



GREEN REVOLUTION AND IT'S IMPACT ON AGRICULTURE LABOUR

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ABSTRACT

The significant increase in agricultural production in 1960s consequent upon the adoption of new agricultural strategy and use of HYV seeds and chemical fertilizers is called Green Revolution. The key pillars of this revolution were high yielding variety (HYV) seeds, chemical fertilizers, pesticides and promoted irrigation facilities. Green revolution was introduced as a package programme with seed-water-fertilizer-pesticide-technology components and was originally called High Yielding Variety Programme (HYVP). It was launched in Kharif of 1966-67 with an objective to attain self-sufficiency in food by 1970-71. The core philosophy of the programme was to increase the productivity of food grains by adopting latest varieties of inputs of crops. Introduction of new high yielding varieties of improved seeds and enhanced application of the fertilizers and extended use of pesticides were its main features. The farmers were also extended finance through a relaxed mechanism. The programme turned out to be a major breakthrough and a turning point in the history of agriculture development in India.

The impact of improved farm technology on agricultural labour, wages and employment in India. The results of study show that the machinery labour displaces the human labour and bullock labour by inducing improved farm technology. Family labour employment was displaced by hired agricultural labourers on progressive over non-progressive farms. It was also found that that high labour requirement in peak operation periods tends to increase the level of wage rates of hired labour as compared to slack period on all sizes of land holdings of both types of farms i.e. progressive and non-progressive farms.

Key Words: Strategy, Revolution, Productivity, Mechanism, Pesticides, Slack Period, HYV Etc.

1. INTRODUCTION

Although Green Revolution led to considerable increases in agricultural production and productivity it had some undesirable consequences as well particularly in the initial period. Since early successes were limited to wheat, the wheat growing areas (Punjab, Haryana and Western Uttar-Pradesh) marched much ahead of other regions leading to substantial increases in regional inequalities. However, during the last decade and a half, impressive gains have been recorded by rice and non-food grains (particularly oilseeds). As a result, the eastern and the southern regions of the country have made up the lost ground considerably. In addition to increase in regional inequalities, the initial period of Green Revolution was also marked by increases in interpersonal inequalities as large farmers benefited much more from new technology than the small and marginal farmers. This was not unexpected as the new technology called for substantial investments which were generally beyond the means of a majority of this country's small and marginal farmers. Only relatively rich farmers who were in a position to afford the new strategy which is a package programme involving the use of high-yielding varieties of seeds in combination with other inputs like irrigation, fertilizers, pesticides etc. adopted it. This shifted the advantage of productivity per acre in favour of big farmers. This advantage, in turn, got reflected in the distribution of benefits from new technology in the region that adopted it. However, with the passage of



time, the supply of institutional credit to small farmers increased enabling them to adopt the new technology. Thus Green Revolution started benefiting small farmers as well. Thus, it can be said that India was successful in creating a green revolution which give a boost to the agriculture sector across the country. We need to create a similar revolution in the near future as we have already started experiencing stagnation in growth in the agricultural sector.

2. OBJECTIVES OF THE STUDY

1. To study the concept of Concept of Green Revolution.
2. To study the impact of Green Revolution on Food Grain production.
3. To study the impact of Green Revolution on Agricultural labour.
- 3 To study the Second Green Revolution in India.

3. METHODOLOGY OF THE STUDY

The present study has been descriptive; the data for this study were obtained from secondary sources. The secondary data has been collected from various references which already existed in published form; part of the paper is based on literature review the method comprising of collecting all the available papers relating to the theme and selecting relevant papers/books for the review purpose. Selection of the paper is done on the basis of their relevance and contribution to the body of knowledge. The author has made an attempt to do primary reading of the selected papers which will constitute the core of this review study.

4. CONCEPT OF GREEN REVOLUTION

Throughout history there have been many revolutions that have occurred and changed human lives, such as the American Revolution and the Industrial Revolution. In the mid- and late-20th century a revolution occurred that dramatically changed the field of agriculture, and this revolution was known as the Green Revolution.

