ETHIOPIA

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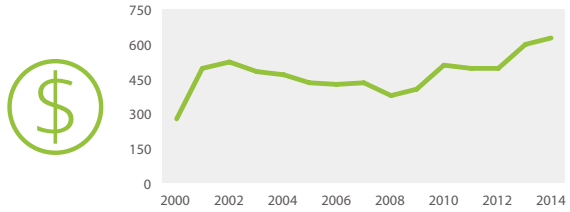
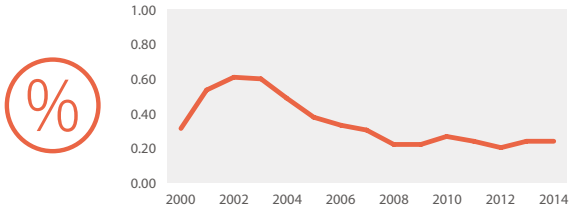
AGRICULTURAL RESEARCH SPENDING



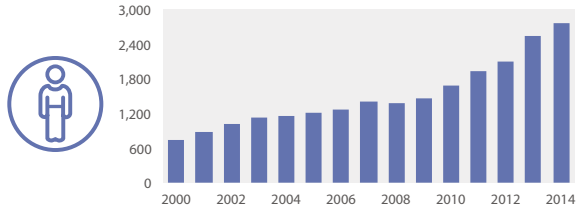
	ETHIOPIA	KENYA	TANZANIA	UGANDA
Million birr (2011 constant prices)	626.2			
Million PPP dollars (2011 constant prices)	127.3	274.1	103.9	152.5

SPENDING INTENSITY



Agricultural research spending as a share of AgGDP	0.24%	0.79%	0.29%	0.97%

AGRICULTURAL RESEARCHERS



Full-time equivalents	2,768.5	1,178.5	857.7	477.9
Share of researchers with MSc and PhD degrees	42%	80%	70%	80%

Notes: Data above are for 2014. Research conducted by the private for-profit sector is excluded from this factsheet due to lack of available data. Information on access to further resources, data procedures and methodologies, and acronyms and definitions are provided on Page 4. See **www.asti.cgiar.org/Ethiopia/directory** for an overview of Ethiopia's agricultural R&D agencies.

Positive signs of growth

Strong government support combined with a World Bank loan, associated with EAAPP, prompted agricultural research spending to rise by one-quarter during 2011–2014 (in inflation adjusted terms). Ethiopia's pool of agricultural researchers expanded considerably; by about 900 FTE researchers during 2011–2014. This growth occurred evenly across EIAR, RARIs and higher education agencies.

Persistent underinvestment

Underinvestment in agricultural R&D in Ethiopia is serious. Despite recent increases in funding to agricultural research, the country's intensity ratio continued to decline in response to high growth in the agricultural sector. EIAR (and the RARIs) received substantial funding through EAAPP and other donor-supported programs to upgrade some of its laboratory infrastructure and equipment, but many laboratories still need to be upgraded.

Improving qualification levels

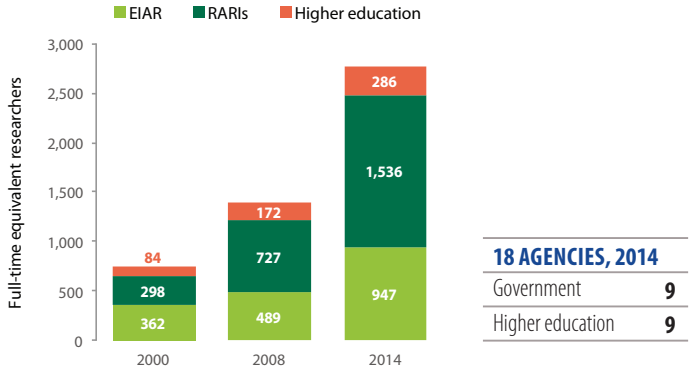
As of 2014, the majority of researchers employed at EIAR and the RARIs only held BSc degrees, and turnover among MSc- and PhD-qualified researchers was high. In response, the government doubled the salary levels of senior researchers employed at EIAR. Finally, donors have contributed US$1 million to enable the hiring of retired PhD-qualified researchers to mentor EIAR's young researchers.

