3.4
Thailand	23.8	21.0	14.5	12.9	14.1	14.9	15.8	16.8	17.8
Turkey	26.1	29.1	28.8	25.8	26.1	28.5	30.8	33.1	35.5
Turkmenistan	0.5	0.9	1.1	1.9	2.2	2.3	2.4	2.6	2.7
Uganda	8.7	8.8	8.7	11.8	12.7	13.4	14.0	14.7	15.5
Ukraine	58.9	38.5	26.0	26.2	29.3	30.1	30.7	31.2	31.8
United Arab Emirates	2.8	3.5	4.0	5.7	6.9	8.0	9.4	11.0	12.8
United Kingdom	66.9	55.5	44.1	38.8	39.2	41.8	42.3	42.8	43.2
United States	315.9	338.6	331.6	315.7	349.3	382.1	405.3	428.8	452.6
Uruguay	6.9	7.3	6.8	7.5	8.0	8.8	9.5	10.3	11.0
Uzbekistan	13.0	11.5	10.8	10.0	10.9	11.3	11.7	12.2	12.7
Venezuela	14.4	14.1	15.4	17.5	18.2	19.4	20.3	21.3	22.3
Vietnam	8.4	14.2	19.0	25.6	28.2	30.7	32.8	35.1	37.6
Rest of Africa	471.8	469.7	487.0	559.1	589.9	614.9	638.6	664.2	693.2
Rest of Central and South	48.6	43.1	61.9	66.9	71.4	76.3	80.7	85.5	90.4
Rest of Middle East	7.1	7.7	8.3	9.9	11.4	12.7	14.2	15.7	17.4
Rest of Non-OECD Asia	28.2	30.1	28.6	29.9	31.3	32.9	34.7	36.8	39.2
Rest of Non-OECD Europe and	10.3	8.7	9.7	7.9	7.5	7.7	7.8	8.0	8.1
Africa	730.9	713.9	713.8	794.0	839.6	876.1	909.9	945.9	985.7
Central and South America	407.3	416.3	444.7	531.4	534.0	559.4	577.2	594.5	611.4
Middle East	34.3	49.2	57.2	72.7	80.0	88.5	97.5	107.2	117.3
OECD	982.9	995.8	940.9	887.0	908.5	960.7	995.6	1,032.1	1,072.8
Non-OECD Asia	640.3	737.0	740.1	847.2	912.7	976.0	1,038.8	1,110.1	1,190.0
Non-OECD Europe &	444.9	280.6	246.5	234.3	244.7	248.2	252.9	258.0	263.2
EU	535.9	473.6	427.0	399.4	378.3	385.7	387.5	389.8	395.8
OPEC	149.6	156.7	165.3	189.5	197.6	209.1	220.4	232.5	245.2
World Totals	3,240.7	3,192.9	3,143.3	3,366.6	3,519.6	3,709.0	3,871.9	4,047.7	4,240.4

Table A-4: Total F-GHG Emissions by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Algeria	0.0	0.1	0.4	1.1	3.1	5.5	7.0	9.8	11.9
Argentina	1.7	0.7	1.1	2.2	3.3	4.6	6.8	9.5	11.4
Armenia	0.0	0.0	0.1	0.2	0.3	0.4	0.6	0.9	1.2
Australia	5.3	3.5	4.8	7.5	8.7	11.9	14.7	18.5	20.9
Austria	1.4	1.2	1.1	1.3	1.6	1.9	2.3	2.7	2.9
Azerbaijan	0.0	0.0	0.0	0.2	0.3	0.4	0.6	0.8	1.0
Bangladesh	0.0	0.0	0.0	0.2	0.5	0.9	1.1	1.5	1.8
Belarus	0.0	0.0	0.1	0.1	0.2	0.3	0.5	0.7	0.9
Belgium	0.0	0.4	1.0	1.4	1.7	2.3	3.1	4.2	5.5
Bolivia	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Brazil	4.2	4.9	3.4	6.5	8.7	12.1	16.8	26.8	34.5
Bulgaria	0.0	0.1	0.2	0.3	0.5	0.8	1.0	1.5	1.8
Burma	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Cambodia	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.4	0.6
Canada	7.8	8.2	11.6	13.3	12.6	16.8	21.4	27.9	31.4
Chile	0.0	0.1	0.2	0.6	0.9	1.3	1.7	2.7	3.4
China	5.3	11.9	49.0	137.7	153.4	225.7	403.1	669.2	1,012.9
Colombia	0.1	0.1	0.5	1.3	1.3	1.7	2.4	3.9	5.0
Congo (Kinshasa)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Croatia	0.9	0.0	0.1	0.3	0.6	0.9	1.1	1.6	1.9
Czech Republic	0.1	0.1	0.4	0.6	1.0	1.4	1.8	2.6	3.1
Denmark	0.0	0.3	0.7	1.0	1.1	1.4	1.8	2.3	2.5
Ecuador	0.0	0.0	0.1	0.2	0.4	0.6	0.8	1.2	1.5
Egypt	2.5	1.7	1.5	2.0	2.4	3.2	4.4	6.7	8.4
Estonia	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Ethiopia	-	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2
Finland	0.1	0.2	0.3	0.4	0.5	0.7	0.9	1.1	1.2
France	6.6	6.7	9.7	11.0	11.4	14.7	18.7	23.2	25.8
Georgia	0.0	0.0	0.1	0.3	0.4	0.6	0.8	1.4	1.9
Germany	6.5	8.0	10.4	14.3	16.0	20.6	27.1	36.0	46.6
Greece	1.2	3.5	4.3	2.8	0.8	1.0	1.4	1.8	2.2
Hungary	0.3	0.3	0.7	1.1	1.5	2.1	2.7	3.5	4.1
Iceland	0.4	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2
India	2.6	8.7	19.3	38.6	37.8	52.7	98.5	120.8	144.2
Indonesia	1.0	0.8	0.6	1.1	1.7	2.7	3.7	5.5	7.2
Iran	0.4	0.5	0.8	1.7	2.4	3.3	4.6	7.2	9.4
Iraq	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2
Ireland	0.0	0.2	0.6	0.7	0.5	0.7	0.8	1.0	1.1
Israel	0.1	0.7	3.3	5.8	7.6	11.0	15.0	23.0	28.5
Italy	2.4	3.6	6.5	9.3	10.3	13.6	17.7	22.6	26.4
Japan	31.0	42.3	50.0	48.8	49.2	62.0	79.1	102.5	123.9
Jordan	0.0	0.0	0.1	0.3	0.5	0.9	1.2	1.7	2.2
Kazakhstan	0.2	0.4	0.3	0.7	0.9	1.0	1.2	1.5	1.7
Kuwait	0.0	0.1	0.4	1.0	1.7	2.7	4.1	7.5	10.6
Kyrgyzstan	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Laos	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Latvia	0.0	0.1	0.2	0.3	0.6	0.8	1.1	1.8	2.2
Lithuania	0.0	0.0	0.1	0.4	0.6	0.9	1.2	1.9	2.4
Luxembourg	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Macedonia	0.0	0.0	0.2	0.5	1.0	1.5	2.0	2.9	3.4
Mexico	5.3	3.5	7.9	17.5	19.1	26.6	44.2	54.4	61.6
Moldova	0.0	0.0	0.1	0.1	0.2	0.3	0.4	0.6	0.8
Monaco	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Nepal	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2
Netherlands	6.9	8.5	5.6	2.6	2.9	3.7	4.8	6.3	8.0
New Zealand	0.6	0.3	0.5	0.9	1.2	1.6	2.0	2.5	2.8
Nigeria	0.0	0.0	0.1	0.2	0.2	0.4	0.7	1.3	1.9
North Korea	0.1	0.1	0.2	0.6	1.1	1.8	3.2	6.5	9.9
Norway	5.6	2.6	2.5	1.6	1.0	1.2	1.7	2.3	3.2
Pakistan	0.1	0.1	0.2	0.7	1.0	1.5	2.1	3.5	4.5
Peru	0.0	0.0	0.2	0.4	0.6	0.9	1.2	2.0	2.6
Philippines	0.0	0.2	0.8	2.1	3.4	5.0	7.7	13.5	18.9
Poland	0.2	0.5	1.1	2.1	3.1	4.5	5.9	7.8	9.0
Portugal	0.0	0.1	0.3	0.5	0.6	0.8	1.0	1.3	1.4
Romania	2.1	1.8	1.5	0.4	0.5	0.7	0.9	1.3	1.5
Russia	41.9	25.5	35.6	33.4	32.6	39.8	49.7	75.5	95.4
Saudi Arabia	0.1	0.2	0.9	2.5	4.1	6.1	8.7	13.7	17.8
Senegal	-	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.3
Singapore	0.2	0.3	1.3	1.7	2.3	3.6	5.8	10.6	17.1
Slovakia	0.3	0.2	0.1	0.3	0.4	0.6	0.7	1.0	1.2
Slovenia	0.3	0.1	0.2	0.4	0.5	0.6	0.8	1.1	1.3
South Africa	1.1	2.4	3.5	6.4	9.9	14.7	20.5	32.3	40.8
South Korea	1.2	4.2	13.5	21.8	23.2	31.9	45.9	73.0	94.5
Spain	3.4	6.6	9.3	4.4	5.1	6.5	8.4	10.9	13.1
Sweden	0.5	0.7	0.9	1.4	1.2	1.5	2.0	2.5	2.8
Switzerland	0.2	0.2	0.5	0.8	1.0	1.3	1.6	2.0	2.3
Tajikistan	0.0	0.7	0.6	0.5	0.3	0.3	0.3	0.4	0.4
Thailand	0.1	0.2	0.9	2.3	4.2	6.9	10.8	19.8	28.5
Turkey	0.8	0.8	1.1	1.9	2.2	2.8	3.6	5.4	6.9
Turkmenistan	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Uganda	-	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Ukraine	1.3	0.7	0.5	1.1	1.3	1.7	2.1	3.0	3.7
United Arab Emirates	0.8	0.8	1.1	1.2	1.4	1.9	2.5	3.7	5.0
United Kingdom	5.7	5.5	7.6	9.2	9.5	12.3	15.7	19.2	21.1
United States	91.8	106.8	136.6	145.8	164.6	217.1	277.8	353.0	398.0
Uruguay	0.0	0.0	0.1	0.3	0.5	0.7	1.0	1.5	2.0
Uzbekistan	0.1	0.1	0.1	0.3	0.5	0.6	0.8	1.2	1.5
Venezuela	5.6	3.9	2.7	3.5	5.5	7.3	9.5	14.3	17.9
Vietnam	0.0	0.0	0.1	0.3	0.7	1.1	1.5	2.1	2.7
Rest of Africa	1.1	0.9	1.1	2.7	4.0	6.2	8.8	14.4	19.1
Rest of Central and South	0.2	0.3	1.0	2.4	4.4	6.4	8.9	14.3	18.3
Rest of Middle East	0.1	0.2	0.6	1.4	2.9	4.8	6.5	10.1	13.3
Rest of Non-OECD Asia	0.1	0.2	1.1	3.0	5.0	8.5	13.9	26.4	41.4
Rest of Non-OECD Europe and	1.5	1.7	2.1	1.9	1.4	1.8	2.2	3.2	3.9
Africa	4.7	5.1	6.7	12.4	19.8	30.3	41.7	65.0	82.8
Central and South America	11.8	10.0	9.0	16.8	24.7	34.4	47.4	73.6	93.3
Middle East	1.6	1.9	3.9	8.2	13.1	19.9	27.7	44.1	58.5
OECD	186.1	220.0	293.7	331.3	361.0	476.5	626.9	818.8	957.0
Non-OECD Asia	9.4	22.5	73.6	188.4	211.2	310.6	551.6	880.1	1,290.1
Non-OECD Europe &	48.4	31.3	41.9	41.2	42.2	53.0	66.9	100.6	126.1
EU	38.1	48.9	63.0	66.6	72.1	94.6	122.8	158.9	188.9
OPEC	7.2	5.8	6.6	11.9	19.6	29.1	39.5	61.2	79.2
World Totals	262.1	290.9	428.8	598.2	672.1	924.6	1,362.2	1,982.1	2,607.8

Appendix B: Energy Sector Emissions

Table B-1: Total Non-CO₂ Emissions from the Energy Sector by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	1.8	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.4
Algeria	10.8	12.7	21.2	26.2	28.2	34.5	37.3	38.5	39.6
Argentina	9.6	12.5	13.5	14.4	15.4	15.7	17.0	19.1	21.7
Armenia	1.8	1.1	0.5	0.6	0.6	0.7	0.8	0.8	0.8
Australia	28.8	29.0	31.7	32.6	37.3	40.1	42.2	45.3	48.9
Austria	1.2	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.5
Azerbaijan	9.5	6.7	8.7	12.1	24.6	31.8	34.3	36.0	38.4
Bangladesh	2.2	2.3	2.4	2.7	2.8	2.8	2.9	2.9	3.0
Belarus	2.0	1.7	1.9	2.1	2.2	2.2	2.3	2.4	2.4
Belgium	1.9	1.7	1.7	1.6	2.1	2.2	2.3	2.3	2.4
Bolivia	1.2	2.0	1.0	2.3	2.7	2.8	3.0	3.4	3.7
Brazil	17.8	15.8	16.6	22.2	25.4	29.0	32.8	35.9	39.3
Bulgaria	3.0	2.6	2.3	2.4	2.7	2.8	2.9	3.0	3.1
Burma	3.5	3.6	4.4	7.7	8.2	8.9	9.4	9.9	10.5
Cambodia	0.7	1.5	1.6	1.8	2.0	2.2	2.4	2.7	3.0
Canada	43.9	55.6	64.9	65.2	71.4	79.3	83.5	89.2	94.9
Chile	4.4	4.4	3.5	4.0	4.3	4.6	5.0	5.5	6.0
China	251.3	290.1	249.0	384.8	431.0	463.3	505.0	559.0	612.4
Colombia	7.6	8.2	8.4	10.9	13.4	15.3	17.6	18.7	21.7
Congo (Kinshasa)	6.1	6.1	5.6	5.9	6.5	6.7	7.0	7.3	7.6
Croatia	1.6	1.4	1.3	1.6	1.3	1.3	1.3	1.3	1.3
Czech Republic	10.7	7.9	7.0	7.0	6.7	6.6	6.6	6.5	6.6
Denmark	0.6	0.9	1.0	1.0	1.0	1.0	1.0	1.1	1.1
Ecuador	1.2	1.4	1.5	1.7	1.8	1.7	1.8	1.9	2.0
Egypt	8.5	6.4	9.8	12.5	13.5	15.0	16.6	18.0	19.0
Estonia	1.3	0.8	0.9	0.9	1.0	0.9	0.9	1.0	1.0
Ethiopia	8.3	9.7	12.3	14.3	16.2	17.3	18.6	20.0	21.6
Finland	1.3	1.4	1.3	1.3	1.4	1.5	1.5	1.6	1.6
France	14.5	14.6	11.9	9.0	8.4	8.6	8.9	9.3	9.7
Georgia	6.2	1.2	2.6	1.4	1.2	1.3	1.4	1.5	1.5
Germany	38.2	29.5	25.6	21.6	20.4	19.9	19.5	19.8	20.2
Greece	2.3	2.4	2.7	2.8	2.7	2.6	2.6	2.6	2.6
Hungary	3.2	3.0	3.0	2.9	2.5	2.5	2.5	2.5	2.6
Iceland	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
India	94.9	106.2	124.8	143.7	162.8	181.3	203.4	231.0	261.1
Indonesia	56.8	65.3	69.9	66.1	72.6	79.5	86.0	92.8	102.6
Iran	29.5	36.5	40.6	50.5	53.9	55.1	56.0	59.4	64.3
Iraq	78.5	22.7	97.7	71.5	94.1	109.2	157.8	172.9	187.9
Ireland	0.8	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6
Israel	0.2	0.4	0.4	0.7	0.9	1.0	1.1	1.2	1.3
Italy	13.4	13.7	13.4	12.4	12.3	12.4	12.5	12.8	13.1
Japan	12.2	13.0	13.1	11.7	10.8	10.3	9.9	9.4	9.1
Jordan	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.5
Kazakhstan	48.8	27.2	22.5	24.5	30.7	34.0	34.8	35.4	36.9
Kuwait	48.0	82.7	85.5	104.0	106.0	106.9	103.8	108.2	115.9
Kyrgyzstan	1.8	0.6	0.5	0.6	0.5	0.6	0.7	0.7	0.8
Laos	0.5	0.5	0.6	0.7	0.9	1.0	1.2	1.4	1.7
Latvia	0.7	0.6	0.5	0.5	0.6	0.6	0.7	0.7	0.7
Lithuania	0.7	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.7
Luxembourg	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Macedonia	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4
Mexico	37.4	41.6	46.7	58.4	50.7	44.3	42.2	44.1	48.2
Moldova	1.3	0.7	0.6	0.8	1.0	1.1	1.2	1.2	1.3

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mongolia	0.5	0.4	0.5	0.6	0.7	0.8	1.0	1.1	1.3
Nepal	2.7	4.0	5.7	6.0	6.6	7.2	8.0	8.9	10.0
Netherlands	2.9	3.3	2.5	2.4	2.7	2.7	2.8	2.8	2.8
New Zealand	1.1	1.1	1.5	1.2	1.5	1.6	1.7	1.8	1.9
Nigeria	55.3	51.7	61.7	72.7	72.4	83.2	89.4	94.8	99.5
North Korea	19.2	15.2	14.4	16.1	17.1	18.7	20.8	23.3	25.7
Norway	1.0	1.3	1.4	1.4	1.3	1.3	1.3	1.3	1.3
Pakistan	10.4	12.3	14.4	17.5	19.8	21.7	23.3	24.7	26.5
Peru	2.0	2.0	1.8	1.9	2.2	2.3	2.5	2.7	3.0
Philippines	4.2	5.1	5.2	5.1	5.4	6.2	7.2	8.5	10.1
Poland	20.5	21.8	19.0	18.5	17.2	17.6	18.1	18.2	19.2
Portugal	1.0	1.1	1.3	1.2	1.2	1.3	1.4	1.5	1.6
Romania	26.1	20.1	14.8	14.2	13.6	13.4	13.2	13.3	13.6
Russia	448.3	349.2	345.8	382.2	389.8	402.4	443.6	462.9	480.8
Saudi Arabia	2.1	4.9	7.7	9.1	8.7	9.6	10.0	10.5	11.3
Senegal	1.2	1.3	1.9	2.5	2.7	2.9	3.1	3.4	3.6
Singapore	0.1	0.2	0.8	0.9	1.0	1.2	1.4	1.5	1.7
Slovakia	1.8	1.7	1.7	1.5	1.5	1.5	1.5	1.6	1.6
Slovenia	0.7	0.7	0.6	0.6	0.6	0.7	0.7	0.8	0.8
South Africa	10.9	12.4	13.1	15.0	15.3	16.1	16.6	17.8	18.9
South Korea	10.2	8.2	8.9	9.4	11.5	12.3	12.6	13.0	13.1
Spain	5.2	5.6	6.3	6.2	6.0	6.0	6.1	6.3	6.4
Sweden	1.8	1.9	1.8	1.8	1.8	1.9	2.0	2.1	2.3
Switzerland	1.0	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7
Tajikistan	1.0	0.4	0.2	0.2	0.3	0.3	0.3	0.4	0.4
Thailand	4.6	6.8	11.1	14.1	15.9	17.9	19.9	22.1	25.0
Turkey	8.6	8.6	8.5	7.0	7.6	7.6	7.8	8.0	8.2
Turkmenistan	20.2	17.1	21.9	28.6	31.3	36.1	38.7	39.7	40.9
Uganda	2.6	3.4	3.4	3.7	4.1	4.4	4.8	5.2	5.6
Ukraine	94.4	57.7	55.4	56.4	55.8	57.0	58.2	59.0	60.4
United Arab Emirates	16.1	18.2	20.2	23.8	26.8	28.5	29.6	31.5	33.5
United Kingdom	37.6	30.4	22.2	16.5	13.1	12.5	12.0	11.9	11.8
United States	378.6	378.1	379.4	337.8	369.3	382.6	406.9	435.4	447.5
Uruguay	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Uzbekistan	46.7	63.3	70.5	76.7	85.1	96.2	103.1	105.3	107.8
Venezuela	28.5	36.9	42.4	36.4	30.9	31.3	36.2	40.0	43.7
Vietnam	8.3	11.1	13.6	19.6	21.8	23.1	24.5	26.1	28.0
Rest of Africa	162.0	170.5	182.8	245.4	308.6	318.6	318.7	335.7	355.8
Rest of Central and South	7.0	8.0	10.4	11.5	12.4	13.0	13.9	15.1	16.6
Rest of Middle East	44.0	58.6	64.6	58.2	57.9	63.9	57.6	59.9	58.5
Rest of Non-OECD Asia	23.2	30.3	36.0	37.4	38.0	41.7	44.4	46.7	51.0
Rest of Non-OECD Europe and	3.7	3.5	4.2	4.4	3.3	3.5	3.6	3.7	3.9
Africa	265.8	274.2	311.9	398.2	467.6	498.8	512.0	540.7	571.3
Central and South America	75.0	86.9	95.8	101.5	104.3	111.3	125.0	137.0	151.9
Middle East	218.5	223.8	316.5	317.4	347.7	373.6	415.2	442.9	471.8
OECD	687.3	685.8	685.9	640.8	671.2	689.2	719.1	760.8	789.9
Non-OECD Asia	483.2	555.0	554.3	725.0	806.6	877.8	960.9	1,062.7	1,173.7
Non-OECD Europe &	720.9	556.9	556.2	611.4	646.6	687.5	743.2	769.6	797.7
EU	191.7	168.4	144.0	129.3	122.3	121.9	122.5	124.4	127.9
OPEC	344.7	350.0	466.8	515.5	590.4	629.2	681.6	722.6	771.5
World Totals	2,450.8	2,382.7	2,520.7	2,794.3	3,044.1	3,238.2	3,475.5	3,713.6	3,956.3

Table B-2: CH₄ Emissions from Natural Gas and Oil Systems by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Algeria	10.6	12.4	20.9	25.8	27.8	34.1	36.8	38.0	39.0
Argentina	8.3	10.2	10.8	11.6	12.2	12.2	13.1	14.8	16.9
Armenia	1.7	1.1	0.5	0.6	0.6	0.7	0.7	0.8	0.8
Australia	7.0	7.0	5.9	4.9	5.3	5.6	6.0	6.2	6.5
Austria	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Azerbaijan	9.3	6.5	8.5	11.9	24.4	31.6	34.1	35.7	38.0
Bangladesh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belarus	1.2	1.2	1.5	1.6	1.7	1.6	1.7	1.7	1.8
Belgium	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5
Bolivia	0.7	1.6	0.7	1.9	2.2	2.3	2.4	2.7	3.0
Brazil	1.0	1.0	1.6	3.1	4.0	5.6	7.3	8.2	9.1
Bulgaria	0.7	0.6	0.5	0.6	0.6	0.6	0.6	0.7	0.7
Burma	0.9	0.9	1.5	4.4	4.8	5.5	5.9	6.3	6.9
Cambodia	-	-	-	-	-	-	-	-	-
Canada	28.7	39.2	46.0	46.8	53.3	60.9	64.8	70.1	75.3
Chile	2.4	2.1	1.3	1.8	1.7	1.8	2.0	2.2	2.3
China	2.4	2.7	3.1	3.7	4.2	4.1	4.2	4.4	4.7
Colombia	2.4	2.7	3.3	4.1	4.2	4.0	4.3	4.9	5.8
Congo (Kinshasa)	1.1	1.1	1.0	0.7	0.9	0.9	0.9	1.0	1.0
Croatia	1.2	1.1	1.1	1.3	1.1	1.0	1.0	1.0	1.0
Czech Republic	0.9	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6
Denmark	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ecuador	0.4	0.6	0.6	0.8	0.8	0.6	0.6	0.6	0.6
Egypt	3.1	3.4	9.3	11.9	12.9	14.3	15.8	17.2	18.2
Estonia	0.8	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5
Ethiopia	-	-	-	-	-	-	-	-	-
Finland	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
France	1.6	1.3	1.3	1.2	1.1	1.1	1.1	1.2	1.2
Georgia	3.7	0.8	2.4	1.2	1.0	1.2	1.2	1.3	1.3
Germany	7.6	7.9	7.8	7.7	7.2	6.9	6.5	6.6	6.7
Greece	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Hungary	1.5	2.0	2.0	2.0	1.7	1.7	1.7	1.7	1.7
Iceland	-	-	-	-	-	-	-	-	-
India	11.8	12.8	13.9	14.9	17.3	20.1	22.6	25.7	25.9
Indonesia	36.9	42.5	41.7	33.8	33.9	36.6	38.0	38.6	40.9
Iran	25.7	31.6	36.0	44.8	47.2	47.3	46.8	49.0	52.2
Iraq	78.5	22.7	97.7	71.5	94.1	109.2	157.8	172.9	187.9
Ireland	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Israel	0.0	0.1	0.1	0.4	0.5	0.6	0.6	0.7	0.7
Italy	7.3	6.8	6.4	5.6	5.4	5.3	5.3	5.4	5.5
Japan	0.2	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.5
Jordan	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Kazakhstan	9.1	5.4	3.3	5.8	7.0	9.1	9.8	10.3	11.0
Kuwait	48.0	82.7	85.5	104.0	106.0	106.9	103.8	108.2	115.9
Kyrgyzstan	1.1	0.4	0.3	0.4	0.3	0.3	0.4	0.4	0.4
Laos	-	-	-	-	-	-	-	-	-
Latvia	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2
Lithuania	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Luxembourg	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Macedonia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mexico	30.6	34.0	38.3	42.9	33.3	27.3	25.4	27.1	30.8
Moldova	0.7	0.6	0.5	0.7	0.8	0.9	1.0	1.0	1.0
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	-	-	-	-	-	-	-	-	-
Nepal	-	-	-	-	-	-	-	-	-
Netherlands	1.6	1.6	0.8	0.8	0.7	0.7	0.7	0.7	0.7
New Zealand	0.5	0.5	0.7	0.5	0.7	0.7	0.8	0.8	0.9
Nigeria	17.3	19.2	21.9	27.7	25.8	33.2	35.7	37.1	37.5
North Korea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Norway	0.3	0.6	0.7	0.7	0.5	0.5	0.4	0.4	0.4
Pakistan	3.9	5.0	6.3	7.9	10.0	11.6	12.7	13.7	15.0
Peru	0.1	0.2	0.4	0.5	0.6	0.6	0.6	0.7	0.8
Philippines	0.0	0.0	-	0.1	0.1	0.1	0.1	0.1	0.1
Poland	3.1	3.2	3.5	4.3	4.2	4.4	4.9	4.9	5.7
Portugal	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Romania	21.4	14.6	10.8	10.2	9.3	8.8	8.5	8.4	8.5
Russia	357.3	290.9	296.5	328.5	332.0	341.9	382.8	401.8	417.9
Saudi Arabia	1.6	4.2	6.9	8.2	7.6	8.3	8.4	8.7	9.2
Senegal	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Singapore	-	0.0	0.6	0.7	0.8	1.0	1.1	1.2	1.3
Slovakia	0.5	0.6	0.7	0.7	0.7	0.7	0.7	0.8	0.8
Slovenia	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	0.0	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
South Korea	0.3	1.8	3.3	5.7	7.8	8.5	8.9	9.3	9.3
Spain	0.6	0.8	0.7	0.9	0.9	0.9	0.9	0.9	1.0
Sweden	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Switzerland	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Tajikistan	0.8	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Thailand	2.4	3.9	4.6	6.5	7.4	8.1	8.6	8.9	9.5
Turkey	1.1	1.2	1.2	1.6	1.7	1.7	1.7	1.7	1.7
Turkmenistan	20.1	17.1	21.9	28.5	31.1	35.9	38.6	39.5	40.7
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	32.0	24.2	22.3	24.4	23.7	23.2	24.3	24.9	25.2
United Arab Emirates	13.5	15.0	16.5	18.7	20.5	21.0	20.8	21.2	21.4
United Kingdom	10.3	9.7	8.0	5.8	4.1	3.7	3.3	3.2	3.2
United States	225.2	231.8	240.8	219.8	247.8	258.3	281.6	307.2	313.1
Uruguay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uzbekistan	45.7	62.8	70.0	76.3	84.7	95.8	102.7	104.9	107.3
Venezuela	28.0	36.3	41.7	35.7	30.2	30.5	35.3	39.0	42.6
Vietnam	0.1	0.7	3.2	4.3	4.1	4.4	4.4	4.4	4.6
Rest of Africa	74.5	82.3	101.4	153.6	206.8	209.5	201.4	209.3	219.1
Rest of Central and South	0.2	0.7	1.8	1.9	2.1	2.1	2.2	2.5	3.0
Rest of Middle East	43.1	57.4	63.2	56.4	55.6	61.2	54.5	56.3	54.2
Rest of Non-OECD Asia	19.8	26.4	30.6	31.6	31.6	34.4	35.8	36.5	38.8
Rest of Non-OECD Europe and	1.7	2.0	1.6	1.6	0.4	0.5	0.5	0.5	0.6
Africa	106.5	118.6	154.7	220.1	274.5	292.2	291.1	302.9	315.1
Central and South America	41.2	53.3	60.9	59.6	56.3	57.8	65.8	73.6	81.8
Middle East	210.4	213.8	305.9	303.7	331.1	354.1	392.4	416.5	441.0
OECD	333.0	354.6	372.0	356.6	381.2	393.9	420.0	453.9	470.2
Non-OECD Asia	78.2	94.9	105.3	108.1	114.4	125.9	133.5	139.9	147.7
Non-OECD Europe &	509.0	430.5	442.6	494.7	519.9	554.3	608.9	633.9	657.1
EU	59.7	51.9	45.4	42.7	38.9	37.7	37.1	37.4	38.5
OPEC	296.4	305.1	413.7	453.7	523.8	556.2	601.4	634.6	674.3
World Totals	1,278.3	1,265.8	1,441.5	1,542.7	1,677.3	1,778.3	1,911.8	2,020.6	2,112.9

Table B-3: CH₄ Emissions from Coal Mining Activities by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	0.78	0.06	0.01	0.03	0.04	0.05	0.05	0.05	0.05
Algeria	0.0	0.0	-	-	-	-	-	-	-
Argentina	0.2	0.3	0.2	0.0	0.1	0.1	0.2	0.2	0.2
Armenia	-	-	-	-	-	-	-	-	-
Australia	17.8	17.4	20.8	22.8	27.2	29.6	31.1	33.7	36.6
Austria	0.0	0.0	0.0	0.0	-	-	-	-	-
Azerbaijan	-	-	-	-	-	-	-	-	-
Bangladesh	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	-	-	-	-	-	-
Belgium	0.3	0.0	0.0	0.0	-	-	-	-	-
Bolivia	-	-	-	-	-	-	-	-	-
Brazil	1.1	0.9	0.9	1.0	1.1	1.5	1.8	1.8	2.1
Bulgaria	1.6	1.5	1.3	1.2	1.5	1.5	1.5	1.5	1.5
Burma	0.0	0.0	0.1	0.3	0.3	0.3	0.4	0.4	0.5
Cambodia	-	-	-	-	-	-	-	-	-
Canada	2.2	1.6	1.0	1.0	0.9	1.0	1.0	1.0	1.1
Chile	0.4	0.2	0.1	0.0	0.1	0.2	0.2	0.2	0.2
China	126.1	162.3	134.7	257.1	295.5	321.2	354.1	396.7	435.7
Colombia	1.9	2.3	3.3	5.1	7.3	9.3	11.2	11.4	13.3
Congo (Kinshasa)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Croatia	0.0	0.0	-	-	-	-	-	-	-
Czech Republic	7.6	5.8	5.0	4.7	4.4	4.2	4.2	4.1	4.0
Denmark	-	-	-	-	-	-	-	-	-
Ecuador	-	-	-	-	-	-	-	-	-
Egypt	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Estonia	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3
Ethiopia	-	-	-	-	-	-	-	-	-
Finland	-	-	-	-	-	-	-	-	-
France	4.0	4.1	2.4	-	-	-	-	-	-
Georgia	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Germany	18.4	12.6	9.7	5.7	3.7	3.5	3.5	3.4	3.4
Greece	1.1	1.2	1.3	1.5	1.4	1.3	1.3	1.3	1.3
Hungary	0.7	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Iceland	-	-	-	-	-	-	-	-	-
India	11.2	13.9	14.9	15.9	18.9	20.7	23.0	25.8	28.4
Indonesia	0.1	0.5	1.0	2.3	4.0	4.4	4.9	5.5	6.1
Iran	0.3	0.3	0.1	0.1	0.1	0.2	0.4	0.2	0.2
Iraq	-	-	-	-	-	-	-	-	-
Ireland	0.0	0.0	-	-	-	-	-	-	-
Israel	-	-	-	-	-	-	-	-	-
Italy	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Japan	2.8	1.3	0.8	0.1	0.0	0.1	0.1	0.1	0.1
Jordan	-	-	-	-	-	-	-	-	-
Kazakhstan	37.4	20.4	18.3	17.5	22.3	23.3	23.1	22.9	23.4
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Laos	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Latvia	-	-	-	-	-	-	-	-	-
Lithuania	-	-	-	-	-	-	-	-	-
Luxembourg	-	-	-	-	-	-	-	-	-
Macedonia	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Mexico	1.3	1.4	1.7	2.2	2.4	1.8	1.6	1.6	1.8
Moldova	0.1	0.0	-	-	-	-	-	-	-
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3
Nepal	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Netherlands	-	-	-	-	-	-	-	-	-
New Zealand	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5
Nigeria	10.3	2.3	0.3	0.9	1.0	1.0	1.0	1.1	1.2
North Korea	12.7	8.6	8.2	9.5	11.1	12.1	13.5	15.1	16.6
Norway	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Pakistan	0.8	0.9	1.0	1.5	1.1	1.2	1.4	1.5	1.7
Peru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Philippines	0.2	0.2	0.2	0.4	0.4	0.4	0.5	0.5	0.6
Poland	13.1	12.6	11.0	9.6	7.9	7.6	7.5	7.3	7.3
Portugal	0.1	-	-	-	-	-	-	-	-
Romania	3.7	3.9	2.7	2.5	2.7	2.9	2.8	2.8	2.9
Russia	73.0	48.8	42.0	45.4	48.8	51.0	50.6	50.2	51.3
Saudi Arabia	-	-	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-	-	-
Singapore	-	-	-	-	-	-	-	-	-
Slovakia	0.6	0.6	0.6	0.3	0.3	0.3	0.3	0.3	0.3
Slovenia	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
South Africa	6.8	7.0	7.7	8.3	8.2	8.6	8.7	9.5	10.2
South Korea	4.8	1.6	1.2	0.8	0.8	0.9	0.9	1.0	1.1
Spain	1.8	1.5	1.2	0.9	0.7	0.6	0.6	0.6	0.6
Sweden	0.0	-	-	-	-	-	-	-	-
Switzerland	-	-	-	-	-	-	-	-	-
Tajikistan	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Thailand	0.2	0.4	0.7	0.8	0.7	0.8	0.9	1.0	1.1
Turkey	1.4	1.4	1.6	1.5	1.9	1.8	1.8	1.8	1.8
Turkmenistan	-	-	-	-	-	-	-	-	-
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	55.4	30.1	31.4	29.9	29.7	31.0	30.8	30.6	31.2
United Arab Emirates	-	-	-	-	-	-	-	-	-
United Kingdom	18.3	12.6	7.0	4.1	2.7	2.6	2.6	2.5	2.5
United States	84.1	67.1	60.4	56.9	67.5	70.0	70.5	72.7	78.1
Uruguay	-	-	-	-	-	-	-	-	-
Uzbekistan	0.5	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Venezuela	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Vietnam	0.7	1.2	1.9	5.2	6.9	7.6	8.4	9.5	10.4
Rest of Africa	1.0	1.1	0.8	0.7	0.8	0.9	0.9	1.0	1.0
Rest of Central and South	-	-	-	-	-	-	-	-	-
Rest of Middle East	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Asia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Rest of Non-OECD Europe and	1.0	0.8	1.9	2.1	2.2	2.3	2.3	2.2	2.3
Africa	18.1	10.4	8.9	10.0	10.0	10.6	10.7	11.6	12.5
Central and South America	3.2	3.5	4.5	6.2	8.7	11.0	13.3	13.5	15.8
Middle East	0.3	0.3	0.1	0.1	0.1	0.2	0.4	0.2	0.2
OECD	181.4	144.0	126.8	112.6	122.7	126.2	127.9	132.4	141.0
Non-OECD Asia	152.4	188.1	162.9	293.4	339.3	369.1	407.5	456.6	501.4
Non-OECD Europe &	174.4	106.3	98.2	99.2	107.8	112.6	111.7	110.9	113.4
EU	71.8	57.2	43.0	31.0	25.8	25.2	24.9	24.4	24.4
OPEC	10.6	2.6	0.6	1.1	1.2	1.4	1.6	1.5	1.6
World Totals	529.8	452.6	401.4	521.6	588.6	629.7	671.4	725.3	784.3

Table B-4: CH₄ Emissions from Stationary and Mobile Combustion by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	0.9	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Algeria	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Argentina	0.4	0.9	1.2	1.6	1.6	1.8	2.0	2.3	2.5
Armenia	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Australia	0.8	0.9	0.9	0.9	0.8	0.8	0.8	0.7	0.7
Austria	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Azerbaijan	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Bangladesh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belarus	0.4	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2
Belgium	0.4	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.2
Bolivia	0.2	0.2	0.1	0.2	0.3	0.3	0.3	0.3	0.4
Brazil	7.1	5.8	5.6	7.2	8.1	8.9	9.7	10.6	11.6
Bulgaria	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Burma	-	-	-	-	-	-	-	-	-
Cambodia	0.6	0.5	0.5	0.6	0.7	0.8	1.0	1.1	1.4
Canada	2.4	2.5	3.3	3.0	3.0	3.0	2.9	2.9	2.9
Chile	0.6	0.7	0.8	0.9	0.9	1.0	1.1	1.2	1.3
China	47.6	44.5	29.7	34.7	35.1	36.6	38.5	40.7	43.5
Colombia	1.4	1.4	0.7	0.6	0.6	0.7	0.8	0.8	0.9
Congo (Kinshasa)	1.9	1.6	0.7	0.8	0.9	0.9	0.9	0.9	0.9
Croatia	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Czech Republic	1.4	0.6	0.4	0.3	0.2	0.2	0.2	0.2	0.2
Denmark	0.1	0.3	0.4	0.4	0.3	0.3	0.2	0.2	0.2
Ecuador	0.4	0.4	0.5	0.5	0.6	0.6	0.7	0.7	0.8
Egypt	1.8	0.9	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Estonia	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethiopia	3.5	4.1	5.7	6.3	7.1	7.7	8.3	9.1	9.9
Finland	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
France	1.3	1.2	1.0	0.8	0.7	0.7	0.6	0.6	0.6
Georgia	2.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Germany	4.3	1.5	1.0	0.9	0.8	0.8	0.8	0.8	0.8
Greece	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Hungary	0.7	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.1
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
India	32.2	36.3	45.3	54.3	61.9	69.7	79.4	91.6	106.9
Indonesia	6.8	8.0	11.3	12.4	15.6	18.4	21.8	26.0	31.1
Iran	1.3	1.7	1.6	1.8	2.3	2.6	2.9	3.4	3.9
Iraq	-	-	-	-	-	-	-	-	-
Ireland	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1
Israel	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Italy	1.2	1.2	0.9	0.7	0.6	0.6	0.6	0.6	0.7
Japan	0.8	1.0	0.9	0.9	0.8	0.7	0.7	0.6	0.6
Jordan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Kazakhstan	1.3	0.8	0.4	0.5	0.6	0.7	0.8	0.9	1.1
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	0.3	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3
Laos	0.5	0.5	0.5	0.6	0.7	0.8	1.0	1.1	1.4
Latvia	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lithuania	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Luxembourg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Macedonia	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1
Mexico	2.5	2.6	2.6	2.6	1.7	1.7	1.6	1.6	1.6
Moldova	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	0.2	0.3	0.3	0.4	0.4	0.5	0.6	0.7	0.9
Nepal	0.8	1.7	2.9	3.0	3.3	3.8	4.4	5.0	5.8
Netherlands	0.6	0.8	0.8	0.8	1.1	1.1	1.1	1.1	1.1
New Zealand	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Nigeria	9.4	9.7	15.3	16.1	16.7	18.4	20.4	22.5	24.9
North Korea	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.9	0.9
Norway	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Pakistan	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.6
Peru	0.8	0.9	0.6	0.6	0.6	0.7	0.7	0.8	0.9
Philippines	1.3	1.9	2.2	2.1	2.3	2.8	3.4	4.2	5.2
Poland	2.2	3.1	1.7	1.8	1.8	1.6	1.5	1.3	1.2
Portugal	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Romania	0.3	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2
Russia	8.8	4.1	2.3	2.8	2.7	2.7	2.8	2.9	3.0
Saudi Arabia	0.2	0.3	0.4	0.4	0.5	0.5	0.6	0.7	0.8
Senegal	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Singapore	-	-	-	-	-	-	-	-	-
Slovakia	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Slovenia	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	0.5	1.0	0.8	1.5	1.7	1.7	1.7	1.7	1.8
South Korea	0.4	0.4	0.5	1.0	1.0	0.9	0.9	0.9	0.9
Spain	0.6	0.6	0.8	1.1	1.0	1.0	0.9	0.9	0.9
Sweden	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Switzerland	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
Tajikistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Thailand	0.0	0.6	3.5	4.0	4.7	5.6	6.7	8.1	9.8
Turkey	3.0	2.9	2.6	1.0	1.1	1.0	0.9	0.8	0.8
Turkmenistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uganda	1.2	1.7	1.5	1.4	1.5	1.6	1.8	1.9	2.0
Ukraine	3.9	1.6	0.6	0.6	0.6	0.6	0.7	0.7	0.8
United Arab Emirates	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.5
United Kingdom	2.6	1.9	1.6	1.1	1.0	0.9	0.9	0.9	0.9
United States	7.3	6.8	6.0	5.1	4.7	4.6	4.5	4.4	4.3
Uruguay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uzbekistan	0.4	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Venezuela	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4
Vietnam	1.5	2.3	1.4	2.0	2.3	2.5	2.7	2.9	3.2
Rest of Africa	38.3	37.8	30.7	31.0	33.4	35.7	38.2	41.1	44.4
Rest of Central and South	2.2	2.7	3.4	3.7	3.8	4.1	4.4	4.7	5.1
Rest of Middle East	0.7	0.9	1.1	1.3	1.7	2.0	2.3	2.7	3.2
Rest of Non-OECD Asia	1.6	2.1	3.2	3.4	3.8	4.6	5.6	6.8	8.4
Rest of Non-OECD Europe and	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
Africa	56.7	57.0	55.0	57.5	61.6	66.4	71.7	77.7	84.4
Central and South America	12.7	12.5	12.4	14.7	15.9	17.3	18.9	20.7	22.6
Middle East	2.4	3.2	3.4	3.9	4.7	5.5	6.3	7.3	8.5
OECD	35.2	31.5	28.0	24.5	22.9	22.2	21.8	21.4	21.0
Non-OECD Asia	94.2	99.8	101.9	118.5	132.0	147.3	166.3	189.8	219.2
Non-OECD Europe &	20.1	8.1	4.6	5.2	5.3	5.7	6.1	6.6	7.1
EU	18.0	13.6	10.3	9.3	8.8	8.5	8.3	8.2	8.1
OPEC	12.4	13.4	19.5	20.7	22.3	24.8	27.7	31.0	34.6
World Totals	221.3	212.0	205.4	224.3	242.4	264.4	291.0	323.4	362.9

