



## AN APPRAISAL OF GREEN REVOLUTION AND ITS SOCIAL IMPLICATIONS IN INDIA

**Dr. Avinash N. Shelar**, Assistant Professor, Department of Geography, MES' Abasaheb Garware College, Pune 4

### ABSTRACT

*Agriculture in India is the major source of livelihood for more than 52% population. Around 43% of agricultural land is used for cultivation and it contributes about 15% in nation's GDP. After the independence in many parts of India, existing agriculture and its allied activities were neither economically nor environmentally sustainable & continuously resulted in slow pace of food grain production. Huge dependence on nature and lack of technological advancement were major concerns for planners. Poverty and illiteracy of small and marginal farmers in India hindered the extension activities in agriculture. Up to the 1965 agricultural production in India was unable to satisfy country's need. Green revolution in this regard was found as a technological response to the food shortage which established India as one of the world's biggest agricultural producers. HYV or miracle seeds have brought real and substantial increases in production during the 1965's. Today India ranks second worldwide in farm output. After the announcement of new economic policy in 1991, thrust of economy shifted more to the secondary sector & quaternary services. Although the relative significance of agriculture has reduced considerably after the rapid development of other occupations such as mining, manufacturing, transport and trade, agriculture sector still retained its position and significance as far as GDP is concern.*

**Key words** - Green revolution, HYV, GDP, secondary sector, quaternary services

### INTRODUCTION-

Agriculture is one of major primary activity of human civilization and has been practiced since the time immemorial. The word agriculture is derived from the Latin words 'ager or agri' meaning soil and *culture* meaning, cultivation. Thus agriculture or farming can be described as the 'science and art of cultivation on the soil, raising crops and rearing livestock'. India with vast extensive plains, rich soils, wide climatic variety with adequate and aggregate rainfall combined with appropriate temperature range and long growing season supports solid base to agriculture. It plays a significant role in the Indian economy. Agriculture and its allied sectors accounted around 15% of Gross Domestic Products (GDP) and 50% of the workforce.

Agricultural development in India is always influenced by environmental, infrastructural, institutional and political factors. Agriculture development refers to efforts made to increase the farm production in order to meet the growing demand of increasing population. This can be achieved by increasing the cropped area, mechanization of agriculture, number of crops grown, by improving irrigation facilities, use of fertilizers, chemicals and high yielding varieties (HYV) of seeds. The ultimate aim of agriculture development in India is to increase the food security.

In the present research work an attempt has been made to study the drastic changes made by green revolution in agricultural production scenario of India and its social impacts with special emphasis on agricultural labourers.

**Objective of study –**

1. To study the social implications of green revolution in general and its impact on agricultural labourers.

**Methodology-**

Present research work is purely descriptive in nature. The data and material required for this research is secondary in nature and has been collected from valid sources. Variety of research papers in reputed journals, reference books and web sites are cited for the research work which is truly acknowledged.

**Emergence of green revolution in India-**

After independence as stated by Malthusian economies, population in India was increasing at much faster rate than food production. Although after 1947, area under cultivation was being increased, but it was not enough in meeting with the rising food demand. Due to which urgent need was raised to increase yield. The answer came in the form of the green revolution. The term green revolution was applied first to the period from 1967 to 1978, where dramatic food grain production was noted.

Green revolution owes its origin in findings of new dwarf variety of wheat seed by Dr. Norman Borlaug in Mexico (Khullar, 2000) while the term green revolution was first used by W.S.Gand in 1968. In India it was introduced during drought years of 1964-65 due to the efforts of Dr. S. Swaminathan. Initially, it made a great impact in Punjab, Haryana and western Uttar Pradesh in respect to wheat production and parts of Andhra Pradesh and Tamilnadu in respect of rice production. When High Yielding Varieties (HYV) seeds applied first in 1967-68, food grain production was 25% higher than production in 1966-67 (Khullar, 2000). This percentage rise was nothing less than revolution hence it was termed as green revolution. Phrase green revolution is generally used to describe the spectacular increase that took place during 1968 and continuing in the production of food grains in India (Hassar). Before 1967, efforts were largely concentrated on expanding the farming areas only without any innovations.

