

World on the Edge - Food and Agriculture Data - Irrigation and Soils

[World Irrigated Area and Irrigated Area Per Thousand People, 1950-2008](#)

GRAPH: World Irrigated Area, 1950-2008

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[Irrigated Area in the United States by State and Country Total, 1964-2007](#)

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[World Fertilizer Consumption, 1950-2009](#)

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[Net Carbon Emissions from Land Use Change, 1850-2005](#)

GRAPH: Net Carbon Emissions from Land Use Change Worldwide, 1850-2005

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GRAPH: Net Carbon Emissions from Land Use Change in Europe and the Former Soviet Union, 1850-2005

A full listing of data for the entire book is on-line at:

http://www.earth-policy.org/books/wote/wote_data

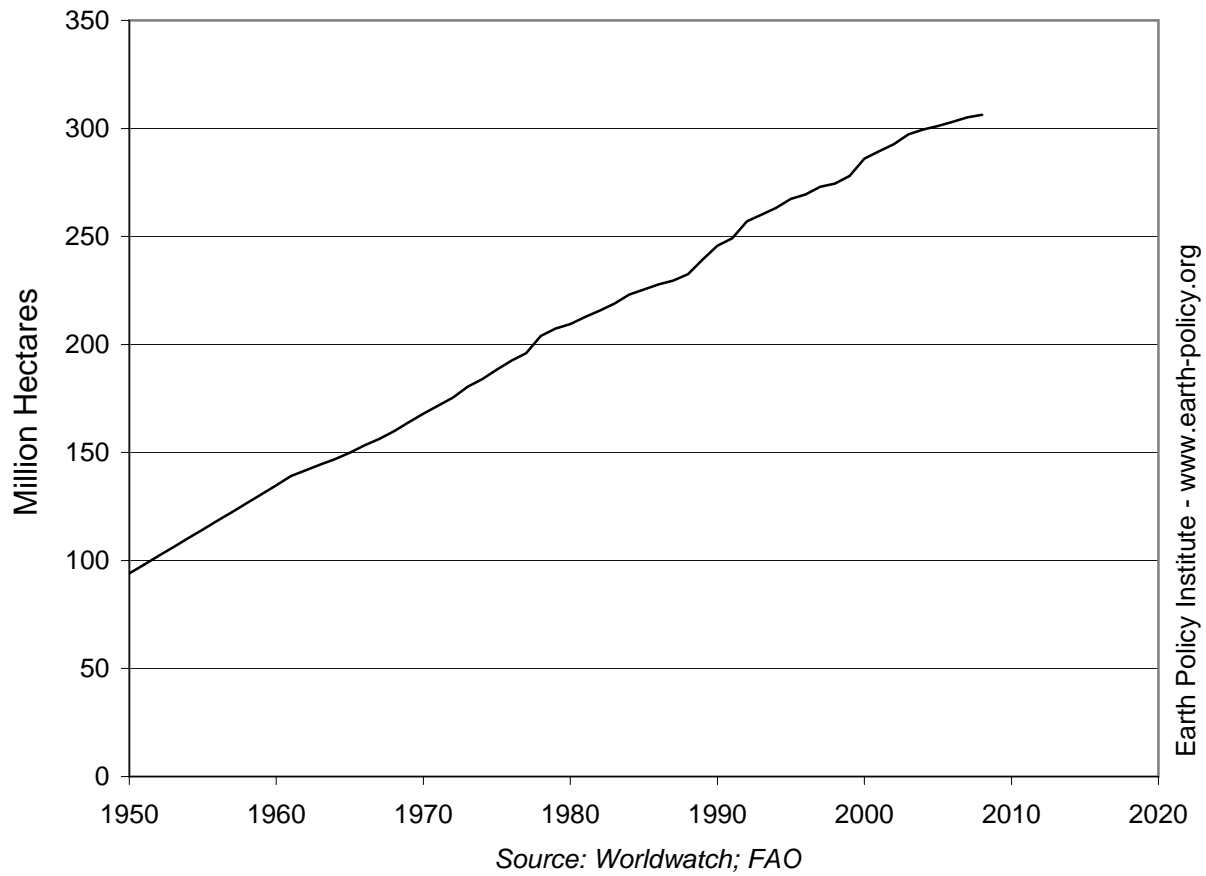
This is part of a supporting dataset for Lester R. Brown, **World On the Edge: How to Prevent Environmental and Economic Collapse** (New York: W.W. Norton & Company, 2010). For more information and a free download of the book, see Earth Policy Institute on-line at www.earth-policy.org.

World Irrigated Area and Irrigated Area Per Thousand People, 1950-2008

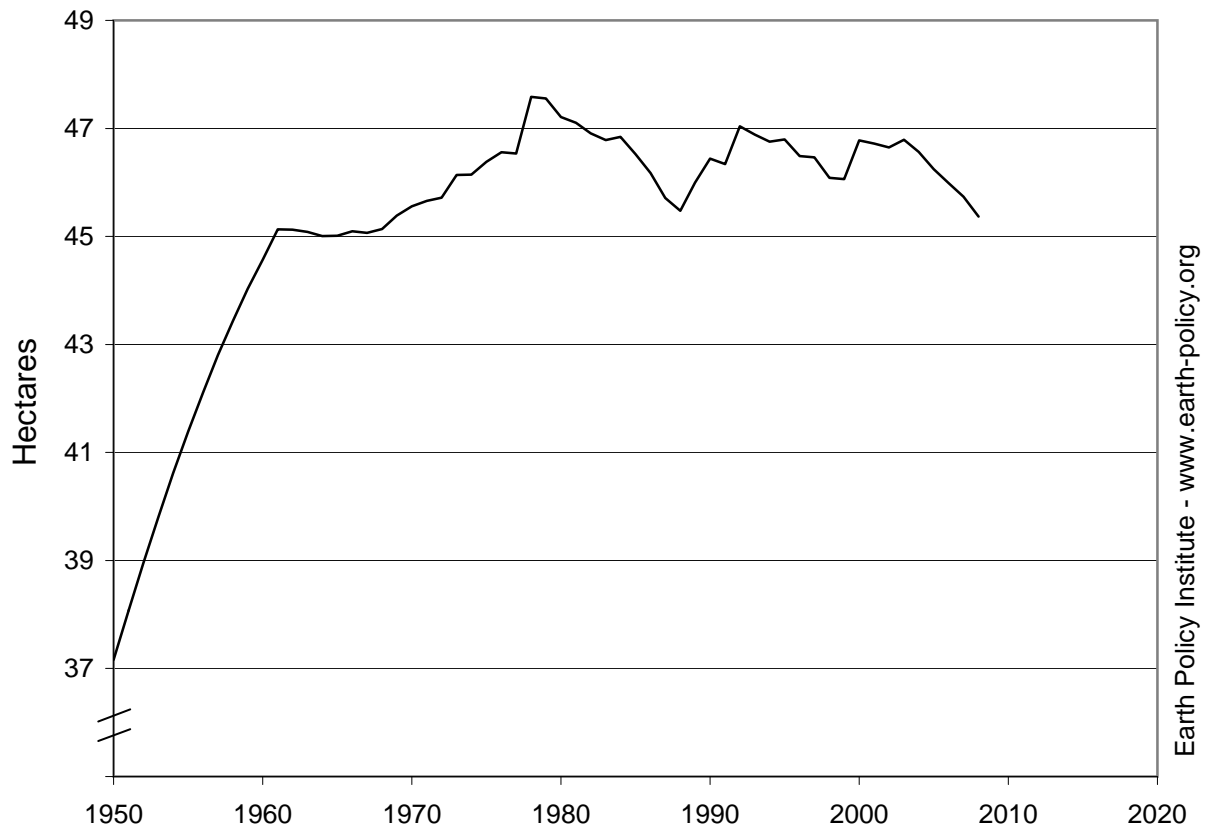
Year	Irrigated Area	Irrigated Area per
	Million Hectares	Thousand People Hectares
1950	94	37.2
1951	98	38.1
1952	102	39.0
1953	106	39.8
1954	110	40.6
1955	114	41.4
1956	118	42.1
1957	123	42.8
1958	127	43.4
1959	131	44.0
1960	135	44.6
1961	139	45.1
1962	142	45.1
1963	144	45.1
1964	147	45.0
1965	150	45.0
1966	153	45.1
1967	156	45.1
1968	160	45.1
1969	164	45.4
1970	168	45.6
1971	172	45.7
1972	175	45.7
1973	180	46.1
1974	184	46.1
1975	188	46.4
1976	193	46.6
1977	196	46.5
1978	204	47.6
1979	207	47.6
1980	210	47.2
1981	213	47.1
1982	216	46.9
1983	219	46.8
1984	223	46.8
1985	225	46.5
1986	228	46.2
1987	230	45.7
1988	232	45.5
1989	239	46.0
1990	246	46.4
1991	249	46.3
1992	257	47.0
1993	260	46.9
1994	263	46.8
1995	267	46.8
1996	269	46.5
1997	273	46.5
1998	274	46.1
1999	278	46.1
2000	286	46.8
2001	289	46.7
2002	293	46.7
2003	297	46.8
2004	300	46.6
2005	301	46.2
2006	303	46.0
2007	305	45.7
2008	306	45.4

