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GREEN REVOLUTION AND ITS INFLUENCE IN THE INDIAN SCENARIO

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Abstract: Study examines the causes of the Green Revolution in India, and we know that the food issue became more severe after India and Pakistan partitioned in 1947, posing a series of challenges to India's agricultural sector. Food imports remain high even during good harvest years. A significant segment of the population was poor. In the mid-1960s, India introduced agricultural policies under the Green Revolution to alleviate these problems. Application of modern farming technologies, implementation of high-yielding seed varieties, increased use of fertilizers, production and expansion of irrigation systems, extension of credit and educational services to farmers. These practices have resulted in a significant rise in agricultural products, leading India to achieve food self-sufficiency within a short period of time. The "Green Revolution" has contributed tremendously to Indian agriculture and transformed India from a hungry nation to a food exporter.

Keywords: Green Revolution, Agriculture and Technology, India, Food

I INTRODUCTION

This paper examines the effects of the "Green Revolution" on Indian agricultural development. The "Green Revolution" in Indian experience refers to food production in the 1960s, which significantly increased agricultural yields through the growth of varieties of grains with higher resistance to disease and pests, along with the use of improved farm management techniques and chemical inputs, such as improved pesticides and fertilizers. One of India's persistent problems after independence was food insufficiency. With the division of Burma (now Myanmar) in 1937, India became deficient in food. The food issue became even more severe after the partition of the sub-continent into India and Pakistan in 1947, with a series of challenges facing India's agricultural sector. While post-independence grain production increased dramatically, it was not sufficient to meet the food requirements of the increasing population. The lack of grain production in the face of a growing population has resulted in food imports and an increase in grain prices. This necessitated the Green Revolution, which took place largely as a result of technical breakthroughs, improved water sources and improved agricultural

practices. In addition, increased mechanization of agricultural operations and the use of plant conservation measures have also led to the advent of the Green Revolution in India.

Methodology

The methodology used in this paper is essentially a descriptive study of secondary-source data, primarily government records, survey reports, research papers, books and other published and unpublished materials on India and related sources.

Objective

To find out about the effect of the Green Revolution on the Indian Scenario and its significance on the path of agricultural development.

INDIAN AGRICULTURE

India became independent in 1947 after more than two hundred years of British colonial rule. It has introduced a parliamentary democratic structure, which is considered to be the largest in the world. The relationship between the Center and the individual States is a central feature of the country's administrative structure.



The Member States have significant autonomy in decision-making, but the CenterExercise basic economic and political power. Each State is responsible for the implementation of key policies in its agricultural sector. In 1991, India's economic policies indicated an effort to liberalize the economy and put greater emphasis on export-led, market-driven, import-driven development. India has been a pioneer of the "Non-Aligned" movement and has been able to champion many foreign issues from a Third World perspective, as exemplified by the moves towards South-South cooperation. In the post-colonial period, the levels of agricultural production in India were much higher than those achieved in the colonial era. Between 1949-50 and 1973-74, agricultural production increased by 2.7% per year. This was marginally higher than the population growth rate at the time. On the other hand, the rate of agricultural production during the first half of the century

was just 0.8% per year. Rice, which accounted for 50 per cent of total grain production, decreased at an average annual rate of 0.09 per cent over the same period, while the population increased at 0.67 per cent per year. Food grain supply per capita decreased by 26% between 1911 and 1941.

Why India's Green Revolution

India was among the first developing countries to implement agricultural policies under the Green Revolution in the mid-1960s. This has been sustained and replicated throughout the world. Indeed, India became self-sufficient in food production within a relatively short period of time after the "Green Revolution" was initiated. The decision to embrace the "Green Revolution" was precipitated by the extreme drought of 1966.



