

BANGLADESH

RECENT DEVELOPMENTS IN PUBLIC AGRICULTURAL RESEARCH

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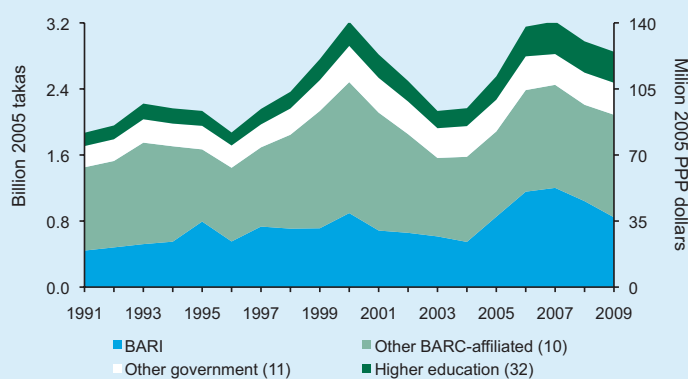
LONG-TERM INVESTMENT AND CAPACITY PATTERNS IN PUBLIC AGRICULTURAL R&D

Agricultural productivity growth is of particular importance to Bangladesh because it is one of the countries most vulnerable to climate change and has both a rising population and declining arable land. Agricultural gross domestic product (AgGDP) grew by more than 4 percent per year during 2005–10 (World Bank 2011). Agricultural research and development (R&D) has been a major contributor to the growth in productivity for many of Bangladesh’s most important crops (Beintema and Kabir 2006); however, in recent years, public investments in agricultural R&D have shown significant fluctuations from one year to the next. After peaking in 2000, public expenditures on agricultural R&D fell by more than one-third during 2000–03, but quickly recovered in subsequent years. During 2007–09, agricultural R&D spending levels once again declined. In 2009, Bangladesh invested 2.9 billion takas or 125.9 million purchasing power parity (PPP) dollars (both in 2005 constant prices) (Figure 1; Table 1). Note that, unless otherwise stated, all dollar values in this note are based on purchasing power parity (PPP) exchange rates.¹ PPPs reflect the purchasing power of currencies more effectively than do standard exchange

Key Trends Since 2003

- The Bangladesh Agricultural Research Council (BARC) is the coordinating body of 10 agricultural research institutes, which, when combined, accounted for roughly 70 percent of the country’s agricultural research and development (R&D) expenditures and staff in 2009.
- During 2003–09, the number of agricultural researchers in Bangladesh rose by more than 10 percent; however, a large number of vacancies at the BARC-affiliated agencies remain unfilled. Furthermore, the coming retirement of many experienced PhD-qualified researchers at BARC-affiliated agencies is a growing concern.
- Annual agricultural R&D spending levels have shown a somewhat erratic trend.
- In 2009, the first phase of the National Agricultural Technology Project (NATP) financed by the government of Bangladesh, the World Bank, and the International Fund for Agricultural Development (IFAD) was implemented in order to enhance the efficiency of the national agricultural research system.

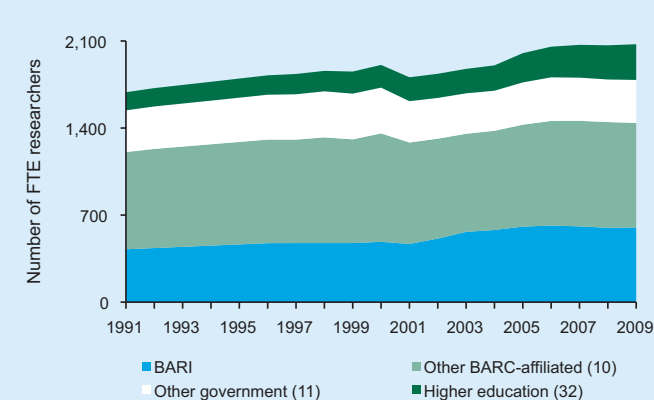
Figure 1—Public agricultural R&D spending adjusted for inflation, 1991–2009



Sources: ASTI–BARC 2010–11; Beintema and Kabir 2006.

Notes: Figures in parentheses indicate the number of agencies in each category. Other government includes one nonprofit agency, BRAC, that invested 141.6 million 2005 takas or 6.3 million 2005 PPP dollars in agricultural R&D in 2009. For more information on coverage and estimation procedures, see the Bangladesh country page on ASTI’s website at asti.cgiar.org/bangladesh.

