

## Country-Level Data Sources and Estimation Procedures by Region and Income Group

### Asia-Pacific (APAC)

Country	Share of regional total, 2008 (%)	Data sources and estimation procedures
Bangladesh	1.7	See <a href="http://asti.cgiar.org/bangladesh/datacoverage">asti.cgiar.org/bangladesh/datacoverage</a>
Bhutan*	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
Cambodia	0.2	See <a href="http://asti.cgiar.org/cambodia/datacoverage">asti.cgiar.org/cambodia/datacoverage</a> ; 1981–1990 data were estimated
China	52.4	See <a href="http://asti.cgiar.org/china/datacoverage">asti.cgiar.org/china/datacoverage</a> ; 1981–1986 data were estimated using underlying data from Fan, Qian, and Zhang (2006) <a href="#">Download PDF</a>
Fiji*	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
India	27.5	See <a href="http://asti.cgiar.org/india/datacoverage">asti.cgiar.org/india/datacoverage</a> ; 1981–1986 data were estimated using underlying data from Pal and Byerlee (2006) <a href="#">Download PDF</a>
Indonesia	4.9	See <a href="http://asti.cgiar.org/indonesia/datacoverage">asti.cgiar.org/indonesia/datacoverage</a> ; 1981–1994 data were estimated using underlying data from Fuglie and Piggott (2006) <a href="#">Download PDF</a> ; 2004–2008 data were estimated using additional primary survey data from IAAAD and other key government and higher education agencies
Kiribati*	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
Laos	0.2	See <a href="http://asti.cgiar.org/laos/datacoverage">asti.cgiar.org/laos/datacoverage</a> ; 1981–1997 data were estimated
Malaysia	4.5	See <a href="http://asti.cgiar.org/malaysia/datacoverage">asti.cgiar.org/malaysia/datacoverage</a>
Maldives*	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
Micronesia*	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
Mongolia*	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
Myanmar	0.1	See <a href="http://asti.cgiar.org/myanmar/datacoverage">asti.cgiar.org/myanmar/datacoverage</a> ; 1981–1995 and 2004–2008 data were estimated
Nepal	0.3	See <a href="http://asti.cgiar.org/nepal/datacoverage">asti.cgiar.org/nepal/datacoverage</a> ; 1981–1990 data were estimated
Pakistan	2.4	See <a href="http://asti.cgiar.org/pakistan/datacoverage">asti.cgiar.org/pakistan/datacoverage</a> ; 1981–1990 data were estimated using various secondary resources
Palau*	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
Papua New Guinea	0.2	See <a href="http://asti.cgiar.org/papua-new-guinea/datacoverage">asti.cgiar.org/papua-new-guinea/datacoverage</a> ; 1981–1990 data were estimated
Philippines	1.7	See <a href="http://asti.cgiar.org/philippines/datacoverage">asti.cgiar.org/philippines/datacoverage</a> ; 2003–2008 were estimated using national S&T statistics from the Department of Science and Technology (DOST) <a href="#">Website link</a>
Samoa*	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
Solomon Islands*	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
Sri Lanka	0.5	See <a href="http://asti.cgiar.org/sri-lanka/datacoverage">asti.cgiar.org/sri-lanka/datacoverage</a>
Thailand	2.2	Estimated using data from NRCT <a href="#">Website link</a> and Poapongsakorn (2006) <a href="#">Website link</a>
Tonga*	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
Vanuatu*	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
Vietnam	1.1	See <a href="http://asti.cgiar.org/vietnam/datacoverage">asti.cgiar.org/vietnam/datacoverage</a> ; 1981–1990 data were estimated

Note: For countries marked with an asterisk (less than 1 percent of the 2008 regional total), shares were estimated based on a combination of the average regional agricultural research intensity and national AgGDP trends.

