



APPENDIX TABLE 5-27

S&E articles in all fields combined, by region, country, or economy: 2003–16

(Number)

Region, country, or economy	Region, country, or economy economic status	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	-	1,192,446.0	1,309,104.0	1,481,643.0	1,567,422.0	1,661,634.0	1,752,431.0	1,861,148.0	1,958,948.0	2,070,735.0	2,137,315.0	2,217,046.0	2,300,684.0	2,305,909.0	2,295,608.0
North America	-	366,071.7	396,720.5	435,091.4	441,710.1	451,285.7	455,841.9	465,172.7	478,045.1	494,841.5	505,215.2	509,326.6	516,379.8	504,153.0	480,895.9
Canada	Developed	37,695.5	41,624.3	47,087.7	49,258.8	52,326.3	53,416.3	55,541.0	56,734.1	57,925.7	60,130.9	60,611.1	61,539.4	60,496.4	57,355.8
Greenland	Developed	8.8	23.5	16.4	14.4	15.5	15.9	12.8	21.4	18.8	26.3	33.8	22.9	32.2	25.5
Mexico	Developing	6,601.5	7,198.8	8,286.0	9,322.0	9,492.1	10,476.3	10,747.8	11,436.3	11,959.0	12,746.5	13,469.6	14,587.8	14,485.4	14,529.4
United States	Developed	321,765.9	347,873.9	379,701.3	383,114.9	389,451.8	391,933.4	398,871.1	409,853.3	424,938.0	432,311.5	435,212.0	440,229.7	429,139.0	408,985.3
Central America and Caribbean	-	1,883.4	2,009.3	2,262.5	2,690.2	2,649.7	2,815.5	3,070.9	3,041.7	3,323.4	3,384.6	3,309.9	3,398.5	3,102.1	2,855.0
Antigua and Barbuda	Developing	1.8	0.7	1.8	1.6	4.3	6.3	3.8	2.2	0.8	2.5	1.9	2.5	3.9	7.8
Bahamas, The	Developing	5.2	3.0	7.4	5.9	11.1	6.0	9.7	8.8	10.9	7.9	16.9	12.3	12.3	14.4
Barbados	Developing	41.0	48.4	37.1	44.3	46.5	45.9	34.2	27.7	35.4	47.6	43.5	40.7	49.6	48.4
Belize	Developing	4.8	4.5	5.8	4.9	2.4	3.6	9.3	11.0	3.4	9.0	9.6	5.2	7.0	5.5
Costa Rica	Developing	152.4	219.1	219.1	222.4	228.7	249.5	260.7	261.2	270.3	315.9	285.8	365.8	354.5	376.7
Cuba	Developing	767.1	803.4	938.5	1,228.5	1,130.0	1,174.7	1,397.1	1,315.9	1,588.8	1,539.7	1,571.1	1,482.9	1,341.0	1,044.7
Dominica	Developing	4.6	2.4	5.3	4.2	2.9	5.2	5.0	8.5	6.9	10.8	11.3	10.1	9.5	7.7



Region, country, or economy	Region, country, or economy economic status	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Dominican Republic	Developing	13.5	14.0	16.9	16.9	18.2	18.2	15.5	18.1	20.5	25.9	38.9	40.6	35.3	30.1
El Salvador	Developing	5.4	18.0	14.7	18.2	14.5	20.9	16.0	18.7	17.8	19.4	14.7	19.9	21.8	28.5
Grenada	Developing	5.7	5.6	5.7	14.1	20.4	23.8	19.5	15.6	26.7	28.1	35.8	55.5	31.5	34.3
Guatemala	Developing	26.6	28.7	50.9	38.1	36.9	38.7	64.7	54.8	48.4	74.6	84.2	72.5	86.0	85.1
Haiti	Developing	5.8	7.5	7.2	15.1	10.8	7.3	11.8	13.3	17.1	16.5	29.0	38.3	33.8	30.1
Honduras	Developing	10.8	14.3	15.2	13.4	12.0	16.7	16.4	24.1	18.9	25.6	19.8	27.7	31.4	33.0
Jamaica	Developing	142.1	156.7	135.8	141.2	173.4	208.6	204.8	187.8	215.5	223.8	195.9	160.1	144.5	134.8
Nicaragua	Developing	13.8	17.2	20.4	32.1	22.6	32.7	29.1	33.5	32.9	34.4	28.6	37.0	26.6	35.6
Panama	Developing	62.9	68.8	79.1	83.1	101.2	115.6	119.3	119.8	131.8	155.1	160.2	170.6	161.5	159.3
Puerto Rico	Developing	496.7	462.4	527.9	662.6	639.6	671.2	639.7	705.2	631.2	624.3	577.6	621.3	585.8	566.0
Saint Kitts and Nevis	Developing	0.2	0.7	2.0	1.9	2.0	4.2	2.8	4.7	4.3	9.3	13.1	13.2	15.3	20.8
Saint Lucia	Developing	0.8	0.6	2.4	3.4	2.0	0.7	0.0	2.8	5.0	1.3	2.7	0.2	2.8	4.7
Saint Vincent and the Grenadines	Developing	1.8	0.4	1.3	0.7	1.5	0.0	1.1	0.5	0.1	1.4	2.2	0.7	0.8	2.3
Trinidad and Tobago	Developing	120.5	133.0	168.1	137.6	168.5	165.8	210.4	207.5	236.8	211.3	167.0	221.5	147.2	185.2
South America	-	25,875.0	28,943.9	32,447.4	40,482.9	44,184.6	50,940.4	55,308.1	59,510.5	63,517.4	69,790.8	72,401.5	77,457.7	77,750.4	79,115.1
Argentina	Developing	4,588.4	4,700.7	5,009.2	5,599.8	5,755.0	6,356.5	7,017.4	7,472.5	7,961.9	8,205.1	8,268.5	8,955.3	8,719.7	8,648.2
Bolivia	Developing	49.4	44.1	58.4	68.8	82.0	95.2	85.1	78.1	86.8	86.8	92.1	94.5	85.3	95.1



