

BRRI's role in attaining food surplus status

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Bangladesh is getting better and better day by day. It has been making such a progress toward middle income country that international headlines are continuously marking it as a surprise. Series of development works that have taken place in this country over the years raised so many eye brows as well. Of course visionary leadership of our Prime Minister Sheikh Hasina has shown the way forward. But many questions still remained unanswered. How this miraculous advancement has been made especially at the grass-root level? Who are the other players behind the extraordinary achievements? Few news and views have shed light on that in-depth background issues. If we look back at the stories that turned a food deficit country into a food surplus one we will be able to trace the pathway that has given us today's position. As Director General of Bangladesh Rice Research Institute (BRRI) Dr Md Shahjahan Kabir said, 'Bangladesh has emerged as a global model for combating hunger and obtained great success in becoming a country of food surplus from chronic food shortages. Undoubtedly, rather than this success millions of people would have been food refugees, whereas we are now showing the courage of sheltering one million Rohingas'. 'It has been made possible with the contribution of BRRI', Dr Kabir added. So, if we go through the success story of BRRI the point will be clearer.

Established in 1 October 1970 the institute was named East Pakistan Rice Research Institute (EPRRI) in Gazipur and renamed as Bangladesh Rice Research Institute after the independence of Bangladesh. The objectives of the institute are to develop and disseminate high yielding rice varieties along with appropriate

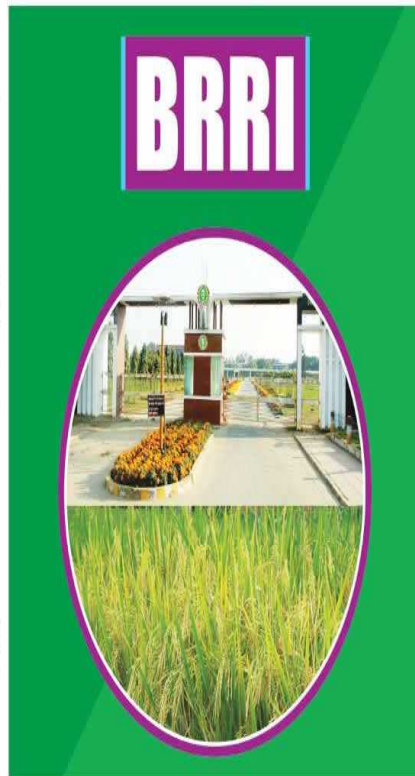
rice production technologies to the farmers so that food security is ensured. The institute develops rice varieties and associated technologies suitable for favourable as well as unfavourable environments and to produce breeder seed which eventually produce more rice ensuring desired quality at lower cost.

The institute has been fairly successful in achieving its aim and objectives of providing more rice for the nation over the last four and half decades. It has become the centre of excellence for developing improved rice varieties and associated technologies to boost up rice production and self reliance of food. This has been possible through developing 91 modern high yielding varieties including six hybrids having three times more yield potential than the traditional varieties along with the associated technologies for rice production. Not only in Bangladesh, some of the BRRI developed varieties are also being extensively cultivating in some other countries of the world such as India, Nepal, Myanmar, Vietnam, Burundi, Bhutan, Iraq, China, Kenya, Senegal, Sierra Leone and Benin.

Major achievement

So we can summarize the major achievements of BRRI with the following points:

- Development of 91 high yielding rice varieties including six hybrids having three times higher yield potential than the traditional ones. Out of them 86 are inbred and the rest are hybrid rice.
- The special characteristics of the varieties include 11 are salt tolerant, two flash flood tolerant, three suitable for non-saline tidal areas, three drought tolerant, 11 are short duration, five are zinc enriched, five are highest yielding and four premium quality aromatic rice suitable to export.



- BRRI varieties cover 80 percent of rice areas of the country that account for 91 percent of total rice production of the country.
 - Development of more than 50 improved technologies on soil, water, fertilizer and cultural practices of rice.
 - Development of 39 profitable rice-based cropping patterns for different AEZs.
 - Development and improvement of 32 agricultural machinery.
 - Identification of 32 rice diseases (10 major) and 266 species of rice insect pests (20 major), and developed control measures for the major insects and diseases including IPM.
 - Preservation of more than 8,000 rice germplasm in the BRRI Genebank collected at home and abroad.
 - Imparted training to more than 100,000 scientists, farmers and extension personnel from GOs and NGOs.
 - Publication of 319 books, booklets, folders and extension materials.
 - Rate of return per one taka investment in rice research and development is TK 46.
 - BRRI developed 20 rice varieties are being cultivated in 19 countries of the world.
- During the last 48 years rice production has tripled synchronizing

with the increase of population. In 1970, population of our country was 71.21 million that has increased to about 160 million over the years and clean rice production has increased up to three times. In 1970, total rice area was 10.31 million ha and clean rice production at that time was about 10 million ton (MT). In the mean time, total rice area has increased up to 12 million ha in three seasons mainly due to copping intensity and total clean rice production increased to about 35 MT. At present, BRRI varieties cover more than 80% of rice area and account for about 91% of the total annual rice production of the country.

With a larger population facing losses in arable lands, climate change poses a big threat to the malnourished population of Bangladesh. To overcome these problems, BRRI has provided successful efforts to develop modern varieties for stress prone ecosystem like salinity, submergence and drought. They have developed 11 saline tolerant rice varieties along with two submergence tolerant ones. Plant breeders have developed and released three rice varieties which are suitable for drought-prone areas of Bangladesh. The improved varieties known as 'climate change-ready rice' have shown substantial positive impacts on the lives of resource poor farmers.

Zinc, iron and vitamin-A are the three most vital micronutrients, deficiency of which hampers children's natural growth and decrease their disease prevention capacity. In Bangladesh, over 40 percent children under five are stunted while an estimated 44 percent children of the same age group are at risk of zinc deficiency. Over the years, BRRI has developed five zinc enriched varieties such as BRRI dhan62, BRRI dhan64, BRRI dhan72, BRRI dhan74

and BRRI dhan84, capable of fighting diarrhoea and pneumonia-induced childhood deaths and stunting.

Moreover, Bangladesh also contributed from the forefront in shaping up the still under-trial world's first vitamin A enriched genetically engineered rice, called Golden Rice. Research is being done both at International Rice Research Institute (IRRI) and at BRRI for developing Golden Rice, which is expected to fight vitamin A deficiency in expectant mothers and children through the most-consumed food item. The country's most productive rice variety -- BRRI Dhan 29 -- engineered at the IRRI in the Philippines with beta carotene-rich genes from corn which is being tested in Bangladesh.

In absence of scientific research and modern methods of cultivation, farmers would have to cultivate these crops in the traditional ways depending solely on nature. And whatever yield they could get was very often damaged by calamities like heavy downpour or drought, devastating deluge or cyclones and salinity etc. However, those days of despair are gone, thanks to the innovations of our scientists and agronomists. This could be possible as a result of development of new crop varieties tolerant to submergence, drought and salinity and corresponding development of cultivation methods and machinery. However, for a fair judgment, all partners for self-sufficiency in food production deserve appreciation. And thus combined efforts of Bangladesh Rice Research Institute along with the concerned policy makers, extension agents and above all the relentless struggle of our farmers must be mentioned in this respect.

The writer is a Technical Editor and Head of Publications and public Relations Division at BRRI.