Table B-5: N₂O Emissions from Stationary and Mobile Combustion by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2
Algeria	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3
Argentina	0.6	0.8	1.0	1.0	1.2	1.3	1.4	1.6	1.8
Armenia	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Australia	1.3	1.7	2.4	2.8	2.7	2.6	2.6	2.5	2.5
Austria	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Azerbaijan	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Bangladesh	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Belarus	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Belgium	0.6	0.7	0.9	0.8	1.3	1.3	1.4	1.4	1.4
Bolivia	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Brazil	2.6	2.8	2.9	3.7	4.1	4.5	5.0	5.5	6.1
Bulgaria	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.4	0.5
Burma	-	-	-	-	-	-	-	-	-
Cambodia	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.5
Canada	7.9	9.6	11.6	11.3	10.8	10.7	10.6	10.5	10.4
Chile	0.4	0.5	0.4	0.4	0.5	0.5	0.6	0.6	0.7
China	11.8	16.6	18.7	29.1	38.2	45.1	53.7	64.2	77.2
Colombia	0.4	0.5	0.3	0.3	0.3	0.4	0.4	0.5	0.5
Congo (Kinshasa)	0.6	0.5	0.4	0.3	0.4	0.4	0.4	0.5	0.5
Croatia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
Czech Republic	0.7	0.7	0.8	1.1	1.1	1.1	1.0	1.0	1.0
Denmark	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Ecuador	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.4
Egypt	3.4	1.8	0.2	0.2	0.2	0.3	0.3	0.3	0.4
Estonia	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Ethiopia	0.6	0.9	1.3	2.1	2.7	3.0	3.3	3.6	4.0
Finland	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8
France	3.1	3.7	3.9	4.3	4.1	4.0	4.0	3.9	3.9
Georgia	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Germany	7.4	7.0	6.4	6.0	6.5	6.2	5.9	5.8	5.7
Greece	0.8	0.9	0.9	1.0	1.0	0.9	0.9	0.9	0.9
Hungary	0.3	0.3	0.3	0.5	0.5	0.5	0.5	0.5	0.5
Iceland	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
India	2.9	4.6	10.0	15.5	20.1	25.3	31.9	40.5	51.6
Indonesia	1.6	1.9	2.8	3.6	4.5	5.3	6.4	7.7	9.3
Iran	2.1	2.7	2.6	3.5	4.1	4.7	5.5	6.4	7.5
Iraq	-	-	-	-	-	-	-	-	-
Ireland	0.2	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Israel	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.5
Italy	4.3	4.7	5.0	4.7	4.6	4.5	4.5	4.4	4.4
Japan	6.8	8.3	8.8	7.9	7.2	6.7	6.2	5.8	5.4
Jordan	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Kazakhstan	0.9	0.6	0.5	0.6	0.8	0.9	1.1	1.2	1.4
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Laos	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2
Latvia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Lithuania	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Luxembourg	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Macedonia	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Mexico	1.2	1.5	2.2	8.8	11.3	11.1	10.9	10.8	10.7
Moldova	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2
Nepal	0.2	0.4	0.6	0.6	0.7	0.8	1.0	1.2	1.4
Netherlands	0.5	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6
New Zealand	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nigeria	2.3	2.3	3.7	5.0	4.1	4.6	5.0	5.6	6.2
North Korea	5.4	5.4	4.9	5.2	4.7	5.2	5.7	6.4	7.1
Norway	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4
Pakistan	0.2	0.2	0.2	0.3	0.4	0.4	0.5	0.7	0.8
Peru	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3
Philippines	0.5	0.8	1.0	1.0	1.2	1.4	1.8	2.2	2.7
Poland	1.8	1.9	1.7	1.7	2.2	2.7	2.7	2.9	3.1
Portugal	0.3	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4
Romania	0.4	0.4	0.3	0.4	0.5	0.6	0.7	0.8	1.0
Russia	5.8	3.8	3.9	4.7	5.2	5.6	6.1	6.5	7.1
Saudi Arabia	0.3	0.4	0.4	0.5	0.7	0.8	0.9	1.1	1.3
Senegal	1.0	1.1	1.6	2.2	2.4	2.5	2.7	3.0	3.2
Singapore	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4
Slovakia	0.3	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1
Slovenia	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4
South Africa	1.6	1.9	2.0	2.3	2.5	2.7	2.9	3.2	3.4
South Korea	4.0	3.8	3.4	1.3	1.3	1.3	1.2	1.2	1.2
Spain	1.4	2.0	2.7	2.5	2.5	2.5	2.5	2.4	2.4
Sweden	1.1	1.1	1.0	1.0	0.9	0.9	0.9	0.9	0.9
Switzerland	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3
Tajikistan	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Thailand	0.2	0.3	0.8	1.0	1.1	1.4	1.7	2.1	2.6
Turkey	1.0	1.1	1.3	1.2	1.3	1.3	1.2	1.2	1.2
Turkmenistan	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2
Uganda	1.5	1.7	1.9	2.3	2.6	2.8	3.0	3.3	3.6
Ukraine	2.9	1.5	1.0	1.4	1.7	2.0	2.3	2.6	3.0
United Arab Emirates	2.5	3.0	3.4	4.9	6.0	7.1	8.4	9.9	11.6
United Kingdom	6.1	5.9	5.5	5.2	5.0	4.9	4.9	4.8	4.8
United States	54.6	65.0	65.5	49.5	42.4	41.9	41.3	40.9	40.4
Uruguay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Uzbekistan	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Venezuela	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4
Vietnam	0.4	0.5	0.4	0.7	0.9	1.1	1.3	1.6	2.0
Rest of Africa	35.1	34.4	33.0	40.8	47.0	51.1	55.7	60.9	66.8
Rest of Central and South	1.0	1.2	1.7	1.9	2.3	2.5	2.7	2.9	3.2
Rest of Middle East	0.2	0.2	0.2	0.4	0.5	0.6	0.7	0.8	1.0
Rest of Non-OECD Asia	0.4	0.4	0.6	0.8	0.9	1.1	1.4	1.7	2.1
Rest of Non-OECD Europe and	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4
Africa	46.2	44.7	44.3	55.2	62.2	67.6	73.8	80.6	88.3
Central and South America	5.3	6.0	6.6	7.8	8.9	9.7	10.7	11.7	12.9
Middle East	5.2	6.4	6.8	9.4	11.4	13.4	15.6	18.3	21.5
OECD	108.7	125.1	129.5	116.9	111.8	110.3	108.6	107.3	106.1
Non-OECD Asia	23.7	31.5	40.4	58.3	73.3	87.9	106.3	129.2	158.2
Non-OECD Europe &	12.3	7.5	6.9	8.5	9.8	10.9	12.2	13.7	15.4
EU	32.1	33.4	33.7	33.3	34.3	34.4	34.1	34.2	34.3
OPEC	7.8	9.0	10.9	14.9	16.2	18.6	21.4	24.7	28.5
World Totals	201.3	221.1	234.6	256.1	277.4	299.9	327.0	360.8	402.5

Table B-6: CH₄ Emissions from Biomass Combustion by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Algeria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Argentina	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2
Armenia	0.0	0.0	0.0	0.0	-	-	-	-	-
Australia	1.7	1.7	1.4	1.0	1.1	1.3	1.5	1.8	2.1
Austria	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.4
Azerbaijan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bangladesh	1.8	1.9	2.0	2.2	2.3	2.3	2.3	2.3	2.4
Belarus	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Belgium	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Bolivia	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Brazil	4.5	3.7	3.8	4.9	5.2	5.6	5.9	6.3	6.8
Bulgaria	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Burma	2.2	2.2	2.3	2.5	2.6	2.6	2.6	2.6	2.7
Cambodia	-	0.7	0.8	0.9	0.9	0.9	0.9	0.9	1.0
Canada	2.1	2.0	2.2	2.2	2.3	2.6	2.9	3.3	3.7
Chile	0.5	0.7	0.8	0.8	0.8	0.9	0.9	1.0	1.0
China	52.9	53.6	52.5	50.3	48.5	47.0	45.6	44.3	43.0
Colombia	1.2	1.1	0.7	0.6	0.7	0.7	0.8	0.8	0.9
Congo (Kinshasa)	2.0	2.4	2.8	3.2	3.5	3.6	3.8	4.0	4.2
Croatia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Czech Republic	0.1	0.0	0.1	0.3	0.4	0.4	0.5	0.5	0.6
Denmark	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.4
Ecuador	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Egypt	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
Estonia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethiopia	3.5	3.9	4.4	5.0	5.4	5.6	5.9	6.1	6.4
Finland	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4
France	3.6	3.4	2.5	1.9	1.6	1.8	2.0	2.3	2.6
Georgia	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Germany	0.4	0.4	0.5	1.0	1.6	1.8	2.1	2.4	2.7
Greece	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Hungary	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2
Iceland	-	-	-	-	-	-	-	-	-
India	29.9	31.3	33.0	34.9	36.1	36.9	37.6	38.4	39.1
Indonesia	9.3	10.0	10.7	11.6	12.0	12.1	12.2	12.4	12.5
Iran	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.4
Iraq	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ireland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Israel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Italy	0.2	0.3	0.4	0.5	0.7	0.8	0.9	1.0	1.2
Japan	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Jordan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kazakhstan	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kuwait	0.0	0.0	-	-	-	-	-	-	-
Kyrgyzstan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Laos	-	-	-	-	-	-	-	-	-
Latvia	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3
Lithuania	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Luxembourg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Macedonia	-	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Mexico	1.5	1.6	1.6	1.6	1.7	1.9	2.2	2.4	2.7
Moldova	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nepal	1.4	1.6	1.8	2.1	2.2	2.2	2.2	2.2	2.3
Netherlands	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
New Zealand	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Nigeria	13.2	15.1	16.8	19.0	20.4	21.4	22.4	23.4	24.5
North Korea	0.2	0.2	0.3	0.4	0.4	0.5	0.6	0.7	0.9
Norway	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3
Pakistan	4.4	5.0	5.6	6.3	6.6	6.7	6.7	6.8	6.9
Peru	0.7	0.6	0.5	0.5	0.6	0.7	0.7	0.8	0.8
Philippines	1.8	1.8	1.5	1.2	1.1	1.1	1.2	1.2	1.2
Poland	0.2	0.9	0.8	0.8	0.9	1.0	1.2	1.3	1.5
Portugal	0.4	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.6
Romania	0.2	0.9	0.7	0.8	0.8	0.8	0.8	0.9	0.9
Russia	2.4	1.2	0.7	0.6	0.7	0.8	0.8	0.9	1.0
Saudi Arabia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Senegal	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Singapore	-	-	-	-	-	-	-	-	-
Slovakia	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3
Slovenia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
South Africa	1.6	1.8	2.0	2.1	2.2	2.3	2.4	2.5	2.6
South Korea	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Spain	0.7	0.6	0.6	0.7	0.7	0.8	0.9	1.0	1.2
Sweden	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.6	0.6
Switzerland	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1
Tajikistan	-	-	-	-	-	-	-	-	-
Thailand	1.4	1.2	1.2	1.4	1.5	1.5	1.5	1.5	1.5
Turkey	1.8	1.6	1.5	1.4	1.4	1.6	1.8	2.0	2.3
Turkmenistan	-	-	-	-	-	-	-	-	-
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
United Arab Emirates	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United Kingdom	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2
United States	4.8	4.6	4.0	4.0	4.3	4.8	5.5	6.3	7.1
Uruguay	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Uzbekistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Venezuela	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Vietnam	4.8	5.3	5.7	6.1	6.3	6.3	6.4	6.4	6.5
Rest of Africa	10.9	12.5	14.1	16.0	17.1	17.9	18.7	19.5	20.4
Rest of Central and South	2.7	2.7	2.8	3.1	3.3	3.5	3.7	4.0	4.3
Rest of Middle East	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Rest of Non-OECD Asia	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3
Rest of Non-OECD Europe and	0.4	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Africa	31.6	36.0	40.4	45.7	49.0	51.2	53.6	56.0	58.6
Central and South America	9.5	8.7	8.3	9.6	10.3	11.0	11.7	12.5	13.3
Middle East	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.5
OECD	19.8	20.3	18.7	18.6	20.2	22.9	25.9	29.3	33.3
Non-OECD Asia	111.2	116.1	118.5	121.0	121.7	121.5	121.3	121.2	121.1
Non-OECD Europe &	4.0	3.4	2.8	2.9	3.0	3.1	3.3	3.4	3.6
EU	7.3	8.8	7.9	8.5	9.4	10.5	11.8	13.3	14.9
OPEC	14.3	16.3	18.2	20.5	22.1	23.2	24.3	25.4	26.7
World Totals	176.3	184.6	189.1	198.0	204.4	209.9	216.1	222.9	230.4

Table B-7: N₂O Emissions from Biomass Combustion by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Algeria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Argentina	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Armenia	0.0	0.0	0.0	0.0	-	-	-	-	-
Australia	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4
Austria	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3
Azerbaijan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bangladesh	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5
Belarus	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Belgium	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Bolivia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Brazil	1.6	1.6	1.7	2.3	2.8	2.9	3.1	3.3	3.6
Bulgaria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Burma	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Cambodia	-	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Canada	0.6	0.6	0.7	0.8	0.9	1.0	1.1	1.3	1.4
Chile	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3
China	10.4	10.5	10.3	9.9	9.5	9.3	9.0	8.7	8.5
Colombia	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3
Congo (Kinshasa)	0.5	0.6	0.7	0.8	0.8	0.9	0.9	1.0	1.0
Croatia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Czech Republic	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2
Denmark	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Ecuador	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Egypt	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Estonia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethiopia	0.7	0.8	0.9	1.0	1.1	1.1	1.1	1.2	1.3
Finland	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3
France	0.5	0.5	0.5	0.5	0.6	0.7	0.8	0.9	1.1
Georgia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Germany	0.1	0.1	0.2	0.4	0.6	0.7	0.8	0.9	1.0
Greece	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1
Hungary	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1
Iceland	-	-	-	-	-	-	-	-	-
India	6.9	7.3	7.7	8.1	8.4	8.6	8.8	9.0	9.1
Indonesia	2.1	2.3	2.5	2.6	2.6	2.7	2.7	2.7	2.8
Iran	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Iraq	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ireland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Israel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Italy	0.2	0.2	0.3	0.4	0.6	0.6	0.7	0.8	0.9
Japan	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Jordan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kazakhstan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kuwait	0.0	0.0	-	-	-	-	-	-	-
Kyrgyzstan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Laos	-	-	-	-	-	-	-	-	-
Latvia	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Lithuania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Luxembourg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Macedonia	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mexico	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.6
Moldova	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nepal	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Netherlands	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2
New Zealand	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Nigeria	2.8	3.2	3.6	4.1	4.4	4.6	4.8	5.0	5.3
North Korea	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2
Norway	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Pakistan	1.0	1.1	1.2	1.4	1.4	1.5	1.5	1.5	1.5
Peru	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
Philippines	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Poland	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4
Portugal	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3
Romania	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Russia	0.8	0.5	0.4	0.2	0.3	0.3	0.3	0.4	0.4
Saudi Arabia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Senegal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Singapore	-	-	-	-	-	-	-	-	-
Slovakia	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Slovenia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.6
South Korea	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Spain	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4
Sweden	0.2	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.7
Switzerland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tajikistan	-	-	-	-	-	-	-	-	-
Thailand	0.3	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5
Turkey	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.5
Turkmenistan	-	-	-	-	-	-	-	-	-
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United Arab Emirates	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United Kingdom	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
United States	2.6	2.8	2.7	2.5	2.7	3.0	3.4	3.9	4.5
Uruguay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uzbekistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Venezuela	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vietnam	0.9	1.0	1.1	1.2	1.2	1.2	1.2	1.3	1.3
Rest of Africa	2.2	2.5	2.8	3.2	3.4	3.6	3.7	3.9	4.1
Rest of Central and South	0.9	0.7	0.8	0.8	0.8	0.9	0.9	1.0	1.0
Rest of Middle East	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest of Non-OECD Asia	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Rest of Non-OECD Europe and	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Africa	6.7	7.6	8.5	9.7	10.3	10.8	11.3	11.8	12.4
Central and South America	3.1	3.0	3.0	3.6	4.1	4.4	4.7	5.0	5.3
Middle East	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
OECD	6.2	6.9	7.1	7.7	8.8	10.0	11.3	12.8	14.6
Non-OECD Asia	23.5	24.6	25.3	25.8	26.0	26.0	26.0	26.0	26.1
Non-OECD Europe &	1.1	0.8	0.9	0.8	0.8	0.8	0.9	0.9	1.0
EU	1.9	2.3	2.7	3.4	4.2	4.7	5.3	6.0	6.8
OPEC	3.1	3.5	3.9	4.4	4.8	5.0	5.2	5.5	5.7
World Totals	40.6	43.0	44.9	47.6	50.1	52.1	54.3	56.7	59.4

Table B-8: CH₄ Emissions from Other Energy Sources by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-
Argentina	-	-	-	-	-	-	-	-	-
Armenia	-	-	-	-	-	-	-	-	-
Australia	-	-	-	-	-	-	-	-	-
Austria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Azerbaijan	-	-	-	-	-	-	-	-	-
Bangladesh	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	-	-	-	-	-	-
Belgium	-	-	-	-	-	-	-	-	-
Bolivia	-	-	-	-	-	-	-	-	-
Brazil	-	-	-	-	-	-	-	-	-
Bulgaria	-	-	-	-	-	-	-	-	-
Burma	-	-	-	-	-	-	-	-	-
Cambodia	-	-	-	-	-	-	-	-	-
Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chile	-	-	-	-	-	-	-	-	-
China	-	-	-	-	-	-	-	-	-
Colombia	-	-	-	-	-	-	-	-	-
Congo (Kinshasa)	-	-	-	-	-	-	-	-	-
Croatia	-	-	-	-	-	-	-	-	-
Czech Republic	-	-	-	-	-	-	-	-	-
Denmark	-	-	-	-	-	-	-	-	-
Ecuador	-	-	-	-	-	-	-	-	-
Egypt	-	-	-	-	-	-	-	-	-
Estonia	-	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-	-	-
Finland	-	-	-	-	-	-	-	-	-
France	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Georgia	-	-	-	-	-	-	-	-	-
Germany	-	-	-	-	-	-	-	-	-
Greece	-	-	-	-	-	-	-	-	-
Hungary	-	-	-	-	-	-	-	-	-
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
India	-	-	-	-	-	-	-	-	-
Indonesia	-	-	-	-	-	-	-	-	-
Iran	-	-	-	-	-	-	-	-	-
Iraq	-	-	-	-	-	-	-	-	-
Ireland	-	-	-	-	-	-	-	-	-
Israel	-	-	-	-	-	-	-	-	-
Italy	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Japan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jordan	-	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	-	-	-	-	-	-	-	-	-
Laos	-	-	-	-	-	-	-	-	-
Latvia	-	-	-	-	-	-	-	-	-
Lithuania	-	-	-	-	-	-	-	-	-
Luxembourg	-	-	-	-	-	-	-	-	-
Macedonia	-	-	-	-	-	-	-	-	-
Mexico	-	-	-	-	-	-	-	-	-
Moldova	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	-	-	-	-	-	-	-	-	-
Nepal	-	-	-	-	-	-	-	-	-
Netherlands	-	-	-	-	-	-	-	-	-
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nigeria	-	-	-	-	-	-	-	-	-
North Korea	-	-	-	-	-	-	-	-	-
Norway	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pakistan	-	-	-	-	-	-	-	-	-
Peru	-	-	-	-	-	-	-	-	-
Philippines	-	-	-	-	-	-	-	-	-
Poland	-	-	-	-	-	-	-	-	-
Portugal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Romania	-	-	-	-	-	-	-	-	-
Russia	-	-	-	-	-	-	-	-	-
Saudi Arabia	-	-	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-	-	-
Singapore	-	-	-	-	-	-	-	-	-
Slovakia	-	-	-	-	-	-	-	-	-
Slovenia	-	-	-	-	-	-	-	-	-
South Africa	-	-	-	-	-	-	-	-	-
South Korea	-	-	-	-	-	-	-	-	-
Spain	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sweden	-	-	-	-	-	-	-	-	-
Switzerland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tajikistan	-	-	-	-	-	-	-	-	-
Thailand	-	-	-	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-	-
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	-	-	-	-	-	-	-	-	-
United Arab Emirates	-	-	-	-	-	-	-	-	-
United Kingdom	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United States	-	-	-	-	-	-	-	-	-
Uruguay	-	-	-	-	-	-	-	-	-
Uzbekistan	-	-	-	-	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	-	-
Vietnam	-	-	-	-	-	-	-	-	-
Rest of Africa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest of Central and South	-	-	-	-	-	-	-	-	-
Rest of Middle East	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Asia	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Europe and	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Africa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central and South America	-	-	-	-	-	-	-	-	-
Middle East	-	-	-	-	-	-	-	-	-
OECD	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Non-OECD Asia	-	-	-	-	-	-	-	-	-
Non-OECD Europe &	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EU	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
OPEC	-	-	-	-	-	-	-	-	-
World Totals	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Table B-9: N₂O Emissions from Other Energy Sources by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-
Argentina	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Armenia	-	-	-	-	-	-	-	-	-
Australia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Austria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Azerbaijan	-	-	-	-	-	-	-	-	-
Bangladesh	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	-	-	-	-	-	-
Belgium	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bolivia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brazil	-	-	-	-	-	-	-	-	-
Bulgaria	-	-	-	-	-	-	-	-	-
Burma	-	-	-	-	-	-	-	-	-
Cambodia	-	-	-	-	-	-	-	-	-
Canada	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Chile	-	-	-	-	-	-	-	-	-
China	-	-	-	-	-	-	-	-	-
Colombia	-	-	-	-	-	-	-	-	-
Congo (Kinshasa)	-	-	-	-	-	-	-	-	-
Croatia	-	-	-	-	-	-	-	-	-
Czech Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denmark	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ecuador	-	-	-	-	-	-	-	-	-
Egypt	-	-	-	-	-	-	-	-	-
Estonia	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Ethiopia	-	-	-	-	-	-	-	-	-
Finland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
France	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Georgia	-	-	-	-	-	-	-	-	-
Germany	-	-	-	-	-	-	-	-	-
Greece	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
India	-	-	-	-	-	-	-	-	-
Indonesia	-	-	-	-	-	-	-	-	-
Iran	-	-	-	-	-	-	-	-	-
Iraq	-	-	-	-	-	-	-	-	-
Ireland	-	-	-	-	-	-	-	-	-
Israel	-	-	-	-	-	-	-	-	-
Italy	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Japan	1.5	2.0	2.2	2.4	2.3	2.3	2.3	2.3	2.3
Jordan	-	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	-	-	-	-	-	-	-	-	-
Laos	-	-	-	-	-	-	-	-	-
Latvia	-	-	-	-	-	-	-	-	-
Lithuania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Luxembourg	-	-	-	-	-	-	-	-	-
Macedonia	-	-	-	-	-	-	-	-	-
Mexico	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Moldova	-	-	-	-	-	-	-	-	-
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	-	-	-	-	-	-	-	-	-
Nepal	-	-	-	-	-	-	-	-	-
Netherlands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nigeria	-	-	-	-	-	-	-	-	-
North Korea	-	-	-	-	-	-	-	-	-
Norway	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pakistan	-	-	-	-	-	-	-	-	-
Peru	-	-	-	-	-	-	-	-	-
Philippines	-	-	-	-	-	-	-	-	-
Poland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Portugal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Romania	-	-	-	-	-	-	-	-	-
Russia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Saudi Arabia	-	-	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-	-	-
Singapore	-	-	-	-	-	-	-	-	-
Slovakia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slovenia	-	-	-	-	-	-	-	-	-
South Africa	-	-	-	-	-	-	-	-	-
South Korea	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Spain	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sweden	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Switzerland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tajikistan	-	-	-	-	-	-	-	-	-
Thailand	-	-	-	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-	-
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United Arab Emirates	-	-	-	-	-	-	-	-	-
United Kingdom	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
United States	-	-	-	-	-	-	-	-	-
Uruguay	-	-	-	-	-	-	-	-	-
Uzbekistan	-	-	-	-	-	-	-	-	-
Venezuela	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vietnam	-	-	-	-	-	-	-	-	-
Rest of Africa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest of Central and South	-	-	-	-	-	-	-	-	-
Rest of Middle East	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Asia	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Europe and	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Africa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central and South America	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle East	-	-	-	-	-	-	-	-	-
OECD	2.4	2.9	3.2	3.4	3.2	3.2	3.2	3.2	3.2
Non-OECD Asia	-	-	-	-	-	-	-	-	-
Non-OECD Europe &	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
EU	0.4	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5
OPEC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
World Totals	2.6	3.1	3.4	3.5	3.4	3.4	3.4	3.4	3.4

Appendix C: Industrial Processes Sector Emissions

Table C-1: Total Non-CO₂ Emissions from the Industrial Processes Sector by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Algeria	0.2	0.4	0.7	1.3	3.3	5.7	7.3	10.1	12.2
Argentina	1.8	0.8	1.2	2.4	3.6	4.9	7.1	9.8	11.7
Armenia	0.0	0.0	0.1	0.2	0.3	0.4	0.6	0.9	1.2
Australia	6.4	5.0	6.7	10.4	12.2	15.3	18.2	21.9	24.4
Austria	2.6	2.3	2.3	1.8	2.1	2.5	2.9	3.3	3.5
Azerbaijan	0.0	0.0	0.0	0.2	0.3	0.4	0.6	0.8	1.0
Bangladesh	0.0	0.0	0.0	0.2	0.5	0.9	1.1	1.5	1.8
Belarus	0.1	0.1	0.2	0.2	0.3	0.4	0.6	0.8	1.0
Belgium	4.2	5.3	5.8	5.1	4.7	5.3	6.2	7.3	8.6
Bolivia	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Brazil	7.6	10.5	9.8	13.7	17.2	21.8	27.8	39.3	48.7
Bulgaria	1.6	1.4	0.9	1.1	1.7	2.0	2.3	2.7	3.1
Burma	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Cambodia	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.4	0.6
Canada	19.8	20.2	14.1	17.5	14.8	19.4	24.3	31.1	34.9
Chile	0.2	0.3	0.5	0.9	1.3	1.6	2.1	3.0	3.8
China	9.9	17.2	54.3	144.1	160.7	233.6	411.7	678.7	1,022.8
Colombia	0.1	0.2	0.8	1.8	1.7	2.2	2.9	4.4	5.4
Congo (Kinshasa)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Croatia	1.8	0.8	0.9	1.0	1.3	1.6	1.8	2.3	2.6
Czech Republic	1.6	1.6	1.8	2.0	1.9	2.3	2.7	3.6	4.0
Denmark	1.1	1.2	1.7	1.0	1.1	1.5	1.9	2.3	2.6
Ecuador	0.0	0.0	0.1	0.2	0.4	0.6	0.8	1.2	1.5
Egypt	2.8	2.0	1.9	2.3	2.7	3.6	4.7	7.0	8.7
Estonia	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Ethiopia	-	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2
Finland	6.6	7.0	6.2	4.5	4.2	4.5	4.8	5.1	5.3
France	28.2	29.9	19.3	16.9	14.9	18.3	22.4	26.9	29.5
Georgia	0.7	0.3	0.6	0.8	1.1	1.2	1.5	2.1	2.6
Germany	33.9	38.0	19.6	24.0	26.8	23.1	29.7	38.7	49.3
Greece	2.7	4.7	5.3	3.7	1.5	1.7	2.0	2.4	2.8
Hungary	3.7	1.8	2.6	3.2	1.8	2.4	3.0	3.9	4.4
Iceland	0.4	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2
India	5.1	11.9	22.8	42.5	44.0	59.2	105.3	127.9	150.6
Indonesia	1.0	0.8	0.6	1.1	1.7	2.7	3.7	5.5	7.2
Iran	0.9	1.2	1.6	2.5	3.3	4.3	5.7	8.4	10.4
Iraq	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2
Ireland	1.1	1.1	1.5	0.7	0.6	0.7	0.9	1.0	1.1
Israel	0.1	0.7	3.3	5.8	7.6	11.0	15.0	23.0	28.5
Italy	10.0	11.7	15.5	18.0	11.9	15.2	19.3	24.2	28.0
Japan	39.9	51.3	55.3	50.5	51.1	64.1	81.5	105.2	126.9
Jordan	0.0	0.0	0.1	0.3	0.5	0.9	1.2	1.7	2.2
Kazakhstan	0.2	0.4	0.3	0.7	0.9	1.0	1.2	1.5	1.7
Kuwait	0.0	0.1	0.4	1.0	1.7	2.7	4.1	7.5	10.6
Kyrgyzstan	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Laos	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Latvia	0.0	0.1	0.2	0.4	0.6	0.8	1.1	1.8	2.2
Lithuania	1.0	0.8	1.8	2.8	1.4	1.7	2.0	2.7	3.2
Luxembourg	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Macedonia	0.2	0.1	0.3	0.6	1.1	1.6	2.0	3.0	3.5
Mexico	5.9	4.1	8.3	17.7	19.6	27.1	44.7	55.1	62.1
Moldova	0.0	0.0	0.1	0.2	0.2	0.3	0.4	0.7	0.8

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Monaco	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mongolia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Nepal	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2
Netherlands	13.7	15.2	11.9	8.6	3.9	4.8	5.9	7.4	9.0
New Zealand	0.7	0.3	0.6	0.9	1.2	1.7	2.1	2.5	2.8
Nigeria	0.0	0.0	0.1	0.2	0.2	0.4	0.7	1.3	1.9
North Korea	0.4	0.4	0.6	1.2	1.8	2.7	4.2	7.7	11.2
Norway	8.5	5.1	5.2	4.4	2.9	3.2	3.6	4.3	5.2
Pakistan	0.1	0.1	0.2	0.7	1.0	1.5	2.1	3.5	4.5
Peru	0.0	0.2	0.4	0.6	0.8	1.1	1.4	2.2	2.8
Philippines	0.1	0.2	0.8	2.1	3.4	5.1	7.7	13.5	18.9
Poland	4.3	4.9	5.6	7.0	4.4	6.1	7.6	9.5	14.1
Portugal	0.7	0.9	0.8	1.1	0.7	0.9	1.1	1.4	1.5
Romania	6.3	5.3	4.9	3.6	4.1	4.5	4.8	5.3	5.6
Russia	47.0	28.9	39.4	38.3	37.7	45.0	54.9	80.9	100.8
Saudi Arabia	0.3	0.5	1.2	2.7	4.3	6.4	8.9	14.0	18.0
Senegal	-	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.3
Singapore	0.2	0.9	2.0	2.5	3.1	4.5	6.7	11.7	18.4
Slovakia	1.5	1.3	1.2	1.7	0.5	0.7	0.8	1.1	1.3
Slovenia	0.3	0.2	0.3	0.5	0.5	0.7	0.8	1.2	1.4
South Africa	2.9	4.7	6.0	8.3	12.4	17.3	23.2	35.1	43.2
South Korea	7.1	9.5	20.6	31.4	35.4	46.2	62.8	92.8	117.6
Spain	7.0	10.3	12.8	7.4	6.7	8.2	10.1	12.5	14.8
Sweden	1.4	1.6	1.7	1.9	1.7	2.1	2.5	3.0	3.3
Switzerland	0.4	0.4	0.6	0.9	1.2	1.4	1.8	2.2	2.5
Tajikistan	0.0	0.7	0.6	0.5	0.3	0.3	0.3	0.4	0.4
Thailand	0.1	0.2	1.2	2.6	4.5	7.2	11.1	20.2	28.8
Turkey	1.0	5.9	5.5	3.7	2.2	2.8	3.7	5.5	6.9
Turkmenistan	0.4	0.4	0.4	0.6	0.8	0.8	0.9	0.9	0.9
Uganda	-	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Ukraine	7.0	3.3	3.8	5.0	8.5	9.2	9.8	10.8	11.4
United Arab Emirates	0.8	0.8	1.1	1.2	1.4	1.9	2.5	3.7	5.0
United Kingdom	30.5	20.5	13.2	12.3	11.7	14.5	17.9	21.3	23.1
United States	131.5	150.8	168.6	173.4	198.9	253.2	315.8	393.1	440.3
Uruguay	0.0	0.0	0.1	0.3	0.5	0.7	1.0	1.5	2.0
Uzbekistan	1.9	1.6	1.5	1.9	2.1	2.3	2.5	2.9	3.1
Venezuela	6.2	4.4	3.0	4.0	5.9	7.7	10.0	14.8	18.4
Vietnam	0.0	0.0	0.1	0.3	0.7	1.1	1.5	2.1	2.7
Rest of Africa	59.8	59.6	60.1	61.2	62.6	64.8	67.4	73.0	77.7
Rest of Central and South	1.4	0.5	1.2	2.6	4.6	6.6	9.1	14.5	18.5
Rest of Middle East	0.3	0.4	0.8	1.6	3.2	5.0	6.8	10.3	13.5
Rest of Non-OECD Asia	0.1	0.2	1.1	3.0	5.0	8.5	13.9	26.4	41.4
Rest of Non-OECD Europe and	2.3	2.3	3.6	3.5	2.6	3.0	3.5	4.5	5.2
Africa	65.7	66.8	68.7	73.4	81.4	92.0	103.6	127.0	144.4
Central and South America	17.2	16.7	16.7	25.6	34.7	45.6	60.1	87.8	109.1
Middle East	2.5	3.1	5.2	9.4	14.5	21.4	29.3	45.8	60.0
OECD	377.1	413.2	418.6	438.9	450.4	562.5	718.2	916.1	1,064.1
Non-OECD Asia	17.0	31.8	83.9	200.3	226.6	327.1	569.4	899.3	1,309.4
Non-OECD Europe &	70.8	46.5	59.5	61.5	65.4	76.8	91.1	125.1	150.6
EU	164.1	166.9	137.1	129.5	110.1	125.0	153.4	189.8	223.5
OPEC	8.8	7.7	8.5	13.8	21.6	31.2	41.8	63.6	81.4
World Totals	550.4	578.1	652.6	809.2	873.0	1,125.4	1,571.7	2,201.2	2,837.6

Table C-2: N₂O Emissions from Adipic Acid and Nitric Acid Production by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Algeria	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.4
Argentina	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3
Armenia	-	-	-	-	-	-	-	-	-
Australia	-	-	-	-	-	-	-	-	-
Austria	0.9	0.9	1.0	0.3	0.4	0.4	0.4	0.4	0.4
Azerbaijan	-	-	-	-	-	-	-	-	-
Bangladesh	-	-	-	-	-	-	-	-	-
Belarus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belgium	3.6	4.3	4.2	3.1	2.2	2.2	2.3	2.3	2.3
Bolivia	-	-	-	-	-	-	-	-	-
Brazil	3.3	5.4	6.2	7.1	8.3	9.5	10.8	12.4	14.0
Bulgaria	1.5	1.2	0.6	0.7	1.2	1.2	1.2	1.2	1.2
Burma	-	-	-	-	-	-	-	-	-
Cambodia	-	-	-	-	-	-	-	-	-
Canada	11.7	11.7	2.1	3.9	1.9	2.2	2.5	2.9	3.2
Chile	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2
China	4.6	5.2	5.3	6.4	7.3	8.0	8.7	9.5	9.9
Colombia	0.1	0.1	0.3	0.4	0.4	0.4	0.5	0.5	0.5
Congo (Kinshasa)	-	-	-	-	-	-	-	-	-
Croatia	0.8	0.7	0.7	0.7	0.6	0.6	0.7	0.7	0.7
Czech Republic	1.1	1.0	1.0	1.0	0.5	0.5	0.5	0.5	0.5
Denmark	1.0	0.9	1.0	-	-	-	-	-	-
Ecuador	-	-	-	-	-	-	-	-	-
Egypt	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Estonia	-	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-	-	-
Finland	1.7	1.5	1.4	1.6	1.7	1.8	1.9	2.0	2.1
France	21.4	22.9	9.3	5.8	3.4	3.5	3.5	3.5	3.6
Georgia	0.7	0.3	0.5	0.6	0.7	0.7	0.7	0.7	0.7
Germany	22.2	24.5	5.2	8.2	9.9	1.6	1.7	1.8	1.8
Greece	1.1	0.9	0.8	0.5	0.4	0.4	0.4	0.4	0.4
Hungary	3.2	1.3	1.8	1.7	0.0	0.0	0.0	0.0	0.0
Iceland	-	-	-	-	-	-	-	-	-
India	2.2	2.8	3.1	3.3	5.6	5.9	6.3	6.6	5.9
Indonesia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iran	0.5	0.7	0.7	0.7	0.8	0.9	1.0	1.1	0.9
Iraq	-	-	-	-	-	-	-	-	-
Ireland	1.0	0.8	0.8	-	-	-	-	-	-
Israel	-	-	-	-	-	-	-	-	-
Italy	6.7	7.2	7.9	7.8	0.9	0.9	0.9	0.9	0.9
Japan	8.3	8.2	4.7	1.3	1.6	1.8	2.1	2.5	2.8
Jordan	-	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	-	-	-	-	-	-	-	-	-
Laos	-	-	-	-	-	-	-	-	-
Latvia	-	-	-	-	-	-	-	-	-
Lithuania	0.9	0.6	1.5	2.4	0.7	0.8	0.8	0.8	0.8
Luxembourg	-	-	-	-	-	-	-	-	-
Macedonia	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Mexico	0.5	0.5	0.3	0.1	0.4	0.5	0.5	0.6	0.4
Moldova	-	-	-	-	-	-	-	-	-
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	-	-	-	-	-	-	-	-	-
Nepal	-	-	-	-	-	-	-	-	-
Netherlands	6.3	6.3	5.9	5.7	0.8	0.7	0.7	0.7	0.7
New Zealand	-	-	-	-	-	-	-	-	-
Nigeria	-	-	-	-	-	-	-	-	-
North Korea	0.4	0.3	0.4	0.5	0.7	0.8	1.0	1.1	1.3
Norway	2.1	1.6	1.7	2.0	1.3	1.3	1.3	1.3	1.3
Pakistan	-	-	-	-	-	-	-	-	-
Peru	-	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Philippines	-	-	-	-	-	-	-	-	-
Poland	3.5	3.9	4.0	4.4	0.9	1.2	1.2	1.2	4.6
Portugal	0.6	0.6	0.4	0.4	0.0	0.0	0.0	0.0	0.0
Romania	4.0	3.3	3.2	2.9	3.4	3.6	3.7	3.8	3.8
Russia	3.7	2.4	2.7	3.6	3.9	4.0	4.1	4.2	4.2
Saudi Arabia	-	-	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-	-	-
Singapore	-	0.6	0.7	0.8	0.8	0.9	0.9	1.1	1.3
Slovakia	1.1	1.1	1.0	1.3	0.0	0.0	0.0	0.0	0.0
Slovenia	-	-	0.0	0.0	-	-	-	-	-
South Africa	1.8	2.3	2.4	1.9	2.4	2.6	2.7	2.8	2.4
South Korea	5.8	5.2	6.7	9.2	11.8	13.9	16.4	19.4	22.8
Spain	2.8	2.1	2.1	1.4	0.0	0.0	0.0	0.0	0.0
Sweden	0.8	0.7	0.6	0.4	0.4	0.4	0.4	0.4	0.4
Switzerland	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Tajikistan	-	-	-	-	-	-	-	-	-
Thailand	-	-	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Turkey	0.1	5.1	4.3	1.8	-	-	-	-	-
Turkmenistan	0.4	0.3	0.4	0.5	0.8	0.8	0.8	0.8	0.8
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	4.0	1.6	2.2	2.7	6.2	6.5	6.7	6.7	6.7
United Arab Emirates	-	-	-	-	-	-	-	-	-
United Kingdom	24.6	14.9	5.5	2.9	2.2	2.1	2.0	2.0	1.9
United States	33.5	37.3	24.9	21.5	28.6	30.5	32.4	34.5	36.7
Uruguay	-	-	-	-	-	-	-	-	-
Uzbekistan	1.8	1.6	1.4	1.6	1.6	1.7	1.7	1.7	1.6
Venezuela	0.5	0.4	0.3	0.4	0.3	0.4	0.4	0.4	0.3
Vietnam	-	-	-	-	-	-	-	-	-
Rest of Africa	0.2	0.3	0.5	0.1	0.1	0.1	0.1	0.2	0.1
Rest of Central and South	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest of Middle East	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0
Rest of Non-OECD Asia	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Europe and	0.8	0.6	1.5	1.6	1.2	1.2	1.2	1.3	1.2
Africa	2.5	3.2	3.5	2.5	3.1	3.3	3.4	3.6	3.2
Central and South America	5.0	6.2	7.1	8.2	9.5	10.7	12.1	13.8	15.3
Middle East	0.5	0.7	0.7	0.7	0.9	1.0	1.1	1.2	1.0
OECD	165.9	165.9	99.0	86.4	69.7	66.3	71.6	77.6	87.4
Non-OECD Asia	7.1	8.9	9.7	11.3	14.6	15.8	17.0	18.5	18.6
Non-OECD Europe &	18.8	12.7	14.8	17.3	20.5	21.2	21.6	21.8	21.8
EU	110.2	101.0	59.4	52.5	29.1	21.4	21.6	21.9	25.6
OPEC	1.1	1.4	1.3	1.3	1.4	1.6	1.7	1.9	1.6
World Totals	199.8	197.7	134.9	126.5	118.3	118.2	126.9	136.5	147.2

