





BANGLADESH

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KEY INDICATORS, 2000–2012

Total Agricultural Research Spending	2000		2009		2012
Bangladeshi taka (million constant 2011 prices)	4,454.2		4,835.9		5,783.5
PPP dollars (million constant 2011 prices)	192.4		208.9		249.9
Overall Growth		9%		20%	
Total Number of Agricultural Researchers					
Full-time equivalents (FTEs)	1,590.4		1,855.1		2,121.0
Overall Growth		17%		14%	
Agricultural Research Intensity					
Spending as a share of agricultural GDP	0.43%		0.38%		0.40%
FTE researchers per 100,000 farmers	4.90		5.66		6.56

Notes: Research conducted by the private for-profit sector is excluded from this factsheet due to lack of available data. Acronyms, definitions, and an overview of agricultural R&D agencies are provided on page 4.

► The total number of agricultural researchers in Bangladesh increased considerably in recent years, largely due to a major influx of PhD-qualified scientists at BARI and the agricultural universities.

► Agricultural research spending has followed a somewhat erratic trend over time, but the launch of NATP (2009–2014) spurred a marked increase in overall investment levels.

► Underinvestment in agricultural R&D is, nonetheless, pervasive: Bangladesh's 2012 agricultural R&D intensity ratio of 0.40 is very low, especially in the context of rapid population growth, a shrinking natural resource base, climate change, and changes in food consumption patterns.

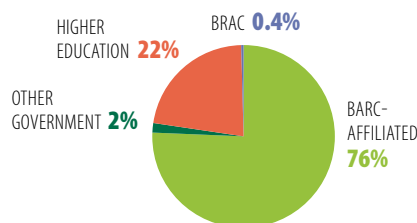
FINANCIAL RESOURCES, 2012

Spending Allocation

Salaries	44%
Operating and program costs	44%
Capital investments	13%

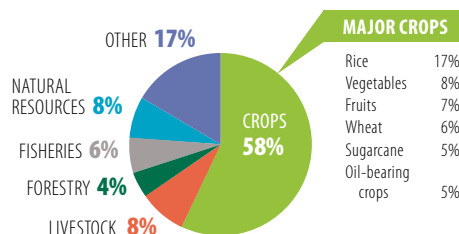
Note: Shares are based on data for BARC-affiliated institutes only.

INSTITUTIONAL PROFILE, 2012



Note: Shares are based on FTE agricultural researchers.

RESEARCH FOCUS, 2012

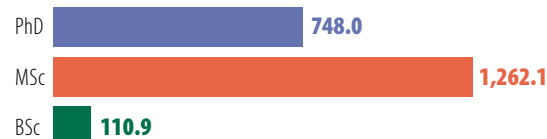


Notes: Major crops include those that are the focus of at least 5 percent of all crop researchers; 51 percent of total crop researchers focused on a wide variety of other crops.

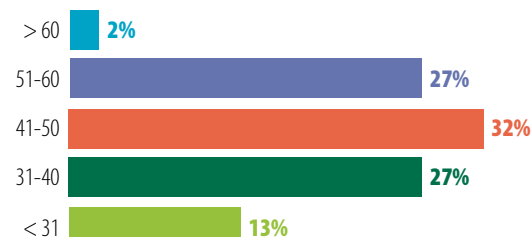
RESEARCHER PROFILE, 2012



Number by qualification (FTEs)



Share by age group (years)