The Green Revolution was a period when the productivity of global agriculture increased drastically as a result of new advances. During this time period, new chemical fertilizers and synthetic herbicides and pesticides were created. The chemical fertilizers made it possible to supply crops with extra nutrients and, therefore, increase yield. The newly developed synthetic herbicides and pesticides controlled weeds, deterred or kill insects, and prevented diseases, which also resulted in higher productivity.

In addition to the chemical advances utilized during this time period, high-yield crops were also developed and introduced. High-yield crops are crops that are specifically designed to produce more overall yield. A method known as multiple cropping was also implemented during the Green Revolution and lead to higher productivity. Multiple cropping is when a field is used to grow two or more crops throughout the year, so that the field constantly has something growing on it. These new farming techniques and advances in agricultural technology were utilized by farmers all over the world, and when combined, intensified the results of the Green Revolution.

5. IMPACT GREEN REVOLUTION ON FOOD GRAIN PRODUCTION

Although green revolution happened in other developing countries also in those days, but India was most successful among them. The record output of food grains of 131 million in 1978-79 established India as one of the largest agricultural producers of the world. 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. Not only in



production, but also in productivity green revolution was a success. The yield per unit of farm land improved by more than 30 percent between 1947 and 1979. During first 10 years of Green Revolution, crop area under HYV seeds grew from 7% to 22%. Contents [hide] Impact on Cereal Production Impact on Commercial Crops Impact on Cereal Production. The key achievement of the green revolution was boost in production of two major cereals viz. Wheat and rice. But it was also a major drawback. The revolution was mainly confined to High Yielding Varieties (HYV) cereals, mainly rice, wheat, maize and jowar. It did not cover other coarse cereals, millets and neither had it covered pulses. Impact on Commercial Crops Initially, green revolution was directed to increase the production of the food grains. It had no substantial impact on production of commercial crops such as sugarcane, cotton, jute, oil seeds, and potatoes until 1973-74. However, after that year, significant improve in output was seen in sugarcane, oilseeds and potatoes. Total food grain production in the year 2004-05 was 204.06 million tonne in India. Which is significantly more than past decade.

6. IMPACT GREEN REVOLUTION ON AGRICULTURE LABOUR

Growth of Agricultural Labour (In Millions)

Year	Number
1951	27.3
1961	31.5 (1.44)
1971	47.5 (4.19)
1981	55.5 (1.56)
1991	74.6 (3.00)
2001	107.4 (3.71)

Source: Government of India, Economic Survey, Various Issues.

Note: Figures in brackets are the compound growth rates.

The growth of agricultural labour in India, data in Table show the fact that the number of agricultural workers in Indian economy had been increasing. The data also reveal that the growth rate of agricultural labour has shown rise from 1.44 per cent in 1961 to 4.19 per cent in 1971 which may be the outcome of adoption of new agricultural strategy but this rate declined to 1.56 per cent in 1981 and it again increased to 3.00 per cent in 1991 which further witnessed the rise by 3.71 per cent in 2001.

7. POSITIVE ASPECTS OF GREEN REVOLUTION IN INDIA

- **Increase In Agricultural Production** – The introduction of Green Revolution in 1967–68 has resulted in phenomenal increase in the production of agricultural crops especially in food-grains. From 1967 onwards, the Green Revolution aimed at bringing about a Grain Revolution.

Among the food grains too, it is the wheat crop which drew maximum benefit from Green Revolution. The production of wheat increased by more than three times between 1967–68 and 2003–04 while the overall increase in the production of cereals was only two times. On account of this reason, it is said that the Green Revolution in India is largely the Wheat Revolution.

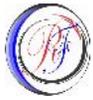
- **Increase In Buffer Stocks** – As a result of the Green Revolution we have been able to create buffer stocks of food grains which can be used in the event of natural calamities such as droughts and floods which result in fall in crop production.