Table C-3: HFC and PFC Emissions from Use of Substitutes for Ozone-Depleting Substances by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	-	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Algeria	-	0.1	0.4	1.0	3.0	5.3	6.9	9.6	11.7
Argentina	-	0.1	0.5	1.2	2.3	3.5	4.7	7.2	9.1
Armenia	-	0.0	0.1	0.2	0.3	0.4	0.6	0.9	1.1
Australia	-	1.1	3.5	5.8	7.8	10.9	13.6	17.2	19.5
Austria	-	0.3	0.6	0.9	1.1	1.4	1.8	2.2	2.4
Azerbaijan	-	0.0	0.0	0.1	0.2	0.3	0.5	0.7	0.9
Bangladesh	-	0.0	0.0	0.1	0.4	0.8	1.0	1.3	1.7
Belarus	-	0.0	0.1	0.1	0.2	0.3	0.5	0.7	0.9
Belgium	-	0.4	0.9	1.4	1.6	2.2	2.8	3.5	3.9
Bolivia	-	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Brazil	-	0.3	1.7	3.8	6.5	9.7	14.1	23.7	31.1
Bulgaria	-	0.0	0.2	0.3	0.5	0.8	1.0	1.4	1.7
Burma	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cambodia	-	0.0	0.0	0.1	0.1	0.2	0.2	0.4	0.6
Canada	-	2.2	6.6	9.6	10.6	14.7	19.2	25.6	28.9
Chile	-	0.0	0.2	0.4	0.7	1.1	1.6	2.4	3.2
China	-	1.0	7.6	23.5	58.2	110.0	187.8	377.6	598.9
Colombia	-	0.1	0.3	0.7	1.1	1.6	2.2	3.7	4.8
Congo (Kinshasa)	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Croatia	-	0.0	0.1	0.3	0.6	0.9	1.1	1.6	1.8
Czech Republic	-	0.1	0.3	0.6	1.0	1.4	1.8	2.6	3.0
Denmark	-	0.3	0.6	0.9	1.1	1.4	1.8	2.3	2.5
Ecuador	-	0.0	0.1	0.2	0.3	0.5	0.7	1.2	1.5
Egypt	-	0.1	0.4	1.0	1.6	2.4	3.5	5.7	7.3
Estonia	-	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Ethiopia	-	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2
Finland	-	0.1	0.3	0.4	0.5	0.6	0.8	1.1	1.2
France	-	2.4	5.8	8.7	10.3	13.7	17.8	22.2	24.5
Georgia	-	0.0	0.1	0.2	0.4	0.6	0.8	1.4	1.9
Germany	-	3.4	7.9	11.8	13.8	18.2	23.4	29.2	32.2
Greece	-	0.2	0.4	0.6	0.7	1.0	1.2	1.5	1.7
Hungary	-	0.1	0.3	0.8	1.4	2.0	2.6	3.5	4.0
Iceland	-	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2
India	-	0.1	0.6	1.7	5.5	11.3	18.0	32.8	50.1
Indonesia	-	0.0	0.2	0.5	1.2	2.0	2.9	4.5	6.0
Iran	-	0.1	0.4	1.0	1.7	2.6	3.8	6.3	8.4
Iraq	-	-	-	-	-	-	-	-	-
Ireland	-	0.1	0.2	0.3	0.4	0.6	0.7	0.9	1.0
Israel	-	0.6	2.3	4.6	6.9	10.1	14.0	21.9	27.2
Italy	-	2.3	5.5	8.3	9.8	13.0	16.8	21.0	23.2
Japan	-	9.6	24.2	38.2	41.8	53.9	69.3	89.1	100.4
Jordan	-	0.0	0.1	0.2	0.5	0.8	1.1	1.7	2.1
Kazakhstan	-	0.0	0.0	0.1	0.2	0.3	0.5	0.7	0.9
Kuwait	-	0.1	0.4	0.9	1.6	2.5	4.0	7.3	10.4
Kyrgyzstan	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Laos	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Latvia	-	0.0	0.1	0.3	0.6	0.8	1.1	1.7	2.2
Lithuania	-	0.0	0.1	0.4	0.6	0.9	1.2	1.9	2.4
Luxembourg	-	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2
Macedonia	-	0.0	0.2	0.5	1.0	1.5	2.0	2.9	3.4
Mexico	-	0.3	1.9	4.3	8.1	12.5	16.7	24.8	30.9
Moldova	-	0.0	0.1	0.1	0.2	0.3	0.4	0.6	0.8

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Monaco	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mongolia	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nepal	-	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2
Netherlands	-	0.6	1.4	2.0	2.4	3.1	4.0	5.0	5.6
New Zealand	-	0.1	0.5	0.8	1.1	1.6	2.0	2.4	2.8
Nigeria	-	0.0	0.0	0.1	0.2	0.3	0.5	1.1	1.7
North Korea	-	0.0	0.2	0.6	1.0	1.7	3.1	6.4	9.7
Norway	-	0.1	0.3	0.5	0.6	0.8	1.1	1.4	1.5
Pakistan	-	0.0	0.2	0.5	0.8	1.1	1.7	3.0	4.0
Peru	-	0.0	0.1	0.3	0.5	0.8	1.1	1.9	2.5
Philippines	-	0.1	0.8	1.9	3.1	4.7	7.0	12.4	16.5
Poland	-	0.2	0.8	1.8	3.1	4.5	5.9	7.8	9.0
Portugal	-	0.1	0.3	0.5	0.6	0.8	1.0	1.3	1.4
Romania	-	0.1	0.2	0.3	0.4	0.6	0.8	1.2	1.5
Russia	-	2.2	6.5	13.5	19.7	28.9	40.5	64.6	82.2
Saudi Arabia	-	0.1	0.8	2.0	3.5	5.4	7.8	12.7	16.7
Senegal	-	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.3
Singapore	-	0.0	0.2	0.5	0.8	1.5	2.7	5.7	8.8
Slovakia	-	0.0	0.1	0.2	0.4	0.5	0.7	1.0	1.2
Slovenia	-	0.0	0.1	0.2	0.4	0.6	0.8	1.1	1.3
South Africa	-	0.3	1.9	4.7	8.7	13.3	18.9	30.6	39.0
South Korea	-	0.8	4.7	11.5	17.6	25.5	36.8	62.4	81.3
Spain	-	1.0	2.4	3.6	4.3	5.7	7.4	9.2	10.1
Sweden	-	0.2	0.6	1.0	1.1	1.4	1.8	2.3	2.6
Switzerland	-	0.1	0.3	0.6	0.9	1.2	1.5	1.8	2.0
Tajikistan	-	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Thailand	-	0.1	0.8	1.9	3.7	6.2	10.0	18.9	27.3
Turkey	-	0.1	0.3	0.7	1.2	1.8	2.6	4.4	5.8
Turkmenistan	-	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Uganda	-	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Ukraine	-	0.1	0.2	0.5	0.8	1.1	1.5	2.4	3.1
United Arab Emirates	-	0.0	0.1	0.2	0.4	0.7	1.1	2.1	3.1
United Kingdom	-	2.0	4.7	7.1	8.6	11.4	14.8	18.6	20.5
United States	-	28.5	73.3	103.2	131.1	185.4	246.5	323.3	366.9
Uruguay	-	0.0	0.1	0.2	0.4	0.7	0.9	1.5	2.0
Uzbekistan	-	0.0	0.1	0.2	0.3	0.5	0.6	1.0	1.3
Venezuela	-	0.1	0.8	1.8	3.2	4.7	6.8	11.4	14.9
Vietnam	-	0.0	0.1	0.2	0.5	0.9	1.2	1.8	2.3
Rest of Africa	-	0.1	0.7	1.7	3.3	5.5	8.0	13.5	18.1
Rest of Central and South	-	0.2	0.9	2.2	4.1	6.2	8.7	14.0	17.9
Rest of Middle East	-	0.1	0.4	1.1	2.4	4.0	5.6	9.2	12.3
Rest of Non-OECD Asia	-	0.2	1.0	2.4	4.3	6.9	11.1	20.8	29.7
Rest of Non-OECD Europe and	-	0.1	0.2	0.5	0.8	1.1	1.5	2.3	2.8
Africa	-	0.6	3.4	8.6	16.9	27.0	38.1	61.0	78.5
Central and South America	-	0.8	4.5	10.5	18.6	27.6	39.3	64.6	83.8
Middle East	-	0.3	2.2	5.5	10.1	16.0	23.4	39.4	53.1
OECD	-	57.4	151.4	231.6	291.0	402.9	533.1	713.5	822.2
Non-OECD Asia	-	1.7	11.6	33.8	79.5	147.3	246.8	485.9	755.8
Non-OECD Europe &	-	2.7	8.4	17.7	26.7	39.3	54.9	86.6	109.5
EU	-	14.0	34.1	52.8	65.0	87.0	112.9	143.8	160.7
OPEC	-	0.5	3.0	7.6	14.4	22.7	32.6	53.6	70.9
World Totals	-	63.5	181.4	307.7	442.8	660.2	935.6	1,451.0	1,902.7

Table C-4: HFC-23 Emissions from HCFC-22 Production by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-
Argentina	-	-	0.1	0.5	0.6	0.7	1.5	1.6	1.7
Armenia	-	-	-	-	-	-	-	-	-
Australia	1.1	0.7	-	-	-	-	-	-	-
Austria	-	-	-	-	-	-	-	-	-
Azerbaijan	-	-	-	-	-	-	-	-	-
Bangladesh	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	-	-	-	-	-	-
Belgium	-	-	-	-	-	-	-	-	-
Bolivia	-	-	-	-	-	-	-	-	-
Brazil	1.4	1.8	-	-	-	-	-	-	-
Bulgaria	-	-	-	-	-	-	-	-	-
Burma	-	-	-	-	-	-	-	-	-
Cambodia	-	-	-	-	-	-	-	-	-
Canada	0.8	-	-	-	-	-	-	-	-
Chile	-	-	-	-	-	-	-	-	-
China	-	3.2	27.7	91.3	62.1	70.0	132.2	142.3	147.0
Colombia	-	-	-	-	-	-	-	-	-
Congo (Kinshasa)	-	-	-	-	-	-	-	-	-
Croatia	-	-	-	-	-	-	-	-	-
Czech Republic	-	-	-	-	-	-	-	-	-
Denmark	-	-	-	-	-	-	-	-	-
Ecuador	-	-	-	-	-	-	-	-	-
Egypt	-	-	-	-	-	-	-	-	-
Estonia	-	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-	-	-
Finland	-	-	-	-	-	-	-	-	-
France	1.6	0.2	0.3	0.3	-	-	-	-	-
Georgia	-	-	-	-	-	-	-	-	-
Germany	2.5	1.5	0.1	0.2	0.3	0.4	0.4	0.5	0.6
Greece	0.9	3.3	3.7	2.2	-	-	-	-	-
Hungary	-	-	-	-	-	-	-	-	-
Iceland	-	-	-	-	-	-	-	-	-
India	-	6.4	16.8	34.2	29.1	37.3	75.2	80.9	83.6
Indonesia	-	-	-	-	-	-	-	-	-
Iran	-	-	-	-	-	-	-	-	-
Iraq	-	-	-	-	-	-	-	-	-
Ireland	-	-	-	-	-	-	-	-	-
Israel	-	-	-	-	-	-	-	-	-
Italy	0.4	0.4	0.1	0.2	-	-	-	-	-
Japan	13.2	17.0	12.4	0.5	0.2	0.3	0.4	0.9	2.1
Jordan	-	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	-	-	-	-	-	-	-	-	-
Laos	-	-	-	-	-	-	-	-	-
Latvia	-	-	-	-	-	-	-	-	-
Lithuania	-	-	-	-	-	-	-	-	-
Luxembourg	-	-	-	-	-	-	-	-	-
Macedonia	-	-	-	-	-	-	-	-	-
Mexico	4.4	2.4	5.1	12.6	10.2	13.1	26.5	28.5	29.4
Moldova	-	-	-	-	-	-	-	-	-
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	-	-	-	-	-	-	-	-	-
Nepal	-	-	-	-	-	-	-	-	-
Netherlands	4.4	5.8	2.4	0.2	0.2	0.2	0.3	0.3	0.4
New Zealand	-	-	-	-	-	-	-	-	-
Nigeria	-	-	-	-	-	-	-	-	-
North Korea	-	-	-	-	-	-	-	-	-
Norway	-	-	-	-	-	-	-	-	-
Pakistan	-	-	-	-	-	-	-	-	-
Peru	-	-	-	-	-	-	-	-	-
Philippines	-	-	-	-	-	-	-	-	-
Poland	-	-	-	-	-	-	-	-	-
Portugal	-	-	-	-	-	-	-	-	-
Romania	-	-	-	-	-	-	-	-	-
Russia	28.4	12.2	20.9	14.1	9.3	6.9	4.6	5.9	7.5
Saudi Arabia	-	-	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-	-	-
Singapore	-	-	-	-	-	-	-	-	-
Slovakia	-	-	-	-	-	-	-	-	-
Slovenia	-	-	-	-	-	-	-	-	-
South Africa	-	1.2	-	-	-	-	-	-	-
South Korea	-	2.1	5.6	5.2	1.6	2.1	4.2	4.5	4.7
Spain	2.4	4.6	6.3	0.3	0.4	0.4	0.5	0.6	0.8
Sweden	-	-	-	-	-	-	-	-	-
Switzerland	-	-	-	-	-	-	-	-	-
Tajikistan	-	-	-	-	-	-	-	-	-
Thailand	-	-	-	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-	-
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	-	-	-	-	-	-	-	-	-
United Arab Emirates	-	-	-	-	-	-	-	-	-
United Kingdom	3.4	2.0	1.1	0.8	-	-	-	-	-
United States	36.4	33.0	28.6	15.8	11.8	10.6	10.8	7.9	6.0
Uruguay	-	-	-	-	-	-	-	-	-
Uzbekistan	-	-	-	-	-	-	-	-	-
Venezuela	2.7	1.8	0.7	0.8	1.9	2.1	2.2	2.3	2.4
Vietnam	-	-	-	-	-	-	-	-	-
Rest of Africa	-	-	-	-	-	-	-	-	-
Rest of Central and South	-	-	-	-	-	-	-	-	-
Rest of Middle East	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Asia	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Europe and	-	-	-	-	-	-	-	-	-
Africa	-	1.2	-	-	-	-	-	-	-
Central and South America	4.1	3.6	0.8	1.3	2.5	2.8	3.7	4.0	4.1
Middle East	-	-	-	-	-	-	-	-	-
OECD	71.6	72.9	66.0	38.2	24.9	27.2	43.0	43.2	44.1
Non-OECD Asia	-	9.7	44.5	125.4	91.2	107.3	207.4	223.2	230.6
Non-OECD Europe &	28.4	12.2	20.9	14.1	9.3	6.9	4.6	5.9	7.5
EU	15.7	17.8	14.2	4.1	1.0	1.0	1.1	1.4	1.8
OPEC	2.7	1.8	0.7	0.8	1.9	2.1	2.2	2.3	2.4
World Totals	104.2	99.5	132.2	179.0	127.9	144.2	258.8	276.3	286.4

Table C-5: SF₆ Emissions from Operation of Electric Power Systems by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Algeria	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2
Argentina	0.1	0.1	0.1	0.3	0.3	0.4	0.4	0.4	0.4
Armenia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Australia	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Austria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Azerbaijan	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Bangladesh	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2
Belarus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belgium	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bolivia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brazil	0.5	0.4	0.4	1.3	1.6	1.9	2.2	2.5	2.8
Bulgaria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Burma	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cambodia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Canada	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Chile	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2
China	1.4	1.4	1.9	8.4	12.8	15.6	18.9	22.7	26.3
Colombia	0.1	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2
Congo (Kinshasa)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Croatia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Czech Republic	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Denmark	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ecuador	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Egypt	0.1	0.1	0.1	0.3	0.3	0.4	0.4	0.5	0.5
Estonia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethiopia	-	-	-	-	-	-	-	-	-
Finland	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
France	0.9	1.0	0.6	0.5	0.4	0.3	0.3	0.2	0.1
Georgia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Germany	1.0	1.1	1.2	0.8	0.9	0.8	0.6	0.5	0.4
Greece	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1
Iceland	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0
India	0.5	0.4	0.5	1.7	2.2	2.7	3.2	3.7	4.2
Indonesia	0.1	0.1	0.1	0.4	0.4	0.5	0.6	0.7	0.9
Iran	0.1	0.1	0.1	0.5	0.5	0.6	0.7	0.7	0.8
Iraq	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2
Ireland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Israel	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.3
Italy	0.2	0.5	0.3	0.3	0.3	0.2	0.2	0.1	0.1
Japan	11.0	11.0	3.1	0.9	0.9	0.9	0.9	0.9	0.9
Jordan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Kazakhstan	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Kuwait	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2
Kyrgyzstan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Laos	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Latvia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lithuania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Luxembourg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Macedonia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mexico	0.2	0.2	0.2	0.7	0.7	0.9	1.0	1.2	1.3
Moldova	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nepal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Netherlands	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nigeria	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
North Korea	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2
Norway	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1
Pakistan	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.6
Peru	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Philippines	0.0	0.0	0.0	0.2	0.2	0.2	0.3	0.3	0.4
Poland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Portugal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Romania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Russia	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Saudi Arabia	0.1	0.1	0.1	0.5	0.6	0.6	0.7	0.8	0.9
Senegal	-	-	-	-	-	-	-	-	-
Singapore	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Slovakia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slovenia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	0.3	0.2	0.2	0.7	0.8	1.0	1.1	1.2	1.4
South Korea	0.2	0.2	0.3	1.2	1.4	1.6	1.8	2.0	2.2
Spain	0.1	0.1	0.2	0.3	0.2	0.2	0.1	0.1	0.1
Sweden	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Switzerland	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Tajikistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Thailand	0.1	0.1	0.1	0.4	0.5	0.6	0.7	0.8	1.0
Turkey	0.2	0.2	0.3	0.7	0.7	0.7	0.7	0.7	0.7
Turkmenistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	0.5	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5
United Arab Emirates	0.0	0.0	0.0	0.2	0.2	0.2	0.3	0.3	0.3
United Kingdom	0.6	0.8	0.6	0.5	0.5	0.5	0.5	0.2	0.2
United States	28.4	22.8	16.1	15.2	12.1	12.1	11.1	10.8	10.3
Uruguay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uzbekistan	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Venezuela	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3
Vietnam	0.0	0.0	0.0	0.2	0.2	0.2	0.3	0.3	0.4
Rest of Africa	0.1	0.1	0.1	0.3	0.3	0.4	0.5	0.5	0.6
Rest of Central and South	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3
Rest of Middle East	0.0	0.0	0.1	0.2	0.3	0.3	0.3	0.4	0.4
Rest of Non-OECD Asia	0.1	0.1	0.1	0.3	0.4	0.5	0.5	0.6	0.8
Rest of Non-OECD Europe and	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Africa	0.6	0.4	0.5	1.5	1.7	2.0	2.3	2.5	2.8
Central and South America	0.8	0.6	0.8	2.3	2.8	3.2	3.5	3.9	4.3
Middle East	0.4	0.4	0.5	1.6	1.9	2.1	2.3	2.5	2.9
OECD	44.1	39.2	24.0	22.4	19.3	19.3	18.5	17.9	17.4
Non-OECD Asia	2.3	2.2	2.9	12.0	17.3	21.0	25.4	30.2	35.1
Non-OECD Europe &	1.1	0.5	0.5	1.3	1.3	1.3	1.3	1.3	1.3
EU	3.4	4.0	3.4	2.8	2.6	2.3	2.0	1.4	1.1
OPEC	0.5	0.4	0.6	1.9	2.2	2.4	2.7	3.0	3.3
World Totals	49.3	43.4	29.1	41.2	44.2	48.8	53.2	58.4	63.8

Table C-6: PFC Emissions from Primary Aluminum Production by Country (MtCO_{2e})

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-
Argentina	1.6	0.5	0.3	0.2	0.1	0.1	0.2	0.2	0.2
Armenia	-	-	-	-	-	-	-	-	-
Australia	4.0	1.3	1.1	1.5	0.8	0.8	0.9	1.0	1.1
Austria	1.1	-	-	-	-	-	-	-	-
Azerbaijan	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0
Bangladesh	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	-	-	-	-	-	-
Belgium	-	-	-	-	-	-	-	-	-
Bolivia	-	-	-	-	-	-	-	-	-
Brazil	2.2	2.2	1.1	0.9	0.5	0.5	0.5	0.6	0.6
Bulgaria	-	-	-	-	-	-	-	-	-
Burma	-	-	-	-	-	-	-	-	-
Cambodia	-	-	-	-	-	-	-	-	-
Canada	6.5	5.5	4.3	3.3	1.7	1.8	2.0	2.1	2.3
Chile	-	-	-	-	-	-	-	-	-
China	3.0	5.2	7.0	5.6	11.1	12.6	14.3	16.2	18.3
Colombia	-	-	0.1	0.5	-	-	-	-	-
Congo (Kinshasa)	-	-	-	-	-	-	-	-	-
Croatia	0.9	-	-	-	-	-	-	-	-
Czech Republic	-	-	-	-	-	-	-	-	-
Denmark	-	-	-	-	-	-	-	-	-
Ecuador	-	-	-	-	-	-	-	-	-
Egypt	2.4	1.6	1.1	0.7	0.4	0.4	0.5	0.5	0.5
Estonia	-	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-	-	-
Finland	-	-	-	-	-	-	-	-	-
France	3.0	1.8	1.6	0.7	0.3	0.3	0.3	0.3	0.3
Georgia	-	-	-	-	-	-	-	-	-
Germany	2.5	1.6	0.4	0.3	0.1	0.1	0.1	0.1	0.1
Greece	0.3	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0
Hungary	0.3	0.2	0.2	0.2	-	-	-	-	-
Iceland	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1
India	2.0	1.6	1.3	1.0	0.8	0.8	0.9	1.0	1.0
Indonesia	0.9	0.7	0.3	0.3	0.1	0.1	0.2	0.2	0.2
Iran	0.3	0.4	0.3	0.2	0.1	0.1	0.2	0.2	0.2
Iraq	-	-	-	-	-	-	-	-	-
Ireland	-	-	-	-	-	-	-	-	-
Israel	-	-	-	-	-	-	-	-	-
Italy	1.7	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Japan	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jordan	-	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	0.1	0.1	0.1	0.1	0.1
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	-	-	-	-	-	-	-	-	-
Laos	-	-	-	-	-	-	-	-	-
Latvia	-	-	-	-	-	-	-	-	-
Lithuania	-	-	-	-	-	-	-	-	-
Luxembourg	-	-	-	-	-	-	-	-	-
Macedonia	-	-	-	-	-	-	-	-	-
Mexico	0.7	0.6	0.6	-	-	-	-	-	-
Moldova	-	-	-	-	-	-	-	-	-
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	-	-	-	-	-	-	-	-	-
Nepal	-	-	-	-	-	-	-	-	-
Netherlands	2.2	1.9	1.4	0.1	0.0	0.0	0.0	0.1	0.1
New Zealand	0.6	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Nigeria	-	-	-	-	0.0	0.1	0.1	0.1	0.1
North Korea	-	-	-	-	-	-	-	-	-
Norway	3.4	2.0	1.3	0.8	0.2	0.3	0.3	0.3	0.4
Pakistan	-	-	-	-	-	-	-	-	-
Peru	-	-	-	-	-	-	-	-	-
Philippines	-	-	-	-	-	-	-	-	-
Poland	0.2	0.3	0.2	0.2	-	-	-	-	-
Portugal	-	-	-	-	-	-	-	-	-
Romania	2.1	1.8	1.3	0.1	0.0	0.0	0.0	0.0	0.0
Russia	11.7	10.0	7.2	4.6	2.5	2.8	3.0	3.2	3.4
Saudi Arabia	-	-	-	-	-	0.1	0.2	0.2	0.2
Senegal	-	-	-	-	-	-	-	-	-
Singapore	-	-	-	-	-	-	-	-	-
Slovakia	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slovenia	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
South Africa	0.7	0.7	1.4	0.9	0.4	0.4	0.4	0.4	0.4
South Korea	0.0	-	-	-	-	-	-	-	-
Spain	0.9	0.8	0.4	0.1	0.1	0.1	0.1	0.1	0.1
Sweden	0.4	0.3	0.2	0.3	0.1	0.1	0.1	0.2	0.2
Switzerland	0.1	0.0	0.0	0.0	-	-	-	-	-
Tajikistan	-	0.7	0.5	0.4	0.2	0.2	0.2	0.2	0.3
Thailand	-	-	-	-	-	-	-	-	-
Turkey	0.6	0.5	0.5	0.5	0.2	0.3	0.3	0.3	0.3
Turkmenistan	-	-	-	-	-	-	-	-	-
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
United Arab Emirates	0.8	0.8	0.9	0.8	0.7	1.0	1.0	1.0	1.0
United Kingdom	1.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1
United States	18.5	11.8	8.6	3.0	3.7	3.7	3.6	3.6	3.6
Uruguay	-	-	-	-	-	-	-	-	-
Uzbekistan	-	-	-	-	-	-	-	-	-
Venezuela	2.8	1.9	1.1	0.6	0.2	0.2	0.2	0.2	0.3
Vietnam	-	-	-	-	-	-	-	-	-
Rest of Africa	1.0	0.7	0.3	0.7	0.3	0.3	0.4	0.4	0.4
Rest of Central and South	0.2	0.1	-	-	-	-	-	-	-
Rest of Middle East	0.1	0.1	0.1	0.1	0.3	0.5	0.6	0.6	0.6
Rest of Non-OECD Asia	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Europe and	1.4	1.6	1.8	1.3	0.4	0.5	0.6	0.6	0.7
Africa	4.1	2.9	2.8	2.3	1.2	1.2	1.3	1.4	1.4
Central and South America	6.7	4.7	2.7	2.3	0.8	0.8	0.9	1.0	1.1
Middle East	1.2	1.3	1.3	1.1	1.2	1.8	1.9	2.0	2.0
OECD	49.6	29.7	21.8	11.7	7.6	7.8	8.0	8.4	8.8
Non-OECD Asia	6.0	7.5	8.6	6.9	12.0	13.6	15.4	17.3	19.5
Non-OECD Europe &	16.4	14.2	11.0	6.5	3.3	3.6	3.9	4.2	4.6
EU	16.5	9.5	6.4	2.5	0.9	0.9	0.9	1.0	1.0
OPEC	3.9	3.1	2.4	1.6	1.1	1.8	1.9	2.0	2.0
World Totals	83.9	60.4	48.1	30.6	26.0	28.9	31.4	34.3	37.4

Table C-7: SF₆ Emissions from Magnesium Manufacturing by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-
Argentina	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Armenia	-	-	-	-	-	-	-	-	-
Australia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Austria	0.2	0.4	0.0	0.0	0.0	-	-	-	-
Azerbaijan	-	-	-	-	-	-	-	-	-
Bangladesh	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	-	-	-	-	-	-
Belgium	-	-	-	-	-	-	-	-	-
Bolivia	-	-	-	-	-	-	-	-	-
Brazil	0.1	0.2	0.2	0.5	0.1	-	-	-	-
Bulgaria	-	-	-	-	-	-	-	-	-
Burma	-	-	-	-	-	-	-	-	-
Cambodia	-	-	-	-	-	-	-	-	-
Canada	0.2	0.2	0.5	0.2	0.1	0.1	0.1	-	-
Chile	-	-	-	-	-	-	-	-	-
China	0.0	0.2	0.7	1.3	1.2	1.6	2.1	2.2	2.3
Colombia	-	-	-	-	-	-	-	-	-
Congo (Kinshasa)	-	-	-	-	-	-	-	-	-
Croatia	-	-	-	-	-	-	-	-	-
Czech Republic	-	-	-	-	-	-	-	-	-
Denmark	0.0	0.0	0.0	0.0	0.0	-	-	-	-
Ecuador	-	-	-	-	-	-	-	-	-
Egypt	-	-	-	-	-	-	-	-	-
Estonia	-	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-	-	-
Finland	-	-	-	-	-	-	-	-	-
France	0.8	0.9	0.8	0.4	0.0	-	-	-	-
Georgia	-	-	-	-	-	-	-	-	-
Germany	0.2	0.2	0.3	0.7	0.1	-	-	-	-
Greece	-	-	-	-	-	-	-	-	-
Hungary	-	-	-	-	-	-	-	-	-
Iceland	-	-	-	-	-	-	-	-	-
India	-	-	-	-	-	-	-	-	-
Indonesia	-	-	-	-	-	-	-	-	-
Iran	-	-	-	-	-	-	-	-	-
Iraq	-	-	-	-	-	-	-	-	-
Ireland	-	-	-	-	-	-	-	-	-
Israel	-	-	0.8	0.8	0.4	0.4	0.5	0.5	0.6
Italy	0.0	0.0	0.2	0.1	0.0	-	-	-	-
Japan	0.1	0.1	1.0	1.2	0.6	0.6	0.6	-	-
Jordan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kazakhstan	0.0	0.3	0.2	0.4	0.4	0.5	0.5	0.5	0.6
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	-	-	-	-	-	-	-	-	-
Laos	-	-	-	-	-	-	-	-	-
Latvia	-	-	-	-	-	-	-	-	-
Lithuania	-	-	-	-	-	-	-	-	-
Luxembourg	-	-	-	-	-	-	-	-	-
Macedonia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mexico	-	-	-	-	-	-	-	-	-
Moldova	-	-	-	-	-	-	-	-	-
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	-	-	-	-	-	-	-	-	-
Nepal	-	-	-	-	-	-	-	-	-
Netherlands	-	-	-	-	-	-	-	-	-
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nigeria	-	-	-	-	-	-	-	-	-
North Korea	-	-	-	-	-	-	-	-	-
Norway	2.1	0.4	0.8	0.2	0.0	-	-	-	-
Pakistan	-	-	-	-	-	-	-	-	-
Peru	-	-	-	-	-	-	-	-	-
Philippines	-	-	-	-	-	-	-	-	-
Poland	0.0	0.0	0.0	0.0	0.0	-	-	-	-
Portugal	0.0	0.0	0.0	0.0	0.0	-	-	-	-
Romania	-	-	-	-	-	-	-	-	-
Russia	1.8	1.1	0.9	1.0	0.9	1.1	1.2	1.4	1.6
Saudi Arabia	-	-	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-	-	-
Singapore	-	-	-	-	-	-	-	-	-
Slovakia	-	-	-	-	-	-	-	-	-
Slovenia	-	-	-	-	-	-	-	-	-
South Africa	-	-	-	-	-	-	-	-	-
South Korea	-	-	-	-	-	-	-	-	-
Spain	0.0	0.0	0.0	0.0	0.0	-	-	-	-
Sweden	0.0	0.0	0.1	0.1	0.0	-	-	-	-
Switzerland	0.0	0.0	0.0	0.0	0.0	-	-	-	-
Tajikistan	-	-	-	-	-	-	-	-	-
Thailand	-	-	-	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-	-
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	0.6	0.3	0.0	0.1	0.1	0.1	0.1	0.1	0.1
United Arab Emirates	-	-	-	-	-	-	-	-	-
United Kingdom	0.0	0.0	0.0	0.0	0.0	-	-	-	-
United States	5.4	5.6	3.0	2.9	1.2	0.3	0.1	0.1	0.1
Uruguay	-	-	-	-	-	-	-	-	-
Uzbekistan	-	-	-	-	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	-	-
Vietnam	-	-	-	-	-	-	-	-	-
Rest of Africa	-	-	-	-	-	-	-	-	-
Rest of Central and South	-	-	-	-	-	-	-	-	-
Rest of Middle East	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Asia	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Europe and	-	-	-	-	-	-	-	-	-
Africa	-	-	-	-	-	-	-	-	-
Central and South America	0.1	0.2	0.2	0.5	0.1	0.0	0.0	0.0	0.0
Middle East	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OECD	9.3	8.1	7.6	6.7	2.4	1.4	1.2	0.6	0.6
Non-OECD Asia	0.0	0.2	0.7	1.3	1.2	1.6	2.1	2.2	2.3
Non-OECD Europe &	2.5	1.6	1.1	1.4	1.4	1.6	1.8	2.0	2.3
EU	1.3	1.6	1.4	1.3	0.1	-	-	-	-
OPEC	-	-	-	-	-	-	-	-	-
World Totals	12.0	10.1	9.7	9.8	5.1	4.6	5.1	4.8	5.2

Table C-8: PFC Emissions from Semiconductor Manufacturing by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-
Argentina	-	-	-	-	-	-	-	-	-
Armenia	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0
Australia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Austria	0.0	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3
Azerbaijan	-	-	-	-	-	-	-	-	-
Bangladesh	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	-	-	-	-	-	-
Belgium	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bolivia	-	-	-	-	-	-	-	-	-
Brazil	0.0	0.0	-	-	-	-	-	-	-
Bulgaria	-	-	0.0	0.0	-	-	-	-	-
Burma	-	-	-	-	-	-	-	-	-
Cambodia	-	-	-	-	-	-	-	-	-
Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chile	-	-	-	-	-	-	-	-	-
China	0.6	0.6	2.6	3.1	2.5	3.7	2.9	2.9	2.9
Colombia	-	-	-	-	-	-	-	-	-
Congo (Kinshasa)	-	-	-	-	-	-	-	-	-
Croatia	-	-	-	-	-	-	-	-	-
Czech Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denmark	-	-	-	-	-	-	-	-	-
Ecuador	-	-	-	-	-	-	-	-	-
Egypt	-	-	-	-	-	-	-	-	-
Estonia	-	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-	-	-
Finland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
France	0.2	0.3	0.5	0.3	0.2	0.2	0.2	0.2	0.2
Georgia	-	-	-	-	-	-	-	-	-
Germany	0.1	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1
Greece	-	-	-	-	-	-	-	-	-
Hungary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iceland	-	-	-	-	-	-	-	-	-
India	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2
Indonesia	-	-	-	-	-	-	-	-	-
Iran	-	-	-	-	-	-	-	-	-
Iraq	-	-	-	-	-	-	-	-	-
Ireland	0.0	0.1	0.3	0.2	0.1	0.1	0.1	0.1	0.1
Israel	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.3
Italy	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1
Japan	4.4	3.1	5.6	3.9	2.4	2.4	2.4	2.4	2.4
Jordan	-	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	-	-	-	-	-	-	-	-	-
Laos	-	-	-	-	-	-	-	-	-
Latvia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lithuania	-	-	-	-	-	-	-	-	-
Luxembourg	-	-	-	-	-	-	-	-	-
Macedonia	-	-	-	-	-	-	-	-	-

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mexico	0.0	0.0	0.0	-	-	-	-	-	-
Moldova	-	-	-	-	-	-	-	-	-
Monaco	-	-	-	-	-	-	-	-	-
Mongolia	-	-	-	-	-	-	-	-	-
Nepal	-	-	-	-	-	-	-	-	-
Netherlands	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0
New Zealand	-	-	-	-	-	-	-	-	-
Nigeria	-	-	-	-	-	-	-	-	-
North Korea	-	-	-	-	-	-	-	-	-
Norway	-	-	-	-	-	-	-	-	-
Pakistan	-	-	-	-	-	-	-	-	-
Peru	-	-	-	-	-	-	-	-	-
Philippines	-	-	-	-	-	-	-	-	-
Poland	-	-	-	-	-	-	-	-	-
Portugal	-	-	-	-	-	-	-	-	-
Romania	-	-	-	-	-	-	-	-	-
Russia	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Saudi Arabia	-	-	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-	-	-
Singapore	0.1	0.1	0.7	0.6	0.7	0.9	1.1	1.3	1.5
Slovakia	-	-	0.0	0.0	-	-	-	-	-
Slovenia	-	-	-	-	-	-	-	-	-
South Africa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Korea	0.6	0.7	1.8	1.3	0.8	0.8	0.8	0.8	0.8
Spain	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Sweden	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Switzerland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tajikistan	-	-	-	-	-	-	-	-	-
Thailand	-	-	-	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-	-
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	-	-	-	-	-	-	-	-	-
United Arab Emirates	-	-	-	-	-	-	-	-	-
United Kingdom	0.2	0.3	0.5	0.4	0.2	0.2	0.2	0.2	0.2
United States	2.2	3.8	4.9	3.2	2.6	2.6	2.6	2.6	2.6
Uruguay	-	-	-	-	-	-	-	-	-
Uzbekistan	-	-	-	-	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	-	-
Vietnam	-	-	-	-	-	-	-	-	-
Rest of Africa	-	-	-	-	-	-	-	-	-
Rest of Central and South	-	-	-	-	-	-	-	-	-
Rest of Middle East	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Asia	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.3	0.3
Rest of Non-OECD Europe and	-	-	-	-	-	-	-	-	-
Africa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central and South America	0.0	0.0	-	-	-	-	-	-	-
Middle East	-	-	-	-	-	-	-	-	-
OECD	8.2	8.7	14.6	10.0	6.9	6.9	6.9	7.0	7.0
Non-OECD Asia	0.8	0.8	3.3	3.9	3.4	4.8	4.3	4.6	5.0
Non-OECD Europe &	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
EU	0.8	1.0	2.1	1.5	1.0	1.0	1.0	1.0	1.0
OPEC	-	-	-	-	-	-	-	-	-
World Totals	9.0	9.5	18.0	14.0	10.4	11.8	11.4	11.7	12.2

Table C-9: HFC Emissions from Semiconductor Manufacturing by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-
Argentina	-	-	-	-	-	-	-	-	-
Armenia	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0
Australia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Austria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Azerbaijan	-	-	-	-	-	-	-	-	-
Bangladesh	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	-	-	-	-	-	-
Belgium	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bolivia	-	-	-	-	-	-	-	-	-
Brazil	0.0	0.0	-	-	-	-	-	-	-
Bulgaria	-	-	0.0	0.0	-	-	-	-	-
Burma	-	-	-	-	-	-	-	-	-
Cambodia	-	-	-	-	-	-	-	-	-
Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chile	-	-	-	-	-	-	-	-	-
China	0.1	0.0	0.1	0.2	0.2	0.2	0.3	0.3	0.3
Colombia	-	-	-	-	-	-	-	-	-
Congo (Kinshasa)	-	-	-	-	-	-	-	-	-
Croatia	-	-	-	-	-	-	-	-	-
Czech Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denmark	-	-	-	-	-	-	-	-	-
Ecuador	-	-	-	-	-	-	-	-	-
Egypt	-	-	-	-	-	-	-	-	-
Estonia	-	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-	-	-
Finland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
France	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Georgia	-	-	-	-	-	-	-	-	-
Germany	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Greece	-	-	-	-	-	-	-	-	-
Hungary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iceland	-	-	-	-	-	-	-	-	-
India	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Indonesia	-	-	-	-	-	-	-	-	-
Iran	-	-	-	-	-	-	-	-	-
Iraq	-	-	-	-	-	-	-	-	-
Ireland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Israel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Italy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Japan	0.4	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2
Jordan	-	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	-	-	-	-	-	-	-	-	-
Laos	-	-	-	-	-	-	-	-	-
Latvia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lithuania	-	-	-	-	-	-	-	-	-
Luxembourg	-	-	-	-	-	-	-	-	-
Macedonia	-	-	-	-	-	-	-	-	-
Mexico	0.0	0.0	0.0	-	-	-	-	-	-
Moldova	-	-	-	-	-	-	-	-	-
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	-	-	-	-	-	-	-	-	-
Nepal	-	-	-	-	-	-	-	-	-
Netherlands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	-	-	-	-	-	-	-	-	-
Nigeria	-	-	-	-	-	-	-	-	-
North Korea	-	-	-	-	-	-	-	-	-
Norway	-	-	-	-	-	-	-	-	-
Pakistan	-	-	-	-	-	-	-	-	-
Peru	-	-	-	-	-	-	-	-	-
Philippines	-	-	-	-	-	-	-	-	-
Poland	-	-	-	-	-	-	-	-	-
Portugal	-	-	-	-	-	-	-	-	-
Romania	-	-	-	-	-	-	-	-	-
Russia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saudi Arabia	-	-	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-	-	-
Singapore	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Slovakia	-	-	0.0	0.0	-	-	-	-	-
Slovenia	-	-	-	-	-	-	-	-	-
South Africa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Korea	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Spain	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Sweden	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Switzerland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tajikistan	-	-	-	-	-	-	-	-	-
Thailand	-	-	-	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-	-
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	-	-	-	-	-	-	-	-	-
United Arab Emirates	-	-	-	-	-	-	-	-	-
United Kingdom	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United States	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3
Uruguay	-	-	-	-	-	-	-	-	-
Uzbekistan	-	-	-	-	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	-	-
Vietnam	-	-	-	-	-	-	-	-	-
Rest of Africa	-	-	-	-	-	-	-	-	-
Rest of Central and South	-	-	-	-	-	-	-	-	-
Rest of Middle East	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Asia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest of Non-OECD Europe and	-	-	-	-	-	-	-	-	-
Africa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central and South America	0.0	0.0	-	-	-	-	-	-	-
Middle East	-	-	-	-	-	-	-	-	-
OECD	0.8	0.6	0.6	0.5	0.7	0.7	0.7	0.7	0.7
Non-OECD Asia	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.4	0.4
Non-OECD Europe &	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EU	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
OPEC	-	-	-	-	-	-	-	-	-
World Totals	0.8	0.7	0.8	0.7	0.9	1.0	1.1	1.1	1.1