CHALLENGE

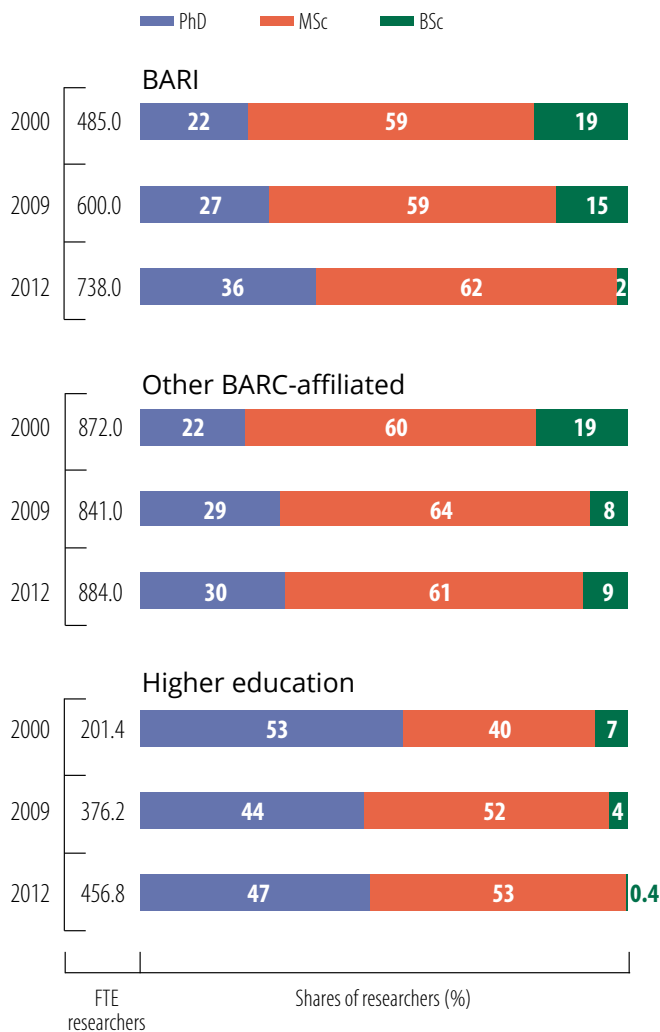
- ▶ Despite an overall increase in researcher numbers among BARC-affiliated institutes during 2000–2012, more than 300 highly qualified researchers left for better remunerated opportunities elsewhere during this timeframe. Of the current 1,600-strong pool of researchers, 30 percent are more than 50 years old and approaching the mandatory retirement age of 59. Recent (and imminent) staff departures have caused a shortage of experienced senior scientists in key disciplines.

POLICY RESPONSE

- ▶ In an effort to retain and motivate agricultural researchers, the Bangladesh government has recently introduced a plan to pay BARC-affiliated researchers an additional month's salary each year. The government is also considering increasing the retirement age for "outstanding" researchers to 67 years (in line with the higher education sector). Performance criteria are currently being developed, and, if approved, the change should go into effect in the near future.

The total number of researchers at BARI increased by roughly half during 2000–2012, while combined numbers at the other BARC-affiliated institutes remained relatively stable. Average qualification levels at BARI and other BARC-affiliated institutes have gradually improved over time. In 2012, roughly one-third of all BARC-affiliated researchers held PhD degrees, up from 22 percent in 2000. Agricultural R&D capacity at Bangladesh's universities has grown much faster than at BARC-affiliated agencies. A larger share of university-based researchers hold PhD degrees compared to their government-based counterparts.

Distribution of agricultural researchers by degree, 2000, 2009, and 2012 (FTEs)



▶ LARGE-SCALE CAPACITY STRENGTHENING THROUGH NATP

NATP (2009–2014) is the first phase of a 15-year program to support the government's strategy to increase agricultural productivity and farm income. It focuses on revitalizing agricultural research and extension, and integrating small producers of high-value commodities with the market. NATP is funded by the government, largely through development bank loans. The agricultural research support component of NATP funds a large number of research activities, either through the BARC-managed Sponsored Public Goods Research program or through the competitive grants program administered by the Krishi Gobeshona Foundation.

Another key component of NATP consists of enhancing the efficiency of BARC and the agricultural research institutes through institutional reform, human resource development, and the establishment of well-functioning management and ICT systems. Based on a thorough skills-gap analysis, NATP provided a significant number of researchers with short-term training in key areas such as biotechnology, genetic engineering, horticulture, soil and water management, agricultural engineering, and postharvest management. In addition, 78 researchers received PhD scholarships in Bangladesh and 30 abroad (in China, Malaysia, the Philippines, Sri Lanka, and Thailand). All have either completed their degrees or are expected to do so by the end of 2014 and thereafter return to their institutes. Moreover, 10 scientists have completed postdoctoral research abroad under NATP, mostly in Japan, the United Kingdom, and the United States in areas of biosafety, climate change, research priority setting, and geographic information systems.

▶ UNIVERSITY RESEARCH IS GROWING, BUT LINKAGES WITH BARC NEED STRENGTHENING

University involvement in agricultural R&D has increased considerably since the turn of the millennium in response to capacity growth within existing agricultural faculties and the establishment of many new universities and faculties. Although the universities and BARC-affiliated institutes collaborate in a number of areas—including training and the provision of technical assistance—actual research linkages remain somewhat weak. To maximize the potential for developing innovative solutions to farmers' needs and the needs of the society more generally, new modes of collaboration should be explored to take advantage of the unique skills and knowledge bases offered by both the universities, which focus on basic research, and the BARC-affiliated institutes, which focus on applied research. Neighboring India is an exemplary model for this approach: the Indian Council of Agricultural Research both funds and maintains close research linkages with a large number of state agricultural universities.