Region, country, or economy	Region, country, or economy economic status	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Brazil	Developing	16,752.4	19,375.9	21,869.7	28,159.8	31,066.2	35,532.3	38,547.2	41,754.9	44,585.8	49,184.2	51,136.2	53,667.3	53,492.3	53,606.6
Chile	Developing	2,063.5	2,284.4	2,513.5	3,122.3	3,401.0	3,909.1	4,162.5	4,314.1	4,718.3	5,256.0	5,358.3	6,182.4	6,515.1	6,745.9
Colombia	Developing	676.4	810.6	964.8	1,367.8	1,571.5	2,378.6	2,684.1	3,141.0	3,461.3	4,136.7	4,662.6	5,292.6	5,520.5	6,120.5
Ecuador	Developing	96.1	91.5	126.2	123.4	140.9	152.0	181.9	190.0	168.6	253.5	270.2	409.1	666.0	1,096.1
Guyana	Developing	7.1	11.5	18.2	10.1	13.0	12.1	10.2	20.6	9.7	12.4	11.7	12.1	8.8	13.7
Paraguay	Developing	14.8	27.3	28.8	29.1	31.1	32.3	35.1	36.2	56.2	57.9	61.0	67.7	97.5	96.4
Peru	Developing	204.0	207.9	235.2	294.4	315.9	365.1	420.4	474.7	572.3	602.3	681.9	761.0	910.2	1,007.6
Suriname	Developing	3.4	5.3	5.8	5.2	5.8	5.1	4.5	6.7	4.2	9.5	15.8	5.9	13.5	21.3
Uruguay	Developing	281.5	306.3	351.4	358.9	382.7	446.1	487.6	522.6	598.6	596.2	600.3	761.6	696.3	809.0
Venezuela	Developing	1,137.9	1,078.4	1,266.1	1,343.2	1,419.5	1,656.0	1,672.0	1,499.2	1,293.6	1,390.3	1,242.8	1,248.0	1,025.2	854.9
Europe	-	461,282.3	492,030.1	543,427.2	563,060.5	594,234.5	619,480.3	649,812.5	668,896.5	700,312.6	731,643.3	751,859.2	772,862.0	769,694.4	754,696.6
EU	-	388,657.0	414,985.2	459,901.2	480,818.3	506,962.8	528,948.9	553,592.6	568,066.4	593,001.6	619,018.4	632,208.9	646,622.7	635,063.2	613,774.4
Austria	Developed	7,749.6	8,065.7	8,903.4	9,155.2	9,882.7	10,334.3	10,941.2	11,214.8	11,824.8	12,358.5	12,557.6	12,900.5	12,936.7	12,366.4
Belgium	Developed	10,811.8	11,552.8	12,871.1	13,035.8	13,798.4	14,481.3	15,055.4	15,409.4	16,087.9	16,971.3	17,225.6	17,499.2	16,851.8	16,393.7
Bulgaria	Developed	1,688.9	1,794.9	2,020.2	1,928.2	2,483.3	2,356.5	2,552.0	2,599.1	2,554.0	2,733.0	2,753.4	2,744.4	2,605.3	2,558.7
Croatia	Developed	2,464.9	2,577.3	3,160.0	3,124.0	3,758.0	3,976.4	4,410.3	4,421.2	4,965.7	4,813.5	4,701.8	4,473.8	4,398.1	4,056.0
Cyprus	Developed	154.3	217.7	275.3	316.3	373.5	463.4	575.6	633.6	677.6	758.8	934.7	867.9	891.8	972.9
Czech Republic	Developed	6,374.8	7,000.4	8,016.2	8,838.7	9,988.0	10,649.1	11,197.6	12,673.8	13,544.7	13,948.9	14,401.9	15,675.0	16,873.4	15,963.1