Source: 1950-60 data compiled by Lester R. Brown for "Eradicating Hunger: A Growing Challenge," in Worldwatch Institute, *State of the World 2001* (New York: W.W. Norton and Company, 2001), pp. 52-53; 1961-2008 data from U.N. Food and Agriculture Organization, *ResourceSTAT*, electronic database at <http://faostat.fao.org/site/405/default.aspx>, updated September 2010; population from U.N. Population Division, *World Population Prospects: The 2008 Revision Population Database*, at esa.un.org/unpp, updated 11 March 2009.

World Irrigated Area, 1950-2008



World Irrigated Area Per Thousand People, 1950-2008



Source: Worldwatch; FAO; UNPop

Irrigated Area in the United States by State and Country Total, 1964-2007

State	1964	1969	1974	1978	1982	1987	1992	1997	2002	2007
Thousand Acres										
Arizona	1,125	1,178	1,153	1,196	1,098	914	956	1,075	932	876
Arkansas	974	1,010	949	1,683	2,023	2,406	2,702	3,785	4,150	4,461
California	7,599	7,240	7,749	8,506	8,461	7,546	7,571	8,887	8,709	8,016
Colorado	2,690	2,895	2,874	3,431	3,201	3,014	3,170	3,374	2,591	2,868
Florida	1,217	1,365	1,559	1,980	1,585	1,623	1,783	1,874	1,815	1,552
Idaho	2,802	2,761	2,859	3,475	3,450	3,219	3,260	3,544	3,289	3,300
Kansas	1,004	1,522	2,010	2,686	2,675	2,463	2,680	2,696	2,678	2,763
Minnesota	18	36	78	272	315	354	370	403	455	506
Montana	1,893	1,841	1,759	2,070	2,023	1,997	1,978	2,102	1,976	2,013
Nebraska	2,169	2,857	3,967	5,683	6,039	5,682	6,312	7,066	7,625	8,559
Nevada	825	753	778	881	830	779	556	764	747	691
New Mexico	813	823	867	891	807	718	738	852	845	830
North Dakota	51	63	71	141	163	168	187	183	203	236
Oklahoma	302	524	515	602	492	478	512	509	518	535
Oregon	1,608	1,519	1,561	1,881	1,808	1,648	1,622	1,963	1,908	1,845
South Dakota	130	148	152	335	376	362	371	367	401	374
Texas	6,385	6,888	6,594	6,947	5,576	4,271	4,912	5,764	5,075	5,010
Utah	1,092	1,025	970	1,169	1,082	1,161	1,143	1,218	1,091	1,134
Washington	1,150	1,224	1,309	1,639	1,638	1,519	1,641	1,787	1,823	1,736
Wyoming	1,571	1,523	1,460	1,662	1,565	1,518	1,465	1,750	1,542	1,551
Other	1,639	1,927	2,009	3,220	3,795	4,546	5,475	6,326	6,938	7,743
U.S. Total	37,057	39,122	41,243	50,350	49,002	46,386	49,404	56,289	55,311	56,599

Note: One acre equals 0.4 hectares.

Source: Compiled by Earth Policy Institute, with data for 1964-1982 from "Table 1 - Irrigated Farms in the Censuses of Agriculture: 1964 Through 1987," *1987 Census of Agriculture: Farm and Ranch Irrigation Survey (1988)* (Washington, DC: U.S. Department of Agriculture (USDA), 1989), p. 1; 1992-2007 from "Table 1 - Irrigated Farms in the Censuses of Agriculture: 2007 and Earlier Censuses," in *2007 Census of Agriculture: Farm and Ranch Irrigation Survey (2008)* (Washington, DC: USDA, November 2009), pp. 3-4.

Countries Overpumping Aquifers in 2010

Country	Population Million
Afghanistan	29
China	1,354
India	1,214
Iran	75
Iraq	31
Israel	7
Jordan	6
Lebanon	4
Mexico	111
Morocco	32
Pakistan	185
Saudi Arabia	26
South Korea	49
Spain	45
Syria	23
Tunisia	10
United States	318
Yemen	24
Total	3,545

Source: Compiled by Earth Policy Institute with population data from U.N. Population Division, *World Population Prospects: The 2008 Revision Population Database*, electronic database, at esa.un.org/unpp, updated 11 March 2009.

This is part of a supporting dataset for Lester R. Brown, **World on the Edge: How to Prevent Environmental and Economic Collapse** (New York: W.W. Norton & Company, 2011). For more information and a free download of the book, see Earth Policy Institute on-line at www.earth-policy.org.

