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AGRICULTURAL DEVELOPMENT DURING PLAN ERA IN INDIA

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Introduction:

Agriculture plays predominant role in Indian economy. Post the success of Green Revolution, Indian agriculture has become cereal-centric, regionally-biased and input-intensive (land, water, and fertilizer) also, rapidly changing trends in environment and consumption pattern requires a new paradigm increasing productivity by getting "more from less". Agriculture plays vital role in Indian Economy and is the backbone of India economy. It provides employment to around 55 per cent of the total work force in the country. It provides raw material for industries and market for industrial goods. It is the supplier of food for 121 crore people. India is the land of producing multiple crops. In our country agriculture is not only an important occupation of people but also a way of life, culture and custom. Even after six devades of industrialization, agriculture still occupies a place of pride. Agriculture has shown remarkable progress in the developed countries like Denmark, Australia, New Zealand etc. the countries like Sweden and Canada achieved good progress even though the percentage of people depends on agriculture is high. Every country assigns more importance to agriculture sector in initial stages of economic development. India stands first in the World in the production of pulses, jute and milk and second in the production of rice, wheat, groundnut, sugarcane, cotton, vegetables and fruits. Thus, Indian agriculture occupies international importance. Agriculture development is central to economic development of the country.

Sector-Wise Plans Expenditure:

To achieve the objective set in different plan periods, the resources are allocated among different sectors of the economy can be seen from the following Table-1.

Table 1: Sector-Wise Share in the plan Expenditure

S.No	Plans	Agriculture and Irrigation	Industry	Energy	Transport and Communication	Social Services	Total Rs. in Crores
1	I	30	6	13	27	22	1960
2	II	20	24	10	28	18	4600
3	III	21	23	14	25	17	8580
4	IV	24	23	15	20	18	15900
5	V	22	26	19	18	17	39430
6	VI	24	16	28	16	16	109290
7	VII	22	13	28	19	18	218730
8	VIII	21	10	27	21	22	485460
9	IX	20	8	26	19	27	859200
10	X	20	4	27	21	28	1525639
11	XI	20	4	23	18	35	3644718

Source: Plan Documents, Planning, Various Issues, GOI. (1951 to 2007 to 2012)

The above table reveals the sector-wise allocation of plan outlay of the public sector. It is concluded that the Agriculture and irrigation consistently received major share in view of the need to achieve self-sufficiency in food grains and support industry by providing adequate raw material. Need for increased public investment in irrigation was recognized. Allocation to the industrial sector, was 6 per cent during first five year plan. But from Second plan onwards the allocation increased and ranged between 23 per cent and 26 per cent till the plan, declined to a range of 10 to 16 per cent between Sixth and Seventh plans. From Ninth plan onwards industrial sector received meager allocation in public sector outlay. This is because of the privatization and the private sector becoming a major player. The allocations to energy, transport and communications sector had larger share of allocation. This highlights the importance given to infrastructural facilities in all plans. Allocations for the energy sector doubled between first and tenth five year plan. Allocation to the social services has been consistently high during all the plans. Expansion of education and health services was made possible by this allocation. Social welfare also received major funding. The total expenditure of each plan is almost doubling from the previous plan. Public sector share in the beginning is over taken by the private sector but situation changed thereafter because of economic reforms.

Share of Agriculture in the National Income:

Agriculture Sector**,** including forestry, fishing, mining, quarrying and allied activities like animal husbandry, horticulture, silk industry etc., Significantly contributing to the Gross Domestic Product in India, from 1950 to 2013-14.

Table 2: Share of Agriculture Sector in Gross Domestic Product

S.No	Year 1999-2000 Prices	Percentage Share of Agriculture Sector in Gross Domestic Product
1	1950-51	36.50
2	1970-71	45.90
3	1990-91	34.00
4	2000-01	24.70
5	2005-06	19.55
6	2006-07	18.51
7	2007-08 (2004-05 Prices)	17.80
8	2008-09	15.70
9	2009-10	14.70
10	2010-11	14.50
11	2011-12	13.90
12	2012-13	13.60
13	2013-14	13.90

Source: Economic Survey 2007-08. Statistical abstract of India 2008. CSO, National Accounts and Statistics – 2010. Economic Survey – 2013-14. The abovetable-2 states that the share of agriculture in national income has been decline gradually from 1950-51. This is mainly due to the development of non-agriculture sectors during the five year plans in the economy. The share of agriculture in national income declined gradually from 56.5 per cent in 1950-51 to 13.9 per cent by 2013-14. Still the share of agriculture in GDP is considerable. The share of agriculture in national income in U.K and U.S.A is 2 to 3 per cent. The proportion is about 7 per cent in France and 6 per cent in Australia.