Region, country, or economy	Region, country, or economy economic status	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Denmark	Developed	7,279.6	7,751.3	8,312.6	8,536.3	9,023.1	9,283.4	9,843.7	10,395.9	11,590.0	12,675.1	13,053.1	14,022.0	14,052.6	13,470.7
Estonia	Developed	555.3	625.1	715.5	853.7	1,014.9	1,118.0	1,128.0	1,407.1	1,381.7	1,475.0	1,506.4	1,675.2	1,604.2	1,481.7
Finland	Developed	7,792.3	8,500.7	9,037.7	9,204.0	9,413.7	9,579.8	9,921.3	9,976.6	10,345.3	10,488.1	10,824.1	11,220.0	10,752.7	10,545.1
France	Developed	51,757.8	54,775.8	59,581.4	62,448.0	64,476.8	67,209.2	69,380.8	70,177.1	72,035.5	74,413.7	75,266.0	75,017.4	72,224.4	69,430.8
Germany	Developed	70,447.7	74,144.7	82,968.9	84,434.4	88,424.9	91,159.6	95,033.3	97,179.4	100,879.4	105,373.5	105,377.5	109,262.0	105,754.9	103,121.9
Greece	Developed	6,680.5	7,780.4	9,248.9	10,684.0	11,041.0	11,774.1	12,118.0	11,954.3	11,967.4	11,980.5	11,923.4	11,752.7	11,195.8	10,725.4
Hungary	Developed	4,500.2	4,796.0	5,542.0	5,530.3	5,884.6	6,408.5	6,029.9	5,870.6	6,419.3	6,570.6	6,468.0	6,858.9	6,566.3	6,207.6
Ireland	Developed	3,069.3	3,824.8	4,742.8	4,857.3	5,520.7	5,786.7	6,437.4	7,035.7	7,433.1	7,182.9	7,261.8	7,374.5	6,852.3	6,834.4
Italy	Developed	41,207.1	43,636.6	47,357.3	50,159.4	53,837.1	55,940.8	58,398.7	58,805.7	60,842.3	65,276.2	68,768.3	70,780.7	70,814.2	69,125.2
Latvia	Developed	258.4	281.0	435.3	366.5	474.3	585.3	681.7	767.1	1,274.3	1,194.4	1,235.3	1,162.3	1,476.1	1,256.8
Lithuania	Developed	826.5	1,182.9	1,476.8	1,676.7	1,578.5	2,493.0	2,264.8	2,345.5	2,456.6	2,310.5	2,319.2	2,471.7	2,460.5	2,181.2
Luxembourg	Developed	86.7	141.7	142.2	198.4	211.1	309.7	389.0	461.3	586.8	595.6	772.2	865.7	797.9	817.9
Malta	Developed	77.9	62.9	77.1	81.5	109.4	177.0	157.7	184.5	201.5	250.5	265.3	297.3	302.2	320.4
Netherlands	Developed	19,565.0	21,238.1	23,860.9	24,460.6	25,627.5	26,534.5	28,684.2	29,226.9	30,227.6	31,501.2	32,017.2	32,354.9	31,068.9	29,949.0
Poland	Developed	15,948.1	17,967.9	19,830.2	21,267.4	21,568.8	23,376.1	23,470.8	24,551.5	25,857.5	28,115.0	30,064.1	31,779.4	32,766.5	32,977.9
Portugal	Developed	4,507.6	5,109.3	5,887.8	7,136.2	7,623.6	8,655.6	9,573.0	10,625.1	11,989.2	13,102.6	14,112.4	14,666.0	14,581.9	13,773.2
Romania	Developed	2,601.4	2,730.1	3,460.7	3,522.9	5,170.0	7,367.8	9,550.1	11,010.2	10,906.2	11,061.6	11,177.0	10,800.6	11,527.3	10,193.5
Slovakia	Developed	2,136.1	2,303.5	2,548.8	2,644.4	2,800.2	3,332.5	3,164.3	3,638.3	3,899.5	4,261.9	4,616.6	5,135.9	5,205.7	5,359.4

Region, country, or economy	Region, country, or economy economic status	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Slovenia	Developed	2,074.4	1,894.4	2,334.9	2,392.7	2,754.2	3,006.9	3,221.1	3,246.6	3,780.4	3,707.9	3,726.1	3,788.5	3,631.6	3,406.7
Spain	Developed	28,887.2	31,479.4	35,673.9	39,270.5	42,014.7	43,958.6	47,326.9	49,035.6	52,355.1	55,108.1	55,736.4	57,075.8	54,794.2	52,820.7
Sweden	Developed	14,553.8	15,235.3	16,426.1	16,633.8	16,757.4	16,630.1	17,328.3	17,730.5	18,438.5	19,422.4	20,092.6	21,130.1	20,668.9	19,937.1
United Kingdom	Developed	74,599.8	78,314.4	84,993.1	88,060.9	91,352.4	92,000.6	94,757.4	95,488.8	98,479.6	101,367.0	103,051.0	102,970.6	101,407.0	97,526.9
Other Europe	-	72,625.3	77,044.9	83,526.0	82,242.2	87,271.7	90,531.4	96,219.9	100,830.1	107,311.0	112,624.9	119,650.3	126,239.2	134,631.2	140,922.2
Albania	Developing	23.9	22.0	26.2	32.6	40.3	51.9	76.8	140.8	165.2	214.1	359.5	360.7	269.0	191.4
Andorra	Developing	4.1	1.3	4.8	5.0	6.2	1.7	2.6	1.2	1.0	3.6	5.9	5.4	7.4	7.9
Belarus	Developing	1,177.7	1,196.1	1,291.6	1,159.5	1,293.3	1,037.8	1,171.7	1,056.6	1,099.4	1,015.2	1,040.6	1,053.0	970.4	936.7
Bosnia and Herzegovina	Developing	123.7	175.6	250.6	223.2	243.1	372.6	406.9	494.5	542.6	572.9	494.5	477.8	524.6	508.5
Holy See (Vatican City)	Developed	0.0	2.4	0.5	0.3	0.4	1.5	2.1	2.3	1.8	2.7	2.9	3.1	4.1	1.7
Iceland	Developed	258.5	300.0	354.7	361.6	364.4	431.3	497.1	567.5	553.3	636.3	594.7	589.5	611.7	651.8
Kosovo	Developing	0.0	0.0	0.0	0.0	0.0	52.1	95.0	120.0	106.5	116.6	127.6	125.6	133.3	189.0
Liechtenstein	Developed	14.5	23.8	33.6	34.4	24.6	39.0	25.2	40.2	41.2	34.1	31.3	38.9	30.3	35.4
Macedonia	Developing	144.3	226.7	238.9	219.9	284.2	293.9	355.9	346.1	434.3	496.1	505.6	556.7	576.4	483.1
Moldova	Developing	155.1	121.9	203.7	143.5	147.0	164.8	199.3	172.3	203.2	231.0	231.0	239.3	193.6	295.4
Monaco	Developing	25.7	37.8	36.5	34.3	30.1	35.4	41.8	40.9	49.0	30.4	36.5	40.2	41.1	39.7
Montenegro ^a	Developing	na	na	na	na	64.0	66.0	67.3	106.8	133.7	162.1	198.8	219.3	206.0	257.8

