Policy Concerns Of Second Green Revolution: A Comprehensive Analysis

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Abstract

Green revolution was a technological breakthrough in the history of Indian agricultural sector which helped India to achieve food security. But the input package of the new strategy only aimed at bulk quantity of output. Therefore, we have to forego several factors including equality, sustainability, environmental quality etc. Now this is the time to think about a Second Green Revolution based on sustainability and the paper analyses the policy concerns of Second Green Revolution in a comprehensive way.

Key words: Green Revolution, policy concerns, agriculture sector, sustainability

INTRODUCTION

Before the arrival of Britishers, India had a unique agricultural system which was characterized by self-sufficient villages. But the British administration had extremely distorted Indian agriculture sector. Finally, at the time of independence the sector became stagnant and was characterized by feudal relations and primitive technology. From the first five-year plan itself policymakers tried to bring back the agricultural sector into the main stream of the economy. However, several economic and political reasons led India to the brink of food crisis in 1960s. Thus, country adopted New Agricultural Strategy, commonly known as Green Revolution. Now our food grain production is in a safe level. We have reached the landmark of 250MT output in 2011 – 2012. However, primary sector of the economy faces certain
challenges. First of all, agriculture contributes least to the GDP while it accommodates a major part of the labour force. The share of agriculture in employment is 48.9 per cent of the workforce while its share in the Gross Domestic Product (GDP) is 17.4 per cent in 2014-15 (Economic Survey 2015 – 16).

In addition to this disconnection between the share in GDP and share in employment, the primary sector faces several other problems like climatic change, regional disparities, environmental sustainability etc… All these are the limitations of first green revolution. Now the time has come for a second green revolution based on sustainability. The study analyses the policy challenges of the Second Green Revolution on the basis of contemporary issues in Indian agriculture.

**First Green Revolution: An Overview**

New Agricultural Strategy introduced by the government of India to tackle the severe food crisis in 1960s is commonly known as Green Revolution. The Strategy was based on package of inputs consists of High Yielding Varieties of Seeds, chemical fertilizers, mechanization, irrigation, credit facilities and market incentives.

Government launched specific programmes like Intensive Agriculture Development Programme (IADP), Intensive Agriculture Area Programme (IAAP) in the selected states to implement the new agriculture strategy. Punjab was selected to be the first state to try the new crops because of its reliable water supply and a history of agricultural success. Later it was spread to other states like Haryana and Uttar Pradesh. Thus, country started to follow better agricultural practices based on modern technology instead of primitive technology-based farming.

The seed – fertilizer – water package was the main component of the first green revolution. The demonstration effect made by HYV seeds among the farmers increased the use of HYV seeds. The land under HYV seeds rose from 1.89 million hectares in 1966 – 67 into 56.18 million hectares in 1986 – 87. Along the HYV seeds, to accelerate the growth rate chemical fertilizers and pesticides were introduced and government supported farmers by providing adequate price policy and
credit facilities in the form of Minimum Support Price and other initiatives. Integrated use of all these factors increased the agriculture production, productivity and yield.

**Achievements of Green Revolution**

Green Revolution has empowered the economy to stand on its own feet in the case of food grains. It converted the Country from begging bowl to grain bowl. Food grains production rose from 52 MT in 1951 – 52 to 264.77 MT in 2013 – 14. According to the FAOSTAT 2013, India occupies second place in wheat and rice production and first in millet production. All these have an obligation to the Green Revolution. The major achievements of Green Revolution are listed below.

- India acquired self-reliance in the case food production. Now the country can feed its own population without depending on others and green revolution enabled as to maintain a buffer stock of food grains.
- There was a quantum jump in the agricultural productivity. Yield per unit improved by 30 percent from 1947 to 1978.
- Due to the Minimum Support Price programme introduced by the government, the farmers were able to receive better remunerative prices than before.
- Short maturity period of the HYV seeds have enabled the farmers to adopt multiple cropping which also increased the productivity and output.

Thus, the Green Revolution re-established the significance of the agricultural sector in the Indian Economy.

**Unwelcomed Results of Green Revolution**

Even though the Green Revolution was one of the successful movements implemented by the government of India, it led to the certain unwanted results in the economy as given below.

1. Green revolution was concentrated only in the certain rich states like Punjab, Haryana, Western parts of UP etc. which in turn results in the regional disparities between states.
2. It created inequalities among the farmers also. The major beneficiaries of the Green Revolution were large farmers. They
got input package and financial support rather than that of small and marginal farmers.

