Agricultural R&D Indicators Factsheet Update | December 2018

MOZAMBIQUE

Nienke Beintema, Graça Manjate, and Kathleen Flaherty

Background and Key Trends

- Substantial, if volatile, growth in government support led to increased agricultural research spending during 2011–2015. Nevertheless, Mozambique still invests a very low share of its AgGDP in agricultural research—0.43 percent in 2016. This is well below the United Nations and African Union's recommended 1 percent target. An assessment of countries with similar economic conditions indicates that Mozambique is capable of nearing this target.
- In recent years Mozambique has received little donor support. Aside from a World Bank loan supporting rice research under APPSA, the country's principal agricultural research agency, IIAM, is entirely dependent on government funding.
- Agricultural researchers in Mozambique are mostly young, trained to the BSc or MSc level, and in need of mentoring and experience.

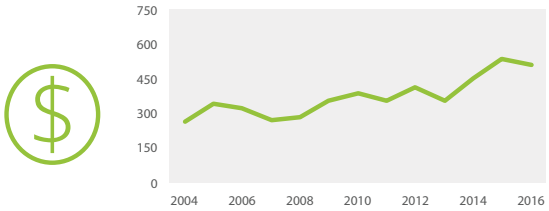
Current Challenges

- Government support to IIAM increased over time, but disbursements fall significantly short (as little as half) of budget allocations. Additional external funding is needed to support research programs, but this source of funding tends to be erratic and short-term, and has declined over time.
- Mozambique's agricultural research agencies employ few researchers with PhD degrees. A lack of national PhD and MSc training programs constrains educational development, forcing staff to seek advanced degrees abroad—a challenge compounded by language barriers. In addition, the aging pool of PhD-qualified researchers is a serious issue, particularly at IIAM. IIAM also experiences high staff turnover due to lack of incentives.

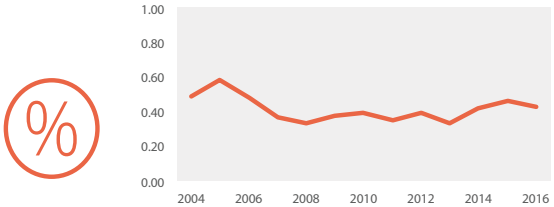
Policy Options

- IIAM needs to address its human resource constraints, including training and mentoring for its younger researchers. The World Bank–funded APPSA included a large human resource development component, but further mechanisms are needed to strengthen the country's agricultural researchers through training, improved remuneration, and other incentives. UEM also needs support to develop its BSc- and MSc-degree programs and to establish PhD programs.
- Consistent and sustainable agricultural research funding is needed to enable Mozambique to achieve its vision—defined in the Strategic Plan for Agricultural Development—of an integrated, competitive, sustainable, and ultimately prosperous agricultural sector. This includes sufficient funding for IIAM, which needs to diversify its funding sources in order to become less dependent on (declining) donor support.