Sector-Wise Distribution of National Income:

Important aspect of the national income of a country is its sectorial composition, i.e., the contribution made to it by the different sectors of the economy. The development of the economy mainly depends upon sectorial contribution. If the contribution from agricultural sector is high, generally a country is said to be under developed one.

Table 3: Share of Gross Domestic Product by Industry of Origin (1999-2000 series)

Source: Hand book of Statistics of the Indian Economy (2011-12)

S.No	Sectors	1950-51	1980-81	2013-14
I	**Agriculture and Allied Services**	55.4	24.0	26.2
II	**Industry**	15.0	24.0	26.2
	a) Mining and Quarrying	1.4	2.0	1.9
	b) Manufacturing	8.9	13.8	14.9
	c) Electricity, gas and water supply	0.3	1.6	1.9
	d) Construction	4.4	6.6	7.4
III	**Services**	29.6	38.0	59.9
	a) Trade, Transport and Communication	11.3	17.4	26.4
	b) Finance, Insurance and Real Estate	7.7	7.5	20.6
	c) Community, Social and personal Services	10.6	13.1	12.9
Total		**100.0**	**100.0**	**100.0**

Contribution of the Primary Sector to GDP: During the post-Independence period, the share of the primary sector agriculture, forestry, and fishing) in the Gross Domestic product has varied from the maximum of 55.4 per cent in 1950-51 to the minimum of 13.9 per cent in 2013-14. The main cause of the decline is a rapid fall in the share of agriculture alone. There is a decline in the share of forestry to GDP. The share of fishery has remained more or less constant. In recent years, the country's economy has undergone some structural changes. Transport and trade, banking and insurance and other service sectors have grown faster than agriculture. Agricultural sector remains an important sector in the Indian economy in terms of its share in the country's Gross Domestic Product.

Contribution of the Secondary Sector to GDP: The share of industry which includes mining, quarrying, manufacturing, construction and electricity, gas and water supply has shown a steady increase from 15 per cent in 1950-51 to 26.2 per cent in 2013-14. Its share in 1980-81 was 24 per cent. From 1980-81, there was a slight

improvement in the share of industrial sector to gross domestic product. Two major components of industry are manufacturing and construction. The share of manufacturing increased from 8.9 per cent in 1950-51 to 14.9 per cent in 2013-14. Similarly, the share of the organized industrial sector declined and was just 8.4 per cent in 2011-12.

Tertiary Sector Contribution to GDP: The share of the Tertiary sector (trade, transport, financing, insurance, real-estate, banking, social and personal services and business services) indicated a sharp improvement from 29.6 per cent in 1950-51 to about 59.9 per cent in 2013-14. There was a significant increase in share of trade, transport and communications from 11.3 per cent in 1950-51 to 26.4 per cent in 2013-14. The share of finance, insurance, real estate and business services marginally declined from 7.7 per cent in 1950-51 to 7.5 per cent in 1980-81 and thereafter improved to 20.6 per cent in 2013-14. This shows a good sign which is essential for an under-developed country like India.

Table 4: Export of Agricultural Products Value of Principal Agricultural Products Export (in Rs. Crore)

S.No	Year	Value of total Exports	Value of Agricultural Products Exported total exports	Percentage of Agricultural exports
1	1960-61	642	284	44.2
2	1970-71	1535	487	31.7
3	1980-81	6711	2057	19.4
4	1990-91	32553	6317	14.0
5	2000-01	203571	28582	9.7
6	2010-11	1142922	111393	9.7
7	2011-12	1465959	180279	12.3

Source: GOI (2009) Economic Survey 2012-13, Agricultural Statistics at a Glance (2010).