Double cropping, sometimes even triple cropping method was the primary aspect of green revolution where instead of one crop season per year, decisions were made to have two crop seasons per year. One season was depended on monsoon and another on huge artificial irrigation facilities. HYV, particularly wheat and rice with improved genetics was one of the scientific aspects of green revolution. Along with HYV seeds, improvement of surface and ground irrigation facilities, use of chemical fertilizers, insecticides, pesticides, consolidation of holdings, supply of agricultural credits, rural electrification, marketing facilities, formation of agricultural universities, and farm mechanization on huge scale were some of the major components of the green revolution (Khullar, 2000). Combination of all these components has changed the agricultural scenario of India. The crop area under HYV, grown from 7% to 22% during green revolution period which was resulted in a record grain output of more than 130 million tons in 1978-79. Green revolution has influenced the economy of India to a great extent and it is evident from many points like increase in agricultural production, improvement in prosperity of farmers, reduction in import of food grains, industrial growth, generation of employment in rural regions, change in attitude of farmers and most importantly self-sufficiency in food production.



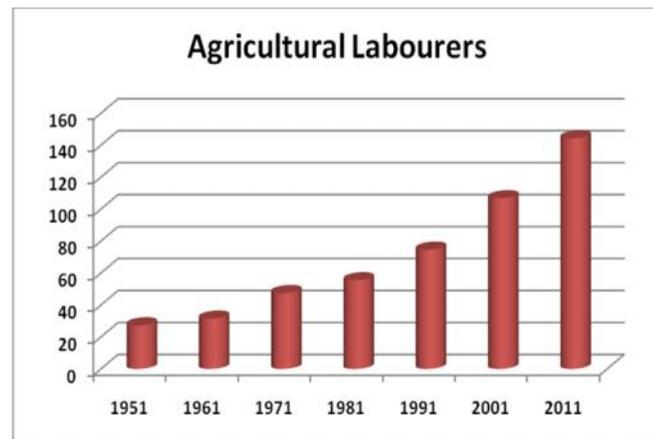
**Implications of green revolution on employment in agrarian sector-** Along with an appreciation of its positive impact on food grain production; it has created serious imbalance in the social, economic and environmental system (Rao, 1774; Kannan and Pushpangadam, 1988; shiva, 1991; Sharma, 2001). It is argued that there has been a mismatch between the social cost and benefits of green revolution. Intercrop imbalance, increased income gap between small, marginal and large farmers, increase in gap between irrigated and rainfed regions, regional disparities, increase in inter-personal imbalance, and most importantly unemployment are some of the major issues emerged due to the green revolution.

The effect of green revolution on agricultural employment has been a point of dispute since its arrival. Billings and Singh (1969) and many others has observed that rural labour requirements in north India increased as a result of new technology and invention in agriculture. Around 53% population of India is engaged in agricultural activities. The National commission on labor classifies agriculture workers into landless laborers and very small farmers whose main source of income, because of very small holding is wage employment. Landless labourers have two broad categories as permanent labourers attached to agricultural households and temporary or casual labourers. According to the census of India (2001), a person who works on another person’s land for wages in cash or kind or share be regarded as agricultural labour. Agricultural labourers do not get work on regular basis and for large periods remain unemployed. Average income of these workers is very low and their working conditions are very tiring and exhaustive in nature. Agricultural labour is most exploited and oppressed classes in rural hierarchy, which is facing the problems of unemployment as well as underemployment. After the independence workforce in agriculture sector is increased year by year and it is shown in table 1. It can be observed that in 1951 total agricultural labour in India was 27.3 million which rise up to 47.5 million in 1971 (Table.1). This was the striking period of green revolution in India. According to the statistics of registrar general of India, in 2011 there were 144.3 million agricultural labourers in India.

Agricultural Labourers (Million) in India		
Sr. No	Year	Total
1	1951	27.3
2	1961	31.5
3	1971	47.5
4	1981	55.5
5	1991	74.6
6	2001	106.8
7	2011	144.3

Table 1- Agricultural Labourers

Source- Registrar general of India (2011)



Since 1960, with the advent of high-yielding varieties (HYV) of crops and adoption of modern and improved farm mechanisms and practices, the regions where green revolution was introduced witnessed an unprecedented growth. As sufficient and reliable labour was not

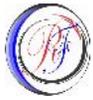


available, these areas were dependent on migratory labour. The influx of seasonal as well as permanent labour from outside regions has led to various socioeconomic problems. In India the labour migration is mostly influenced by social structures and patterns of development. Uneven development is the main reason of labour migration along with factors like poverty, land holding system, fragmentation of land, lack of employment opportunities, large family size and natural calamities (Baljindaer Kaur, J M Singh, B R Garg, Jasdev Singh, and Satwinder Singh, 2011). Ploughing, leveling, dewatering, farm bunding, weed control, fertilizers and organic manure applications, pest and disease control, threshing and winnowing are some the major farm operations for which men and women workforce is needed. Average number of days in traditional agriculture and during green revolution period changed significantly. Large scale mechanization put a great impact on the labour force, labour absorption and displacement. Due to the green revolution, average number of working days of labour lower down significantly. For instance in traditional agriculture for dewatering and organic manure application requirement of working hours was 64 and 32 of men which lower down to 6 for both operations due to the mechanization on large scale. For weed control, women working hours were 240 in traditional agricultural practices and it also came down up to 90 hours. The daily livelihood of agriculture labourers which depends on daily wages was affected due to this mechanization, which further led to poverty.