Dust Events in Seoul, South Korea, 1970 - 2006/07

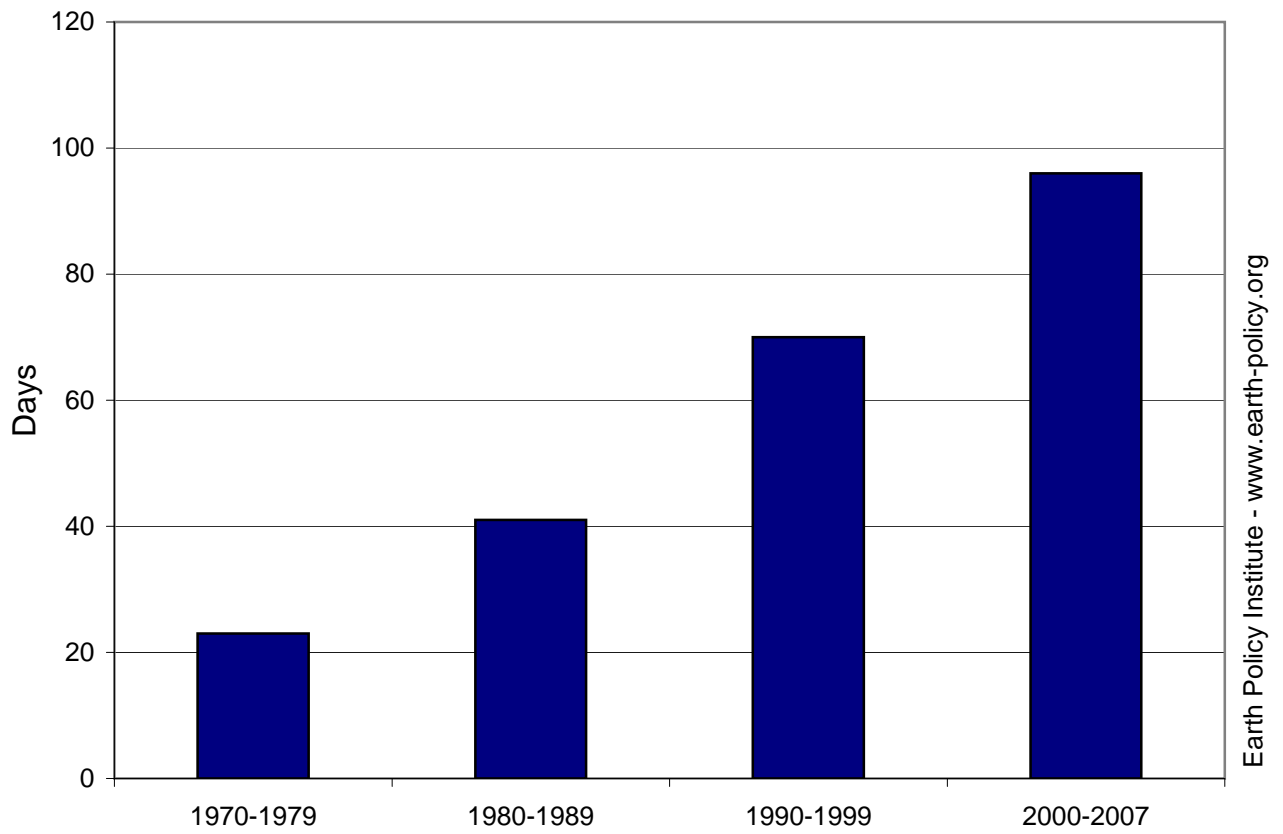
<u>Period</u>	<u>Dust Events</u> Days
1970-1979	23
1980-1989	41
1990-1999	70
<u>2000-2006/07*</u>	<u>96</u>

* Note: Date range is assumed based on the publication date of source article.

Source: Korean Meteorological Administration cited in Dennis Normile, "Getting at the Roots of Killer Dust Storms," *Science*, vol. 317, no. 5836 (20 July 2007), pp. 314–16.

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Dust Events in Seoul, South Korea, 1970 - 2006/07



Source: Normile/KMA

Extent of No-Tillage Agriculture in Top Countries, 2007/08

Country	Area under No-till Hectares ¹
United States	26,500,000
Argentina	25,785,000
Brazil	25,502,000
Australia	17,000,000
Canada	13,481,000
Indo-Gangetic Plains ²	5,000,000
Paraguay	2,300,000
China	1,330,000
Kazakhstan	1,330,000
Bolivia	706,000
Uruguay	655,000
Spain	650,000
South Africa	368,000
Venezuela	300,000
France	200,000
Finland	200,000
Chile	180,000
New Zealand	162,000
Colombia	102,000
Ukraine	100,000
Total	116,921,000

Notes:

¹ One hectare = 2.47 acres.

² Includes four countries in South Asia: India, Pakistan, Bangladesh, and Nepal.

Source: Rolf Derpsch and Theodor Friedrich, "Sustainable Crop Production Intensification - The Adoption of Conservation Agriculture Worldwide," presentation for International Soil Tillage Research Conference, Santiago, Chile, November 2010.

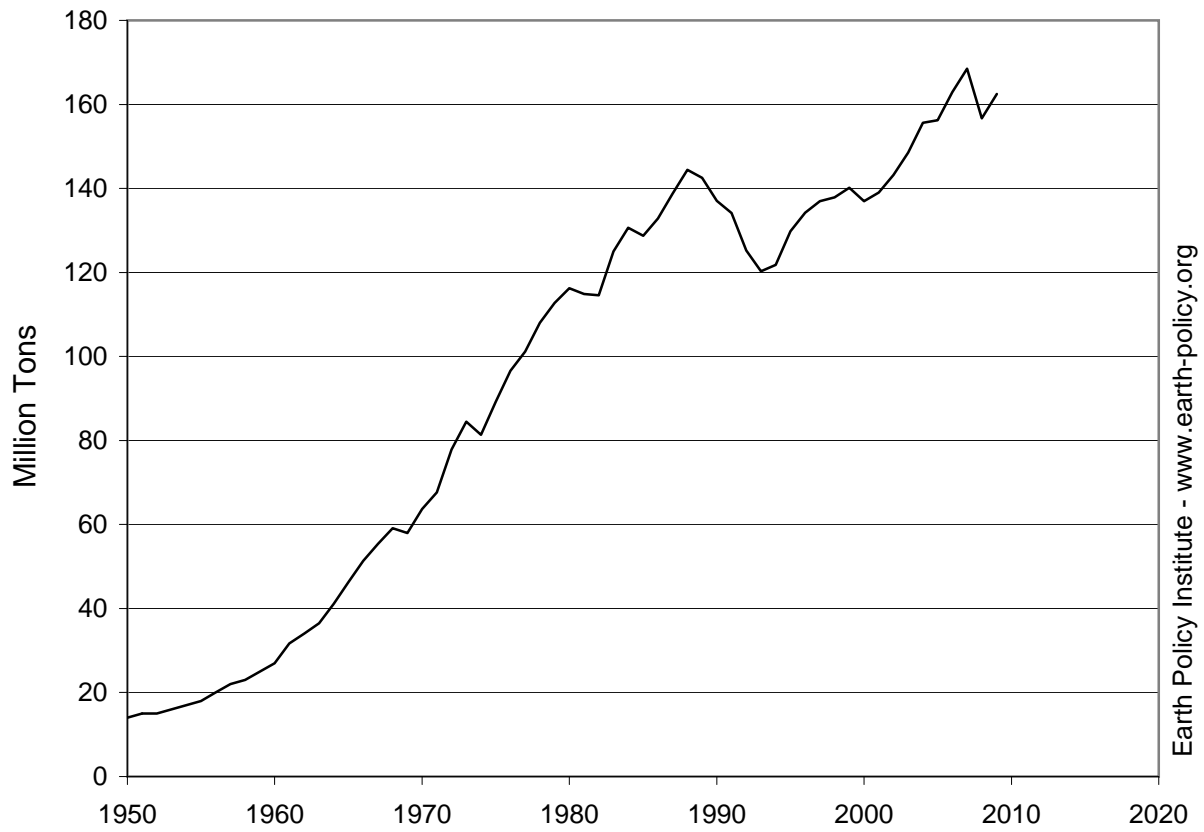
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World Fertilizer Consumption, 1950-2009

Year	Fertilizer Consumption Million Tons
1950	14
1951	15
1952	15
1953	16
1954	17
1955	18
1956	20
1957	22
1958	23
1959	25
1960	27
1961	32
1962	34
1963	37
1964	41
1965	46
1966	51
1967	55
1968	59
1969	58
1970	64
1971	68
1972	78
1973	84
1974	81
1975	89
1976	97
1977	101
1978	108
1979	113
1980	116
1981	115
1982	115
1983	125
1984	131
1985	129
1986	133
1987	139
1988	144
1989	143
1990	137
1991	134
1992	125
1993	120
1994	122
1995	130
1996	134
1997	137
1998	138
1999	140
2000	137
2001	139
2002	143
2003	149
2004	156
2005	156
2006	163
2007	169
2008	157
2009	163

Source: Compiled by Earth Policy Institute, with data from 1950-1960 compiled by Worldwatch Institute from U.N. Food and Agriculture Organization, *Fertilizer Yearbook* (Rome: various years); 1961-2006 data from International Fertilizer Industry Association (IFA), *IFADATA*, electronic database, at www.fertilizer.org/ifa/ifadata/search, retrieved 18 August 2010; 2007-2009 data from Patrick Heffer and Michel Prud'homme, *Fertilizer Outlook 2010 - 2014* (Paris: IFA, June 2010), p. 5.