Figure 2—Public agricultural research staffing in full-time equivalents, 1991–2009



Sources: ASTI–BARC 2010–11; Beintema and Kabir 2006.

Notes: Figures in parentheses indicate the number of agencies in each category. Other government includes one nonprofit agency BRAC, which employed 8 FTE researchers in 2009.

Table 1—Overview of public agricultural R&D spending and research staffing levels, 2009

Type of agency	Total spending			Total staffing	
	takas (million 2005 prices)	PPP dollars	Shares (%)	Number (FTEs)	Shares (%)
BARI	845.1	37.3	29.6	600.0	28.8
Other BARC-affiliated (10)	1,100.7	48.6	38.6	841.0	40.4
Non-BARC government (10)	387.1	17.1	13.6	338.5	16.6
BRAC	141.6	6.3	5.0	7.5	0.4
Higher education (32)	376.0	16.6	13.2	286.8	13.8
Total (54)	2,850.5	125.9	100	2,073.8	100

Source: ASTI–BARC 2010–11.
 Note: Figures in parentheses indicate the number of agencies in each category.




rates because they compare the prices of a broader range of local—as opposed to internationally traded—goods and services.

In terms of human resource capacity, the number of full-time equivalent (FTE) agricultural researchers rose steadily during 2003–09. In 2003, 1,876 FTE researchers were active in Bangladesh, compared with 2,074 in 2009, representing an increase of more than 10 percent.

The Bangladesh Agricultural Research Council (BARC) coordinates research undertaken by 10 agricultural R&D institutes (ARIs). The BARC secretariat, together with the ARIs (herein referred to as BARC-affiliated institutes) invested 1.9 billion takas or 85.9 million dollars (in 2005 constant prices) and employed 1,441 FTE researchers in 2009—roughly 70 percent of the country’s total.² These 10 BARC-affiliated institutes include the Bangladesh Agricultural Research Institute (BARI), the Bangladesh Fisheries Research Institute (FRI), the Bangladesh Institute of Nuclear Agriculture (BINA), the Bangladesh Forest Research Institute (BFRI), the Bangladesh Sugarcane Research Institute (BSRI), the Soil Resource Development Institute (SRDI), the Bangladesh Rice Research Institute (BRRRI), the Bangladesh Livestock Research Institute (BLRI), the Bangladesh Jute Research Institute (BJRI), and the Bangladesh Tea Research Institute (BTRI), as well as the Dhaka-based BARC secretariat (BARC 2008). During 2003–09, the BARC-affiliated institutes grew in both expenditures and capacity.

BARI is the largest agricultural R&D agency in Bangladesh, accounting for 29 percent of the country’s total agricultural R&D capacity. Established in 1976 and headquartered in Gazipur, BARI conducts research on crops such as wheat, tubers, pulses, oilseeds, spices, and horticultural crops. It also conducts research in noncommodity areas such as soil and crop management; disease and insect management; and irrigation

ASTI Website Interaction

-  More details on institutional developments in agricultural research in Bangladesh are available in the 2006 country brief at asti.cgiar.org/pdf/Bangladesh_CB34.pdf.
-  Underlying datasets can be downloaded using ASTI’s data tool at www.asti.cgiar.org/data.
-  A list of the 22 government, 1 nonprofit, and 32 higher education agencies included in this brief is available at asti.cgiar.org/bangladesh/agencies.

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and water management (BARI 2003).The institute operates 7 research centers, 14 research divisions, 6 regional stations, and 28 substations located throughout the country. BARI’s spending showed a temporary peak during 2006–07 due to the construction of a postharvest laboratory and the Plant Genetic Resource Center (PGRC) as well some renovations made to research stations. In 2009, BARI’s spending totaled 845.1 million takas or 37.3 million dollars (in 2005 constant prices).