Region, country, or economy	Region, country, or economy economic status	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Norway	Developed	5,118.6	5,608.6	6,655.6	7,093.3	7,674.3	7,948.0	8,751.0	9,056.1	9,759.8	10,357.5	10,352.6	10,703.8	10,471.1	10,725.7
Russia	Developing	32,329.5	32,149.9	33,091.8	29,368.9	30,319.7	31,854.4	32,620.2	33,960.8	36,157.3	36,252.6	39,714.7	44,994.7	53,060.6	59,133.5
San Marino	Developing	0.2	0.6	1.3	0.7	2.9	4.8	1.2	1.3	2.3	5.9	7.0	5.1	7.5	7.5
Serbia ^a	Developing	na	na	na	na	2,843.1	3,096.6	3,710.7	4,120.9	4,919.6	6,076.6	5,472.3	5,233.2	5,072.3	5,052.4
Serbia and Montenegro ^b	Developing	1,433.8	1,719.4	2,189.9	2,336.5	na	na	na	na	na	na	na	na	na	na
Switzerland	Developed	12,848.2	13,992.8	15,384.7	16,385.4	16,922.5	17,438.0	18,094.8	18,944.0	19,932.9	21,200.9	21,877.8	22,502.0	21,884.1	21,127.6
Turkey	Developing	13,353.6	15,830.5	17,840.9	19,546.7	21,523.0	21,735.0	24,447.0	25,584.0	26,808.3	28,500.5	31,146.9	31,673.7	33,113.0	33,902.2
Ukraine	Developing	5,614.0	5,635.6	5,920.7	5,296.3	5,488.6	5,906.6	5,653.3	6,073.7	6,399.5	6,715.9	7,449.9	7,417.1	7,454.8	7,374.7
Middle East	-	18,966.3	21,161.3	24,085.8	28,304.2	32,173.4	36,813.8	41,760.8	47,676.3	56,608.5	59,561.4	62,891.4	67,288.0	68,844.3	73,817.0
Armenia	Developing	311.9	342.2	390.0	360.3	400.5	394.5	446.5	494.3	618.6	550.5	552.0	559.1	531.4	521.0
Azerbaijan	Developing	266.1	350.5	351.0	288.4	417.9	475.0	616.2	605.3	645.9	684.0	481.1	399.6	420.9	480.3
Bahrain	Developing	126.5	136.7	159.0	185.2	172.2	165.6	186.6	205.0	185.2	160.3	236.1	223.6	172.6	210.6
Gaza Strip	Developing	36.7	47.9	40.8	47.8	69.7	62.0	70.3	60.4	88.0	85.6	97.3	97.5	81.1	69.0
Georgia	Developing	216.6	269.2	377.0	357.5	307.4	350.1	406.6	346.4	463.2	441.4	473.4	486.1	492.0	579.4
Iran	Developing	3,768.4	5,017.1	7,102.8	10,072.5	13,202.9	16,841.7	20,594.4	25,208.6	31,419.4	32,195.1	33,761.3	36,310.9	36,748.6	40,974.5
Iraq	Developing	116.0	90.7	139.5	244.5	231.7	304.3	361.8	554.8	653.7	843.3	853.4	865.5	897.3	1,227.3
Israel	Developed	9,676.4	10,237.0	10,398.4	11,040.4	11,238.9	11,366.8	11,270.8	11,014.4	11,414.9	11,916.3	11,749.8	12,265.8	12,216.4	11,892.7