CHALLENGE

- ▶ BARC's mandate of coordinating the country's agricultural research is severely constrained by a number of factors: (1) research institutes are administered by different ministries and under different legislation and regulations; (2) the civil service system of promotions restricts researchers' opportunities for career advancement; and (3) BARC has no authority in allocating its funding despite being responsible for reviewing the institutes' research programs and budgets each year.

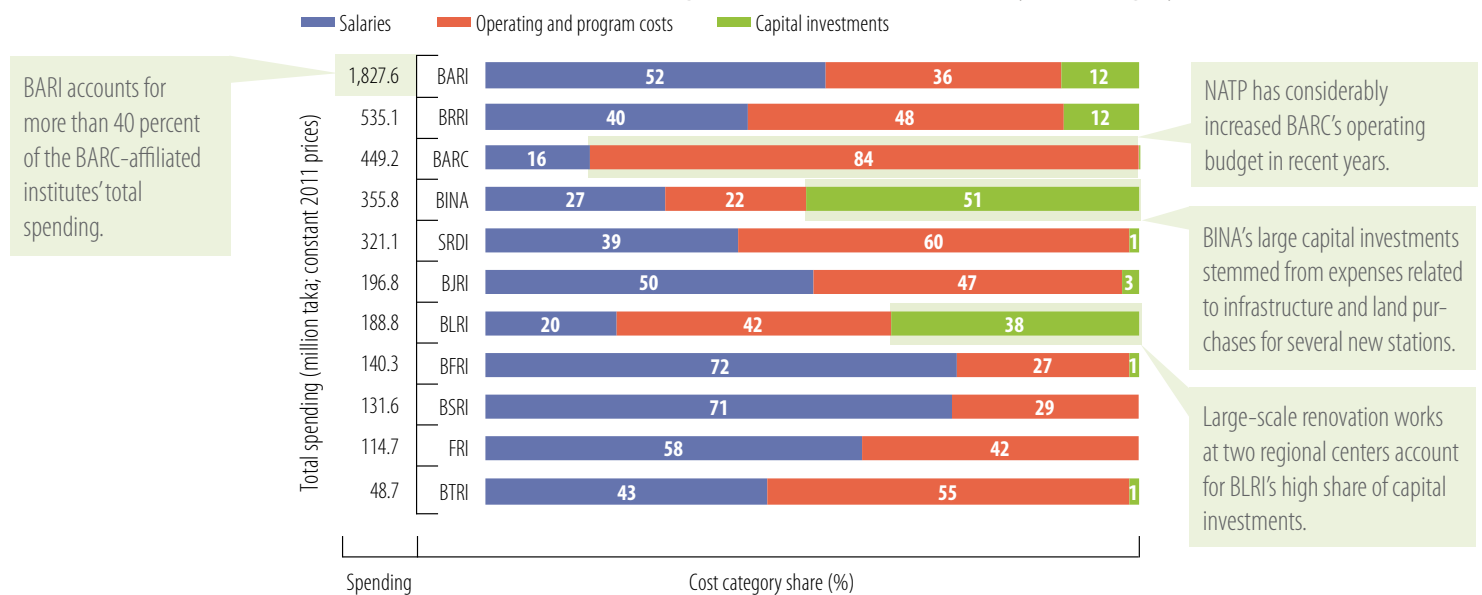
POLICY RESPONSE

- ▶ While the 2012 BARC Act conferred the council with greater authority to approve research programs and recommend budget allocations to supervising ministries, BARC still lacks the autonomy to allocate funding based on designated research priorities and the quality and quantity of results and outputs.

▶ AGRICULTURAL RESEARCH FUNDING IN BANGLADESH

- Government funding to BARC-affiliated institutes falls into two categories: recurring funding, which is derived from the national government and is primarily allocated to salaries and operating costs, and Annual Development Program funds, which are derived from donors and the government, and are mainly allocated to capital investments.
- Universities do not receive direct research funding from the government. Scientists seek external support for their own research, mostly from foreign donors, BARC, the Krishi Gobeshona Foundation, or international scientific partners. The University Grants Commission is responsible for assessing the needs of universities and allocating funding accordingly (including training, infrastructure and equipment, and limited research activities).
- Since 2008, the Krishi Gobeshona Foundation has been providing research institutes with competitive grants from the government, higher education, or the private sector for projects of roughly two-years' duration.
- The principal donors to agricultural R&D in Bangladesh include the World Bank; the International Fund for Agricultural Development; the European Union; the Bill and Melinda Gates Foundation; the Asian Food and Agricultural Cooperation Initiative (South Korea); and the governments of Canada, Japan, and the United States.