- **Prosperity Of Farmers** – With the increase in farm production the earnings of the farmers also increased and they became prosperous. This has, especially, been the case with big farmers having more than 10 hectares of land.
- **Reduction In Import Of Food–Grains** – The main benefit of Green Revolution was the increase in the production of food–grains, as a result of which there was a drastic reduction in their imports. We are now self–sufficient in food–grains and have sufficient stock in the central pool. Sometimes we are in a position to export food–grains also. The per capita net availability of food–grains has also increased from 395 grams per day in early 1950s to the level of 436 grams in 2003, this in spite of the rapid increase in population. In the words of Dantwala, Green Revolution has given a breathing time. As a result, there will be relief from anxiety of food shortage and the planners will concentrate more on Indian planning.
- **Capitalistic Farming** – Big farmers having more than 10 hectares of land have tended to get the maximum benefit from Green Revolution technology by investing large amount of money in various inputs like HYV seeds, fertilizers, machines, etc. This has encouraged capitalistic farming.
- **Ploughing Back Of Profit** – The introduction of Green Revolution helped the farmers in raising their level of income. Wisser farmers ploughed back their surplus income for improving agricultural productivity. This led to further improvement in agriculture. According to a study conducted by Punjab Agriculture University, Ludhiana farmers plough back about 55% of their income for agricultural progress.
- **Industrial Growth** – Green Revolution brought about large scale farm mechanization which created demand for different types of machines like tractors, harvesters, threshers, combines, diesel engines, electric motors, pumping sets, etc. Besides, demand for chemical fertilizers, pesticides, insecticides, weedicides, etc. also increased considerably. Consequently, industries producing these items progressed by leaps and bounds. Moreover, several agricultural products are used as raw materials in various industries. These industries are known as agro based industries. Textile, Sugar, Vanaspati, etc. are some outstanding examples of agro based industries.
- **Rural Employment** – While on one hand, large scale unemployment was feared due to mechanization of farming with the introduction of Green Revolution technology in India, there was an appreciable increase in the demand for labour force due to multiple cropping and use of fertilizers.

8. IMPACT OF GREEN REVOLUTION INDIAN RURAL SOCIETY

- **Inter–Crop Imbalances** – The effect of Green Revolution is primarily felt on food–grains. Although all food–grains including wheat, rice, jowar, bajra and maize have gained from the Green Revolution, it is wheat which has benefited the most. It has wrested areas from coarse cereals, pulses and oilseeds. The HYV seeds in latter crops have either not been developed so far at all, or they are not good enough for farmers to risk their adoption. Consequently, their cultivation is fast becoming uneconomic and they are often given up in favour of wheat or even rice. The result is that an excess of production in two main food–grains (wheat and rice) and shortages in most others today prevail side by side.



Major commercial crops like cotton, jute, tea and sugarcane are also almost untouched by the Green Revolution. The rate of growth in production of pulses has declined. This is not good for a balanced growth of Indian agriculture. Central Government has taken some steps to remove these imbalances.

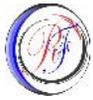
- **More Inequality among Farmers (Interpersonal Inequalities)** – It has been observed that it is the big farmer having 10 hectares or more land, who is benefited the most from Green Revolution because he has the financial resources to purchase farm implements, better seeds, fertilizers and can arrange for regular supply of irrigation water to the crops. As against this, the small and marginal farmers do not have the financial resources to purchase these farm inputs and are deprived of the benefits of Green Revolution Technology. There were about 1,053 lakh holdings in India in 1990–91 out of which only 1.6% exceeded 10 hectares in size.

Another 24% of the farmers own 2.5 to 5.0 acres of land and they are also living below poverty line. The land holdings are generally small in rice producing areas and the economic position of the farmers living in those areas is extremely miserable. In short, Green Revolution has made the rich richer and rendered the poor poorer resulting in wide-spread social and economic tensions.

- **Regional Inequality** – Green Revolution technology has given birth to growing disparities in economic development at interregional and intra-regional levels. It has so far affected only 40% of the total cropped area and 60% is still untouched by it. The most affected areas are Punjab, Haryana and western Uttar Pradesh in the north and Andhra Pradesh and Tamil Nadu in the south.

