

Greenhouse Gas Emissions by Source

Sources: International Energy Agency (IEA); Carbon Dioxide Information Analysis Center (CDIAC);
The Emission Database for Global Atmospheric Research (EDGAR); United Nations Population Division (UNPD).

EarthTrends Data Tables:
Climate
and
Atmosphere



	Carbon Dioxide (CO ₂) Emissions								Per Capita CO ₂ Emissions		Methane Emissions		Nitrous Oxide Emissions									
	All Fuels		Solid Fuels		Liquid Fuels		Gaseous Fuels		Emissions		(1000 metric tons CO ₂ equivalent) (a)		metric tons CO ₂ equivalent) (a)									
	(1000 metric tons)	Percent Change Since	(1000 metric tons)	Percent Change Since	(1000 metric tons)	Percent Change Since	(1000 metric tons)	Percent Change Since	(kilo-grams per person)	Percent Change	metric tons	Percent Change	metric tons	Percent Change								
	1999	1990	1999	1990	1999	1990	1999	1990	1999	1990	1995	1990	1995	1990								
WORLD	23,172,220	9	8,851,400	3	9,669,430	9	4,651,390	21	3,870	(4)	6,340,334	0	3,569,619	2								
ASIA (EXCL. MIDDLE EAST)	6,901,740	38	3,919,150	24	2,340,930	47	641,680	153	2,100	19	2,562,369	6	1,177,151	14								
Armenia	2,960	..	10	..	630	..	2,320	..	780	..	1,743	(44)	544	(40)								
Azerbaijan	33,190	..	0	..	21,260	..	11,930	..	4,150	..	9,901	(32)	3,102	(24)								
Bangladesh	26,330	83	180	(83)	10,110	78	16,030	111	190	46	84,593	4	29,335	31								
Bhutan	..	..	..	..	..	..	..	..	..	..	893	0	247	(9)
Cambodia	..	..	..	..	..	..	..	..	..	..	12,803	(4)	4,348	17
China	3,051,110	b	26	b	2,420,540	b	16	b	567,530	b	84	b	63,040	b	91	b	2,530	17	958,944	7	538,477	20
Georgia	5,250	..	50	..	3,590	..	1,610	..	990	..	3,051	(47)	1,314	(51)								
India	903,820	53	608,150	48	247,790	58	47,880	105	910	32	655,471	5	256,699	13								
Indonesia	244,920	77	44,920	192	139,190	48	60,810	108	1,170	56	214,714	19	66,595	11								
Japan	1,158,470	c	10	c	331,130	c	19	c	682,190	c	2	c	145,150	c	44	c	9,130	8	60,645	5	29,926	(3)
Kazakhstan	114,450	..	77,820	..	20,570	..	16,060	..	7,030	..	42,130	(24)	18,335	(22)								
Korea, Dem People's Rep	214,330	(1)	203,840	0	10,490	(22)	0	..	9,690	(11)	10,037	2	8,445	(8)								
Korea, Rep	410,410	76	141,550	50	233,430	76	35,430	456	8,840	62	27,287	(1)	12,284	35								
Kyrgyzstan	4,730	..	2,010	..	1,550	..	1,180	..	970	..	4,126	(12)	3,078	(27)								
Lao People's Dem Rep	..	..	..	..	..	..	..	..	..	..	6,836	14	3,562	15
Malaysia	101,270	90	3,130	(6)	60,160	67	37,980	174	4,640	56	24,361	14	12,316	6								
Mongolia	..	..	..	..	..	..	..	..	..	..	8,220	11	12,522	25
