

Country-Level Data Sources and Estimation Procedures by Region and Income Group¹ - Version September 2020

Asia-Pacific (APC)

Country	Data sources and estimation procedures
Australia	OECD S&T indicators
Bangladesh	See asti.cgiar.org/bangladesh/datacoverage
Bhutan*	Estimated based on the average regional ARI and national AgGDP trends
Brunei Darussalam*	Estimated based on the average regional ARI and national AgGDP trends
Cambodia	See asti.cgiar.org/cambodia/datacoverage ; 1981–1990 data were estimated
China	InStePP data series for China Download article and data file . 2014–2016 investment data were estimated using annual growth trends on agricultural S&T as published in the China S&T Yearbooks.
Fiji*	Estimated based on the average regional ARI and national AgGDP trends
India	See asti.cgiar.org/india/datacoverage ; 1981–1986 data were estimated using underlying data from Pal and Byerlee (2006) Download PDF
Indonesia	See asti.cgiar.org/indonesia/datacoverage ; 1981–1994 data were estimated using underlying data from Fuglie and Piggott (2006) Download PDF/
Japan	OECD S&T indicators
Korea, Rep. of	OECD S&T indicators
Kiribati*	Estimated based on the average regional ARI and national AgGDP trends
Laos	See asti.cgiar.org/laos/datacoverage ; 1981–1997 data were estimated
Malaysia	See asti.cgiar.org/malaysia/datacoverage
Maldives*	Estimated based on the average regional ARI and national AgGDP trends
Micronesia*	Estimated based on the average regional ARI and national AgGDP trends
Mongolia*	Estimated based on the average regional ARI and national AgGDP trends
Myanmar	See asti.cgiar.org/myanmar/datacoverage ; 1981–1995 and 2004–2008 data were estimated
Nepal	See asti.cgiar.org/nepal/datacoverage ; 1981–1990 data were estimated
New Zealand	OECD S&T indicators; 2011–2016 were estimated.
Pakistan	See asti.cgiar.org/pakistan/datacoverage ; 1981–1990 data were estimated using various secondary resources
Palau*	Estimated based on the average regional ARI and national AgGDP trends
Papua New Guinea	See asti.cgiar.org/papua-new-guinea/datacoverage ; 1981–1990 data were estimated
Philippines	See asti.cgiar.org/philippines/datacoverage ; 2003–2016 were estimated.
Samoa*	Estimated based on the average regional ARI and national AgGDP trends
Singapore*	Estimated based on the average regional ARI and national AgGDP trends
Solomon Islands*	Estimated based on the average regional ARI and national AgGDP trends
Sri Lanka	See asti.cgiar.org/sri-lanka/datacoverage
Thailand	See asti.cgiar.org/thailand/datacoverage ; 1981–1999 were estimated.
Tonga*	Estimated based on the average regional ARI and national AgGDP trends
Vanuatu*	Estimated based on the average regional ARI and national AgGDP trends
Vietnam	See asti.cgiar.org/vietnam/datacoverage ; 1981–1990 data were estimated

Note: For countries marked with an asterisk (0.1 percent of the 2016 total), shares were estimated based on a combination of the average regional agricultural research intensity and national AgGDP trends.

¹ For methodology and data collection standards, see <http://www.asti.cgiar.org/methodology>.

Africa south of the Sahara (SSA)