Region, country, or economy	Region, country, or economy economic status	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Jordan	Developing	657.9	740.9	794.5	954.3	1,086.1	1,224.8	1,294.1	1,452.8	1,464.7	1,444.9	1,520.6	1,471.8	1,509.8	1,651.8
Kuwait	Developing	512.7	544.5	620.5	646.4	711.4	756.8	776.5	748.6	800.2	830.6	878.7	794.4	874.0	738.6
Lebanon	Developing	459.9	481.9	552.6	635.0	652.5	717.7	762.6	790.4	888.0	1,023.3	1,096.3	1,219.5	1,278.1	1,397.9
Oman	Developing	288.2	300.5	317.3	332.1	392.7	383.4	426.2	477.3	598.8	587.5	667.3	705.8	774.1	795.0
Qatar	Developing	105.9	135.3	168.8	184.4	244.1	279.8	330.3	408.7	471.1	623.9	808.2	1,106.6	1,180.1	1,310.7
Saudi Arabia	Developing	1,719.2	1,710.7	1,734.0	1,898.0	2,011.6	2,222.4	2,836.4	3,621.3	4,957.5	5,982.5	7,410.5	8,410.8	8,885.0	9,231.9
Syria	Developing	101.2	129.2	140.9	128.9	153.8	200.1	162.2	228.4	268.9	302.8	265.9	245.1	270.3	273.2
United Arab Emirates	Developing	522.6	537.8	698.1	810.4	756.1	917.8	1,024.7	1,229.3	1,427.8	1,645.5	1,775.6	1,819.0	2,261.6	2,180.9
West Bank	Developing	48.4	48.3	55.1	64.3	79.0	92.9	113.5	130.2	132.9	131.8	134.1	158.9	144.9	171.1
Yemen	Developing	31.8	40.9	45.3	53.9	45.0	58.0	81.1	99.9	109.8	112.1	129.9	148.1	106.1	111.2
Africa	-	14,043.3	15,807.4	17,089.9	19,435.1	21,506.0	23,547.8	27,717.6	30,363.7	33,719.9	36,978.7	40,459.0	44,664.9	45,367.0	48,919.8
Algeria	Developing	629.8	836.9	932.6	1,287.5	1,405.7	1,742.0	2,126.3	2,137.4	2,461.0	3,063.4	3,538.9	3,679.5	4,102.8	4,447.1
Angola	Developing	4.3	8.2	9.9	13.3	9.9	9.9	14.0	15.2	17.8	22.4	24.1	35.7	32.9	39.1
Benin	Developing	47.2	61.1	55.6	75.0	87.1	92.4	122.0	108.9	132.8	146.1	181.3	181.6	189.2	167.3
Botswana	Developing	114.1	121.2	115.3	178.6	139.2	151.0	134.9	154.2	160.5	156.6	180.9	200.0	167.4	226.6
Burkina Faso	Developing	76.6	72.1	69.6	101.0	112.9	120.4	136.8	130.9	153.3	209.3	183.5	201.9	219.8	221.8
Burundi	Developing	4.5	5.0	2.8	4.6	5.5	2.5	3.8	12.5	8.5	10.7	16.3	14.9	12.2	10.7
Cameroon	Developing	196.9	216.8	275.9	314.6	343.5	328.5	359.4	377.6	438.0	459.4	526.5	618.4	635.3	670.1



Region, country, or economy	Region, country, or economy economic status	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Cape Verde	Developing	2.4	1.6	0.4	4.1	2.7	2.1	4.9	3.6	2.4	4.0	9.2	8.2	9.6	8.1
Central African Republic	Developing	9.2	8.6	9.6	13.4	8.3	9.5	10.1	14.3	13.3	10.5	11.8	18.7	13.6	28.9
Chad	Developing	5.0	8.7	7.6	10.7	5.2	6.9	9.3	6.0	8.4	6.2	7.3	8.7	12.4	11.5
Comoros	Developing	0.3	1.2	0.9	0.2	2.6	0.7	0.8	2.2	3.9	1.6	13.9	1.5	2.5	4.6
Congo, Democratic Republic of the	Developing	16.8	15.5	26.8	25.6	36.0	39.1	42.9	54.9	50.0	78.9	84.3	120.0	131.3	112.8
Congo, Republic of the	Developing	32.4	35.3	42.1	42.3	41.8	45.3	38.8	47.6	49.6	54.9	60.7	76.2	65.9	77.8
Côte d'Ivoire	Developing	92.1	108.8	101.7	99.4	129.2	170.6	155.3	155.8	183.8	192.0	164.8	186.5	194.2	177.5
Djibouti	Developing	1.3	1.9	2.7	1.9	2.3	2.8	8.1	6.9	4.2	6.6	7.8	7.5	5.8	4.1
Egypt	Developing	3,296.1	3,549.3	3,600.0	3,958.3	4,512.1	4,918.8	6,105.2	6,665.5	7,426.6	8,514.4	8,949.2	9,311.2	9,830.6	10,807.0
Equatorial Guinea	Developing	1.2	4.1	1.5	3.7	3.8	2.4	4.8	4.0	2.2	2.8	2.3	2.2	5.1	7.4
Eritrea	Developing	15.2	11.7	12.8	17.4	16.5	10.0	7.0	11.7	13.3	5.2	10.6	7.5	9.7	8.5
Ethiopia	Developing	209.6	202.5	220.5	272.0	309.1	342.9	413.0	451.1	513.5	710.6	842.4	1,025.0	1,020.8	1,121.0
Gabon	Developing	28.6	33.3	43.1	42.6	34.1	42.9	50.4	43.7	57.3	52.0	50.6	60.1	60.3	59.2
Gambia, The	Developing	30.7	37.4	36.0	46.1	36.2	41.7	40.2	44.7	33.8	37.3	45.1	49.2	42.7	46.5
Ghana	Developing	145.9	175.3	191.1	195.1	249.0	269.2	336.2	367.3	439.3	549.5	603.7	662.2	794.8	982.1
Guinea	Developing	5.1	10.6	7.0	18.9	15.1	11.8	12.0	11.4	11.2	11.6	11.3	23.8	27.3	38.0
Guinea-Bissau	Developing	8.0	9.6	9.4	5.7	12.1	7.3	8.3	5.8	10.4	12.8	12.0	17.9	10.3	11.5



