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THE IMPACT OF GREEN REVOLUTION ON HARYANA

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Abstract
Green revolution means: Significant improvement in agricultural production in a short period and high level of agricultural production in a long period of time. Wonderful seeds and dwarf and early maturing varieties have brought about a sudden change in Indian agriculture. The Green Revolution in Haryana has achieved great progress in agricultural productivity but at the cost of land and water degradation. Intensive agriculture during the Green Revolution period has led to a steady increase in agricultural production due to the use of high doses of fertilizers and pesticides. The adaptation of various modern farming techniques has further strengthened the role of agriculture sector in the economic development and employment generation of Haryana. Haryana has the highest cropping intensity among Indian states; And due to the advent of Green Revolution, the production and productivity of major crops increased manifold. But the adaptation to the new farming strategy has limited the state to only two crops i.e., wheat and paddy. In addition, it results in diseased soils, pest infested crops, over-exploitation of groundwater and waterlogged deserts. Present papers describe the impact of Green Revolution on Haryana

Keywords: Green Revolution, Agriculture, Economic Development, Haryana.

Introduction

The history of mankind has witnessed some important agricultural revolutions. A notable agrarian change on political grounds occurred in the post-1917 revolution of the Soviet Union. Agricultural land was nationalized and organized into collective or state farms. The same socialist spirit guided the formation of the communes in China. Around the middle of the present century, the world witnessed another major agricultural revolution involving the cultivation of high yielding varieties of wheat and paddy, known as the Green Revolution (Barad, 1999). The credit for developing this new technology goes to Norman Borlaug, who invented new varieties of dwarf wheat for which he was awarded the Nobel Peace Prize.

Impacts on soil and crop production

Repetition of crop rotation resulted in increased crop production and reduced crop failure, which depleted soil nutrients (Srivastava et al., 2020). Similarly, since crop residues and organic matter are not returned to the soil, intensive cropping systems result in loss of soil organic matter (Singh and Benabi, 2016). To meet the needs of new types of seeds, farmers apply fertilizers when soil quality is poor (Chhabra, 2020).

Major Issues in Agriculture of Haryana

Haryana is one of the green revolution states. Food production has come a long way. over the past few decades witnessed some radical changes in the agriculture sector of state and production and productivity have increased many times. Earlier, the primary focus of agriculture, the state had to increase food production and Improvement in livelihood of

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farmers, now agriculture sector Slowly becoming a technologically driven dynamic profession. However, this success has also given rise to Second generation problems.

IMPACT ON NATURAL RESOURCE

Soil Resources:

Problem of Soil Degradation (soil compaction, soil salinity, salinity, water) logging, and pesticide residues), many nutrients reduction, low organic carbon content and a decline in Total factor productivity observed Under different production systems in the state. Too Diversion of agricultural land for non-agriculture Usage is an emerging major problem.

Water Resources:

Presently Consumption of Agriculture About 80% water. good quality availability the water for assured irrigation in the state is about 60%. This availability of irrigation water will further decline in Future due to high demand for fresh water for domestic and industrial use. excessive exploitation of Ground water is critically emerging in Haryana Threat. About 65% of groundwater resources in Haryana is salty. In addition, there is fresh water being polluted through the release of untreated industries Waste and sewage water in the canal system.

Climate change:

Climate change is accelerating challenges faced by the agriculture sector, negatively affecting both crop and livestock systems in most areas. There is an uncertain change in the climate which results in more pressure on the crops, hence the growth Resource consumption and growth potential Pest resistance as well as resurgence.

Impacts on indigenous crops

Benefits of landrace crops over introduced HYVs include

(1) growing landrace crops can make agriculture more genetically diverse and sustainable,

(2) consuming locally grown landrace crops can reduce carbon footprint and imports,

(3) indigenous crops are highly adapted to the climatic conditions of the land, and

(4) consumption of indigenous foods contributes to dietary diversity and micronutrient enrichment of diets. It provides health benefits due to interactions between the genes found in the food and the nutrients in the food.

However, there may be few challenges to reviving indigenous species, which may include

(1) the willingness of farmers in propagating indigenous varieties,

(2) identifying farmers with traditional knowledge about growing crops,

(3) encouraging farmers with large estates to grow indigenous crops,

(4) awareness among consumers and stakeholders of the ecological and health benefits of indigenous varieties,

(5) government support to farmers for the propagation of these crops small and large scale, and

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(6) the development of adequate mechanization for indigenous crop processing, as existing machines are designed for HYVs, and employing the same techniques for indigenous crop processing may lead to loss of micronutrients and phytochemicals.

Intensity of cropping: -

Intensification is a characteristic process of all modern agriculture. The same is true in the case of Haryana. The net planted area did not increase as much as the area planted more than once. in 1989-90. The intensity of the Green Revolution was highest in Karnal, Kaithal and Jind districts. In Rohtak, Rewari and Gurgaon districts measure the low intensity of the Green Revolution. On the other hand, in 2011-12 The greatest intensity of the Green Revolution was in the districts of Bhiwani, Jind, Faridabad, Karnal and Panipat. The lowest intensity was observed in Gurgaon, Mewat, Rewari, Rohtak and Yamuna Nagar. difference or difference the intensity of the green revolution in the given study period is 16. The area of least intensity is Haryana industrial belt and sugarcane belt where paddy rice rotation plays a minor role. In contrast, the Rewari district emerged as a district where there was only a slight increase in planted area. One time. The same thing happened with the Panchkula district. The intensity of the Green Revolution has been low in both Cases associated with lack of irrigation, undulating topography and deep-water levels limited its scope. of multiple crops.