Total staff and spending levels at most of the BARC-affiliated institutes have remained relatively unchanged since the turn of the millennium. The BARC secretariat itself, however, is a notable exception. The secretariat saw its researcher numbers double from 17 to 34 FTEs during 2002–09, while its overall expenditure levels showed a more erratic trend. In addition to agencies that are directly affiliated with BARC, 10 other government agencies performed agricultural R&D in Bangladesh, accounting for 16 percent of total capacity and 14 percent of total investment in 2009. These include Dhaka Laboratories, Chittagong Laboratories, Rajshahi Laboratories and the Institute of Food and Science Technology (IFST) under the Bangladesh Council of Scientific and Industrial Research (BCSIR); the Bangladesh Sericulture Research and Training Institute (BSRTI)³; the Institute of Food and Radiation Biology (IFRB) under the Bangladesh Atomic Energy Commission; the Rural Development Academy (RDA); the Bangladesh Institute of Development Studies (BIDS); the Bangladesh Academy for Rural Development (BARD); and the Cotton Development Board (CDB). Each of these agencies employed between 15 and 56 FTE agricultural researchers in 2009. Total agricultural R&D capacity of the 10 agencies combined rose from 321 FTEs in 2003 to 339 in 2009.

Thirty-two higher education agencies (including specialized universities, agricultural faculties, and smaller units) are involved in agricultural R&D in Bangladesh. Combined, they accounted for




14 percent of total capacity in 2009, up from a 10 percent share in 2003. Much of this growth was due to increased research capacity at the country's largest agricultural university, the Mymensingh-based Bangladesh Agricultural University (BAU). BAU was established in 1961 and has six different faculties engaged in agricultural R&D, the largest of which is the Faculty of Agriculture. BAU falls under the Ministry of Education and its research priorities are in line with the national research priorities set by BARC. With a total of 149 FTEs spread over the six faculties, BAU has strong research capacity and its number of research projects is on the rise. Other important higher education agencies include Shere-E-Bangla Agricultural University (SBAU) and Hajee Mohammad Danesh Science and Technology University (HSTU), employing 32 and 25 FTEs, respectively.

One nongovernmental organization in 2009, BRAC, was identified as performing agricultural R&D. This well-known organization engages in many different areas of economic development and has a small agricultural research component. Although BRAC accounts for less than 1 percent of Bangladesh's agricultural capacity, it plays a relatively important role when it comes to agricultural R&D expenditures. In 2009, the agency invested 141.6 million takas or 6.3 million dollars (in constant 2005 prices), accounting for 5 percent of the country's total agricultural R&D spending. This disparity can largely be explained by BRAC's substantial land and equipment purchases.

The private sector is believed to play a small but relevant role in agricultural R&D in Bangladesh. However, investment data for business enterprises were hard to come by, and hence, the private sector has been excluded from further analysis in this note. Private-sector agricultural R&D is dominated by the seed industry and focuses mainly on hybrid rice, maize, vegetables, pesticides, and livestock products (Rashid, Ali, and Gisselquist 2011).

On average, Bangladesh's support-staff-per-researcher ratio remained stable during 2003–09. In 2009, the support-staff-to-researcher ratio was 3.2 (ASTI–BARC 2010–11), comprising 1.0 technician, 0.7 administrative staff, and 1.4 other support staff. Ratios in the higher education sector were lower than in the

ASTI Website Interaction

-  Detailed definitions of PPPs, FTEs, and other methodologies employed by ASTI are available at asti.cgiar.org/methodology.
-  The data in this brief are predominantly derived from surveys. Some were estimated. More information on data coverage is available at asti.cgiar.org/bangladesh/datacoverage.
-  More relevant resources on agricultural R&D in Bangladesh are available at asti.cgiar.org/bangladesh.

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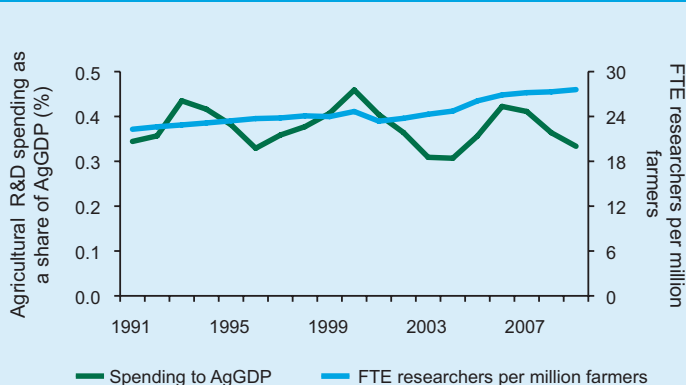
government agencies, averaging only one support staff member for every researcher—a common phenomenon across countries, given that research is a secondary activity at universities.

