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INCLUSIVE GROWTH IN THE BACKGROUND OF FIRST AND SECOND GREEN REVOLUTION

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Abstract: This case study describe the attainment of Inclusive Growth in the field of agriculture during the period of First and Second Green Revolution.

The sudden jump in agricultural production as a result of the application of high yielding varieties of seeds, increased use of chemical fertilizers and irrigation are collectively known as the Green Revolution which makes India self-sufficient in the field of food grains.

It is termed as First Green Revolution and was in pre-reform period of 1967 - 68. As a result of this revolution India became the world's biggest agricultural producer, and produced record grain output of 131 million tons in 1978-79. But it was a failure as its fruits are not achieved by small and marginal farmers. It provides an unbalanced growth among agricultural workers and not provided an inclusive growth in agricultural field. So it could not considered to be a 100 percent success.

As first green revolution was not a 100 percent success, India needed a Second Green Revolution to eradicate the inequality among farmers and also bring food security to its billion plus population, to remove distress of farming community and to make its agriculture globally competitive. It is on post reform period in April 2013 in a coordinated effort to double agricultural output over the next few years. It will provide new technologies and better farming practices. In this endeavor, the problems of marginal and small farmers and raising agricultural productivity in dry areas need a special attention without compromising on preserving soil and water resources.

As a result of Second Green Revolution the food grains production which was about 51 million tons in 1950-51, achieved an all-time record harvest of more than 250 million tons in 2012-13.It also helped the evolution of a low cost technology which can be adopted small farmers and which can use and exploit the local resources. Thus agricultural production increased along with balanced growth and through Second Green Revolution we attained inclusive growth along with agricultural growth.

The main objective of this paper is to compare and analyse the attainment of Inclusive Growth during the period of First and Second Green Revolution.

Index Terms **- Green Revolution, HYVS, Multiple Cropping, Inclusive Growth etc.**

I. Inclusive Growth

Inclusive Growth is a concept which advances equitable opportunities for economic participants during the process of economic growth with benefits incurred by every section of society. This approach takes a longer-term perspective, as the focus is on productive employment as a means of increasing the income of poor and excluded groups and raising their status of living.

Green Revolution

"Green Revolution may be defined as the rapid increase in agricultural production which took place in a short span of time as a result of the application of high yielding varieties of seeds and chemical fertilizers".

However the term "Green Revolution" is applied to the period from 1967 to 1978. The introduction of high yielding varieties of seeds especially rice and wheat and the application of modern agricultural techniques, increased use of chemical fertilizers and irrigation are known collectively as the Green revolution, which provided the increase in production needed to make India self - sufficient in food grains, thus improving agriculture in India. Norman Borlaug has been hailed as the "Father of the Green revolution" but M.S.Swami Nathan is known as the "Father of the Green Revolution in India"

Objectives of the study

(1) To find whether India attained inclusive growth during First Green Revolution
(2) To find how far we can attain inclusive growth during the second Green Revolution.

Basic Elements of Green Revolution

Green Revolution is the combined result of various measures taken by the Government. Some of these are

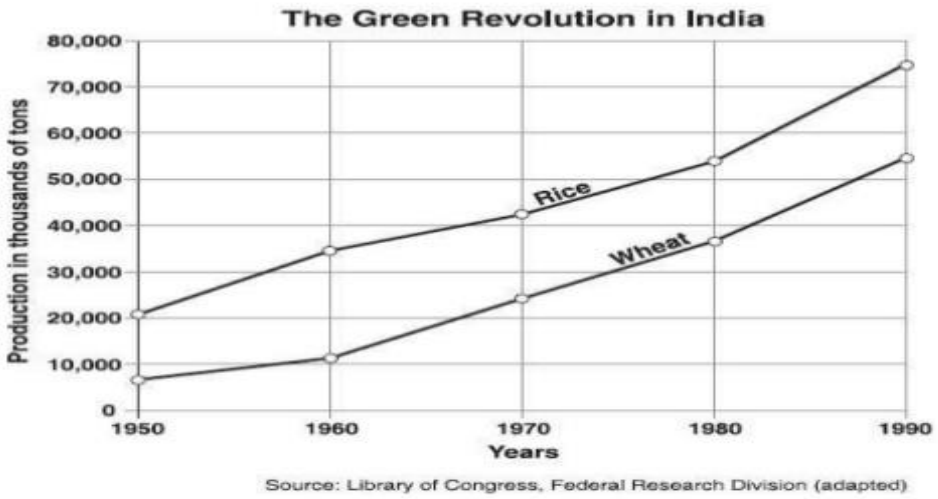
(1) Supply of New inputs. These includes the following:
    (a) Adoption of high-yielding varieties of seeds
    (b) Supply of chemical fertilizes
    (c) Expansion of irrigation facilities
    (d) Plant protection and pest control
    (e) Development of infrastructure
    (f) Use of Machinery
(2) Multiple cropping programme
(3) Provision of Agricultural credit
(4) Incentive prices
(5) Development programmes for small and Marginal Farmers.