Stronger coordination

In efforts to strengthen the coordination of its fragmented agricultural research system, Ethiopia developed a NARS reform strategy and established the Ethiopian Agricultural Research Council. In turn, the Council prepared a roadmap to guide the country's agricultural research system. In addition to providing detailed analyses of current and future challenges, the roadmap determined that the system was not making use of its existing facilities, which were deemed inadequate to meet the country's research needs.

Institutional composition of Ethiopian agricultural research

Agricultural researcher numbers grew rapidly at EIAR, the RARIs, and the higher education agencies during 2000–2014, but growth was strongest at the RARIs. As of 2014, the RARIs accounted for a combined share of 55 percent of Ethiopia's agricultural researchers.

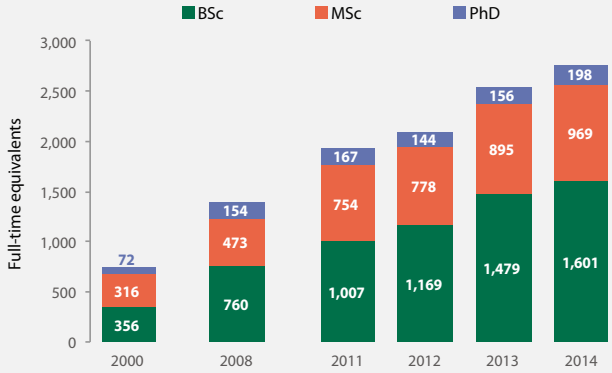


18 AGENCIES, 2014	
Government	9
Higher education	9

Note: The 9 government agencies include EIAR (which comprises 16 research centers and a headquarters) and 8 RARIs.

Ethiopia's agricultural researchers by qualification level

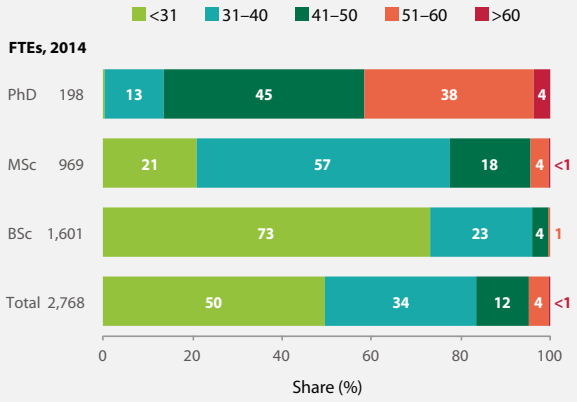
Rapid growth in Ethiopia's agricultural researcher numbers was predominantly driven by a large influx of researchers with BSc degrees. As of 2014, 58 percent of agricultural researchers were qualified to the BSc-degree level only, but the number of researchers qualified to the MSc and the PhD levels also increased over time.



Note: The government and higher education agencies employed a small number of technical support staff qualified to the BSc-level; these staff members do not have official researcher status.

Ethiopia's agricultural researchers by age bracket

Ethiopia's pool of agricultural researchers is among Africa's youngest. As of 2014, half of all researchers were 30 years old or younger, and the majority of them held BSc degrees only. In contrast, more than 40 percent of all PhD-qualified researchers were over 50 years of age. Overall, the distribution of researchers by age shifted only marginally during 2011–2014.



Ethiopia's share of female researchers

Ethiopia's share of female researchers is considerably lower than comparable shares in other East African countries, and it only increased marginally during 2008–2014. In general, female researchers were relatively younger and less well-qualified than their male colleagues.

By qualification level, 2014

BSc **10%**	MSc **11%**	PhD **7%**

By age bracket, 2014

< 41 **11%**	41–50 **6%**	> 50 **7%**

Ethiopia's MSc- and PhD-qualified agricultural researchers by discipline

As of 2014, Ethiopia employed 145 plant breeders and geneticists with postgraduate degrees, representing 12 percent of the country's MSc- and PhD-qualified researchers. Approximately two-thirds of these researchers were employed at EIAR. Socioecomics was another strong discipline, accounting for 8 percent of all MSc- and PhD- qualified researchers.