The above table shows that the total value of agricultural products exported was Rs.284 Crore in 1960-61. This amount has increased to Rs. 1,80,270 Crore in 2011-12. The total value of agriculture exports, as a proportion of total exports declined from 44.2 per cent in 1960-61 to 12.3 per cent by 2011-12. As a result of liberalization after 1991 exports of agricultural products registered a significant rise. But its share has been declined from 44.2 per cent in 1960-61 to 12.3 per cent in 2011-12 because the total exports of other sectors of the economy increased rapidly.

Green Revolution:

The new strategy of agricultural which resulted revolutionary progressin the farm sector during the period 1960-1970 in trends as a green revolution

Table 5: Key Indicators of Agricultural Progress

S.No	Crop	1950-51	1964-65	1990-91	2009-10	2012-13
1	Food grains(Million Tonnes)	51	89	176	218	255
2	Rice (Million Tonnes)	21	39	74	89	104
3	Wheat(Million Tonnes)	6	12	55	81	93
4	Oil seeds(Million Tonnes)	5	9	19	25	29.5
5	Sugarcane(Million Tonnes)	57	122	241	278	334.5
6	Cotton(Million Bales)	3	6	7	24	33.8
7	Jute(Million Bales)	3	4	8	11	11.1
8	Potato(Million Tonnes)	3	4	15	NA	43

Source: Economic survey, 2012-13, Note: Cotton: Million bales of 170 Kgs, Jite: Million bales of 180 Kgs.

The above table-5explains that the production of food grains and commercial crops has increased enormously. Total production of Paddy was 21 million tonnes in 1950-51 and rose to 104 million tonnes by 2012-13. During the same period Wheat rose from 6 million tonnes to 93 million tonnes and Oil seeds rose from 5 million tonnes to 29.5 million tonnes. Similarly, during 1950-51 to 2012-13 Sugarcane rose 57 to 334.5 million tonnes,Cotton 3 to 33.8 million bales, Jute 3 to 11.1 million bales and Potatoes 3 to 43 million tonnes. Such a remarkable rise in the production of food grains and commercial crops is made possible by green revolution.

Productivity of Agriculture:

The productivity in India agriculture is too low when we compared to the agricultural productivity of other countries in the world. Agricultural productivity has two components. They are food grains and non food grains. All kinds of pulses are included under food grains. Rest of the crops excluding food grins like sugarcane, cotton, jute, oilseeds, horticulture, floriculture, vegetables are included under non food grains. Since green revolution, particularly after 1965 there was a steady increase in the area under cultivation, area irrigated, area under high yielding varieties. Similarly, the production and productivity of agriculture also recorded a steady rise.

Productivity mean an average production or yield per hectare but production mean the total produce of land holding are presented in the table-6.

Table 6: Yield per Hectare of Major crops (kgs Per Hectare)

S.No	Crop	1960-61	1980-81	1990-91	2000-01	2011-12	2012-13
1	Rice	1013	1336	1740	1901	2372	2462
2	Wheat	851	1630	2281	2708	3140	3118
3	Jowar	533	660	814	764	962	862
4	Bajra	286	458	658	688	1171	1214
5	Maize	926	1159	1518	1822	2478	2552
6	Pulses	539	473	578	544	694	786
7	Total food Grains	710	1023	1380	1626	2059	2125
8	Oil Seeds	507	532	771	810	1135	1169
9	Cotton	125	152	225	190	491	482
10	jute	1049	1245	1833	2026	2389	2350

Source: Reserve bank of India, Handbook of statistics on Indian economy 2012-13.

The above table -6 shows the yield levels of the selected major crops have been increasing significantly during the period 1980-81 to 2012-13 when compared to the green revolution before year 1960-61. The yield of total food grains like rice and wheat increased by almost three times when compared to the year 1960-61. Among no- food grains, cotton, oilseeds and jute recorded a modest growth during the green revolution period. In case of pulses impressive growth has not taken place because green revolution has less effective in these crops.

Growth of Agriculture Labour:

Farm Labour can easily be defined but it is very difficult to estimate its number. According to the 2011 Census, the total population is 1210.6 millions out of which 833.5 million are rural population. Among them 144.3 million are agricultural labourers.

