

Green Revolution: Fact and fiction

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The recent budget allocations for agriculture have raised hopes, particularly in those who hail from the rural areas. The Plan outlay has increased by 18 percent due to the decline in the rate of growth of agriculture last year. It was in this context that the Finance Minister referred to Green Revolution in East India to increase productivity of paddy by an outlay of Rs 1000 crores.

The emphasis on Green Revolution in the budget shows the intention of the government and indirectly accepts the fact that the earlier Green Revolution in a few districts of advanced States has faded. What were the conditions under which the so-called Green Revolution was initiated and what was its content?

There are several revolutions within this revolution, like the blue, white, red, etc, even in the present budget; the Finance Minister spoke about five missions which were earlier part of the Green Revolution. The food security mission, sustainable agriculture mission, oilseeds mission, agriculture extension mission and the horticulture mission can be considered as the strategies to bring the second Green Revolution.

To facilitate the revolution, funding through increased credit of Rs 575000 crores with a subvention of 3 percent interest to those who repay on time was announced. This appears to be different from the first Green Revolution of the 1960s.

Jawaharlal Nehru, as chairman of the Planning Commission, reviewed the progress towards objectives of socialism and reduction of inequalities in the previous Plans in 1961 and found that the country needed immediately self-sufficiency in food grains and agricultural development. It was during this period that C.Subrahmanyam was the Agriculture Minister; he took M. S. Swaminathan as Adviser.

There was already a worldwide debate on the need for self-sufficiency in food to reduce hunger due to population boom, and scientists were encouraged to find solutions. It was an opportune time for scientists like Norman Borlaug, who was conducting research on crossing the Mexican wheat with Gaines Dwarf developed by the Washington University. He was invited by the government to extend the results of his research to Indian agriculture. Meanwhile, the USA offered a massive aid programme in the name of PL480.

The PUSA centre was used to extend the results of agricultural studies to farmers in select districts. In fact, PUSA is not a place name where these activities were concentrated; it is short form for PL480 of USA. The concept of Green Revolution was also coined by the USAID Director William Gaud. Rockefeller and Ford Foundations facilitated it originally in seven districts, including West Godavari in Andhra Pradesh, Punjab, etc.

The contributions of B.P.Lal, the first Director- General of ICAR, and scientists of ICRISAT, IRRI and agricultural universities need to be remembered to assess the increase in production and productivity of wheat and rice, the basic two crops that are said to have revolutionized our food stocks. The initial support provided in the form of HYV of wheat, IR8 rice in the select districts was extended, for instance, in Andhra Pradesh to other neighboring districts like Krishna, Guntur, and Nellore where assured irrigation facilities were created.

The impact of the American-supported Green Revolution in India was assessed by hundreds of studies and the results are available now. But, there are very few who could acknowledge the compelling conditions and the indigenous institutional support created to make the first Green Revolution a success.

Several factors have contributed to this success in the form of community development project, krishi Vignan Kendras, model farms, land reforms, extension workers and, above all, involvement of the community and the farmers in translating the vision into a reality. It was undertaken under the direct supervision of the State or supported by its agencies, and therein lay its significance.

Some rational voices contest the positive impact of the Green Revolution. According to some of the critiques, it was a capitalist strategy to introduce capital-intensive agriculture in a Third World country. China did not follow this strategy; yet it achieved self- sufficiency in food earlier than India. The so-called benefits of HYV, as made out to be by the propaganda machinery, seemed to have not considered the social costs and the long-run implications of the resources used for its success.

For instance, the Green Revolution has not substantially improved the net availability of cereals and pulses that improve nutritional status. It is reported that the net availability of cereals and pulses was 469 grams per day per person in 1961 when the population was 44 crores, and it did not improve when the population became 65 crores in 1971, and has come down to 438 grams in 2010. There is no doubt that it has improved our food grains stocks.

But this has happened at a heavy price that the future generations are made to pay. In fact activists like Vandana Shiva and others argue that the heavy doses of fertilizers, pesticides and herbicides, with equally heavy amount of scarce water resources, have mopped up not only the soil capacity but even the indigenous crops in India.

Studies in agriculturally advanced states like Punjab, conducted at PGMIER, Chandigarh, have proved that excessive use of chemicals in agriculture has increased the incidence of cancer in the State. Several social tensions are also associated with the iniquitous and feudalist tendencies in the State. In fact, wheat and paddy have emerged as hegemonic and destroyed the indigenous and locally used varieties that are considered by scientists as the biodiversity wealth of India.

An important dimension that seems not to have been mentioned in mainstream discussions is redundancy of cattle (bovines) due to introduction of machinery like tractors, harvesters, etc. The bovine population (304.4 million) is more than double the size of human population, and consumes equally important scarce resources and remains idle.

We have sentiments for half of this population to be diverted to other uses and the farmer has a serious problem of maintaining them where grazing lands and common property resources have disappeared. In other words, the first Green Revolution seems to have solved the food security but created problems of human safety.

It is against this background that the government is contemplating to usher in the Second Green Revolution now in East India, consisting of Assam, Bihar, Bengal, Odisha, Jharkhand and Eastern UP. Interestingly, the strategy seems to have already been put in place in the form of the so-called PPP mode with the support of GM crops and other capital-intensive techniques. This generates misgivings as the area selected for the experiments is the most impoverished and politically sensitive region to accomplish the dream.