As a result, the country had to import vast amounts of food grains from foreign countries at an immense expense or to seek food assistance from friendly countries. Cereal imports, which averaged around 5.9 million tons per year in the early 1960s, hit a record high of 10.4 million tons in 1966. India has found itself in the kind of situation that Eritrea and many other African countries are in today. Restricted foreign exchange meant that India had no option but to obtain food assistance from friendly countries. For example, 8.4 million of India's 10.4 million tons of imports were supplied by the United States in 1966. The remainder was received in the form of wheat and wheat products from Canada, the Soviet Union and Australia. This situation has prompted the government to implement a new policy – a new agricultural strategy to increase agricultural output in the shortest time possible and to reduce variability in agricultural production due to adverse weather conditions. Thus, the Indian Ministry of Agriculture declared the Latest Agricultural Development Plan in August 1965. This new policy came to be known as the "Green Revolution." The goals of the "Green Revolution" were:

- a) To make available the necessary inputs in appropriate quantities;
- b) Promote investment in fertilizer factories;
- c) Promote the production of agricultural equipment;

- d) Define and organize agricultural research activities to improve productivity;
- e) Intensify the operation of agricultural extension in selected areas;
- f) Introduce a production-oriented strategy on cereal prices.
- g) Provide sufficient credit to farmers willing to cultivate varieties of cereals and to follow acceptable farming practices;

Indian agriculture, which has been stagnant and backward for decades, has undergone a significant shift due to the implementation of the Modern Agricultural Growth Strategy (the Green Revolution). (the Green Revolution). The broader implementation of systemic and modern technical advances has led to innovative improvements in farming methods in India. This combined with improved water sources and breeding selection resulted in an enormous increase in yield per acre for many crops. Indeed, it was fitting to identify the effects of the Green Revolution in India. Owing to the success of the "Green Revolution," cereal imports in India were generally negligible in the 1970s, with the exception of major crop failures in 1979-80 leading to a re-importation of 2.3 million tons of food grain in 1981-82. By the end of the 20th century, India had achieved self-sufficiency by producing enough food, for example, 212 million tons of food grain in 2001-2002.

Influence Accountable to the Green Revolution

There were many factors responsible for the success of the Green Revolution in India. The key ones are listed briefly below:

a) High yielding variety of crop. This was the key scientific aspect of the "Green Revolution." The Indian Council for Agriculture Research, founded by the British in 1929 but not known to have carried out any major research, was re-organized first in 1965 and then in 1973. New strains of high yield value (HYV) seeds were grown, mainly wheat and rice, but also millet and corn. The most notable HYV seed was the K68 wheat variety. In addition, other high-yielding varieties of seed have been developed by agricultural universities and research centers in India. For example, for wheat, S-308, Kalyan and Sona 227, etc.; for rice, IR-7, IR-8, Massuri, Padma, Jaya, etc., there was a high-yield variety of seeds. These seeds provided the farmer with a higher yield per acre. The discovery and use of standard high yielding seed varieties, which have greatly improved agricultural productivity, is primarily responsible for the success of the Green Revolution.

b) Double-cropping of developed farmland. Double-cropping was the primary aspect of the "Green Revolution." Due to the early maturation of new seeds, it became possible to produce two or three crops each year from a plot of land instead of just one crop. One-season-a-year practice was based on the fact that there is only one natural monsoon per year that induces rainfall. So, there had to be two "monsoons" a year. One will be a natural monsoon, the other an artificial monsoon. The artificial monsoon came in the form of a huge irrigation plant. Dams were designed to arrest large amounts of natural monsoon water, which had been wasted until then, and simple irrigation techniques were used to water the fields. This activity has led to an increase in agricultural production in India.

c) Use of fertilisers. Increased use of fertilizers has also led to substantial increases in agricultural production. The use of chemical fertilizers in India increased from 1.8 million tons in 1968-1969 to around 12.7 million tons in 1991-1992.

d) The use of digital computers. Indian farming practice has been dominated by traditional tools and practices. Increased use of machinery and other modern equipment, such as tractors, pumping machines, power planters, pipe wells, harvesters, etc., during the "Green Revolution" allowed multiple crops to be cultivated and high-yield varieties of crops to be grown in the country.

e) Large irrigation facilities. The provision of irrigation facilities was yet another essential component of the 'Green Revolution.' An extensive irrigation facility has made it possible to supply farmers extensively with water and to ensure better land use and multi-cropping. The additional irrigation land rose from 1.37 million hectares in 1968-1969 to 81.0 million hectares in 1991-1992.

f) Improved credit facilities. Many Indian farmers lacked the financial resources required to procure seeds, machinery and fertilizers. As a result, more attention had to be paid to making available sufficient credit facilities to ordinary farmers to reduce the shortage of financial capital.