World Fertilizer Consumption, 1950-2009



Source: EPI from Worldwatch, IFA

Net Carbon Emissions from Land Use Change, 1850-2005

Year	United States	Canada	S. and C. America	Europe	N. Africa and Mid. East	Tropical Africa	Former USSR	China	S. and S. E. Asia	Developing Pacific	World
Million Tons of Carbon											
1850	164.1	5.5	23.5	55.0	4.0	-1.3	58.6	101.8	87.3	2.0	500.6
1851	165.7	5.4	23.2	55.0	4.0	-1.1	58.6	93.1	86.9	2.0	492.7
1852	230.7	5.3	22.9	55.0	4.0	-1.0	58.9	83.8	86.9	2.0	548.5
1853	238.5	5.3	22.6	55.0	4.0	-1.1	59.2	74.2	87.0	2.0	546.8
1854	246.2	5.3	22.4	54.9	4.0	-1.0	59.6	64.3	87.1	2.0	544.8
1855	253.6	5.3	22.2	54.9	4.0	-1.1	60.0	54.2	87.1	2.0	542.1
1856	260.5	5.2	22.0	54.9	4.0	-1.1	60.3	52.6	87.2	2.0	547.7
1857	267.2	5.2	21.8	54.8	4.0	-1.1	60.7	51.3	87.3	2.0	553.3
1858	273.6	5.2	21.7	54.8	4.0	-1.4	61.1	50.2	87.4	2.0	558.6
1859	279.7	5.2	21.5	54.8	4.0	-1.6	61.5	49.4	87.5	2.0	564.0
1860	285.7	5.2	21.1	54.8	4.0	-1.8	61.9	48.7	87.6	2.0	569.0
1861	290.7	5.1	21.9	54.8	9.0	-2.1	62.2	48.1	87.7	2.1	579.6
1862	237.7	6.8	22.1	54.9	10.0	-1.9	53.7	47.8	87.8	2.2	520.9
1863	236.8	7.3	22.2	55.0	10.8	-1.7	53.7	46.6	87.9	2.3	521.1
1864	236.0	7.8	22.3	55.1	11.3	-1.2	53.8	46.2	88.0	2.4	521.6
1865	235.2	8.4	22.3	55.2	11.6	-0.7	53.9	45.8	88.1	2.6	522.4
1866	234.8	8.9	21.9	55.3	12.0	-0.5	53.7	45.4	88.2	2.7	522.5
1867	232.5	9.4	21.5	55.5	12.3	-0.2	53.6	45.2	88.2	2.8	520.8
1868	230.6	9.9	21.1	55.6	12.6	-0.2	53.5	44.9	88.3	3.0	519.2
1869	228.6	10.4	20.7	55.8	12.9	-0.4	53.4	44.7	88.4	3.1	517.5
1870	226.8	10.8	20.7	56.0	13.2	-0.6	53.3	44.5	88.4	3.2	516.3
1871	224.2	11.3	20.6	50.5	13.4	-0.8	53.2	44.3	110.0	9.9	536.7
1872	303.9	11.8	20.5	49.6	13.6	-1.0	53.5	44.2	115.2	11.9	623.2
1873	309.3	12.3	20.4	48.8	13.9	-0.8	53.7	44.1	118.9	13.7	634.1
1874	314.4	12.7	20.3	47.9	14.1	-0.4	54.0	42.0	121.7	14.3	641.1
1875	319.3	13.2	20.3	47.2	14.3	-0.3	54.3	41.4	123.9	14.9	648.4
1876	324.1	13.6	20.4	46.5	14.5	-0.1	54.9	40.9	125.2	15.4	655.5
1877	330.1	13.3	20.9	45.9	14.6	0.0	55.0	40.4	126.4	15.8	662.4
1878	335.8	13.2	21.3	45.4	14.8	0.0	55.1	40.3	127.4	16.1	669.5
1879	341.3	13.1	21.7	44.9	14.9	0.0	55.2	40.4	128.3	16.4	676.4
1880	346.7	13.1	22.1	44.4	15.1	-0.2	55.3	40.6	129.1	16.7	682.9

1881	350.7	13.0	54.1	43.9	15.2	-0.3	55.4	40.3	129.5	17.0	718.9
1882	295.6	12.9	63.0	43.5	15.4	-0.5	55.5	40.1	129.9	17.3	672.7
1883	294.0	12.8	70.2	43.1	15.5	-0.7	55.6	39.9	130.2	17.6	678.3
1884	292.7	12.7	76.1	42.7	15.6	-0.4	55.8	39.7	130.5	17.9	683.4
1885	291.6	12.6	81.2	42.4	15.8	-0.2	55.9	39.6	130.7	18.2	687.7
1886	290.3	12.5	84.1	42.6	15.9	0.0	56.0	39.4	131.0	18.5	690.4
1887	286.8	12.4	86.2	42.7	16.0	0.1	56.2	39.2	131.2	18.8	689.8
1888	283.3	12.3	87.9	42.9	16.2	0.0	56.3	39.1	131.4	19.1	688.6
1889	279.9	12.2	89.4	43.1	16.3	-0.2	56.4	39.0	131.6	19.4	687.2
1890	276.6	12.1	90.6	43.3	16.4	-0.2	56.6	39.0	131.8	19.6	685.9
1891	272.6	12.0	73.4	43.5	16.5	-0.4	56.7	39.0	148.3	19.8	681.5
1892	285.2	11.9	70.0	43.7	16.7	-0.7	56.8	39.0	152.3	20.1	695.0
1893	285.6	11.8	67.3	43.9	16.8	-1.1	57.0	39.1	155.2	20.3	695.8
1894	287.1	11.7	65.2	44.1	16.9	-1.4	57.1	54.6	157.4	20.5	713.3
1895	288.7	11.7	63.6	44.3	17.0	-1.3	57.2	56.4	159.2	20.7	717.5
1896	288.3	11.6	62.6	44.5	17.1	-1.3	57.3	58.1	160.2	20.9	719.4
1897	289.2	11.5	61.7	44.7	17.2	-1.0	57.5	59.8	161.1	21.1	723.0
1898	288.2	11.4	61.1	44.9	17.3	-0.6	57.6	61.4	161.9	21.3	724.5
1899	287.2	11.3	60.6	45.0	17.4	-0.6	57.7	62.9	162.6	21.6	725.8
1900	286.3	11.3	60.3	45.2	17.6	-0.7	57.8	64.4	163.1	21.7	726.9
1901	285.9	11.2	121.8	45.4	20.1	-0.8	57.9	65.8	163.5	22.0	792.8
1902	240.4	24.0	139.4	45.7	20.6	-0.3	58.0	82.7	163.8	22.3	796.8
1903	231.8	26.8	153.8	46.0	21.0	1.0	58.2	100.6	164.1	22.7	825.9
1904	222.2	29.5	165.8	46.3	21.3	2.7	58.3	119.0	164.4	23.0	852.4
1905	213.1	32.1	176.1	46.6	21.5	4.8	58.5	137.9	164.6	23.3	878.5
1906	205.9	34.6	180.8	46.9	21.7	7.4	58.6	157.1	172.8	23.6	909.5
1907	198.5	37.1	184.7	47.3	21.9	10.2	58.6	161.6	174.9	23.9	918.6
1908	193.3	39.4	187.9	47.6	22.1	12.9	58.6	165.5	176.4	24.3	927.9
1909	188.2	41.8	190.5	48.0	22.2	15.5	58.6	168.4	177.5	24.6	935.3
1910	183.0	44.1	192.6	48.3	22.3	17.9	58.5	170.9	178.4	24.9	941.0
1911	178.8	46.3	130.5	48.7	22.5	20.2	58.5	173.2	179.0	25.1	882.9
1912	153.5	48.6	112.6	49.1	22.6	22.7	58.5	173.6	179.6	25.4	846.2
1913	147.6	50.8	98.0	49.5	22.7	25.0	63.7	173.8	159.2	25.7	815.9
1914	142.9	52.9	85.5	49.8	22.8	27.2	65.2	177.8	154.7	25.9	804.8
1915	138.3	55.1	74.6	50.2	22.9	29.4	66.6	178.4	151.4	26.2	793.0
1916	133.5	57.2	70.5	50.7	22.9	31.5	67.9	178.8	155.8	26.4	795.1
1917	130.0	57.8	67.2	51.1	23.0	34.1	69.2	183.7	155.5	26.6	798.2

