Green Revolution

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What is Green Revolution

- The term "**Green Revolution**" was first used in a speech on 8 March 1968 by the administrator of the U.S. Agency for International Development (USAID), who noted the spread of the new technologies - These and other developments in the field of agriculture contain the makings of a new revolution.

- The **Green Revolution**, or **Third Agricultural Revolution**, is a set of research technology transfer initiatives occurring between 1950 and the late 1960s, that increased agricultural production worldwide, particularly in the developing world, beginning most markedly in the late 1960s.The initiatives resulted in the adoption of new technologies, including high-yielding varieties (HYVs) of cereals, especially wheat and rice, in association with chemical fertilizers and agro-chemicals, and with controlled water-supply (usually involving irrigation) and new methods of cultivation, including mechanization.

Features of Green Revolution

- **Revolutionary:** - The Green revolution is considered as revolutionary in character as it is based as new technology, new ideas, new application of inputs like HYV seeds, fertilizers, irrigation water, pesticides etc. As all these were brought suddenly and spread quickly to attain dramatic results thus it is termed as revolution in green agriculture.
- **HYV Seeds**: - The most important strategy followed in green revolution is the application of ***high yielding variety*** (HYV) seeds. Most of these HYV seeds are of dwarf variety (shorter stature) and matures in a shorter period of time and can be useful where sufficient and assured water supply is available. Thus seeds also require four to ten times more of fertilizers than that of traditional variety.

- **Multiple Croping**: - The new multiple croping plan aims at the development of short duration varities of rice, wheat and vegetables for new crop rotations.
- **Minor Irrigation**: - Minor irrigation also constitutes of the new strategy of agricultural development. It ensures better use of land and ground water through multiple cropping pattern.
- **Use of Fertilizers**: - The increase in the consumption of fertilizers is more significant. It is used for accelerating the growth of agricultural output, especially in short run.
- **Plant protection**: - Protecting plants by the use of pesticides, insect killers, rodent killers, etc.
- **Modern Equipment and Machinery**: - Modern machinery and implements like tractors, harvesters, pumping sets, tube wells, etc are being used and are replacing the use of bullocks wherever possible. Being time saving, use of modern machinery in agriculture is conducive to multiple cropping.

- **Support Prices:** - In 1965 the agricultural price commission and The Food Corporation of India were set up in pursuance of this policy for the purpose of fixing prices of food grains.
- **Processing, Storage and Marketing Facilities:** - These facilities are being improved and extended so that the increase in agricultural production is put to profitable use.
- **Improved Credit Policy:** - Farm finance is being given more attention so that the farmer is not handicapped is efficiently carrying his operations.
- **Farmers training and education:** - The ICAR entrusted with the task of farmers education and agricultural training. Also, it gave the platform for research and development in the field.

Arguments in Favour of Green Revolution in India

- India being a vast agricultural country the adoption of intensive approach is the only way to make a breakthrough in the agricultural sector within the shortest possible time.
- Considering the food crisis faced by the country during 1960s it was quite necessary to adopt this new strategy for meeting the growing requirement of food in our country.
- The introduction of HYVP programme has been able to raise the agricultural productivity significantly, thus this new agricultural strategy is economically justified.

- The agricultural inputs required for the adoption of new strategy is scarce thus it would be quite beneficial to adopt this strategy in a selective way only on some promising areas so as to reap maximum benefit from intensive cultivation.
- Adoption of new strategy has its spread effect. Reaping a good yield through HYVP would induce the other farmers to adopt this new technique. Thus due to its spread effect the overall productivity of Indian agriculture would rise.
- Increased agricultural productivity through the adoption of new strategy will have its secondary and tertiary effects. As the increased production of food through HYVP would reduce food imports and thus release scarce foreign exchange for other purposes. Moreover, increased production of commercial crops would also lead to expansion of agro-based industries in the country, especially in the rural areas.

Impact of Green Revolution

- **Increase in Agricultural Production: -** Due to the adoption of new agricultural strategy the volume of agricultural production and productivity has recorded manifold increase. The production of wheat, rice, maize and potatoes has increased substantially. Total production of foodgrains in India increased from 81.0 million tonnes (annual average) during the Third Plan to 264.8 million tonnes in 2013-2014.

- **Increasing Employment Opportunities: -** The introduction of new agricultural strategy has led to considerable expansion of agricultural employment. Due to the introduction of multiple cropping, job opportunities in the rural areas has also expanded as the demand for hired workers required for farm activities increased simultaneously.