## Africa south of the Sahara (SSA)

Country	Share of regional total, 2008 (%)	Data sources and estimation procedures
Angola*	2.2	Estimated based on the average regional ARI and national AgGDP trends
Benin	1.2	See <a href="http://asti.cgiar.org/benin/datacoverage">asti.cgiar.org/benin/datacoverage</a>
Botswana	1.1	See <a href="http://asti.cgiar.org/botswana/datacoverage">asti.cgiar.org/botswana/datacoverage</a>
Burkina Faso	1.1	See <a href="http://asti.cgiar.org/burkina-faso/datacoverage">asti.cgiar.org/burkina-faso/datacoverage</a>
Burundi	0.5	See <a href="http://asti.cgiar.org/burundi/datacoverage">asti.cgiar.org/burundi/datacoverage</a>
Cameroon*	2.5	Estimated based on the average regional ARI and national AgGDP trends
Cape Verde*	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
Central African Republic*	0.5	Estimated based on the average regional ARI and national AgGDP trends
Chad*	0.4	Estimated based on the average regional ARI and national AgGDP trends
Comoros*	0.1	Estimated based on the average regional ARI and national AgGDP trends
Congo, Democratic Republic*	2.5	Estimated based on the average regional ARI and national AgGDP trends
Congo, Republic	0.2	See <a href="http://asti.cgiar.org/republic-of-congo/datacoverage">asti.cgiar.org/republic-of-congo/datacoverage</a>
Côte d'Ivoire	2.4	See <a href="http://asti.cgiar.org/cote-divoire/datacoverage">asti.cgiar.org/cote-divoire/datacoverage</a>
Eritrea	0.2	See <a href="http://asti.cgiar.org/eritrea/datacoverage">asti.cgiar.org/eritrea/datacoverage</a>
Ethiopia	3.9	See <a href="http://asti.cgiar.org/ethiopia/datacoverage">asti.cgiar.org/ethiopia/datacoverage</a>
Gabon	0.1	See <a href="http://asti.cgiar.org/gabon/datacoverage">asti.cgiar.org/gabon/datacoverage</a>
Gambia, The	0.1	See <a href="http://asti.cgiar.org/gambia/datacoverage">asti.cgiar.org/gambia/datacoverage</a>
Ghana	5.7	See <a href="http://asti.cgiar.org/ghana/datacoverage">asti.cgiar.org/ghana/datacoverage</a>
Guinea	0.2	See <a href="http://asti.cgiar.org/guinea/datacoverage">asti.cgiar.org/guinea/datacoverage</a>
Guinea-Bissau*	0.3	Estimated based on the average regional ARI and national AgGDP trends
Kenya	9.9	See <a href="http://asti.cgiar.org/kenya/datacoverage">asti.cgiar.org/kenya/datacoverage</a>
Lesotho*	0.1	Estimated based on the average regional ARI and national AgGDP trends
Liberia*	0.3	Estimated based on the average regional ARI and national AgGDP trends
Madagascar	0.7	See <a href="http://asti.cgiar.org/madagascar/datacoverage">asti.cgiar.org/madagascar/datacoverage</a>
Malawi	1.2	See <a href="http://asti.cgiar.org/malawi/datacoverage">asti.cgiar.org/malawi/datacoverage</a>
Mali	1.4	See <a href="http://asti.cgiar.org/mali/datacoverage">asti.cgiar.org/mali/datacoverage</a>
Mauritania	0.4	See <a href="http://asti.cgiar.org/mauritania/datacoverage">asti.cgiar.org/mauritania/datacoverage</a>
Mauritius	1.2	See <a href="http://asti.cgiar.org/mauritius/datacoverage">asti.cgiar.org/mauritius/datacoverage</a>
Mozambique	1.0	See <a href="http://asti.cgiar.org/mozambique/datacoverage">asti.cgiar.org/mozambique/datacoverage</a>
Namibia	1.2	See <a href="http://www.asti.cgiar.org/namibia/datacoverage">www.asti.cgiar.org/namibia/datacoverage</a> ; 1981–2000 data were estimated
Niger	0.4	See <a href="http://asti.cgiar.org/niger/datacoverage">asti.cgiar.org/niger/datacoverage</a>
Nigeria	23.1	See <a href="http://asti.cgiar.org/nigeria/datacoverage">asti.cgiar.org/nigeria/datacoverage</a>
Rwanda	1.1	See <a href="http://asti.cgiar.org/rwanda/datacoverage">asti.cgiar.org/rwanda/datacoverage</a>
Sao Tome and Principe*	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
Senegal	1.5	See <a href="http://asti.cgiar.org/senegal/datacoverage">asti.cgiar.org/senegal/datacoverage</a>
Seychelles	< 0.05	See <a href="http://asti.cgiar.org/seychelles/datacoverage">asti.cgiar.org/seychelles/datacoverage</a>
Sierra Leone	0.3	See <a href="http://asti.cgiar.org/sierra-leone/datacoverage">asti.cgiar.org/sierra-leone/datacoverage</a>
South Africa	15.7	See <a href="http://asti.cgiar.org/south-africa/datacoverage">asti.cgiar.org/south-africa/datacoverage</a>
Sudan	3.0	See <a href="http://asti.cgiar.org/sudan/datacoverage">asti.cgiar.org/sudan/datacoverage</a>
Swaziland*	0.1	Estimated based on the average regional ARI and national AgGDP trends
Tanzania	4.4	See <a href="http://asti.cgiar.org/tanzania/datacoverage">asti.cgiar.org/tanzania/datacoverage</a>
Togo	0.5	See <a href="http://asti.cgiar.org/togo/datacoverage">asti.cgiar.org/togo/datacoverage</a>
Uganda	5.0	See <a href="http://asti.cgiar.org/uganda/datacoverage">asti.cgiar.org/uganda/datacoverage</a>
Zambia	0.5	See <a href="http://asti.cgiar.org/zambia/datacoverage">asti.cgiar.org/zambia/datacoverage</a>
Zimbabwe	1.6	See <a href="http://asti.cgiar.org/zimbabwe/datacoverage">asti.cgiar.org/zimbabwe/datacoverage</a>