Table C-10: SF₆ Emissions from Semiconductor Manufacturing by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-
Argentina	-	-	-	-	-	-	-	-	-
Armenia	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0
Australia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Austria	0.1	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1
Azerbaijan	-	-	-	-	-	-	-	-	-
Bangladesh	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	-	-	-	-	-	-
Belgium	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bolivia	-	-	-	-	-	-	-	-	-
Brazil	0.0	0.0	-	-	-	-	-	-	-
Bulgaria	-	-	0.0	0.0	-	-	-	-	-
Burma	-	-	-	-	-	-	-	-	-
Cambodia	-	-	-	-	-	-	-	-	-
Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chile	-	-	-	-	-	-	-	-	-
China	0.2	0.2	0.9	1.2	0.8	1.2	0.7	0.7	0.7
Colombia	-	-	-	-	-	-	-	-	-
Congo (Kinshasa)	-	-	-	-	-	-	-	-	-
Croatia	-	-	-	-	-	-	-	-	-
Czech Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denmark	-	-	-	-	-	-	-	-	-
Ecuador	-	-	-	-	-	-	-	-	-
Egypt	-	-	-	-	-	-	-	-	-
Estonia	-	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-	-	-
Finland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
France	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Georgia	-	-	-	-	-	-	-	-	-
Germany	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Greece	-	-	-	-	-	-	-	-	-
Hungary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iceland	-	-	-	-	-	-	-	-	-
India	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Indonesia	-	-	-	-	-	-	-	-	-
Iran	-	-	-	-	-	-	-	-	-
Iraq	-	-	-	-	-	-	-	-	-
Ireland	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Israel	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Italy	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Japan	1.4	1.1	2.3	1.7	0.5	0.5	0.5	0.5	0.5
Jordan	-	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	-	-	-	-	-	-	-	-	-
Laos	-	-	-	-	-	-	-	-	-
Latvia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lithuania	-	-	-	-	-	-	-	-	-
Luxembourg	-	-	-	-	-	-	-	-	-
Macedonia	-	-	-	-	-	-	-	-	-

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mexico	0.0	0.0	0.0	-	-	-	-	-	-
Moldova	-	-	-	-	-	-	-	-	-
Monaco	-	-	-	-	-	-	-	-	-
Mongolia	-	-	-	-	-	-	-	-	-
Nepal	-	-	-	-	-	-	-	-	-
Netherlands	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	-	-	-	-	-	-	-	-	-
Nigeria	-	-	-	-	-	-	-	-	-
North Korea	-	-	-	-	-	-	-	-	-
Norway	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pakistan	-	-	-	-	-	-	-	-	-
Peru	-	-	-	-	-	-	-	-	-
Philippines	-	-	-	-	-	-	-	-	-
Poland	-	-	-	-	-	-	-	-	-
Portugal	-	-	-	-	-	-	-	-	-
Romania	-	-	-	-	-	-	-	-	-
Russia	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Saudi Arabia	-	-	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-	-	-
Singapore	0.0	0.1	0.2	0.2	0.3	0.3	0.4	0.5	0.6
Slovakia	-	-	0.0	0.0	-	-	-	-	-
Slovenia	-	-	-	-	-	-	-	-	-
South Africa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Korea	0.2	0.2	0.6	0.5	0.2	0.2	0.2	0.2	0.2
Spain	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Sweden	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Switzerland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tajikistan	-	-	-	-	-	-	-	-	-
Thailand	-	-	-	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-	-
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	-	-	-	-	-	-	-	-	-
United Arab Emirates	-	-	-	-	-	-	-	-	-
United Kingdom	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0
United States	0.5	0.9	1.1	1.0	0.6	0.6	0.6	0.6	0.6
Uruguay	-	-	-	-	-	-	-	-	-
Uzbekistan	-	-	-	-	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	-	-
Vietnam	-	-	-	-	-	-	-	-	-
Rest of Africa	-	-	-	-	-	-	-	-	-
Rest of Central and South	-	-	-	-	-	-	-	-	-
Rest of Middle East	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Asia	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Rest of Non-OECD Europe and	-	-	-	-	-	-	-	-	-
Africa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central and South America	0.0	0.0	-	-	-	-	-	-	-
Middle East	-	-	-	-	-	-	-	-	-
OECD	2.5	3.1	4.8	3.9	1.6	1.6	1.6	1.7	1.7
Non-OECD Asia	0.2	0.3	1.1	1.5	1.1	1.7	1.2	1.3	1.5
Non-OECD Europe &	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
EU	0.4	0.8	0.8	0.6	0.2	0.2	0.2	0.2	0.2
OPEC	-	-	-	-	-	-	-	-	-
World Totals	2.8	3.4	5.9	5.4	2.8	3.4	3.0	3.1	3.3

Table C-11: NF₃ Emissions from Semiconductor Manufacturing by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-
Argentina	-	-	-	-	-	-	-	-	-
Armenia	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0
Australia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Austria	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Azerbaijan	-	-	-	-	-	-	-	-	-
Bangladesh	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	-	-	-	-	-	-
Belgium	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bolivia	-	-	-	-	-	-	-	-	-
Brazil	0.0	0.0	-	-	-	-	-	-	-
Bulgaria	-	-	0.0	0.0	-	-	-	-	-
Burma	-	-	-	-	-	-	-	-	-
Cambodia	-	-	-	-	-	-	-	-	-
Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chile	-	-	-	-	-	-	-	-	-
China	0.0	0.0	0.4	1.2	0.9	1.1	1.2	1.2	1.2
Colombia	-	-	-	-	-	-	-	-	-
Congo (Kinshasa)	-	-	-	-	-	-	-	-	-
Croatia	-	-	-	-	-	-	-	-	-
Czech Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denmark	-	-	-	-	-	-	-	-	-
Ecuador	-	-	-	-	-	-	-	-	-
Egypt	-	-	-	-	-	-	-	-	-
Estonia	-	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-	-	-
Finland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
France	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Georgia	-	-	-	-	-	-	-	-	-
Germany	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Greece	-	-	-	-	-	-	-	-	-
Hungary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iceland	-	-	-	-	-	-	-	-	-
India	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Indonesia	-	-	-	-	-	-	-	-	-
Iran	-	-	-	-	-	-	-	-	-
Iraq	-	-	-	-	-	-	-	-	-
Ireland	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Israel	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Italy	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Japan	0.1	0.0	1.0	1.6	1.0	1.0	1.0	1.0	1.0
Jordan	-	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	-	-	-	-	-	-	-	-	-
Laos	-	-	-	-	-	-	-	-	-
Latvia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lithuania	-	-	-	-	-	-	-	-	-
Luxembourg	-	-	-	-	-	-	-	-	-
Macedonia	-	-	-	-	-	-	-	-	-
Mexico	0.0	0.0	0.0	-	-	-	-	-	-
Moldova	-	-	-	-	-	-	-	-	-
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	-	-	-	-	-	-	-	-	-
Nepal	-	-	-	-	-	-	-	-	-
Netherlands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	-	-	-	-	-	-	-	-	-
Nigeria	-	-	-	-	-	-	-	-	-
North Korea	-	-	-	-	-	-	-	-	-
Norway	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pakistan	-	-	-	-	-	-	-	-	-
Peru	-	-	-	-	-	-	-	-	-
Philippines	-	-	-	-	-	-	-	-	-
Poland	-	-	-	-	-	-	-	-	-
Portugal	-	-	-	-	-	-	-	-	-
Romania	-	-	-	-	-	-	-	-	-
Russia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Saudi Arabia	-	-	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-	-	-
Singapore	0.0	0.0	0.1	0.2	0.3	0.3	0.4	0.5	0.6
Slovakia	-	-	0.0	0.0	-	-	-	-	-
Slovenia	-	-	-	-	-	-	-	-	-
South Africa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Korea	0.0	0.0	0.3	0.5	0.3	0.3	0.3	0.3	0.3
Spain	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Sweden	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Switzerland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tajikistan	-	-	-	-	-	-	-	-	-
Thailand	-	-	-	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-	-
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	-	-	-	-	-	-	-	-	-
United Arab Emirates	-	-	-	-	-	-	-	-	-
United Kingdom	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1
United States	0.0	0.0	0.8	1.2	1.1	1.1	1.1	1.1	1.1
Uruguay	-	-	-	-	-	-	-	-	-
Uzbekistan	-	-	-	-	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	-	-
Vietnam	-	-	-	-	-	-	-	-	-
Rest of Africa	-	-	-	-	-	-	-	-	-
Rest of Central and South	-	-	-	-	-	-	-	-	-
Rest of Middle East	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Asia	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Rest of Non-OECD Europe and	-	-	-	-	-	-	-	-	-
Africa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central and South America	0.0	0.0	-	-	-	-	-	-	-
Middle East	-	-	-	-	-	-	-	-	-
OECD	0.1	0.1	2.5	3.9	2.8	2.8	2.8	2.8	2.9
Non-OECD Asia	0.0	0.0	0.6	1.5	1.3	1.6	1.7	1.9	2.0
Non-OECD Europe &	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
EU	0.0	0.0	0.4	0.6	0.4	0.4	0.4	0.4	0.4
OPEC	-	-	-	-	-	-	-	-	-
World Totals	0.1	0.1	3.1	5.5	4.1	4.4	4.6	4.8	5.0

Table C-12: PFC Emissions from Flat Panel Display Manufacturing by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-
Argentina	-	-	-	-	-	-	-	-	-
Armenia	-	-	-	-	-	-	-	-	-
Australia	-	-	-	-	-	-	-	-	-
Austria	-	-	-	-	-	-	-	-	-
Azerbaijan	-	-	-	-	-	-	-	-	-
Bangladesh	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	-	-	-	-	-	-
Belgium	-	-	-	-	-	-	-	-	-
Bolivia	-	-	-	-	-	-	-	-	-
Brazil	-	-	-	-	-	-	-	-	-
Bulgaria	-	-	-	-	-	-	-	-	-
Burma	-	-	-	-	-	-	-	-	-
Cambodia	-	-	-	-	-	-	-	-	-
Canada	-	-	-	-	-	-	-	-	-
Chile	-	-	-	-	-	-	-	-	-
China	0.0	0.0	0.0	0.0	0.2	0.3	1.1	2.4	4.7
Colombia	-	-	-	-	-	-	-	-	-
Congo (Kinshasa)	-	-	-	-	-	-	-	-	-
Croatia	-	-	-	-	-	-	-	-	-
Czech Republic	-	-	-	-	-	-	-	-	-
Denmark	-	-	-	-	-	-	-	-	-
Ecuador	-	-	-	-	-	-	-	-	-
Egypt	-	-	-	-	-	-	-	-	-
Estonia	-	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-	-	-
Finland	-	-	-	-	-	-	-	-	-
France	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	-	-	-	-	-	-
Germany	-	-	-	-	-	-	-	-	-
Greece	-	-	-	-	-	-	-	-	-
Hungary	-	-	-	-	-	-	-	-	-
Iceland	-	-	-	-	-	-	-	-	-
India	-	-	-	-	-	-	-	-	-
Indonesia	-	-	-	-	-	-	-	-	-
Iran	-	-	-	-	-	-	-	-	-
Iraq	-	-	-	-	-	-	-	-	-
Ireland	-	-	-	-	-	-	-	-	-
Israel	-	-	-	-	-	-	-	-	-
Italy	-	-	-	-	-	-	-	-	-
Japan	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2
Jordan	-	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	-	-	-	-	-	-	-	-	-
Laos	-	-	-	-	-	-	-	-	-
Latvia	-	-	-	-	-	-	-	-	-
Lithuania	-	-	-	-	-	-	-	-	-
Luxembourg	-	-	-	-	-	-	-	-	-
Macedonia	-	-	-	-	-	-	-	-	-
Mexico	-	-	-	-	-	-	-	-	-
Moldova	-	-	-	-	-	-	-	-	-
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	-	-	-	-	-	-	-	-	-
Nepal	-	-	-	-	-	-	-	-	-
Netherlands	-	-	-	-	-	-	-	-	-
New Zealand	-	-	-	-	-	-	-	-	-
Nigeria	-	-	-	-	-	-	-	-	-
North Korea	-	-	-	-	-	-	-	-	-
Norway	-	-	-	-	-	-	-	-	-
Pakistan	-	-	-	-	-	-	-	-	-
Peru	-	-	-	-	-	-	-	-	-
Philippines	-	-	-	-	-	-	-	-	-
Poland	-	-	-	-	-	-	-	-	-
Portugal	-	-	-	-	-	-	-	-	-
Romania	-	-	-	-	-	-	-	-	-
Russia	-	-	-	-	-	-	-	-	-
Saudi Arabia	-	-	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-	-	-
Singapore	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Slovakia	-	-	-	-	-	-	-	-	-
Slovenia	-	-	-	-	-	-	-	-	-
South Africa	-	-	-	-	-	-	-	-	-
South Korea	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2
Spain	-	-	-	-	-	-	-	-	-
Sweden	-	-	-	-	-	-	-	-	-
Switzerland	-	-	-	-	-	-	-	-	-
Tajikistan	-	-	-	-	-	-	-	-	-
Thailand	-	-	-	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-	-
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	-	-	-	-	-	-	-	-	-
United Arab Emirates	-	-	-	-	-	-	-	-	-
United Kingdom	-	-	-	-	-	-	-	-	-
United States	-	-	-	-	-	-	-	-	-
Uruguay	-	-	-	-	-	-	-	-	-
Uzbekistan	-	-	-	-	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	-	-
Vietnam	-	-	-	-	-	-	-	-	-
Rest of Africa	-	-	-	-	-	-	-	-	-
Rest of Central and South	-	-	-	-	-	-	-	-	-
Rest of Middle East	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Asia	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Europe and	-	-	-	-	-	-	-	-	-
Africa	-	-	-	-	-	-	-	-	-
Central and South America	-	-	-	-	-	-	-	-	-
Middle East	-	-	-	-	-	-	-	-	-
OECD	0.0	0.0	0.0	0.1	0.4	0.4	0.4	0.4	0.4
Non-OECD Asia	0.0	0.0	0.0	0.1	0.2	0.3	1.1	2.5	4.7
Non-OECD Europe &	-	-	-	-	-	-	-	-	-
EU	-	-	-	-	-	-	-	-	-
OPEC	-	-	-	-	-	-	-	-	-
World Totals	0.0	0.0	0.0	0.1	0.7	0.8	1.6	2.9	5.2

Table C-13: SF₆ Emissions from Flat Panel Display Manufacturing by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-
Argentina	-	-	-	-	-	-	-	-	-
Armenia	-	-	-	-	-	-	-	-	-
Australia	-	-	-	-	-	-	-	-	-
Austria	-	-	-	-	-	-	-	-	-
Azerbaijan	-	-	-	-	-	-	-	-	-
Bangladesh	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	-	-	-	-	-	-
Belgium	-	-	-	-	-	-	-	-	-
Bolivia	-	-	-	-	-	-	-	-	-
Brazil	-	-	-	-	-	-	-	-	-
Bulgaria	-	-	-	-	-	-	-	-	-
Burma	-	-	-	-	-	-	-	-	-
Cambodia	-	-	-	-	-	-	-	-	-
Canada	-	-	-	-	-	-	-	-	-
Chile	-	-	-	-	-	-	-	-	-
China	0.0	0.0	0.1	1.5	0.5	3.5	26.3	65.5	131.7
Colombia	-	-	-	-	-	-	-	-	-
Congo (Kinshasa)	-	-	-	-	-	-	-	-	-
Croatia	-	-	-	-	-	-	-	-	-
Czech Republic	-	-	-	-	-	-	-	-	-
Denmark	-	-	-	-	-	-	-	-	-
Ecuador	-	-	-	-	-	-	-	-	-
Egypt	-	-	-	-	-	-	-	-	-
Estonia	-	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-	-	-
Finland	-	-	-	-	-	-	-	-	-
France	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	-	-	-	-	-	-
Germany	-	-	-	-	-	-	-	-	-
Greece	-	-	-	-	-	-	-	-	-
Hungary	-	-	-	-	-	-	-	-	-
Iceland	-	-	-	-	-	-	-	-	-
India	-	-	-	-	-	-	-	-	-
Indonesia	-	-	-	-	-	-	-	-	-
Iran	-	-	-	-	-	-	-	-	-
Iraq	-	-	-	-	-	-	-	-	-
Ireland	-	-	-	-	-	-	-	-	-
Israel	-	-	-	-	-	-	-	-	-
Italy	-	-	-	-	-	-	-	-	-
Japan	0.0	0.1	0.2	0.5	-	-	-	-	-
Jordan	-	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	-	-	-	-	-	-	-	-	-
Laos	-	-	-	-	-	-	-	-	-
Latvia	-	-	-	-	-	-	-	-	-
Lithuania	-	-	-	-	-	-	-	-	-
Luxembourg	-	-	-	-	-	-	-	-	-
Macedonia	-	-	-	-	-	-	-	-	-
Mexico	-	-	-	-	-	-	-	-	-
Moldova	-	-	-	-	-	-	-	-	-

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Monaco	-	-	-	-	-	-	-	-	-
Mongolia	-	-	-	-	-	-	-	-	-
Nepal	-	-	-	-	-	-	-	-	-
Netherlands	-	-	-	-	-	-	-	-	-
New Zealand	-	-	-	-	-	-	-	-	-
Nigeria	-	-	-	-	-	-	-	-	-
North Korea	-	-	-	-	-	-	-	-	-
Norway	-	-	-	-	-	-	-	-	-
Pakistan	-	-	-	-	-	-	-	-	-
Peru	-	-	-	-	-	-	-	-	-
Philippines	-	-	-	-	-	-	-	-	-
Poland	-	-	-	-	-	-	-	-	-
Portugal	-	-	-	-	-	-	-	-	-
Romania	-	-	-	-	-	-	-	-	-
Russia	-	-	-	-	-	-	-	-	-
Saudi Arabia	-	-	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-	-	-
Singapore	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.8	1.5
Slovakia	-	-	-	-	-	-	-	-	-
Slovenia	-	-	-	-	-	-	-	-	-
South Africa	-	-	-	-	-	-	-	-	-
South Korea	0.0	0.0	0.1	1.3	-	-	-	-	-
Spain	-	-	-	-	-	-	-	-	-
Sweden	-	-	-	-	-	-	-	-	-
Switzerland	-	-	-	-	-	-	-	-	-
Tajikistan	-	-	-	-	-	-	-	-	-
Thailand	-	-	-	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-	-
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	-	-	-	-	-	-	-	-	-
United Arab Emirates	-	-	-	-	-	-	-	-	-
United Kingdom	-	-	-	-	-	-	-	-	-
United States	-	-	-	-	-	-	-	-	-
Uruguay	-	-	-	-	-	-	-	-	-
Uzbekistan	-	-	-	-	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	-	-
Vietnam	-	-	-	-	-	-	-	-	-
Rest of Africa	-	-	-	-	-	-	-	-	-
Rest of Central and South	-	-	-	-	-	-	-	-	-
Rest of Middle East	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Asia	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Europe and	-	-	-	-	-	-	-	-	-
Africa	-	-	-	-	-	-	-	-	-
Central and South America	-	-	-	-	-	-	-	-	-
Middle East	-	-	-	-	-	-	-	-	-
OECD	0.1	0.1	0.3	1.8	-	-	-	-	-
Non-OECD Asia	0.0	0.0	0.1	1.5	0.5	3.7	26.6	66.2	133.2
Non-OECD Europe &	-	-	-	-	-	-	-	-	-
EU	-	-	-	-	-	-	-	-	-
OPEC	-	-	-	-	-	-	-	-	-
World Totals	0.1	0.2	0.4	3.3	0.5	3.7	26.6	66.2	133.2

Table C-14: NF₃ Emissions from Flat Panel Display Manufacturing by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-
Argentina	-	-	-	-	-	-	-	-	-
Armenia	-	-	-	-	-	-	-	-	-
Australia	-	-	-	-	-	-	-	-	-
Austria	-	-	-	-	-	-	-	-	-
Azerbaijan	-	-	-	-	-	-	-	-	-
Bangladesh	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	-	-	-	-	-	-
Belgium	-	-	-	-	-	-	-	-	-
Bolivia	-	-	-	-	-	-	-	-	-
Brazil	-	-	-	-	-	-	-	-	-
Bulgaria	-	-	-	-	-	-	-	-	-
Burma	-	-	-	-	-	-	-	-	-
Cambodia	-	-	-	-	-	-	-	-	-
Canada	-	-	-	-	-	-	-	-	-
Chile	-	-	-	-	-	-	-	-	-
China	0.0	0.0	0.0	0.2	0.9	1.4	5.0	11.4	22.1
Colombia	-	-	-	-	-	-	-	-	-
Congo (Kinshasa)	-	-	-	-	-	-	-	-	-
Croatia	-	-	-	-	-	-	-	-	-
Czech Republic	-	-	-	-	-	-	-	-	-
Denmark	-	-	-	-	-	-	-	-	-
Ecuador	-	-	-	-	-	-	-	-	-
Egypt	-	-	-	-	-	-	-	-	-
Estonia	-	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-	-	-
Finland	-	-	-	-	-	-	-	-	-
France	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	-	-	-	-	-	-
Germany	-	-	-	-	-	-	-	-	-
Greece	-	-	-	-	-	-	-	-	-
Hungary	-	-	-	-	-	-	-	-	-
Iceland	-	-	-	-	-	-	-	-	-
India	-	-	-	-	-	-	-	-	-
Indonesia	-	-	-	-	-	-	-	-	-
Iran	-	-	-	-	-	-	-	-	-
Iraq	-	-	-	-	-	-	-	-	-
Ireland	-	-	-	-	-	-	-	-	-
Israel	-	-	-	-	-	-	-	-	-
Italy	-	-	-	-	-	-	-	-	-
Japan	0.0	0.0	0.0	0.1	0.8	0.8	0.8	0.8	0.8
Jordan	-	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	-	-	-	-	-	-	-	-	-
Laos	-	-	-	-	-	-	-	-	-
Latvia	-	-	-	-	-	-	-	-	-
Lithuania	-	-	-	-	-	-	-	-	-
Luxembourg	-	-	-	-	-	-	-	-	-
Macedonia	-	-	-	-	-	-	-	-	-
Mexico	-	-	-	-	-	-	-	-	-
Moldova	-	-	-	-	-	-	-	-	-
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	-	-	-	-	-	-	-	-	-
Nepal	-	-	-	-	-	-	-	-	-
Netherlands	-	-	-	-	-	-	-	-	-
New Zealand	-	-	-	-	-	-	-	-	-
Nigeria	-	-	-	-	-	-	-	-	-
North Korea	-	-	-	-	-	-	-	-	-
Norway	-	-	-	-	-	-	-	-	-
Pakistan	-	-	-	-	-	-	-	-	-
Peru	-	-	-	-	-	-	-	-	-
Philippines	-	-	-	-	-	-	-	-	-
Poland	-	-	-	-	-	-	-	-	-
Portugal	-	-	-	-	-	-	-	-	-
Romania	-	-	-	-	-	-	-	-	-
Russia	-	-	-	-	-	-	-	-	-
Saudi Arabia	-	-	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-	-	-
Singapore	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3
Slovakia	-	-	-	-	-	-	-	-	-
Slovenia	-	-	-	-	-	-	-	-	-
South Africa	-	-	-	-	-	-	-	-	-
South Korea	0.0	0.0	0.0	0.2	0.8	0.8	0.8	0.8	0.8
Spain	-	-	-	-	-	-	-	-	-
Sweden	-	-	-	-	-	-	-	-	-
Switzerland	-	-	-	-	-	-	-	-	-
Tajikistan	-	-	-	-	-	-	-	-	-
Thailand	-	-	-	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-	-
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	-	-	-	-	-	-	-	-	-
United Arab Emirates	-	-	-	-	-	-	-	-	-
United Kingdom	-	-	-	-	-	-	-	-	-
United States	-	-	-	-	-	-	-	-	-
Uruguay	-	-	-	-	-	-	-	-	-
Uzbekistan	-	-	-	-	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	-	-
Vietnam	-	-	-	-	-	-	-	-	-
Rest of Africa	-	-	-	-	-	-	-	-	-
Rest of Central and South	-	-	-	-	-	-	-	-	-
Rest of Middle East	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Asia	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Europe and	-	-	-	-	-	-	-	-	-
Africa	-	-	-	-	-	-	-	-	-
Central and South America	-	-	-	-	-	-	-	-	-
Middle East	-	-	-	-	-	-	-	-	-
OECD	0.0	0.0	0.1	0.3	1.6	1.6	1.6	1.6	1.6
Non-OECD Asia	0.0	0.0	0.0	0.2	0.9	1.4	5.1	11.5	22.4
Non-OECD Europe &	-	-	-	-	-	-	-	-	-
EU	-	-	-	-	-	-	-	-	-
OPEC	-	-	-	-	-	-	-	-	-
World Totals	0.0	0.0	0.1	0.5	2.4	2.9	6.7	13.1	23.9

Table C-15: PFC Emissions from Photovoltaic Manufacturing by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-
Argentina	-	-	-	-	-	-	-	-	-
Armenia	-	-	-	-	-	-	-	-	-
Australia	-	-	-	0.0	0.0	0.0	0.0	0.1	0.2
Austria	-	-	-	-	-	-	-	-	-
Azerbaijan	-	-	-	-	-	-	-	-	-
Bangladesh	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	-	-	-	-	-	-
Belgium	-	-	-	0.0	0.0	0.1	0.2	0.6	1.4
Bolivia	-	-	-	-	-	-	-	-	-
Brazil	-	-	-	-	-	-	-	-	-
Bulgaria	-	-	-	-	0.0	0.0	0.0	0.0	0.1
Burma	-	-	-	-	-	-	-	-	-
Cambodia	-	-	-	-	-	-	-	-	-
Canada	-	-	-	-	-	-	-	-	-
Chile	-	-	-	-	-	-	-	-	-
China	-	-	0.0	0.1	1.8	3.8	8.3	20.2	49.2
Colombia	-	-	-	-	-	-	-	-	-
Congo (Kinshasa)	-	-	-	-	-	-	-	-	-
Croatia	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Czech Republic	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denmark	-	-	-	-	-	-	-	-	-
Ecuador	-	-	-	-	-	-	-	-	-
Egypt	-	-	-	-	-	-	-	-	-
Estonia	-	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-	-	-
Finland	-	-	-	-	-	-	-	-	-
France	-	-	0.0	0.0	0.0	0.0	0.1	0.2	0.5
Georgia	-	-	-	-	-	-	-	-	-
Germany	-	-	0.0	0.1	0.5	0.9	1.9	4.7	11.4
Greece	-	-	-	-	0.0	0.0	0.1	0.1	0.4
Hungary	-	-	-	-	-	-	-	-	-
Iceland	-	-	-	-	-	-	-	-	-
India	-	-	0.0	0.0	0.1	0.3	0.7	1.7	4.2
Indonesia	-	-	-	-	0.0	0.0	0.0	0.0	0.1
Iran	-	-	-	-	-	-	-	-	-
Iraq	-	-	-	-	-	-	-	-	-
Ireland	-	-	-	-	-	-	-	-	-
Israel	-	-	-	-	-	-	-	-	-
Italy	-	-	-	-	0.1	0.2	0.4	1.0	2.5
Japan	-	-	0.0	0.2	0.5	1.0	2.2	5.5	13.3
Jordan	-	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	-	-	-	-	-	-	-	-	-
Laos	-	-	-	-	-	-	-	-	-
Latvia	-	-	-	-	-	-	-	-	-
Lithuania	-	-	-	-	-	-	-	-	-
Luxembourg	-	-	-	-	-	-	-	-	-
Macedonia	-	-	-	-	-	-	-	-	-
Mexico	-	-	-	-	-	-	-	-	-
Moldova	-	-	-	-	-	-	-	-	-
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	-	-	-	-	-	-	-	-	-
Nepal	-	-	-	-	-	-	-	-	-
Netherlands	-	-	-	0.0	0.0	0.1	0.3	0.6	1.6
New Zealand	-	-	-	-	-	-	-	-	-
Nigeria	-	-	-	-	-	-	-	-	-
North Korea	-	-	-	-	-	-	-	-	-
Norway	-	-	-	0.0	0.0	0.1	0.2	0.4	1.1
Pakistan	-	-	-	-	-	-	-	-	-
Peru	-	-	-	-	-	-	-	-	-
Philippines	-	-	-	0.0	0.1	0.1	0.3	0.7	1.7
Poland	-	-	-	-	-	-	-	-	-
Portugal	-	-	-	-	0.0	0.0	0.0	0.0	0.0
Romania	-	-	-	-	-	-	-	-	-
Russia	-	-	0.0	0.0	0.0	0.0	0.0	0.1	0.2
Saudi Arabia	-	-	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-	-	-
Singapore	-	-	-	-	0.0	0.2	0.5	1.3	3.2
Slovakia	-	-	-	-	-	-	-	-	-
Slovenia	-	-	-	-	-	-	-	-	-
South Africa	-	-	-	-	-	-	-	-	-
South Korea	-	-	-	0.0	0.1	0.3	0.6	1.4	3.4
Spain	-	-	0.0	0.0	0.1	0.1	0.3	0.7	1.8
Sweden	-	-	-	-	-	-	-	-	-
Switzerland	-	-	0.0	0.0	0.0	0.0	0.0	0.1	0.2
Tajikistan	-	-	-	-	-	-	-	-	-
Thailand	-	-	-	0.0	0.0	0.0	0.0	0.1	0.2
Turkey	-	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-	-
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	-	-	-	-	-	-	-	-	-
United Arab Emirates	-	-	-	0.0	0.0	0.0	0.1	0.2	0.5
United Kingdom	-	-	-	-	-	-	-	-	-
United States	-	-	0.0	0.0	0.2	0.4	1.0	2.3	5.7
Uruguay	-	-	-	-	-	-	-	-	-
Uzbekistan	-	-	-	-	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	-	-
Vietnam	-	-	-	-	-	-	-	-	-
Rest of Africa	-	-	-	-	-	-	-	-	-
Rest of Central and South	-	-	-	-	-	-	-	-	-
Rest of Middle East	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Asia	-	-	-	-	0.1	0.7	1.5	3.7	9.0
Rest of Non-OECD Europe and	-	-	-	-	0.0	0.0	0.0	0.1	0.2
Africa	-	-	-	-	-	-	-	-	-
Central and South America	-	-	-	-	-	-	-	-	-
Middle East	-	-	-	0.0	0.0	0.0	0.1	0.2	0.5
OECD	-	-	0.0	0.3	1.6	3.3	7.3	17.8	43.4
Non-OECD Asia	-	-	0.0	0.1	2.2	5.2	11.4	27.7	67.6
Non-OECD Europe &	-	-	0.0	0.0	0.0	0.0	0.1	0.2	0.5
EU	-	-	0.0	0.1	0.8	1.5	3.3	8.1	19.8
OPEC	-	-	-	0.0	0.0	0.0	0.1	0.2	0.5
World Totals	-	-	0.0	0.5	3.9	8.5	18.9	46.0	112.1

Table C-16: NF₃ Emissions from Photovoltaic Manufacturing by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-
Argentina	-	-	-	-	-	-	-	-	-
Armenia	-	-	-	-	-	-	-	-	-
Australia	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0
Austria	-	-	-	-	-	-	-	-	-
Azerbaijan	-	-	-	-	-	-	-	-	-
Bangladesh	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	-	-	-	-	-	-
Belgium	-	-	-	0.0	0.0	0.0	0.1	0.1	0.2
Bolivia	-	-	-	-	-	-	-	-	-
Brazil	-	-	-	-	-	-	-	-	-
Bulgaria	-	-	-	-	0.0	0.0	0.0	0.0	0.0
Burma	-	-	-	-	-	-	-	-	-
Cambodia	-	-	-	-	-	-	-	-	-
Canada	-	-	-	-	-	-	-	-	-
Chile	-	-	-	-	-	-	-	-	-
China	-	-	0.0	0.0	0.2	0.6	1.9	3.7	7.2
Colombia	-	-	-	-	-	-	-	-	-
Congo (Kinshasa)	-	-	-	-	-	-	-	-	-
Croatia	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Czech Republic	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denmark	-	-	-	-	-	-	-	-	-
Ecuador	-	-	-	-	-	-	-	-	-
Egypt	-	-	-	-	-	-	-	-	-
Estonia	-	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-	-	-
Finland	-	-	-	-	-	-	-	-	-
France	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Georgia	-	-	-	-	-	-	-	-	-
Germany	-	-	0.0	0.0	0.1	0.1	0.4	0.9	1.7
Greece	-	-	-	-	0.0	0.0	0.0	0.0	0.1
Hungary	-	-	-	-	-	-	-	-	-
Iceland	-	-	-	-	-	-	-	-	-
India	-	-	0.0	0.0	0.0	0.1	0.2	0.3	0.6
Indonesia	-	-	-	-	0.0	0.0	0.0	0.0	0.0
Iran	-	-	-	-	-	-	-	-	-
Iraq	-	-	-	-	-	-	-	-	-
Ireland	-	-	-	-	-	-	-	-	-
Israel	-	-	-	-	-	-	-	-	-
Italy	-	-	-	-	0.0	0.0	0.1	0.2	0.4
Japan	-	-	0.0	0.0	0.1	0.2	0.5	1.0	1.9
Jordan	-	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	-	-	-	-	-	-	-	-	-
Laos	-	-	-	-	-	-	-	-	-
Latvia	-	-	-	-	-	-	-	-	-
Lithuania	-	-	-	-	-	-	-	-	-
Luxembourg	-	-	-	-	-	-	-	-	-
Macedonia	-	-	-	-	-	-	-	-	-
Mexico	-	-	-	-	-	-	-	-	-
Moldova	-	-	-	-	-	-	-	-	-
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	-	-	-	-	-	-	-	-	-
Nepal	-	-	-	-	-	-	-	-	-
Netherlands	-	-	-	0.0	0.0	0.0	0.1	0.1	0.2
New Zealand	-	-	-	-	-	-	-	-	-
Nigeria	-	-	-	-	-	-	-	-	-
North Korea	-	-	-	-	-	-	-	-	-
Norway	-	-	-	0.0	0.0	0.0	0.0	0.1	0.2
Pakistan	-	-	-	-	-	-	-	-	-
Peru	-	-	-	-	-	-	-	-	-
Philippines	-	-	-	0.0	0.0	0.0	0.1	0.1	0.3
Poland	-	-	-	-	-	-	-	-	-
Portugal	-	-	-	-	0.0	0.0	0.0	0.0	0.0
Romania	-	-	-	-	-	-	-	-	-
Russia	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saudi Arabia	-	-	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-	-	-
Singapore	-	-	-	-	0.0	0.0	0.1	0.2	0.5
Slovakia	-	-	-	-	-	-	-	-	-
Slovenia	-	-	-	-	-	-	-	-	-
South Africa	-	-	-	-	-	-	-	-	-
South Korea	-	-	-	0.0	0.0	0.0	0.1	0.3	0.5
Spain	-	-	0.0	0.0	0.0	0.0	0.1	0.1	0.3
Sweden	-	-	-	-	-	-	-	-	-
Switzerland	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tajikistan	-	-	-	-	-	-	-	-	-
Thailand	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0
Turkey	-	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-	-
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	-	-	-	-	-	-	-	-	-
United Arab Emirates	-	-	-	0.0	0.0	0.0	0.0	0.0	0.1
United Kingdom	-	-	-	-	-	-	-	-	-
United States	-	-	0.0	0.0	0.0	0.1	0.2	0.4	0.8
Uruguay	-	-	-	-	-	-	-	-	-
Uzbekistan	-	-	-	-	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	-	-
Vietnam	-	-	-	-	-	-	-	-	-
Rest of Africa	-	-	-	-	-	-	-	-	-
Rest of Central and South	-	-	-	-	-	-	-	-	-
Rest of Middle East	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Asia	-	-	-	-	0.0	0.1	0.4	0.7	1.3
Rest of Non-OECD Europe and	-	-	-	-	0.0	0.0	0.0	0.0	0.0
Africa	-	-	-	-	-	-	-	-	-
Central and South America	-	-	-	-	-	-	-	-	-
Middle East	-	-	-	0.0	0.0	0.0	0.0	0.0	0.1
OECD	-	-	0.0	0.0	0.2	0.5	1.7	3.3	6.3
Non-OECD Asia	-	-	0.0	0.0	0.2	0.8	2.6	5.1	9.8
Non-OECD Europe &	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.1
EU	-	-	0.0	0.0	0.1	0.2	0.8	1.5	2.9
OPEC	-	-	-	0.0	0.0	0.0	0.0	0.0	0.1
World Totals	-	-	0.0	0.0	0.4	1.4	4.4	8.5	16.3

Table C-17: CH₄ Emissions from Other Industrial Processes Sources by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	-	-	-	-	-	-	-	-	-
Algeria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Argentina	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Armenia	-	-	-	-	-	-	-	-	-
Australia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Austria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Azerbaijan	-	-	-	-	-	-	-	-	-
Bangladesh	-	-	-	-	-	-	-	-	-
Belarus	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Belgium	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bolivia	-	-	-	-	-	-	-	-	-
Brazil	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Bulgaria	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Burma	-	-	-	-	-	-	-	-	-
Cambodia	-	-	-	-	-	-	-	-	-
Canada	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Chile	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
China	-	-	-	-	-	-	-	-	-
Colombia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Congo (Kinshasa)	-	-	-	-	-	-	-	-	-
Croatia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Czech Republic	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Denmark	-	-	-	-	-	-	-	-	-
Ecuador	-	-	-	-	-	-	-	-	-
Egypt	-	-	-	-	-	-	-	-	-
Estonia	-	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-	-	-
Finland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
France	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Georgia	-	-	-	-	-	-	-	-	-
Germany	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Greece	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
India	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Indonesia	-	-	-	-	-	-	-	-	-
Iran	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Iraq	-	-	-	-	-	-	-	-	-
Ireland	-	-	-	-	-	-	-	-	-
Israel	-	-	-	-	-	-	-	-	-
Italy	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Japan	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Jordan	-	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	-	-	-	-	-	-	-	-	-
Laos	-	-	-	-	-	-	-	-	-
Latvia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lithuania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Luxembourg	-	-	-	-	-	-	-	-	-
Macedonia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mexico	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Moldova	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	-	-	-	-	-	-	-	-	-
Nepal	-	-	-	-	-	-	-	-	-
Netherlands	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2
New Zealand	-	-	-	-	-	-	-	-	-
Nigeria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North Korea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Norway	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pakistan	-	-	-	-	-	-	-	-	-
Peru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Philippines	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Poland	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3
Portugal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Romania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Russia	0.8	0.5	0.6	0.7	0.6	0.6	0.6	0.6	0.6
Saudi Arabia	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Senegal	-	-	-	-	-	-	-	-	-
Singapore	-	-	-	-	-	-	-	-	-
Slovakia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slovenia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Korea	0.1	0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Spain	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sweden	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Switzerland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tajikistan	-	-	-	-	-	-	-	-	-
Thailand	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Turkey	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turkmenistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	1.3	0.5	0.7	0.8	0.7	0.7	0.7	0.7	0.7
United Arab Emirates	-	-	-	-	-	-	-	-	-
United Kingdom	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
United States	1.9	2.1	2.2	1.8	1.2	1.2	1.2	1.2	1.2
Uruguay	-	-	-	-	-	-	-	-	-
Uzbekistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Venezuela	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Vietnam	-	-	-	-	-	-	-	-	-
Rest of Africa	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Rest of Central and South	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest of Middle East	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Rest of Non-OECD Asia	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Europe and	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Africa	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Central and South America	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Middle East	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
OECD	4.1	4.3	4.5	4.0	3.2	3.2	3.2	3.2	3.2
Non-OECD Asia	0.1	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.4
Non-OECD Europe &	2.3	1.2	1.4	1.7	1.4	1.4	1.4	1.4	1.4
EU	1.5	1.5	1.3	1.3	1.0	1.0	1.0	1.0	1.0
OPEC	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6
World Totals	7.7	6.8	7.5	7.5	6.3	6.3	6.3	6.3	6.3

Table C-18: N₂O Emissions from Other Industrial Processes Sources by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-
Argentina	-	-	-	-	-	-	-	-	-
Armenia	-	-	-	-	-	-	-	-	-
Australia	1.1	1.4	1.8	2.8	3.4	3.4	3.4	3.4	3.4
Austria	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Azerbaijan	-	-	-	-	-	-	-	-	-
Bangladesh	-	-	-	-	-	-	-	-	-
Belarus	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Belgium	0.6	0.6	0.6	0.6	0.8	0.8	0.8	0.8	0.8
Bolivia	-	-	-	-	-	-	-	-	-
Brazil	-	-	-	-	-	-	-	-	-
Bulgaria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Burma	-	-	-	-	-	-	-	-	-
Cambodia	-	-	-	-	-	-	-	-	-
Canada	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.3
Chile	-	-	-	-	-	-	-	-	-
China	-	-	-	-	-	-	-	-	-
Colombia	-	-	-	-	-	-	-	-	-
Congo (Kinshasa)	-	-	-	-	-	-	-	-	-
Croatia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Czech Republic	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Denmark	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ecuador	-	-	-	-	-	-	-	-	-
Egypt	-	-	-	-	-	-	-	-	-
Estonia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethiopia	-	-	-	-	-	-	-	-	-
Finland	4.9	5.4	4.6	2.5	2.0	2.0	2.0	2.0	2.0
France	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Georgia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Germany	5.2	5.4	4.1	1.6	0.9	0.9	0.9	0.9	0.9
Greece	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Hungary	0.1	0.2	0.1	0.3	0.3	0.3	0.3	0.3	0.3
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
India	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Indonesia	-	-	-	-	-	-	-	-	-
Iran	-	-	-	-	-	-	-	-	-
Iraq	-	-	-	-	-	-	-	-	-
Ireland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Israel	-	-	-	-	-	-	-	-	-
Italy	0.8	0.8	1.0	0.8	0.7	0.7	0.7	0.7	0.7
Japan	0.3	0.4	0.4	0.3	0.1	0.1	0.1	0.1	0.1
Jordan	-	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	-	-	-	-	-	-	-	-	-
Laos	-	-	-	-	-	-	-	-	-
Latvia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lithuania	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Luxembourg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Macedonia	-	-	-	-	-	-	-	-	-
Mexico	-	-	-	-	-	-	-	-	-
Moldova	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	-	-	-	-	-	-	-	-	-
Nepal	-	-	-	-	-	-	-	-	-
Netherlands	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nigeria	-	-	-	-	-	-	-	-	-
North Korea	-	-	-	-	-	-	-	-	-
Norway	0.8	0.8	1.0	0.8	0.7	0.7	0.7	0.7	0.7
Pakistan	-	-	-	-	-	-	-	-	-
Peru	-	-	-	-	-	-	-	-	-
Philippines	-	-	-	-	-	-	-	-	-
Poland	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Portugal	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Romania	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Russia	0.6	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6
Saudi Arabia	-	-	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-	-	-
Singapore	-	-	-	-	-	-	-	-	-
Slovakia	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Slovenia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	-	-	-	-	-	-	-	-	-
South Korea	-	-	-	-	-	-	-	-	-
Spain	0.8	1.4	1.3	1.5	1.6	1.6	1.6	1.6	1.6
Sweden	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Switzerland	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Tajikistan	-	-	-	-	-	-	-	-	-
Thailand	-	-	-	-	-	-	-	-	-
Turkey	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turkmenistan	-	-	-	-	-	-	-	-	-
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3
United Arab Emirates	-	-	-	-	-	-	-	-	-
United Kingdom	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United States	4.4	4.6	4.9	4.4	4.4	4.4	4.4	4.4	4.4
Uruguay	-	-	-	-	-	-	-	-	-
Uzbekistan	-	-	-	-	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	-	-
Vietnam	-	-	-	-	-	-	-	-	-
Rest of Africa	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0
Rest of Central and South	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Rest of Middle East	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest of Non-OECD Asia	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Europe and	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Africa	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0
Central and South America	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Middle East	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OECD	21.0	23.0	21.5	17.2	16.6	16.6	16.6	16.6	16.6
Non-OECD Asia	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Non-OECD Europe &	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
EU	14.3	15.7	13.4	9.1	7.9	7.9	7.9	7.9	7.9
OPEC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
World Totals	80.8	82.8	81.3	77.0	76.3	76.3	76.3	76.3	76.3