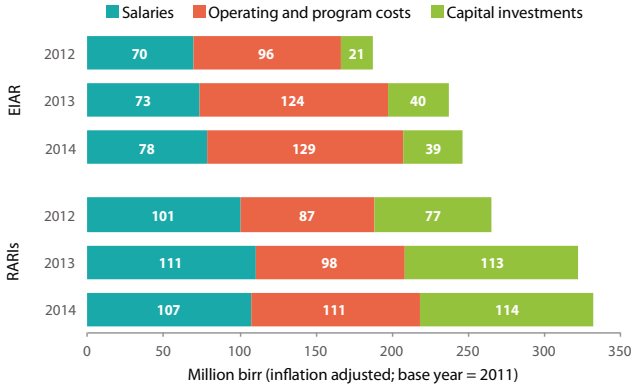
Agricultural researchers, 2014	FTEs		Share (%)	
	MSc	PhD	MSc	PhD
Plant breeding/genetics (incl. biotechnology)	121	24	12	12
Plant pathology	38	11	4	5
Plant physiology	5	2	–	1
Botany	9	1	1	1
Seed science and technology	23	–	2	–
Other crop sciences	189	20	19	10
Animal breeding/genetics	9	5	1	3
Animal husbandry	21	1	2	0.3
Animal nutrition	21	7	2	3
Dairy science	6	2	1	1
Poultry	4	1	0.4	1
Veterinary medicine	30	7	3	3
Zoology/entomology	18	5	2	3
Other animal and livestock	75	16	8	8

Agricultural researchers, 2014	FTEs		Share (%)	
	MSc	PhD	MSc	PhD
Forestry and agroforestry	43	12	4	6
Fisheries and aquatic resources	18	5	2	3
Soil sciences	37	12	4	6
Natural resources management	28	10	3	5
Water and irrigation management	30	4	3	2
Ecology	7	3	1	1
Biodiversity conservation	5	1	1	1
Food sciences and nutrition	16	4	2	2
Socioeconomics (incl. agricultural economics)	72	16	7	8
Extension and education	31	3	3	1
Other sciences	117	25	12	13
Total	**969**	**198**	**100**	**100**

Note: Data are estimates based on an agency sample representing 98 percent of the total number of FTE researchers.

EIAR and the RARIs' spending by cost category

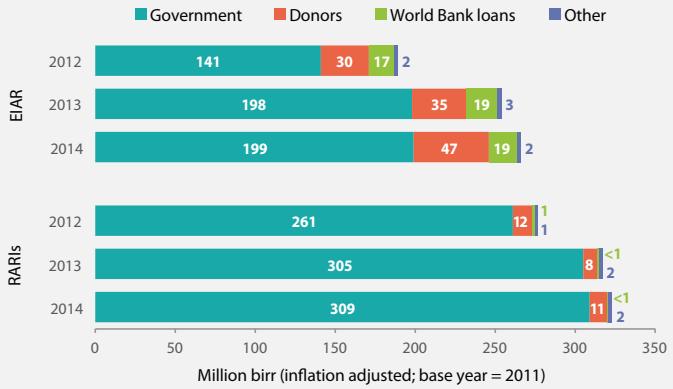
Due to increased government and donor support, operating costs and capital investments increased at EIAR and the RARIs during 2012–2014. The total salary bill remained fairly stagnant despite the continued increase in researcher capacity during that same period. However, salaries for senior staff at EIAR have increased substantially since 2014.



Note: Data for Ethiopia correlate with financial rather than calendar years; hence, 2012 represents data for the period July 1, 2011 to June 30, 2012, and so on.

