Dr. Md. Shahjahan Kabir

Former Director General (Grade-1) of BRRI

Personal details

Dr. Md. Shahjahan Kabir

kabir.stat@gmail.com

+8801712280083

Address: Village- Digla, Post Office- K. Amtala, Upazila- Netrokona Sadar, Netrokona-2400 Dhaka

March 30, 1966

Male

Bangladeshi

Married

Skills

- Geo-statistical modeling
- GIS and Remote Sensing
- Statistical Modeling
- Rice Policy & dynamics
- Climate Change
- Data Analysis and Interpretation

Profile

I am a seasoned professional with a PhD and extensive experience as a Director General (Grade-1) of Bangladesh Rice Research Institute (BRRI). I have dedicated my professional career to sustainable rice production, ensuring food security in the country and transforming the country from food shortages to food surplus and make it happen. My expertise lies in Geo-statistical modeling, GIS and Remote Sensing, Rice policy & dynamics, and Data analysis & interpretation. I have a proven track record of leading large teams, implementing strategic initiatives, and driving organizational success. My academic and professional background equips me with the skills necessary to excel in high-level decision-making roles and contribute significantly to the advancement of the organization.

Education

PhD in Geostatistical Modeling **2011**
Jahangirnagar University

MSc in Statistics **1988**
University of Rajshahi

BSc (Hons) in Statistics **1987**
University of Rajshahi

HSC (Science) **1983**
Dhaka Board

SSC (Science) **1981**
Dhaka Board

Employment

Director General (Grade-1) **Aug 2017 - Aug 2024**
Bangladesh Rice Research Institute (BRRI), Gazipur
As the Director General of the Bangladesh Rice Research Institute (BRRI), I have led the institute by guiding its strategic direction, administration, and scientific endeavors. My key responsibilities encompass Vision and Strategy, Organizational Leadership, Policy Development, Program Development, Innovation and Technology Transfer, Collaboration and Partnerships, Financial and Human Resource Management, Infrastructure Development, Program Evaluation, Reporting and Communication, Government Liaison, Public Representation, Training and Capacity Building, and Farmer Outreach.

Director (Administration and Common Service) **Nov 2013 - Aug 2017**
Bangladesh Rice Research Institute, Gazipur
As the Director of Administration and Common Services, I oversee a wide array of responsibilities to maintain the smooth operation and efficiency of the organization' s administrative and support functions. My primary duties include managing administrative operations, financial oversight, budget preparation, financial reporting, and ensuring compliance with legal standards and internal policies. Additionally, I lead project planning, development, implementation oversight, resource management, stakeholder coordination, and evaluation and reporting.

Languages

Bengali ●●●●●

English ●●●●○

Chief Scientific Officer (CSO) **Feb 2010 - Nov 2013**

Bangladesh Rice Research Institute (BRRI), Gazipur

Head of the Agricultural Statistics Division, responsible for: (i) Overseeing administration, planning, programming, and implementation of research programs; (ii) Developing statistical procedures for rice experiments; (iii) Monitoring and evaluating research activities, and preparing reports; (iv) Providing statistical guidance on experiment design, data analysis, and interpretation to scientists within the institute and other organizations.

Principal Scientific Officer (PSO) **Dec 2007 - Feb 2010**

Bangladesh Rice Research Institute (BRRI), Gazipur

Principal Scientific Officer (PSO) in the Agricultural Statistics Division, responsible for: (i) Planning, executing, and conducting research programs; (ii) Developing statistical methodologies for rice experiments; (iii) Monitoring, evaluating, and reporting on research activities; (iv) Providing statistical guidance on experiment design, data analysis, and interpretation to scientists within the institute and other organizations.

Senior Scientific Officer (SSO) **Feb 2000 - Dec 2007**

Bangladesh Rice Research Institute (BRRI), Gazipur

Senior Scientific Officer (SSO) under the Agricultural Statistics Division, including the duties: (i) implementing, and carrying out research programs; (ii) developing statistical procedures for rice experiments; (iii) keeping track of and evaluating research and other activities, as well as reporting; and (iv) offering statistical advice on experiment planning, data analysis, and interpretation to scientists at the institute.

Scientific Officer (SO) **Nov 1994 - Feb 2000**

Bangladesh Rice Research Institute (BRRI), Gazipur

Scientific Officer (SO) under the Agricultural Statistics Division, including the duties: (i) implementing, and carrying out research programs; (ii) keeping track of and evaluating research and other activities, as well as reporting; and (iii) offering statistical advice on data analysis, and interpretation to scientists at the institute.