Myanmar	9,020	122	110	(56)	5,940	183	2,980	74	190	90	49,639	24	15,847	10								
Nepal	3,010	234	820	332	2,190	208	0	..	130	225	34,143	1	6,305	11								
Pakistan	92,160	49	8,230	3	52,610	68	31,310	39	660	18	92,463	12	68,392	22								
Philippines	66,320	69	14,500	184	51,810	52	10	..	890	39	44,492	15	20,071	7								
Singapore	53,230	53	0	..	49,910	44	3,330	..	13,580	18	1,118	50	923	409								
Sri Lanka	9,610	141	0	..	9,610	143	0	..	510	122	10,652	4	2,670	11								
Tajikistan	5,710	..	210	..	4,010	..	1,500	..	940	..	3,753	2	2,305	(26)								
Thailand	155,820	95	29,910	89	90,910	75	35,000	196	2,510	73	73,091	6	23,650	11								
Turkmenistan	33,850	..	0	..	8,820	..	25,030	..	7,300	..	19,249	(42)	4,583	(37)								
Uzbekistan	117,520	..	4,230	..	20,220	..	93,070	..	4,790	..	45,237	9	10,450	(27)								
Viet Nam	36,560	104	12,550	31	21,870	161	2,150	21,400	470	74	59,131	12	20,498	47								
EUROPE	5,892,330	..	1,879,500	..	2,198,090	..	1,814,740	..	8,090	..	1,163,981	(19)	606,749	(20)								
Albania	1,470	(77)	30	(99)	1,410	(59)	30	(94)	460	(77)	2,333	5	2,190	(19)								
Austria	60,530	6	11,960	(26)	32,800	14	15,770	32	7,480	1	8,161	(1)	6,517	0								
Belarus	57,050	..	3,310	..	21,860	..	31,880	..	5,570	..	16,647	(13)	11,302	(32)								
Belgium	118,700	12	28,820	(26)	59,360	22	30,520	63	11,600	9	9,881	(3)	12,299	(2)								
Bosnia and Herzegovina	5,320	..	1,630	..	3,120	..	570	..	1,380	..	1,436	(28)	620	(46)								
Bulgaria	43,770	(43)	26,110	(30)	11,670	(57)	5,990	(50)	5,440	(38)	6,548	(32)	8,551	(41)								
Croatia	19,040	..	910	..	13,370	..	4,770	..	4,090	..	3,407	(14)	3,402	(9)								
Czech Rep	110,590	(26)	71,990	(38)	20,540	(8)	18,060	47	10,750	(26)	16,208	(27)	7,826	(33)								
Denmark	53,290	d	7	d	18,010	d	24,940	d	14	d	10,340	d	148	d								
Estonia	14,700	..	10,880	..	2,590	..	1,220	..	10,420	..	1,600	(39)	812	(50)								
Finland	57,840	8	21,400	(0)	28,670	7	7,780	53	11,200	5	7,345	(1)	5,734	(6)								
France	361,380	e	1	e	58,730	e	24	e	223,800	e	1	e	78,850	e								
Germany	821,660	(15)	315,720	(39)	339,390	4	166,550	33	10,010	(18)	92,571	(16)	78,022	(12)								
Greece	81,510	18	36,390	9	42,390	20	2,730	992	7,690	13	6,492	2	14,031	1								
Hungary	57,850	(14)	16,990	(32)	17,920	(20)	22,940	12	5,770	(11)	12,231	(14)	7,406	(36)								
Iceland	2,060	3	230	(12)	1,830	5	0	..	7,430	(5)	343	(1)	433	(12)								
Ireland	39,920	24	10,120	(32)	23,110	75	6,690	66	10,600	16	11,941	3	13,861	9								