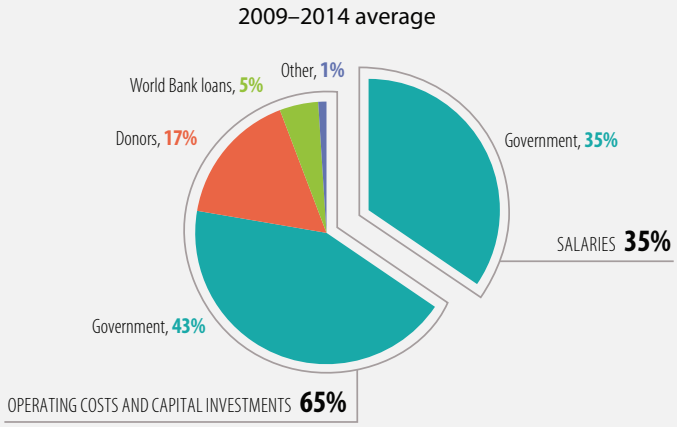
EIAR and the RARIs' funding sources

Government support to agricultural research rose substantially, in inflation-adjusted terms, at both EIAR and the RARIs during 2012–2014. Funding through a World Bank loan as part of EAAPP activities conducted at EIAR and, to a lesser extent, the RARIs were also substantial. EIAR also received contributions from a large number of other donors.



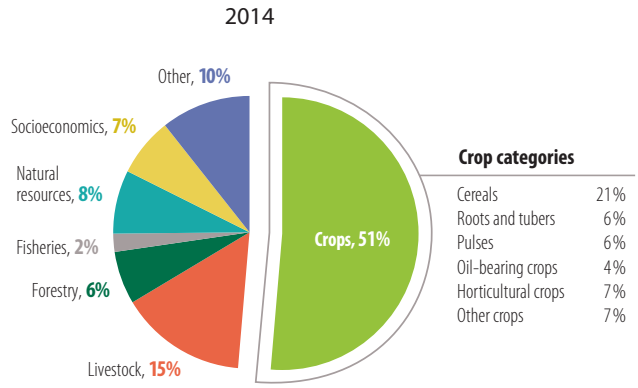
EIAR's funding and spending compared

The vast majority of EIAR's funding was derived from the national government during 2009–2014, although the institute also received substantial contributions from donors and through a World Bank loan to support EAAPP activities at EIAR.



Ethiopia's agricultural researchers by area of focus

In 2014, 51 percent of the country's FTE researchers conducted crop research, whereas 15 percent undertook livestock research. Major crops under investigation included the cereals wheat, maize, and sorghum, along with fruits and vegetables.



EIAR and the RARIs' recently released crop varieties

EIAR released 65 new varieties and the RARIs 51 new varieties during 2012–2014. These totals include a significant number of cereal, flower, vegetable, bean, and other varieties by EIAR and a large number of cereal, bean, and other varieties by the RARIs.

Crop	Number of varieties, 2012–2014		
	EIAR	RARIs	Total
Wheat	8	6	14
Barley	4	3	7
Maize	6	1	7
Sorghum	5	1	6
Beans	4	8	12
Vegetables	8	3	11
Flowers	14	–	14
Other	16	29	45
Total	**65**	**51**	**116**

EIAR and the RARIs' recent peer-reviewed publications

In addition to a number of books and book chapters, EIAR and the RARIs published an average of 180 journal articles per year, primarily in international journals. Publications per researcher averaged just 0.1 per year.

Type	Number of publications, 2012–2014 annual average			
	EIAR	RARIs	Total	Per FTE researcher
Journal articles				
International	88.7	37.7	126.3	0.071
Regional	15.7	9.0	24.7	0.014
National	18.3	15.0	33.3	0.018
Books	3.7	4.7	8.3	0.005
Books chapters	10.0	4.0	14.0	0.007
Total	**136.3**	**70.3**	**206.7**	**0.115**