Major Achievements as Director General and Director (Administration & CS)

My major initiatives as Director (Administration & Common Services) and Director General include:

1. **Rice Vision for Bangladesh: 2050 and Beyond**: I spearheaded the creation of BRRI's "Rice Vision for Bangladesh: 2050 and Beyond," a landmark document recognized both nationally and internationally for its comprehensive approach to rice research and development. BRRI is actively pursuing this vision through targeted research initiatives.
2. **SDG2030 and Doubling Rice Productivity**: To support the achievement of SDG2030, BRRI scientists, under my leadership, developed the strategic document "Doubling Rice Productivity in Bangladesh by 2030." The implementation of this strategy is currently underway.
3. **Modernizing Rice Research**: I led efforts to break the yield ceiling of inbred rice through modern research techniques, such as population improvement theory. BRRI has established world-class accredited laboratories and initiated cutting-edge research into C4 rice, genome sequencing, genome editing, bioinformatics, speed breeding, and climate change adaptation. These advancements have significantly boosted rice productivity, propelling Bangladesh to the top rank in South Asia for average rice yield.

4. **Nutritional Enhancement of Rice Grain:** During my tenure, I made significant progress in enhancing the nutritional value of rice grain to ensure nutritional security for the hardcore poor who rely heavily on rice as a staple food. This effort led to the development of Vitamin A-enriched Golden Rice, Zinc and Iron-enriched, and antioxidant & GABA-enriched rice varieties. Building on this foundation, we utilized innovative breeding techniques and biotechnological approaches to enhance not only the nutritional profiles but also the agronomic traits of these rice varieties, ensuring that they thrive in diverse environmental conditions. Additionally, awareness programs have been implemented to promote the consumption of these nutrient-rich rice varieties. By collaborating with local health organizations and policymakers, we aim to establish a sustainable framework for widespread adoption, addressing malnutrition and enhancing overall food security. This comprehensive approach not only increases the nutritional value of rice but also supports livelihoods, empowers communities, and builds resilience against food insecurity amid ongoing climate challenges.
5. **Expanding Rice Production Areas**: I directed initiatives to reduce yield gaps through improved agronomic practices, expanded coverage of modern BRRI varieties, and increased cultivation in underutilized regions, including hilly areas and saline zones. These efforts have accelerated the country's rice production, resulting in a surplus since 2018. Under my guidance, Bangladesh became the world's third-largest rice producer in 2020, with plans to maintain and increase production through 2050.
6. **Biotechnological Advancements**: My tenure saw significant progress in biotechnological research, leading to the development of Vitamin-A enriched golden rice and Zinc and Iron enriched rice varieties. Research in genome editing, genomics, bioinformatics, and genetic transformation has also been strengthened.
7. **Accelerated Variety Development**: Through the Transforming Rice Breeding Program, I reduced the breeding and product cycle time from 15 years to 7-8 years, enabling the rapid development of varieties that are resilient to both favorable and adverse environments. During my tenure, 32 new varieties with special characteristics were introduced, contributing to the country's rice surplus.
8. **Greenhouse Gas (GHG) Emissions from Rice Fields: Exploring Mitigation Strategies through Fertilizer Deep Placement and Alternate Wetting and Drying**-This collaborative research project, funded by USAID, IFDC, KGF, and IRRI, aims to measure nitrous oxide and nitric oxide fluxes, along with other nitrogen losses, from rice fields under various fertilization and water management practices. These include the deep placement of urea briquettes, nitrogen-phosphorus-potassium (NPK) briquettes, surface-applied prilled urea, and control plots under both Alternate Wetting and Drying (AWD) and Continuous Standing Water (CSW) conditions. As the first study of its kind in Bangladesh, this research is contributing to the global knowledge base on climate-smart agriculture by assessing the environmental impacts of different agricultural practices. The findings will help shape recommendations for reducing GHG emissions, ammonium nitrogen in floodwaters, and irrigation water requirements, while promoting practices that lower costs, increase yields, and enhance farmer incomes.
9. **Policy environment for water management focusing my PhD research on Geo-Statistical modeling of arsenic in soil and irrigation water in Bangladesh:** I have spearheaded initiatives to enhance irrigation water resources for expanding rice cultivation in the water-scarce regions of Khulna, Barishal, Noakhali, Chattogram, Sylhet, and the Chattogram Hill Tracts. These efforts prioritize water policy management strategies acquired by my PhD research on Geo-Statistical modeling, ensuring effective and sustainable

solutions for these areas.