Appendix D: Agriculture Sector Emissions

Table D-1: Total Non-CO₂ Emissions from the Agriculture Sector by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	2.4	2.6	2.7	2.0	1.8	1.8	1.8	1.8	1.7
Algeria	16.8	11.3	6.7	6.1	6.5	7.0	7.6	8.3	9.0
Argentina	117.5	123.9	131.2	139.9	144.8	154.9	161.4	166.6	171.6
Armenia	1.0	0.9	0.8	1.1	1.2	1.2	1.2	1.2	1.2
Australia	109.1	99.2	121.4	99.7	96.0	99.4	101.9	104.5	107.1
Austria	8.7	8.8	8.0	7.4	7.6	7.9	7.9	7.9	7.9
Azerbaijan	6.1	4.5	5.2	6.5	7.0	7.1	7.2	7.3	7.4
Bangladesh	35.1	38.5	40.9	44.2	49.7	55.3	62.4	71.0	81.4
Belarus	30.7	21.4	20.9	20.8	20.8	20.8	20.7	20.6	20.4
Belgium	11.7	11.8	10.8	9.8	9.8	10.0	9.9	9.8	9.7
Bolivia	37.1	33.6	32.3	41.2	42.0	42.8	43.5	44.3	45.0
Brazil	455.2	463.4	449.3	638.4	596.1	614.1	618.5	619.7	620.1
Bulgaria	16.8	8.1	7.4	6.6	6.2	6.2	6.2	6.2	6.3
Burma	150.9	167.9	125.0	125.8	132.2	135.9	140.4	145.4	150.8
Cambodia	11.8	13.2	11.9	18.8	19.4	20.4	21.1	21.9	22.9
Canada	52.3	90.6	59.2	64.1	65.5	70.1	73.0	75.8	78.5
Chile	9.3	14.1	13.2	13.5	14.1	14.8	15.4	16.1	16.7
China	577.2	652.0	657.7	681.9	702.4	731.4	756.4	781.5	804.7
Colombia	62.2	68.1	73.0	73.0	76.1	80.5	83.5	86.4	88.9
Congo (Kinshasa)	225.8	199.2	162.1	151.8	151.8	151.9	152.0	152.2	152.3
Croatia	4.5	3.1	3.2	3.6	3.6	3.6	3.6	3.6	3.7
Czech Republic	17.2	10.8	9.6	8.8	8.4	8.5	8.5	8.5	8.6
Denmark	12.5	11.5	10.4	9.8	7.4	7.4	7.1	7.1	7.0
Ecuador	11.8	14.2	13.5	13.9	13.9	14.8	15.3	15.9	16.6
Egypt	22.0	25.6	30.1	30.8	35.4	38.9	42.3	46.0	49.9
Estonia	3.0	1.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Ethiopia	62.7	58.8	63.3	77.7	96.4	107.3	116.1	124.9	133.9
Finland	6.7	6.1	5.9	5.8	6.1	6.5	6.6	6.6	6.6
France	109.6	103.6	105.4	99.0	103.9	109.0	108.9	108.7	108.3
Georgia	2.3	2.4	2.8	3.4	2.7	2.6	2.6	2.6	2.6
Germany	87.0	76.6	77.3	73.5	60.9	59.6	58.5	57.5	56.5
Greece	11.7	10.4	10.1	9.6	10.1	9.5	9.0	8.7	8.3
Hungary	14.8	8.9	9.3	9.0	8.7	8.8	8.8	8.9	8.9
Iceland	0.6	0.6	0.6	0.5	0.6	0.6	0.7	0.7	0.8
India	344.2	352.3	344.1	341.9	350.6	362.7	374.4	386.5	398.4
Indonesia	169.9	185.5	186.1	236.8	246.8	253.7	260.4	268.0	276.4
Iran	18.8	32.3	42.7	54.1	56.4	59.8	63.2	66.8	70.5
Iraq	6.4	5.9	6.0	5.4	5.7	6.2	6.8	7.5	8.3
Ireland	19.3	20.0	19.7	18.7	18.3	18.6	18.5	18.6	18.5
Israel	1.2	1.2	1.2	1.3	1.5	1.6	1.7	1.8	1.9
Italy	41.3	40.8	40.4	37.4	39.4	41.3	41.7	42.3	42.9
Japan	31.8	30.5	27.8	26.6	26.9	26.5	26.2	25.8	25.4
Jordan	0.7	0.9	0.4	0.5	0.6	0.6	0.7	0.8	0.9
Kazakhstan	56.2	28.1	19.2	24.5	27.5	29.1	31.0	33.1	35.6
Kuwait	0.2	0.2	0.3	0.4	0.5	0.5	0.5	0.6	0.7
Kyrgyzstan	3.2	1.8	1.9	1.9	2.2	2.3	2.5	2.6	2.7
Laos	13.2	13.7	11.8	17.9	18.6	19.2	19.5	19.8	20.3
Latvia	6.0	2.3	2.0	2.2	2.3	2.2	2.2	2.2	2.2
Lithuania	10.0	4.2	4.1	4.7	4.5	4.5	4.4	4.4	4.4
Luxembourg	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Macedonia	2.0	1.9	1.5	1.4	1.4	1.5	1.5	1.5	1.6
Mexico	52.9	51.2	54.1	54.9	61.7	65.5	68.4	71.3	73.9
Moldova	5.3	3.4	2.4	2.2	1.8	1.7	1.7	1.7	1.7

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Monaco	-	-	-	-	-	-	-	-	-
Mongolia	11.4	12.2	12.0	10.2	14.6	17.9	22.3	28.5	37.1
Nepal	20.2	21.7	23.0	23.9	25.8	28.8	31.8	35.4	39.6
Netherlands	22.5	22.2	18.9	17.0	18.0	18.3	18.2	18.1	18.0
New Zealand	30.3	31.6	33.4	35.0	34.6	36.1	37.3	38.8	40.3
Nigeria	58.1	68.8	79.7	87.3	99.8	104.3	108.3	112.3	116.8
North Korea	12.9	8.2	6.4	6.8	6.8	7.4	7.8	8.3	9.1
Norway	4.5	4.6	4.5	4.3	4.4	4.7	4.8	4.9	5.0
Pakistan	71.0	81.3	93.0	107.2	127.2	139.5	151.9	166.0	181.6
Peru	25.3	23.5	23.9	20.6	21.7	23.2	24.6	26.0	27.5
Philippines	32.0	35.1	39.0	41.1	44.0	46.1	48.4	50.9	53.5
Poland	50.5	38.0	35.3	34.3	34.4	35.4	35.8	36.2	36.7
Portugal	8.2	8.1	9.6	9.7	9.8	10.0	10.0	10.0	10.0
Romania	44.4	30.6	23.5	26.7	27.1	27.5	27.9	28.3	28.8
Russia	349.8	218.7	191.8	155.3	158.2	157.5	157.9	158.3	158.5
Saudi Arabia	11.3	11.8	12.3	12.6	13.2	14.4	15.6	16.9	18.3
Senegal	7.0	7.8	9.2	9.2	9.9	10.5	11.1	11.7	12.4
Singapore	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Slovakia	7.2	4.3	3.5	3.3	2.3	2.2	2.2	2.3	2.4
Slovenia	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1
South Africa	44.4	37.5	34.5	32.8	34.1	35.5	36.2	36.9	37.6
South Korea	14.9	15.0	15.9	15.0	15.8	15.9	16.0	16.3	16.5
Spain	39.0	37.3	44.7	41.3	41.7	43.7	44.1	44.4	44.8
Sweden	9.3	9.2	8.7	8.4	8.1	7.6	7.1	6.8	6.5
Switzerland	6.3	6.0	5.5	5.5	5.7	5.8	5.8	5.8	5.7
Tajikistan	5.0	4.1	3.8	5.1	6.7	7.1	7.6	8.0	8.6
Thailand	68.2	65.6	55.1	56.4	61.6	62.8	64.4	66.0	67.7
Turkey	45.0	42.3	40.4	38.7	41.6	44.8	48.0	51.2	54.4
Turkmenistan	3.4	3.2	3.2	10.3	10.7	11.5	12.4	13.4	14.5
Uganda	14.1	14.1	13.9	19.2	19.5	20.4	21.1	21.9	22.7
Ukraine	101.7	64.9	36.4	33.7	30.5	30.3	30.1	29.9	29.7
United Arab Emirates	0.9	1.6	2.2	2.0	2.2	2.4	2.6	2.8	3.0
United Kingdom	57.1	55.1	52.1	48.4	48.8	51.8	52.6	53.3	54.0
United States	392.9	413.2	418.3	424.2	465.4	499.6	523.0	546.5	570.0
Uruguay	19.2	22.0	22.4	22.5	24.1	26.6	28.6	30.9	33.1
Uzbekistan	17.1	16.7	16.2	16.4	18.4	19.3	20.2	21.2	22.2
Venezuela	30.0	31.0	33.8	38.0	39.6	42.5	44.7	47.1	49.4
Vietnam	46.0	56.9	67.1	73.4	76.7	81.5	85.2	89.3	93.5
Rest of Africa	679.3	665.0	691.7	779.5	815.1	851.8	883.8	918.4	957.1
Rest of Central and South	91.6	85.9	112.5	108.6	117.6	125.8	132.6	139.9	147.1
Rest of Middle East	11.5	11.8	13.0	15.7	17.9	19.9	22.1	24.5	27.2
Rest of Non-OECD Asia	53.4	55.5	48.5	52.4	54.6	57.2	60.0	63.2	66.8
Rest of Non-OECD Europe and	15.5	13.4	14.0	11.0	11.0	11.1	11.2	11.2	11.3
Africa	1,130.2	1,088.1	1,091.1	1,194.4	1,268.5	1,327.7	1,378.7	1,432.7	1,491.7
Central and South America	850.0	865.5	891.8	1,096.2	1,075.7	1,125.3	1,152.6	1,176.8	1,199.2
Middle East	49.8	64.5	77.0	90.7	96.4	103.9	111.6	120.0	128.9
OECD	1,287.9	1,286.3	1,278.1	1,237.5	1,280.3	1,344.4	1,380.5	1,417.8	1,454.8
Non-OECD Asia	1,617.7	1,759.7	1,721.5	1,839.0	1,931.0	2,019.8	2,106.5	2,201.9	2,304.2
Non-OECD Europe &	686.2	437.7	364.3	340.7	346.9	350.2	354.9	360.4	366.2
EU	617.7	533.5	521.4	496.1	488.3	501.3	500.9	501.6	502.0
OPEC	265.2	276.0	296.4	326.0	344.2	359.1	372.3	386.3	400.9
World Totals	5,621.8	5,501.8	5,423.8	5,798.5	5,998.8	6,271.2	6,484.8	6,709.5	6,945.0

Table D-2: N₂O Emissions from Agricultural Soils by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	1.0	0.7	0.6	0.5	0.5	0.5	0.5	0.5	0.5
Algeria	12.4	6.6	0.7	-	-	-	-	-	-
Argentina	50.2	56.5	65.2	72.1	74.3	80.1	83.9	87.0	90.2
Armenia	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Australia	13.4	13.9	16.4	16.0	15.5	16.5	17.2	17.9	18.6
Austria	3.4	3.7	3.2	2.9	3.1	3.3	3.4	3.4	3.4
Azerbaijan	1.7	1.1	1.1	1.5	1.6	1.7	1.7	1.8	1.9
Bangladesh	9.6	13.0	14.3	16.8	20.0	23.3	27.2	32.0	38.0
Belarus	16.6	10.9	12.1	12.2	12.4	12.5	12.6	12.6	12.7
Belgium	4.9	4.8	4.3	3.9	4.1	4.4	4.4	4.4	4.4
Bolivia	0.3	0.6	0.6	1.0	1.1	1.2	1.3	1.4	1.5
Brazil	98.5	110.8	116.6	141.6	129.9	136.6	138.9	140.4	141.6
Bulgaria	9.0	4.1	3.4	3.5	3.3	3.4	3.4	3.4	3.5
Burma	5.0	5.8	6.9	7.2	8.3	9.3	10.3	11.4	12.7
Cambodia	1.1	1.4	1.5	1.6	1.8	2.0	2.3	2.7	3.1
Canada	24.7	26.8	28.6	28.5	31.5	35.5	38.0	40.6	43.1
Chile	0.2	5.2	6.6	6.8	7.1	7.6	8.0	8.4	8.8
China	219.0	262.6	263.4	308.6	329.2	351.9	369.8	388.1	406.4
Colombia	23.2	27.6	31.7	34.5	36.4	38.7	40.3	42.0	43.4
Congo (Kinshasa)	1.8	0.9	0.6	0.8	0.8	0.9	0.9	0.9	1.0
Croatia	2.5	1.9	2.1	2.3	2.3	2.3	2.4	2.4	2.4
Czech Republic	9.5	5.9	5.3	5.0	4.9	5.0	5.1	5.2	5.2
Denmark	7.6	6.7	5.8	5.3	3.0	3.1	2.8	2.8	2.7
Ecuador	3.0	3.6	3.6	3.6	3.6	3.9	4.2	4.5	4.8
Egypt	6.5	8.4	10.2	12.1	14.0	15.7	17.4	19.0	20.7
Estonia	1.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Ethiopia	19.2	17.9	19.7	25.6	32.8	37.0	40.3	43.8	47.3
Finland	4.0	3.6	3.5	3.5	3.8	4.3	4.3	4.4	4.4
France	56.1	51.4	53.3	49.0	53.9	59.5	60.0	60.4	60.9
Georgia	0.8	1.0	1.2	1.6	1.3	1.3	1.3	1.3	1.3
Germany	50.1	43.9	46.3	44.2	36.3	35.7	35.3	34.8	34.4
Greece	7.5	6.4	6.0	5.5	6.5	6.0	5.6	5.2	4.7
Hungary	7.1	4.3	4.7	5.0	4.9	5.0	5.1	5.2	5.3
Iceland	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.4
India	45.8	45.1	44.4	43.7	46.0	49.1	51.7	54.4	57.1
Indonesia	21.0	24.7	24.6	29.3	33.1	36.2	39.4	43.0	47.1
Iran	1.1	12.4	23.6	34.8	37.2	40.6	44.0	47.5	51.2
Iraq	3.3	3.2	3.3	2.6	3.0	3.3	3.6	4.0	4.3
Ireland	7.1	7.6	7.5	6.9	7.2	7.8	7.8	7.9	8.0
Israel	0.7	0.7	0.7	0.7	0.9	1.0	1.0	1.1	1.2
Italy	19.5	19.4	19.3	18.1	19.6	21.4	21.6	21.9	22.1
Japan	7.9	7.2	6.7	6.5	6.8	6.9	7.0	7.2	7.3
Jordan	0.3	0.5	0.4	0.5	0.6	0.6	0.7	0.8	0.9
Kazakhstan	17.0	4.7	2.6	3.5	4.3	4.6	5.1	5.7	6.4
Kuwait	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.4
Kyrgyzstan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Laos	0.8	0.9	0.9	1.0	1.2	1.3	1.5	1.7	1.9
Latvia	3.0	1.1	1.1	1.3	1.3	1.3	1.3	1.3	1.3
Lithuania	4.6	1.6	2.0	2.3	2.3	2.3	2.4	2.4	2.4
Luxembourg	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.4
Macedonia	1.0	1.0	0.7	0.4	0.4	0.4	0.4	0.4	0.4
Mexico	7.1	6.8	7.8	7.1	8.2	9.1	9.7	10.3	10.9
Moldova	1.7	0.9	0.6	0.7	0.6	0.6	0.6	0.6	0.6
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	3.4	3.7	4.6	3.7	5.6	7.1	9.1	12.0	16.2
Nepal	2.1	2.3	2.4	2.3	2.7	3.1	3.7	4.4	5.3
Netherlands	10.7	10.4	8.5	7.1	7.8	8.3	8.3	8.4	8.4
New Zealand	7.8	8.5	9.2	10.3	10.2	10.9	11.4	12.0	12.6
Nigeria	13.0	14.0	16.2	18.5	20.0	21.5	22.8	24.1	25.7
North Korea	5.2	1.2	1.8	1.9	2.1	2.4	2.7	3.2	3.7
Norway	2.0	2.0	2.0	2.0	2.1	2.3	2.4	2.4	2.5
Pakistan	21.5	26.9	29.8	36.1	40.5	43.8	46.7	49.9	53.3
Peru	13.8	11.7	9.7	7.6	8.0	8.7	9.2	9.9	10.6
Philippines	5.7	6.0	7.0	7.5	8.2	8.9	9.5	10.2	11.0
Poland	23.3	17.0	16.3	16.3	16.8	16.8	16.8	16.8	16.9
Portugal	3.4	3.3	3.7	2.9	3.0	3.2	3.3	3.3	3.3
Romania	25.9	18.2	13.5	16.1	16.3	16.8	17.3	17.7	18.3
Russia	160.0	99.1	77.9	72.3	77.0	76.7	77.8	79.0	80.2
Saudi Arabia	7.3	7.4	7.6	7.7	8.1	9.1	10.0	11.0	12.0
Senegal	2.0	2.3	2.6	2.7	3.0	3.3	3.6	3.8	4.1
Singapore	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Slovakia	3.6	1.9	1.7	1.7	1.1	1.2	1.3	1.4	1.5
Slovenia	0.7	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.8
South Africa	18.5	14.8	11.0	7.3	7.7	8.2	8.5	8.7	9.0
South Korea	0.3	1.7	3.1	4.5	5.0	5.2	5.5	5.7	6.0
Spain	19.1	17.3	22.4	18.8	20.1	22.0	22.3	22.6	22.9
Sweden	5.1	5.0	4.8	4.6	4.6	4.3	4.0	3.7	3.4
Switzerland	2.3	2.2	2.1	2.1	2.3	2.4	2.4	2.4	2.4
Tajikistan	2.8	2.2	1.9	1.6	2.1	2.3	2.5	2.7	3.0
Thailand	13.2	10.4	7.6	4.8	5.3	5.6	5.9	6.3	6.6
Turkey	21.0	18.9	19.4	19.0	20.8	23.0	25.1	27.3	29.5
Turkmenistan	0.0	0.5	0.6	1.2	1.2	1.3	1.4	1.5	1.7
Uganda	3.2	3.5	4.1	4.8	5.3	5.7	6.0	6.3	6.6
Ukraine	41.0	26.2	16.6	16.8	16.6	16.9	17.1	17.3	17.6
United Arab Emirates	0.2	0.4	0.5	0.6	0.7	0.8	0.8	0.9	1.0
United Kingdom	32.1	30.7	29.1	26.9	28.4	31.2	31.8	32.3	32.9
United States	197.8	207.6	206.8	211.3	243.6	274.0	294.5	315.2	336.0
Uruguay	6.6	7.0	6.5	7.3	7.8	8.6	9.3	10.0	10.7
Uzbekistan	10.2	9.1	8.5	7.4	8.1	8.5	8.9	9.3	9.7
Venezuela	8.5	8.6	9.2	10.4	11.0	12.1	12.9	13.8	14.6
Vietnam	4.0	9.1	14.2	19.3	21.4	23.4	25.1	26.8	28.7
Rest of Africa	91.0	114.8	154.2	201.4	225.5	243.9	260.3	277.8	298.0
Rest of Central and South	28.3	23.0	32.4	40.4	44.9	48.8	52.3	56.0	59.8
Rest of Middle East	6.5	6.8	7.3	8.6	9.9	11.0	12.3	13.6	15.1
Rest of Non-OECD Asia	13.1	13.3	13.9	15.1	16.1	17.4	18.7	20.3	22.2
Rest of Non-OECD Europe and	7.5	6.4	5.5	4.5	4.5	4.6	4.7	4.8	4.9
Africa	167.7	183.2	219.4	273.1	309.2	336.2	359.7	384.5	412.4
Central and South America	232.3	249.3	275.4	318.4	317.1	338.6	352.2	364.9	377.2
Middle East	18.9	30.8	42.9	55.1	59.7	65.7	71.8	78.2	84.9
OECD	560.6	546.4	556.3	543.7	584.3	638.2	667.0	695.9	725.1
Non-OECD Asia	370.6	426.5	437.4	499.1	541.7	584.8	623.9	666.6	713.4
Non-OECD Europe &	308.0	191.3	152.6	150.5	157.0	158.9	162.1	165.7	169.7
EU	319.3	270.2	267.5	252.6	254.0	268.2	269.5	270.8	272.2
OPEC	51.9	59.1	68.1	81.7	87.4	95.3	102.6	110.2	118.4
World Totals	1,658.1	1,627.4	1,683.9	1,840.0	1,969.0	2,122.4	2,236.7	2,355.8	2,482.8

Table D-3: CH₄ Emissions from Enteric Fermentation by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	1.2	1.7	1.5	1.3	1.2	1.2	1.2	1.1	1.1
Algeria	3.4	3.4	3.9	4.2	4.6	5.0	5.6	6.1	6.8
Argentina	57.4	59.0	57.5	60.5	62.9	67.0	69.7	71.6	73.4
Armenia	0.9	0.8	0.7	0.8	0.9	0.9	0.9	0.9	0.9
Australia	63.9	59.3	60.4	60.1	57.2	59.4	61.2	62.9	64.7
Austria	3.8	3.6	3.4	3.2	3.2	3.2	3.2	3.2	3.2
Azerbaijan	3.4	2.6	3.2	3.9	4.3	4.3	4.3	4.4	4.4
Bangladesh	8.2	8.9	9.1	10.0	11.5	13.5	15.8	18.7	22.1
Belarus	10.0	7.4	6.2	6.1	5.9	5.8	5.7	5.6	5.4
Belgium	4.1	4.1	3.9	3.5	3.4	3.4	3.3	3.3	3.2
Bolivia	7.6	8.7	9.9	6.9	7.5	8.2	8.8	9.5	10.1
Brazil	176.8	192.7	201.6	241.2	210.6	220.9	222.0	220.8	219.0
Bulgaria	3.9	2.0	1.8	1.6	1.4	1.4	1.3	1.3	1.3
Burma	12.3	13.0	14.5	16.1	18.7	21.1	23.6	26.3	29.3
Cambodia	2.9	3.6	3.7	3.8	4.4	4.8	5.3	5.7	6.2
Canada	16.3	19.3	19.9	22.0	20.7	21.2	21.5	21.7	21.8
Chile	5.8	6.3	4.8	4.6	4.6	4.8	5.0	5.2	5.4
China	185.9	221.4	231.1	217.5	212.5	225.3	234.5	243.4	250.3
Colombia	25.9	29.1	30.9	31.3	32.6	34.7	36.1	37.4	38.5
Congo (Kinshasa)	1.5	1.3	1.1	1.5	1.5	1.6	1.7	1.7	1.8
Croatia	1.2	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.8
Czech Republic	4.9	3.0	2.6	2.4	2.3	2.3	2.2	2.2	2.2
Denmark	3.3	3.2	2.9	2.8	2.7	2.6	2.5	2.5	2.5
Ecuador	5.9	6.7	6.3	6.6	6.7	7.2	7.6	8.1	8.5
Egypt	6.8	7.4	8.1	8.5	10.4	11.6	13.0	14.6	16.4
Estonia	1.1	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Ethiopia	28.8	27.9	30.5	38.6	49.6	56.1	61.2	66.5	71.7
Finland	1.9	1.7	1.7	1.6	1.5	1.5	1.5	1.5	1.5
France	32.2	31.5	31.2	29.6	30.0	29.8	29.5	29.2	28.8
Georgia	1.1	1.1	1.3	1.4	1.1	1.1	1.1	1.1	1.1
Germany	27.3	23.9	22.5	21.0	16.8	16.3	15.7	15.4	15.1
Greece	3.2	3.2	3.2	3.3	2.8	2.7	2.6	2.7	2.8
Hungary	3.3	2.0	1.9	1.7	1.6	1.6	1.6	1.6	1.5
Iceland	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.4
India	181.8	190.2	199.3	208.5	210.8	218.7	225.8	233.1	240.1
Indonesia	18.7	20.2	18.6	18.1	21.2	23.8	26.1	28.7	31.7
Iran	10.4	11.5	17.0	17.0	17.0	17.0	17.0	17.0	17.0
Iraq	2.6	2.0	2.1	2.2	2.3	2.4	2.6	2.8	3.1
Ireland	9.5	9.7	9.5	9.2	8.8	8.5	8.4	8.4	8.4
Israel	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5
Italy	12.2	12.3	12.2	10.8	11.0	11.0	11.1	11.2	11.4
Japan	7.7	7.6	7.4	7.0	7.0	7.0	7.0	6.9	6.9
Jordan	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kazakhstan	21.8	14.2	8.5	11.5	13.3	14.3	15.4	16.8	18.3
Kuwait	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2
Kyrgyzstan	2.4	1.5	1.6	1.7	1.9	2.1	2.2	2.3	2.4
Laos	2.1	2.5	2.3	2.5	2.9	3.2	3.4	3.7	4.0
Latvia	2.1	0.9	0.6	0.7	0.7	0.7	0.7	0.6	0.6
Lithuania	3.1	1.5	1.2	1.3	1.3	1.2	1.2	1.2	1.1
Luxembourg	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Macedonia	0.7	0.7	0.6	0.8	0.8	0.8	0.8	0.9	0.9
Mexico	38.8	36.5	36.3	37.2	42.8	45.7	48.0	50.3	52.3
Moldova	1.9	1.4	0.9	0.8	0.6	0.6	0.5	0.5	0.5
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	5.1	5.6	6.2	6.0	8.3	10.1	12.4	15.6	20.0
Nepal	10.4	11.3	11.9	12.9	14.5	16.8	19.3	22.3	25.6
Netherlands	7.7	7.4	6.6	6.4	6.5	6.4	6.3	6.3	6.2
New Zealand	21.9	22.4	23.5	23.9	23.6	24.4	25.1	26.0	26.9
Nigeria	20.1	22.8	26.4	29.3	31.9	34.7	37.5	40.3	43.3
North Korea	1.1	0.9	0.8	0.9	1.0	1.1	1.3	1.6	1.9
Norway	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.1
Pakistan	40.6	44.8	51.6	58.5	71.8	79.8	88.5	98.5	109.7
Peru	7.2	7.8	8.5	9.1	9.6	10.5	11.2	12.0	12.8
Philippines	6.5	7.1	8.1	8.7	9.1	9.7	10.2	10.9	11.5
Poland	15.6	10.8	9.7	8.9	9.1	9.3	9.5	9.7	9.9
Portugal	2.6	2.8	3.0	3.0	2.9	2.9	3.0	3.0	3.0
Romania	11.4	7.7	6.2	6.4	6.6	6.6	6.6	6.6	6.6
Russia	98.6	70.7	45.1	40.6	38.5	38.2	37.8	37.4	36.9
Saudi Arabia	1.6	1.6	1.6	1.4	1.3	1.4	1.5	1.7	1.8
Senegal	2.9	3.6	4.0	3.7	4.0	4.4	4.7	5.1	5.4
Singapore	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slovakia	2.0	1.4	1.1	1.0	0.7	0.6	0.6	0.6	0.5
Slovenia	0.7	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7
South Africa	19.2	17.5	18.5	18.1	18.9	19.7	20.2	20.6	21.0
South Korea	3.0	2.9	2.7	1.9	2.4	2.5	2.7	2.9	3.1
Spain	11.6	11.8	13.1	13.2	12.3	12.5	12.7	12.9	13.0
Sweden	3.1	3.1	2.9	2.8	2.6	2.4	2.2	2.2	2.2
Switzerland	2.7	2.6	2.4	2.4	2.5	2.5	2.5	2.5	2.4
Tajikistan	1.8	1.5	1.4	2.8	3.7	3.9	4.2	4.4	4.7
Thailand	13.3	12.4	8.3	9.7	11.2	11.7	12.2	12.7	13.3
Turkey	19.0	18.4	16.3	15.1	16.1	16.9	17.7	18.6	19.4
Turkmenistan	2.8	2.3	2.2	8.6	8.9	9.5	10.3	11.1	12.1
Uganda	3.9	4.2	4.8	5.7	6.4	6.8	7.2	7.6	8.0
Ukraine	33.6	24.0	13.5	11.4	8.9	8.5	8.1	7.8	7.5
United Arab Emirates	0.6	1.2	1.6	1.4	1.5	1.6	1.7	1.8	2.0
United Kingdom	18.5	18.3	17.2	16.3	15.5	15.7	15.9	16.2	16.4
United States	132.1	143.5	136.5	136.5	141.2	145.6	148.3	151.0	153.6
Uruguay	11.8	14.0	14.8	14.1	15.2	16.7	18.0	19.4	20.8
Uzbekistan	5.8	6.5	6.6	7.9	9.1	9.6	10.0	10.5	11.0
Venezuela	13.1	14.9	15.5	16.9	18.0	19.7	21.1	22.5	23.9
Vietnam	6.2	7.2	7.7	8.9	10.6	11.6	12.6	13.7	14.9
Rest of Africa	115.2	129.3	153.7	172.1	182.9	197.9	211.1	225.5	241.1
Rest of Central and South	35.6	35.5	33.0	35.2	40.0	43.5	46.2	49.1	51.8
Rest of Middle East	4.6	4.5	5.3	6.4	7.4	8.2	9.1	10.2	11.3
Rest of Non-OECD Asia	9.5	10.0	10.0	10.4	11.3	12.3	13.4	14.6	16.0
Rest of Non-OECD Europe and	5.5	4.8	4.8	4.3	4.2	4.2	4.2	4.2	4.2
Africa	201.8	217.6	251.0	281.5	310.1	337.8	362.2	388.1	415.5
Central and South America	341.4	368.4	378.0	421.8	403.1	428.7	440.8	450.6	458.7
Middle East	20.3	21.2	27.7	28.5	29.6	30.8	32.1	33.7	35.4
OECD	481.4	475.9	462.4	455.0	455.2	466.3	474.5	483.6	492.1
Non-OECD Asia	504.4	559.2	583.3	592.3	619.8	663.6	704.5	749.6	796.7
Non-OECD Europe &	214.5	154.6	109.0	115.2	114.5	116.0	117.8	119.9	122.2
EU	189.6	167.4	159.9	152.4	145.2	144.1	143.2	143.2	142.9
OPEC	61.3	67.5	78.4	83.0	87.4	93.7	99.4	105.5	111.6
World Totals	1,763.9	1,797.0	1,811.3	1,894.3	1,932.3	2,043.2	2,131.9	2,225.4	2,320.5

Table D-4: CH₄ Emissions from Rice Cultivation by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	0.0	-	-	-	-	-	-	-	-
Algeria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Argentina	0.4	0.6	0.6	0.5	0.7	0.7	0.8	0.8	0.9
Armenia	-	-	-	-	-	-	-	-	-
Australia	0.5	0.6	0.7	0.3	0.0	0.1	0.2	0.2	0.3
Austria	-	-	-	-	-	-	-	-	-
Azerbaijan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bangladesh	14.6	13.9	15.1	14.7	15.3	15.4	15.9	16.5	17.1
Belarus	-	-	-	-	-	-	-	-	-
Belgium	-	-	-	-	-	-	-	-	-
Bolivia	0.2	0.2	0.3	0.4	0.4	0.4	0.3	0.3	0.3
Brazil	7.6	9.3	8.3	8.9	6.8	6.8	6.8	6.7	6.7
Bulgaria	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Burma	22.3	28.2	29.5	34.6	36.1	35.8	36.2	36.6	37.0
Cambodia	3.0	3.2	3.1	4.0	3.8	3.8	3.6	3.4	3.2
Canada	-	-	-	-	-	-	-	-	-
Chile	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
China	139.1	129.1	125.7	120.8	124.6	116.8	113.5	110.3	107.2
Colombia	3.5	3.0	1.3	1.4	1.3	1.3	1.3	1.2	1.1
Congo (Kinshasa)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Croatia	-	-	-	-	-	-	-	-	-
Czech Republic	-	-	-	-	-	-	-	-	-
Denmark	-	-	-	-	-	-	-	-	-
Ecuador	2.2	3.2	2.8	3.1	2.9	3.0	2.8	2.7	2.5
Egypt	4.0	2.2	2.5	2.3	2.4	2.5	2.4	2.4	2.4
Estonia	-	-	-	-	-	-	-	-	-
Ethiopia	-	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Finland	-	-	-	-	-	-	-	-	-
France	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Georgia	-	-	-	-	-	-	-	-	-
Germany	-	-	-	-	-	-	-	-	-
Greece	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Hungary	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iceland	-	-	-	-	-	-	-	-	-
India	85.7	85.9	74.1	72.3	76.1	77.0	78.7	80.6	82.4
Indonesia	44.0	47.9	49.4	49.6	51.4	51.8	52.1	52.4	52.7
Iran	2.2	2.4	1.3	1.5	1.4	1.4	1.4	1.5	1.5
Iraq	0.3	0.7	0.4	0.4	0.3	0.4	0.4	0.5	0.6
Ireland	-	-	-	-	-	-	-	-	-
Israel	-	-	-	-	-	-	-	-	-
Italy	1.6	1.7	1.4	1.5	1.6	1.6	1.6	1.6	1.6
Japan	7.0	7.1	5.9	5.7	5.6	5.1	4.7	4.3	3.9
Jordan	-	-	-	-	-	-	-	-	-
Kazakhstan	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Laos	3.3	2.9	3.7	3.8	3.6	3.7	3.5	3.3	3.1
Latvia	-	-	-	-	-	-	-	-	-
Lithuania	-	-	-	-	-	-	-	-	-
Luxembourg	-	-	-	-	-	-	-	-	-
Macedonia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mexico	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Moldova	-	-	-	-	-	-	-	-	-
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	-	-	-	-	-	-	-	-	-
Nepal	6.2	6.4	6.7	6.6	6.3	6.4	6.1	5.7	5.4
Netherlands	-	-	-	-	-	-	-	-	-
New Zealand	-	-	-	-	-	-	-	-	-
Nigeria	15.3	22.8	27.9	31.7	39.7	39.8	39.5	39.3	39.0
North Korea	3.4	3.3	3.1	3.3	3.2	3.2	3.1	2.9	2.7
Norway	-	-	-	-	-	-	-	-	-
Pakistan	4.6	4.7	5.1	5.7	6.5	6.9	6.9	6.9	7.0
Peru	0.6	0.6	0.9	1.1	1.1	1.1	1.0	1.0	0.9
Philippines	11.8	13.4	14.4	14.5	15.5	15.8	16.2	16.6	17.0
Poland	-	-	-	-	-	-	-	-	-
Portugal	0.2	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.4
Romania	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Russia	1.6	0.9	0.9	0.7	0.9	0.9	0.9	0.8	0.8
Saudi Arabia	-	-	-	-	-	-	-	-	-
Senegal	0.3	0.2	0.3	0.4	0.3	0.3	0.3	0.3	0.3
Singapore	-	-	-	-	-	-	-	-	-
Slovakia	-	-	-	-	-	-	-	-	-
Slovenia	-	-	-	-	-	-	-	-	-
South Africa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Korea	8.7	7.2	7.3	6.6	6.2	5.6	5.3	5.0	4.7
Spain	0.2	0.1	0.3	0.3	0.2	0.2	0.2	0.2	0.2
Sweden	-	-	-	-	-	-	-	-	-
Switzerland	-	-	-	-	-	-	-	-	-
Tajikistan	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Thailand	26.6	27.6	29.9	31.0	33.5	33.3	33.6	33.8	34.0
Turkey	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Turkmenistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uganda	0.4	0.5	0.6	0.9	-	-	-	-	-
Ukraine	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
United Arab Emirates	-	-	-	-	-	-	-	-	-
United Kingdom	-	-	-	-	-	-	-	-	-
United States	7.1	7.6	7.5	6.8	7.3	6.7	6.9	7.0	7.1
Uruguay	0.5	0.6	0.7	0.7	0.8	0.8	0.9	1.0	1.1
Uzbekistan	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Venezuela	0.3	0.4	0.6	1.0	0.9	0.9	0.9	0.8	0.8
Vietnam	29.9	33.4	37.4	35.8	35.1	36.3	37.0	37.7	38.4
Rest of Africa	9.2	12.3	13.0	16.1	15.8	16.1	15.5	14.8	14.3
Rest of Central and South	2.8	3.2	3.0	2.9	2.7	2.8	2.7	2.5	2.4
Rest of Middle East	0.0	0.0	-	-	-	-	-	-	-
Rest of Non-OECD Asia	7.0	7.0	7.0	7.3	7.3	7.5	7.6	7.7	7.9
Rest of Non-OECD Europe and	-	-	-	-	-	-	-	-	-
Africa	29.3	38.2	44.5	51.5	58.4	58.8	57.9	56.9	56.0
Central and South America	18.1	21.2	18.4	20.1	17.6	17.9	17.4	17.0	16.6
Middle East	2.5	3.1	1.7	1.9	1.8	1.8	1.9	2.0	2.1
OECD	26.1	25.2	24.0	22.3	22.1	20.6	20.0	19.5	19.0
Non-OECD Asia	401.6	406.9	404.2	403.9	418.2	413.8	414.0	414.5	415.3
Non-OECD Europe &	2.5	1.6	1.6	1.3	1.5	1.6	1.5	1.4	1.3
EU	2.4	2.2	2.2	2.3	2.6	2.6	2.6	2.6	2.6
OPEC	20.3	29.5	33.0	37.7	45.4	45.5	45.1	44.8	44.5
World Totals	480.0	496.2	494.5	500.9	519.6	514.4	512.7	511.3	510.4

Table D-5: CH₄ Emissions from Manure Management by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Algeria	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
Argentina	1.3	1.3	1.2	1.1	1.3	1.3	1.4	1.5	1.5
Armenia	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Australia	1.5	1.7	2.0	2.0	1.9	1.9	2.0	2.1	2.1
Austria	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3
Azerbaijan	0.6	0.5	0.6	0.8	0.8	0.8	0.8	0.8	0.8
Bangladesh	0.9	0.9	1.0	1.1	1.2	1.4	1.7	1.9	2.3
Belarus	1.1	0.8	0.7	0.7	0.7	0.7	0.7	0.6	0.6
Belgium	1.7	1.8	1.7	1.6	1.5	1.5	1.5	1.4	1.4
Bolivia	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.4
Brazil	13.3	14.6	14.2	15.2	16.6	17.4	18.1	18.8	19.5
Bulgaria	2.2	1.2	0.9	0.9	0.8	0.8	0.8	0.8	0.8
Burma	1.1	1.3	1.7	2.3	3.1	3.3	3.5	3.8	4.1
Cambodia	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8
Canada	2.5	2.8	2.9	3.1	2.9	2.9	2.9	2.9	2.9
Chile	0.9	1.2	1.2	1.4	1.6	1.6	1.7	1.7	1.7
China	16.0	18.8	19.5	19.1	20.1	20.4	20.7	21.1	21.4
Colombia	0.6	0.7	0.9	0.8	0.7	0.7	0.7	0.7	0.7
Congo (Kinshasa)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Croatia	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Czech Republic	1.0	0.7	0.6	0.5	0.3	0.3	0.3	0.3	0.3
Denmark	1.0	1.1	1.1	1.2	1.1	1.2	1.3	1.3	1.3
Ecuador	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Egypt	0.5	0.5	0.6	0.6	0.7	0.7	0.8	0.9	1.0
Estonia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ethiopia	1.0	1.0	1.1	1.4	1.8	2.0	2.2	2.4	2.6
Finland	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
France	13.9	13.8	14.0	14.0	13.7	13.4	13.1	12.8	12.5
Georgia	0.3	0.2	0.3	0.3	0.1	0.1	0.1	0.1	0.1
Germany	6.6	6.1	6.0	5.9	4.8	4.6	4.5	4.4	4.2
Greece	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Hungary	2.4	1.4	1.4	1.2	1.1	1.1	1.1	1.1	1.1
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
India	18.6	18.5	11.8	5.1	5.3	5.5	5.8	6.1	6.4
Indonesia	2.9	3.3	2.4	3.0	3.5	3.9	4.4	4.9	5.5
Iran	0.4	0.4	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Iraq	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Ireland	2.3	2.4	2.3	2.3	2.0	2.0	1.9	1.9	1.9
Israel	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Italy	3.5	3.3	3.3	3.1	3.2	3.2	3.1	3.1	3.0
Japan	3.1	2.9	2.7	2.5	2.5	2.5	2.4	2.4	2.3
Jordan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kazakhstan	1.7	1.1	0.7	0.9	1.0	1.0	1.1	1.1	1.2
Kuwait	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kyrgyzstan	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Laos	0.3	0.4	0.3	0.4	0.6	0.6	0.7	0.7	0.8
Latvia	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Lithuania	1.3	0.7	0.5	0.6	0.6	0.5	0.5	0.5	0.5
Luxembourg	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Macedonia	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1
Mexico	1.2	1.1	1.1	1.2	1.2	1.2	1.3	1.3	1.3
Moldova	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4
Nepal	0.7	0.7	0.9	0.9	1.0	1.1	1.2	1.3	1.5
Netherlands	3.0	3.2	2.9	2.6	2.7	2.7	2.6	2.6	2.5
New Zealand	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.8	0.8
Nigeria	1.0	1.2	1.4	1.7	1.9	2.0	2.1	2.2	2.3
North Korea	0.8	0.4	0.4	0.5	0.3	0.4	0.4	0.4	0.5
Norway	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Pakistan	3.7	4.1	5.2	5.9	7.1	7.7	8.2	8.9	9.7
Peru	0.2	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5
Philippines	2.6	2.9	3.4	3.9	4.3	4.6	4.9	5.3	5.7
Poland	3.4	3.6	3.3	3.6	3.1	3.4	3.4	3.5	3.6
Portugal	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Romania	4.1	2.6	2.0	2.3	2.3	2.3	2.2	2.2	2.2
Russia	13.8	8.8	5.5	4.4	5.0	4.9	4.8	4.8	4.7
Saudi Arabia	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Senegal	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Singapore	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Slovakia	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Slovenia	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
South Africa	1.8	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.9
South Korea	0.9	0.6	0.4	0.2	0.2	0.2	0.2	0.2	0.2
Spain	4.1	4.5	5.3	5.5	5.7	5.6	5.5	5.4	5.3
Sweden	0.3	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4
Switzerland	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Tajikistan	0.2	0.2	0.2	0.4	0.5	0.5	0.5	0.6	0.6
Thailand	2.7	2.9	2.6	2.6	2.9	3.1	3.5	3.8	4.2
Turkey	1.4	1.4	1.3	1.1	1.1	1.2	1.3	1.4	1.5
Turkmenistan	0.5	0.3	0.3	0.5	0.5	0.5	0.6	0.6	0.6
Uganda	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4
Ukraine	17.6	6.7	1.3	1.0	1.0	1.0	1.0	1.0	1.0
United Arab Emirates	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
United Kingdom	3.6	3.6	3.2	3.0	2.9	2.8	2.8	2.8	2.7
United States	31.7	36.8	42.4	46.6	49.7	49.2	48.7	48.2	47.7
Uruguay	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4
Uzbekistan	0.4	0.5	0.5	0.6	0.6	0.7	0.7	0.7	0.8
Venezuela	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.9	0.9
Vietnam	2.2	2.8	3.4	3.5	3.5	3.8	4.0	4.3	4.6
Rest of Africa	10.9	11.7	14.1	16.0	17.6	19.0	20.3	21.8	23.3
Rest of Central and South	2.4	2.3	2.2	2.4	2.5	2.7	2.8	3.0	3.1
Rest of Middle East	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.5	0.5
Rest of Non-OECD Asia	2.6	3.0	2.4	2.6	2.7	2.8	3.0	3.1	3.3
Rest of Non-OECD Europe and	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Africa	15.7	16.7	19.5	22.1	24.4	26.3	28.1	30.0	32.1
Central and South America	19.3	20.8	20.4	21.3	22.8	24.0	25.0	26.1	27.2
Middle East	1.0	1.1	1.3	1.4	1.4	1.5	1.6	1.6	1.7
OECD	94.9	99.0	104.4	107.7	108.5	107.7	106.7	105.7	104.7
Non-OECD Asia	55.6	60.7	55.7	51.7	56.4	59.6	63.1	66.9	71.3
Non-OECD Europe &	46.3	25.5	15.1	14.9	15.7	15.6	15.6	15.6	15.7
EU	58.1	53.5	52.3	51.9	49.4	49.0	48.4	47.6	47.0
OPEC	3.2	3.5	3.9	4.2	4.4	4.7	4.9	5.2	5.5
World Totals	232.7	223.7	216.4	219.2	229.2	234.7	240.1	246.0	252.7