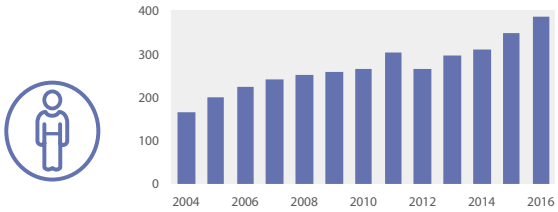
AGRICULTURAL RESEARCH SPENDING



SPENDING INTENSITY



AGRICULTURAL RESEARCHERS

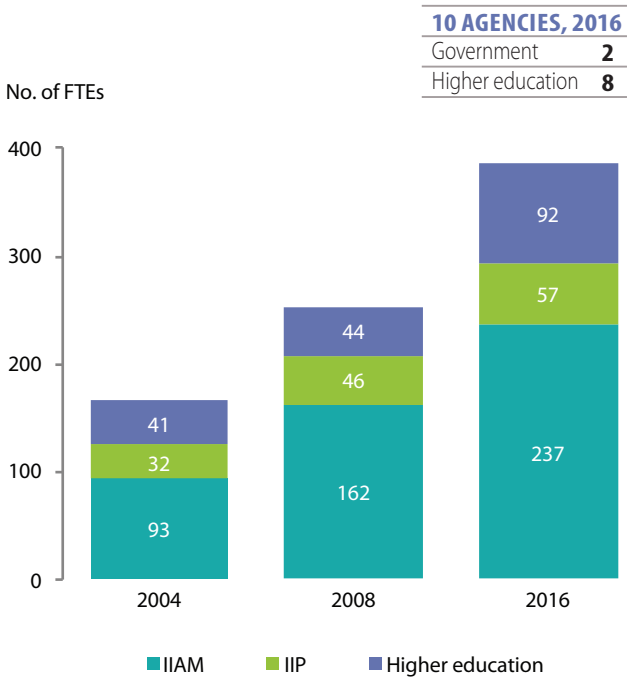


	MOZAMBIQUE	BOTSWANA	MADAGASCAR	TANZANIA
Million meticais (2011 constant prices)	509.4			
Million PPP dollars (2011 constant prices)	31.8	17.5	10.4	68.5
Agricultural research spending as a share of AgGDP	0.43%	2.27%	0.14%	0.17%
Full-time equivalents	386.1	116.0	214.3	785.0
Share of researchers with MSc and PhD degrees	54%	66%	97%	77%

Notes: Data in the table above are for 2016. 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/Mozambique/directory** for an overview of Mozambique's agricultural R&D agencies.

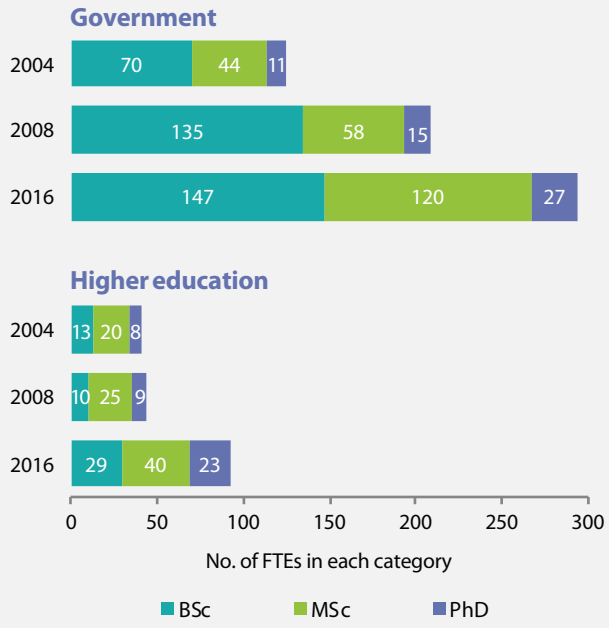
Institutional composition of agricultural research

The institutional composition of agricultural research in Mozambique changed little during 2004–2016. IIAM continued to dominate, increasing its agricultural researcher numbers to 61 percent as of 2016.



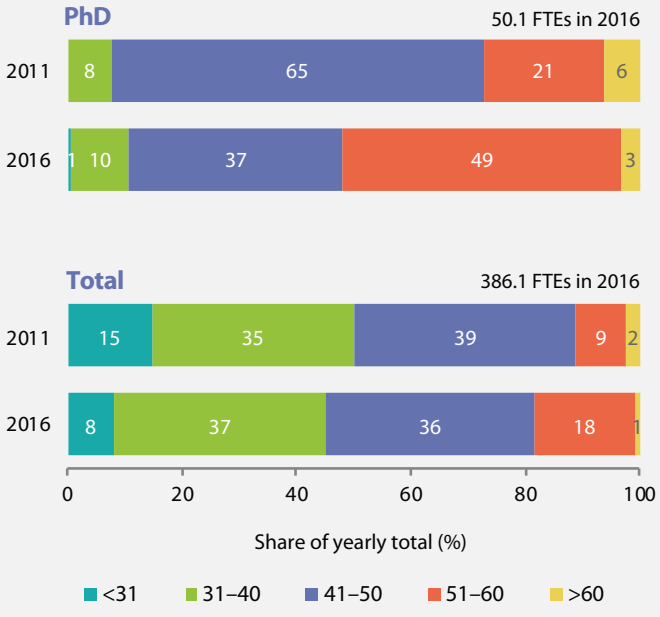
Agricultural researchers by sector and qualification level

Overall, Mozambique's higher education sector employs far fewer agricultural researchers than its government sector (in FTEs). And while the government sector employed three times as many MSc-qualified researchers as of 2016, it only employed a slightly higher number of researchers with PhD degrees.