Italy	420,510	6	44,840	(20)	246,570	(2)	129,100	44	7,300	4	40,070	(5)	33,045	(3)								
Latvia	6,780	..	370	..	4,100	..	2,310	..	2,780	..	2,234	(48)	1,121	(58)								
Lithuania	13,030	..	540	..	8,620	..	3,870	..	3,520	..	3,962	(49)	1,939	(53)								
Macedonia, FYR	10,030	5	7,210	12	2,740	(13)	80	..	4,960	(1)	1,386	19	1,185	28								
Moldova, Rep	6,560	..	420	..	1,400	..	4,740	..	1,520	..	3,642	(24)	2,387	(27)								
Netherlands	166,570	f	6	f	28,320	f	(16)	f	59,410	f	13	f	78,840	f								
Norway	37,140	30	4,310	21	21,710	7	11,110	140	8,340	24	10,060	32	3,450	5								
Poland	310,200	(11)	236,560	(20)	53,730	58	19,120	2	8,020	(12)	82,678	(8)	31,524	(7)								
Portugal	61,130	g	53	g	14,630	g	37	g	41,970	g	43	g	4,530	g								
Romania	86,590	(50)	27,640	(47)	27,440	(48)	31,510	(53)	3,850	(48)	28,956	(32)	17,344	(2)								
Russian Federation	1,486,310	..	426,770	..	335,750	..	723,790	..	10,160	..	498,071	(21)	64,113	(50)								
Serbia and Montenegro	41,860	(30)	29,840	(23)	8,630	(43)	3,390	(44)	3,960	(33)	9,591	(25)	6,792	(27)								
Slovakia	39,360	(29)	20,110	(34)	6,170	(52)	13,080	11	7,290	(31)	5,879	(21)	2,838	(36)								
Slovenia	15,010	17	5,790	(1)	7,320	40	1,900	7	7,540	13	1,596	(8)	1,076	1								
Spain	272,010	h	29	h	74,740	h	(1)	h	166,560	h	34	h	30,720	h								
Sweden	48,230	(1)	9,870	(14)	36,690	3	1,670	36	5,440	(4)	7,734	1	6,698	3								
Switzerland	39,850	i	(3)	i	380	i	(73)	i	33,750	i	(6)	i	5,720	i								
Ukraine	378,970	..	177,400	..	52,450	..	149,120	..	7,570	..	100,932	(31)	32,728	(43)								
United Kingdom	535,290	(6)	136,090	(45)	205,880	(5)	193,320	78	9,030	(9)	52,260	(23)	66,267	(5)								
MIDDLE EAST & N. AFRICA	1,339,190	45	122,460	36	743,860	27	472,840	92	3,580	20	289,159	16	185,725	3								
Afghanistan	..	..	..	..	..	..	..	..	..	..	10,556	22	6,926	24
Algeria	68,190	20	2,040	(11)	20,890	(1)	45,260	35	2,290	0	20,179	9	8,555	(3)								
Egypt	110,260	34	3,140	(13)	76,200	18	30,920	107	1,650	13	27,284	17	19,464	25								
Iran, Islamic Rep	263,240	46	4,730	95	144,310	5	114,200	180	3,800	23	67,333	23	52,656	9								
Iraq	81,090	48	0	..	71,440	52	9,640	21	3,630	15	8,657	(22)	5,924	(10)								
Israel	55,880	58	22,260	139	33,600	29	20	(60)	9,450	21	1,133	12	2,192	1								
Jordan	13,380	43	0	..	12,870	41	500	108	2,790	(3)	1,386	28	1,456	25								
Kuwait	46,480	122	0	..	29,680	226	16,800	42	25,150	157	7,385	9	255	3								
Lebanon	15,590	144	510	..	15,080	136	0	..	4,530	93	894	22	1,007	36								
Libyan Arab Jamahiriya	41,3																					