Using seeds with superior Techniques

This was the scientific aspect of the Green Revolution. The Indian council for agricultural Research was re-organized in 1965 and then again in 1973. It developed new strains of high yield value (HYV) seeds, mainly wheat and rice but also millet and corn. The most noteworthy HYV seed was the K68 Variety of wheat. The credit for developing this strain goes to Dr. M.P. Singh who is also regarded as the hero of India's Green Revolution.

Result/Evaluation of Green Revolution:

1. Statistical Result:



Success of the Green revolution

1. As a result of Green revolution, India become the world's biggest agricultural producer ie, a record grain output of 131 millions tons in 1978 -79.
2. The major achievement of the new strategy is to boost the production of major cereals, wheat and rice.
3. The crop area under HYV varieties grow from 7 percentages to 22 percent of the total cultivated area during the 10 years of the Green Revolution.
4. Green Revolution results increase in irrigation and the water stored was used to create hydro-electric power. This in turn boosted industrial growth, created jobs and improved the quality of life of the people in villages.
5. Green Revolution helped India to pay back all loans and this improved India's credited worthiness in the eyes of the lending agencies.
6. Green Revolution has resulted in the over-all rural development ie, growing income of people in rural areas has encouraged various types of construction activities.
7. Green Revolution has saved the foreign exchange which was paid for the import of food grains
8. The new technology and modernization of agriculture as a result of Green revolution have strengthened the linkages between agriculture and industry.

Does the Green Revolution provide Inclusive Growth

The first Green revolution does not provide inclusive growth because its benefits prevail only in certain selected areas and the rest of the country is not yet suitable for advanced technology. What is, therefore, wanted is the evolution of a low-cost technology which can be adopted small farmers and which can use and exploit the local resources.

The following are some of the defects of First Green Revolution:

(1) The spectacular rise in food grain production has taken place since the 1960s in Punjab, Hariyana, Western U.P and in some selected districts of Andhra Pradesh, Maharashtra and Tamilnadu. In other words, the already better off areas have made their economic position still better. This has initiated a process of unbalanced growth in India.
(2) It has been observed that in the present rural set-up of co-operative societies and rural banks, it is the big farmer who is able to secure a loan at low rate of interest. The small farmer who wields very little intensive in the village has to borrow from the village money-lender at exorbitant rates of interest. This introduces a difference in the real price of inputs to the large and the small farmers, obviously to the disadvantage of the latter.
(3) The new agricultural strategy necessitated heavy investment and thus they are beyond the capacity of small and medium farmers. Consequently, the new agricultural strategy has helped the growth of capitalist farming in India and has led tp concentration of wealth in the hand of the top 6 percent of the rural population. The poor and Marginal peasants have not directly benefited from green revolution.
(4) The Green revolution caused by the new strategy was initially limited to wheat, Maize and bajra only. The major crop of India ie, rice, responded to the impact of the high - yielding varieties much latter. Progress in major commercial crops viz, oilseeds, cotton and jute is very slow.
(5) Technological changes have contributed to widening the disparities in income between different regions, between small and large farms and between landowners on the one hand and landless labourers and tenants on the other.
(6) The Green revolution, however 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 whether the Green revolution was really a long term achievement.
(7) The new strategy has created three kinds of conflicts, namely, between large and small farmers, between owners and tenant farmers and between employers and employees on agricultural farms.