Distribution of agricultural researchers by age bracket

As of 2016, more than half the country's PhD-qualified researchers were in their 50s or 60. This represents a substantial increase compared with the 2011 distribution and was mainly driven by shifts at IIAM. As of 2016, 45 percent of Mozambique's agricultural researchers were in their 20s or 30s, down from 50 percent in 2011.



Share of female researchers

The overall share of female researchers rose minimally during 2008–2016, from 33 to 37 percent. As of 2016, female researchers were slightly younger and less qualified than their male colleagues.

Share of women within each qualification level, 2016

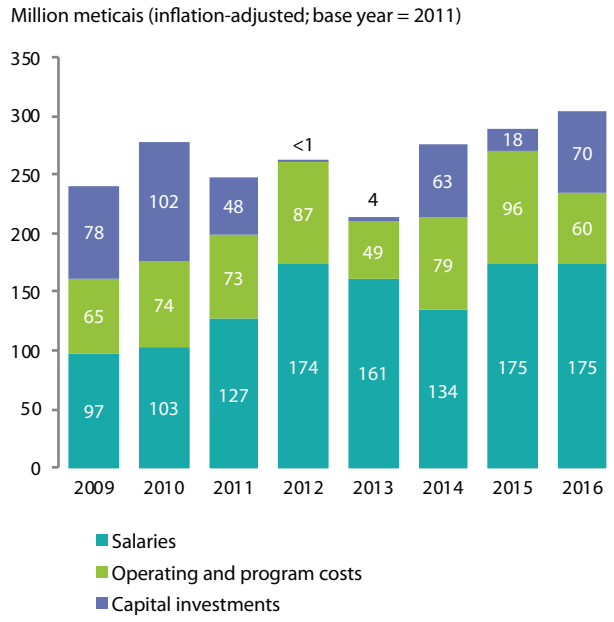
BSc **39%**	MSc **36%**	PhD **31%**

Share of women by age bracket, 2016

< 41 **40%**	41–50 **33%**	> 50 **37%**

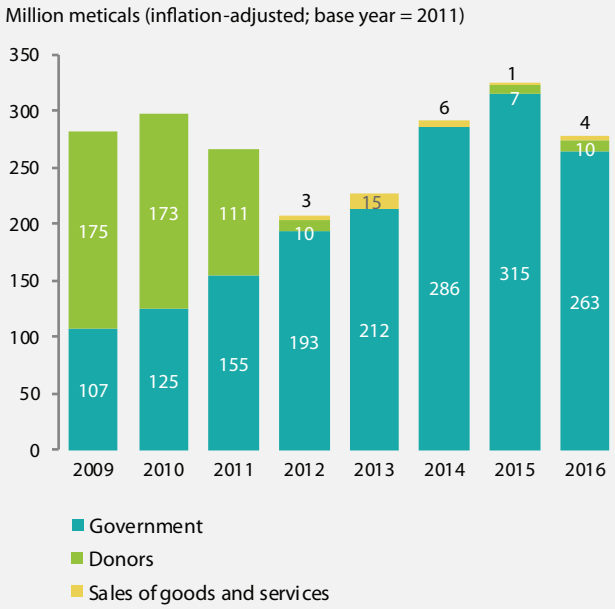
IIAM's spending by cost category

Spending by cost category at IIAM fluctuated over time, largely based on shifts in government and donor support. Shares allocated to salaries increased substantially during 2012–2014. Thereafter, shares returned to a more balanced distribution.