An often-used indicator to compare agricultural R&D spending across countries is the research intensity ratio—that is total agricultural R&D spending as a percentage of agricultural output (AgGDP). After the turn of the millennium, Bangladesh's agricultural research intensity fluctuated and peaked at 0.40 in 2006 and 2007 before declining to 0.32 in 2009. The decreasing agricultural R&D ratio during 2007–09 can be attributed to the country's strong AgGDP growth rates coupled with falling agricultural R&D expenditures. In contrast, the number of FTE researchers per million farmers increased gradually over time, reaching 28 FTE researchers per million farmers in 2009, up from 25 at the turn of the millennium.

INSTITUTIONAL STRUCTURE AND POLICY ENVIRONMENT

As previously noted, 10 ARIs are directly affiliated with BARC. In addition to being placed under BARC, the ARIs fall under five different ministries and BTRI is managed by the Bangladesh Tea Board (BARC 2009). This complex management structure has posed a major challenge to BARC's coordinating role. Additionally, government resources for agricultural R&D are funneled through ministries, and are not reviewed by BARC, creating the risk of research duplication by the various ARIs. Also, the management of human resources is controlled by the individual institutes, which deprives scientists of opportunities for interinstitutional transfer and promotion. Lastly, outreach stations are currently managed by the individual institutes

Figure 3—Intensity of agricultural research spending and capacity, 1991–2009



Sources: Calculated by authors from ASTI–BARC 2010–11; Beintema and Kabir 2006; FAO 2011; and World Bank 2011.

limiting the ability to share these facilities across institutes (BARC 2008).

In order to address these issues, the national government has engaged in the reform program known as the National Agricultural Technology Project (NATP). NATP is a collaborative initiative financed by the government of Bangladesh, the World Bank, and the International Fund for Agricultural Development (IFAD) aimed at revitalizing Bangladesh’s agricultural technology system and improving agricultural productivity (BARC 2009). Accordingly, one of NATP’s components focuses on improving Bangladesh’s national agricultural research system by reforming institutional inefficiencies, enhancing human capacity, and establishing a competitive grants program to increase funding for agricultural R&D and enhance its efficiency. Currently in its first phase, NATP is planned to span 15 years (2007–22) and some institutional reforms are already underway. Additionally, the recently approved revised BARC Act will address structural inefficiencies inside Bangladesh’s agricultural research system.⁴ This Act will enhance BARC’s coordinating role by allowing it to allocate financial resources to the ARIs and requiring BARC’s approval of research programs conducted by all of the ARIs (even though they will remain under different ministries). This is expected to reduce duplication of research efforts and enhance accountability.

HUMAN RESOURCE TRENDS

Along with an increasing number of FTE researchers employed in Bangladesh during 2003–09, the country’s agricultural researchers became on average slightly more qualified. Of the researchers employed in 2009, 30 percent held PhD degrees, compared with 24 percent in 2003. The share of MSc-qualified researchers remained at 61 percent, and the share of BSc-qualified researchers decreased from 15 to 10 percent during

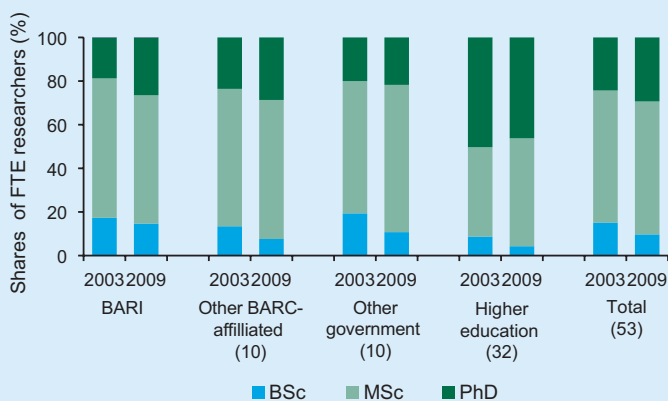
this timeframe (Figure 4). Notably, a number of technicians held degrees in Bangladesh. In 2009, 1 FTE technician held a PhD degree, 16 FTE technicians held MSc degrees, and 215 FTE technicians held BSc degrees (ASTI-BARC 2010–11).

