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ORIGINAL ARTICLE

"Indian Agriculture and Economic Development with special reference to Green Revolution"

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Introduction: In Indian Economy the Agriculture is the prime and largest sector. The development in agriculture is an essential condition for the development of Indian economy. Agriculture provides food and raw materials as well as employment for large Indian population. Agricultural growth has direct impact on poverty eradication, compelling inflation and employment generation. But most of our agriculture was dependent upon rainfall and vagaries of the monsoons. In spite of the fact that nearly 70% of our population engaged in cultivation of land. Rapid growth of agriculture is, therefore, essential to achieve the objectives of Indian planning.

Objectives:

Major objective of this article as follows

1. To explain the role of Agriculture in economic development.

2. To examine the impact of green revolution on agricultural development

3. To examine the growth of agricultural production upto 1960-2010

4. To examine the growth of food grains production and cash crops.

Methodology:

The required data was collected from various secondary sources like books on Indian Economy, Handbook of statistics on Indian Economy. Charts, tables and average percentage are used for study.

Agriculture and Economic Development:

About the role of agriculture in economic development there are different views. But majority of economics is say's that, Agricultural development is first necessary for the economic development because the objectives of Indian planning is mostly related to Indian Agriculture for example 1) Self-reliance at the national level 2) Food security to individual households, 3) Equitable distribution of income and wealth, 4) rapid reduction of poverty levels. 5) Absorbing the growing labour force etc. These objectives achieved by the firstly through the agriculture

sector in can be boost the economy and economic development can be done. The agricultural development essential for economic development for following reasons.

1) Development of agriculture is must necessary condition for individualization.

2) Raw materials for industries have to come from agriculture.

3) Food grains for industrial workers and growing population.

4) Small investment in agriculture will bring large output.

5) Foreign exchange and imports not much necessary for agricultural development.

6) To achieve the growth rate the agriculture growth rate should be rise.

Thus agricultural development is an essential precondition for economic development country like India. If agriculture is not developed the industrialization cannot achieve growth. So that the agricultural development is necessary for economic development and agricultural development cannot achieve without the New Agriculture Technology and HYVs.

Use of New Agriculture Technology and High yielding variety programme:

After 1960's the government of India taken several measures for increase agricultureproduction with the help of new agriculture technology and HYVs. These two factors are responsible for the agricultural revolution it's called 'Green Revolution'. After mid of 1960s the traditional agricultural practise are gradually being replaced by modern technology and farm practices these practices turn into new Agricultural Strategy.

The new agricultural strategy implemented through the use of new and high yielding varieties of improved seeds, short duration crops and multiple cropping pattern, use of fertilizers are extension of irrigation facilities, using modern machinery and equipment. Development of infrastructure and agriculture price supports.

The green revolution mainly due to use of hybrid seeds. Such verities imported from Mexico and planted so that the production of wheat increased. That result considered by the government and launched a programme of developing hybrid seeds. The ICAR, Agricultural Universities developed new seeds. Several types of HYVs developed for exam. For wheat – LarmaRojo, Sonara – 64, Kalyan P.V.18, Sona, Pusa. In rice TN-1, I.R.-8, Times-3, ADT-17, Java, Padma etc. with this varieties government provides water, fertilizers, and pesticides through the programmes like IAAP (Intensive Agricultural Area Programme), HYVP. Etc. government has taken several steps to increase agricultural production.

In this way the New Agricultural strategy has led revolutionary changes in agricultural sector and resulted in higher production. Green Revolution is breakthrough in Indian Agriculture.

Growth of Food grains Production:

Green Revolution resulted in record gain of output of food grains production. In compare to 1950-51 in 1978-79 India made a one of the biggest agricultural producer in the world. In

period of green revolution (10 years) area of HYV was covered by 70%; the green revolution support growth in local manufacturing sector and helped the Indian economy in terms of employment generation and its contribution to the country's GDP.

The production of food grains in India from 1960-61 to 2009-10 give in the table No. 1

Table No. 1
Growth of Food grain production 1960-61 to 2009-2010

Sr. No.	Year	Production (Million Tonnes)	Yield (Kg/Hector)
1	**1960-1961**	82.02	710
2	**1965-1966**	72.35	629
3	**1970-1971**	108.42	872
4	**1975-1976**	121.03	944
5	**1980-1981**	129.59	1023
6	**1985-1986**	150.44	1175
7	**1990-1991**	176.39	1380
8	**1995-1996**	180.42	1491
9	**2000-2001**	199.54	1648
10	**2009-2010**	231.00	-

In the table the data shows that the production of food grains increased near about three times compare to 1960-61 up to 2009-10 (82.02 M.T. – 231.00 M.T.) and the per hector yield increased more than two times it shows that the green revolution succeed in India.

Growth in the production of commercial crops:

Green Revolution was mainly directed to growth in the production of food grains however the signification improvement in the output of sugarcane, cotton, jute, oilseeds and tobacco.The production of commercial crops given in table No. 2

Table No. 2
Production of commercial crops (Million Tonnes)

Year	Crops				
	Sugarcane	**Cotton**	**Jute**	**Oilseeds**	**Tobacco**
1960-1961	110.00	5.60	5.26	6.98	0.31
1970-1971	126.37	4.76	6.19	9.63	0.36
1980-1981	154.25	7.01	8.16	9.37	0.48
1990-1991	241.05	9.84	9.23	18.61	0.56
2000-2001	295.96	9.52	10.56	18.44	0.49

The above table shows that the production of commercial crops increased due to green revolution and new agricultural strategy. The growth in production of sugarcane, cotton, Jute and oilseed is considerable but tobacco production not expanded. Sugarcane production increased three times, cotton two times, jute two times, oilseeds near about three times. This growth shows the impact of green revolution.

Conclusions and Suggestions:

The India's food grain production has increased from 82.02 million tonnes in 1960-61 to 231.00 million tonnes in 2009-10. Yield of food grains per hector increased substantially from 710 Kg/Ha to 1648 Kg/ha. In case of commercial crops sugarcane and oilseeds were increased much higher in the third decade. Cotton, tobacco and jute were increased in the second decade.

The above analysis clearly suggests that the adoption of inputs like irrigation, HYVs. But more use of fertilizers and pesticides, which would have adverse effects on economy, environmentand health conditions of both human beings and animals on earth. There are some suggestions to improve the Indian Agriculture.

Suggestions:

1. The irrigation facilities must be increased and methods of irrigation to be improved.

2. New Agricultural strategies are almost confined to food grains. It must be extended to non-food grains and other crops.

3. There must be change in cultivation methods for small farmers.

4. Focus on dry land farming –through construction of minor irrigation projects; specific and optimum use of available water.

Theses suggestions to give new opportunities for the agricultural development and economic development also.

References:

1) Indian Economic Survey.

2) Indian Economy – RudraDatta and K.P.M. Sundaram.

3) Various Reports and Newspapers.

4) Various Books on Agricultural Economics.