

I. AGRICULTURE

Land Reforms [Institutional Reforms]

Land reforms or institutional reforms aimed at reducing inequality in Indian agriculture, and included the following actions by the government:

(1) **Abolition of Intermediaries:** Intermediaries (between the state and the actual tiller of the soil), popularly known as *zamindars* were abolished. Ownership rights were given to those who actually cultivated (or tilled) the soil. As a result, the government intended to achieve two objectives:

(i) Stop exploitation of the cultivators by the *zamindars*.

(ii) Give incentives to the cultivators to make improvements on land as its owners.

The abolition of intermediaries meant that some 200 lakh tenants got ownership rights and they came into direct contact with the government for the payment of land revenue.

(2) **Ceiling on Land Holdings:** With a view to promoting equality in the distribution of land, ceiling were imposed on the holding-size.

Ceiling on holdings defined/specified the maximum size of cultivable land that an individual or a family could own.

The surplus land (over and above the ceiling limit) was resumed by the government and redistributed among small holders or landless labourers.

(3) **Consolidation of Holdings:** With a view to reducing fragmentation, consolidation of holdings was accorded a high priority.

Consolidation is a practice to allot land to the farmer at one place for his scattered holdings here and there. It saves the cost of cultivation.

By 2004, more than 1,633 lakh hectares of land was brought under consolidated holdings.

(4) **Regulation of Rent:** To put an end to excessive and illegal extortions from the cultivators, rents were regulated. Generally, these were not to exceed 1/3rd of the value of crop.

(5) **Cooperative Farming:** Cooperative farming was promoted to enhance bargaining power of the small holders. Collectively, the farmers could buy inputs at a lower price and sell their produce at a higher price.

Partial Implementation of Land Reforms

Despite the noble objective of land reforms, these reforms were only partially implemented in the country. These were effectively introduced only in the states of West Bengal and Kerala. In most other parts of the country, land reforms were only propagated and not effectively implemented. This was because of two reasons:

(i) The *zamindars* in most cases managed to evict the tenants, to show themselves as cultivators and legitimate owners of the soil.

(ii) The landlords challenged the land ceiling legislation in courts which provided the landlords enough time to evade the Ceiling Act. They managed to register their surplus land in the name of their close relatives.

Technical Reforms: HYV Technology and Green Revolution

The problem of low productivity was tackled by way of technical reforms. These reforms evolved around HYV (High Yielding Variety) seeds. Use of HYV seeds along with chemical fertilisers, insecticides and pesticides led to substantial rise in the level of agricultural output. The rise in output was so significant that it was called 'Green Revolution'.

The term 'Green' refers to 'crops' and 'Revolution' refers to 'spurt' (significant rise). Together, these terms imply a spurt in crop production. It started happening in India in the year 1967-68. In the year 1967-68 itself, food grain production increased by nearly 25 per cent. India became self-sufficient in the production of food grains and successfully broke the vicious cycle of agricultural stagnation.



Green Revolution: A Revolutionary Rise in Productivity

Elements of HYV Technology

HYV technology includes four principal elements, as under:

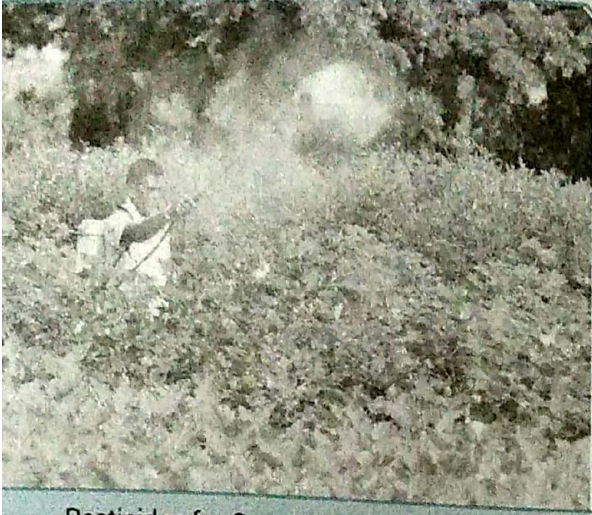
(1) **Use of HYV Seeds:** Since 1965, High Yielding Variety seeds started replacing the conventional varieties.

HYV seeds gained popularity for wheat, bajra, rice, maize, jowar, and cotton, in particular. It is these seeds which led to a substantial rise in agricultural output.



High Yielding Variety Seed

(2) **Use of Chemical Fertilizers:** Use of HYV seeds requires the use of fertilisers. As the use of HYV increased, so did the use of chemical fertilisers. The estimates of Fertiliser Association of India reveal that almost 272.28 lakh tonnes of chemical fertilisers were consumed in India during 2018-19.



Pesticides for Crop Protection

(3) **Use of Insecticides and Pesticides for Crop Protection:** Along with fertilisers, the use of HYVs also requires the use of pesticides to protect the crops against pests and diseases.

Fourteen Central Plant Protection Centres were set-up in this respect.

For crop protection, Integrated Pest Management Programme was adopted along with the adoption of HYV technology.

(4) **Expansion of Irrigation Facilities:** HYV seeds need to be deeply irrigated.

To cope with the need, several major and minor irrigation projects were launched across different parts of the country. It is significant that while in 1951, barely 17 per cent of land was under permanent means of irrigation, it increased to nearly 45 per cent during the plan period.