g) Plant safety. The protection of plants by the use of pesticides and other such devices was another significant feature of the Green Revolution. The area protected by India's plant protection scheme increased from 17 million hectares in 1965-66 to around 66 million hectares in 1991-92.

h) Expansion of agricultural areas: the expansion of agricultural areas was also an important factor in the success of the Green Revolution in India. In fact, the expansion of the land under cultivation began immediately after independence was achieved in 1947. The "Green Revolution" started the trend at an increased pace. In 1960, the total area protected by the High-Raising Variety Program was a marginal 1.9 million hectares. It reached 15.4 million hectares by 1970, 43.1 million hectares by 1980 and almost 65.0 million hectares by 1990. Such spectacular rises in land under cultivation have led to the success of the "Green Revolution."

i) Miscellaneous Factors: In addition to the factors mentioned above, improvements in storage, food processing and marketing facilities, as well as government price support policies, have also contributed to the success of the Green Revolution in India.

Outcomes of the Green Revolution

The outcomes of India's Green Revolution can be classified into economic, social and political aspects. From an economic point of view, the "Green Revolution" has culminated in the "Green Revolution" Record grain production of 131 million tons between 1978 and 1979. This achievement has made India one of the world's largest agricultural producers.



No other country in the world that attempted the "Green Revolution" had such a degree of success. By the end of the 1970s, India had converted itself from a net importer to a net food exporter. The yield per farmland unit increased by more than 30% between 1947 and 1979, when the Green Revolution was considered to have delivered its products. The high-yield (HYV) crop area rose from just 7% to 22% of the total cultivated area during the 10 years of the "Green Revolution." Over 70% of the wheat crop area, 35% of the rice crop area and 20% of the millet and corn crop area used HYV seed. Crop areas under HYV needed more water, more fertilizer, more pesticides, fungicides and some other chemicals. This has driven the development of the local manufacturing sector. Such industrial growth produced new employment and added to the gross domestic product of the country (GDP). Increased focus on irrigation has generated the need for new dams to harness monsoon water. The water collected was used to produce hydroelectric power. This, in turn, has boosted industrial growth, generated jobs and improved the quality of life of villagers.

India repaid all the loans it had taken from the World Bank and its affiliates for the purposes of the Green Movement. Economically, this strengthened India's creditworthiness in the eyes of the lending agencies. Some developed countries, especially Canada, which faced a shortage of 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. As a result, many farmers from the states of

Punjab and Haryana in northern India have been sent to Canada where they have settled.¹ These people have remitted part of their income to their relatives in India. This not only benefited relatives, but also contributed to India's foreign exchange earnings, though modestly.

Socially, the "Green Revolution" created a lot of employment not only for farm workers, but also for industrial workers, by setting up side-by-side facilities such as factories and hydro-electric power stations, as previously mentioned. In short, because of the Green Revolution, India has transformed itself from a hungry nation to a food exporter. This has won Indian admiration, particularly in the Third World.

As far as the success of the "Green Revolution" in India is concerned, the increased production of rice and wheat, especially in the northern and northwestern parts of the country, is often cited. However, it should also be noted here that it has been argued that, during the Green Revolution, sorghum yields above average yields of rice and wheat in India. In fact, all three of the main African cereals maize, millet and sorghum did very well in some Indian states during the same time. This clearly shows that a remarkable increase in yields is possible, even under low irrigation conditions, with the use of fertilizers and HYVs.

CONCLUSION:

The word Green Revolution is a common term used to describe successful agricultural experiments in many Third World countries that have resulted in increased crop production. For example, high-yielding varieties of wheat, rice and other staple grains have been produced in countries such as Mexico, the Philippines, etc.

However, India is also cited as the country with the most active experience of the "Green Revolution." India's post-colonial experience of agricultural and food development through the Green Revolution offers useful lessons on how to achieve food self-sufficiency. The Green Revolution in Indian experience refers to the sum of the following activities: the implementation of modern farming technology, the introduction of high-yield seed varieties, increased use of fertilizers, the production and expansion of irrigation systems, the extension of credit and educational services to farmers. These practices have resulted in a significant rise in agricultural products, leading India to achieve food self-sufficiency in a short period of time.

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