3. Like this there is inequality in crops also. Country failed to provide HYV seeds of all crops. Indian Green Revolution was mainly on wheat and rice.

4. It has created ecological imbalances. Since the nutrient requirements of the HYV Seeds are very high, the nutrient content of the soil has to be replenished after each cultivation.

5. Pollution of the environment due to the excessive use of chemical fertilizers and pesticides.

Even though the Green Revolution was a technological breakthrough in the history of the Indian economy, it created certain disadvantages especially in the environmental ground.

**Need for Second Green Revolution**

Today India is the one of the fastest growing economies in the world. Agricultural sector plays a major role in its journey towards development by providing livelihood to the half of its work force. But the share of the primary sector in the GDP is far below than its counterparts. That means the development strategy including the Green Revolution followed by the economy has failed to bring the agriculture into the main stream. In addition to these we have to ensure sustainable development also. All these point out a Second Green Revolution.

**Policy Concerns of Second Green Revolution**

There are several issues which have to be identified by the policy makers while framing Second Green Revolution. Attainment of the food self-sufficiency was the major aim of First Green Revolution. Now the situation changed and the ‘policy mantra’ should address those issues which we missed in the FGR. The biggest challenges that have to be cleared by the SGR are described below.

**Contribution to the GVA:** In the initial years of the independence more than fifty percent of the Indian GDP was from agricultural sector. In 1980 - 81 it was declined to 39.7 percent and further decreased to 24.6
percent in 2000 – 01. The share was only 16.3 percent in 2014 -15. Table 1.1 gives the contribution of various sectors to the GVA.

Table 1 : Percentage Share of GVA at 2011-12 Prices

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</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>18.5</td>
<td>17.8</td>
<td>17.5</td>
<td>16.3</td>
<td>15.4</td>
</tr>
<tr>
<td>Industry</td>
<td>32.5</td>
<td>31.9</td>
<td>31.6</td>
<td>31.2</td>
<td>31.3</td>
</tr>
<tr>
<td>Service</td>
<td>49</td>
<td>50.2</td>
<td>51</td>
<td>52.5</td>
<td>53.4</td>
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</tbody>
</table>

Source: Agricultural Statistics, 2016

But in accordance with these there was no significant decline in the employment share of agriculture sector. Almost 50 percent of the workforce still depends on the same for their daily bread. The share of agricultural labourers in total workforce is given in the table 2.

Table 2: Share of Agricultural Labourers in Total Workforce

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage of Share</th>
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<tbody>
<tr>
<td>1951</td>
<td>69.7</td>
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<tr>
<td>1961</td>
<td>69.5</td>
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<tr>
<td>1971</td>
<td>69.7</td>
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<tr>
<td>1981</td>
<td>60.5</td>
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<tr>
<td>1991</td>
<td>59</td>
</tr>
<tr>
<td>2001</td>
<td>58.2</td>
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<tr>
<td>2011</td>
<td>54.6</td>
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</tbody>
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Source: Agricultural Statistics, 2016

Table 1 and 2 reveals that 17 percent of the national income should satisfy the needs of 50 percent of the population. This reveals the exclusive nature of the economic growth. Besides this it shows the inefficiencies of labour intensive technology followed by the Indian agriculture sector. Hence the foremost challenge of the Second Green Revolution is to increase the share of primary sector in the GDP.

Regional Equality
The lopsided implementation of the First Green Revolution, especially in the states of Punjab, Haryana and parts of Utter Pradesh resulted in
the regional disparities among the states. The eastern states like Assam, Mizoram, and Meghalaya etc… are still today following the traditional agricultural practices and not fully utilizing their available natural resources. According to the agricultural statistics published by Ministry of Agriculture shows that UP occupies first place in the food grain production in 2014 – 15 with 42.47 MT followed by Punjab with 27.46 MT. Ministry had given the list of states which contributed a minimum quantity of food grains to the total quantity and the only eastern state which got a place in the list is the Assam with 5.06 MT. All other states have a negligible share in the total production. Like this another factor which shows the inequality in the agricultural practices is the irrigated area. More than 70 percent of the total cropped area is under irrigation in the states of Punjab, UP and Haryana. But in most of the southern and eastern states it was below 35 percent. This difference can be seen in the usage of almost all agricultural inputs. Therefore, the Second Green Revolution should focus on regional equality or the balanced development of all the states.