Table D-6: N₂O Emissions from Manure Management by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Algeria	0.8	1.1	1.9	1.7	1.7	1.8	1.8	1.9	1.9
Argentina	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2
Armenia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Australia	0.5	0.9	1.3	1.5	1.6	1.7	1.7	1.7	1.7
Austria	0.9	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Azerbaijan	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
Bangladesh	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.6
Belarus	3.0	2.3	1.9	1.7	1.7	1.7	1.7	1.6	1.6
Belgium	1.0	1.0	0.9	0.8	0.8	0.8	0.7	0.7	0.7
Bolivia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brazil	3.1	3.6	3.6	4.0	4.7	5.0	5.3	5.6	6.0
Bulgaria	1.5	0.8	0.6	0.5	0.5	0.5	0.4	0.4	0.4
Burma	1.9	2.1	2.3	2.6	2.9	3.3	3.7	4.2	4.6
Cambodia	1.0	1.3	1.3	1.4	1.6	1.7	1.9	2.0	2.2
Canada	3.1	3.7	4.0	4.3	4.1	4.3	4.3	4.4	4.5
Chile	1.8	1.0	0.3	0.4	0.4	0.4	0.4	0.5	0.5
China	11.9	14.5	15.1	13.7	13.8	14.9	15.7	16.5	17.2
Colombia	0.0	0.1	0.3	0.2	0.2	0.2	0.3	0.3	0.3
Congo (Kinshasa)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Croatia	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Czech Republic	1.4	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.7
Denmark	0.6	0.6	0.5	0.5	0.6	0.5	0.5	0.5	0.5
Ecuador	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Egypt	4.2	7.0	8.7	7.3	7.9	8.3	8.6	9.0	9.4
Estonia	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ethiopia	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3
Finland	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
France	6.9	6.6	6.5	6.1	6.1	6.0	5.9	5.9	5.8
Georgia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Germany	2.8	2.5	2.4	2.2	2.9	2.9	2.8	2.8	2.7
Greece	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Hungary	1.8	1.1	1.1	1.0	0.9	0.9	0.9	0.9	0.9
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
India	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Indonesia	3.0	3.5	3.1	3.2	3.9	4.3	4.7	5.1	5.6
Iran	4.6	5.5	0.3	0.2	0.2	0.2	0.2	0.2	0.2
Iraq	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ireland	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Israel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Italy	3.9	3.8	3.9	3.7	3.9	4.0	4.1	4.3	4.6
Japan	5.5	5.2	4.9	4.7	4.9	4.9	4.9	4.8	4.8
Jordan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kazakhstan	0.7	4.2	2.7	3.6	4.1	4.2	4.4	4.6	4.8
Kuwait	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kyrgyzstan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Laos	0.4	0.5	0.4	0.5	0.6	0.6	0.7	0.7	0.8
Latvia	0.6	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Lithuania	0.8	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Luxembourg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Macedonia	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Mexico	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Moldova	1.3	0.9	0.7	0.6	0.4	0.4	0.4	0.4	0.4
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	0.4	0.4	0.5	0.2	0.4	0.4	0.4	0.5	0.5
Nepal	0.6	0.6	0.7	0.8	0.9	1.0	1.1	1.3	1.4
Netherlands	1.2	1.2	1.0	0.9	0.9	0.9	0.9	0.9	0.9
New Zealand	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Nigeria	0.5	0.6	0.8	0.9	1.0	1.1	1.1	1.2	1.2
North Korea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Norway	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Pakistan	0.4	0.5	0.5	0.6	0.8	0.9	1.0	1.2	1.4
Peru	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	1.0
Philippines	3.3	3.6	4.2	4.5	4.8	5.1	5.4	5.8	6.1
Poland	7.8	6.3	5.6	5.3	5.2	5.7	5.8	5.9	6.1
Portugal	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4
Romania	2.8	2.0	1.6	1.7	1.7	1.7	1.6	1.6	1.5
Russia	43.4	30.6	19.7	18.9	18.4	18.2	18.0	17.8	17.5
Saudi Arabia	2.2	2.5	2.9	3.2	3.4	3.5	3.7	3.9	4.1
Senegal	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Singapore	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slovakia	1.1	0.7	0.5	0.4	0.3	0.2	0.2	0.2	0.2
Slovenia	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
South Africa	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Korea	1.9	2.6	2.4	1.7	2.1	2.2	2.3	2.4	2.5
Spain	2.3	2.4	2.6	2.8	2.7	2.7	2.6	2.6	2.6
Sweden	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5
Switzerland	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Tajikistan	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Thailand	5.8	5.4	2.5	2.7	3.2	3.4	3.6	3.8	4.0
Turkey	2.5	2.5	2.3	2.3	2.3	2.4	2.5	2.6	2.7
Turkmenistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uganda	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.5
Ukraine	8.8	7.5	4.6	3.6	3.1	3.1	3.0	2.9	2.8
United Arab Emirates	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United Kingdom	2.7	2.5	2.5	2.2	2.0	2.0	2.0	2.0	2.0
United States	14.5	15.7	17.1	17.3	17.9	18.5	19.0	19.5	19.9
Uruguay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uzbekistan	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4
Venezuela	0.4	0.5	0.4	0.5	0.5	0.5	0.6	0.6	0.6
Vietnam	0.9	1.1	1.3	1.8	2.0	2.2	2.4	2.6	2.8
Rest of Africa	15.1	12.6	13.8	18.9	18.3	19.9	21.6	23.5	25.5
Rest of Central and South	6.8	8.2	7.8	10.9	10.5	11.1	11.7	12.4	13.1
Rest of Middle East	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Rest of Non-OECD Asia	1.0	1.0	0.9	1.1	1.2	1.2	1.3	1.4	1.5
Rest of Non-OECD Europe and	1.4	1.2	1.3	1.1	1.2	1.2	1.2	1.1	1.1
Africa	21.4	21.7	25.6	29.4	29.6	31.8	34.0	36.4	39.0
Central and South America	11.2	13.3	13.1	16.6	17.0	18.0	19.1	20.2	21.4
Middle East	6.9	8.2	3.3	3.6	3.7	3.9	4.1	4.3	4.5
OECD	67.6	65.3	64.6	62.6	64.1	65.4	66.2	67.0	67.8
Non-OECD Asia	30.9	34.8	33.3	33.4	36.3	39.5	42.4	45.6	48.9
Non-OECD Europe &	65.7	51.2	34.5	33.5	33.0	32.8	32.6	32.4	32.1
EU	42.9	36.6	34.4	32.7	32.9	33.2	33.1	33.1	33.1
OPEC	8.9	10.7	6.6	6.9	7.1	7.5	7.8	8.1	8.5
World Totals	203.8	194.6	174.4	179.0	183.7	191.5	198.4	205.9	213.6

Table D-7: CH₄ Emissions from Other Agricultural Sources by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Algeria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Argentina	3.7	2.9	3.0	2.7	2.7	2.7	2.7	2.7	2.7
Armenia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Australia	12.6	9.9	17.6	8.7	8.7	8.7	8.7	8.7	8.7
Austria	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Azerbaijan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bangladesh	0.6	0.6	0.4	0.5	0.5	0.5	0.5	0.5	0.5
Belarus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belgium	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bolivia	10.4	7.5	5.7	11.6	11.6	11.6	11.6	11.6	11.6
Brazil	57.0	41.9	24.4	106.6	106.6	106.6	106.6	106.6	106.6
Bulgaria	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1
Burma	39.6	40.0	12.7	10.8	10.8	10.8	10.8	10.8	10.8
Cambodia	1.5	1.5	0.9	3.8	3.8	3.8	3.8	3.8	3.8
Canada	2.8	18.5	2.1	3.3	3.3	3.3	3.3	3.3	3.3
Chile	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2
China	2.5	2.5	1.3	1.0	1.0	1.0	1.0	1.0	1.0
Colombia	3.3	2.4	2.8	1.2	1.2	1.2	1.2	1.2	1.2
Congo (Kinshasa)	86.9	68.9	50.6	43.1	43.1	43.1	43.1	43.1	43.1
Croatia	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Czech Republic	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Denmark	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ecuador	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Egypt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Estonia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethiopia	5.6	5.0	4.9	5.1	5.1	5.1	5.1	5.1	5.1
Finland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
France	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Georgia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Germany	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Greece	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Hungary	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
India	6.4	6.5	7.0	6.0	6.0	6.0	6.0	6.0	6.0
Indonesia	25.7	17.7	10.6	32.3	32.3	32.3	32.3	32.3	32.3
Iran	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iraq	-	-	-	-	-	-	-	-	-
Ireland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Israel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Italy	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Japan	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Jordan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kazakhstan	6.5	1.7	2.0	2.1	2.1	2.1	2.1	2.1	2.1
Kuwait	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kyrgyzstan	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Laos	2.6	2.6	1.2	3.9	3.9	3.9	3.9	3.9	3.9
Latvia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lithuania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Luxembourg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Macedonia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mexico	2.6	3.1	3.4	3.8	3.8	3.8	3.8	3.8	3.8
Moldova	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	1.0	1.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Nepal	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Netherlands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nigeria	3.4	3.0	2.9	2.1	2.1	2.1	2.1	2.1	2.1
North Korea	1.0	1.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Norway	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pakistan	0.2	0.2	0.4	0.3	0.3	0.3	0.3	0.3	0.3
Peru	1.0	0.8	1.5	0.5	0.5	0.5	0.5	0.5	0.5
Philippines	1.5	1.5	1.3	1.5	1.5	1.5	1.5	1.5	1.5
Poland	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Portugal	0.1	0.1	0.4	0.7	0.7	0.7	0.7	0.7	0.7
Romania	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Russia	14.6	4.0	20.3	8.6	8.6	8.6	8.6	8.6	8.6
Saudi Arabia	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Senegal	0.7	0.6	0.8	0.9	0.9	0.9	0.9	0.9	0.9
Singapore	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slovakia	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slovenia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	1.9	1.5	1.4	2.4	2.4	2.4	2.4	2.4	2.4
South Korea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spain	0.8	0.5	0.5	0.3	0.3	0.3	0.3	0.3	0.3
Sweden	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Switzerland	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tajikistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Thailand	3.2	3.4	2.2	2.9	2.9	2.9	2.9	2.9	2.9
Turkey	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8
Turkmenistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uganda	2.6	2.3	1.7	3.0	3.0	3.0	3.0	3.0	3.0
Ukraine	0.3	0.2	0.2	0.4	0.4	0.4	0.4	0.4	0.4
United Arab Emirates	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United Kingdom	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
United States	5.2	1.2	4.1	2.9	2.9	2.9	2.9	2.9	2.9
Uruguay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uzbekistan	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Venezuela	2.6	1.9	2.5	2.9	2.9	2.9	2.9	2.9	2.9
Vietnam	1.7	1.9	1.9	2.5	2.5	2.5	2.5	2.5	2.5
Rest of Africa	176.3	146.4	128.1	129.0	129.0	129.0	129.0	129.0	129.0
Rest of Central and South	6.5	5.2	16.4	5.8	5.8	5.8	5.8	5.8	5.8
Rest of Middle East	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Rest of Non-OECD Asia	7.4	7.0	2.4	4.4	4.4	4.4	4.4	4.4	4.4
Rest of Non-OECD Europe and	0.1	0.1	0.6	0.1	0.1	0.1	0.1	0.1	0.1
Africa	277.5	227.7	190.4	185.8	185.8	185.8	185.8	185.8	185.8
Central and South America	84.7	62.6	56.5	131.5	131.5	131.5	131.5	131.5	131.5
Middle East	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
OECD	27.1	35.5	30.0	21.5	21.5	21.5	21.5	21.5	21.5
Non-OECD Asia	95.0	87.6	42.8	70.3	70.3	70.3	70.3	70.3	70.3
Non-OECD Europe &	22.1	6.4	24.2	11.7	11.7	11.7	11.7	11.7	11.7
EU	2.7	1.9	2.4	2.1	2.1	2.1	2.1	2.1	2.1
OPEC	46.9	37.3	37.0	37.8	37.8	37.8	37.8	37.8	37.8
World Totals	506.6	420.0	344.0	421.0	421.0	421.0	421.0	421.0	421.0

Table D-8: N₂O Emissions from Other Agricultural Sources by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Algeria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Argentina	4.5	3.4	3.5	2.7	2.7	2.7	2.7	2.7	2.7
Armenia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Australia	16.6	12.9	22.9	11.0	11.0	11.0	11.0	11.0	11.0
Austria	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Azerbaijan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bangladesh	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Belarus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belgium	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bolivia	18.2	16.3	15.5	21.1	21.1	21.1	21.1	21.1	21.1
Brazil	98.8	90.6	80.7	120.9	120.9	120.9	120.9	120.9	120.9
Bulgaria	0.1	0.1	0.4	0.1	0.1	0.1	0.1	0.1	0.1
Burma	68.7	77.4	57.3	52.3	52.3	52.3	52.3	52.3	52.3
Cambodia	1.8	1.8	1.0	3.5	3.5	3.5	3.5	3.5	3.5
Canada	2.8	19.6	1.8	2.9	2.9	2.9	2.9	2.9	2.9
Chile	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
China	3.0	3.0	1.7	1.2	1.2	1.2	1.2	1.2	1.2
Colombia	5.6	5.2	5.3	3.7	3.7	3.7	3.7	3.7	3.7
Congo (Kinshasa)	135.3	127.9	109.7	106.2	106.2	106.2	106.2	106.2	106.2
Croatia	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Czech Republic	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Denmark	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ecuador	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Egypt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Estonia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethiopia	7.8	6.8	6.8	6.9	6.9	6.9	6.9	6.9	6.9
Finland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
France	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Georgia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Germany	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Greece	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Hungary	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
India	5.6	5.7	7.2	6.3	6.3	6.3	6.3	6.3	6.3
Indonesia	54.6	68.2	77.4	101.3	101.3	101.3	101.3	101.3	101.3
Iran	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iraq	-	-	-	-	-	-	-	-	-
Ireland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Israel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Italy	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Japan	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Jordan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kazakhstan	8.3	2.1	2.7	2.8	2.8	2.8	2.8	2.8	2.8
Kuwait	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kyrgyzstan	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Laos	3.8	4.0	3.0	5.8	5.8	5.8	5.8	5.8	5.8
Latvia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lithuania	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Luxembourg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Macedonia	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Mexico	2.9	3.3	5.3	5.5	5.5	5.5	5.5	5.5	5.5
Moldova	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	1.4	1.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Nepal	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Netherlands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nigeria	4.7	4.2	4.1	3.1	3.1	3.1	3.1	3.1	3.1
North Korea	1.3	1.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Norway	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pakistan	0.1	0.1	0.3	0.2	0.2	0.2	0.2	0.2	0.2
Peru	1.8	1.7	2.3	1.4	1.4	1.4	1.4	1.4	1.4
Philippines	0.7	0.7	0.5	0.7	0.7	0.7	0.7	0.7	0.7
Poland	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Portugal	0.1	0.1	0.6	1.0	1.0	1.0	1.0	1.0	1.0
Romania	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Russia	17.9	4.6	22.4	9.9	9.9	9.9	9.9	9.9	9.9
Saudi Arabia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Senegal	1.0	0.9	1.2	1.3	1.3	1.3	1.3	1.3	1.3
Singapore	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slovakia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slovenia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	2.6	2.0	1.8	3.2	3.2	3.2	3.2	3.2	3.2
South Korea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spain	1.0	0.6	0.6	0.4	0.4	0.4	0.4	0.4	0.4
Sweden	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Switzerland	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tajikistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Thailand	3.4	3.6	2.0	2.7	2.7	2.7	2.7	2.7	2.7
Turkey	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Turkmenistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uganda	3.7	3.2	2.3	4.2	4.2	4.2	4.2	4.2	4.2
Ukraine	0.2	0.1	0.1	0.3	0.3	0.3	0.3	0.3	0.3
United Arab Emirates	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United Kingdom	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United States	4.5	0.8	4.0	2.7	2.7	2.7	2.7	2.7	2.7
Uruguay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uzbekistan	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Venezuela	4.5	4.0	4.9	5.5	5.5	5.5	5.5	5.5	5.5
Vietnam	1.2	1.3	1.0	1.6	1.6	1.6	1.6	1.6	1.6
Rest of Africa	261.6	237.9	214.7	226.0	226.0	226.0	226.0	226.0	226.0
Rest of Central and South	9.2	8.4	17.7	11.1	11.1	11.1	11.1	11.1	11.1
Rest of Middle East	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest of Non-OECD Asia	12.8	14.3	11.8	11.6	11.6	11.6	11.6	11.6	11.6
Rest of Non-OECD Europe and	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0
Africa	416.8	383.0	340.6	351.0	351.0	351.0	351.0	351.0	351.0
Central and South America	142.9	129.8	130.0	166.5	166.5	166.5	166.5	166.5	166.5
Middle East	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1
OECD	30.4	39.0	36.5	24.6	24.6	24.6	24.6	24.6	24.6
Non-OECD Asia	159.6	184.0	164.8	188.3	188.3	188.3	188.3	188.3	188.3
Non-OECD Europe &	27.0	7.1	27.3	13.5	13.5	13.5	13.5	13.5	13.5
EU	2.8	1.8	2.6	2.1	2.1	2.1	2.1	2.1	2.1
OPEC	72.8	68.4	69.3	74.6	74.6	74.6	74.6	74.6	74.6
World Totals	776.7	743.0	699.3	744.1	744.1	744.1	744.1	744.1	744.1

Appendix E: Waste Sector Emissions

Table E-1: Total Non-CO₂ Emissions from the Waste Sector (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7
Algeria	4.3	5.3	8.5	9.1	9.6	10.2	10.8	11.2	11.6
Argentina	9.4	10.7	14.0	14.7	15.5	16.3	17.0	17.7	18.3
Armenia	0.6	0.6	0.6	0.5	0.7	0.7	0.7	0.7	0.7
Australia	17.8	16.8	14.8	13.5	14.2	15.0	15.8	16.5	17.2
Austria	3.6	3.1	2.5	2.3	1.9	1.9	1.9	1.9	1.8
Azerbaijan	2.1	2.0	2.1	2.1	2.2	2.3	2.4	2.4	2.5
Bangladesh	12.4	13.9	15.4	16.7	17.8	19.0	20.3	21.7	23.0
Belarus	3.3	2.8	3.7	5.3	6.9	6.7	6.6	6.4	6.3
Belgium	3.2	2.9	2.2	1.3	0.9	0.9	0.9	0.9	0.9
Bolivia	0.2	0.7	1.2	1.7	1.9	2.1	2.2	2.4	2.5
Brazil	28.6	33.9	38.7	40.9	43.6	46.0	48.2	50.2	52.0
Bulgaria	6.6	6.6	5.9	5.2	4.7	4.5	4.3	4.1	3.9
Burma	8.1	8.9	9.7	10.6	11.3	12.0	12.7	13.4	14.1
Cambodia	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5
Canada	18.1	18.9	19.7	21.2	22.1	23.0	23.8	24.6	25.3
Chile	2.0	2.1	2.2	2.6	2.8	2.9	3.0	3.1	3.1
China	167.6	177.5	185.5	191.0	195.8	200.4	203.8	205.2	204.8
Colombia	7.9	9.3	9.9	11.0	11.7	12.4	12.9	13.5	13.9
Congo (Kinshasa)	5.3	6.2	7.2	8.4	9.8	11.4	13.2	15.2	17.3
Croatia	0.6	0.7	0.7	0.7	1.0	1.0	1.0	1.0	1.0
Czech Republic	2.6	2.7	2.8	3.0	3.1	3.2	3.3	3.3	3.3
Denmark	1.3	1.3	1.3	1.2	1.3	1.3	1.3	1.3	1.4
Ecuador	1.4	1.6	1.7	1.9	2.0	2.2	2.3	2.5	2.6
Egypt	5.7	11.6	17.5	19.5	21.6	23.7	25.8	27.8	29.8
Estonia	0.8	0.7	0.8	0.8	0.7	0.7	0.7	0.6	0.6
Ethiopia	2.5	2.8	3.0	3.3	3.7	4.1	4.5	5.0	5.6
Finland	3.9	3.9	3.2	2.4	2.2	2.2	2.2	2.2	2.1
France	11.1	14.3	17.3	19.2	20.1	20.6	21.0	21.3	21.5
Georgia	4.4	2.8	2.8	2.7	2.7	2.7	2.7	2.7	2.6
Germany	43.1	39.8	27.1	17.6	10.3	8.3	7.1	5.9	4.6
Greece	5.1	5.2	5.0	4.0	3.2	2.9	2.6	2.3	2.0
Hungary	3.3	3.5	3.8	3.9	3.7	3.6	3.6	3.5	3.4
Iceland	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
India	21.6	25.7	38.1	50.6	57.9	61.8	65.5	69.0	72.2
Indonesia	46.4	51.0	54.9	58.8	62.6	66.2	69.8	73.3	77.0
Iran	7.8	10.3	20.3	20.7	21.5	22.6	23.7	24.6	25.1
Iraq	4.7	5.3	6.2	7.1	8.2	9.3	10.5	11.8	13.0
Ireland	1.3	1.6	1.4	1.4	1.4	2.2	2.3	2.4	2.4
Israel	6.6	7.9	8.4	5.8	6.4	6.9	7.3	7.8	8.2
Italy	19.0	19.8	22.6	20.1	16.1	15.7	15.4	14.9	14.4
Japan	9.9	9.0	7.6	6.0	4.6	4.5	4.4	4.3	4.1
Jordan	6.3	7.1	2.7	3.0	3.6	3.8	4.1	4.5	4.9
Kazakhstan	4.5	4.5	4.4	4.6	4.7	4.8	4.8	4.8	4.8
Kuwait	0.6	0.5	0.6	0.7	0.9	1.0	1.2	1.3	1.5
Kyrgyzstan	1.9	1.0	0.7	0.7	0.7	0.8	0.8	0.9	0.9
Laos	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.7
Latvia	0.9	0.7	0.8	0.9	0.9	0.8	0.8	0.8	0.7
Lithuania	1.6	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.3
Luxembourg	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Macedonia	0.8	0.8	0.8	0.9	0.9	1.0	1.0	1.0	1.0
Mexico	33.4	49.9	63.1	92.9	106.8	112.7	118.4	123.7	128.4
Moldova	1.6	1.8	1.7	1.4	1.4	1.4	1.4	1.4	1.3

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mongolia	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Nepal	0.5	0.6	0.7	0.7	0.8	0.8	0.9	1.0	1.0
Netherlands	12.5	11.0	8.6	6.5	5.0	5.1	5.2	5.2	5.3
New Zealand	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.2	2.3
Nigeria	40.6	46.0	51.7	57.7	63.8	70.1	76.3	82.5	88.6
North Korea	1.7	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9
Norway	1.8	1.7	1.4	1.2	1.1	1.2	1.2	1.2	1.2
Pakistan	4.9	5.3	5.7	6.1	6.5	6.8	7.1	7.5	7.8
Peru	3.5	4.5	8.0	8.6	9.1	9.6	10.0	10.5	10.8
Philippines	6.5	7.3	8.1	9.0	10.0	11.0	11.9	12.9	13.8
Poland	9.1	9.6	9.4	9.1	8.6	8.7	9.1	9.3	9.6
Portugal	5.8	6.9	6.6	7.6	7.5	7.6	7.6	7.6	7.5
Romania	3.4	3.9	5.1	5.2	4.9	4.8	4.8	4.7	4.6
Russia	58.6	50.0	55.5	65.0	73.0	71.2	69.2	67.1	65.0
Saudi Arabia	13.3	16.2	19.1	21.8	24.1	26.0	27.7	29.4	31.4
Senegal	1.6	1.8	2.1	2.4	2.7	3.1	3.5	3.9	4.4
Singapore	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.1	2.3
Slovakia	1.0	1.2	1.7	2.3	2.5	2.5	2.4	2.4	2.3
Slovenia	0.6	0.6	0.7	0.7	0.6	0.6	0.6	0.6	0.5
South Africa	15.2	16.7	17.8	18.7	19.4	19.0	19.1	19.2	19.3
South Korea	11.2	11.0	10.7	10.9	11.0	11.1	11.2	11.2	11.1
Spain	7.3	9.7	12.2	13.8	16.2	16.2	16.1	15.9	15.6
Sweden	3.2	3.0	2.7	2.3	1.7	1.7	1.7	1.8	1.8
Switzerland	0.9	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.6
Tajikistan	0.7	0.6	0.5	0.5	0.6	0.6	0.7	0.7	0.8
Thailand	1.6	3.0	9.3	9.6	10.0	10.2	10.5	10.6	10.7
Turkey	9.1	23.3	32.1	32.8	33.7	35.7	37.5	39.1	40.6
Turkmenistan	0.7	0.8	0.9	1.1	1.1	1.2	1.2	1.3	1.4
Uganda	0.2	0.2	0.3	0.4	0.4	0.5	0.6	0.7	0.9
Ukraine	8.4	8.5	8.7	9.3	9.7	9.4	9.1	8.7	8.4
United Arab Emirates	1.5	2.0	2.6	3.3	4.1	4.7	5.3	5.8	6.1
United Kingdom	57.7	45.3	31.1	19.7	21.1	20.1	19.2	18.3	17.5
United States	175.2	169.8	143.9	144.9	163.1	163.2	164.1	165.9	167.4
Uruguay	1.2	1.4	1.5	1.4	1.5	1.5	1.5	1.6	1.6
Uzbekistan	4.1	4.3	4.5	4.7	4.9	5.2	5.4	5.6	5.8
Venezuela	5.4	6.0	6.6	7.1	7.6	8.2	8.7	9.3	9.8
Vietnam	2.4	3.5	7.9	8.5	9.0	9.4	9.9	10.3	10.6
Rest of Africa	39.0	45.2	51.3	57.8	65.0	71.7	78.6	85.7	93.0
Rest of Central and South	24.8	27.8	30.3	32.8	35.3	37.7	40.0	42.1	44.2
Rest of Middle East	7.5	8.8	10.6	11.8	13.3	14.4	15.6	16.8	17.9
Rest of Non-OECD Asia	41.3	45.9	50.7	55.6	60.7	65.8	71.0	76.1	81.0
Rest of Non-OECD Europe and	4.4	4.7	5.1	5.2	5.3	5.3	5.2	5.2	5.1
Africa	114.4	135.8	159.3	177.1	196.0	213.9	232.6	251.4	270.3
Central and South America	82.5	95.9	112.0	120.2	128.2	135.9	143.0	149.7	155.7
Middle East	41.8	50.2	62.0	68.5	75.6	81.8	88.1	94.1	100.0
OECD	482.9	498.6	469.2	473.1	496.0	504.5	513.1	521.2	527.8
Non-OECD Asia	316.2	345.7	389.6	421.1	446.5	468.1	488.3	506.3	521.7
Non-OECD Europe &	110.5	99.9	107.3	118.8	129.0	127.0	124.8	122.2	119.4
EU	208.3	199.0	176.8	152.3	140.6	138.3	136.1	133.1	130.0
OPEC	81.2	95.0	119.2	131.9	145.6	158.6	171.3	183.5	195.4
World Totals	1,148.3	1,226.1	1,299.4	1,378.8	1,471.4	1,531.2	1,590.0	1,645.0	1,694.9

Table E-2: CH₄ Emissions from Landfilling of Solid Waste by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Algeria	3.8	4.7	7.5	8.1	8.6	9.1	9.6	10.0	10.3
Argentina	4.4	5.2	7.5	7.9	8.3	8.7	9.1	9.5	9.8
Armenia	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Australia	14.2	13.5	11.9	10.6	11.2	11.8	12.4	13.0	13.5
Austria	3.3	2.8	2.2	1.9	1.5	1.5	1.5	1.5	1.4
Azerbaijan	1.3	1.4	1.5	1.5	1.6	1.6	1.7	1.8	1.8
Bangladesh	1.2	1.3	1.5	1.6	1.7	1.8	2.0	2.1	2.2
Belarus	2.3	1.9	2.7	4.4	6.0	5.9	5.7	5.6	5.5
Belgium	2.6	2.4	1.7	0.8	0.4	0.4	0.4	0.4	0.4
Bolivia	0.1	0.4	0.7	0.8	0.9	1.0	1.1	1.1	1.2
Brazil	16.6	19.3	22.3	23.2	24.7	26.0	27.3	28.4	29.5
Bulgaria	4.7	5.1	4.8	4.3	3.8	3.7	3.5	3.4	3.2
Burma	3.7	4.1	4.5	4.9	5.3	5.7	6.1	6.5	6.9
Cambodia	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Canada	17.3	18.0	18.8	20.2	21.1	21.9	22.7	23.5	24.1
Chile	1.5	1.6	1.8	2.2	2.3	2.4	2.5	2.6	2.7
China	40.7	43.1	44.7	46.0	47.1	48.2	49.0	49.4	49.3
Colombia	6.5	7.4	8.2	9.2	9.8	10.3	10.9	11.3	11.7
Congo (Kinshasa)	5.2	6.1	7.0	8.1	9.6	11.1	12.9	14.8	16.8
Croatia	0.2	0.3	0.4	0.5	0.7	0.7	0.7	0.7	0.7
Czech Republic	1.7	2.0	2.2	2.3	2.5	2.6	2.6	2.6	2.7
Denmark	1.1	1.1	1.1	1.0	1.1	1.1	1.1	1.1	1.1
Ecuador	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.5
Egypt	5.5	8.6	11.7	13.0	14.4	15.9	17.3	18.6	19.9
Estonia	0.6	0.5	0.7	0.6	0.5	0.5	0.4	0.4	0.4
Ethiopia	0.5	0.6	0.7	0.8	1.0	1.1	1.3	1.5	1.8
Finland	3.6	3.6	2.9	2.0	1.9	1.9	1.9	1.8	1.8
France	8.9	11.7	14.6	16.5	17.4	17.8	18.1	18.4	18.6
Georgia	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.8
Germany	38.6	36.3	23.8	14.3	7.0	5.0	3.7	2.5	1.3
Greece	1.9	2.2	2.4	2.5	2.1	1.8	1.5	1.2	0.9
Hungary	2.3	2.6	2.9	3.1	3.0	2.9	2.9	2.8	2.8
Iceland	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
India	11.3	12.3	12.4	12.6	13.2	14.1	15.0	15.8	16.5
Indonesia	19.2	21.5	23.8	26.0	28.3	30.5	32.9	35.3	37.8
Iran	5.9	6.9	10.4	10.7	11.1	11.6	12.2	12.7	13.0
Iraq	2.7	3.1	3.6	4.2	4.8	5.5	6.3	7.1	8.0
Ireland	1.2	1.4	1.3	1.2	1.2	2.0	2.1	2.2	2.2
Israel	6.3	7.5	8.0	5.0	5.5	5.9	6.4	6.7	7.1
Italy	15.3	15.9	18.4	15.5	11.6	11.0	10.6	10.2	9.7
Japan	7.6	7.1	5.9	4.5	3.3	3.2	3.2	3.1	3.0
Jordan	6.2	6.9	2.5	2.8	3.4	3.6	3.9	4.3	4.6
Kazakhstan	3.6	3.7	3.7	3.8	3.8	3.9	4.0	4.0	4.0
Kuwait	0.3	0.4	0.4	0.5	0.5	0.6	0.7	0.9	1.0
Kyrgyzstan	1.6	0.8	0.6	0.5	0.6	0.6	0.6	0.7	0.7
Laos	0.2	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.6
Latvia	0.4	0.5	0.6	0.5	0.6	0.6	0.6	0.5	0.5
Lithuania	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.8	0.8
Luxembourg	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Macedonia	0.7	0.7	0.7	0.8	0.9	0.9	0.9	0.9	0.9
Mexico	16.3	25.8	32.5	49.1	56.4	59.5	62.5	65.2	67.7
Moldova	1.3	1.6	1.5	1.2	1.2	1.2	1.2	1.1	1.1
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Nepal	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4
Netherlands	12.0	10.5	8.1	6.1	4.7	4.7	4.8	4.9	4.9
New Zealand	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.6	1.6
Nigeria	3.7	4.2	4.7	5.3	5.8	6.4	7.0	7.6	8.1
North Korea	1.4	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6
Norway	1.7	1.6	1.3	1.1	1.1	1.1	1.1	1.1	1.1
Pakistan	1.8	2.0	2.2	2.5	2.7	2.9	3.1	3.3	3.5
Peru	1.9	2.7	6.2	6.7	7.1	7.5	7.9	8.2	8.5
Philippines	3.9	4.4	4.9	5.4	6.0	6.6	7.2	7.7	8.3
Poland	6.4	6.7	7.4	7.0	6.4	6.5	6.8	7.0	7.2
Portugal	3.0	3.8	4.0	4.6	5.3	5.4	5.4	5.3	5.3
Romania	2.4	3.0	4.1	3.7	3.3	3.3	3.2	3.2	3.1
Russia	28.2	31.1	34.7	40.0	47.2	46.1	44.8	43.4	42.1
Saudi Arabia	12.5	14.3	16.1	18.3	20.3	21.9	23.3	24.8	26.5
Senegal	1.4	1.6	1.9	2.2	2.5	2.8	3.2	3.6	4.0
Singapore	0.5	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.1
Slovakia	0.5	0.6	1.2	1.7	1.9	1.8	1.8	1.7	1.7
Slovenia	0.3	0.4	0.4	0.5	0.4	0.4	0.4	0.3	0.3
South Africa	14.1	15.4	16.4	17.3	17.9	17.6	17.7	17.7	17.8
South Korea	4.2	6.7	9.2	9.9	10.0	10.1	10.1	10.1	10.1
Spain	4.8	6.8	8.8	9.9	11.9	11.9	11.8	11.7	11.5
Sweden	2.9	2.7	2.4	1.9	1.4	1.4	1.4	1.4	1.4
Switzerland	0.7	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2
Tajikistan	0.7	0.6	0.4	0.5	0.5	0.5	0.6	0.6	0.7
Thailand	0.4	1.2	4.9	5.0	5.2	5.4	5.5	5.6	5.6
Turkey	6.4	20.3	29.0	29.8	30.6	32.4	34.1	35.5	36.8
Turkmenistan	0.3	0.3	0.4	0.5	0.5	0.6	0.6	0.6	0.7
Uganda	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
Ukraine	5.3	5.8	6.1	6.7	7.2	6.9	6.7	6.5	6.2
United Arab Emirates	1.2	1.6	2.1	2.6	3.2	3.7	4.2	4.6	4.8
United Kingdom	56.2	43.7	29.4	17.9	18.9	17.8	16.9	16.0	15.1
United States	147.4	139.4	111.7	112.5	129.7	128.4	127.7	128.0	128.0
Uruguay	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.2	1.2
Uzbekistan	3.3	3.5	3.7	3.8	4.0	4.2	4.4	4.6	4.7
Venezuela	4.9	5.5	5.9	6.4	6.9	7.4	7.9	8.4	8.8
Vietnam	1.3	2.1	5.6	6.0	6.3	6.7	7.0	7.2	7.5
Rest of Africa	20.5	24.7	28.0	32.1	35.7	39.6	43.6	47.7	52.0
Rest of Central and South	8.5	9.8	9.1	9.6	10.2	10.6	11.1	11.6	11.9
Rest of Middle East	3.7	4.4	5.7	6.4	7.2	7.9	8.6	9.3	10.0
Rest of Non-OECD Asia	33.7	37.2	41.0	44.8	48.8	52.8	56.8	60.9	64.7
Rest of Non-OECD Europe and	3.1	3.4	3.8	3.9	4.0	4.0	3.9	3.9	3.9
Africa	54.7	66.0	78.0	86.9	95.5	103.8	112.6	121.7	130.8
Central and South America	44.7	52.2	62.1	65.9	70.1	74.1	77.8	81.2	84.2
Middle East	32.5	37.6	40.8	45.5	50.5	54.9	59.3	63.6	67.9
OECD	391.8	400.9	367.3	357.8	373.3	376.5	380.3	384.0	386.6
Non-OECD Asia	119.7	131.9	148.6	158.2	168.4	178.7	188.8	198.4	207.4
Non-OECD Europe &	62.7	66.9	73.0	79.7	88.9	87.6	86.2	84.4	82.5
EU	175.7	167.5	146.6	121.2	110.0	107.2	104.7	102.0	99.0
OPEC	36.8	42.7	53.1	58.8	64.3	69.8	75.0	80.0	84.9
World Totals	706.1	755.4	769.8	794.0	846.7	875.6	905.0	933.3	959.4