Although green revolution has significantly increased remunerative wage employment opportunities in certain pockets like Punjab, Haryana and western Uttar Pradesh, but in other parts it is found to be stagnated, which further cause to migration of labour to this part. Total workforce in agriculture including cultivators and agricultural labour was around 97 million in 1951 which gone up to 185 million in 1991. During the same period agricultural labourers increased from 27.3 to 74.6 million. Although with the advent of green revolution, wage rate increased but prices also increased considerably. Addition to this female agricultural labourers are generally forced paid less than male workers. Presently agricultural labour are getting more than 150/day under the *MGNREGA* in rural parts.

It was also observed that regional disparity and inter-personal inequalities are the major social problems in some parts of India came up due to the green revolution. Regional disparities in economic development at inter and intra-regional level increased during the period of green revolution. It was successful in selected parts of India but didn't found fruitful in the eastern regions much. It was observed that farmers having more than 10 hectares or more land benefited mostly as they have good financial resources to purchase farm machines, seed and fertilizers. Small and marginal farmers on the other hand were not in position to mechanize their small holdings. Hence indebtedness is another problem generated by this disparity among agricultural labourers due the absence of banking system in the rural areas. Small farmers preferred to take loan from moneylenders or landlords at the very high interest rate, which is now considered as one the biggest reason of farmer's suicide in India.

Indian agricultural is always suffered from variety of natural, socio-economic and infrastructural problems like uncertainty and inadequate monsoon, decreasing fertility of soil, concentration on cash crops, overuse of fertilizers, pesticides and lack of irrigation facilities, salinization of farm lands, small holdings etc. This has resulted in low agricultural production. In India, sustained uses of land without compatible, technological and



institutional changes have hindered the pace of agricultural development for considerably longer period. Green revolution was predicted as the finest solution in these conditions, unfortunately it lefts its positive impact in selected areas only. Now slow agriculture growth has become major concern for policymakers

**Measures taken for improvement of agricultural labourers-** Agricultural labourers are economically poorest, socially backward and deprived class of rural society. This class is mostly landless and depends on wage employment in agriculture. The practice of bonded labour has been condemned by the Indian constitution and abolished by act of parliament in 1976, but still reports of bonded labourers are existing in many parts. Resettlement of landless labourers by providing them with land is another step taken by the government. Consolidation of land holdings, abolishing Zamindari system, land reform and collective farming are some of the measures taken for the improvement of agricultural labourers. Abolition of bonded labour, provision of housing sites, various employment schemes like Integrated Rural Development Programme (IRDP), Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), Crash Scheme for Rural Employment (CSRE), National Rural Employment Jawahar Gram Samridhi Yojana (JGSY), National Food and Work Programme (NFWP) are introduced to provide employment.

**Conclusion-** India is vast country with varied physiographical, climatic and socio-economic conditions. Green revolution is not much successful in areas where famines like conditions. There are many places where people are still starving. Only few regions showed the best results of green revolution in terms of food grain production. Although the green revolution at some extent has failed in its social objectives, it has made India self-sufficient in food grain production. Now in various crops seasons, more than hundred food and non food crops are grown in India, which include cereals, pulses, fruits, vegetables, spices, oil seeds, fibers, drugs etc.

#### References-

- Baljinder Kaur, Singh J.M., Garg B.R., Jasdev Singh & Satwinder Singh (2011)- Causes and Impact of Labour Migration: A Case Study of Punjab Agriculture
- Kathryn Sebby (2010)- The Green Revolution and its Impact on Small Farmers in India
- Khullar D R (2000) – India: A Comprehensive Geography
- Padhi K. (2007) Agricultural Labour in India, A close look
- Registrar general of India (2011)
- Shelar A N (2016) - Relevance of Dr. B.R. Ambedkar's Views in Agricultural Development of India
- Shrivastava A K (2011)- Agricultural Census, Indian Experience
- Singh H P (2015)- Problems of Agricultural Labour in India
- Pocket book of Agricultural Statistics 2015, Government of India