Across institutional categories, BARI benefited from the largest increase of PhD-qualified researchers. In 2009, BARI employed 159 FTE PhD-qualified researchers compared with 106 in 2003 (ASTI-BARC 2010–11). This large increase in PhD-qualified researchers can be partly attributed to in-country PhD training organized by BARC and funded by the national government since 2005. The remaining BARC-affiliated and other government agencies also experienced an increase in the number of PhD-qualified researchers, albeit much less dramatic. As part of NATP, BARC prepared a human resource development plan to assess the present strength of its research staff and determine its training needs during 2009–2025.

Overall, the share of PhD-qualified researchers in the higher education sector decreased from 50 percent in 2003 to 46 percent in 2009, while the share of MSc-qualified researchers increased from 41 to 49 percent during this time. The majority of BAU’s most senior faculties were educated in Europe or the United States because of past collaborations with universities located in those parts of the world, but most of the younger generation of researchers received their PhD degrees from universities in Bangladesh and other Asian countries. BAU expects the overall quality of its research to somewhat deteriorate in the long run. There is room for improvement at the tertiary level. Researchers may be trained in advanced universities in both Asia and developed countries.

In 2009, 69 percent of Bangladesh’s agricultural researchers were between 31 and 50 years old, and 20 percent were between the ages of 51 and 60. A closer look at age data by degree level, however, reveals that 39 percent of PhD-qualified agricultural researchers in Bangladesh were older than 50 in 2009 (Figure 5).

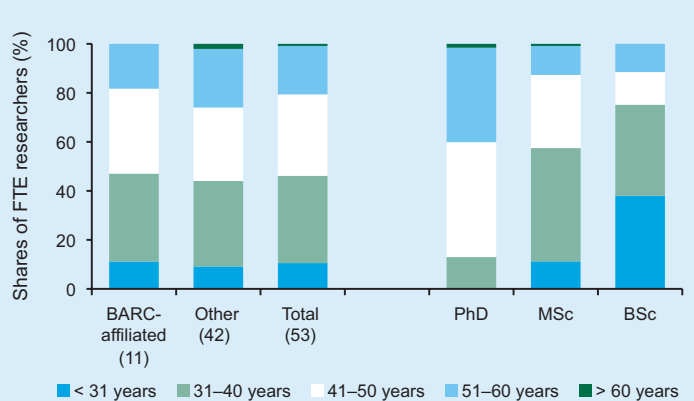
Figure 4—Degree qualifications of researchers by institutional category, 2003 and 2009



Source: ASTI-BARC 2010–11.

Note: Figures in parentheses indicate the number of agencies in each category.

Figure 5—Age distribution of researchers by agency and degree, 2009



Source: ASTI-BARC 2010–11.

Notes: Figures in parentheses indicate the number of agencies in each category. Research focus data excludes one nonprofit agency, BRAC.

Because the retirement age at government agencies in Bangladesh is set at 59 (recently increased from 57), many highly qualified and experienced researchers are expected to retire in the coming years, making the replacement of these scientists a high priority. Across institutional categories, the higher education agencies employed the largest share of researchers younger than 31 at 15 percent. Notably, the only researchers older than 60 are employed at higher education agencies because of the aforementioned compulsory age of retirement at government agencies. The retirement age for university staff was recently raised from 60 to 65.

Female researchers are severely underrepresented in Bangladesh agricultural R&D. In a sample of 35 institutes representing 96 percent of total agricultural researchers, women constituted only 16 percent of agricultural R&D capacity in 2009 (ASTI–BARC 2010–11). This is a slight improvement over the 2002 share of 12 percent (Beintema and Kabir 2006) nonetheless. Women are also less highly qualified than their male colleagues. In 2009, 24 percent of female agricultural researchers held PhDs compared to 30 percent of their male colleagues (ASTI–BARC 2010–11).