Two Distinct Phases of Green Revolution

Phase 1: Mid-60s—Mid-70s

During this phase, scope of Green Revolution was restricted largely to wheat and rice growing regions of the country. These included the states of Punjab, Andhra Pradesh and Tamil Nadu. This is because the HYV seeds require regular supply of water in addition to the use of fertilisers and pesticides in correct proportion. In the first phase, only the farmers who had financial resources to purchase the inputs were able to reap the benefits and therefore, the revolution was restricted to affluent areas of the country.

Phase 2: Mid-70s—Mid-80s

During this phase, the impact of Green Revolution became widespread, covering most areas of the country and larger number of crops.

During second phase, the government provided loans to the small farmers at a very low interest rate and subsidised fertilisers & pesticides, making the modern inputs accessible to the small farmers. As a result, green revolution covered the small landholders as well. Thus, it was owing to intervention by the government that the benefits of the green revolution accrued to the small farmers as well.

Gains of Green Revolution

Following observations highlight the benefits of Green Revolution:

- (1) **Spurt in Crop Productivity:** There has been a substantial jump in crop productivity.

To illustrate: Productivity of wheat was estimated at 3,421 kg per hectare in 2019-20 compared to 660 kg per hectare in 1951; of rice, it was 2,705 kg per hectare in 2019-20 compared to 665 kg per hectare in 1951; and of maize, it was 2,945 kg per hectare in 2019-20 compared to 704 kg per hectare in 1951.

Spurt in productivity has led to a structural shift in Indian agriculture. This has marked the end of long period stagnation in Indian agriculture.

- (2) **Substantial Rise in Acreage (Area under Cultivation):** HYV technology has significantly reduced the time lag between sowing and harvesting of crops.

Use of chemical fertilizers has eliminated the need for fallowing. Accordingly, double cropping has become possible. This has led to a substantial rise in gross area under cultivation.

In 1950-51, gross area under cultivation was 13 crore hectare which now has shot up to 19 crore hectare.

Fallowing

- It is a practice of leaving land as uncultivated for some time. So that, it regains its fertility.
- Fallowing was a common practice among the Indian farmers prior to the launch of HYV technology.

- (3) **Shift from Subsistence Farming to Commercial Farming:** A substantial rise in output (owing to increase in productivity and increase in acreage) has started generating marketable surplus. This has prompted the farmers to gradually shift from subsistence farming to commercial farming. This is a sign of growth and development.

Marketable Surplus

- It refers to surplus of farmer's output over and above his 'on-farm' consumption. Thus:
$$\text{Marketable Surplus of Wheat} = \text{Output of wheat} - \text{On-farm consumption of wheat (or expected consumption of wheat by the farmer's family during the year)}$$

This surplus is available to the farmer for sale in the market. Hence, called marketable surplus.
- By selling the marketable surplus he gets cash. He can use this cash to buy producer goods for further production and also to buy consumer goods for his current consumption.
- Marketable surplus is a sign of commercialisation of agriculture.

Buffer Stock in India

The concept of buffer stock in India was introduced in Fourth Five Year Plan. It refers to reserve of a commodity to be used at the time of emergencies. Government of India maintain buffer stock of food grains to:

- release food grains through Public Distribution System.
- meet emergency situations like crop failure, or a natural disaster.

(4) **Change in Farmers' Outlook:** Commercialisation of agriculture has caused a change in outlook of the farmers. Farming is no longer viewed as a source of subsistence; it is considered as a commercial venture as well.

(5) **Self-sufficiency in Food Grain Production and Buffer Stocks:** Increase in crop production (on account of increase in acreage and increase in productivity) led to self-sufficiency in food grain production. Spurt in production led to a fall in market price of food grains. Accordingly, even poorer sections of the society could comfortably fulfil their subsistence needs. Food grain production increased so substantially that it enabled the government to keep buffer stocks. These stocks are used to meet demand during lean seasons of farm supplies.

Gains of Green Revolution: Significant but not Sufficient

Or

Limitations of Green Revolution

Following observations highlight the limitations (failures) of Green Revolution in India:

- (1) **Limited Crops:** Revolutionary rise in output (due to green revolution) was confined mainly to the production of food grains (wheat and rice). There has been no similar rise in the production of pulses and commercial crops like jute, cotton, tea, etc.
- (2) **Un-even Spread:** Spread of Green Revolution was not uniform across all regions. In states like Punjab, Haryana, Maharashtra and Tamil Nadu, it made a remarkable impact. But in Eastern UP, Bihar, Madhya Pradesh and Odisha, its impact was relatively insignificant.
- (3) **Limited Farming Population:** The bulk of the farming population in India consists of small and marginal farmers. The gains of

Green Revolution eluded these farmers. Because, HYV technology required expensive inputs which were beyond the reach of marginal farmers.

However, rich farming population (though small in number) happens to own the bulk of farming area in India. Which is why the results of Green Revolution were found to be impressive in terms of overall rise in output.

- (4) **Economic Divide:** Despite aid by the government in terms of subsidised inputs, HYV technology remained beyond the reach of most marginal holders. Consequently, the gulf between rich and poor tended to swell over time.

Briefly, gains of Green Revolution were found to be significant, but not sufficient. Green Revolution failed to bridge the gap between the rich and the poor in the rural India. Indeed, HYV technology, while it scaled up income of the rich farmer, it failed to address issues of the small and marginal holders for whom adoption of new technology remained a far cry owing to their poverty. Thus, even the revolutionary phase of agricultural expansion failed to achieve 'Equity'.