Note: For countries marked with an asterisk (11 percent of the 2008 regional 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	Share of regional total, 2008 (%)	Data sources and estimation procedures
Antigua and Barbuda*	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
Argentina	13.4	See <a href="http://asti.cgiar.org/argentina/datacoverage">asti.cgiar.org/argentina/datacoverage</a> ; 2007–2008 data were estimated using primary survey data from INTA and other key government and higher education agencies
Belize	0.1	See <a href="http://asti.cgiar.org/belize/datacoverage">asti.cgiar.org/belize/datacoverage</a> ; 2007–2008 data were estimated
Bolivia*	1.4	Estimated based on the average regional ARI and country AgGDP trends
Brazil	42.5	See <a href="http://asti.cgiar.org/brazil/datacoverage">asti.cgiar.org/brazil/datacoverage</a> ; 2007–2008 were estimated using financial data for Embrapa and APTA
Chile	3.1	See <a href="http://asti.cgiar.org/chile/datacoverage">asti.cgiar.org/chile/datacoverage</a> ; 2007–2008 were estimated using primary survey data from INIA and other key government and higher education agencies
Colombia	4.3	See <a href="http://asti.cgiar.org/colombia/datacoverage">asti.cgiar.org/colombia/datacoverage</a> ; 2007–2008 were estimated using primary survey data from CORPOICA and other key government, higher education, and nonprofit agencies
Costa Rica	1.0	See <a href="http://asti.cgiar.org/costa-rica/datacoverage">asti.cgiar.org/costa-rica/datacoverage</a> ; 2007–2008 were estimated
Dominica*	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
Dominican Republic	0.5	See <a href="http://asti.cgiar.org/dominican-republic/datacoverage">asti.cgiar.org/dominican-republic/datacoverage</a> ; 2007–2008 were estimated
Ecuador*	2.1	Estimated based on the average regional ARI and national AgGDP trends
El Salvador	0.2	See <a href="http://asti.cgiar.org/el-salvador/datacoverage">asti.cgiar.org/el-salvador/datacoverage</a> ; 2007–2008 were estimated
Grenada*	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
Guatemala	0.2	See <a href="http://asti.cgiar.org/guatemala/datacoverage">asti.cgiar.org/guatemala/datacoverage</a> ; 2007–2008 were estimated using data from RICYT <a href="#">Website link</a>
Guyana*	0.2	Estimated based on the average regional ARI and national AgGDP trends
Honduras	0.4	See <a href="http://asti.cgiar.org/honduras/datacoverage">asti.cgiar.org/honduras/datacoverage</a> ; 2007–2008 were estimated
Jamaica*	0.3	Estimated based on the average regional ARI and national AgGDP trends
Mexico	17.8	See <a href="http://www.asti.cgiar.org/mexico/datacoverage">www.asti.cgiar.org/mexico/datacoverage</a> ; 2007–2008 were estimated using primary survey data from INIFAP and other key government and higher education agencies
Nicaragua	0.7	See <a href="http://asti.cgiar.org/nicaragua/datacoverage">asti.cgiar.org/nicaragua/datacoverage</a> ; 2007–2008 were estimated
Panama	0.6	See <a href="http://asti.cgiar.org/panama/datacoverage">asti.cgiar.org/panama/datacoverage</a> ; 2007–2008 were estimated
Paraguay	0.2	See <a href="http://asti.cgiar.org/paraguay/datacoverage">asti.cgiar.org/paraguay/datacoverage</a> ; 2007–2008 were estimated using data from RICYT <a href="#">Website link</a>
Peru*	5.1	Estimated based on the average regional ARI and national AgGDP trends
St. Kitts and Nevis*	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
St. Lucia*	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
St. Vincent and the Grenadines*	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
Suriname*	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
Uruguay	1.8	See <a href="http://asti.cgiar.org/uruguay/datacoverage">asti.cgiar.org/uruguay/datacoverage</a> ; 2007–2008 were estimated using data from RICYT <a href="#">Website link</a>
Venezuela, RB*	4.1	Estimated based on the average regional ARI and national AgGDP trends

Note: For countries marked with an asterisk (13 percent of the 2008 regional total), shares were estimated based on a combination of the average regional agricultural research intensity and national AgGDP trends.