1918	126.1	58.4	64.5	51.5	23.0	36.4	70.5	188.8	155.4	26.8	801.4
1919	124.4	58.9	62.2	51.9	23.0	38.7	71.8	193.9	155.2	27.1	807.1
1920	118.6	59.5	60.0	52.3	23.0	41.1	73.1	199.0	154.9	27.3	808.8
1921	112.5	60.0	104.8	52.8	23.1	43.0	74.4	204.1	154.6	27.6	856.7
1922	85.5	60.6	117.3	53.2	23.1	44.9	75.7	206.7	154.3	27.8	849.1
1923	76.4	61.1	127.4	53.6	23.1	46.7	77.1	209.2	154.4	28.0	857.0
1924	67.2	61.6	135.9	54.0	23.1	48.2	78.4	211.6	154.5	28.2	862.7
1925	56.5	62.1	143.3	54.4	23.1	49.6	79.8	213.8	154.6	28.3	865.6
1926	49.8	62.6	145.4	54.1	31.7	51.0	81.2	216.0	150.1	28.6	870.5
1927	93.2	52.6	147.0	53.6	33.6	52.3	82.5	216.9	149.2	28.8	909.7
1928	92.9	51.0	148.1	53.0	35.4	54.1	83.1	217.8	148.6	29.1	913.0
1929	117.0	49.4	149.0	52.4	35.8	55.8	83.7	219.5	148.2	29.3	940.0
1930	191.7	47.8	150.1	51.6	36.1	57.4	84.3	221.6	148.0	29.5	1,018.1
1931	187.6	46.3	161.8	50.7	36.7	59.1	84.9	223.7	148.0	29.8	1,028.7
1932	85.0	44.9	165.0	49.7	37.3	60.8	85.5	224.6	148.0	30.0	930.8
1933	77.4	43.5	167.5	48.6	37.8	62.8	86.1	225.4	148.1	30.3	927.6
1934	70.2	42.1	169.5	47.4	38.3	64.7	84.6	220.0	148.2	30.5	915.3
1935	67.8	40.8	171.1	46.1	38.8	67.5	82.8	219.8	148.3	30.8	913.7
1936	59.4	39.5	172.8	44.8	39.2	69.2	80.9	219.8	165.5	31.0	922.0
1937	32.8	38.2	174.6	43.4	39.6	71.1	78.8	219.7	169.7	31.3	899.3
1938	33.4	36.9	176.3	42.0	40.0	73.0	76.7	219.8	172.8	31.5	902.4
1939	29.5	35.6	177.8	40.6	40.3	75.3	74.5	219.8	175.2	31.7	900.5
1940	16.5	34.4	179.2	39.1	40.7	77.6	71.1	219.8	177.1	32.0	887.5
1941	15.0	33.1	177.8	37.7	41.0	79.5	54.4	219.8	179.6	32.2	870.2
1942	27.6	33.1	177.3	36.2	41.3	81.7	47.5	231.9	182.2	32.4	891.3
1943	13.2	33.1	176.9	34.8	41.7	84.0	40.8	244.6	184.7	32.6	886.4
1944	9.0	33.1	176.6	33.3	41.9	86.3	34.4	257.7	187.2	32.8	892.3
1945	0.1	33.1	176.4	31.9	42.1	88.6	28.0	271.2	189.6	33.0	894.1
1946	-4.8	33.1	179.4	30.4	42.3	91.2	24.0	284.9	263.1	33.2	976.9
1947	5.9	32.9	182.5	29.0	42.6	93.5	20.4	286.9	281.7	33.4	1,008.9
1948	-5.2	32.7	185.8	27.5	42.8	97.3	17.2	288.7	295.4	33.6	1,015.8
1949	-10.6	32.5	189.2	26.1	43.0	101.2	14.3	290.2	305.1	33.8	1,024.9
1950	-11.4	32.4	192.8	24.7	43.2	105.2	13.1	290.1	313.4	34.0	1,037.3
1951	3.2	32.2	251.7	23.5	34.4	109.3	126.9	289.8	319.8	67.5	1,258.3
1952	-42.0	32.9	270.4	22.5	32.6	105.9	149.6	308.1	327.8	76.9	1,284.7
1953	-66.3	32.6	285.8	21.7	30.8	108.9	171.5	327.0	284.3	84.5	1,280.9
1954	-64.4	32.4	298.7	21.0	28.6	112.0	192.7	346.5	281.0	86.6	1,335.0

