

SIERRA LEONE

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KEY INDICATORS, 2001–2011

Total Public Agricultural Research Spending	2001	2008	2011
Leones (million constant 2005 prices)	3,128.1	7,062.4	7,385.6
PPP dollars (million constant 2005 prices)	2.9	6.6	6.9
Overall Growth		126%	5%
Total Number of Public Agricultural Researchers			
Full-time equivalents (FTEs)	48.8	58.6	81.7
Overall Growth		20%	39%
Agricultural Research Intensity			
Spending as a share of agricultural GDP	0.22%	0.23%	0.21%
FTE researchers per 100,000 farmers	4.56	4.53	6.08

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

► Agricultural research spending in Sierra Leone grew only modestly during 2008–2011, sharply contrasting very high growth during 2001–2008, at which time the main agricultural research centers, NARC and RARC (consolidated under SLARI in 2008) were being rehabilitated.

► Despite significant growth over time, Sierra Leone’s agricultural R&D spending remains well below the levels required to sustain its needs; spending levels as a share of AgGDP are among the lowest in Africa.

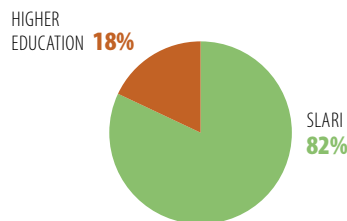
► Most of the other centers under SLARI were reopened and partially rehabilitated after 2008; a large number of (mostly BSc-qualified) researchers were recruited during 2009–2013 and given opportunities to pursue MSc-degree training in Sierra Leone or other African countries in recent years.

FINANCIAL RESOURCES, 2011

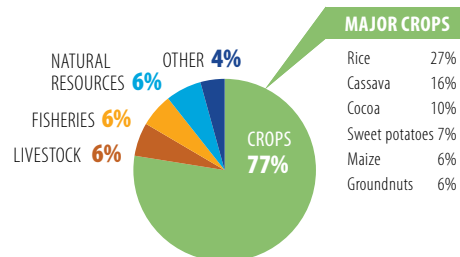
Spending Allocation	
Salaries	58%
Operating costs and capital investments	42%
Funding Sources	
Government	80%
Donors	18%
Development bank loans	2%

Note: Shares are based on data for SLARI only.

INSTITUTIONAL PROFILE, 2011



RESEARCH FOCUS, 2011

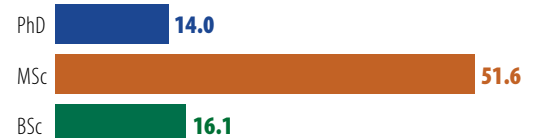


Notes: Major crops include those that are the focus of at least 5 percent of all crop researchers; 28 percent of total crop researchers focused on a wide variety of other crops.

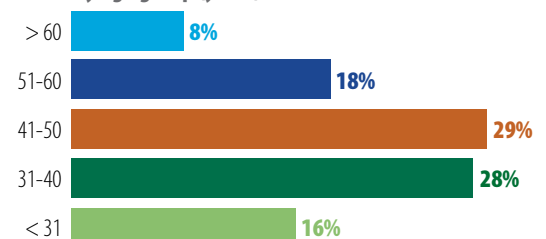
RESEARCHER PROFILE, 2011



Number by qualification (FTEs)



Share by age group (years)



