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BRRI's five and half decades of rice research pay off

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Bangladesh is an agro-based country. Agriculture is the key to prosperity and rice is vitalfor that prosperity in Bangladesh. Rice is the staple food grain of the people of this country. It is closely related to the rural history, heritage, and culture of the nation. Rice is the symbol of food security and social stability. But, before independence, Bangladesh was not used to be self-sufficient in rice production. Bangladesh was plagued by abject poverty and food shortage, particularly in the years immediately after its independence in 1971.

In 1974, the then U.S. National Security Adviser Henry Kissinger referred to the country as a bottomless basket.However, in a striking reversal over five decades, Bangladesh has become basketful in rice, a global example of food deficiency to self-sufficiency. As of 2024-25, the country produced 40.19 million tons of rice, adequately feeding its 170 million people. Through developing new rice varieties, agronomic tech development, mechanization, and on-farm research

by farmers, Bangladesh Rice Research Institute or BRRI is today one of the leading rice research institutions not only in Bangladesh but in the whole world as well.

It was established on 1 October 1970 at Gazipur, near Dhaka as East Pakistan Rice Research Institute and renamed as Bangladesh Rice Research Institute after independence. It became an autonomous body in 1973 through an act of parliament. BRRI is currently one of the autonomous institutions of the Ministry of Agriculture and one of the main pillars of the National Agricultural Research System (NARS). BRRI has been mandated to provide food security for the nation, develop modern rice varieties, and transfer new technologies to farmers since its establishment.

The operation of BRRI was initially very small. In spite of starting with some research departments and a few scientists, BRRI has expanded over the years. It houses 19 research departments, more than 20 advanced laboratories, modern germplasm banks, greenhouses, net houses, and more than 76 acres of test grounds in its headquarters of Gazipur. Field research is being conducted through 17 regional offices and 6 satellite stations spread all over the country. More than 800 officials including 318 scientists, are working at present, of whom about one-third hold higher degrees.

BRRI has so far developed 121 new high-yielding varieties. Among them, there are 113 inbreeds and rest are hybrid varieties. To combat the geographical diversity of Bangladesh, such as drought in the north, salinity in the south, flood and waterlogging in the central region, BRRI has developed 37 stress tolerant varieties, such as salt-tolerant, drought-tolerant, waterlogging-tolerant, cold-tolerant, and tide-tolerant varieties. Not only tolerant to adverse environments, BRRI has also developed 27 nutrient-enriched and 14 slender and aromatic rice varieties which has export potential. The world's first zinc-enrich riceis BRRI dhan62, including it BRRI has developed 7 zinc-rich varietieswhich has placed Bangladesh in a dignified position in the world. Zinc, iron, and protein-rich varieties have reached farmers' hands now.

Aside from rice research, revolutionary achievements in agricultural mechanization have also been made by BRRI. The Farm Machinery and Post-Harvest Technology (FMPHT) department has been engaged in farm machinery development and invention since the establishment of the institute. As of today, more than 50 modern agricultural machineries have been developed. They are BRRI head-feed and whole-feed combine harvesters, walking-type and riding-type rice transplanters, small urea and pre-filled urea applicators, power weeders, mini rice mills, air-flow rice mills, rice-flower-spice mills, auto seed Sower, solar light traps, etc. These agricultural machines are conserving the farmers' labor, reducing the cost of production, and ensuring timely cultivation.

To reduce the loss of farmers at the post-harvest stage, BRRI has come up with some technologies like mechanical dryers, grain collectors, and hermetic storage facilities. There was a loss of 10 to 15 percent before the time of rice collection. Now, due to BRRI's technology, that loss has been reduced significantly. Quality rice is reaching the market, and farmers are receiving increased income. In addition, BRRI has come up with more than 300 technologies related to soil-water-pest management in rice cultivation.

The economic role of BRRI is also immense. As per an independent survey, 1 taka invested in rice research and extension gives a return approximately 56 takas. Rice production has been increased, food imports reduced, and foreign exchange saved by the adoption of modern varieties and technology. Not only this, but employment has risen in agricultural and non-agricultural sectors. Irrigation, mechanization, and technology-based agriculture have made the rural economy dynamic and created employment in the fertilizer business, irrigation equipment, pumps, and machine repair and maintenance. Because of this, the income of rural people has increased.

BRRI has setup two strategic plans named 'Rice Vision 2050 and Beyond' and 'Doubling rice productivity by 2030' as its future blueprint. These two plan for achieving sustainable food security by 2041, and meeting the food demand of the growing population by 2050 are its milestones. Breeding ultra-high yielding varieties (12-14 tons/hectare), hybrid and transgenic rice, varieties resilient to adverse environments, nutritious rice with elevated vitamins and iron content, and exportable aromatic varieties have been accorded priority in research. At the same time, initiatives have been taken to make agriculture smart and modern through the development of agricultural machinery and the use of digital technology.

BRRI has become a epitome for food security in Bangladesh. The country, which was food-deficient at liberation, is today self-sufficient in rice and a global leader in production. The prime driving force behind this change is BRRI's unremitting research, its scientists' passion, and its commitment to taking technology to farmers. For this extra-ordinary achievement BRRI has received more than 27 national and international awards. The Independence Day Gold Medal, President's Gold Medal, the Bangabandhu National Agricultural Award, National Agricultural Award, Ekushey Padak 2022, and the Smart Bangladesh Award 2023 are a few among numerous awards conferred on BRRI. These awards are not just a token of pride for an institution, but also for Bangladesh's agriculture and farmers.

The role of BRRI is traced in every process of the development of agriculture, from the struggle for food self-sufficiency to mechanized and modernized agriculture. It can be said that Bangladesh Rice Research Institute is not merely a research institute, but it is the spinal cord of food security, the development of farmers, and national prosperity. BRRI is therefore our best hope in the fight to make Bangladesh sustainable and prosperous in the near future.

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