Greenhouse Gas Emissions by Source



	Carbon Dioxide (CO ₂) Emissions								Per Capita CO ₂ Emissions		Methane Emissions		Nitrous Oxide Emissions	
	All Fuels		Solid Fuels		Liquid Fuels		Gaseous Fuels		Emissions		(1000 metric tons CO ₂ equivalent) (a)	(1000 metric tons CO ₂ equivalent) (a)	metric tons CO ₂ equivalent (a)	Percent Change Since 2000
	(1000 metric tons)	Percent Change Since 1990	(1000 metric tons)	Percent Change Since 1990	(1000 metric tons)	Percent Change Since 1990	(1000 metric tons)	Percent Change Since 1990	(kilo-grams per person)	Percent Change Since 1990	1995	1990	0	0
	1999	1990	1999	1990	1999	1990	1999	1990	1999	1990	1995	1990	0	0
SUB-SAHARAN AFRICA	..	..	..	..	..	..	..	..	..	..	488,158	6	378,074	3
Angola	4,810	12	0	..	3,740	14	1,070	4	370	(18)	14,376	5	5,499	8
Benin	1,180	392	0	..	1,180	392	0	..	190	280	3,003	10	2,424	14
Botswana	..	..	..	..	..	..	..	..	..	..	6,350	2	4,339	(2)
Burkina Faso	..	..	..	..	..	..	..	..	..	..	8,045	11	10,516	10
Burundi	..	..	..	..	..	..	..	..	..	..	1,611	5	1,086	(2)
Cameroon	2,580	(5)	0	..	2,580	(5)	0	..	170	(26)	10,760	2	8,802	6
Central African Rep	..	..	..	..	..	..	..	..	..	..	5,987	4	4,531	6
Chad	..	..	..	..	..	..	..	..	..	..	8,774	6	7,797	9
Congo	370	(53)	0	..	370	(53)	0	..	120	(66)	2,930	10	924	13
Congo, Dem Rep	2,450	(41)	880	(1)	1,570	(52)	0	..	40	(64)	29,319	6	19,908	3
Côte d'Ivoire	4,690	53	0	..	1,730	(44)	2,960	..	290	21	5,930	10	2,592	5
Equatorial Guinea	..	..	..	..	..	..	..	..	..	..	317	18	190	14
Eritrea	620	..	0	..	620	..	0	..	170	..	2,204	6	1,410	6
Ethiopia	2,930	22	0	..	2,930	22	0	..	40	(20)	41,873	7	52,933	4
Gabon	1,490	31	0	..	1,330	36	160	0	1,240	2	..	..	..	..
Gambia	..	..	..	..	..	..	..	..	..	..	596	3	454	(8)
Ghana	4,390	68	0	..	4,390	68	0	..	230	35	6,468	22	6,660	47
Guinea	..	..	..	..	..	..	..	..	..	..	5,220	8	2,159	16
Guinea-Bissau	..	..	..	..	..	..	..	..	..	..	827	(5)	695	11
Kenya	7,650	17	170	(53)	7,480	21	0	..	250	(7)	19,548	1	20,244	(7)
Lesotho	..	..	..	..	..	..	..	..	..	..	1,132	10	1,362	(6)
Liberia	..	..	..	..	..	..	..	..	..	..	1,067	(16)	753	(2)
Madagascar	..	..	..	..	..	..	..	..	..	..	17,210	4	10,396	0
Malawi	..	..	..	..	..	..	..	..	..	..	3,318	7	2,041	1
Mali	..	..	..	..	..	..	..	..	..	..	10,881	(1)	12,336	11
Mauritania	..	..	..	..	..	..	..	..	..	..	4,004	3	5,760	1
Mozambique	1,070	7	0	..	1,070	23	0	..	50	(29)	10,108	7	2,899	(2)
Namibia	2,220	..	10	..	2,200	..	0	..	1,280	..	4,133	(4)	3,737	(12)
Niger	..	..	..	..	..	..	..	..	..	..	5,912	13	4,481	15
Nigeria	38,390	0	140	(7)	25,950	(15)	12,300	61	340	(23)	70,007	17	33,474	15
Rwanda	..	..	..	..	..	..	..	..	..	..	1,991	(24)	1,048	(23)
Senegal	3,280	50	0	..	3,270	50	10	0	350	21	6,183	11	7,852	22
Sierra Leone	..	..	..	..	..	..	..	..	..	..	2,383	(1)	843	17
Somalia	..	..	..	..	..	..	..	..	..	..	16,661	1	22,218	(14)
South Africa	346,310	19	316,120	23	26,640	(11)	3,550	1	8,100	1	53,604	3	23,547	(9)
Sudan	5,390	(1)	0	..	5,390	(1)	0	..	170	(23)	42,350	7	42,203	7
Tanzania, United Rep	2,200	8	10	0	2,180	7	0	..	60	(14)	28,802	7	24,297	4