Table 7: Growth of Farm Labour in India

S.No	Year	Number of Agricultural Labour in Millions	Per cent in the total work force
1	1951	27.3	28.1
2	1961	31.5	24.0
3	1971	47.5	37.8
4	1981	55.5	37.5
5	1991	74.6	40.3
6	2001	106.8	45.6
7	2011	144.3	54.9

Source: Agricultural Statistics at a Glance, 2013.

The above table reveals the number of agricultural labourers has increased from 27.3 million in 1951 to 144.3 million in 2011. The following are the most important factors responsible for continuous and enormous increase in the number of agricultural labour in India.

- ✓ High growth rate of population
- ✓ Decline of handicrafts and cottage industries.
- ✓ Eviction of small farmers and tenants from land.
- ✓ Uneconomic holdings
- ✓ Increase in indebtedness
- ✓ Capitalist agriculture.

The class of agricultural labourers is the most exploited and oppressed class in rural hierarchy. They were victims of social discrimination and economic exploitation. Agricultural labour are caught in the vicious circle of poverty even after 6 decades of Independence.

Occupational Distribution of Working Population:

Occupational distribution of working population in India is shown in table-8

Table 8: Occupational Distribution of Working Population in India

S.No	Year	Primary Sector	Secondary Sector	Tertiary Sector
1	1951	72.1	10.7	17.2
2	1981	71.8	12.2	16.0
3	2001	56.7	18.2	25.1
4	2011	48.9	24.3	26.8

Source: Misra and Puri- Indian Economy, Himalaya Publication House, 2014.

The table shows that in the 2011 Census, 48.9 per cent of the labor force was employed in the primary sector or agricultural sector. It indicates the predominance of agriculture in the economy. But when we compare the percentage of agricultural labour force in 1951 and 2011, we notice that during the 1950's there was s significant decline in the relative importance of agriculture. The percentage of labor force declined from 72.1 in

1951 to 48.9 in 2011 Census. The under the various plans. In 2011 Secondary sector accounted for 27.3 per cent of the labour as against 10.7 per cent of labour force employed in the manufacturing sector during planning period. The tertiary sector in India accounts for a little more than one-fifth of the labor force in India.

Cropping Pattern:

The economic development of any nation depends on the utilization pattern of natural resources like land, water, minerals etc,. The Cropping Pattern in a country depends on the fertility of soil, irrigation facilities etc. The Cropping Pattern determines the development of a country. Cropping Pattern is defined as "The pattern of utilization of total farm land for producing different crops in country at a point of time". Total area cultivated under important crops are presented in the table-9.

Table 9: Total area cultivated under important crops (Million Hectares)

S.No	Crop	1960-61	1970-71	1990-91	2000-01	2010-11	2011-12
1	Food Grains	115.6	124.3	127.8	121.0	126.7	125.0
2	Cerals	92.0	101.8	103.2	100.7	100.3	100.2
3	Pulses	23.6	22.6	24.7	20.3	26.4	24.8
4	Rice	34.1	37.6	42.7	44.7	42.9	44.0
5	Wheat	12.9	18.2	24.2	25.7	29.1	29.9
6	Jower	18.4	17.4	14.4	9.9	7.4	6.3
7	Oil Seeds	13.8	16.6	24.1	22.8	8.6	27.2
8	Sugar Cane	2.4	2.6	3.7	4.3	4.9	5.1
9	Cotton	7.6	7.6	7.4	8.6	11.2	12.2
10	Potato	0.4	0.5	6.9	1.2	1.9	1.9

Source: GOI Economic Survey 2012-13

The abovetable reveals that the area under food scraps was 115.6 million hectares in 1960-61 and rose 125 million hectares by 2011-12. The area cultivated under cereals rose to 8.2 million hectares in between 1960-61 to 2011-12. But at the same time the area under cultivation of pulses recorded negligible rise i.e. 1.2 million hectors. The area cultivated under food grains like Paddy, Wheat, Maize and the zone under profitable crops like Sugar Cane, Cotton, Potato and Oil Seeds logged an important increase.

Problems of Agriculture:

Low Productivity: It is the central challenge.

