

Green Revolution in India : A Case Study

Why Green Revolution?

The world's worst recorded food disaster happened in 1943 in British-ruled India. Known as the Bengal Famine, an estimated **four million** people **died** of hunger that year alone in eastern India (that included today's Bangladesh). The initial theory put forward to 'explain' that catastrophe was that there was an acute shortfall in food production in the area. However, Indian economist Amartya Sen (recipient of the Nobel Prize for Economics, 1998) has established that while a decrease in food production was a contributor to the problem, a more significant factor was the result of panic related to World War II which made India's food supply a low priority for the British rulers. The hysteria was further exploited by Indian traders who hoarded food in order to sell at higher prices.

Nevertheless, when the British left India four years later in 1947, India continued to be haunted by memories of the Bengal Famine. It was therefore natural that food security was an essential item on the India's new government's agenda. This awareness led, on one hand, to the Green Revolution in India and, on the other, legislative measures to ensure that businessmen would never again be able to hoard food for reasons of profit.

However, the term "Green Revolution" is applied to the period from 1967 to 1978 and even into today. Between 1947 and 1967, efforts at achieving food self-sufficiency were not entirely successful. Efforts until 1967 largely concentrated on expanding the farming areas. But starvation deaths were still being reported in the newspapers. In a perfect case of Malthusian economics, population was growing at a much faster rate than food production. This called for drastic action to increase yield. The action came in the form of the Green Revolution.

The term "Green Revolution" is a general one that is applied to successful agricultural experiments in many Third World countries. It is NOT specific to India. But it was perhaps most successful in India.

What was the Green Revolution in India?

There were three basic elements in the method of the Green Revolution:

- 1) Continued expansion of farming areas;
- 2) Double-cropping existing farmland;
- 3) Using seeds with improved genetics.

Continued expansion of farming areas

As mentioned above, the area of land under cultivation was being increased beginning in 1947. But this was not enough to meet rising demand. Other methods were required. Yet, the expansion of cultivable land also had to continue. So, the Green Revolution continued with this expansion of farmlands. However, this is NOT the most significant feature of the Revolution.

Double-cropping existing farmland

Double-cropping was a primary feature of the Green Revolution. Instead of one crop season per year, the decision was made to have two crop seasons per year. That meant that once crops were harvested, a second set of crops would be planted. The one-season-per-year practice was based on the fact that there is only one natural monsoon per year. This was correct. So, there had to be two "monsoons" per year. One would be the natural monsoon and the other an artificial 'monsoon'.

The artificial monsoon came in the form of huge irrigation facilities. Dams were built to hold large volumes of natural monsoon water which were earlier being wasted. Simple irrigation techniques were also adopted.

Using seeds with superior genetics

This was the scientific aspect of the Green Revolution. Norman Borlaug created new strains of high yield value (HYV) seeds and brought them to India in coordination with Indian scientists, such as M.S. Swaminathan and government bureaucrats. The new strain of wheat was shorter and stockier with a higher yield. The shorter, stockier stems helped the wheat stay upright in the monsoons.

Statistical Results of the Green Revolution

- 1) The Green Revolution resulted in a record grain output of 131 million tons in 1978-79. This established India as one of the world's biggest agricultural producers. No other country in the world, which attempted the Green Revolution recorded such level of success. India also became an exporter of food grains around that time.
- 2) Yield per unit of farmland improved by more than 30 per cent between 1947 (when India gained political independence) and 1979 when the Green Revolution was considered to have delivered its goods.
- 3) The crop area under HYV varieties grew from seven per cent to 22 per cent of the total cultivated area during the 10 years of the Green Revolution. More than 70 per cent of the wheat crop area, 35 per cent of the rice crop area and 20 per cent of the millet and corn crop area used the HYV seeds.

Economic results of the Green Revolution

- 1) Crop areas under high-yield varieties needed more water, more fertilizer, more pesticides, fungicides and certain other chemicals. This spurred the growth of the local manufacturing sector. Such industrial growth created new jobs and contributed to the country's GDP.
- 2) The increase in irrigation created need for new dams to harness monsoon water. The water stored was used to create hydroelectric power. This in turn boosted industrial growth, created jobs and improved the quality of life of the people in villages.
- 3) India paid back all loans it had taken from the World Bank and its affiliates for the purpose of the Green Revolution. This improved India's creditworthiness in the eyes of the lending agencies.
- 4) Some developed countries, especially Canada, which were facing a shortage in agricultural labor, were so impressed by the results of India's Green Revolution that they asked the Indian government to supply them with farmers experienced in the methods of the Green Revolution. Many farmers from Punjab and Haryana states in northern India were thus sent to Canada where they settled (That's why Canada today has many Punjabi-speaking citizens of Indian origin). These people remitted part of their incomes to their relatives in India. This not only helped the relatives but also added, albeit modestly, to India's foreign exchange earnings.

Sociological results of the Green Revolution

The Green Revolution created plenty of jobs not only for agricultural workers but also industrial workers by the creation of support facilities such as factories and hydro-electric power stations as stated above.

Political results of the Green Revolution

- 1) India transformed itself from a starving nation to an exporter of food. This earned admiration for India in the comity of nations, especially in the Third World.
- 2) The Green Revolution was one factor that made Mrs. Indira Gandhi (1917-84) and her party, the Indian National Congress, a very powerful political force in India (*it would however be wrong to say that it was the only reason*).

Limitations of the Green Revolution

1) Even today, India's agricultural output sometimes falls short of demand. The Green Revolution, howsoever impressive, has thus NOT succeeded in making India totally and permanently self-sufficient in food. In 1979 and 1987, India faced severe drought conditions due to poor monsoon; this raised questions about the whether the Green Revolution was really a long-term achievement. In 1998, India had to import onions. Last year, India imported sugar.

However, in today's globalized economic scenario, 100 per cent self-sufficiency is not considered as vital a target as it was when the world political climate was more dangerous due to the Cold War.

2) India has failed to extend the concept of high-yield value seeds to all crops or all regions. In terms of crops, it remains largely confined to food grains only, not to all kinds of agricultural produce. In regional terms, only Punjab and Haryana states showed the best results of the Green Revolution. The eastern plains of the River Ganges in West Bengal state also showed reasonably good results. But results were less impressive in other parts of India.

3) Nothing like the Bengal Famine can happen in India again. But it is disturbing to note that even today, there are places like Kalahandi (in India's eastern state of Orissa) where famine-like conditions have existed for many years and where some starvation deaths have also been reported. Of course, this is due to reasons other than availability of food in India, but the very fact that some people are still starving in India (whatever the reason may be), brings into question whether the Green Revolution has failed in its overall social objectives though it has been a resounding success in terms of agricultural production.

4) The Green Revolution cannot therefore be considered to be a 100 per cent success.

(From Saby Ganguly, <http://www.indiaonestop.com/Greenrevolution.htm>)