Togo	880	63	0	..	880	63	0	..	200	33	1,938	9	2,056	3
Uganda	..	..	..	..	..	..	..	..	..	..	9,816	10	7,799	7
Zambia	1,890	(23)	400	(59)	1,490	1	0	..	180	(40)	10,145	3	4,931	1
Zimbabwe	13,650	(6)	9,520	(23)	4,130	89	0	..	1,100	(22)	10,019	(8)	7,686	(15)
NORTH AMERICA	6,073,960	15	2,218,720	18	2,474,450	11	1,380,810	20	19,530	5	958,081	2	534,965	12
Canada	489,200	16	109,110	15	219,200	9	160,900	28	16,040	5	122,571	48	62,054	26
United States	5,584,760	j	2,109,610	18	2,255,250	11	1,219,910	19	19,910	5	835,445	(3)	472,906	10
C. AMERICA & CARIBBEAN	464,260	22	26,660	105	349,080	14	88,500	44	2,820	4	148,575	2	105,115	(8)
Belize	..	..	..	..	..	..	..	..	..	..	211	16	216	11
Costa Rica	4,700	67	0	..	4,700	68	0	..	1,190	29	3,404	(9)	3,483	(12)
Cuba	28,350	(11)	100	(82)	27,370	(12)	880	1,367	2,540	(15)	8,641	(13)	9,098	(35)
Dominican Rep	17,790	91	560	1,300	17,230	86	0	..	2,150	64	5,613	6	4,199	1
El Salvador	5,310	127	0	..	5,310	127	0	..	860	91	3,068	12	2,163	5
Guatemala	8,320	127	0	..	8,320	127	0	..	750	83	5,841	(1)	5,060	6
Haiti	1,380	47	0	..	1,380	52	0	..	170	31	3,181	11	2,578	4
Honduras	4,310	98	130	..	4,170	92	0	..	680	55	4,689	(7)	3,468	(2)
Jamaica	10,050	27	160	14	9,890	27	0	..	3,930	17	1,270	4	1,225	1
Mexico	358,210	21	25,570	110	261,120	12	71,520	37	3,670	3	98,439	3	64,377	(7)
Nicaragua	3,390	95	0	..	3,390	95	0	..	680	51	5,000	7	3,965	6
Panama	4,810	77	140	75	4,670	78	0	..	1,710	51	3,119	5	2,639	5
Trinidad and Tobago	15,620	28	0	..	(490)	(118)	16,100	69	12,120	20	2,921	16	282	(17)
SOUTH AMERICA	744,860	41	79,110	24	492,110	40	173,610	55	2,180	22	587,542	8	432,707	6
Argentina	142,740	37	2,420	(31)	67,350	19	72,970	66	3,900	22	86,624	5	67,269	3
Bolivia	9,840	85	0	..	6,890	80	2,950	99	1,200	50	16,306	5	15,030	5
Brazil	305,550	52	48,820	35	244,570	53	12,150	143	1,810	34	301,555	6	243,797	7
Chile	58,950	92	16,500	65	31,130	81	11,320	225	3,920	68	16,426	16	9,186	13
Colombia	56,500	16	9,640	(19)	35,420	22	11,440	45	1,360	(2)	53,699	9	21,289	1
Ecuador	19,330	44	0	..	18,730	45	600	13	1,550	19	14,065	16	9,928	12
Guyana	..	..	..	..	..	..	..	..	..	..	1,354	54	778	9
Paraguay	3,990	102	0	..	3,990	102	0	..	740	61	11,653	(0)	9,949	(0)
Peru	21,150	18	1,590	145	18,040	11	1,510	61	830	1	18,750	9	15,019	5
Suriname	..	..	..	..	..	..	..	..	..	..	820	9	362	5
Uruguay	6,780	74	0	..	6,730	73	40	..	2,040	63	16,664	18	16,489	9
Venezuela	120,030	20	140	(93)	59,260	19	60,630	25	5,060	(1)	49,414	19	22,838	5
OCEANIA	..	..	..	..	..	..	..	..	..	..	132,521	(2)	138,878	(7)
Australia	321,570	24	187,680	36	91,580	4	42,310	24	16,980	10	101,468	(2)	94,554	(11)
Fiji	..	..	..	..	..	..	..	..	..	..	767	21	1,032	11
New Zealand	30,550	33	4,270	(3)	16,480	67	9,800	13	8,150	20	26,258	(4)	31,370	(7)
Papua New Guinea	..	..	..	..	..	..	..	..	..	..	3,091	12	2,174	9
Solomon Islands	..	..	..	..	..	..	..	..	..	..	115	1	104	(2)
DEVELOPED	14,196,730	..	5,044,010	..	5,603,680	..	3,549,080	..	10,830	..	2,494,297	(10)	1,367,008	(8)
DEVELOPING	8,020,170	37	3,720,790	22	3,204,020	45	1,095,260	88	1,820	18	3,836,089	8	2,192,357	10