10. **Agricultural Mechanization**: Since 2018, I have overseen the development of domestically suitable agricultural machinery, including rice transplanters and combine harvesters. These innovations are on par with global standards, and steps have been taken to establish assembly lines for their commercial production. I also introduced the Synchronous Farming program in 2019-20, which has been successfully expanded nationwide.
11. **Advanced Agriculture Tools**: Under my direction, BRRI researchers are employing advanced agricultural tools such as Precision Agriculture, IoT, AI, Machine Learning, Drone Technology, Nanotechnology, and Genome Editing to enhance rice yields and secure future food security for Bangladesh.
12. **Fallow Land Cultivation and Doubling Rice Productivity (DRP)**: BRRI has identified fallow areas and initiated steps to bring them under cultivation. The DRP initiative focuses on five key regions, aiming to significantly boost rice production by 2030, 2040, and 2050. These efforts are crucial for ensuring future food security and improving cropping intensity across the country.
13. **Bangladesh rises to 3rd place in global rice production:** During my tenure as Director General, and as a result of the sustained efforts outlined above, the country's rice production has gained significant momentum, with an average annual increase of 660,000 tons, leading to a surplus since 2018. That year, Bangladesh surpassed Indonesia to become the world's third-largest rice producer, a position it has successfully maintained for five consecutive years.
14. **Advancing Global Rice Research - BRRI's Rise to Top Rankings:** Since 2015, my initiative has guided 22 BRRI study groups to incorporate global rice research into BRRI's efforts. Their findings, implemented through working groups and reviewed bi-monthly, have propelled BRRI to top research positions. In a 2020 University of Pennsylvania survey, BRRI was ranked first in South Asia, second in Asia, and 16th globally in food security and policy research.
15. **Administrative Achievments:** During my tenure as Director General of BRRI, the institute consistently achieved 1st place for three consecutive years and once secured 2nd place in the implementation of Annual Performance Agreements (APA) and Integrity among 17 departments and organizations under the Ministry of Agriculture.
16. **Award and Recognition:** As Director General of BRRI, the institute consistently gained recognition for its exceptional contributions, earning prestigious awards such as the ICT Award in 2017, the Exim Bank Award-2019, the Bangabandhu National Gold Medal in 2017 and 2021, the RTV Award in 2021, the Ekushey Padak in 2022, the Digital Bangladesh Award in 2022, and the Smart Bangladesh Award in 2023.

Project Formulation and Implementation

1. **Soil Management Collaborative Research Support Program (SM-CRSP):** A map of lime requirements was developed and incorporated into the Bangladesh Country Almanac, a USAID-funded spatial database tool for characterizing agriculture and natural resources in the country (USAID Bangladesh Mission funding to CIMMYT 2002-2006).
2. **BRRI-JIRCAS Collaborative Research Activities 2006-2025: (a) Blast Research Network for Stable Rice Production [2006-2010], (b) Rice Innovation for Environmentally Sustainable Production Systems [2011-2021]:** (i) Development of blast resistant varieties for sustainable rice production in Bangladesh, (ii) Effect of climate change on rice production in Bangladesh, and (iii) Impact studies of climate changes on the socio-

economic conditions of rice farmers, **(c) Accelerating application of agricultural technologies which enhance production potentials and ensure sustainable food systems in the Asia-Monsoon region, Green Asia Project [2022-2025]:** (i) Monsoon Asia Climate Solution by Paddy Water Management (MACS), and (ii) Socio-economic Assessment of AWD on rice cultivation in Bangladesh

3. **Strengthening Physical Infrastructure and Research Activities of Bangladesh Rice Research Institute (SPIRA):** to develop physical facilities and capacity building of BRRI research activities for developing appropriate rice varieties to sustain self-sufficiency in food. Funded by the Government of Bangladesh for BDT 263.30 crore, completed 2016-2020.
4. **Transforming Rice Breeding through institutional capacity building (TRB)**: Modernization of rice breeding and institutional capacity building. Funded by Bill and Melinda Gates Foundation for $ 8.0 million, completed 2016-2023.
5. **Strengthening Farm Machinery Research Activity for Mechanized Rice Cultivation (SFMRA)**: to strengthen farm machinery research activity for developing and modernizing for sustainable rice cultivation in the country. Funded by the Government of Bangladesh for BDT 44.00 crore, under implementation during 2019-2024.
6. **PARTNERSHIPS FOR ENHANCED ENGAGEMENT IN RESEARCH (PEER) CYCLE-8:** Supervised the project titled “Integrated Rice Advisory System (IRAS) for Sustainable Productivity in Bangladesh", Technology Innovation, Research and Development Grant from USAID under PARTNERSHIPS FOR ENHANCED ENGAGEMENT IN RESEARCH (PEER) CYCLE-8 at 2019.
7. **High-Yielding Hybrid Rice Variety Development through Modernization of Research (Hybrid Rice)**: to innovate high-yielding new hybrid rice varieties and ensure sustainable food security through modernization of research. Funded by the Government of Bangladesh for BDT 47.80 crore, under implementation from 2021-2026.
8. **Program on Agricultural and Rural Transformation for Nutrition, Entrepreneurship and Resilience in Bangladesh (PARTNER-BRRI-Part)**: Development of five (05) stress-tolerant and nutrient-dense high-yielding rice varieties. Development and facilitation of research programs of RRRI’s Seed production. Funded by the World Bank and Government of Bangladesh for BDT 583.71 crore, under implementation from 2023-2028.
9. **Innovation of location-specific rice varieties and technologies by setting up 06 new regional stations and development of existing research laboratories (LSTD):** Funded by the Government of Bangladesh for BDT 370.00 crore, under implementation from 2023-2028.