Resources for Ethiopia

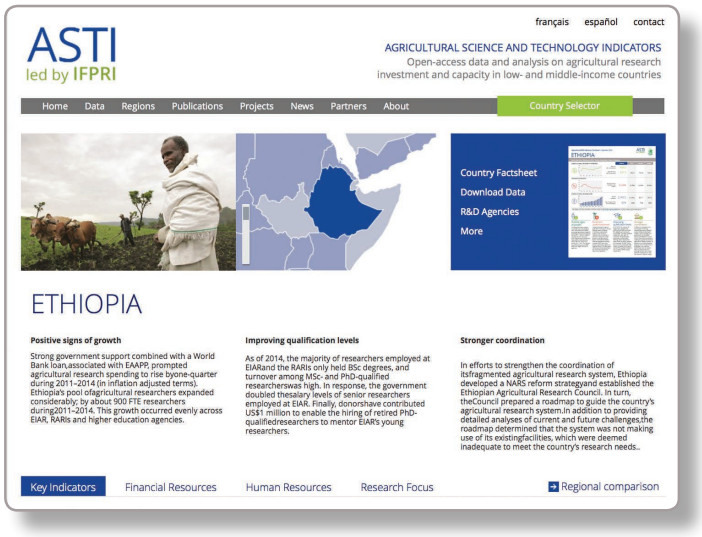
This factsheet presents recent data on the performance of agricultural research in Ethiopia, primarily focusing on key financial, human resource, institutional, and output indicators, while also highlighting relevant trends, challenges, and institutional changes. Additional resources are available at **www.asti.cgiar.org** and include:

ASTI's **interactive country page** for Ethiopia features national agricultural research investment and capacity data, a data exploration and download tool, as well as access to a variety of country publications.

ASTI's **benchmarking tool** allows key agricultural research indicators to be ranked and compared across African countries.

ASTI's **data download tool** provides access to more in-depth ASTI datasets and graphs for Ethiopia and many other countries.

ASTI's **agency directory** provides a view of agencies that conduct agricultural research in Ethiopia, along with their locations and key agency-level indicators.



ASTI Data Procedures and Methodologies

- The **data underlying this factsheet** were predominantly derived through primary surveys, although some data were drawn from secondary sources or were estimated.
- **Agricultural research** includes research conducted by the government, higher education, and nonprofit sectors; research conducted by the private for-profit sector is excluded due to lack of available data.
- ASTI bases its calculations of human resource and financial data on **full-time equivalent (FTE) researchers**, which take into account the proportion of time staff actually spend on research compared with other activities.
- ASTI presents its financial data in 2011 local currencies and **2011 purchasing power parity (PPP) dollars**. PPPs reflect the relative purchasing power of currencies more effectively than do standard exchange rates because they compare prices of a broader range of local—as opposed to internationally traded—goods and services.
- ASTI estimates the **higher education sector's research expenditures** because it is not possible to isolate them from the sector's other expenditures.
- Note that **decimal rounding** can cause totals to be one point higher or lower than the sum of their parts.

For more information on ASTI's data procedures and methodology, visit **www.asti.cgiar.org/methodology**.

Acronyms

AgGDP	agricultural gross domestic product
EIAR	Ethiopian Institute of Agricultural Research
EAAPP	Eastern Africa Agricultural Productivity Project
FTE(s)	full-time equivalent(s)
NARS	national agricultural research system
PPP(s)	purchasing power parity (exchange rates)
RARIs	regional agricultural research institutes
R&D	research and development

ABOUT ASTI, IFPRI, AND EIAR

Working through collaborative alliances with numerous national and regional R&D agencies and international institutions, **Agricultural Science and Technology Indicators (ASTI)** is a comprehensive and trusted source of information on agricultural R&D systems across the developing world. ASTI is led by the **International Food Policy Research Institute (IFPRI)**, which—as a CGIAR member—provides evidence-based policy solutions to sustainably end hunger and malnutrition and reduce poverty. The **Ethiopian Institute for Agricultural Research (EIAR)**, Ethiopia's principal agricultural research agency, falls under the Ministry of Agriculture. In addition to its broad research mandate, which encompasses crops, livestock, fisheries, and natural resources, EIAR is responsibile for the overall coordination of the country's agricultural research.

ASTI/IFPRI and EIAR gratefully acknowledge participating agricultural R&D agencies for their contributions to the data collection and preparation of this factsheet. ASTI also acknowledges the Bill & Melinda Gates Foundation and CGIAR Research Program on Policies, Institutions, and Markets for their generous support of ASTI's work in Africa south of the Sahara. This factsheet has been prepared as an ASTI output and has not been peer reviewed; any opinions are those of the authors and do not necessarily reflect the policies or opinions of IFPRI or EIAR.