Despite efforts by the Bangladesh government to improve national agricultural research capacity and a steady upward trend in the number of FTE researchers during 1991–2009, several of the BARC-affiliated and higher education institutes reported significant challenges in attracting and maintaining highly qualified research capacity. Because incentives provided to scientists by the government of Bangladesh are low compared to other employers, many highly qualified researchers seek employment abroad, in the private sector, or

at nongovernmental organizations where salaries are much higher. More than 400 PhD-qualified agricultural scientists left Bangladesh in the late 1990s and early 2000s for better remunerated positions in Australia, Canada, the United States, or centers under the Consultative Group of International Agricultural Research (CGIAR). In fact, BARC-affiliated agencies reported large gaps between vacant and filled positions. Additionally, many government institutes reported that the retirement age is too low and forces researchers to retire just when they begin to operate at their peak. In 2010, more than 20 percent of scientific positions remained unfilled. The situation was particularly severe at BFRI and the BARC Secretariat, where 47 and 42 percent of the sanctioned scientific posts, respectively, were vacant. In December 2011, the Bangladesh government passed a law allowing public servants to work for two more years, before retiring at 59. Although this increase provides a temporary mitigating factor, the situation remains serious. Training and mentoring of junior scientists remains an urgent priority. To maximize the quality of agricultural research in Bangladesh, the national government will have to introduce reforms addressing these issues.⁴

INVESTMENT TRENDS

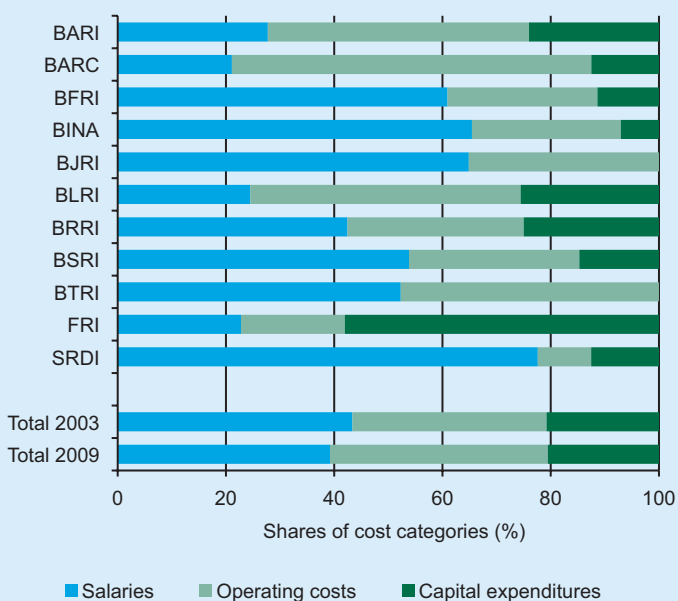
Cost Categories

Detailed cost category data were collected from the government agencies as part of this study because the allocation of research budgets across salaries, operating costs, and capital investments affects the efficiency of agricultural R&D (Figure 6). In 2009, salary costs accounted for 39 percent of expenditures by the BARC-affiliated agencies combined, operating costs 40 percent, and capital costs 21 percent. However, a large degree of variation existed across agencies. BTRI, for instance, reported no capital spending in 2009, while close to 60 percent of FRI's spending went to capital investments during the same year. Similarly, the share of salary costs varied from around 20 percent at BARC to close to 80 percent at SRDI. During 2003–09, cost-category allocations for BARC-affiliated agencies combined changed very little; however significant fluctuations occurred at BARI due to the aforementioned establishment of the PGRC, a postharvest laboratory, as well as improvements to research stations.

Funding Sources

During 2003–09, the 11 BARC-affiliated agencies received funding primarily from government sources. Government funding in Bangladesh can be divided into two categories: recurring funding, and funds from the Annual Development Program (ADP). While the former is completely funded by the national government and used mostly to pay salaries and operating costs, the latter receives funds from outside donors and pays mainly for capital expenditures and rarely for salaries (Beintema and Kabir 2006). Over this period, recurring funding from the government of Bangladesh gradually rose, while levels of ADP funding were volatile. In 2009, 51 percent of funding at

Figure 6—Cost category shares of total expenditures for BARC-affiliated agencies, 2003 and 2009



Source: ASTI–BARC 2010–11.

Note: Cost-category data were not available for other government agencies.

BARC-affiliated agencies came from recurring funding, 41 percent from ADP, 7 percent from donors and development banks, and about 1 percent from other sources (Figure 7).

Unlike BARC-affiliated agencies, higher education agencies do not receive money for research directly from the national government. The University Grants Commission (UGC) is responsible for assessing the needs of universities and allocating funding accordingly. UGC provides universities with funds for training, equipment, and some research activities (UGC 2008). Though salaries of faculty staff are paid by the Bangladesh government, each researcher must seek outside support to fund his or her own research, mostly from foreign donors. Bangladesh universities compete against other Asian universities for grants from international donors and have acquired a stronger ability to attract foreign funds than the country's government agencies. Currently, BAU's largest donor-funded project is on biotechnology and is supported by the United States Department of Agriculture (USDA). The European Commission also supports some of BAU's R&D activities.