Region, country, or economy	Region, country, or economy economic status	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Kenya	Developing	409.2	439.3	456.3	490.4	566.0	592.6	678.8	701.2	805.0	804.1	919.6	978.2	950.8	987.1
Lesotho	Developing	5.4	5.9	4.7	10.8	9.6	11.1	8.1	8.1	8.3	18.3	14.0	8.9	19.1	22.8
Liberia	Developing	1.3	0.6	1.3	4.7	2.8	2.4	4.7	3.4	8.3	9.8	9.0	11.8	16.6	16.6
Libya	Developing	55.3	62.2	76.6	92.0	109.9	129.0	229.4	301.9	126.9	158.5	218.5	199.0	172.0	138.7
Madagascar	Developing	65.2	50.0	56.2	62.4	104.2	81.5	86.2	81.2	98.0	93.2	118.0	122.0	120.4	102.8
Malawi	Developing	77.8	77.2	81.9	85.0	130.1	136.2	111.9	142.3	166.8	171.6	159.7	186.9	197.0	203.1
Mali	Developing	36.9	33.7	39.7	63.6	67.8	67.5	73.0	79.0	88.1	87.2	65.1	73.6	70.2	87.3
Mauritania	Developing	4.9	6.4	10.5	7.3	9.0	5.0	7.3	6.6	13.3	12.7	16.2	12.8	13.8	19.7
Mauritius	Developing	47.4	55.7	66.8	61.0	59.1	70.2	79.4	87.8	63.5	108.4	120.3	122.6	121.5	156.0
Morocco	Developing	921.3	951.6	917.1	983.5	1,043.4	1,214.3	1,470.0	1,659.5	2,007.5	2,298.1	2,506.2	3,175.5	3,156.6	4,062.5
Mozambique	Developing	24.9	30.4	35.8	43.3	40.5	49.0	58.0	45.8	73.9	60.6	67.9	85.3	102.6	100.6
Namibia	Developing	39.9	31.0	50.3	34.7	38.3	36.0	33.2	39.0	46.9	66.0	86.1	94.8	99.4	107.7
Niger	Developing	22.1	22.5	22.2	29.8	29.2	26.9	55.5	66.1	31.9	32.0	32.7	49.6	56.1	56.1
Nigeria	Developing	1,222.5	1,456.7	1,660.5	2,049.7	2,297.2	2,328.3	3,001.9	3,458.1	3,783.5	3,582.1	3,809.3	3,994.7	3,742.8	3,821.6
Rwanda	Developing	4.7	9.1	7.3	18.0	19.7	25.8	33.6	55.6	53.2	58.1	87.9	88.2	105.2	115.3
São Tomé and Príncipe	Developing	1.9	0.6	0.3	1.0	1.3	0.0	1.3	2.2	0.0	0.5	1.2	0.7	1.4	0.9
Senegal	Developing	198.8	173.4	207.4	171.6	207.6	208.1	188.0	203.4	284.3	287.3	299.0	332.9	371.2	353.0
Seychelles	Developing	9.6	5.0	4.9	9.0	12.3	10.7	6.6	11.8	9.9	9.8	15.9	9.6	19.0	12.4

Region, country, or economy	Region, country, or economy economic status	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sierra Leone	Developing	2.8	5.4	6.0	5.1	5.0	7.9	9.1	12.2	11.1	14.8	15.0	21.7	34.3	48.2
Somalia	Developing	1.8	1.1	0.0	1.0	0.0	1.1	2.8	3.2	2.9	1.4	6.3	6.2	4.5	3.3
South Africa	Developing	4,226.6	4,809.3	5,146.4	5,636.5	5,907.4	6,403.7	7,062.6	7,651.6	8,533.0	9,341.5	10,251.0	11,991.5	11,417.8	11,881.2
South Sudan	Developing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	2.4	9.8	5.8	5.1	2.5
Sudan	Developing	85.6	104.3	100.9	108.3	140.6	169.5	227.4	258.1	298.4	270.4	359.2	242.5	255.2	368.8
Swaziland	Developing	11.7	12.7	19.1	16.9	11.4	19.1	28.2	37.2	31.5	30.4	33.2	33.8	35.0	31.0
Tanzania	Developing	161.6	182.4	210.6	266.6	287.6	281.3	302.6	368.7	415.3	396.4	407.7	548.0	547.0	539.2
Togo	Developing	26.2	22.1	26.0	28.9	32.2	42.3	42.4	48.4	48.9	47.5	64.2	81.3	78.0	76.3
Tunisia	Developing	1,066.0	1,355.6	1,701.4	1,980.2	2,345.8	2,790.6	3,277.7	3,552.9	3,824.9	3,924.2	4,387.6	4,697.4	5,025.9	5,265.6
Uganda	Developing	127.6	194.0	215.1	208.4	272.6	250.6	306.0	400.9	432.6	464.0	496.0	536.7	607.2	572.9
Western Sahara	Developing	0.0	1.0	0.0	0.0	0.0	1.0	1.5	0.3	0.0	0.3	0.0	0.0	2.0	0.0
Zambia	Developing	46.9	43.8	60.8	69.2	66.9	93.5	75.6	89.2	104.3	110.3	120.8	139.2	154.3	179.3
Zimbabwe	Developing	164.0	127.6	129.0	163.9	168.7	122.0	110.4	154.8	151.1	197.7	223.2	295.4	268.4	298.0
Asia	-	263,943.5	312,074.1	381,321.8	423,173.5	462,541.8	509,132.0	564,669.3	612,546.3	655,450.8	664,609.3	708,248.7	753,224.1	773,830.8	793,150.1
Afghanistan	Developing	7.3	5.8	9.4	10.2	14.5	12.5	23.3	33.9	42.7	35.0	27.3	33.3	23.5	80.4
Bangladesh	Developing	573.5	532.1	610.8	719.4	1,005.8	1,119.3	1,248.3	1,497.8	1,521.5	2,052.9	2,019.4	2,361.5	2,194.9	2,546.1
Bhutan	Developing	3.7	8.4	5.5	15.9	8.1	6.1	12.1	17.2	17.3	18.0	29.3	27.8	23.9	40.2
Brunei	Developing	34.8	29.3	30.3	33.9	42.6	42.4	46.3	47.7	79.4	107.3	126.1	185.9	177.5	216.9