1955	-73.6	32.1	309.8	20.4	26.4	115.3	213.7	366.3	281.0	87.9	1,379.5
1956	-65.5	31.9	316.5	20.0	25.7	118.6	236.1	386.5	280.4	88.8	1,438.9
1957	-68.0	31.6	322.0	19.7	25.0	122.0	258.2	388.6	280.7	89.3	1,469.1
1958	-33.0	31.4	326.7	19.5	24.4	124.8	280.0	381.7	275.9	89.5	1,520.8
1959	-71.8	31.1	330.7	19.4	23.8	127.6	208.3	362.1	276.8	89.6	1,397.8
1960	-74.9	30.9	334.3	19.4	23.2	130.5	210.9	343.1	278.9	89.6	1,385.8
1961	-88.5	30.6	449.6	16.7	22.6	132.7	205.2	323.1	282.4	89.5	1,463.9
1962	-86.2	30.7	484.4	16.3	22.1	133.6	201.9	296.2	271.8	89.3	1,460.0
1963	-92.3	30.8	512.0	16.0	21.5	138.9	198.8	285.6	274.4	89.1	1,474.9
1964	-95.4	30.9	534.4	15.8	21.0	140.7	196.2	285.0	269.7	88.8	1,487.1
1965	-99.9	31.1	553.7	15.6	20.5	143.4	192.9	284.3	274.8	88.6	1,505.0
1966	-67.9	31.2	563.7	15.5	21.6	142.5	181.2	283.1	280.1	88.3	1,539.3
1967	-63.8	31.2	572.4	15.4	21.8	143.6	169.5	282.2	285.6	87.9	1,545.8
1968	-62.8	31.2	580.3	15.3	22.0	139.4	157.9	281.7	225.0	87.6	1,477.7
1969	-51.6	31.1	587.0	15.3	21.7	146.5	147.8	281.2	216.9	87.0	1,483.1
1970	-53.0	31.1	593.1	13.6	21.5	139.8	114.5	280.8	212.0	86.5	1,439.7
1971	-89.3	31.1	536.8	11.2	21.5	143.1	100.1	280.7	206.4	50.2	1,291.7
1972	-80.9	30.1	524.9	8.6	21.6	146.8	85.4	282.8	205.7	39.1	1,264.2
1973	-92.9	30.2	515.6	6.0	21.6	150.8	71.3	284.7	231.8	29.7	1,248.7
1974	-92.1	30.2	508.3	3.2	21.7	154.7	64.9	287.2	250.4	26.1	1,254.5
1975	-81.5	30.3	502.6	0.2	21.7	144.5	58.8	291.3	254.0	23.2	1,245.1
1976	-64.8	30.4	503.0	-2.6	21.8	159.0	55.9	303.4	284.9	20.8	1,311.9
1977	-60.2	30.5	504.2	-5.6	21.8	142.4	50.4	306.4	306.6	18.8	1,315.1
1978	-54.4	30.6	505.3	-8.8	21.8	149.0	44.8	285.3	321.2	16.9	1,311.9
1979	-51.7	30.7	506.2	-12.1	21.8	150.3	39.5	248.1	335.7	15.3	1,283.8
1980	-53.9	30.9	507.8	-14.1	21.9	144.6	35.4	209.5	344.1	13.7	1,239.9
1981	-50.2	31.0	510.0	-15.3	17.0	166.7	33.4	168.8	386.5	15.6	1,263.4
1982	-38.0	27.8	729.4	-16.4	16.6	181.9	30.7	122.9	393.3	14.9	1,463.0
1983	-38.8	27.0	787.5	-17.2	16.4	195.3	28.8	101.5	398.2	14.1	1,512.9
1984	-42.5	26.2	833.6	-17.9	18.0	205.5	27.2	93.8	403.4	12.7	1,560.1
1985	-39.4	25.5	873.0	-18.3	19.8	197.1	25.8	82.7	405.9	11.3	1,583.2
1986	-34.3	24.7	902.5	-18.6	20.4	193.4	23.4	76.8	403.1	9.8	1,601.1
1987	-31.1	24.2	917.0	-18.7	21.0	193.3	22.6	71.0	403.6	8.2	1,611.1
1988	-21.6	23.7	926.4	-18.7	21.7	202.8	21.8	64.8	410.7	6.6	1,638.5
1989	-21.8	23.2	932.6	-18.4	22.5	197.1	21.2	66.6	418.6	5.3	1,647.0
1990	-31.9	22.8	936.8	-18.1	23.2	201.4	20.1	61.1	424.5	3.9	1,643.7
1991	-31.9	22.3	938.6	-18.1	23.2	195.5	20.1	50.9	508.0	3.9	1,712.5

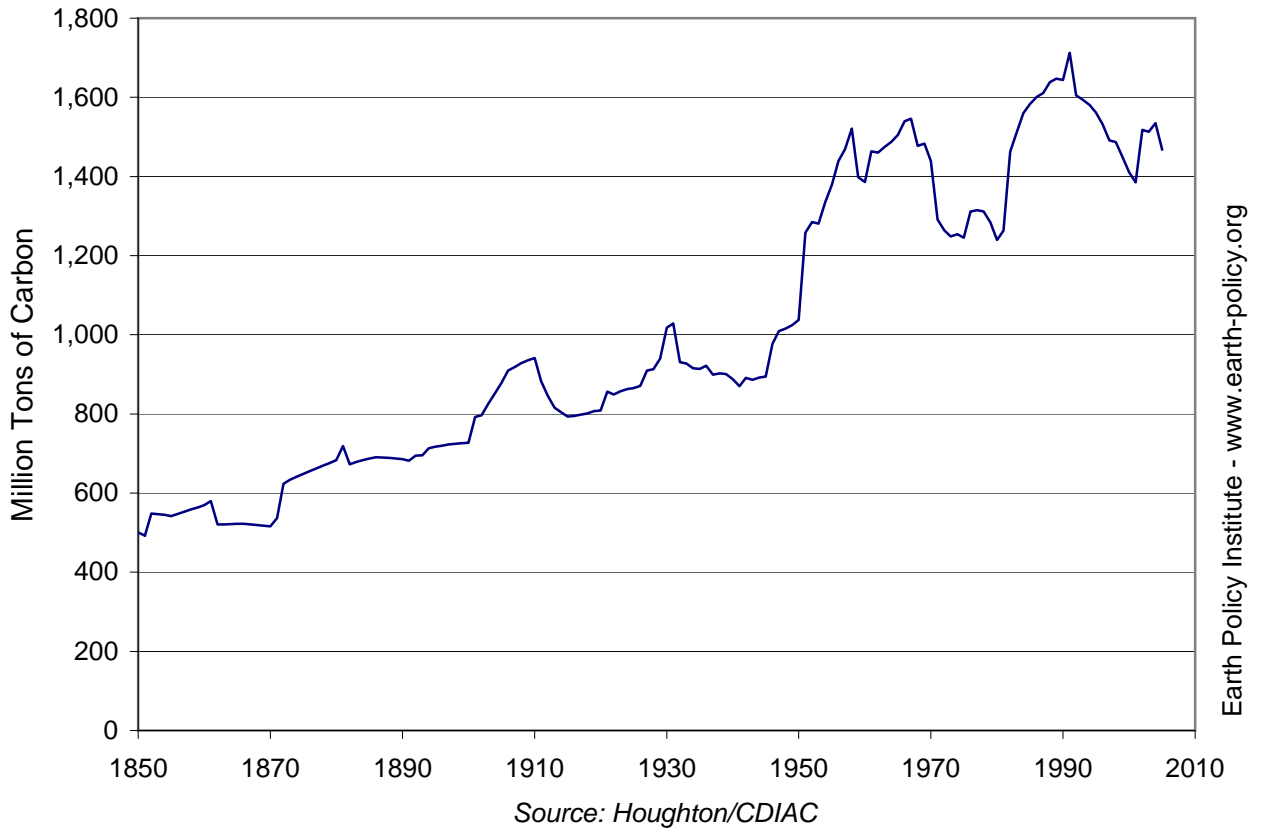
1992	-31.9	21.6	803.7	-18.1	23.2	214.3	20.1	39.8	528.4	3.9	1,605.0
1993	-31.9	20.9	767.5	-18.1	23.2	224.9	20.1	39.5	543.7	3.9	1,593.8
1994	-31.9	20.1	737.3	-18.1	23.2	243.7	20.1	43.0	539.2	3.9	1,580.5
1995	-31.9	19.4	713.4	-18.1	23.2	262.8	20.1	31.1	537.7	3.9	1,561.6
1996	-31.9	18.7	692.1	-18.1	23.2	260.9	20.1	27.3	535.0	3.9	1,531.3
1997	-31.9	18.4	678.5	-18.1	23.2	247.5	20.1	21.1	528.5	3.9	1,491.3
1998	-31.9	18.2	667.1	-18.1	23.2	269.4	20.1	12.1	523.2	3.9	1,487.2
1999	-31.9	17.9	656.4	-18.1	23.2	263.9	20.1	5.0	508.7	3.9	1,449.2
2000	-31.9	17.6	649.6	-18.1	23.2	260.9	20.1	-12.9	497.5	3.9	1,409.9
2001	-31.9	17.6	643.2	-18.1	23.2	261.7	20.1	-12.9	478.5	3.9	1,385.4
2002	-31.9	17.6	625.5	-18.1	23.2	258.5	20.1	-12.9	631.7	3.9	1,517.7
2003	-31.9	17.6	616.5	-18.1	23.2	225.5	20.1	-12.9	669.3	3.9	1,513.2
2004	-31.9	17.6	609.4	-18.1	23.2	225.8	20.1	-12.9	697.8	3.9	1,534.9
2005	-31.9	17.6	606.4	-18.1	23.2	239.2	20.1	-12.9	619.7	3.9	1,467.3

Note: Figures after 1990 for regions outside of the tropics are estimations. Negative values indicate net carbon uptake.