Founded under NATP, the Krishi Gobeshona Foundation (KGF) became operational in August 2008 with the mandate of managing a competitive grants program. Unlike funding from BARC, KGF aims to bring a more pluralistic approach to agricultural R&D by allowing institutions across the government, nongovernment, higher education, and private sectors to participate (KGF 2010). Founded with an initial investment of US\$50 million provided by the World Bank and the national government, KGF sustains itself by using interest accumulated from the initial investment. It only funds short-term agricultural research projects with a duration of two years or less. KGF

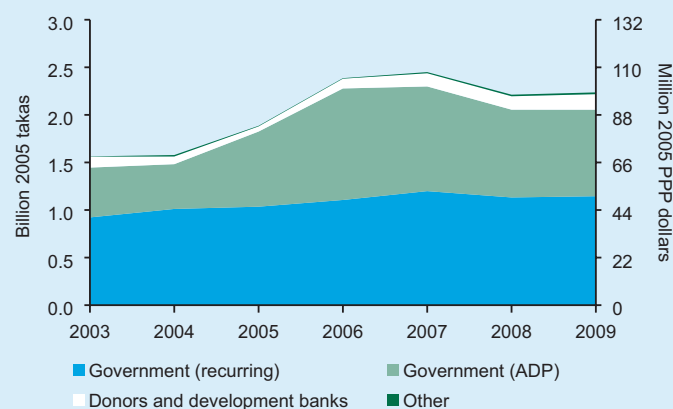
receives some technical input from BARC, which performs the initial screening of grant proposals. As of November 2011, KGF had awarded a total of 54 grants, 19 of which went to BARC-affiliated institutes.

ALLOCATION OF RESEARCH ACROSS COMMODITIES

Given that the allocation of resources across various lines of research is a significant policy decision, detailed information was collected on the number of FTE researchers working in specific commodity and thematic areas. In 2009, 50 percent of Bangladesh's agricultural researchers focused on crops, 13 percent on natural resources, 8 percent on livestock, 7 percent on postharvest topics, and 6 percent on fisheries (Figure 8). Crop research dominates research at BARI and the other BARC-affiliated institutes, while livestock research plays a more important role at the other government agencies and the higher education agencies.

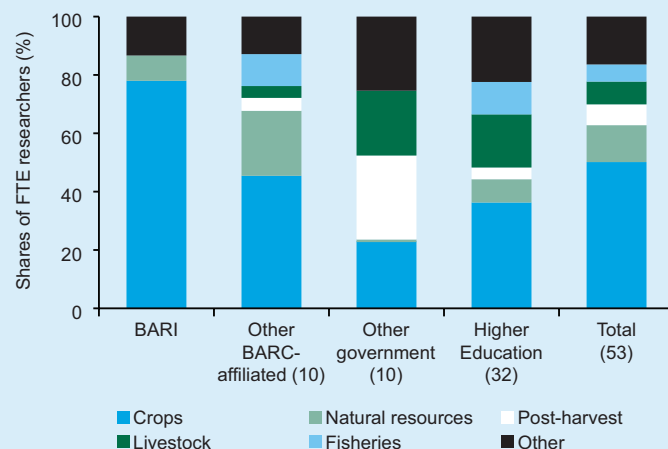
Rice is the most heavily researched crop in Bangladesh, accounting for 17 percent of the FTE researchers involved in crop and livestock research in 2009. Other important areas of research include livestock (15 percent), fruits (10 percent), vegetables (8 percent), and sugarcane (5 percent). Notably, the "other" crop category accounted for 28 percent of crop research. BARI, which carried out research on more than 100 crops in 2009, is responsible for a large share of "other" crops. Among these other crops, the most important were spices, which accounted for 10 percent of BARI's research activities, and pulses and potatoes, which accounted for 8 percent each (ASTI-BARC 2010-11).

Figure 7—Funding sources of BARC-affiliated agencies, 2003–09



Sources: ASTI-BARC 2010-11; Beintema and Kabir 2006.