Table E-3: CH₄ Emissions from Wastewater by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
Algeria	0.3	0.3	0.5	0.5	0.5	0.6	0.6	0.6	0.7
Argentina	4.3	4.7	5.5	5.8	6.1	6.5	6.7	7.0	7.3
Armenia	0.1	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2
Australia	3.2	2.9	2.6	2.5	2.6	2.7	2.9	3.0	3.1
Austria	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Azerbaijan	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Bangladesh	10.6	11.8	13.0	14.0	15.0	16.0	17.2	18.3	19.4
Belarus	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6
Belgium	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Bolivia	0.0	0.1	0.4	0.8	0.8	0.9	1.0	1.0	1.1
Brazil	9.2	11.2	12.6	13.4	14.3	15.1	15.8	16.5	17.1
Bulgaria	1.7	1.3	0.9	0.7	0.7	0.7	0.6	0.6	0.6
Burma	4.1	4.5	4.8	5.2	5.5	5.7	6.0	6.3	6.5
Cambodia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Canada	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4
Chile	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
China	114.0	120.7	125.4	128.8	132.0	135.1	137.4	138.4	138.1
Colombia	0.2	0.6	0.4	0.5	0.5	0.5	0.5	0.6	0.6
Congo (Kinshasa)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Croatia	0.3	0.4	0.2	0.1	0.2	0.2	0.2	0.2	0.2
Czech Republic	0.7	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4
Denmark	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ecuador	0.5	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9
Egypt	0.1	3.0	5.8	6.4	7.1	7.8	8.5	9.2	9.8
Estonia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ethiopia	0.3	0.4	0.4	0.5	0.6	0.7	0.8	1.0	1.1
Finland	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
France	0.8	1.0	1.2	1.2	1.2	1.2	1.3	1.3	1.3
Georgia	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Germany	2.2	0.9	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Greece	2.8	2.7	2.2	1.1	0.7	0.7	0.7	0.7	0.7
Hungary	0.8	0.8	0.7	0.6	0.5	0.5	0.5	0.5	0.4
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
India	8.2	11.2	23.3	35.3	41.9	44.7	47.3	49.8	52.1
Indonesia	17.9	19.5	21.1	22.6	24.0	25.2	26.4	27.5	28.5
Iran	0.6	1.9	8.3	8.5	8.8	9.2	9.7	10.1	10.3
Iraq	1.9	2.0	2.3	2.7	3.0	3.4	3.8	4.1	4.5
Ireland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Israel	0.2	0.2	0.2	0.6	0.6	0.7	0.7	0.8	0.8
Italy	2.0	2.2	2.4	2.7	2.5	2.8	3.0	2.9	2.9
Japan	2.1	1.9	1.6	1.4	1.2	1.2	1.2	1.2	1.1
Jordan	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Kazakhstan	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Kuwait	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.5
Kyrgyzstan	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Laos	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Latvia	0.4	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2
Lithuania	0.8	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4
Luxembourg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Macedonia	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mexico	15.5	22.3	28.7	41.8	48.3	51.0	53.6	56.0	58.1
Moldova	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Nepal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Netherlands	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
New Zealand	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5
Nigeria	35.7	40.4	45.5	50.8	56.2	61.8	67.4	72.9	78.2
North Korea	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Norway	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pakistan	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4
Peru	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9	0.9
Philippines	1.7	1.9	2.2	2.4	2.7	2.9	3.2	3.4	3.7
Poland	1.7	1.8	1.0	1.0	1.1	1.2	1.2	1.3	1.4
Portugal	2.5	2.8	2.3	2.6	1.9	1.9	1.9	1.9	1.9
Romania	0.4	0.2	0.4	0.8	0.9	0.9	0.9	0.9	0.8
Russia	25.0	15.2	17.3	21.1	21.7	21.2	20.6	20.0	19.3
Saudi Arabia	0.1	1.1	2.1	2.4	2.7	2.9	3.1	3.3	3.5
Senegal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Singapore	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Slovakia	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Slovenia	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1
South Africa	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
South Korea	6.2	3.4	0.6	0.1	0.1	0.1	0.1	0.1	0.1
Spain	1.2	1.5	1.8	2.1	2.3	2.3	2.3	2.2	2.2
Sweden	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Switzerland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tajikistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Thailand	0.3	0.8	3.4	3.5	3.7	3.8	3.8	3.9	3.9
Turkey	2.0	2.1	2.1	2.1	2.0	2.2	2.3	2.4	2.5
Turkmenistan	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6
Uganda	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Ukraine	1.6	1.7	1.6	1.5	1.5	1.4	1.4	1.3	1.3
United Arab Emirates	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1
United Kingdom	0.3	0.3	0.3	0.4	0.8	0.9	0.9	0.9	0.9
United States	23.5	24.8	25.2	24.3	24.8	26.0	27.2	28.5	29.8
Uruguay	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2
Uzbekistan	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4
Venezuela	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3
Vietnam	0.0	0.3	1.4	1.5	1.5	1.6	1.7	1.8	1.8
Rest of Africa	9.9	11.2	13.2	14.9	17.7	19.7	21.8	24.0	26.2
Rest of Central and South	15.0	16.6	19.6	21.5	23.4	25.2	26.9	28.6	30.1
Rest of Middle East	3.3	3.8	4.3	4.8	5.4	5.7	6.1	6.5	6.8
Rest of Non-OECD Asia	6.8	7.8	8.7	9.7	10.7	11.7	12.8	13.8	14.8
Rest of Non-OECD Europe and	1.0	0.9	1.0	1.0	1.0	1.0	1.0	1.0	0.9
Africa	46.8	55.8	66.0	73.7	82.8	91.2	99.7	108.2	116.6
Central and South America	29.9	34.8	40.2	43.8	47.1	50.2	53.1	55.9	58.5
Middle East	6.4	9.5	17.8	19.3	21.0	22.5	24.1	25.5	26.8
OECD	70.3	74.6	75.9	87.4	93.6	98.3	102.7	106.6	110.2
Non-OECD Asia	164.2	179.1	203.8	223.7	237.6	247.6	256.6	264.0	269.7
Non-OECD Europe &	34.3	23.1	24.7	28.8	29.7	29.1	28.4	27.7	27.0
EU	20.2	18.4	16.1	16.2	15.4	15.8	16.1	16.0	15.9
OPEC	40.0	47.4	60.7	67.1	74.9	81.9	88.9	95.7	102.3
World Totals	351.9	376.9	428.4	476.7	511.8	538.9	564.7	588.0	608.8

Table E-4: N₂O Emissions from Human Sewage - Domestic Wastewater by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Algeria	0.3	0.3	0.5	0.5	0.5	0.6	0.6	0.6	0.6
Argentina	0.8	0.9	1.0	1.0	1.1	1.1	1.2	1.2	1.3
Armenia	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Australia	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5
Austria	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Azerbaijan	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
Bangladesh	0.7	0.7	0.9	1.0	1.1	1.2	1.2	1.3	1.4
Belarus	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Belgium	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Bolivia	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Brazil	2.8	3.4	3.8	4.3	4.6	4.9	5.1	5.3	5.5
Bulgaria	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1
Burma	0.3	0.3	0.4	0.5	0.5	0.5	0.6	0.6	0.6
Cambodia	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Canada	0.5	0.6	0.6	0.7	0.7	0.7	0.7	0.8	0.8
Chile	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
China	12.9	13.7	15.3	16.2	16.6	17.0	17.3	17.4	17.4
Colombia	0.6	0.6	0.7	0.8	0.8	0.9	0.9	1.0	1.0
Congo (Kinshasa)	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.5
Croatia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Czech Republic	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Denmark	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Ecuador	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Egypt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Estonia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethiopia	0.4	0.5	0.6	0.6	0.8	0.9	1.0	1.2	1.4
Finland	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
France	1.3	1.3	1.2	1.1	1.1	1.1	1.1	1.1	1.2
Georgia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Germany	2.2	2.2	2.3	2.3	2.4	2.4	2.4	2.3	2.3
Greece	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Hungary	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
India	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.5
Indonesia	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2
Iran	1.4	1.5	1.5	1.5	1.6	1.7	1.8	1.8	1.9
Iraq	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.5	0.5
Ireland	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Israel	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
Italy	1.8	1.7	1.9	1.8	1.9	1.9	1.9	1.8	1.8
Japan	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jordan	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Kazakhstan	0.5	0.5	0.3	0.4	0.4	0.4	0.5	0.5	0.5
Kuwait	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Kyrgyzstan	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Laos	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Latvia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
Lithuania	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Luxembourg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Macedonia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Mexico	1.6	1.8	1.9	2.0	2.1	2.3	2.4	2.5	2.6
Moldova	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Country	MtCO _{2e}								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nepal	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6
Netherlands	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
New Zealand	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Nigeria	0.8	0.9	1.0	1.1	1.3	1.4	1.5	1.6	1.8
North Korea	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Norway	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Pakistan	1.0	1.1	1.3	1.4	1.5	1.6	1.7	1.8	2.0
Peru	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.7
Philippines	0.9	1.0	1.1	1.2	1.3	1.5	1.6	1.7	1.9
Poland	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0
Portugal	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4
Romania	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.6	0.6
Russia	5.4	3.8	3.6	3.9	4.0	3.9	3.8	3.7	3.6
Saudi Arabia	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5
Senegal	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4
Singapore	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Slovakia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Slovenia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
South Africa	0.7	0.8	0.9	0.9	1.0	1.0	1.0	1.0	1.0
South Korea	0.8	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0
Spain	1.1	1.0	1.1	1.2	1.3	1.3	1.3	1.2	1.2
Sweden	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Switzerland	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Tajikistan	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Thailand	0.9	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.2
Turkey	0.8	0.9	0.9	1.0	1.1	1.1	1.2	1.2	1.3
Turkmenistan	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Uganda	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.5	0.5
Ukraine	1.6	1.1	1.0	1.1	1.0	1.0	1.0	0.9	0.9
United Arab Emirates	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2
United Kingdom	1.2	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4
United States	3.7	4.0	4.5	4.8	5.1	5.3	5.6	5.8	6.1
Uruguay	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Uzbekistan	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7
Venezuela	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6
Vietnam	1.1	1.1	1.0	1.0	1.1	1.1	1.2	1.2	1.3
Rest of Africa	4.1	4.8	5.6	6.3	7.1	7.9	8.7	9.5	10.4
Rest of Central and South	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.7
Rest of Middle East	0.4	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.1
Rest of Non-OECD Asia	0.8	0.9	1.0	1.1	1.2	1.2	1.3	1.4	1.5
Rest of Non-OECD Europe and	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Africa	6.8	7.8	9.1	10.2	11.4	12.6	13.9	15.2	16.6
Central and South America	6.1	7.1	7.9	8.8	9.3	9.9	10.4	10.8	11.3
Middle East	2.8	3.1	3.4	3.8	4.1	4.4	4.7	5.0	5.3
OECD	19.4	20.1	21.1	21.8	22.5	23.1	23.6	24.0	24.4
Non-OECD Asia	22.6	24.4	26.8	28.8	30.1	31.3	32.5	33.4	34.2
Non-OECD Europe &	10.3	8.1	7.8	8.4	8.5	8.4	8.3	8.2	8.0
EU	11.9	11.8	12.0	12.2	12.3	12.3	12.3	12.3	12.1
OPEC	4.0	4.4	5.0	5.5	6.0	6.5	6.9	7.4	7.8
World Totals	68.0	70.6	76.1	81.7	85.9	89.8	93.4	96.8	99.8

Table E-5: CH₄ Emissions from Other Waste Sources by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-
Argentina	-	-	-	-	-	-	-	-	-
Armenia	-	-	-	-	-	-	-	-	-
Australia	-	-	-	-	-	-	-	-	-
Austria	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Azerbaijan	-	-	-	-	-	-	-	-	-
Bangladesh	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	-	-	-	-	-	-
Belgium	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Bolivia	-	-	-	-	-	-	-	-	-
Brazil	-	-	-	-	-	-	-	-	-
Bulgaria	-	-	-	-	-	-	-	-	-
Burma	-	-	-	-	-	-	-	-	-
Cambodia	-	-	-	-	-	-	-	-	-
Canada	-	-	-	-	-	-	-	-	-
Chile	-	-	-	-	-	-	-	-	-
China	-	-	-	-	-	-	-	-	-
Colombia	-	-	-	-	-	-	-	-	-
Congo (Kinshasa)	-	-	-	-	-	-	-	-	-
Croatia	-	-	-	-	-	-	-	-	-
Czech Republic	-	-	-	-	-	-	-	-	-
Denmark	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ecuador	-	-	-	-	-	-	-	-	-
Egypt	-	-	-	-	-	-	-	-	-
Estonia	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Ethiopia	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Finland	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
France	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Georgia	3.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Germany	0.0	0.3	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Greece	-	-	-	-	-	-	-	-	-
Hungary	-	-	-	-	-	-	-	-	-
Iceland	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
India	-	-	-	-	-	-	-	-	-
Indonesia	7.8	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
Iran	-	-	-	-	-	-	-	-	-
Iraq	-	-	-	-	-	-	-	-	-
Ireland	-	-	-	-	-	-	-	-	-
Israel	-	-	-	-	-	-	-	-	-
Italy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Japan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jordan	-	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	-	-	-	-	-	-	-	-	-
Laos	-	-	-	-	-	-	-	-	-
Latvia	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0
Lithuania	-	-	-	-	-	-	-	-	-
Luxembourg	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Macedonia	-	-	-	-	-	-	-	-	-
Mexico	-	-	-	-	-	-	-	-	-
Moldova	-	-	-	-	-	-	-	-	-
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	-	-	-	-	-	-	-	-	-
Nepal	-	-	-	-	-	-	-	-	-
Netherlands	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
New Zealand	-	-	-	-	-	-	-	-	-
Nigeria	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
North Korea	-	-	-	-	-	-	-	-	-
Norway	-	-	-	-	-	-	-	-	-
Pakistan	-	-	-	-	-	-	-	-	-
Peru	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Philippines	-	-	-	-	-	-	-	-	-
Poland	-	-	-	-	-	-	-	-	-
Portugal	-	-	-	-	-	-	-	-	-
Romania	-	-	-	-	-	-	-	-	-
Russia	-	-	-	-	-	-	-	-	-
Saudi Arabia	-	-	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-	-	-
Singapore	-	-	-	-	-	-	-	-	-
Slovakia	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Slovenia	-	-	-	-	-	-	-	-	-
South Africa	-	-	-	-	-	-	-	-	-
South Korea	-	-	-	-	-	-	-	-	-
Spain	0.3	0.4	0.5	0.6	0.7	0.7	0.7	0.7	0.7
Sweden	-	-	-	-	-	-	-	-	-
Switzerland	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Tajikistan	-	-	-	-	-	-	-	-	-
Thailand	-	-	-	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-	-
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	-	-	-	-	-	-	-	-	-
United Arab Emirates	-	-	-	-	-	-	-	-	-
United Kingdom	-	-	-	-	-	-	-	-	-
United States	0.3	0.7	1.3	1.6	1.7	1.7	1.7	1.7	1.7
Uruguay	-	-	-	-	-	-	-	-	-
Uzbekistan	-	-	-	-	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	-	-
Vietnam	-	-	-	-	-	-	-	-	-
Rest of Africa	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Rest of Central and South	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Rest of Middle East	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Asia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest of Non-OECD Europe and	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Africa	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Central and South America	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Middle East	-	-	-	-	-	-	-	-	-
OECD	0.8	1.8	2.8	3.3	3.6	3.6	3.6	3.6	3.6
Non-OECD Asia	7.8	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5
Non-OECD Europe &	3.0	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6
EU	0.4	1.0	1.4	1.7	1.8	1.8	1.8	1.8	1.8
OPEC	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
World Totals	13.4	13.6	14.7	15.2	15.5	15.5	15.5	15.5	15.5

Table E-6: N₂O Emissions from Other Waste Sources by Country (MtCO₂e)

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Albania	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-
Argentina	-	-	-	-	-	-	-	-	-
Armenia	-	-	-	-	-	-	-	-	-
Australia	-	-	-	-	-	-	-	-	-
Austria	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Azerbaijan	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Bangladesh	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	-	-	-	-	-	-
Belgium	-	-	-	-	-	-	-	-	-
Bolivia	-	-	-	-	-	-	-	-	-
Brazil	-	-	-	-	-	-	-	-	-
Bulgaria	-	-	-	-	-	-	-	-	-
Burma	-	-	-	-	-	-	-	-	-
Cambodia	-	-	-	-	-	-	-	-	-
Canada	-	-	-	-	-	-	-	-	-
Chile	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
China	-	-	-	-	-	-	-	-	-
Colombia	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Congo (Kinshasa)	-	-	-	-	-	-	-	-	-
Croatia	-	-	-	-	-	-	-	-	-
Czech Republic	-	-	-	-	-	-	-	-	-
Denmark	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ecuador	-	-	-	-	-	-	-	-	-
Egypt	-	-	-	-	-	-	-	-	-
Estonia	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Ethiopia	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Finland	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
France	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3
Georgia	-	-	-	-	-	-	-	-	-
Germany	0.0	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.4
Greece	-	-	-	-	-	-	-	-	-
Hungary	-	-	-	-	-	-	-	-	-
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
India	-	-	-	-	-	-	-	-	-
Indonesia	-	-	-	-	-	-	-	-	-
Iran	-	-	-	-	-	-	-	-	-
Iraq	-	-	-	-	-	-	-	-	-
Ireland	-	-	-	-	-	-	-	-	-
Israel	-	-	-	-	-	-	-	-	-
Italy	-	-	-	-	-	-	-	-	-
Japan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jordan	-	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-
Kyrgyzstan	-	-	-	-	-	-	-	-	-
Laos	-	-	-	-	-	-	-	-	-
Latvia	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0
Lithuania	-	-	-	-	-	-	-	-	-
Luxembourg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Macedonia	-	-	-	-	-	-	-	-	-
Mexico	-	-	-	-	-	-	-	-	-
Moldova	-	-	-	-	-	-	-	-	-
Monaco	-	-	-	-	-	-	-	-	-

Country	MtCO ₂ e								
	1990	1995	2000	2005	2010	2015	2020	2025	2030
Mongolia	-	-	-	-	-	-	-	-	-
Nepal	-	-	-	-	-	-	-	-	-
Netherlands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	-	-	-	-	-	-	-	-	-
Nigeria	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
North Korea	-	-	-	-	-	-	-	-	-
Norway	-	-	-	-	-	-	-	-	-
Pakistan	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Peru	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Philippines	-	-	-	-	-	-	-	-	-
Poland	-	-	-	-	-	-	-	-	-
Portugal	-	-	-	-	-	-	-	-	-
Romania	-	-	-	-	-	-	-	-	-
Russia	-	-	-	-	-	-	-	-	-
Saudi Arabia	-	-	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-	-	-
Singapore	-	-	-	-	-	-	-	-	-
Slovakia	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Slovenia	-	-	-	-	-	-	-	-	-
South Africa	-	-	-	-	-	-	-	-	-
South Korea	-	-	-	-	-	-	-	-	-
Spain	-	-	-	-	-	-	-	-	-
Sweden	-	-	-	-	-	-	-	-	-
Switzerland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tajikistan	-	-	-	-	-	-	-	-	-
Thailand	-	-	-	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-	-
Uganda	-	-	-	-	-	-	-	-	-
Ukraine	-	-	-	-	-	-	-	-	-
United Arab Emirates	-	-	-	-	-	-	-	-	-
United Kingdom	-	-	-	-	-	-	-	-	-
United States	0.4	0.8	1.4	1.7	1.8	1.8	1.8	1.8	1.8
Uruguay	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Uzbekistan	-	-	-	-	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	-	-
Vietnam	-	-	-	-	-	-	-	-	-
Rest of Africa	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
Rest of Central and South	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Rest of Middle East	-	-	-	-	-	-	-	-	-
Rest of Non-OECD Asia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest of Non-OECD Europe and	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Africa	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
Central and South America	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Middle East	-	-	-	-	-	-	-	-	-
OECD	0.6	1.3	2.1	2.8	3.0	3.0	3.0	3.0	3.0
Non-OECD Asia	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Non-OECD Europe &	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3
EU	0.1	0.4	0.6	1.0	1.1	1.1	1.1	1.1	1.1
OPEC	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
World Totals	8.9	9.6	10.5	11.2	11.4	11.4	11.4	11.4	11.4

Appendix F: Refrigeration and Air Conditioning (RefAC) Disaggregation

The Refrigeration and Air Conditioning (RefAC) sector is the largest contributor to global HFC emissions of all sectors. Within the RefAC sector, HFC emission estimates can be disaggregated into nine end-use sector categories: retail food, cold storage, industrial process refrigeration, other appliances, refrigerated transport, commercial air conditioning, chillers, residential air conditioning, and motor vehicle air conditioners (MVACs).

Commercial refrigeration, which includes retail food refrigeration, cold storage, and industrial process refrigeration, is consistently the highest global HFC emissions source through 2030. Commercial refrigeration systems are used in supermarkets, warehouses, ice rinks, industrial plants, and other commercial establishments. HFCs most commonly used in commercial refrigeration include HFC-134a, R-404A, R-407A, R-407C, R-410A, and R-507. Transport refrigeration (e.g., refrigerated vans, trucks, railcars, ships, and intermodal containers) mainly uses HFC-134a and R-404A refrigerants. Other appliances, which include refrigerators and freezers used at residential establishments (e.g., household refrigerators, beverage dispensing machines, and wine coolers), predominantly use HFC-134a as a refrigerant.

Commercial air conditioning systems provide comfort cooling in commercial buildings and building complexes (e.g., hotels, offices, hospitals, and universities). These systems include chillers (e.g., with centrifugal, screw, and scroll compressors), ducted, commercial, split and packaged air conditioners, which mainly use HFC-134a, R-407C, and R-410A. Domestic air conditioning systems provide comfort cooling in residential spaces ranging from single rooms (e.g., window-mounted, portable, and through-the-wall units) to homes (e.g., ducted and split units) and use R-410A and R-407C blends. MVACs use HFC-134a to cool the passenger compartment of passenger cars and other light and heavy duty vehicles (i.e., trucks, buses/coaches, trailers, and railcars).

The specific breakdowns of HFC emissions by region and their relative contribution for the RefAC sector are shown below.

Sector	OECD	Non-OECD Asia	Non-OECD Europe & Eurasia	Central and South America	Africa	Middle East
2005						
Chillers	6.36	1.06	0.71	0.45	0.36	0.22
Retail Food	77.13	12.76	8.59	5.41	4.40	2.70
Cold Storage	2.38	0.39	0.26	0.17	0.14	0.08
IP	9.07	1.50	1.00	0.63	0.51	0.31
Commercial AC	2.16	0.35	0.24	0.15	0.12	0.07
Residential AC	1.19	0.21	0.13	0.08	0.07	0.04
Refrigerated Transport	27.70	4.58	3.09	1.95	1.58	0.97
Other Appliances	0.97	0.15	0.10	0.06	0.05	0.03
MVACs	70.67	9.70	1.37	0.57	0.29	0.18
2010						
Chillers	5.24	1.14	0.64	0.48	0.39	0.23
Retail Food	94.91	20.38	11.41	8.53	6.95	4.07
Cold Storage	3.19	0.69	0.39	0.29	0.24	0.14
IP	13.69	2.94	1.65	1.23	1.00	0.59
Commercial AC	12.05	3.01	1.44	1.08	0.88	0.51
Residential AC	12.57	2.72	1.52	1.14	0.93	0.54
Refrigerated Transport	22.10	4.75	2.66	1.99	1.62	0.95

Sector	OECD	Non-OECD Asia	Non-OECD Europe & Eurasia	Central and South America	Africa	Middle East
Other Appliances	0.92	0.22	0.12	0.09	0.08	0.04
MVACs	65.42	26.44	1.87	0.93	0.48	0.28
2015						
Chillers	5.69	1.25	0.67	0.49	0.41	0.25
Retail Food	129.94	28.18	15.25	11.25	9.41	5.61
Cold Storage	4.39	0.97	0.51	0.38	0.32	0.19
IP	20.15	4.34	2.36	1.74	1.46	0.87
Commercial AC	27.81	6.02	3.27	2.42	2.02	1.20
Residential AC	30.54	6.58	3.58	2.64	2.21	1.32
Refrigerated Transport	22.64	4.88	2.64	1.95	1.63	0.97
Other Appliances	3.16	0.69	0.37	0.27	0.22	0.13
MVACs	70.97	55.75	2.70	1.58	1.01	0.60
2020						
Chillers	6.04	1.55	0.74	0.56	0.48	0.30
Retail Food	157.55	42.42	19.42	14.84	12.62	7.86
Cold Storage	5.63	1.52	0.69	0.53	0.45	0.28
IP	26.58	7.14	3.28	2.51	2.14	1.33
Commercial AC	45.43	12.19	5.58	4.27	3.62	2.26
Residential AC	53.51	14.44	6.58	5.03	4.27	2.66
Refrigerated Transport	24.63	6.61	3.03	2.31	1.97	1.23
Other Appliances	3.18	0.79	0.39	0.30	0.25	0.16
MVACs	90.71	109.00	5.11	2.95	2.25	1.40
2025						
Chillers	8.33	3.26	1.23	0.97	0.84	0.55
Retail Food	217.43	89.07	32.33	25.69	22.12	14.60
Cold Storage	7.77	3.19	1.15	0.92	0.79	0.52
IP	36.68	14.98	5.47	4.35	3.74	2.47
Commercial AC	62.69	25.60	9.29	7.39	6.35	4.20
Residential AC	73.83	30.32	10.95	8.70	7.49	4.94
Refrigerated Transport	33.99	13.87	5.05	4.00	3.45	2.28
Other Appliances	4.39	1.66	0.65	0.52	0.44	0.29
MVACs	121.29	236.70	8.40	5.10	3.94	2.60
2030						
Chillers	9.55	5.09	1.57	1.27	1.10	0.77
Retail Food	249.27	139.22	41.39	33.75	29.14	20.30
Cold Storage	8.90	4.99	1.47	1.21	1.04	0.72
IP	42.06	23.41	7.00	5.72	4.93	3.44
Commercial AC	71.86	40.01	11.89	9.71	8.37	5.83
Residential AC	84.64	47.40	14.01	11.43	9.87	6.87
Refrigerated Transport	38.97	21.68	6.46	5.26	4.54	3.16
Other Appliances	5.03	2.59	0.83	0.68	0.58	0.41
MVACs	135.47	383.53	10.64	6.70	5.19	3.62

Appendix G: Methodology Applied to Develop Source Emissions

Appendix F provides a brief overview of the methodologies used to estimate historical and projected emissions of methane (CH₄), nitrous oxide (N₂O), and fluorinated greenhouse gases (F-GHG) by country and source. The tables in this appendix correspond to the four sectors studied in this report, with the Industrial Processes sector split into two tables for primary and “other” sources. The contents of this appendix are as follows:

- Table G-1: Methodology Applied to Develop Energy Sector Source Emissions, by Country
- Table G-2: Methodology Applied to Develop Industrial Processes Sector Source Emissions, by Country
- Table G-3: Methodology Applied to Develop Other Industrial Processes Sector Source Emissions, by Country
- Table G-4: Methodology Applied to Develop Agriculture Sector Source Emissions, by Country
- Table G-5: Methodology Applied to Develop Waste Sector Source Emissions, by Country

For each source and country within each of the sectors, Appendix F indicates whether the estimates are based on country-reported estimates (CR* or CR), IPCC Tier 1 estimates (T1), or other methodologies (O). If emissions for a given country and source are not estimated or are equal to zero, the corresponding cell is left blank.

CR* Designation. A “CR*” designation indicates that a country reported emissions from the given source for one or more years, including data for 2005 or later. Historical and projected time-series for these countries are a combination of country reported estimates, where available, interpolated values based on country-reported estimates, and extrapolated values based on country reported estimates and derived growth rates or other drivers, as indicated in the Methodology Chapter. A majority of the reported data was derived from the UNFCCC flexible query system; however some sources relied on other country specific reports for emissions data. The specific data collected for each source are outlined in the Methodology Chapter.

CR Designation. A “CR” designation indicates that a country reported emissions from the given source for one or more years, but did not report data for 2005 or later. Historical and projected time-series for these countries are a combination of country reported estimates, where available, interpolated values based on country-reported estimates, and extrapolated values based on country reported estimates and derived growth rates or other drivers, as indicated in the Methodology Chapter. A majority of the reported data was derived from the UNFCCC flexible query system; however some sources relied on other country specific reports for emissions data. The specific data collected for each source are outlined in the Methodology Chapter.

T1 Designation. A “T1” designation indicates that EPA developed Tier 1 emissions estimates consistent with methodologies outlined in the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* (IPCC Guidelines) (IPCC, 1997), the *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* (IPCC Good Practice Guidance) (IPCC, 2000), and the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* (IPCC Guidelines) (IPCC, 2006).

O Designation. An “O” designation indicates that emissions estimates are not based on country-reported data and that EPA developed emissions estimates using a methodology other than Tier 1 (e.g., Tier 2, Vintaging Model). The specific methodology used for each source is outlined in the Methodology Chapter.

Blank Cells. A cell is left blank if emissions for the given source and country were not estimated or are equal to zero across the entire time-series.

Table G-1: Methodology Applied to Develop Energy Sector Source Emissions, by Country

Country	Other Energy Sources										
	Natural Gas and Oil Systems		Coal Mining	Stationary and Mobile Combustion		Biomass Combustion		Waste Combustion		Solid Fugitives	Natural Gas and Oil Fugitives
	CH ₄	CH ₄		CH ₄	N ₂ O	CH ₄	N ₂ O	CH ₄	N ₂ O		
Albania	CR	CR	CR	CR	TI	TI					
Algeria	CR	TI	CR	TI	TI	TI					
Argentina	CR	CR	CR	CR	TI	TI				CR	
Armenia	CR		CR	CR	TI	TI					
Australia	CR*	CR*	CR*	CR*	CR*	CR*		CR		CR*	
Austria	CR*	CR*	CR*	CR*	CR*	CR*	CR*	CR*			
Azerbaijan	CR		CR	CR	TI	TI					
Bangladesh	CR		CR	CR	TI	TI					
Belarus	CR*		CR*	CR*	CR*	CR*					
Belgium	CR*	CR	CR*	CR*	CR*	CR*		CR		CR*	
Bolivia	CR		CR	CR	TI	TI				CR	
Brazil	CR	CR	CR	CR	TI	TI					
Bulgaria	CR*	CR*	CR*	CR*	CR*	CR*					
Burma	TI	TI			TI	TI					
Cambodia			CR	CR	TI	TI					
Canada	CR*	CR*	CR*	CR*	CR*	CR*	CR*	CR*		CR*	
Chile	TI	TI	CR	CR	TI	TI					
China	CR	CR	CR	CR	TI	TI					
Colombia	CR	CR	CR	CR	TI	TI					
Congo (Kinshasa)	TI	TI	CR	CR	TI	TI					
Croatia	CR*	CR	CR*	CR*	CR*	CR*					
Czech Republic	CR*	CR*	CR*	CR*	CR*	CR*		CR*		CR*	
Denmark	CR*		CR*	CR*	CR*	CR*				CR*	
Ecuador	CR		CR	CR	TI	TI					
Egypt	CR	TI	CR	CR	TI	TI					
Estonia	CR*	TI	CR*	CR*	CR*	CR*		CR*			
Ethiopia			CR	CR	TI	TI					
Finland	CR*		CR*	CR*	CR*	CR*				CR*	
France	CR*	CR*	CR*	CR*	CR*	CR*	CR*	CR*		CR*	
Georgia	TI	TI	CR	CR	TI	TI					
Germany	CR*	CR*	CR*	CR*	CR*	CR*					
Greece	CR*	CR*	CR*	CR*	CR*	CR*				CR*	
Hungary	CR*	CR*	CR*	CR*	CR*	CR*		CR*		CR*	
Iceland			CR*	CR*			CR*	CR*			
India	CR	CR	CR	CR	TI	TI					
Indonesia	CR	CR	CR	CR	TI	TI					
Iran	CR	CR	CR	CR	TI	TI					
Iraq	TI				TI	TI					
Ireland	CR*	TI	CR*	CR*	CR*	CR*					
Israel	TI		CR*	CR*	TI	TI					
Italy	CR*	CR*	CR*	CR*	CR*	CR*	CR*	CR*		CR*	
Japan	CR*	CR*	CR*	CR*	CR*	CR*	CR*	CR*		CR*	
Jordan	TI		CR	CR	TI	TI					
Kazakhstan	CR*	CR*	CR*	CR*	TI	TI					
Kuwait	TI				TI	TI					
Kyrgyzstan	CR*	CR*	CR*	CR*	TI	TI					

Country	Other Energy Sources									
	Natural Gas and Oil Systems	Coal Mining	Stationary and Mobile Combustion		Biomass Combustion		Waste Combustion		Solid Fugitives	Natural Gas and Oil Fugitives
	CH ₄	CH ₄	CH ₄	N ₂ O	CH ₄	N ₂ O	CH ₄	N ₂ O	N ₂ O	N ₂ O
Laos		TI	CR	CR						
Latvia	CR*		CR*	CR*	CR*	CR*				
Lithuania	CR*		CR*	CR*	CR*	CR*				CR*
Luxembourg	CR*		CR*	CR*	CR*	CR*				
Macedonia	CR	CR	CR	CR	TI	TI				
Mexico	CR	CR	CR	CR	TI	TI		CR		
Moldova	CR	TI	CR	CR	TI	TI	CR			
Monaco			CR*	CR*	CR*	CR*	CR*	CR*		
Mongolia		CR	CR	CR	TI	TI				
Nepal		TI	CR	CR	TI	TI				
Netherlands	CR*		CR*	CR*	CR*	CR*				CR
New Zealand	CR*	CR*	CR*	CR*	CR*	CR*	CR*	CR*		
Nigeria	CR	CR	CR	CR	TI	TI				
North Korea	TI	CR	CR	CR	TI	TI				
Norway	CR*	CR*	CR*	CR*	CR*	CR*	CR*	CR*		CR*
Pakistan	CR	CR	CR	CR	TI	TI				
Peru	CR	CR	CR	CR	TI	TI				
Philippines	CR	CR	CR	CR	TI	TI				
Poland	CR*	CR*	CR*	CR*	CR*	CR*		CR*		CR*
Portugal	CR*	CR	CR*	CR*	CR*	CR*	CR*	CR*		
Romania	CR*	CR*	CR*	CR*	CR*	CR*				
Russia	CR*	CR*	CR*	CR*	CR*	CR*				CR*
Saudi Arabia	CR		CR	CR	TI	TI				
Senegal	CR		CR	CR	TI	TI				
Singapore	TI									
Slovakia	CR*	CR*	CR*	CR*	CR*	CR*		CR*		
Slovenia	CR*	CR*	CR*	CR*	CR*	CR*				
South Africa	CR	CR	CR	CR	TI	TI				
South Korea	CR	CR	CR	CR	TI	TI		CR		
Spain	CR*	CR*	CR*	CR*	CR*	CR*	CR*	CR*		CR*
Sweden	CR*	TI	CR*	CR*	CR*	CR*			CR*	CR*
Switzerland	CR*		CR*	CR*	CR*	CR*	CR*	CR*		CR*
Tajikistan	CR	CR	CR	TI						
Thailand	CR	CR	CR	CR	TI	TI				
Turkey	TI	CR*	CR*	CR*	CR*	CR*				
Turkmenistan	CR		CR	CR						
Uganda			CR	CR						
Ukraine	CR*	CR*	CR*	CR*	CR*	CR*				CR*
United Arab Emirates	CR		CR	CR	TI	TI				
United Kingdom	CR*	CR*	CR*	CR*	CR*	CR*	CR*	CR*	CR*	CR*
United States	CR*	CR*	CR*	CR*	CR*	CR*				
Uruguay	CR	CR	CR	CR	TI	TI				
Uzbekistan	CR*	CR*	CR*	CR*	TI	TI				
Venezuela	CR	CR	CR	CR	TI	TI				CR
Vietnam	CR	CR	CR	CR	TI	TI				

Table G-2: Methodology Applied to Develop Industrial Processes Sector Source Emissions, by Country

Country	Adipic and Nitric Acid Production		Use of Substitutes for Ozone Depleting Substances	HCFC-22 Production	Operation of Electric Power Systems	Primary Aluminum Production	Semiconductors Manufacturing				Magnesium Manufacturing	Flat Panel Display Manufacturing		Photovoltaic Manufacturing	
	Adipic Acid Production	Nitric Acid Production					HFC	PFC	SF ₆	NF ₃		PFC	SF ₆	NF ₃	PFC
	N ₂ O	N ₂ O	HFC PFC	HFC	SF ₆	PFC	HFC	PFC	SF ₆	NF ₃	SF ₆	PFC SF ₆	NF ₃	PFC	NF ₃
Albania	TI	TI	O		TI										
Algeria	TI	TI	O		TI										
Argentina	TI	TI	O	TI	TI	CR					CR				
Armenia			O		TI		O	O	O	O					
Australia			O	CR	CR*	CR*	O	O	O	O	CR			TI	TI
Austria	TI	CR*	O		CR*	CR	CR*	CR*	CR*	O	CR				
Azerbaijan			O		TI	TI									
Bangladesh			O		TI										
Belarus	TI	CR*	O		CR*										
Belgium	TI	CR*	O		CR*		O	O	O	O				TI	TI
Bolivia			O		TI										
Brazil	TI	TI	O	TI	TI	CR*	O	O	O	O	TI				
Bulgaria	TI	CR*	O		CR*		O	O	O	O				TI	TI
Burma			O		TI										
Cambodia			O		TI										
Canada	CR*	CR*	O	CR	CR*	CR*	O	CR*	CR*	O	CR*				
Chile	TI	TI	O		TI										
China	TI	TI	O	TI	TI	TI	O	O	O	O	TI	TI	TI	TI	TI
Colombia	TI	TI	O		TI	CR									
Congo			O		TI										
Croatia	TI	CR*	O		CR*	CR								TI	TI
Czech Republic	TI	CR*	O		CR*		CR	CR*	CR*	O				TI	TI
Denmark	TI	CR	O		CR*						CR				
Ecuador			O		TI										
Egypt	TI	TI	O		TI	TI									
Estonia			O		CR*										
Ethiopia			O												
Finland	TI	CR*	O		CR*		O	O	O	O					
France	CR*	CR*	O	CR*	CR*	CR*	CR*	CR*	CR*	O	CR*			TI	TI
Georgia	TI	TI	O		TI										
Germany	CR*	CR*	O	TI	CR*	CR*	CR*	CR*	CR*	O	CR*			TI	TI
Greece	TI	CR*	O	CR*	CR*	CR*								TI	TI
Hungary	TI	CR*	O		CR*	CR*	O	O	O	O					
Iceland			O		CR*	CR*									
India	TI	TI	O	TI	TI	TI	O	O	O	O				TI	TI
Indonesia	TI	TI	O		TI	TI								TI	TI
Iran	TI	TI	O		TI	TI									
Iraq					TI										
Ireland	TI	CR	O		CR*		CR*	CR*	CR*	O					
Israel	TI	TI	O		TI		O	O	O	O	TI				
Italy	CR*	CR*	O	CR	CR*	CR*	CR*	CR*	CR*	O	CR*			TI	TI
Japan	CR*	CR*	O	CR*	CR*	CR*	CR*	CR*	CR*	O	CR*	TI	TI	TI	TI
Jordan			O		TI										
Kazakhstan			O		TI						TI				
Kuwait			O		TI										

Country	Adipic and Nitric Acid Production		Use of Substitutes for Ozone Depleting Substances	HCFC-22 Production	Operation of Electric Power Systems	Primary Aluminum Production	Semiconductors Manufacturing				Magnesium Manufacturing	Flat Panel Display Manufacturing		Photovoltaic Manufacturing	
	Adipic Acid Production	Nitric Acid Production					HFC	PFC	SF ₆	NF ₃		PFC SF ₆	NF ₃	PFC	NF ₃
	N ₂ O	N ₂ O	HFC PFC	HFC	SF ₆	PFC	HFC	PFC	SF ₆	NF ₃	SF ₆	PFC SF ₆	NF ₃	PFC	NF ₃
Kyrgyzstan			O		TI										
Laos			O		TI										
Latvia			O		CR*		O	O	O	O					
Lithuania	TI	CR*	O		CR*										
Luxembourg			O		CR*										
Macedonia	TI	TI	O		TI	O					CR				
Mexico	TI	TI	O	TI	TI	CR	O	O	O	O					
Moldova			O		TI										
Monaco			O												
Mongolia			O		TI										
Nepal			O		TI										
Netherlands	TI	CR*	O	CR*	TI	CR*	O	O	O	O				TI	TI
New Zealand			O		CR*	CR*					CR				
Nigeria			O		TI										
North Korea	TI	TI	O		TI										
Norway	TI	CR*	O		CR*	CR*	O	O	CR*	O	CR*			TI	TI
Pakistan			O		TI										
Peru	TI	TI	O		TI										
Philippines			O		TI									TI	TI
Poland	CR	CR*	O		CR*	CR*					CR*				
Portugal	TI	CR*	O		CR*						TI			TI	TI
Romania	CR	CR*	O		CR*	CR*									
Russia	TI	CR*	O	CR*	CR*	CR*	O	CR*	O	O	TI			TI	TI
Saudi Arabia			O		TI										
Senegal			O												
Singapore	TI	TI	O		TI		O	O	O	O		TI	TI	TI	TI
Slovakia	TI	CR*	O		CR*	CR*	O	O	O	O					
Slovenia	TI	CR*	O		CR*	CR*									
South Africa	TI	TI	O	TI	TI	TI	O	O	O	O					
South Korea	TI	TI	O	TI	TI		O	O	O	O		TI	TI	TI	TI
Spain	TI	CR*	O	CR*	CR*	CR*	O	O	O	O	TI			TI	TI
Sweden	TI	CR*	O		CR*	CR*	CR	CR	CR	O	CR*				
Switzerland	TI	CR*	O		CR*	CR*	O	CR	CR	O	CR*			TI	TI
Tajikistan			O		TI	TI									
Thailand			O		TI									TI	TI
Turkey	TI	CR*	O		CR*	CR*									
Turkmenistan			O		TI										
Uganda			O												
Ukraine			O		TI	CR*					TI				
United Arab Emirates			O		TI	TI								TI	TI
United Kingdom	CR*	CR*	O	TI	CR*	CR*	O	O	O	O	TI				
United States	CR*	CR*	O	CR*	CR*	CR*	CR*	CR*	CR*	O	CR*			TI	TI
Uruguay			O		TI										
Uzbekistan	TI	TI	O		TI										
Venezuela	TI	TI	O	TI	TI	TI									
Vietnam			O		TI										

Table G-3: Methodology Applied to Develop Other Industrial Processes Sector Source Emissions, by Country

Country	Other Industrial Processes Sources							
	Chemical Production	Iron and Steel Production	Metal Production		Mineral Products	Petrochemical Production	Silicon Carbide Production	Solvent and Other Product Use
	CH ₄	CH ₄	CH ₄	N ₂ O	CH ₄	CH ₄	CH ₄	N ₂ O
Albania								
Algeria								
Argentina	CR							
Armenia								
Australia	CR*	CR*	CR*	CR*		CR*	CR*	
Austria	CR*	CR*	CR*			CR*	CR*	CR*
Azerbaijan								
Bangladesh								
Belarus	CR*	CR*	CR*			CR*	CR*	CR*
Belgium	CR*	CR*	CR*	CR*	CR*	CR*	CR*	CR*
Bolivia								
Brazil	CR							
Bulgaria	CR*	CR*	CR*			CR*	CR*	CR*
Burma								
Cambodia								
Canada								CR*
Chile	CR							
China								
Colombia	CR							
Congo (Kinshasa)								
Croatia	CR*					CR*	CR*	CR*
Czech Republic	CR*	CR*	CR*		CR*	CR*	CR*	CR*
Denmark								CR*
Ecuador								
Egypt								
Estonia								
Ethiopia								
Finland		CR*	CR*					CR*
France	CR*	CR*	CR*			CR*	CR*	CR*
Georgia								
Germany	CR*	CR*	CR*			CR*	CR*	CR*
Greece	CR					CR	CR	
Hungary	CR*					CR*	CR*	CR*
Iceland			CR*					CR*
India	CR							
Indonesia								
Iran	CR							
Iraq								
Ireland								
Israel								
Italy	CR*	CR*	CR*			CR*	CR*	CR*
Japan	CR*	CR*	CR*			CR*	CR*	CR*
Jordan								
Kazakhstan	CR*							
Kuwait								