Benefits of green revolution

As mentioned above, an agricultural reform that helped increase the production of crops around the world during the 1950s and 1960s can be defined as the Green Revolution. The Green Revolution had both negative and positive effects. Let us now discuss the advantages or positive effects of Green Revolution. The following points mentioned below analyse the positive effects of Green Revolution.

Increase in the growth of food crops: -

Traditional methods of growing food crops limited the amount of crop that could be grown. But Green Revolution brought HYV seeds or high yielding seeds which reduced the time taken to grow the crop and also increased the number of crops. It is estimated that crops grown from high yielding seeds produce 20 percent more calories of the crop. All thanks to the idea of HYV seeds developed by Norman Borlaug. It is estimated that the calories in a crop will increase 70 times more than they are today, without any environmental degradation.

Produces crops in non-cooperating season: -

We all know that all crops grow in two seasons i.e., Rabi season and Kharif season. The idea of Green Revolution helped to add resilience to our crops which would help them to grow in any season with suitable nutrients and fibres. Norman Borlaug's work helped crops grow consistently, even when regular weather would wipe out the crop.

Reduces the cost of food crops:

We know that the global market is based on the chain of supply and demand. The greater the supply, the greater the demand. HYV seeds helped crops grow consistently even in non-

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regular seasons. This increases the yield and makes the supply more available. In such a situation, the demand for crops also increases. It helps in reducing the price for everyone to buy food grains like wheat, bajra, rice, etc.

Growth in rural employment in every part of the world:

It is estimated that 70 percent of the total countries of the world are dependent on agriculture for their economy. Therefore, we can say that the agricultural sector should be the pillars of the countries concerned. It forces the government to come up with new ideas and policies and makes it possible to develop the employment sector of the country. This process creates a large amount of wealth, which increases the economy of the country.

Disadvantages of the green revolution

Reduction of soil quality: -

Traditional farming methods ensure that soil quality remains good. It helps the soil become more and more fertile as the growing season progresses. But the Green Revolution has impacted biodiversity. Using HYV seeds on the same land decreases soil fertility, which also decreases the amount of nutrients in a crop.

Increases Health Impact: -

The Green Revolution had the idea of using various types of chemical pesticides and fertilizers that increase the health impact on the human body. The use of pesticides and fertilizers kills up to 20,000 humans for not wearing proper masks.

Regional disparities:

Green Revolution technology has led to growing disparities in economic development at the inter- and intra-regional levels.

So far it has affected only 40 percent of the total cultivated area and 60 percent remains untouched.

The worst affected areas are Punjab, Haryana and western Uttar Pradesh in the north and Andhra Pradesh and Tamil Nadu in the south.

It has barely touched the eastern region, including Assam, Bihar, West Bengal and Orissa, and the arid and semi-arid areas of western and southern India.

The Green Revolution affected only those areas that were already better situated from an agricultural point of view.

Thus, the problem of regional disparities has been further aggravated as a result of the Green Revolution.

Intervention Needed

Despite this, agriculture is no longer remunerative for farmers, it is the backbone of the economy of the state and of the 25 million people of Haryana.

Therefore, it is necessary to think further with a main focus on the sustainable management of soil and water together with the complications of climate change.

There is a need to evolve the integrated value chain from farm to fork. You should also focus on the quality of the food. Undoubtedly, increased use of agrochemicals harms the health of

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farmers and consumers. Therefore, it is necessary to pay special attention to these three aspects.

Water and soil management are crucial for the agricultural sector. Instead of pouring excessive chemical fertilizers for higher yield, there should be soil testing laboratories accessible to each and every farmer. And then, fertilizers can be recommended according to the need of the crop.

Haryana's own Agriculture Minister admits that the 35-year-old canal system is leaking a third of the water intended for irrigation. Therefore, the Government of Manohar Lal Khattar, which is four years older, should come up with innovative technologies that can minimize water waste.

In addition, the government needs to diversify the pattern of rice crops that consume a lot of water to crops that require less water. Cash crops like fruits and vegetables can be good options for better water management through micro-irrigation system. It wouldn't happen overnight. Convincing farmers would be a challenging job. The government will have to find the agents of change within the farming community. Gram Panchayats, self-help groups and progressive farmers can help achieve the goals. Farmers already face the challenge of water scarcity. Therefore, over a period of time with concentrated efforts, they will understand and bring diversification to their fields.

Increase in Suicides: -

In the suicide reports, Vasavi studied, most of the victims were entering Green Revolution agriculture, which brought with it the challenges of the rise of commercial agriculture, such as production, credit, marketing, knowledge and the market climate. Small farmers who entered the Green Revolution market were unable to keep up economically and socially. Most of the suicide victims, Vasavi points out, belonged to the “back classes” and low caste groups, which increased the problems of economic marginalization. There is also a notable number of suicide victims who belonged to castes that did not traditionally practice agriculture. These members of the caste had to switch to agriculture due to their presence in the local market and the displacement of rural products by industrial products. These new growers had found themselves incurring large debts in their attempts to avoid impoverishment.

Due to construction angst related to these Green Revolution issues, many farmers are committing suicide by ingesting pesticides. The number of suicides in 1966 was 37,848, making the suicide rate 7.6 percent. Five percent of these suicides were caused by poverty or economic reasons. The suicide rate in 2000 was reported to be 10.8 percent, with approximately nine percent related to poverty, unemployment, or bankruptcy/change in economic status.

Conclusion: -

1. The example of the green revolution in Haryana shows that this rapid transformation from subsistence to commercial agriculture has a huge cultural, economic and ecological effect.
2. Now the time for the second green revolution is fast. India has tremendous export potential in agriculture in the current era of globalization.
3.but the second green revolution should focus on: -

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A. Organic agriculture.
B. less use of pesticides and fertilizers that have fatal effects on humans, soil quality and water quality.
C. Improvement of rural roads, irrigation facilities and rural electrification.

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