Allocation of BARC-affiliated institutes' agricultural R&D expenditures by cost category, 2012



Number of new crop varieties released by BARC-affiliated institutes, 2007–2012

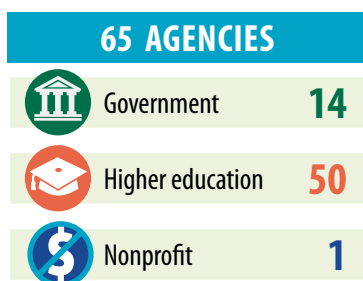
INSTITUTE	2007	2008	2009	2010	2011	2012	TOTAL
BARI	12	16	33	12	20	18	111
BINA	1	1	3	5	9	1	20
BJRI	–	2	–	3	–	1	6
BRRI	2	3	–	4	3	1	13
BSRI	1	–	2	–	–	1	4
BSRTI	–	1	1	–	–	–	2
BTRI	–	–	–	–	1	–	1
CDB	–	–	–	1	1	–	2
TOTAL	16	23	39	25	34	22	159


- ◀ BARI accounted for 70 percent of the new varieties released by BARC-affiliated institutes during 2007–2012; it released 111 new potato, maize, fruit, vegetable, wheat, pulse, ornamental, and other varieties. During this period, BINA released a number of varieties of rice, mustard, groundnuts, pulses, and horticultural crops, and BRRI released 13 new rice varieties.

OVERVIEW OF BANGLADESH'S AGRICULTURAL RESEARCH AGENCIES

Sixty-five public agencies conduct agricultural research in Bangladesh. The Dhaka-based BARC Secretariat coordinates research undertaken by 11 agricultural R&D institutes. Combined, these institutes accounted for roughly three quarters of the country's agricultural researchers in 2012 (in FTEs). BARI is by far the largest institute (employing 738 FTE researchers in 2012). It conducts research on a variety of crops and noncommodity areas, such as soil and crop management, disease and insect management, and water management and irrigation. Some of the other large institutes under the BARC umbrella are BRRI (213 FTEs focusing on rice research), SRDI (150 FTEs conducting soil research), BJRI (114 FTEs involved in jute research), BINA (85 FTEs focusing on nuclear agriculture), BFRI (75 FTEs conducting forestry research), and FRI (74 FTEs involved in fisheries research).

The higher education sector plays an increasingly important role in Bangladesh's agricultural research. Fifty higher education agencies conduct agricultural research (including specialized universities, agricultural faculties, and smaller units); combined, they accounted for 22 percent of the country's total agricultural researchers in 2012. Comprising six agriculture-related faculties, the Bangladesh Agricultural University (167 FTEs) is the country's largest agricultural university. Other important universities include Shere-e-Bangla Agricultural University (47 FTEs) and Bangabandhu Sheikh Mujibur Rahman Agricultural University (45 FTEs). BRAC is a well-known nonprofit organization engaged in many different areas of economic development, including (limited) agricultural research.



 For a complete list of the agencies included in ASTI's dataset for Bangladesh, visit www.asti.cgiar.org/bangladesh.

ABOUT ASTI, IFPRI, AND BARC

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 **Bangladesh Agricultural Research Council (BARC)** under the Ministry of Agriculture is Bangladesh's national coordinating agency for research on all aspects of agriculture, including crops, livestock, soil, water, forestry, fisheries, agricultural engineering, and socioeconomics.

ASTI/IFPRI and BARC 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 South Asia. 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 BARC.

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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, 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 Bangladesh, visit www.asti.cgiar.org/bangladesh.

ACRONYMS USED IN THIS FACTSHEET

BARC Bangladesh Agricultural Research Council	BTRI Bangladesh Tea Research Institute
BARI Bangladesh Agricultural Research Institute	CDB Cotton Development Board
BFRI Bangladesh Forest Research Institute	FRI (Bangladesh) Fisheries Research Institute
BINA Bangladesh Institute of Nuclear Agriculture	FTE(s) Full-time equivalent (researchers)
BJRI Bangladesh Jute Research Institute	ICT Information, communication, and technology
BLRI Bangladesh Livestock Research Institute	NATP National Agricultural Technology Project
BRRI Bangladesh Rice Research Institute	PPP(s) Purchasing power parity (exchange rates)
BSRI Bangladesh Sugarcane Research Institute	R&D Research and development
	SRDI Soil Resource Development Institute