- **Strengthening the Forward and Backward Linkages: -** Although traditional linkages between agriculture and industry were existing since a long back, but green revolution has strengthened the linkages. Strong forward linkage of agriculture with industry was noticed even in the traditional agriculture as agriculture supplied various inputs to industries. But the backward linkage of agriculture to industry, i.e., in the form of agriculture using finished products of industry, was very weak. But introduction of modern technology to agriculture has raised a huge demand for agricultural inputs now produced and supplied by industries.

- **Inter-Personal Inequalities:-** Green revolution has created some impact on inter-personal inequalities. But economists; are divided on this issue. Some micro level studies reveal that inter-personal inequalities have enlarged but some other studies show that the degree of inter-personal inequalities have either narrowed down or remained neutral.

- **Increase in Regional Disparities:-** Introduction of new technology in agriculture has widened the regional disparities as only some regions well endowed with resources and irrigation potential have benefitted most from the introduction of modern technology. The coverage of green revolution has been raised from a mere 1.89 million hectares in 1966-67 to only 71.3 million hectares in 1994-95 which accounts to nearly 42 per cent of gross cropped area of the country.
- **No response from Small and Marginal Farmers:-** Small and marginal farmers in India could not be able to adopt new strategy due to their poor financial condition and poor creditworthiness. Majority of rural household having small size of land or no land has derived negligible benefit from this new technology.
- **Change in Attitudes:-** Green revolution has contributed favourably to change the attitudes of farmers in India. Agricultural operation has enhanced its status from subsistence activity to commercial farming due to the adoption of new strategy.

- **Market Oriented: -** Introduction of new technology in agriculture has transformed the farmers market oriented. Indian farmers are mostly depending on market for getting their inputs as well as for selling their output. Moreover, farmers are also depending much on institutional credit available in the market to meet cost of adoption of new technology.
- **Unwanted Social Consequences:-** Green revolution has also raised certain unwanted social consequences. Various socio-economic studies have confirmed these consequences. Green revolution paves the way for transforming a large number of tenants and share-croppers into agricultural labourers due to large-scale eviction of tenants by large farmers as they find large-scale farming is highly profitable.

Achievements of Green Revolution

- Total production of foodgrains in India has been facing wide fluctuations due to vagaries of monsoons. Inspite of these fluctuations, total production of foodgrains rose from 82 million tonnes in 1960-61 to 130 million tonnes in 1980-81 and then to 213.5 million tonnes in 2003-04 and then increased to 264.8 million tonnes in 2013-14.

TABLE 7.9. Progress in Foodgrains Production *(million tonnes)*

Item	*1960-61*	*1980-81*	*2013-14*
Rice	35	54	106.5
Wheat	11	36	95.9
(*a*) Total cereals	69	119	245.5
(*b*) Total Pulses	13	11	19.3
(*c*) Total foodgrains (*a* + *b*)	82	130	264.8

- The new agricultural strategy was very much restricted to the production of foodgrains, mostly wheat and rice. Thus, the commercial crops like sugarcane, cotton, jute, oilseeds could not achieve a significant increase in its production.

TABLE 7.10. Production of cash crops in India

Items	*1960-61*	*1970-71*	*1980-81*	*2013-2014*
Sugarcane (m. tonnes)	110	126	134	350.0
Cotton (m. bales)	6	5	7	36.7
Jute & Mesta (m. bales)	4	6	8	11.6
Oilseeds (m. tonnes)	7	10	9	32.9

- Table reveals that the production of sugarcane and other cash crops recorded some increase during last five decades but this increase cannot be termed a significant one. Thus, the green revolution was very much confined to mainly wheat production and its achievements in respect of other food crops and cash crops were not at all significant.

Weaknesses of Green Revolution

- Adoption of new agricultural strategy through IADP and HYVP led to the growth of capitalist farming in Indian agriculture as the adoption of these programmes were very much restricted among the big farmers, necessitating a heavy amount of investment.
- The new agricultural strategy failed to recognise the need for institutional reforms in Indian agriculture.
- Green revolution widened the disparity in income among the rural population.
- New agricultural strategy alongwith increased mechanisation of agriculture created a problem of labour displacement.
- Green revolution widened the inter-regional disparities in farm production and income.
- Green revolution has led to some undesirable social consequences arising from incapacitation due to accidents and acute poisoning from the use of pesticides.


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