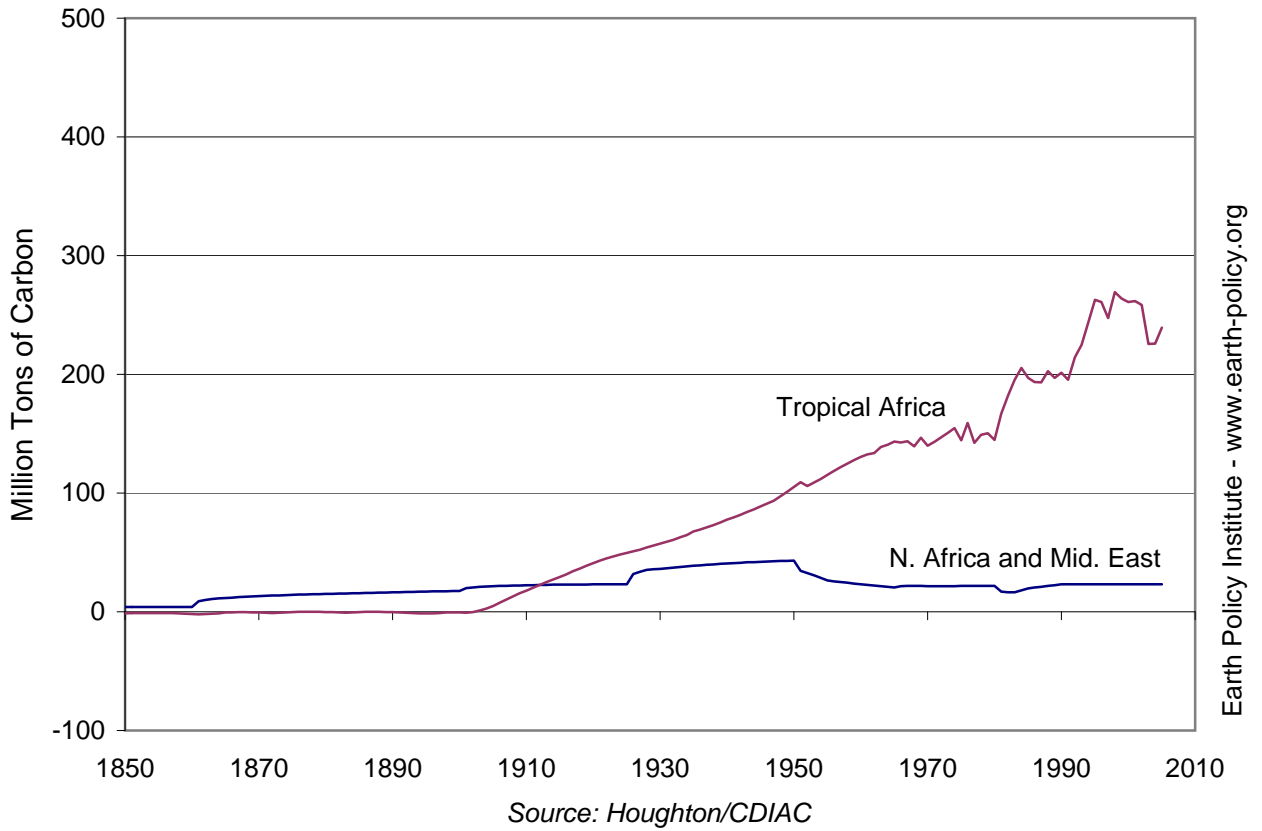
Source: R. A. Houghton, "Carbon Flux to the Atmosphere from Land-Use Changes: 1850-2005," in Carbon Dioxide Information Analysis Center, *Trends: A Compendium of Data on Global Change* (Oak Ridge, TN: Oak Ridge National Laboratory, 2008 and 2010), at cdiac.ornl.gov/trends/trends.htm.

This is part of a supporting dataset for Lester R. Brown, **World on the Edge: How to Prevent Environmental and Economic Collapse** (New York: W.W. Norton & Company, 2011). For more information and a free download of the book, see Earth Policy Institute on-line at www.earth-policy.org.

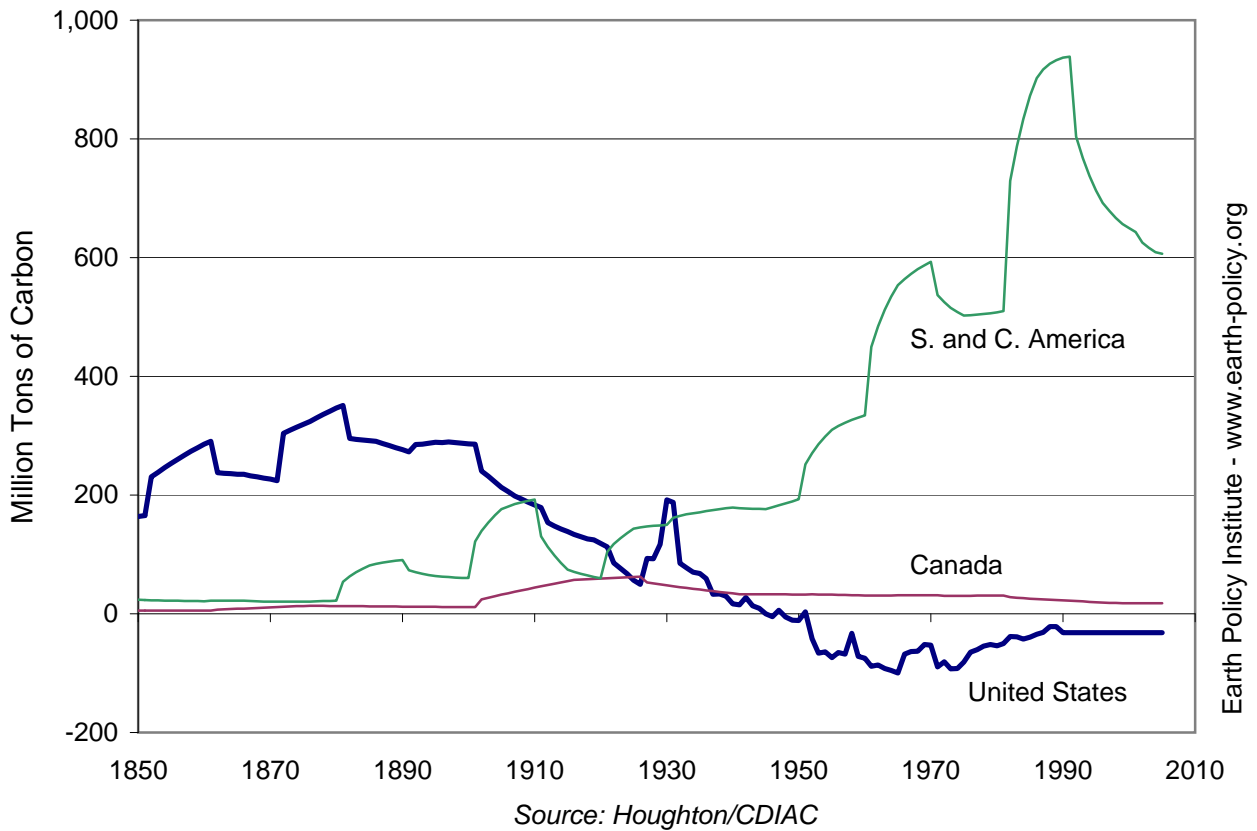
Net Carbon Emissions from Land Use Change Worldwide, 1850-2005