Region, country, or economy	Region, country, or economy economic status	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Burma	Developing	12.5	14.4	51.1	29.7	38.2	58.4	87.6	56.0	96.4	42.9	36.7	46.6	76.4	110.8
Cambodia	Developing	25.3	35.7	36.6	47.5	50.7	54.7	61.6	58.9	72.0	75.8	85.7	94.3	111.4	116.9
China	Developing	86,621.4	119,754.6	164,747.4	189,759.8	215,700.4	249,972.9	290,330.2	316,915.3	334,045.0	332,082.1	362,972.9	393,962.7	411,268.1	426,165.3
India	Developing	26,797.1	28,930.1	33,215.8	38,590.3	43,624.9	48,794.2	54,667.1	62,790.2	75,337.3	82,182.2	88,942.4	100,574.8	106,663.4	110,319.6
Indonesia	Developing	359.7	447.4	545.3	619.0	613.8	678.0	1,014.0	1,344.6	1,821.4	2,027.8	2,776.3	3,465.2	5,071.5	7,728.7
Japan	Developed	97,235.2	100,403.7	109,662.2	110,502.8	108,760.8	106,897.5	108,237.4	108,292.4	110,570.0	109,424.5	109,257.9	106,154.6	99,812.4	96,536.2
Kazakhstan	Developing	238.8	228.9	241.2	215.1	213.8	226.8	270.4	324.4	382.7	478.9	1,014.9	1,065.5	1,259.3	1,563.8
Kyrgyzstan	Developing	20.2	30.2	43.1	50.0	37.4	51.4	33.8	34.2	49.9	49.2	62.7	55.9	50.9	100.8
Laos	Developing	17.7	37.0	23.3	40.0	27.5	35.0	40.7	44.5	48.0	59.9	72.3	55.7	68.6	85.1
Malaysia	Developing	1,741.1	2,019.1	2,433.6	3,229.9	3,903.0	6,108.1	8,035.2	11,056.8	14,003.8	14,742.2	16,291.1	17,348.9	19,088.7	20,331.5
Maldives	Developing	2.4	1.3	3.2	4.1	4.8	0.9	3.0	2.8	6.7	8.9	5.0	8.9	6.2	4.9
Mongolia	Developing	34.2	31.8	37.4	49.2	111.9	89.0	102.1	93.4	104.9	132.2	169.2	122.2	103.5	112.3
Nepal	Developing	191.3	208.6	285.1	331.4	364.8	333.1	396.6	394.3	398.0	456.5	484.5	526.9	521.1	549.3
North Korea	Developing	5.1	54.8	52.3	60.0	41.7	27.9	53.8	12.6	7.5	18.3	13.1	20.8	47.3	43.8
Pakistan	Developing	1,420.7	1,685.0	2,321.6	2,809.3	3,363.3	4,044.7	4,917.3	5,661.2	6,444.9	7,078.5	8,078.1	8,065.2	8,337.2	9,180.6
Papua New Guinea	Developing	52.6	37.0	33.4	38.2	55.7	59.1	42.9	53.3	47.5	62.6	54.3	64.3	59.7	54.0
Philippines	Developing	361.9	346.4	424.2	410.3	467.8	528.6	588.4	684.3	882.0	854.0	961.8	1,045.0	1,384.7	1,568.7
Singapore	Developed	6,037.0	7,401.0	7,959.6	8,204.6	8,251.5	8,688.5	8,919.5	9,853.9	10,098.5	10,809.3	10,979.5	11,145.3	11,220.9	11,253.8