Country	Other Industrial Processes Sources							
	Chemical Production	Iron and Steel Production	Metal Production		Mineral Products	Petrochemical Production	Silicon Carbide Production	Solvent and Other Product Use
	CH ₄	CH ₄	CH ₄	N ₂ O	CH ₄	CH ₄	CH ₄	N ₂ O
Kyrgyzstan								
Laos								
Latvia		CR*	CR*					CR*
Lithuania	CR*					CR*	CR*	
Luxembourg								CR*
Macedonia	CR							
Mexico	CR							
Moldova			CR					
Monaco								
Mongolia								
Nepal								
Netherlands	CR*					CR*	CR*	CR*
New Zealand	CR*					CR*	CR*	CR*
Nigeria			CR					
North Korea	CR							
Norway	CR*		CR*	CR*		CR*	CR*	CR*
Pakistan								
Peru	CR							
Philippines	CR							
Poland	CR*	CR*	CR*	CR*		CR*	CR*	CR*
Portugal	CR*				CR*	CR*	CR*	
Romania	CR*					CR*	CR*	
Russia	CR*	CR*	CR*			CR*	CR*	CR*
Saudi Arabia	CR							
Senegal								
Singapore								
Slovakia	CR*							CR*
Slovenia	CR*					CR*	CR*	CR*
South Africa	CR							
South Korea	CR							
Spain	CR*	CR*	CR*	CR*		CR*	CR*	CR*
Sweden	CR*	CR*	CR*			CR*	CR*	CR*
Switzerland	CR*				CR*	CR*	CR*	CR*
Tajikistan								
Thailand	CR							
Turkey	CR*					CR*	CR*	
Turkmenistan								
Uganda								
Ukraine	CR*	CR*	CR*			CR*	CR*	CR*
United Arab Emirates	CR							
United Kingdom	CR*	CR*	CR*	CR*	CR*	CR*	CR*	
United States	CR*	CR*	CR*			CR*	CR*	CR*
Uruguay								
Uzbekistan	CR*							
Venezuela	CR							
Vietnam								

Table G-4: Methodology Applied to Develop Agriculture Sector Source Emissions, by Country

Country	Agricultural Soils	Enteric Fermentation	Rice Cultivation	Manure Management		Other Agriculture Sources	
						Agricultural Soils	Biomass Burning
	N ₂ O	CH ₄	CH ₄	CH ₄	N ₂ O	CH ₄	CH ₄ , N ₂ O
Albania	TI	CR	TI	CR	CR		O
Algeria	TI	CR	TI	CR	CR		O
Argentina	CR	CR	CR	CR	CR		O
Armenia	TI	CR		CR	TI		O
Australia	CR*	CR*	CR*	CR*	CR*		O
Austria	CR*	CR*		CR*	CR*	CR*	O
Azerbaijan	TI	CR	CR	CR	TI		O
Bangladesh	TI	CR	CR	CR	TI		O
Belarus	CR*	CR*		CR*	CR*		O
Belgium	CR*	CR*		CR*	CR*		O
Bolivia	TI	CR	CR	CR	CR		O
Brazil	CR	CR	CR	CR	CR		O
Bulgaria	CR*	CR*	CR*	CR*	CR*		O
Burma	TI	TI	TI	TI	TI		O
Cambodia	TI	CR	TI	CR	CR		O
Canada	CR*	CR*		CR*	CR*		O
Chile	CR	CR	CR	TI	CR	CR	O
China	TI	CR	CR	CR	CR		O
Colombia	CR	CR	CR	CR	CR		O
Congo (Kinshasa)	TI	CR	TI	CR	CR		O
Croatia	CR*	CR*		CR*	CR*		O
Czech Republic	CR*	CR*		CR*	CR*		O
Denmark	CR*	CR*		CR*	CR*		O
Ecuador	TI	CR	TI	CR	TI		O
Egypt	TI	CR	CR	CR	TI		O
Estonia	CR*	CR*		CR*	CR*		O
Ethiopia	TI	CR	TI	CR	TI		O
Finland	CR*	CR*		CR*	CR*		O
France	CR*	CR*	CR*	CR*	CR*		O
Georgia	TI	TI		TI	TI		O
Germany	CR*	CR*		CR*	CR*	CR*	O
Greece	CR*	CR*	CR*	CR*	CR*		O
Hungary	CR*	CR*	CR*	CR*	CR*		O
Iceland	CR*	CR*		CR*	CR*		O
India	TI	CR	TI	CR	CR		O
Indonesia	TI	CR	CR	TI	TI		O
Iran	TI	CR	CR		CR		O
Iraq	TI	TI	TI	TI	TI		O
Ireland	CR*	CR*		CR*	CR*		O
Israel	TI	CR		CR	CR		O
Italy	CR*	CR*	CR*	CR*	CR*		O
Japan	CR*	CR*	CR*	CR*	CR*		O
Jordan	TI	CR		CR	TI		O
Kazakhstan	TI	CR*	CR*	CR*	CR*		O
Kuwait	TI	TI		TI	TI		O
Kyrgyzstan	TI	CR*	CR*	CR*	CR*		O
Laos	TI	CR	TI	CR	TI		O

Country	Agricultural Soils	Enteric Fermentation	Rice Cultivation	Manure Management		Other Agriculture Sources	
						Agricultural Soils	Biomass Burning
	N ₂ O	CH ₄	CH ₄	CH ₄	N ₂ O	CH ₄	CH ₄ , N ₂ O
Latvia	CR*	CR*		CR*	CR*		O
Lithuania	CR*	CR*		CR*	CR*		O
Luxembourg	CR*	CR*		CR*	CR*		O
Macedonia	CR	CR	CR	CR	CR		O
Mexico	TI	CR	CR	CR	CR		O
Moldova	TI	CR		CR	TI		O
Monaco							
Mongolia	TI	CR		TI	TI		O
Nepal	TI	CR	CR	CR	CR		O
Netherlands	CR*	CR*		CR*	CR*		O
New Zealand	CR*	CR*		CR*	CR*		O
Nigeria	TI	CR	TI	CR	TI		O
North Korea	TI	CR	CR	CR	CR		O
Norway	CR*	CR*		CR*	CR*		O
Pakistan	TI	CR	CR	CR	TI		O
Peru	TI	CR	CR	CR	CR		O
Philippines	TI	CR	CR	TI	CR		O
Poland	CR*	CR*		CR*	CR*		O
Portugal	CR*	CR*	CR*	CR*	CR*		O
Romania	CR*	CR*	CR*	CR*	CR*		O
Russia	CR*	CR*	CR*	CR*	CR*		O
Saudi Arabia	TI	CR		CR	CR		O
Senegal	TI	CR	TI	TI	TI		O
Singapore	TI	TI		TI	TI		O
Slovakia	CR*	CR*		CR*	CR*		O
Slovenia	CR*	CR*		CR*	CR*		O
South Africa	CR	CR	TI	CR	CR		O
South Korea	CR	CR	CR	CR	CR		O
Spain	CR*	CR*	CR*	CR*	CR*		O
Sweden	CR*	CR*		CR*	CR*		O
Switzerland	CR*	CR*		CR*	CR*		O
Tajikistan	CR	CR	CR	CR	TI		O
Thailand	TI	CR	CR	CR	CR		O
Turkey	TI	CR*	CR*	CR*			O
Turkmenistan	TI	CR	CR	CR	CR		O
Uganda	TI	CR	TI	CR	TI		O
Ukraine	CR*	CR*	CR*	CR*	CR*		O
United Arab Emirates	TI	CR		TI	CR		O
United Kingdom	CR*	CR*		CR*	CR*		O
United States	CR*	CR*	CR*	CR*	CR*		O
Uruguay	CR	CR	CR	CR	TI		O
Uzbekistan	CR*	CR*	CR*	CR*	CR*		O
Venezuela	TI	CR	CR	CR	CR		O
Vietnam	TI	CR	CR	CR	TI		O

Table G-5: Methodology Applied to Develop Waste Sector Source Emissions, by Country

Country	Landfilling of Solid Waste	Wastewater	Human Sewage – Domestic Wastewater	Other Waste Sources	
				Miscellaneous Waste Handling Processes	
	CH ₄	CH ₄	N ₂ O	CH ₄	N ₂ O
Albania	CR	TI	CR		
Algeria	CR	CR	CR		
Argentina	CR	CR	CR		
Armenia	CR	CR	TI		
Australia	CR*	CR*	CR*		
Austria	CR*	CR*	CR*	CR*	CR*
Azerbaijan	CR	CR	CR		CR
Bangladesh	CR	TI	TI		
Belarus	CR*	TI	CR*		
Belgium	CR*	CR*	CR*	CR*	
Bolivia	CR	CR	CR		
Brazil	CR	CR	CR		
Bulgaria	CR*	CR*	CR*		
Burma	TI	TI	TI		
Cambodia	CR	CR	CR		
Canada	CR*	CR*	CR*		
Chile	CR	CR	CR		
China	CR	CR	TI		
Colombia	CR	CR	TI		CR
Congo (Kinshasa)	CR	CR	CR		
Croatia	CR*	CR*	CR*		
Czech Republic	CR*	CR*	CR*		
Denmark	CR*	CR*	CR*	CR*	CR*
Ecuador	CR	CR	TI		
Egypt	CR	CR	TI		
Estonia	CR*	TI	CR*	CR*	CR*
Ethiopia	CR	CR	CR	CR	CR
Finland	CR*	CR*	CR*	CR*	CR*
France	CR*	CR*	CR*	CR*	CR*
Georgia	TI	TI	TI	CR	
Germany	CR*	CR*	CR*	CR*	CR*
Greece	CR*	CR*	CR*		
Hungary	CR*	CR*	CR*		
Iceland	CR*	CR*	CR*	CR*	CR*
India	CR	CR	CR		
Indonesia	TI	TI	TI	CR	
Iran	CR	CR	CR		
Iraq	TI	TI	TI		
Ireland	CR*	CR*	CR*		
Israel	CR*	CR*	CR*		
Italy	CR*	CR*	CR*	CR*	
Japan	CR*	CR*	CR*	CR*	CR*
Jordan	CR	CR	TI		
Kazakhstan	CR*	CR*	CR*		
Kuwait	TI	TI	TI		
Kyrgyzstan	CR*	CR*	CR*		

Country	Landfilling of Solid Waste	Wastewater	Human Sewage – Domestic Wastewater	Other Waste Sources	
				Miscellaneous Waste Handling Processes	
	CH ₄	CH ₄	N ₂ O	CH ₄	N ₂ O
Laos	CR	CR	TI		
Latvia	CR*	CR*	CR*	CR*	CR*
Lithuania	CR*	CR*	CR*		
Luxembourg	CR*	CR*	TI	CR*	CR*
Macedonia	CR	CR	CR		
Mexico	CR	CR	CR		
Moldova	CR	CR	TI		
Monaco		TI	CR*		
Mongolia	CR	CR	TI		
Nepal	CR	CR	CR		
Netherlands	CR*	CR*	CR*	CR*	CR*
New Zealand	CR*	CR*	CR*		
Nigeria	CR	CR	TI	CR	CR
North Korea	CR	CR	TI		
Norway	CR*	CR*	TI		
Pakistan	CR	CR	TI		CR
Peru	CR	TI	TI	CR	CR
Philippines	CR	CR	CR		
Poland	CR*	CR*	CR*		
Portugal	CR*	CR*	CR*		
Romania	CR*	CR*	CR*		
Russia	CR*	CR*	CR*		
Saudi Arabia	CR	CR	CR		
Senegal	CR	CR	TI		
Singapore	TI	TI	CR		
Slovakia	CR*	CR*	TI	CR*	CR*
Slovenia	CR*	CR*	CR*		
South Africa	CR	CR	CR		
South Korea	CR	CR	CR		
Spain	CR*	CR*	CR*	CR*	
Sweden	CR*	TI	CR*		
Switzerland	CR*	CR*	CR*	CR*	CR*
Tajikistan	CR	CR	TI		
Thailand	CR	CR	TI		
Turkey	CR*	TI	TI		
Turkmenistan	CR	TI	TI		
Uganda	CR	CR	TI		
Ukraine	CR*	CR*	CR*		
United Arab Emirates	CR	CR	CR		
United Kingdom	CR*	CR*	CR*		
United States	CR*	CR*	CR*	CR*	CR*
Uruguay	CR	CR	CR		CR
Uzbekistan	CR*	CR*	CR*		
Venezuela	CR	CR	CR		
Vietnam	CR	CR	CR		

Appendix H: Data Sources Used to Develop Non-Country-Reported Emissions Estimates

Emissions Source	Data Type	Data Source
Energy		
Natural Gas and Oil Systems	Production, Consumption, Refinery Capacity	EIA. 2010. Energy Information Administration International Energy Statistics Data Portal. EIA. 2009. Natural Gas Annual Data. U.S. Energy Information Agency.
Coal Mining Activities	Historical Coal Production CH ₄ Abatement Projected Coal Production	EIA. 2010. Energy Information Administration International Energy Statistics Data Portal. EPA. 2010. Methane to Markets International Coal Mine Methane (CMM) Projects database. EIA. 2009. International Energy Outlook 2009. Energy Information Administration.
Stationary and Mobile Combustion	Fuel Consumption Projected Energy Consumption	IEA. 2009a. Energy Balances of Non-OECD Countries 1971-2007. International Energy Agency. IEA. 2009b. Energy Balances of OECD Countries 1960-2007. International Energy Agency. IEA. 2009c. World Energy Outlook 2009. International Energy Agency.
Biomass Combustion	Biomass Fuel Consumption Growth Rates	IEA. 2009a. Energy Statistics of Non-OECD Countries 1971-2007. International Energy Agency. IEA. 2009b. Energy Statistics of OECD Countries 1960-2007. International Energy Agency. IEA. 2009c. World Energy Outlook 2009. International Energy Agency.
Other Energy Sources	None	Country-reported data only.
Industrial Processes		
Adipic Acid and Nitric Acid Production	Adipic Capacity Utilization Fertilizer Consumption Long-term Fertilizer Consumption	SRI. 2010. World Petrochemical Report: Adipic Acid. SRI Consulting. Chemical Week. 2007. Product Focus: Adipic Acid. Chemical Week. 1999. Product Focus: Adipic Acid/Adiponitrile. FAO. 2010. FAOSTAT Statistical Database. Food and Agriculture Organization of the United Nations. SRI. 2007. CEH Report: Nitric Acid. SRI Consulting. SRI. 1999. Quoted in Product focus: Adipic Acid/Adiponitrile. Chemical Week. SRI Consulting. Tenkorang and Lowenberg-DeBoer. 2008. Forecasting Long-term Global Fertilizer Demand. Food and Agriculture Organization of the United Nations.

Emissions Source	Data Type	Data Source
Use of Substitutes for Ozone Depleting Substances	Vintaging Model	EPA. 2010. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008.
	ODS Consumption	UNEP. 2010. Production and Consumption of Ozone Depleting Substances, 1986-2007. United Nations Environment Programme (UNEP) Ozone Secretariat.
	End-Use Distributions of ODS	March. 1996. UK Use and Emissions of Selected Hydrocarbons. March Consulting Group, HMSO, Russian Federation. 1994. Phaseout of Ozone Depleting Substances in Russia.
	GDP Growth Factors	USDA. 2009. Real GDP (2005 dollars) Historical International Macroeconomic Data Set. U. S. Department of Agriculture Economic Research Service.
	Foam Market Information	Ashford. 2004. Peer review comments on U.S. EPA Draft Report, Draft Analysis of International Costs of Abating HFC Emissions from Foams.
HCFC-22 Production	HCFC-22 Production	<p>UNEP. 2010. Data Access Centre. HCFC Production.</p> <p>CEH. 2001. Fluorocarbons CEH Marketing Research Report. Chemical and Economics Handbook.</p> <p>Will et al. 2004. CEH Marketing Research Report: Fluorocarbons. Chemical Economics Handbook—SRI Consulting.</p> <p>Miller et al. 2011. B.R. Miller and L.J.M. Kuijpers. "Projecting Future HFC-23 emissions." Atmos. Chem. Phys. Discuss., 11: 23081-23102. 16 August 2011</p> <p>Miller et al. 2010. B.R. Miller, M. Rigby, L.J.M. Kuijpers, P.B. Krummel, L.P. Steele, M. Leiste, P.J. Fraser, A. McCulloch, C. Harth, P. Salameh, J. Mühle, R.F. Weiss, R.G. Prinn, R.H.J. Wang, S. O'Doherty, B.R. Grealley, and P.G. Simmonds. "HFC-23 (CHF3) emission trend response to HCFC-22 (CHClF2) production and recent HFC-23 emission abatement measures." Atmos. Chem. Phys. 10: 7875-7890. 25 August 2010.</p> <p>Montzka, et al. (2010). "Recent increases in global HFC-23 emissions."</p> <p>EPA. 2006. Global Anthropogenic Non-CO2 Greenhouse Gas Emissions: 1990 – 2020.</p> <p>IPCC/TEAP. 2005. Special Report: Safeguarding the Ozone Layer and the Global Climate System: Issues Related to Hydrofluorocarbons and Perfluorocarbons.</p> <p>Harnisch, J. and C. Hendricks. 2000. Economic Evaluation of Emission Reductions of HFCs, PFCs and SF₆ in Europe.</p> <p>EPA. 2006 Global Anthropogenic Non-CO2 Greenhouse Gas Emissions: 1990 – 2020. Office of Atmospheric Programs: Climate Change Division.</p>

Emissions Source	Data Type	Data Source
Electric Power Systems	SF ₆ Sales to Utilities and Manufacturers Emission Rate Electrical Equipment Lifetime Electricity Consumption Japanese Emissions U.S. Projections Electricity Consumption Projections Japanese Projections	Smythe. 2004. Trends in SF ₆ Sales and End-Use Applications: 1961-2003. IPCC. 2000. Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories. Intergovernmental Panel on Climate Change. Ecofys. 2005. Reductions of SF ₆ Emissions from High and Medium Voltage Electrical Equipment in Europe. EIA. 2008. International Energy Annual 2006. Energy Information Administration. Yokota et al. 2005. Recent Practice for Huge Reduction of SF ₆ Gas Emission from GIS&GCB in Japan. U.S. State Department. 2010. U.S. Climate Action Report 2010. EIA. 2009. International Energy Outlook 2009. Energy Information Administration. Yokota. 2006. E-mail from Takeshi Yokota.
Primary Aluminum Production	Primary Aluminum Production Global Aluminum Production Growth Rate Global Production Percentages by Cell-Type and Effective Emission Factors by Cell-Type	USGS. 1995 through 2011a. Mineral Yearbook: Aluminum. U.S. Geological Survey. Martchek. 2006. Modelling More Sustainable Aluminium: Case Study. IAI. 2011. Results of the 2010 Anode Effects Survey: Report on the Aluminium Industry's Global Perfluorocarbon Gases Emissions Reduction Programme. International Aluminium Institute
Magnesium Manufacturing	Primary Magnesium Production EU Historical Emissions Chinese Casting Volume Automobile Production Recycling-based Production US 2010 Phased-out Goal CDM Projects	USGS. 2007. Minerals Yearbook 2007: Magnesium. U. S. Geological Survey. USGS. 2009. Minerals Yearbook 2009: Magnesium. U. S. Geological Survey. Harnisch and Schwarz. 2003. Costs of the Impact on Emissions of Potential Regulatory Framework for Reducing Emissions of Hydrofluorocarbons, Perfluorocarbons, and Sulphur Hexafluoride. Edgar. 2004. SF ₆ Usage in the Chinese Magnesium Industry: 2000-2010. Ward's. 2001. Ward's World Motor Vehicle Data. OICA 2010. 2009 Production Statistics. Organisation Internationale des Constructeurs d'Automobiles. Webb. 2005. Magnesium Supply and Demand 2004. USEPA. 2010. SF ₆ Emission Reduction Partnership for the Magnesium Industry. UNFCCC. 2010. Clean Development Mechanism (CDM) Project Information

Emissions Source	Data Type	Data Source
Semiconductor Manufacturing	GDPWSC Reduction Goals Modeling China's semiconductor industry fluorinated compound emissions and drafting a roadmap for climate protection ("The China Paper")	USDA. 2009. Real GDP (2005 dollars) Historical International Macroeconomic Data Set. U. S. Department of Agriculture Economic Research Service. WSC. 2010. Joint Statement of the 14th Meeting of the World Semiconductor Council (WSC). ITRS. 2009. International Technology Roadmap for Semiconductors: 2009 Edition. Bartos, S.C., et al. 2008. Modeling China's semiconductor industry fluorinated compound emissions and drafting a roadmap for climate protection.
Flat Panel Display Manufacturing	Maximum design capacities Country capacity shares WLICC Goal	DisplaySearch. 2009. DisplaySearch Q4'09 Quarterly FPD Supply/Demand and Capital Spending Report Database.
Photovoltaic Manufacturing	Maximum design capacities Maximum design capacities Country capacity shares PV technology shares	DisplaySearch. 2009. DisplaySearch Q4'09 Quarterly PV Cell Capacity Database & Trends Report.
Other Industrial Processes Sources	None	Country-reported data only.
Agriculture		

Emissions Source	Data Type	Data Source
Agricultural Soils	Commercial Synthetic Fertilizer Consumption	IFA. 2010. IFADATA Statistical Database. International Fertilizer Industry Association.
	Regional N Fertilizer Consumption Projections	FAO. 2010. FAOSTAT Statistical Database. Food and Agriculture Organization of the United Nations.
	Major Crop Production and Acreage	Tenkorang and Lowenberg-DeBoer. 2008. Forecasting Long-term Global Fertilizer Demand. Food and Agriculture Organization of the United Nations.
	Projected Crop Production and Acreage	FAO. 2010. FAOSTAT Statistical Database. Food and Agriculture Organization of the United Nations.
	Animal Population	FAPRI. 2010. U.S. and World Agricultural Outlook. Food and Agricultural Policy Research Institute.
Livestock Product Growth Rates		FAO. 2010. FAOSTAT Statistical Database. Food and Agriculture Organization of the United Nations.
		IFPRI. 2009. International Food Policy Research Institute, Impact Model Growth Rate Spreadsheet.
Enteric Fermentation	Animal Population Data	FAO. 2010. FAOSTAT Statistical Database. Food and Agriculture Organization of the United Nations.
	Livestock Product Growth Rates	IFPRI. 2009. International Food Policy Research Institute, Impact Model Growth Rate Spreadsheet.
Rice Cultivation	Area Harvested for Rice Cultivation	FAO. 2010. FAOSTAT Statistical Database. Food and Agriculture Organization of the United Nations.
	Water Management Regime Type	IRRI. 2009. World Rice Statistics. International Rice Research Institute.
	Length of Rice-growing Season	IRRI. 2009. World Rice Statistics. International Rice Research Institute.
	Projected Rice Harvesting	FAPRI. 2010. U.S. and World Agricultural Outlook. Food and Agricultural Policy Research Institute.
Manure Management	Livestock Population Data	FAO. 2010. FAOSTAT Statistical Database. Food and Agriculture Organization of the United Nations.
	Livestock Product Growth Rates	IFPRI. 2009. International Food Policy Research Institute, Impact Model Growth Rate Spreadsheet.
Other Agriculture Sources	Biomass Burning Emissions	EC-JRC. 2009. Emission Database for Global Atmospheric Research (EDGAR), release version 4.0.
Waste		
Landfilling of Solid Waste	Population	Census, 2009. U.S. Census International Data Base.
	GDP	USDA. 2009. Real GDP (2005 dollars) Historical International Macroeconomic Data Set. U. S. Department of Agriculture Economic Research Service.
	Climate Zones	IPCC. 2003. Good Practice Guidance for Land Use, Land-Use Change and Forestry. The Intergovernmental Panel on Climate Change.

Emissions Source	Data Type	Data Source
Wastewater	Population	Census. 2009. U.S. Census International Data Base. CIA. 2010. The World Factbook. Central Intelligence Agency.
Human Sewage - Domestic Wastewater	Population Protein Consumption	Census. 2009. U.S. Census International Data Base. CIA. 2010. The World Factbook. Central Intelligence Agency. FAO. 2009. FAO Statistical Yearbook 2009. Food and Agriculture Organization of the United Nations.
Other Waste Sources	None	Country-reported data only.

Appendix I: Future Mitigation Measures Included in Developing Non-Country-Reported Estimates

Emissions Source	Future Mitigation Measures Included
Energy	
Natural Gas and Oil Systems	None.
Coal Mining Activities	Methane Abatement Projects.
Stationary and Mobile Combustion	None.
Biomass Combustion	None.
Other Energy Sources	None.
Industrial Processes	
Adipic Acid and Nitric Acid Production	None.
Use of Substitutes for Ozone Depleting Substances	None.
HCFC-22 Production	Thermal Oxidation Technology Abatement.
Operation of Electric Power Systems	Successful Attainment of Developed Country SF ₆ Reduction Goals; replacement of existing SF ₆ -insulated equipment with newer equipment that holds less SF ₆ and is more leak-tight (in developed countries only).
Primary Aluminum Production	None.
Magnesium Manufacturing	Voluntary SF ₆ cover gas use phase-out is assumed by 2010 for Austria, Denmark, France, Germany, Italy, Norway, Poland, Sweden, and Switzerland in compliance with the EU phase-out schedule. U.S. phase-out is assumed to be implemented by a majority of companies in 2010 under the U.S. Magnesium Industry Partnership goal. Canada and Japan are assumed to phase-out SF ₆ usage from 2010 through 2020.
Semiconductors Manufacturing	WSC Goal assumed to be attained individually by all WSC countries (except China) in 2010, and maintained through 2030. WSC member China assumed to set and achieve a WSC goal of a 10% reduction from a baseline year of 2012 for 2020 through 2030.
Flat Panel Display Manufacturing	Assumed abatement strategies are used to achieve the WLICC goal in Japan, South Korea and Taiwan in 2010 through 2030.
Photovoltaic Manufacturing	None.
Other Industrial Processes Sources	None.
Agriculture	
Agricultural Soils	None.
Enteric Fermentation	None.
Rice Cultivation	None.
Manure Management	None.
Other Agriculture Sources	None.
Waste	
Landfilling of Solid Waste	None.
Wastewater	None.
Human Sewage - Domestic Wastewater	None.
Other Waste Sources	None.

Appendix J: Regional Definitions

Africa

Algeria [○]	Egypt	Nigeria [○]	South Africa
Congo (Kinshasa)	Ethiopia	Senegal	Uganda

Rest of Africa

Angola [○]	Cote d'Ivoire	Libya [○]	Sao Tome and Principe
Benin	Djibouti	Madagascar	Seychelles
Botswana	Equatorial Guinea	Malawi	Sierra Leone
Burkina Faso	Eritrea	Mali	Somalia
Burundi	Gabon	Mauritania	Sudan
Cameroon	Gambia	Mauritius	Swaziland
Cape Verde	Ghana	Morocco	Tanzania
Central African Republic	Guinea	Mozambique	Togo
Chad	Guinea-Bissau	Namibia	Tunisia
Comoros	Kenya	Niger	Zambia
Congo (Brazzaville)	Lesotho	Rwanda	Zimbabwe
	Liberia		

Central and South America

Argentina	Brazil	Ecuador [○]	Uruguay
Bolivia	Colombia	Peru	Venezuela [○]

Rest of Central and South America

Antigua and Barbuda	Dominica	Haiti	Saint Kitts and Nevis
Bahamas	Dominican Republic	Honduras	Saint Lucia
Barbados	El Salvador	Jamaica	Saint Vincent and the Grenadines
Belize	Grenada	Nicaragua	Suriname
Costa Rica	Guatemala	Panama	Trinidad and Tobago
Cuba	Guyana	Paraguay	

Middle East

Iran [○]	Jordan	Saudi Arabia [○]
Iraq [○]	Kuwait [○]	United Arab Emirates [○]

Rest of Middle East

Bahrain	Oman	Syria
Lebanon	Qatar [○]	Yemen

Codes:

A – Annex I Countries	E – European Union Countries	O – OPEC Countries
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Note: In this report, when emissions totals are presented for a region, the regional sum includes the estimates for all of the individually reported countries *and* the aggregated value for the “Rest of” countries. For example, the emissions total for the “Middle East” found in the graphs and Appendices A through D, includes the sum of Iran, Iraq, Israel, Jordan, Kuwait, Saudi Arabia, the United Arab Emirates *and* the smaller emitters already aggregated under “Rest of Middle East”.

OECD

Australia ^A	Germany ^{A,E}	Mexico	South Korea
Austria ^{A,E}	Greece ^{A,E}	Netherlands ^{A,E}	Spain ^{A,E}
Belgium ^{A,E}	Hungary ^{A,E}	New Zealand ^A	Sweden ^{A,E}
Canada ^A	Iceland ^A	Norway ^A	Switzerland ^A
Chile	Ireland ^{A,E}	Poland ^{A,E}	Turkey ^A
Czech Republic ^{A,E}	Israel	Portugal ^{A,E}	United Kingdom (UK) ^{A,E}
Denmark ^{A,E}	Italy ^{A,E}	Slovakia ^{A,E}	United States (U.S.) ^A
Finland ^{A,E}	Japan ^A	Slovenia ^{A,E}	"Rest of OECD" ^{1,2}
France ^{A,E}	Luxembourg ^{A,E}		

Non-OECD Asia

Bangladesh	Indonesia	Pakistan
Burma	Laos	Philippines
Cambodia	Mongolia	Singapore
China	Nepal	Thailand
India	North Korea	Vietnam

Rest of Non-OECD Asia

Afghanistan	Maldives	Samoa
Bhutan	Marshall Islands	Solomon Islands
Brunei	Micronesia (Federated States of)	Sri Lanka
Cook Islands	Nauru	Timor-Leste
Fiji	Niue	Tonga
Kiribati	Palau	Tuvalu
Malaysia	Papua New Guinea	Vanuatu

Non-OECD Europe & Eurasia

Albania	Georgia	Monaco ^A
Armenia	Kazakhstan	Romania ^{A,E}
Azerbaijan	Kyrgyzstan	Russia ^A
Belarus ^A	Latvia ^{A,E}	Tajikistan
Bulgaria ^{A,E}	Lithuania ^{A,E}	Turkmenistan
Croatia ^A	Macedonia	Ukraine ^A
Estonia ^{A,E}	Moldova	Uzbekistan

Rest of Non-OECD Europe & Eurasia

Andorra	Holy See	Montenegro
Bosnia and Herzegovina	Liechtenstein ^A	San Marino
Cyprus ^E	Malta ^{A,E}	Serbia

Appendix K: U.S. EPA Vintaging Model Framework

Vintaging Model Overview

The Vintaging Model estimates emissions from six industrial sectors: refrigeration and air-conditioning, foams, aerosols, solvents, fire extinguishing, and sterilization. Within these sectors, over 60 independently modeled end-uses exist. The model requires information on the market growth for each of the end-uses, as well as a history of the market transition from ozone-depleting substances (ODS) to alternatives. As ODS are phased out, a percentage of the market share originally filled by the ODS is allocated to each of its substitutes.

The model, named for its method of tracking the emissions of annual “vintages” of new equipment that enter into service, is a “bottom-up” model. It models the consumption of chemicals based on estimates of the quantity of equipment or products sold, serviced, and retired each year, and the amount of the chemical required to manufacture and/or maintain the equipment. The Vintaging Model makes use of this market information to build an inventory of the in-use stocks of the equipment in each of the end-uses. Emissions are estimated by applying annual leak rates, service emission rates, and disposal emission rates to each population of equipment. By aggregating the emission and consumption output from the different end-uses, the model produces estimates of total annual use and emissions of each chemical. For the purpose of projecting the use and emissions of chemicals into the future, the available information about probable evolutions of the end-use market is incorporated into the model.

The following sections discuss the forms of the estimation equations used in the Vintaging Model for each broad end-use category. These equations are applied separately for each chemical used within each of over 60 different end-uses. In the majority of these end-uses, more than one ODS substitute chemical is used.

In general, the modeled emissions are a function of the amount of chemical consumed in each end-use market. Estimates of the consumption of ODS alternatives can be inferred by extrapolating forward in time from the amount of regulated ODS used in the early 1990s, adjusted for factors that might affect ODS substitute consumption, such as different charge sizes and lower emission rates. Using data gleaned from a variety of sources, assessments are made regarding which alternatives will likely be used, and what fraction of the ODS market in each end-use will be captured by that alternative. By combining this information with estimates of the total end-use market growth, a consumption value is estimated for each chemical used within each end-use.

Emissions Equations

Refrigeration and Air-Conditioning

For refrigeration and air conditioning products, emission calculations are split into two categories: emissions during equipment lifetime, which arise from annual leakage and service losses, and disposal emissions, which occur at the time of discard. Equation 1 calculates the lifetime emissions from leakage and service, and Equation 2 calculates the emissions resulting from disposal of the equipment. These lifetime emissions and disposal emissions are added to calculate the total emissions from refrigeration and air-conditioning (Equation 3). As new technologies replace older ones, it is generally assumed that there are improvements in their leak, service, and disposal emission rates. In addition, the charge size assumed for equipment using an ODS substitute may be different than that for equipment using the ODS.

Lifetime emissions from any piece of equipment include both the amount of chemical leaked during equipment operation and during service, including recharges. Emissions from leakage and servicing can be expressed as follows:

$$Es_j = (l_a + l_s) \times \sum Qc_{j,i+1} \text{ for } i=1 \rightarrow k \quad \text{Eq. 1}$$

Where:

- Es_j = Emissions from equipment serviced. Emissions in year j from normal leakage and servicing (recharging) of equipment.
- l_a = Annual leak rate. Average annual leak rate during normal equipment operation (expressed as a percentage of total chemical charge).
- l_s = Service leak rate. Average leakage during equipment servicing (expressed as a percentage of total chemical charge).
- Qc = Quantity of chemical in new equipment. Total amount of a specific chemical used to charge new equipment in a given year, by weight.
- k = Lifetime. The average lifetime of the equipment.
- j = Year of emission.
- i = Counter. Runs from 1 to lifetime (k).

The disposal emission equations assume that a certain percentage of the chemical charge will be emitted to the atmosphere when that vintage is discarded. Disposal emissions are thus a function of the quantity of chemical contained in the retiring equipment fleet and the proportion of chemical released at disposal:

$$Ed_j = Qc_{j-k+1} \times [1 - (rm \times rc)] \quad \text{Eq. 2}$$

Where:

- Ed_j = Emissions from equipment disposed. Emissions in year j from the disposal of equipment.
- Qc = Quantity of chemical in new equipment. Total amount of a specific chemical used to charge new equipment one lifetime (k) ago (e.g., $j-k+1$), by weight.
- rm = Chemical remaining. Amount of chemical remaining in equipment at the time of disposal (expressed as a percentage of total chemical charge)
- rc = Chemical recovery rate. Amount of chemical that is recovered just prior to disposal (expressed as a percentage of chemical remaining at disposal (rm))
- k = Lifetime. The average lifetime of the equipment.
- j = Year of emission.

$$E_j = Es_j + Ed_j \quad \text{Eq. 3}$$

Where:

- E_j = *Total emissions*. Emissions from refrigeration and air conditioning equipment in year j .
- E_s = *Emissions from equipment serviced*. Emissions in a given year from normal leakage and servicing (recharging) of equipment.
- E_d = *Emissions from equipment disposed*. Emissions in a given year from the disposal of equipment.
- j = *Year of emission*.

Aerosols

All HFCs used in aerosols are assumed to be emitted in the year of manufacture. Since there is currently no aerosol recycling, it is assumed that all of the annual production of aerosol propellants is released to the atmosphere. Equation 4 describes the emissions from the aerosols sector.

$$E_j = Qc_j \quad \text{Eq. 4}$$

Where:

- E_j = *Emissions*. Total emissions of a specific chemical in year j from use in aerosol products, by weight.
- Qc = *Quantity of chemical*. Total quantity of a specific chemical contained in aerosol products sold in a given year, by weight.
- j = *Year of Emission*.

Solvents

Generally during the solvent cleaning process, a portion of used solvent is assumed to remain in the liquid phase and is not emitted as gas. Thus, emissions are considered “incomplete,” and are set as a percentage of the amount of solvent consumed in a year. The remainder of the consumed solvent is assumed to be reused or disposed without being released to the atmosphere. Equation 5 calculates emissions from solvent applications.

$$E_j = l \times Qc_j \quad \text{Eq. 5}$$

Where:

- E_j = *Emissions*. Total emissions of a specific chemical in year j from use in solvent applications, by weight.
- l = *Percent leakage*. The percentage of the total chemical that is lost to the atmosphere, assumed to be 90%.
- Qc = *Quantity of chemical*. Total quantity of a specific chemical sold for use in solvent applications in a given year, by weight.
- j = *Year of emission*.

Fire Extinguishing

Total emissions from fire extinguishing are assumed, in aggregate, to equal a percentage of the total quantity of chemical in operation at a given time (Equation 6). For modeling purposes, it is assumed that fire extinguishing equipment leaks at a constant rate for an average equipment lifetime.

$$E_j = r \times \sum Q_{c_{j+i}} \quad \text{for } i=1 \rightarrow k \quad \text{Eq. 6}$$

Where:

- E_j = *Emissions*. Total emissions of a specific chemical in year j for fire extinguishing equipment, by weight.
- r = *Percent Released*. The percentage of the total chemical in operation that is released to the atmosphere.
- Q_c = *Quantity of chemical*. Total amount of a specific chemical used in new fire extinguishing equipment one lifetime (k) ago (e.g., $j-k+1$), by weight.
- i = *Counter*. Runs from 1 to lifetime (k).
- j = *Year of emission*.
- k = *Lifetime*. The average lifetime of the equipment.

Foam Blowing

Foams are given emission profiles depending on the foam type (open cell or closed cell). Open cell foams are assumed to be 100% emissive in the year of manufacture, as described in Equation 7 below. Closed cell foams are assumed to emit a portion of their total HFC content upon manufacture, a portion at a constant rate over the lifetime of the foam, a portion at disposal, and a portion post-disposal, as described in Equations 8 through 12, below.¹

Open-Cell Foam

$$E_j = Q_c \quad \text{Eq. 7}$$

Where:

- E_j = *Emissions*. Total emissions of a specific chemical in year j used for open-cell foam blowing, by weight.
- Q_c = *Quantity of chemical*. Total amount of a specific chemical used for open-cell foam blowing in a given year, by weight.
- j = *Year of emission*.

Closed-Cell Foam

Emissions from closed-cell foams occur at many different stages, including manufacturing, lifetime, disposal and post-disposal.

¹ Emissions from foams may vary because of handling and disposal of the foam; shredding of foams may increase emissions, while landfilling of foams may abate some emissions (Scheutz and Kjeldsen, 2002; Scheutz and Kjeldsen, 2003). Average annual emissions are assumed in the model, which may not fully account for the range of foam handling and disposal practices.

Manufacturing emissions occur in the year of foam manufacture, and are calculated as presented in Equation 8.

$$Em_j = lm \times Qc_j \quad Eq. 8$$

Where:

- Em_j = *Emissions from manufacturing.* Total emissions of a specific chemical in year j due to manufacturing losses, by weight.
- lm = *Loss Rate.* Percent of original blowing agent emitted during foam manufacture.
- Qc = *Quantity of chemical.* Total amount of a specific chemical used to manufacture closed-cell foams in a given year.
- j = *Year of emission.*

Lifetime emissions occur annually from closed cell foams throughout the lifetime of the foam, as calculated using Equation 9.

$$Eu_j = lu \times \sum Qc_{j+i,l} \text{ for } i = 1 \rightarrow k \quad Eq. 9$$

Where:

- Eu_j = *Emissions from lifetime losses.* Total emissions of a specific chemical in year j due to lifetime losses during use, by weight.
- lu = *Leak Rate.* Percent of original blowing agent emitted during lifetime use.
- Qc = *Quantity of chemical.* Total amount of a specific chemical used to manufacture closed-cell foams in a given year.
- k = *Lifetime.* Average lifetime of foam product.
- i = *Counter.* Runs from 1 to lifetime (k).
- j = *Year of Emission.*

Disposal emissions occur in the year the foam is disposed, and are calculated as presented in Equation 10.

$$Ed_j = ld \times Qc_{j,k} \quad Eq. 10$$

Where:

- Ed_j = *Emissions from disposal.* Total emissions of a specific chemical in year j at disposal, by weight.
- ld = *Loss Rate.* Percent of original blowing agent emitted at disposal.
- Qc = *Quantity of chemical.* Total amount of a specific chemical used to manufacture closed-cell foams in a given year.

- k = *Lifetime*. Average lifetime of foam product.
 j = *Year of emission*.

Post-disposal emissions occur in the years after the foam is disposed, and are assumed to occur while the disposed foam is in a landfill. Currently, the only foam type assumed to have post-disposal emissions is polyurethane appliance foam, which is expected to continue to emit for 32 years post-disposal, and are calculated as presented in Equation 11.

$$Ep_j = lp \times \sum Qc_{j-m} \text{ for } m = k \rightarrow k + 32 \quad \text{Eq. 11}$$

Where:

- Ep_j = *Emissions post disposal*. Total post-disposal emissions of a specific chemical in year j , by weight.
 lp = *Leak rate*. Percent of original blowing agent emitted post disposal.
 Qc = *Quantity of chemical*. Total amount of a specific chemical used in closed-cell foams in a given year.
 k = *Lifetime*. Average lifetime of foam product.
 m = *Counter*. Runs from lifetime (k) to ($k + 32$).
 j = *Year of emission*.

To calculate total emissions from foams in any given year, emissions from all foam stages must be summed, as presented in Equation 12.

$$E_j = Em_j + Eu_j + Ed_j + Ep_j \quad \text{Eq. 12}$$

Where:

- E_j = *Total emissions*. Total emissions of a specific chemical in year j , by weight.
 Em_j = *Emissions from manufacturing losses*. Total emissions of a specific chemical in year j due to manufacturing losses, by weight.
 Eu_j = *Emissions from lifetime losses*. Total emissions of a specific chemical in year j due to lifetime losses during use, by weight.
 Ed_j = *Emissions at disposal*. Total emissions of a specific chemical in year j due to disposal, by weight.
 Ep_j = *Emissions post disposal*. Total post-disposal emissions of a specific chemical in year j , by weight.

Sterilization

For sterilization applications, all chemicals that are used in the equipment in any given year are assumed to be emitted in that year, as shown in Equation 13.

$$E_j = Qc_j \quad \text{Eq. 13}$$

Where:

- E_j = *Emissions*. Total emissions of a specific chemical in year j from use in sterilization equipment, by weight.
- Q_c = *Quantity of chemical*. Total quantity of a specific chemical used in sterilization equipment in a given year, by weight.
- j = *Year of emission*.

Model Output

By repeating these calculations for each year from 1985-2050, the Vintaging Model creates annual profiles of use and emissions for ODS and ODS substitutes. The results can be shown for each year in two ways: 1) on a chemical-by-chemical basis, summed across the end-uses, or 2) on an end-use basis. Values for use and emissions are calculated in metric tons, ozone depleting tons, and in million metric tons of carbon dioxide equivalents (MtCO₂eq). The conversion of metric tons of chemical to MtCO₂eq is accomplished through a linear scaling of tonnage by the global warming potential (GWP) of each chemical. The model can produce the values for use and emissions in MtCO₂Eq. using chemical GWPs from IPCC's Second, Third, or Fourth Assessment Reports (IPCC, 1996; IPCC, 2001; IPCC, 2007).