Country	Data sources and estimation procedures
Angola*	Estimated based on the average regional ARI and national AgGDP trends
Benin	See asti.cgiar.org/benin/datacoverage
Botswana	See asti.cgiar.org/botswana/datacoverage
Burkina Faso	See asti.cgiar.org/burkina-faso/datacoverage ; 2015-2016 were estimated
Burundi	See asti.cgiar.org/burundi/datacoverage
Cabo Verde	2009-2016 through an ASTI—INIDA institutional survey round; other years estimated
Cameroon	2012-2016 through an ASTI—IRAD institutional survey round; other years estimated
Central African Rep.	2009-2016 through an ASTI—ICRA institutional survey round; other years estimated
Chad	2009-2016 through an ASTI—ITRAD institutional survey round; other years estimated
Comoros*	Estimated based on the average regional ARI and national AgGDP trends
Congo, DR	2009-2016 through an ASTI—INERA institutional survey round; other years estimated
Congo, Republic	See asti.cgiar.org/republic-of-congo/datacoverage
Côte d'Ivoire	See asti.cgiar.org/cote-divoire/datacoverage
Equatorial Guinea*	Estimated based on the regional ARI and national AgGDP trends
Eritrea	See asti.cgiar.org/eritrea/datacoverage
Ethiopia	See asti.cgiar.org/ethiopia/datacoverage
Eswatini	2009-2016 through an ASTI—DARSS institutional survey round; other years estimated
Gabon	See asti.cgiar.org/gabon/datacoverage
Gambia, The	See asti.cgiar.org/gambia/datacoverage
Ghana	See asti.cgiar.org/ghana/datacoverage
Guinea	See asti.cgiar.org/guinea/datacoverage
Guinea-Bissau	2009-2011 through an ASTI—INPA institutional survey round; other years estimated
Kenya	See asti.cgiar.org/kenya/datacoverage
Lesotho	2009-2016 through an ASTI—DAR institutional survey round; other years estimated
Liberia	2009-2011 through an ASTI—CARI institutional survey round; other years estimated
Madagascar	See asti.cgiar.org/madagascar/datacoverage
Malawi	See asti.cgiar.org/malawi/datacoverage ; 2015-2016 were estimated
Mali	See asti.cgiar.org/mali/datacoverage
Mauritania	See asti.cgiar.org/mauritania/datacoverage
Mauritius	See asti.cgiar.org/mauritius/datacoverage
Mozambique	See asti.cgiar.org/mozambique/datacoverage
Namibia	See asti.cgiar.org/namibia/datacoverage ; 2015-2016 were estimated
Niger	See asti.cgiar.org/niger/datacoverage
Nigeria	See asti.cgiar.org/nigeria/datacoverage ; 2015-2016 data were estimated
Rwanda	See asti.cgiar.org/rwanda/datacoverage
Sao Tome & Principe*	Estimated based on the average regional ARI and national AgGDP trends
Senegal	See asti.cgiar.org/senegal/datacoverage
Seychelles*	Estimated based on the average regional ARI and national AgGDP trends
Sierra Leone	See asti.cgiar.org/sierra-leone/datacoverage
South Africa	See asti.cgiar.org/south-africa/datacoverage
Tanzania	See asti.cgiar.org/tanzania/datacoverage
Togo	See asti.cgiar.org/togo/datacoverage
Uganda	See asti.cgiar.org/uganda/datacoverage
Zambia	See asti.cgiar.org/zambia/datacoverage ; 2015-2016 were estimated
Zimbabwe	See asti.cgiar.org/zimbabwe/datacoverage

Note: For countries marked with an asterisk (2 percent of the 2016 total), shares were estimated based on a combination of the average regional agricultural research intensity and national AgGDP trends.

Latin America and the Caribbean (LAC)

