



# GUINEA

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## KEY INDICATORS, 2000–2011

Total Public Agricultural Research Spending	2000		2008		2011
Guinean francs (million constant 2005 prices)	13,134.6		4,032.6		5,415.8
PPP dollars (million constant 2005 prices)	10.8		3.3		4.4
<b>Overall Growth</b>		<b>-69%</b>		<b>34%</b>	
Total Number of Public Agricultural Researchers					
Full-time equivalents (FTEs)	236.8		230.0		265.0
<b>Overall Growth</b>		<b>-3%</b>		<b>15%</b>	
Agricultural Research Intensity					
Spending as a share of agricultural GDP	0.68%		0.15%		0.22%
FTE researchers per 100,000 farmers	7.13		6.22		6.77

Note: Acronyms, definitions, and an overview of agricultural R&D agencies are available on page 4.

▶ Agricultural R&D spending levels have gradually risen since 2008 due to increased government support.

▶ The number of agricultural researchers has also increased steadily in recent years; however, two-thirds of the country's researchers only hold BSc degrees, and many PhD-qualified researchers are approaching retirement age.

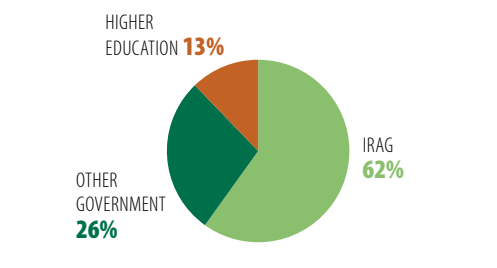
▶ Accounting for just 4 percent of researchers, women are severely underrepresented in agricultural R&D in Guinea, especially given that the country's agricultural labor force is predominantly female.

## FINANCIAL RESOURCES, 2011

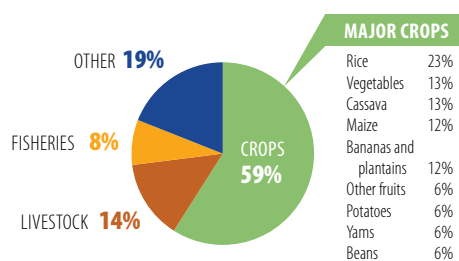
Spending Allocation	
Salaries	29%
Operating and program costs	50%
Capital investments	20%
Funding Sources	
Government	90%
Donors	10%

Note: Shares are based on financial data from IRAG only.

## INSTITUTIONAL PROFILE, 2011



## RESEARCH FOCUS, 2011



Notes: Major crops include those that are the focus of at least 5 percent of all crop researchers; 5 percent of all crop researchers focused on a wide variety of other crops.

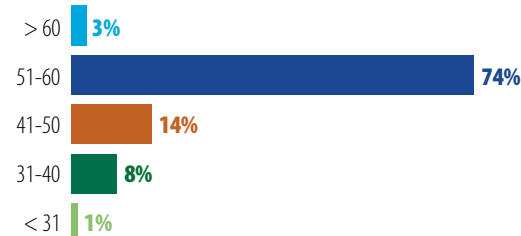
## RESEARCHER PROFILE, 2011



### Number by qualification (FTEs)



### Share by age group (years)



Note: Researcher data exclude expatriate researchers.

## CHALLENGE

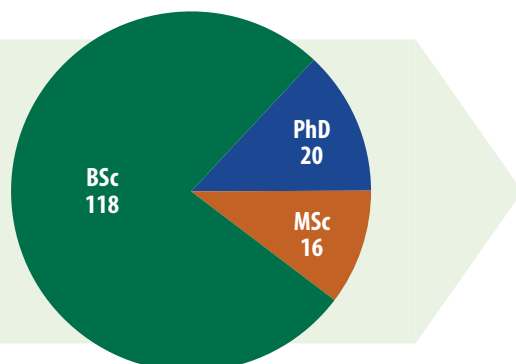
- ▶ IRAG is severely challenged in having an aging pool of experienced researchers. The bulk of the institute's PhD- and MSc-qualified researchers will reach retirement age in the next ten years. Limited training opportunities for BSc-qualified researchers have prevented the institute from maintaining a critical mass of qualified researchers, which will have serious implications in the years to come.

## POLICY OPTIONS

- ▶ In order to secure the necessary level of qualified agricultural scientists at the national level, the government of Guinea needs not only to recruit and train young researchers without further delay, but also to ensure that sufficient financial resources are available to retain them over time and provide the necessary conditions to motivate them.

Number of IRAG researchers by degree level, 2014

In 2014, IRAG employed 36 researchers qualified to either the MSc or PhD degree level; however, 30 of these researchers will retire by 2023.



Note: The pie chart excludes North Korean expatriate researchers and technicians with BSc and MSc degrees.