Policy Document Prepared and Implemented

1. **Rice Vision for Bangladesh: 2050 and Beyond -** This document is recognized both nationally and internationally as a crucial framework for guiding rice research and development in Bangladesh. It forecasts the rice production needed to support the growing population by the years 2030, 2041, and 2050. To achieve these goals, BRRI has initiated a series of short, medium, and long-term plans.
2. **Doubling Rice Productivity in Bangladesh -** In support of the United Nations' SDG-2030 and in line with BRRI's Rice Vision, I led BRRI scientists in developing a strategic paper titled "Doubling Rice Productivity in Bangladesh by 2030." This document serves as a roadmap for implementing key government policies and achieving the SDG 2030 targets.
3. **50 Years of Technological Advances in Rice -** This book offers

comprehensive insights into the rice varieties, production technologies, and scientific knowledge developed by BRRI over its fifty-year journey.

4. **A Century of Rice Research in Bangladesh -** Co-authored with Dr. Jiban K. Biswas, this work chronicles the history of rice research and development in Bangladesh, aiming to guide and inspire future rice scientists.

Additional Experience and Fund Management

a) 30 years of professional experience as a Statistician at the Bangladesh Rice Research Institute (BRRI): Held various positions with responsibilities including:

- Administration, planning, and programming of research activities.
- Implementation and execution of research programs.
- Development of statistical procedures for rice experiments.
- Monitoring and evaluation of research activities and preparing reports.
- Providing statistical consultation to scientists on experimental design, data analysis, and interpretation.

b) 26 years of experience with Geographic Information Systems (GIS).

c) Project Director, Principal Investigator (PI), Co-Investigator, and Working Scientist for several National and International-funded projects:

1. SM-CRSP, Bangladesh (1996-2001): Led the GIS component, Funded by USAID
2. Bangladesh Country Almanac (2001-2006): Oversaw BRRI's involvement, Funded by USAID
3. Impact of Arsenic Contamination on Agricultural Sustainability and Food Quality (2000-2005): Managed the GIS component, Funded by USAID
4. Food for Progress (since December 2013): Led the GIS component, Funded by USAID
5. JIRCAS-funded project on the Impact Assessment of Climate Change on the Production and Marketing of Agricultural Products (since April 2010).
6. Focal point for the project under the Global Alliance for Improved Nutrition (GAIN).
7. Transforming Rice Breeding project (Bill & Melinda Gates Foundation Project) : 2016-2024 worth 8.0 million USD-Act as a Project Director
8. Integrated Rice Advisory System (IRAS) project funded by USAID under PEER CYCLE-8 at 2019- Act as Project Coordinator
9. SPIRA project from ADP-GoB worth 2.1 billion BDT
10. Initiate PARTNER-BRRI project from World Bank worth 6.18 billion BDT
11. Initiate LSTD project from ADP-GoB worth 3.70 billion BDT

Publications

Scientific Publications (See details in Annexure-1)

Total Scientific publication: 144

1. International Journal: 38
2. National Journal: 56
3. Short Communication: 1
4. Abstract/Workshop/Symposium/Proceedings: 26
5. Seminar: 4

6. Book/Book Chapter: 14
7. Monographs: 2
8. Editor: 3

Articles published in the Daily Newspaper (See details in Annexure-2)

Total popular articles published: 21

1. Bengali article: 18
2. English article: 3

Training and Workshops

Attended and Participated Training/Workshop/Symposium (See annexure-3 for details)

1. International: 25
2. National: 13

Teaching Experiences

a) Adjunct Faculty Position:
Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU), Salna, Gazipur

b) Supervision of Students:
Master of Science-3 (University of Rajshahi)

References

Nur A. Khondaker, PhD
Independent Consultant (Former Assistant FAO Representative (Programme)-FAO Bangladesh), Dhaka, Bangladesh
+ 88 01755521141; + 88 01886521141, khondakernur@gmail.com; akinafisydny@gmail.com

Humnath Bhandari, PhD
Country Representative (Bangladesh & Nepal), International Rice Research Institute (IRRI), Dhaka, Bangladesh
+880 1777453363, h.bhandari@irri.org

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