In short, the first Green revolution does not provide an inclusive growth among agricultural workers and therefore it cannot be considered to be a 100 percent success

Second Green Revolution

A second Green revolution in India is possible but it must be based on integrated approaches considering entire farming system. It is on 23rd April 2013 in a Co-ordinated effort to double agriculture output over the next few years. M.S. Swaminathan is known as the Father of second Green Revolution. The year 2004 is somewhat termed as second Green Revolution in India, it is also known as Rainbow revolution. It mainly deals with increase in production for next generation. His developmental framework must guarantee inclusive growth (considering those who neither have land or assets)

Aims and strategy of second Green Revolution

1. Double the Food grain production
2. Sustainable use of natural resources
3. Increase the nutritional quality of conventional food grains
4. Proper and improved crop Management practices
5. Enhanced use of irrigation water
6. Spread the benefit of Green Revolution across the spectrum of farmers
7. Above all provide inclusive growth in the field of Agriculture

National Commission on Farmers

Due to the failure of first Green Revolution for providing inclusive growth this commission during Second Green Revolution has made recommendations which promise to rejuvenate agriculture and thereby improve the condition of millions of farmers. “Farmer” includes landless agricultural labourers, tenants, small,marginal and sub - marginal cultivators

Statement of the problem of Farmers

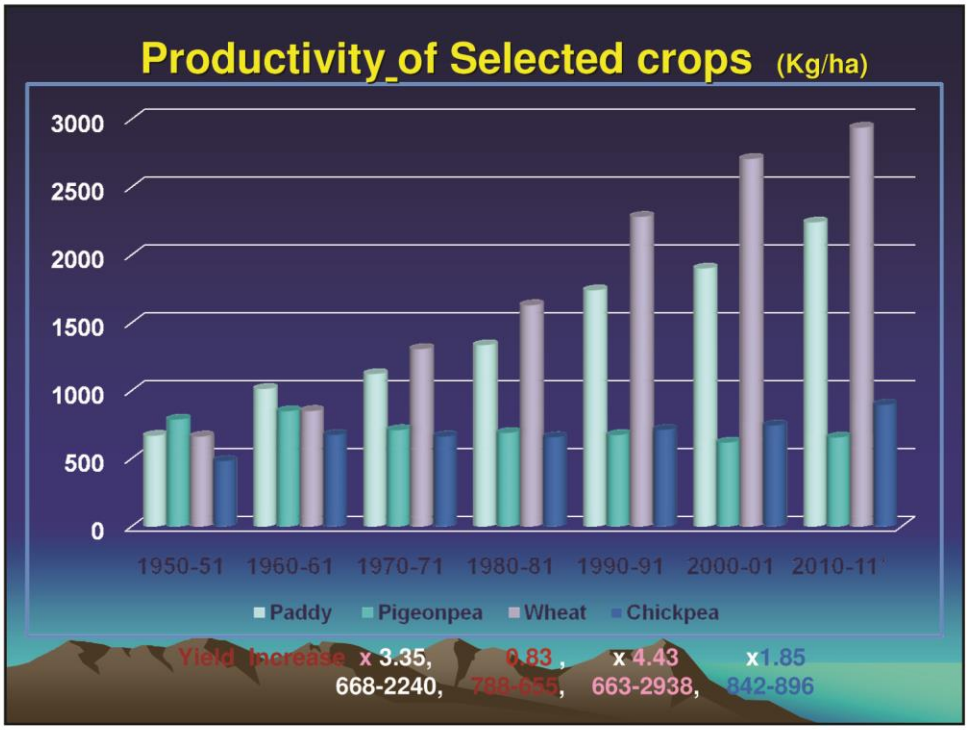
Farmers have to face the fury of nature in the form of drought, unseasonal and heavy rain which causes extensive damage to crops. Institutional support to small farmers is also weak. As a consequence, small farm families commit suicides and the number of suicides has been growing in India during the last five years.