Country	Data sources and estimation procedures
Antigua and Barbuda	2007-2012 through an ASTI—CARDI institutional survey round; other years estimated
Argentina	See asti.cgiar.org/argentina/datacoverage ; 2007–2008 were estimated using INTA data; 2014-2016 were estimated using OECD S&T data.
Bahamas*	Estimated based on the average regional ARI for national AgGDP trends
Barbados*	Estimated based on the average regional ARI for national AgGDP trends
Belize	See asti.cgiar.org/belize/datacoverage ; 2007–2008 and 2013-2016 were estimated
Bolivia	2007-2013 through an ASTI-CIAT institutional survey round; other years estimated
Brazil	See asti.cgiar.org/brazil/datacoverage ; 2007–2008 and 2014-2016 were estimated using financial data for Embrapa
Chile	See asti.cgiar.org/chile/datacoverage ; 2007–2008 were estimated using primary survey data from INIA and other key government and higher education agencies; 2014-2016 were estimated using OECD S&T data
Colombia	See asti.cgiar.org/colombia/datacoverage ; 2007–2008 were estimated using primary survey data from CORPOICA and other key government, higher education, and nonprofit agencies; 2014-2016 were estimated using RICYT S&T data
Costa Rica	See asti.cgiar.org/costa-rica/datacoverage ; 2007–2008 were estimated; 2013-2016 estimated using RICYT S&T data
Dominica	2007-2012 through an ASTI—CARDI institutional survey round; other years estimated
Dominican Republic	See asti.cgiar.org/dominican-republic/datacoverage ; 2007–2008 were estimated
Ecuador	2007-2012 through an ASTI—CIAT institutional survey round; other years estimated
El Salvador	See asti.cgiar.org/el-salvador/datacoverage ; 2007–2016 were estimated
Grenada	2007-2012 through an ASTI—CARDI institutional survey round; other years estimated
Guatemala	See asti.cgiar.org/guatemala/datacoverage ; 2007–2008 and 2013-2016 were estimated
Guyana*	Estimated based on the average regional ARI and national AgGDP trends
Honduras	See asti.cgiar.org/honduras/datacoverage ; 2007–2008 and 2013-2016 were estimated
Jamaica	2007-2012 through an ASTI—CARDI institutional survey round; other years estimated
Mexico	See www.asti.cgiar.org/mexico/datacoverage ; 2007–2008 were estimated using primary survey data from INIFAP and other key government and higher education agencies and 2014-2016 from RICYT S&T data
Nicaragua	2012 through an ASTI survey; other years estimated
Panama	See asti.cgiar.org/panama/datacoverage ; 2007–2008 were estimated; 2013-2016 were estimated using RICYT S&T data
Paraguay	See asti.cgiar.org/paraguay/datacoverage ; 2007–2008 and 2014-2016 were estimated
Peru	2007-2013 through an ASTI-CIAT institutional survey round; 2014-2016 were estimated using RICYT S&T data; other years estimated
St. Kitts and Nevis	2007-2012 through an ASTI—CARDI institutional survey round; other years estimated
St. Lucia	2007-2012 through an ASTI—CARDI institutional survey round; other years estimated

St. Vincent and the Grenadines	2007-2012 through an ASTI—CARDI institutional survey round; other years estimated
Suriname*	Estimated based on the average regional ARI and national AgGDP trends
Trinidad & Tobago	2007-2012 through an ASTI—CARDI institutional survey round; other years estimated
Uruguay	See asti.cgiar.org/uruguay/datacoverage ; 2007–2008 and 2014-2016 were estimated using RICYT S&T data
Venezuela, RB	2009-2013 through an ASTI-CIAT institutional survey round; 2014-2016 estimated using RICYT S&T data; other years estimated

Note: For countries marked with an asterisk (1 percent of the 2016 total), shares were estimated based on a combination of the average regional agricultural research intensity and national AgGDP trends.

Central/West Asia and North Africa (CWANA)

Country	Data sources and estimation procedures
Algeria	2007-2012 through an ASTI—AARINENA institutional survey round; other years estimated
Armenia	Eurostat S&T indicators
Azerbaijan	Eurostat S&T indicators
Bahrain	Estimated based on the average regional ARI and national AgGDP trends
Djibouti*	Estimated based on the average regional ARI and national AgGDP trends
Egypt, Arab Republic	2007-2012 through an ASTI—AARINENA institutional survey round; pre-2007 data estimated using primary survey data from ARC and a few other key government and higher education agencies as well as various secondary sources and data from Nassar et al. (1999) Download PDF; 2013-2016 estimated
Georgia*	Estimated based on the average regional ARI and national AgGDP trends
Iran, Islamic Republic	See asti.cgiar.org/iran/datacoverage ; 2006–2008 were estimated using primary survey data from AREEO and other key government and higher education agencies; pre-2000 data were estimated using data from Roozitalab et al. Download PDF
Iraq*	Estimated based on the average regional ARI and national AgGDP trends
Israel	Estimated based on OECD S&T indicators and data from Central Bureau of Statistics Website link
Jordan	See asti.cgiar.org/jordan/datacoverage ; 2013-2016 were estimated
Kazakhstan*	Estimated based on the average regional ARI and national AgGDP trends
Kuwait*	Estimated based on the average regional ARI and national AgGDP trends
Kyrgyz Republic*	Estimated based on the average regional ARI and national AgGDP trends
Lebanon	2007-2012 through an ASTI—AARINENA institutional survey round; other years estimated
Libya*	Estimated based on the average regional ARI and national AgGDP trends
Morocco	2007-2012 through an ASTI—AARINENA institutional survey round; other years estimated
Oman	2007-2012 through an ASTI—AARINENA institutional survey round; other years estimated
Qatar*	Estimated based on the average regional ARI and national AgGDP trends
Saudi Arabia*	Estimated based on the average regional ARI and national AgGDP trends
Sudan	See asti.cgiar.org/sudan/datacoverage ; 2015-2016 were estimated
Syrian Arab Republic	1996-201 through an ASTI—AARINENA institutional survey round; other years estimated
Tajikistan*	Estimated based on the average regional ARI and national AgGDP trends
Tunisia	2009-2012 through an ASTI—AARINENA institutional survey round; other years estimated
Turkey	2007-2012 through an ASTI—AARINENA institutional survey round; other years estimated
Turkmenistan*	Estimated based on the average regional ARI and national AgGDP trends
United Arab Emirates*	Estimated based on the average regional ARI and national AgGDP trends