Figure 8—Research focus by major commodity area, 2009



Source: ASTI-BARC 2010-11.

Notes: Figures in parentheses indicate the number of agencies in each category. Research focus data excludes one nonprofit agency, BRAC."

Table 2—Crop research focus by major item, as measured by share of FTE researchers, 2009

	BARI	Other BARC-affiliated (10)	Other government (10)	Higher education (32)	Total (53)
Crop items	Shares of FTE researchers (%)				
Rice	—	40.6	7.9	10.7	16.7
Fruits	17.5	0.5	9.9	11.3	9.7
Vegetables	11.7	2.4	8.6	9.4	7.7
Sugarcane	—	14.0	0.6	2.0	5.3
Potatoes	9.3	0.3	5.5	4.0	5.0
Wheat	10.5	0.2	1.8	3.5	4.8
Maize	8.2	0.2	2.5	3.8	4.0
Ornamentals	5.8	0.3	3.1	4.6	3.4
Other	37.1	30.8	10.4	13.8	28.3
Animals	—	10.6	49.8	36.8	15.2
Total crop and livestock	100	100	100	100	100

Source: ASTI–BARC 2010–11.

Notes: Figures in parentheses indicate the number of agencies in each category. Commodity focus data excludes one nonprofit agency, BRAC.

CONCLUSION

Past investments in agricultural R&D have made a large contribution to Bangladesh’s rapid growth in agricultural output over time. However, fluctuation in annual agricultural R&D spending levels in recent years may deserve attention, given the long time lag from the inception of research to the adoption of a new technology or the introduction of a new variety. In addition, unfilled vacancies at BARC-affiliated agencies, the imminent retirement of senior researchers as a result of an early (59 years) retirement age, and the exodus of more than 400 PhD researchers in the late 1990s and early 2000s are cause for urgent action. Moreover, a complex management structure creates structural difficulties that complicate BARC’s coordinating role.

NATP was initiated in 2009 to address the financial, human resource, and structural challenges facing agricultural R&D in Bangladesh. As part of NATP, a competitive grants fund has been established and BARC has put together a human resource development plan to implement during 2009–25. Furthermore, the BARC Act will strengthen BARC’s coordinating role by requiring BARC’s approval of research programs among all the BARC-affiliated agencies, as well giving BARC the responsibility of allocating financial resources among the agencies.

These changes have put Bangladesh’s agricultural R&D system on a path toward improvement. Its future is dependent upon the Bangladesh government’s continued (stable) investment in agricultural R&D, the provision of greater incentives to Bangladesh’s agricultural R&D staff, as well as a further increase in the retirement age of agricultural scientists.

NOTES

- ¹ Financial data in current local currencies or constant 2005 US dollars are also accessible through ASTI’s data tool, available at www.asti.cgiar.org/data.
- ² The 10 institutes are commonly referred to as NARS institutes within Bangladesh, but are referred to as BARC-affiliated institutes or agencies in this report for purposes of uniformity with other ASTI publications.
- ³ The Bangladesh Sericulture Research and Training Institute was scheduled to come under the coordination of BARC in late 2011.
- ⁴ At the time of writing, the BARC Act was awaiting final ratification by the Bangladesh parliament.

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IFPRI-ROME

Agricultural Science and Technology Indicators (ASTI) initiative
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IFPRI is one of 15 agricultural research centers that receive their principal funding from governments, private foundations, and international and regional organizations, most of which are members of the Consultative Group on International Agricultural Research (www.cgiar.org).

BARC has coordinated government-led agricultural research activities in Bangladesh since 1973. It prepares national agricultural research plans, sets priorities, evaluates research programs, and assesses the researcher capacity of the various institutes it oversees. To learn more about BARC, please visit <http://www.barc.gov.bd>.

The Agricultural Science and Technology Indicators (ASTI) initiative compiles, analyzes, and publishes data on institutional developments, investments, and human resources in agricultural R&D in low- and middle-income countries. The ASTI initiative is managed by the International Food Policy Research Institute (IFPRI) and involves collaborative alliances with many national and regional R&D agencies, as well as international institutions. The initiative, which is funded by the Bill & Melinda Gates Foundation with additional support from IFPRI, is widely recognized as the most authoritative source of information on the support for and structure of agricultural R&D worldwide. To learn more about the ASTI initiative visit www.asti.cgiar.org.

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