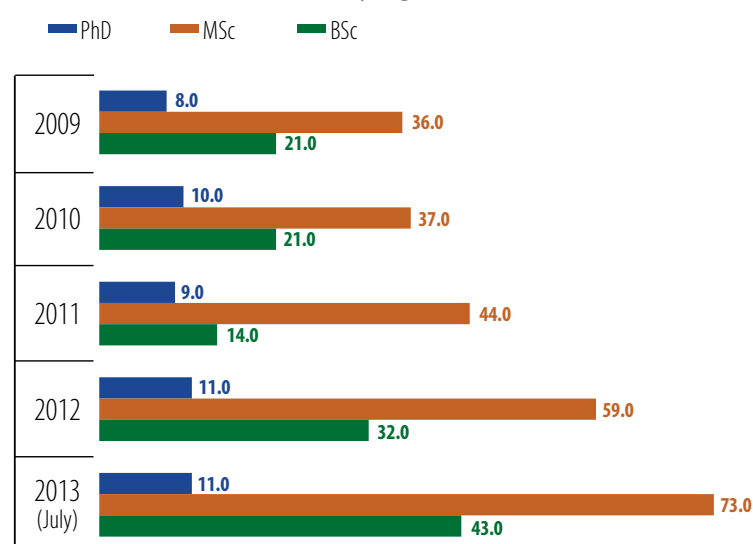
CHALLENGE

- ▶ Sierra Leone's agricultural research system was completely destroyed during the civil war of 1991–2002, and rebuilding it is understandably taking time. Despite the high number of new recruits in recent years, SLARI's human research capacity still remains inadequate in terms of both the number of researchers and their qualifications and experience. In addition, the institute's infrastructure remains poor, with laboratories being either badly equipped or entirely lacking equipment.

POLICY RESPONSE

- ▶ SLARI had made some progress in strengthening its research capacity. Senior staff salaries were increased substantially in January 2013 and, again, in January 2014. Furthermore, training opportunities have recently been made available, especially through WAAPP. These positive changes have reduced the attrition of existing staff and increased SLARI's ability to attract new graduates; further recruitment and training remain a priority, however.

Distribution of SLARI's researchers by degree, 2009–2013 (FTEs)



The number of agricultural researchers employed at SLARI doubled between 2009 and mid-2013. The majority of new recruits were qualified to the BSc or MSc degree level. In contrast, the number of PhD-qualified researchers remained fairly constant, given the scarcity of PhD graduates in Sierra Leone.

▶ RECRUITING AND TRAINING RESEARCHERS AT SLARI

In efforts to build its human resource capacity, SLARI recruited large numbers of BSc- and MSc-qualified scientists during 2009–2013. SLARI's capacity plan recommended a policy of primarily recruiting at the MSc level, but this posed a challenge, given a lack of available recruits. As a fallback position, SLARI recruited high-caliber BSc graduates and is providing them with MSc-level training opportunities at Njala University. The initiation of WAAPP in Sierra Leone, which finances long- and short-term training locally and abroad, has substantially increased these opportunities. Targeting gaps in disciplines or specializations at SLARI, 38 researchers were offered scholarships under WAAPP in 2013 to pursue MSc- and PhD-degree training at universities in Sierra Leone, Ghana, and Nigeria. The World Agroforestry Center is also supporting PhD-level training of three of SLARI's scientists, and various other donors funded short-term training outside Sierra Leone for field technicians and superintendents during 2010–2012.

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)
Sierra Leone	81.7	39%	17%
Liberia	45.1	139%	11%
Ghana	607.0	22%	38%
Guinea	265.0	15%	15%

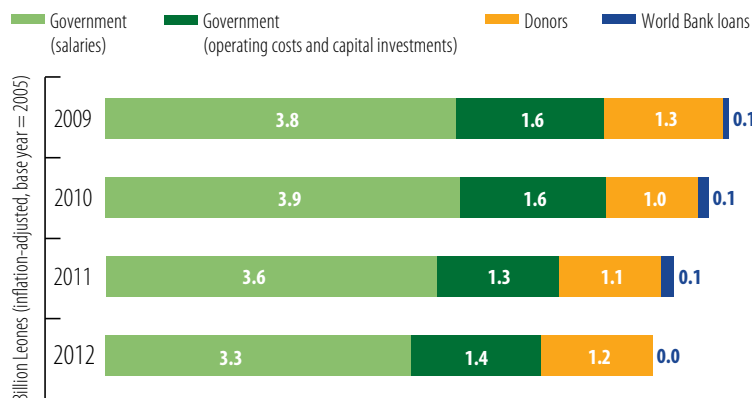
CHALLENGE

- Prompted by a commitment to sustainable food security, the government increased its funding to SLARI, but at a lower rate than the country's inflation rate. Government corruption and wasteful spending, combined with a national economic recession, have led to discrepancies between budgeted allocations and disbursed funding to the institute. In addition, SLARI is fully dependent on donor funding for the costs of its actual research programs.

POLICY OPTIONS

- Reform is needed to strengthen SLARI's agricultural R&D operations, in terms of developing the human and financial resources to effectively deliver technologies to farmers. Such reform should include increased government funding and full disbursement of approved budgets. In addition, donor funding needs to be more closely aligned with priorities established under SLARI's strategic and operating plans.

