Green revolution in India

An ever-green revolution implies the enhancement of productivity in perpetuity without associated ecological harm – M S Swaminathan

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The **Green Revolution in India** refers to a period of time when agriculture in India changed to an industrial system due to the adoption of modern methods and technology such as high yielding variety (HYV) seeds, tractors, irrigation facilities, pesticides, fertilizers etc. This was part of the larger Green revolution started by Norman Borlaug, which leveraged agricultural research and technology to increase agricultural productivity in the developing world.

MS Swaminathan, the father of Green Revolution, led India to becoming a self-sufficient country in food production from starving conditions and increased the food grain production fourfold in subsequent years.

Well, this is the most common and frequently heard statement about the green revolution, but this was not as easy as it is said. The utmost prerequisite for the same was to have a clear understanding of the prevailing conditions at that time, which was one major challenge, provided the varied geographical conditions of India, and after understanding the same, implementing the plan was again another big challenge.

Let us start with the great Bengal famine. In the year 1943, Bengal province got severely affected due to World War II, coupled with epidemic of brown spot of rice (Helminthosporium Oryzae), which lead to crop failure on a large scale and mismanagement of food storage by British administration lead to the death (due to starvation) of 2.5-3 million people. The fatality aggravated due to malaria, malnutrition, unsanitary condition and lack of healthcare. This was the initiation of food mismanagement in India with no storage of foodgrains which lead to starvation of the poor for years. At this time, conditions in West Bengal became harsh due to partition, sudden population increment and lack of resources coupled with very low production and productivity of foodgrains.

After independence, India was left with major issues like partition, lack of top management, poor infrastructure, major population in rural areas and poor agricultural practices.

Although during that period, India managed for the availability of foodgrains by importing food grains from America, especially the red coloured wheat, but they came with very high price tags.

The conditions got even worse during the then PM Lal Bahadur Shastri's regime owing to the war with China. To handle the situation at that time he made an appeal to the countrymen to fast for one time in a day and gave the famous slogan "JAI JAWAN JAI KISAAN".

During the same time,in 1960s, Indian agricultural research was initiated with the start of All India coordinated projects for Maize, Paddy and Wheat and various other programme like intensive agriculture development programme (IADP) and high yielding varieties programme (HYV).

However, the major turning point came when Dr Norman E Borlaug came to India on a visit. He was a senior scientist at CIMMYT Mexico. He was in fact, a plant pathologist, but was leading the project on dwarf varieties of Wheat and Rice in Mexico. Also, braving the then diplomatic and bureaucratic conditions, he did a great work not only for CIMMYT but also extended his work to African and Asian countries.

During those times, when India and Pakistan were at great enmity, owing to the aftermaths of partition and the war, Dr Norman E Borlaug took the initiative in presenting and explaining the available options to

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deal with the food scarcity situation, to the then Ministers of Agriculture and Food of both the countries,Mr Malik Khuda Bakhsh Bucka (of Pakistan) and C. Subramanium (of India).Young scientists like Dr. M.S. Swaminathan and others were eager and ready to adopt the breakthrough technology to save India and Pakistan respectively, from the clutches of further deaths due to starvation. But again, there were no sufficient funds to order and import the dwarf seed from Mexico. Seeing the pitiful conditions, Dr Norman E Borlaug arranged the funds on his own and an aeroplane to transport the seeds and finally the programme started at various Agricultural research centres and universities viz IARI Delhi, GBPUAT Pantnagar, PAU Ludhiana etc which ultimately lead to fourfold food grain production and in very short time India became self-sufficient in food grain production.

The primary introduction of wheat varieties i.e., Lerma rojo & Sonara-64 lead to the development of Sonalika and Kalyansona (secondary introduction). Similarly, in case of Rice, the primary introduction of varieties IR 8 and IR24 lead to the development of secondary introduction varieties, viz.,Jaya and Ratna. These semi dwarf varieties helped India in the great success of Green revolution.

For this tremendous work, Dr Norman E Borlaug got Nobel Peace Prize in 1970 and Dr M S Swaminathan got first World Food Prize in 1988.

After the success of the green revolution, India witnessed the white revolution and similarly other revolutions.

Population stabilization policies are a must for sustainable food, health, and livelihood security in many developing countries. If population policies go wrong, nothing else will have a chance to succeed – M S Swaminathan