Negative values are shown in parentheses. a. Methane and Nitrogen Oxides are more powerful greenhouse gases than CO₂. Emissions of these gases are adjusted to CO₂ equivalents to convey the degree they contribute as compared to CO₂. b. China includes the People's Republic of China and Hong Kong but excludes Taiwan. c. Japan includes Okinawa. The Japanese National Communication uses fiscal years, whereas the IEA uses calendar years. d. Denmark excludes Greenland and the Danish Faroes. e. France includes Monaco, and excludes overseas departments (French Polynesia, Guadeloupe, Martinique, and La Réunion). f. The Netherlands excludes Suriname and the Netherlands Antilles. g. Portugal includes the Azores and Madeira. h. Spain includes the Canary Islands. i. Switzerland includes Liechtenstein. The IEA estimate differs from the Second National Communication to the UNFCCC (April 1997). In part, these differences are because Switzerland calculates Road Transport emissions net of cross-border fuel transactions. j. United States includes Puerto Rico, Guam, the Virgin Islands and the Hawaiian Free Trade

Technical Notes

VARIABLE DEFINITIONS AND METHODOLOGY

Total Carbon Dioxide Emissions include emissions from combustion of all fossil fuels (whether solid, liquid, or gaseous) used by a country. Values are reported in thousand metric tons (tonnes) of carbon dioxide (CO₂).

Emissions from Solid Fuels show the mass of CO₂ released in the combustion of all coal and coal-based products. Both primary (hard coal and lignite) and derived fuels (patent fuel, coke oven coke, gas coke, BKB, coke oven gas, gas works gas and blast furnace gas) are included. Peat is also included in this category.

Liquid Fuels shows emissions from combustion of crude oil, natural gas liquids, motor gasoline, gas/diesel oil, aviation gasoline, jet fuels, kerosene, refinery feedstocks, additives, refinery gas, ethane, LPG, heavy fuel oil, naphtha, white spirit, lubricants, bitumen, paraffin waxes, petroleum coke and other petroleum products.

Gaseous Fuels shows emissions from combustion of natural gases (excluding natural gas liquids), occurring in underground deposits, consisting mainly of methane.

Values for CO₂ emissions by source are calculated by the International Energy Agency (IEA) using the methods and emissions factors in the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories (Guidelines)*, available at <http://www.ipcc-nggip.iges.or.jp/public/gl/invs1.htm>. The IPCC allows countries to use either the reference or the sectoral approach when reporting their emissions. The figures provided here are based on the reference approach, which calculates emissions from the carbon content of fuels supplied to a country's economy. In contrast, the sectoral approach estimates emissions based on the combustion rather than the supply of fossil fuels.