Sources of IIAM's funding

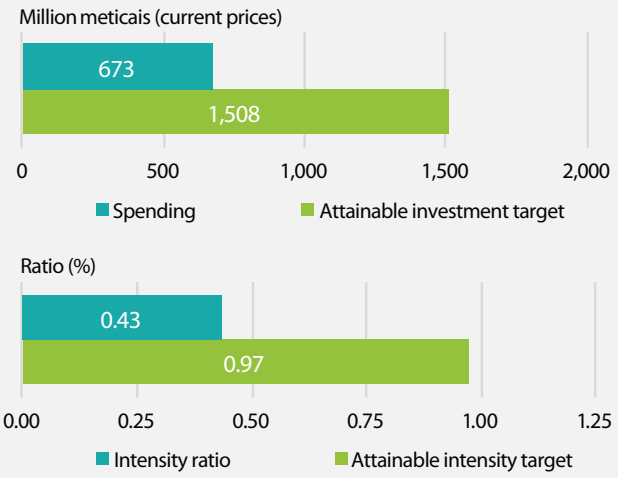
Donor contributions to IIAM (through APPSA and from USAID and JICA) fell during 2011–2012 and were nonexistent in 2013 and 2014. Government support grew from 2011 (in inflation adjusted terms), ultimately compensating losses from donors.



Investment levels needed to close the intensity gap

Analyses show that countries with economic conditions similar to Mozambique are close in reaching the 1 percent agricultural research investment target set by the United Nations and African Union; a target of 0.97 percent would be attainable. In order to have met this target in 2016, Mozambique would need to have invested 1,508 million, or an additional 835 million meticais (both in current prices).

Actual and attainable spending, 2016

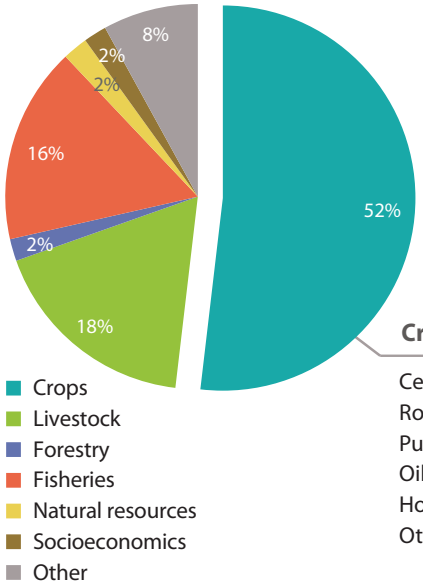


Notes: Traditionally, agricultural research intensity ratios compare investment and AgGDP levels to determine whether countries may be underinvesting. ASTI's Intensity Index incorporates additional factors that account for the size and nature of a nation's economy and hence facilitate more accurate cross-country comparisons. For more information, see https://astinews.ifpri.info/2017/07/01/a-new-look-at-research-investment-goals-for-ssa/.

Agricultural researchers by area of focus

In 2014, 52 percent of the country's FTE researchers conducted crop research, whereas 18 percent undertook livestock research. Major crops under investigation were beans, other vegetables, the cereals maize and rice, soybeans, cocopalm, and groundnuts.

Share of researchers, 2016



Crop categories

Cereals	11%
Roots and tubers	7%
Pulses	7%
Oil-bearing crops	14%
Horticultural crops	10%
Other crops	3%

Resources for Mozambique

This factsheet presents recent data on the performance of agricultural research in Mozambique, 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 Mozambique 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 Mozambique and many other countries.

ASTI's **agency directory** provides a view of agencies that conduct agricultural research in Mozambique, 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 and international organizations is excluded.
- 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
APPSA	Agricultural Productivity Program for Southern Africa
FTE(s)	full-time equivalent(s)
IIAM	Agricultural Research Institute of Mozambique
IIP	Fisheries Research Institute
JICA	Japan International Cooperation Agency
PPP(s)	purchasing power parity (exchange rates)
R&D	research and experimental development
UEM	Universidade Eduardo Mondlane
USAID	U.S. Agency for International Development

ABOUT ASTI, IFPRI, AND IIAM

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 **Agricultural Research Institute of Mozambique (IIAM)** is the country's principal agricultural research agency. It falls under the Ministry of Agriculture and focuses on crop, livestock, forestry, and natural resources research.

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