Region, country, or economy	Region, country, or economy economic status	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
South Korea	Developed	23,201.1	27,398.8	31,646.6	36,746.8	41,521.7	44,300.9	46,020.6	50,935.1	54,716.8	57,373.7	59,205.9	62,691.2	64,523.1	63,063.0
Sri Lanka	Developing	247.2	244.0	332.3	369.5	420.6	469.6	475.8	501.8	578.4	617.7	743.6	704.8	756.7	1,032.9
Taiwan	Developed	15,807.3	18,752.9	22,382.5	25,246.2	28,182.9	29,894.6	31,869.8	33,495.9	35,088.9	34,091.5	33,634.7	32,516.0	29,656.6	27,385.1
Tajikistan	Developing	32.2	38.6	30.8	26.3	32.5	30.0	23.3	40.6	42.8	47.5	62.0	37.8	54.0	47.5
Thailand	Developing	2,260.3	2,714.3	3,433.8	4,270.0	4,812.3	5,527.5	5,940.0	6,811.2	7,336.1	7,768.1	7,917.3	8,476.1	8,675.4	9,581.5
Timor-Leste	Developing	1.3	0.0	1.5	3.5	3.3	1.3	2.6	1.1	3.1	6.0	6.3	10.6	7.8	8.3
Turkmenistan	Developing	4.0	4.5	3.2	3.1	4.9	2.6	5.0	5.3	12.2	13.3	6.9	20.1	6.0	3.5
Uzbekistan	Developing	277.7	355.0	322.6	291.4	346.9	300.5	336.3	388.9	379.2	325.3	353.0	332.2	287.8	357.4
Vietnam	Developing	319.0	323.4	396.3	446.2	513.7	775.9	864.3	1,096.5	1,215.6	1,567.1	1,858.4	2,003.9	2,292.1	2,961.3
Australia and Oceania	-	29,318.0	31,819.2	36,400.6	38,821.6	41,915.2	43,182.3	45,669.3	48,510.3	51,894.2	54,158.4	57,636.8	60,640.9	59,779.0	58,734.1
Australia	Developed	24,849.7	26,946.4	31,031.7	33,100.4	35,798.6	36,822.3	38,996.2	41,564.9	44,378.3	46,386.8	49,921.9	52,643.6	52,147.9	51,068.2
Cook Islands	Developing	0.0	0.0	0.3	0.7	0.4	0.0	0.6	0.5	1.8	2.7	1.7	2.0	1.5	1.2
Fiji	Developing	47.1	64.4	58.8	75.0	85.8	63.3	68.0	62.6	62.1	67.6	89.5	123.2	99.4	154.9
Kiribati	Developing	0.1	0.0	0.0	2.4	1.8	0.0	0.3	0.3	0.0	1.0	1.1	1.9	1.4	2.2
Marshall Islands	Developing	3.8	1.0	1.8	3.8	1.1	1.6	1.7	1.5	1.5	1.5	1.3	1.2	2.6	1.3
Micronesia, Federated States of	Developing	2.3	2.4	6.0	2.0	7.1	4.3	2.9	8.2	4.9	4.5	5.9	3.2	4.3	2.7
Nauru	Developing	0.0	0.2	0.5	0.3	0.0	0.0	0.7	0.0	0.7	0.5	0.3	0.4	0.3	0.7



Region, country, or economy	Region, country, or economy economic status	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
New Zealand	Developed	4,395.8	4,783.1	5,279.3	5,607.4	6,000.4	6,277.4	6,578.6	6,844.5	7,419.6	7,675.9	7,593.9	7,834.7	7,481.3	7,464.7
Niue	Developing	0.0	0.0	0.1	1.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1
Palau	Developing	1.8	2.4	7.0	3.3	4.8	2.7	2.7	5.2	1.8	2.2	3.5	4.7	6.4	3.1
Samoa	Developing	3.8	4.8	5.1	9.9	4.1	2.6	5.4	6.1	6.1	2.5	4.5	7.5	8.2	5.3
Solomon Islands	Developing	4.9	2.6	2.6	6.6	4.3	2.9	3.4	7.9	7.5	5.0	4.3	6.6	10.9	14.0
Tonga	Developing	1.6	3.4	0.7	2.7	2.3	0.5	2.9	1.4	1.9	1.8	1.3	1.0	2.7	1.8
Tuvalu	Developing	0.6	0.6	0.0	1.3	0.4	0.3	0.3	1.0	0.0	0.0	0.3	1.1	1.1	0.4
Vanuatu	Developing	6.5	7.8	6.8	5.0	2.6	4.4	5.6	6.3	7.9	6.4	7.3	9.7	10.9	13.5
Unassigned	-	11,062.5	8,538.1	9,516.4	9,743.9	11,143.2	10,677.0	7,966.8	10,357.8	11,066.8	11,973.4	10,913.0	4,768.1	3,388.0	3,424.4

na = not applicable; country data do not exist.

EU = European Union.

^a Beginning in 2006, Serbia and Montenegro represented individual countries.

^b Serbia and Montenegro represented a single country for data purposes from 1992 to 2006.

Note(s)

Article counts refer to publications from a selection of journals, books, and conference proceedings in S&E from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) listed in the article. Articles are credited on a fractional-count basis. The sum of the regions, countries, or economies may not add to the world total because of rounding. Some publications have incomplete address information for coauthored publications in the Scopus database. The unassigned category count is the sum of fractional counts for publications that cannot be assigned to a region, country, or economy.

Source(s)



National Science Foundation, National Center for Science and Engineering Statistics; SRI International; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed July 2017. For more information on the International Monetary Fund economic classification of countries, see <https://www.imf.org/external/pubs/ft/weo/2016/01/weodata/groups.htm>, accessed December 2016.

Science and Engineering Indicators 2018