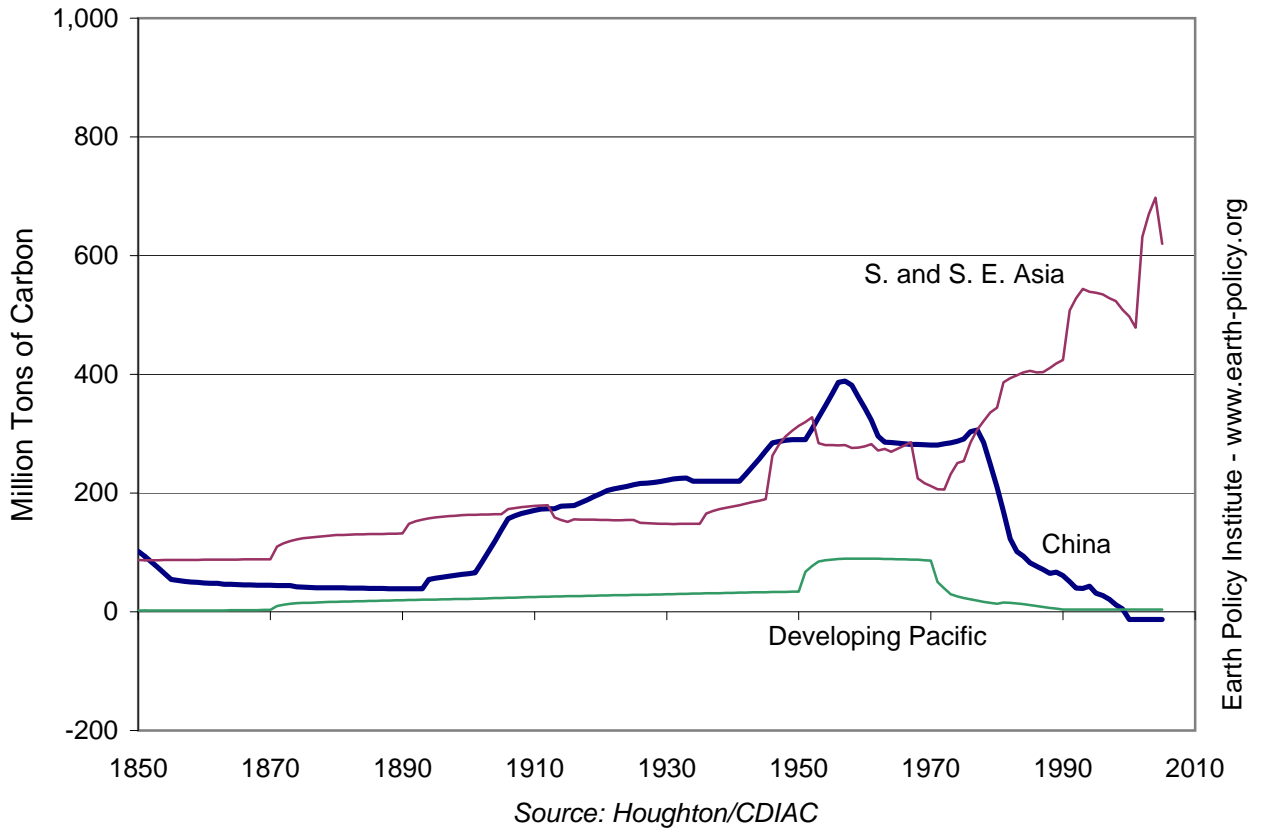
Net Carbon Emissions from Land Use Change in Africa and the Middle East, 1850-2005



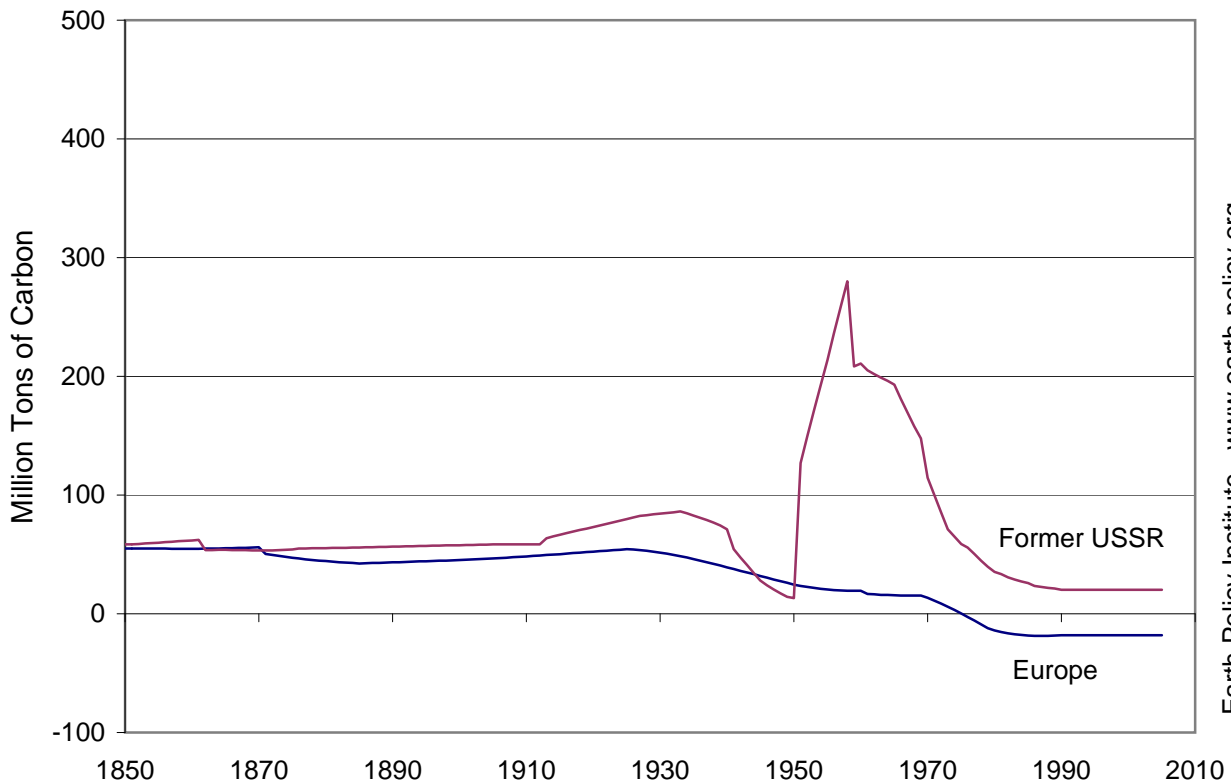
Net Carbon Emissions from Land Use Change in the Americas, 1850-2005



Net Carbon Emissions from Land Use Change in Asia and the Pacific, 1850-2005



Net Carbon Emissions from Land Use Change in Europe and the Former Soviet Union, 1850-2005



Source: Houghton/CDIAC