## Middle East and North Africa (MENA)

Country	Share of regional total, 2008 (%)	Data sources and estimation procedures
Algeria*	6.1	Estimated based on the average regional ARI and national AgGDP trends
Djibouti*	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
Egypt, Arab Republic	15.9	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) <a href="#">Download PDF</a>
Iran, Islamic Republic	39.6	See <a href="http://asti.cgiar.org/iran/datacoverage">asti.cgiar.org/iran/datacoverage</a> ; 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. <a href="#">Download PDF</a>
Iraq*	3.7	Estimated based on the average regional ARI and national AgGDP trends
Jordan	1.0	See <a href="http://asti.cgiar.org/jordan/datacoverage">asti.cgiar.org/jordan/datacoverage</a> ; 2004–2008 were estimated using primary survey data from NCARTT and other key government and higher education agencies
Lebanon*	1.0	Estimated based on the average regional ARI and national AgGDP trends
Libya*	0.6	Estimated based on the average regional ARI and national AgGDP trends
Morocco	5.2	See <a href="http://asti.cgiar.org/morocco/datacoverage">asti.cgiar.org/morocco/datacoverage</a> ; 2003–2008 were estimated using primary survey data from INRA and other key government and higher education agencies
Syrian Arab Republic	4.0	See <a href="http://asti.cgiar.org/syria/datacoverage">asti.cgiar.org/syria/datacoverage</a> ; 2005–2008 were estimated using primary survey data from CGSAR and other key government and higher education agencies
Tunisia	3.4	See <a href="http://asti.cgiar.org/tunisia/datacoverage">asti.cgiar.org/tunisia/datacoverage</a> ; 2003–2008 were estimated Eurostat S&T indicators and a backward projection based on data for other WANA countries
Turkey	17.0	
Yemen, Republic	2.5	Estimated based on the average regional ARI and country AgGDP trends

Note: For countries marked with an asterisk (14 percent of the 2008 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 1996–2008 period; the regional trend for 1981–1996 was estimated and scaled up based on regional trends prepared by Pardey and Beintema (2000).

## East European Countries and Former Soviet States (EEFSS)

Country	Share of regional total, 2008 (%)	Data sources and estimation procedures
Albania*	2.1	Estimated based on the average regional ARI and national AgGDP trends
Armenia*	1.5	Estimated based on the average regional ARI and national AgGDP trends
Azerbaijan*	2.1	Estimated based on the average regional ARI and national AgGDP trends
Belarus*	4.9	Estimated based on the average regional ARI and national AgGDP trends
Bosnia and Herzegovina*	1.0	Estimated based on the average regional ARI and national AgGDP trends
Bulgaria	4.9	Eurostat S&T indicators
Georgia*	0.9	Estimated based on the average regional ARI and national AgGDP trends
Kazakhstan*	4.6	Estimated based on the average regional ARI and national AgGDP trends
Kyrgyz Republic*	1.3	Estimated based on the average regional ARI and national AgGDP trends
Latvia	2.2	Eurostat S&T indicators
Lithuania	3.0	Eurostat S&T indicators
Macedonia, FYR*	1.0	Estimated based on the average regional ARI and national AgGDP trends
Moldova*	0.5	Estimated based on the average regional ARI and national AgGDP trends
Montenegro*	0.3	Estimated based on the average regional ARI and national AgGDP trends
Romania	5.9	Eurostat S&T indicators
Russian Federation	39.0	Eurostat S&T indicators
Serbia*	3.4	Estimated based on the average regional ARI and national AgGDP trends
Tajikistan*	1.4	Estimated based on the average regional ARI and national AgGDP trends
Turkmenistan*	1.6	Estimated based on the average regional ARI and national AgGDP trends
Ukraine*	11.4	Estimated based on the average regional ARI and national AgGDP trends
Uzbekistan*	6.9	Estimated based on the average regional ARI and national AgGDP trends

Note: For countries marked with an asterisk (45 percent of the 2008 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 2000–2008 period; the regional trend for 1981–1999 was estimated and scale up.