It has hardly touched the Eastern region, including Assam, Bihar, West Bengal and Orissa and arid and semi-arid areas of Western and Southern India. In short, Green Revolution affected only those areas which were already better placed from agricultural point of view. Thus the problem of regional disparities has further aggravated as a result of Green Revolution.

- **The Question of Labour Absorption** – There is a general consensus that the adoption of new technology had reduced labour absorption in agriculture. The uneven regional growth was mainly responsible for the low absorption of labour within agriculture. The growth of output was also slow to generate adequate employment opportunities. The sudden rise in the demand for labour in these areas induced mechanization and labour-saving practices in general.
- **Undesirable Social Consequences** – Some micro level socio-economic studies of green revolution areas have revealed certain undesirable social consequences of the green revolution. Many large farmers have evicted tenants as they now find it more profitable to cultivate land themselves. Thus, a large number of tenants and sharecroppers have lost their lands and have been forced to join the ranks of agricultural labourers. Wetlands have also attracted outsiders (non-agriculturists) from nearby towns to invest capital in buying farms.
- **Health Hazards** – The health hazards of the new technology can also not be lost sight of. Increased mechanization that has accompanied the modernization of farm technology in green revolution areas carries with it the risk of in-capitation due to accidents. The



attitude of the Government towards the problems of treatment and rehabilitation of victims of accidents on farm machines is that of total ambivalence. Meagre compensation is provided to victims.

- **Negative Impact On Land Reforms** – The Green Revolution adversely affected the land reforms in India. The production of crops increased due to Green Revolution, which defeated the objective of the land reforms to increase production capacity.
- **Impact on Landless Labor:** In the green revolution areas, there has been a marked increase in demand for wage-labour particularly at the peak period. As a result of increased demand for labor, the position of labour in the market will improve and they will fight against economic and social oppression.

9. SECOND GREEN REVOLUTION

The first Green Revolution was launched to ensure food security as there was severe scarcity of food in the country. Today, our food supply is well secure. Meeting the growing needs is within reach. Therefore, the second Green Revolution should aim at promoting sustainable livelihood, enabling the poor to come out of poverty by generating gainful self-employment. While the first Green Revolution aimed at undertaking mass agricultural production, the second Green Revolution should be to promote agricultural production by the masses. This is the Gandhian approach to equitable sharing of prosperity by involving the poor in development. For achieving this goal, we need to search for technologies which can be adopted by the farmers in arid and semi-arid regions, and those who are dependent on rainfall for crop production.

10. CONCLUSION

The Green Revolution and its associated technologies have proved to be truly a double-edged sword. On the one hand, these technologies give us the ability to serve an ever-growing population with the same limited arable land resources. Increasing production per hectare is ultimately the only way to feed a growing population in a world where arable land is a scarce and valuable resource. At the same time, these technologies come at the cost of greater economic inequality between smallholders and own-account workers on the one hand, and large farms and agribusiness on the other. It is unclear if these technologies are even sustainably solving the hunger problem, or only temporarily staving off the inevitable. The impact of improved farm technology on agricultural labour, wages and employment in India. The results of study show that the machinery labour displaces the human labour and bullock labour by inducing improved farm technology. Family labour employment was displaced by hired agricultural labourers on progressive over non-progressive farms.

11. REFERENCES

1. Joshi, P.K. (1979): "Linkage between Agriculture Output Growth and New Technical Inputs (as Industrial Sector) – In Selected States of India".
2. Misra S.K. & Puri V.K. – "Indian Economy", Himalaya Publishing House, Bombay, 2008
3. Patil, R.G. and Jha, Dayanath (July-Sept.-1978): "Output Growth and Technological Changes in Maharashtra Agriculture : A District-wise Analysis", Indian Journal of Agricultural Economics, "Evolution of consolidation of Holdings Programmes –Case studies", Government of India, New Delhi, 1970.
4. Sharma, Ushaben (Jan.-March, 1981): "Contribution of HYVs to Cereal Output, Yield and Area in Gujrat", Indian Journal of Agricultural Economics, Vol. XXXVI, No. 1, pp. 79-81.