**Small and Marginal Farmers**

Another challenge faced by the Second Green Revolution is to include the small and marginal farmers who were neglected by the First Green Revolution. Without the development of the small and marginal farmers there will be no improvement in the Indian agriculture sector. Because more than 80 percent of the farmers belong to this category and they occupy an area share of more than 40 percent of the total cultivated area. As the First Green Revolution gave more importance to the large-scale farmers, there is a disparity among the farmers. The Second Green Revolution should frame in such a way as to bring equality between these two categories.

**Price Policy**

Minimum Support Price was introduced by the government as a part of the First Green Revolution. But farmers do not realize the remunerative price due to the limited reach of the MSP. In many States the existing price policy ensure only a small fraction of the price paid by the final
consumer to the farmer. This should be changed and the farmers should get adequate remuneration.

**Ware Housing Facilities**
Another policy concern of Second Green Revolution is to develop adequate storage facilities in the economy. Due to lack of storage facilities, farmers are forced to sell their output at existing price. A bulk quantity of crops became waste and it is estimated that the quantity of output wasted by us is just equal to the quantity consumed by the European countries. Thus, it is a core area where the government have enough space to make investment.

**Diversification of Crops**
High Yielding Varieties Seeds were the back born of the First Green Revolution. But it was mainly concentrated on wheat and rice, even though the second wave of Green Revolution introduced HYV seeds of other crops. Yet another challenge of Second Green Revolution is to launch HYV Seeds of principle crops in the Indian agriculture sector. We have to turn our attention to different varieties rather than food grains. We import a major portion of pulses and edible oil that we want. If can develop hybrid varieties of these items, it will help us to reduce our dependency on other countries. Second Green Revolution should produce nutritious food varieties to face the malnutrition issue facing our country. India still has the second highest number of undernourished people in the world. Thus, Second Green Revolution should transform our agriculture sector into ‘nutrition producing industry’. For this our researchers should develop HYV Seeds having nutrient contents and inbuilt immune system.

**Technological Change**
Technology plays a significant role in every development process. Yet another policy concern of Second Green Revolution is the proper use of technology. We have to make technological improvements which are suitable to the environment. There is a wide scope for post-harvest and processing technology in Second Green Revolution. But it is very
difficult to achieve technological development and environmental sustainability simultaneously.

**Sustainability**

The most important challenge faced by the global economy is the sustainable development. India is not an exemption to this. The increased use of chemical fertilizers and pesticides during the First Green Revolution degraded the fertility of the soil and also increased the environmental pollution. Almost all the natural resources are showing a declining trend in its availability. It is estimated that by the year 2020 the demand for irrigation would exceed its availability by nearly 30 percent. It is the time to encourage judicious use of natural resources. Climatic change has also made unfavourable impact on agricultural sector. Yet today our agricultural sector is subject to vagaries of nature. Therefore, policy should promote technologically sound, environmentally non-degrading and socially acceptable use of country’s natural resources. Thus, Second Green Revolution should concentrate on different dimensions of development which ensures inclusive and sustainable development of the Indian agriculture sector.

**Measures for Second Green Revolution**

The authorities can adopt the following measures as a part of Second Green Revolution.

1. Government should launch special programmes to bring untapped resources in the backward states.
2. Introduce policies which are favourable to the marginal farmers rather than large land owners.
3. To ensure sustainable development organic farming can be adopted.
4. The excess use of chemicals has lost the fertility of soil. Now the farmers have to use more amount of input for the same level of output. Instead of chemical fertilizers the use of bio fertilizers should be encouraged. The microorganisms in bio fertilizers restore the soil’s natural nutrient cycle.
5. To improve the fertility of soil, polyculture farming practice can be adopted.
**Conclusion**

Green Revolution was one of the milestones in the history of Indian agriculture sector which led country to the self-sufficiency in terms of food grains. Now we completed almost 50 years of Green Revolution. Still now Indian agriculture sector is confronting many problems. Therefore, it is a right time to think about a Second Green Revolution. The Second Green Revolution should regenerate the unique agriculture system of the India and ensure sustainable development. It should bridge the development gap between states and assure what we have missed in the First Green Revolution. For this India want a transparent economic system which ensure the inclusive development of the all sections of the economy. Thus, the Second Green Revolution should ensure production by the masses in the place of mass production by a few in the First Green Revolution.

**References**