Discipline	Expected number of retirees	
	2014–2018	2019–2023
<b>PhD</b>		
Agricultural science	6	5
Soil science	3	0
Plant pathology	0	2
Food technology	1	0
Rural economy	0	1
<b>Total</b>	<b>10</b>	<b>8</b>
<b>MSc</b>		
Crop production	2	3
Crop protection	1	2
Animal health	2	1
Science communication	0	1
<b>Total</b>	<b>5</b>	<b>7</b>

### ▶ MEASURES TO MAINTAIN A CRITICAL MASS OF QUALIFIED RESEARCHERS

In an effort to (temporarily) halt the exodus of qualified researchers, the government of Guinea has recently raised the official retirement age for researchers employed at IRAG. Male researchers now retire at the age of 65 (instead of 60), and female researchers at the age of 60 (instead of 55). Despite this measure, IRAG is expected to lose 90 percent of its PhD researchers by 2023, highlighting the urgent need for large-scale recruitment and training.

Nine IRAG researchers with BSc degrees are currently undergoing MSc-level training as part of IRAG's internal training program, which occurs in Guinea, as well as in Burkina Faso, Cameroon, Canada, France, and Niger. A number of technicians are also being trained to the BSc level, but much more training is needed—particularly to increase the number of researchers with PhD degrees—if IRAG is to maintain a critical mass of well-qualified research staff. None of Guinea's universities offers PhD training in agricultural sciences, so scientists who want to pursue PhD training must travel abroad. Although WAAPP-Guinea includes an important capacity building component, degree-level training had yet to commence as of mid-2014.

Most other agricultural R&D agencies in Guinea face a similar challenge to IRAG in terms of employing an aging pool of researchers; 95 percent of the country's PhD-qualified agricultural scientists are in their fifties or sixties.

## CROSS-COUNTRY COMPARISONS OF KEY INDICATORS

	Total number of researchers, 2011 (FTEs)	Growth in number of researchers, 2008–2011	Share of PhD researchers, 2011 (FTEs)
<b>Guinea</b>	<b>265.0</b>	<b>15%</b>	<b>16%</b>
Senegal	112.2	-16%	70%
Mali	307.0	-4%	33%
Burkina Faso	218.0	-12%	48%

## CHALLENGE

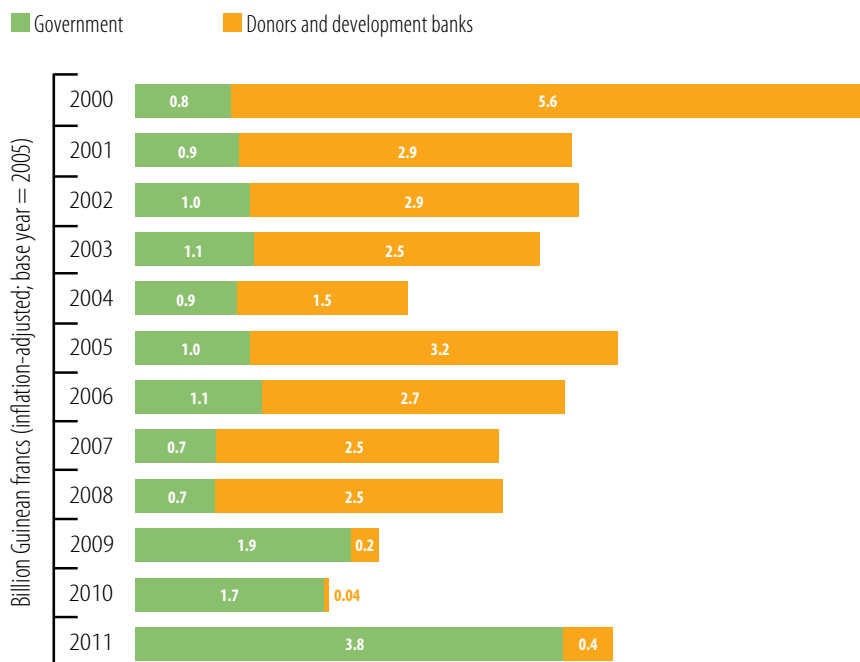
- ▶ Underinvestment in agricultural R&D in Guinea is serious. In 2011, the country invested just 0.22 percent of its AgGDP in agricultural R&D—a fraction of the 1-percent minimum level recommended by NEPAD and the United Nations. Contractions in donor funding prompted by persistent political instability are significant impediments to the execution of agricultural R&D.

## POLICY OPTIONS

- ▶ If agricultural R&D in Guinea is to become more productive and efficient, higher levels of funding must be secured. The government needs to clearly identify its long-term agricultural research priorities and secure stable and sustainable funding for R&D programs, including renewing donor interest in investing in agricultural R&D projects. Creative mechanisms to stimulate private-sector R&D funding should also be explored.