Strategy to Improve the economic condition of Farmers

Outlining the basic philosophy of the national commission on Farmers, the recommendations emphasize the need to increase farm productivity and profitability in perpetuity without ecological harm. For this purpose, it would be essential to bridge the gap between potential and actual yields in agriculture. This will require the intensive introduction of mutually reinforcing packages of technology, services and public policies. This AGRICULTURE RENEWAL ACTION plan has five components which include the following.

(1) Soil health enhancement
(2) Employment of water harvesting
(3) Enlarging credit at lower rates
(4) Widening and dissemination of new technology
(5) Improving infrastructure through marketing.

The following graph shows the productivity of some selected crops during the period of Second Green Revolution.



National Commission on Farmers and second Green Revolution

Inaugurating the 93rd Indian science congress on June 3,2006, prime Minister Monmohan singh added two more components (a) application of science and biotechnology to the improvement of seeds and utilization of herbal and other plants; and (b) application of science to animal husbandry to improve productivity of livestock and poultry. It may however be mentioned that these two components were already covered by the National Commission on Farmers.

Although, we have given a call for a "second Green revolution", the reason for first green revolution has out of stream are two. First, it did not benefit dry land farming. Second it was not scale neutral and had thus benefited only large farmers and big farmers. This implies that although production of food grains and other crops substantially improved in India but the spread of green revolution in reducing poverty remained rather limited. It is due to this reason that it is now being argued that the second Green Revolution should concentrate on the small and Marginal farmers.

Inclusive Growth through second Green revolution

The Eleventh Five year plan emphasizes the need for promoting "Inclusive Growth". If the dream has to be translated into reality, then as indicated by the National commission on Farmers, the second Green Revolution should specifically address the problem of marginal and small farmers so as to provide them income security. This can happen only if small and Marginal farmers are treated as partners in development in the second Green Revolution, rather than as mere beneficiaries of some government programmes. For this purpose, the process of implementation of the policies enunciated by National Commission on Farmers should by special focus on improving the lot of small and marginal farmers.

By encouraging co-operative joint farming, the lot of the small and marginal farmers can be improved. Since 93 percent of agriculture holdings belong to small and Marginal Farmers, the strategy of co-operative joint forming, if followed sincerely, can make an effective contribution to improve the economic condition of the small and marginal farmers.

Due to second Green Revolution, the rate of capital formation in agriculture has increased from 10.2 percent in 2003-04 to 12.5 percent in 2006-07. Wheat production in 2007-08 rose by 3.4 percent to a record 78.4 million tonnes, rice production was at 96.4 million tonnes, up from the previous fiscal's 93.4 million tones. Oilseeds production soared by 18.7 percent to touch a record 28.8 million tonnes. The production of pulses was also at a record of 15.1 million tonnes, growth of 6.4 percent. Cotton production in fiscal 2008 expounded by 14 percent to a record 25.8 million bales (one bale equals to 170kg). coarse cereals production grew to 40.7 million tonnes (from 33.9 million tonnes in 2007) and maize was up at 19.3 million (from 15.1 million tonnes). In short, starting with food grains production of about 51 million tonnes in 1950-51, today we have achieved an all time record harvest of 231 million tonnes.

M.S Swaminathan, also known as the Father of the Green revolution, advocates an "Ever Green Revolution" in agriculture to ensure sustainability in the availability of food and to maintain sufficient buffer stock at all times. Increasingly, there are calls for a second Green revolution in India, to boost productivity and to meet the growing needs of an economy expanding at between eight and nine percent per annum. With the sharp decline in poverty, eating habits of the formerly poor change dramatically; they begin consuming grains. Naturally agricultural production increased along with balanced growth in the second Green Revolution.

Conclusion

The second Green Revolution to boost food- grain output in India to 400 million tons in the next 15 years is the need of the hour. It also helped the evolution of a low cost technology which can be adopted by small farmers and which can use and exploit the local resources. Agriculture growth would also depend upon technological inputs relating to water management systems, better seeds and farming practices. The continuing investments being made in the sector will indeed help to usher a new era in agriculture.

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