## High-Income Countries (OECD)

Country	Share of regional total, 2008 (%)	Data sources and estimation procedures
Australia	3.7	OECD S&T indicators
Austria	0.8	OECD S&T indicators
Belgium	1.4	OECD S&T indicators
Canada	4.0	Estimated based on OECD S&T indicators and data from Statistics Canada, Ag Canada, ISQ (Québec) <a href="#">Website link</a>
Czech Republic	0.6	OECD S&T indicators plus backward projection based on data for other OECD countries
Denmark	0.5	OECD S&T indicators
Estonia	0.1	OECD S&T indicators plus backward projection based on data for other OECD countries
Finland	0.8	OECD S&T indicators
France	7.9	Estimated based on data from INSEE <a href="#">Website link</a> and INRA <a href="#">Website link</a>
Germany	6.2	OECD S&T indicators
Greece	0.4	OECD S&T indicators (GBAORD data only)
Hungary	0.6	OECD S&T indicators plus backward projection based on data for other OECD countries
Iceland	0.2	OECD S&T indicators
Ireland	0.7	OECD S&T indicators
Israel	0.5	Estimated based on OECD S&T indicators and data from Central Bureau of Statistics <a href="#">Website link</a>
Italy	3.5	OECD S&T indicators
Japan	19.5	OECD S&T indicators and data from Statistics Bureau, Ministry of Internal Affairs and Commerce <a href="#">Website link</a>
Korea (Republic of)	4.3	OECD S&T indicators; 1981-1994 data were estimated using underlying data from Choi, Sumner, and Lee (2006) <a href="#">Download PDF</a>
Luxembourg	< 0.05	Estimated based on the average regional ARI and national AgGDP trends
Netherlands	2.6	OECD S&T indicators
New Zealand	0.8	Estimated based on OECD S&T indicators and data from MORST <a href="#">Website link</a>
Norway	0.9	OECD S&T indicators
Poland	1.5	OECD S&T indicators plus backward projection based on data for other OECD countries
Portugal	0.6	OECD S&T indicators
Slovak Republic	0.3	OECD S&T indicators plus backward projection based on data for other OECD countries
Slovenia	0.1	OECD S&T indicators plus backward projection based on data for other OECD countries
Spain	4.1	OECD S&T indicators
Sweden	0.8	Estimated based on OECD S&T indicators and data from Statistics Sweden <a href="#">Website link</a>
Switzerland	0.3	Estimated based on OECD S&T indicators (GBAORD data only) and Swiss Federal Statistics Office data <a href="#">Website link</a>
United Kingdom	2.3	OECD S&T indicators (GBAORD data only)
United States	30.2	USDA, Economic Research Service <a href="#">Website link</a>

Note: For one country (Luxembourg), representing less than 0.1 percent of the high-income total in 2008, the share was estimated based on the average regional agricultural research intensity and national AgGDP trends.

## Other High-Income Countries

Country	Share of regional total, 2008 (%)	Data sources and estimation procedures
Bahamas	0.4	Estimated based on the average regional ARI for LAC and national AgGDP trends
Bahrain	1.0	Estimated based on the average regional ARI for WANA and national AgGDP trends
Barbados	0.3	Estimated based on the average regional ARI for LAC and national AgGDP trends
Brunei Darussalam	0.1	Estimated based on the average regional ARI for APAC and national AgGDP trends
Croatia	9.3	Estimated based on the average regional ARI for OECD and national AgGDP trends
Cyprus	1.0	Estimated based on the average regional ARI for OECD and national AgGDP trends
Equatorial Guinea	0.6	Estimated based on the average regional ARI for SSA and national AgGDP trends
Kuwait	2.7	Estimated based on the average regional ARI for WANA and national AgGDP trends
Malta	0.4	Estimated based on the average regional ARI for OECD and national AgGDP trends
Oman	5.8	Estimated based on primary ASTI data and a backward projection based on the average regional ARI and national AgGDP trends
Qatar	5.8	Estimated based on the average regional ARI for WANA and national AgGDP trends
Saudi Arabia	59.5	Estimated based on the average regional ARI for WANA and national AgGDP trends
Singapore	0.1	Estimated based on the average regional ARI for APAC and national AgGDP trends
Trinidad & Tobago	0.3	Estimated based on the average regional ARI for LAC and national AgGDP trends
United Arab Emirates	12.7	Estimated based on the average regional ARI for WANA and national AgGDP trends

Note: Ninety-four percent of the "other high-income" country shares, representing 1 percent of the high-income country total, were estimated based on the average regional agricultural research intensity and national AgGDP trends.