IRAG was largely dependent on funding from the French government and the World Bank during 2000–2008, but in 2009 the country's unstable political situation led to a widespread suspension of donor aid, at which time the government had no choice but to increase its funding to IRAG in order to keep it operational.

IRAG's sources of funding, 2000–2011



### ▶ WAAPP TO STRENGTHEN CAPACITY IN RICE RESEARCH

WAAPP is a subregional program co-financed through World Bank loans, a multi-donor trust fund, and national governments for the purpose of increasing the productivity of priority crops in West Africa. The program aims to facilitate regional cooperation in generating and disseminating agricultural technology and to establish national centers of specialization to strengthen the alignment of national and regional priorities. The project also funds demand-driven technology generation and adoption through a competitive funding scheme managed by CORAF/WECARD. Guinea was selected as home to the subregion's center of excellence for rice.

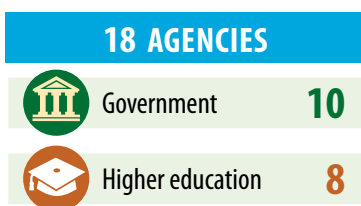
WAAPP–Guinea was launched in March 2012 based on a US\$9 million grant for five years (2012–2016) from the Japanese government. IRAG will benefit from WAAPP in several key ways, including the rehabilitation of its rice research stations, support to its research programs on rice, and strengthening of its human resource capacity. In addition to rice research programs, WAAPP provides considerable funding for joint research activities on cassava with Côte d'Ivoire and Sierra Leone.

## CROSS-COUNTRY COMPARISONS OF KEY INDICATORS *continued*

	Total spending, 2011 (million 2005 PPP dollars)	Overall spending growth, 2008–2011	Spending as a share of AgGDP, 2011
<b>Guinea</b>	<b>4.4</b>	<b>34%</b>	<b>0.22%</b>
Senegal	24.8	4%	0.83%
Mali	33.6	33%	0.61%
Burkina Faso	25.4	29%	0.42%

## OVERVIEW OF GUINEA'S AGRICULTURAL RESEARCH AGENCIES

Eighteen public agencies conduct agricultural R&D in Guinea. IRAG (employing 164 FTE researchers in 2011) is the largest agency, accounting for more than 60 percent of the country's agricultural researchers (in FTEs). Aside from its headquarters in Conakry, IRAG comprises six research centers distributed across different agroecological zones. The institute's 27 research programs focus on a wide range of themes, including crops, livestock, natural resources, postharvest issues, and agricultural engineering. Nine other government agencies conduct agricultural R&D, the largest of which include CNSHB (18 FTEs) and IPG (17 FTEs). The higher education sector plays only a modest role in agricultural R&D in Guinea, accounting for 13 percent of the country's agricultural FTE researchers in 2011. Research is conducted by six agencies under ISAV (employing a total of 23 FTEs), and two agencies under UGANC (10 FTEs in total). No private nonprofit and for-profit agencies conduct agricultural R&D in Guinea.



 For a complete list of the agencies included in ASTI's dataset for Guinea, visit [www.asti.cgiar.org/guinea](http://www.asti.cgiar.org/guinea).

## ASTI DATA PROCEDURES AND METHODOLOGIES

- ▶ The **data underlying this fact sheet** were predominantly derived through primary surveys, although some data were drawn from secondary sources or were estimated.
- ▶ **Public agricultural research** includes research conducted by government agencies, higher education agencies, and nonprofit institutions.
- ▶ 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 2005 local currencies and **2005 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, due to **decimal rounding**, the percentages presented can sum to more than 100.

 For more information on ASTI's data procedures and methodology, visit [www.asti.cgiar.org/methodology](http://www.asti.cgiar.org/methodology); for more information on agricultural R&D in Guinea, visit [www.asti.cgiar.org/guinea](http://www.asti.cgiar.org/guinea).

## ACRONYMS USED IN THIS FACTSHEET

CNSHB	National Research Center on Fisheries and Marine Resources
CORAF/ WECARD	West and Central African Council for Agricultural Research and Development
FTE(s)	Full-time equivalent (researchers)
IPG	Pasteur Institute of Guinea
IRAG	Guinean Agricultural Research Institute
ISAV	Valéry Giscard d'Estaing Institute for Agronomical and Veterinary Sciences in Faranah
NEPAD	New Partnership for Africa's Development
PPP	Purchasing power parity (exchange rates)
R&D	Research and development
UGANC	Gamal Abdel Nasser University of Conakry
WAAPP	West Africa Agricultural Productivity Program

## ABOUT ASTI, IFPRI, AND IRAG

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 **Guinean Agricultural Research Institute (IRAG)** is Guinea's principal agricultural R&D agency. It falls under the Ministry of Agriculture and Livestock and conducts research on a wide range of themes, including crops, livestock, natural resources, postharvest, and agricultural engineering.

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