SLARI's funding sources, 2009–2012



Government support to SLARI remains strong but has contracted due to the country's high inflation rates over recent years. Government funding covers the costs of salaries and daily operations, but the institute relies on donor contributions to fund actual research programs and capital investments associated with the rehabilitation of research centers. Although WAAPP-Sierra Leone was initiated in 2012, SLARI only began receiving financial support from the program in 2013.

▶ ADDITIONAL FUNDING NEEDED TO REALIZE SLARI'S MEDIUM-TERM GOALS

SLARI's strategic plan for 2012–2021 will be carried out through two five-year operating plans, supported by an investment plan and a human capacity needs assessment. The priority for the first operating plan (2012–2016) is to develop the necessary human resources, infrastructure, and equipment to support the effective conduct of research. Funding requirements to implement the first operating plan require a total of US\$274 million, covering SLARI's headquarters and seven research centers. Contributions from the government, development partners, and the private sector were estimated to total only US\$106 million at time of publication of the investment plan, resulting in a shortfall of US\$168 million, or more than 60 percent.

Financial requirements and anticipated funding levels, 2012–2016

Financial requirements	US\$ million	Anticipated funding levels	US\$ million
Research programs	87.0	Government budget allocation	96.3
Human resources	81.7	Secured funding ^a	2.4
Physical resources	55.1	Anticipated additional funding ^b	7.0
Equipment and related facilities	47.5		
Research support functions	2.8		
Total	274.1	Total	105.6
Estimated funding shortfall		US\$168.4 million	

Source: SLARI Investment Plan, 2012.

^a Secured funding represents funding from various sources under formal, finalized agreements at time of publication of operational plan.

^b Anticipated additional funding represents funding from various sources that were pledged pending a formal agreement or remains under negotiation at time of publication of the investment plan.

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
Sierra Leone	6.9	5%	0.21%
Liberia	4.8	21%	0.42%
Ghana	68.1	19%	0.69%
Guinea	4.4	34%	0.22%

OVERVIEW OF SIERRA LEONE'S AGRICULTURAL RESEARCH AGENCIES

Three public agencies conduct agricultural R&D in Sierra Leone. SLARI (employing 67 FTE researchers in 2011) is the largest agency, accounting for more than 80 percent of the country's agricultural researchers (in FTEs). SLARI falls under MAFFS and is headquartered in Freetown. Its main research centers are NARC (24 FTEs), which conducts research on roots, tubers, and legumes, and RARC (22 FTEs), which conducts cereal research. With the establishment of SLARI in 2008, three defunct research stations—Kenema Forestry and Tree Crops Research Center, Teko Livestock Research Center, and Magbosi Land and Water Research Center—were rehabilitated with funding from IFAD. Plans are also in place to rehabilitate the Fisheries Research Station near Freetown. Two higher education agencies also conduct agricultural research: the School of Agriculture at Njala University (10 FTEs) and the Institute of Marine Biology and Oceanography at the University of Sierra Leone (5 FTEs). No private nonprofit and for-profit agencies conduct agricultural R&D in Sierra Leone.

3 AGENCIES




Government

1



Higher education

2

 For a complete list of the agencies included in ASTI's dataset for Sierra Leone, visit www.asti.cgiar.org/sierra-leone.

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.
- ▶ **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; for more information on agricultural R&D in Sierra Leone, visit www.asti.cgiar.org/sierra-leone.

ACRONYMS USED IN THIS FACTSHEET

AgGDP	Agricultural gross domestic product
FTE(s)	Full-time equivalent (researchers)
IFAD	International Fund for Agricultural Development
MAFFS	Ministry of Agriculture, Forestry and Food Security
NARC	Njala Agricultural Research Center
PPP(s)	Purchasing power parity (exchange rates)
RARC	Rokupr Agricultural Research Center
R&D	Research and development
SLARI	Sierra Leone Agricultural Research Institute
WAAPP	West Africa Agricultural Productivity Program

ABOUT ASTI, IFPRI, AND SLARI

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 **Sierra Leone Agricultural Research Institute (SLARI)** is Sierra Leone's principal government agency involved in agricultural R&D. The institute falls under the administrative coordination of the Ministry of Agriculture, Forestry and Food Security and its mandate comprises crops, livestock, forestry, fisheries, and socioeconomic research.

ASTI/IFPRI and SLARI gratefully acknowledge participating agricultural R&D agencies for their contributions to the data collection and preparation of this country factsheet. ASTI also thanks the Bill and Melinda Gates Foundation for its 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 SLARI.