Uzbekistan*	Estimated based on the average regional ARI and national AgGDP trends
Yemen, Republic	2007-2012 through an ASTI—AARINENA institutional survey round; other years estimated

Note: For countries marked with an asterisk (20 percent of the 2016 regional total), shares were estimated based on a combination of the average regional agricultural research intensity and national AgGDP trends. Data were only available for the 1996–2016 period; the regional trend for 1981–1996 was estimated and scaled up based on regional trends prepared by Pardey and Beintema (2000).

Europe and North America

Country	Data sources and estimation procedures
Albania*	Estimated based on the average regional ARI and national AgGDP trends
Austria	OECD S&T indicators
Belarus*	Estimated based on the average regional ARI and national AgGDP trends
Belgium	OECD S&T indicators
Bosnia and Herzegovina*	Estimated based on the average regional ARI and national AgGDP trends
Bulgaria	Eurostat S&T indicators
Canada	Estimated based on OECD S&T indicators and data from Statistics Canada, Ag Canada, ISQ (Québec) Website link
Croatia*	Estimated based on the average regional ARI and national AgGDP trends
Cyprus*	Estimated based on the average regional ARI and national AgGDP trends
Czech Republic	OECD S&T indicators plus backward projection based on regional trends
Denmark	OECD S&T indicators
Estonia	OECD S&T indicators plus backward projection based on regional trends
Finland	OECD S&T indicators
France	Estimated based OECD S&T indicators and data from INSEE Website link and INRA Website link
Germany	OECD S&T indicators
Greece	OECD S&T indicators (GBAORD data only)
Hungary	OECD S&T indicators plus backward projection based on regional trends
Iceland	OECD S&T indicators
Ireland	OECD S&T indicators
Italy	OECD S&T indicators
Latvia	Eurostat S&T indicators
Lithuania	Eurostat S&T indicators
Luxembourg*	Estimated based on the average regional ARI and national AgGDP trends
Macedonia, FYR*	Estimated based on the average regional ARI and national AgGDP trends
Malta*	Estimated based on the regional ARI and national AgGDP trends
Moldova*	Estimated based on the average regional ARI and national AgGDP trends
Montenegro*	Eurostat S&T indicators
Netherlands	OECD S&T indicators
Norway	OECD S&T indicators
Poland	OECD S&T indicators plus backward projection based on data for other OECD countries
Portugal	OECD S&T indicators
Romania	Eurostat S&T indicators
Russian Federation	Eurostat S&T indicators
Serbia*	Estimated based on the average regional ARI and national AgGDP trends
Slovak Republic	OECD S&T indicators plus backward projection based on regional trends
Slovenia	OECD S&T indicators plus backward projection based on regional trends
Spain	OECD S&T indicators
Sweden	Estimated based on OECD S&T indicators and data from Statistics Sweden Website link
Switzerland	Estimated based on OECD S&T indicators (GBAORD data only) and Swiss Federal Statistics Office data Website link

Ukraine	Eurostat S&T indicators
United Kingdom	OECD S&T indicators (GBAORD data only)
United States	USDA, Economic Research Service Website link ; 2016 was estimated

Note: For countries marked with an asterisk (1 percent of the 2016 regional total) shares were estimated based on a combination of the average regional agricultural research intensity and national AgGDP trends; Certain years were interpolated or extrapolated for some countries when OECD S&T indicators data were incomplete.