The reference approach captures refining, flaring, and other "fugitive emissions" that do not result directly from end-use fossil fuel combustion. Apparent consumption of fuels is calculated as production minus exports plus imports. Net stock changes are either added or subtracted. International marine and aviation bunkers (fuels used for international transport) are subtracted from the national total as well, as these figures are accounted for separately. The production of secondary fuels is not accounted for, because the carbon contained in those fuels is already included in the primary fuel. However, imports and exports of secondary fuels are included in calculations. Stored carbon from fuels used for non-energy purposes is subtracted from the total carbon emissions. Emissions from biomass fuels are not included in these estimates because the IPCC assumes that such emissions are equal sequestration during regrowth.

Per capita CO₂ emissions is the amount of CO₂ emitted, on average, from all sources for each person living in the specified country. These estimates do not include bunker fuels used in international transportation due to the difficulty of apportioning these fuels among the countries benefiting from that transport.

WRI calculates per capita CO₂ emissions using emissions data from the IEA and population data from the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat.

Methane (CH₄) and Nitrous Oxide (N₂O) Emissions include emissions, in thousand metric tons of CO₂ equivalent, from energy, agriculture, waste, and other sources. Emissions from energy result from the production, handling, transmission, and combustion of fossil and biofuels (IPCC categories 1A and 1B). Agricultural emissions result from animals, animal wastes, rice production, savanna burning, and agricultural waste burning not intended for energy production (IPCC category 4). Emissions from "waste" are from landfills, wastewater treatment and disposal, and waste incineration not intended for energy production (IPCC category 6). Other sources of methane and nitrous oxide emissions include industrial process emissions, and tropical and temperate forest fires (IPCC categories 2 and 5).

To estimate emissions of the individual gases, the Emission Database for Global Atmospheric Research (EDGAR) uses data on the level of agricultural, energy, and waste activities. Activity data were multiplied by emissions factors for each activity to estimate the levels of methane and nitrous oxide released. The emissions factors were primarily from Olivier et al. (1999), "Sectoral emission inventories of greenhouse gases for 1990 on a per country basis as well as on 1° x 1°." Various factors were taken from other international

and national-level sources. For more information, please see: <http://www.rivm.nl/env/int/coredata/edgar/v2/index.html>.

FREQUENCY OF UPDATE BY DATA PROVIDERS

The IEA and CDIAC update their data annually. The National Institute for Public Health and the Environment (RIVM) calculates emissions of methane and nitrous oxide periodically.

DATA RELIABILITY AND CAUTIONARY NOTES:

CO₂ Emissions Data: The IEA CO₂ emissions data are based on well-established and institutionalized accounting methodologies and undergo thorough review and adjustments. The reference and sectoral approaches will, in most cases, give very similar results. However, because the reference approach is calculated using energy supply, it can lead to slight overestimates. For some countries, especially developing countries, statistical differences in basic data or unexplained differences in the two approaches can lead to significant discrepancies. Individual countries may use different energy figures than the IEA or treat bunker fuels differently. Countries may use specific calorific values, instead of the averages used by IEA. Also, military emissions may be treated differently by the IEA. As a result, the data shown here can differ from the numbers reported by a country to the IPCC.

Per Capita CO₂ emissions: The primary difference between CDIAC and International Energy Agency (IEA) CO₂ emission estimates (also available from EarthTrends) is that the CDIAC data include emissions from sources other than fossil fuel combustion, primarily cement manufacture. CO₂ emission estimates from 1950 to present are derived primarily from energy statistics published by the United Nations in their Energy Statistics Yearbook 2001. The statistics are compiled by the U.N. from annual questionnaires filled out by countries and supplemented by official national statistics. However, the process of verifying and supplementing national data is not as extensive as that undertaken by the International Energy Agency.

Although estimates of world CO₂ emissions are probably within 10 percent of actual emissions, individual country estimates may depart more severely from reality. The trends demonstrated in a consistent, uniform time series are usually more accurate than individual values in the time series.

Methane and Nitrous Oxide Emissions: The methane and nitrous oxide emissions data are calculated using a standardized methodology and reviewed for accuracy by the United Nations Framework Convention on Climate Change (UNFCCC).

SOURCES

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