- ✓ Average earnings of wheat and rice in India are considerable below that of China's – 46 per cent below in the case of rice and 39 per cent in the case of wheat.
- ✓ India's average yield in 2013 of 3075 kg/ha. is lower than the world average of 3257 kg/ha.
- ✓ Inter-regional variations - Although together Punjab and Haryana have much higher crops of 4500 kg/ha, most other Indian states have yields lower than that of Bangladesh.

Cereal Centric:

- ✓ Future charges are guaranteed by the government through the MSP. But despite the government announces MSP for 23 crops, actual MSP-linked gaining occurs mainly for wheat, rice and cotton.
- ✓ In Punjab and Haryana, almost all paddy and wheat agriculturalists are aware of the MSP policy. However, very few farmers who grow pulses are aware of an MSP for pulses.
- ✓ This has resulted in excess buffer stocks of paddy and wheat and it has also caused frequent price spikes in pulses and edible oils, despite significant imports of these supplies.

Irrigation Methods:

- ✓ India uses 2 to 4 times more water to produce a element of main food crop than does Brazil and China.
- ✓ Both the cases of public (canal irrigation, irrigation), and private (tube wells), the water has been arranged via extremely inefficient "flood" irrigation.

Low Farm Income:

According to National Sample Survey (NSS) data, the average yearly revenue of the median agriculturalist net of manufacture costs from cultivation is less than rupees 20,000 in 17 states. This contains produce that farmers did not sell (presumably used for self-consumption).

Lack of Investment in Agricultural Research:

- ✓ Even in states where cultivation is relatively more important, agriculture education is particularly weak if measured by the number of students joined in agricultural universities.
- ✓ The agriculture universities have been plagued by:
    - Resource crunch
    - Difficulty in appealing talented faculty
    - Limited linkages and partnerships with international counterparts
    - Flagging of the lab-to-land connect
    - Lack of improvement

- ✓ India's present spending on agriculture study is considerably under that of China and as a share of agriculture Gross Domestic Product (GDP) even less than that of Bangladesh and Indonesia.

Market Segmentation:

- ✓ Market segmentation reduces general welfare because it avoids gains through competition, efficient supply allocation, knowledge in subsectors and fewer intermediaries.
- ✓ Market subdivision results in large differences in producer and consumer prices.

Climate Change:

- ✓ Climate transformation is raising the scarceness value of water.
- ✓ India has much lower levels of water per capita than Brazil. This constraint is impaired because, while Brazil and China use around 60 per cent of their renewable fresh water possessions for agriculture, India uses a little over 90 per cent.
- ✓ According to an analysis by National Aeronautics and Space Administration (NASA), India's water tables are decreasing at a rate of 0.3 meters per year.

Per Capita Land Availability:

- ✓ Industrialization has laid extra heaviness on agricultural land.
- ✓ There is a high-pitched failure in cultivable land per person in India - much louder than in other countries such as China and Brazil.
- ✓ In next twenty years, India's fast population development will make it worse.

Need of New Paradigms for Agriculture:

Prioritizing cultivation of less water-intensive crops

- ✓ In order to smooth this shift, the new irrigation technologies need to be rendered "arrangement lending" status and both the Centre and states need to intensification public spending for micro irrigation methods such as drip irrigation, sprinkle irrigation procedures.
- ✓ A well-organized drip irrigation system decreases feeding of fertilizer (through fustigation) and water lost to disappearance, and higher earnings than out-of-date flood irrigation.

Favorable MSP Regime:

- ✓ One way of justifying MSP policy is to make these price signals reproduce social rather than just private revenues of production.
- ✓ Attractive account of the undesirable externalities from using chemical fertilizer (soil depletion and health), water (falling water tables), and from fiery crops (adverse health significances).
- ✓ Equally, the social returns to pounding structure is higher than the private returns, because it uses less water, fertilizer and fixes atmospheric nitrogen obviously. It also helps keep the soil porous and well aerated. These heartening social benefits should be combined into MSP estimates.
- ✓ Farmers could also be definite a floor price for their crops through a "Price Deficiency Payment" as wished-for by NITI Ayog. Under this system if the price in an Agriculture Food Market Committee (APMC) mandi fell below the MSP then the farmer would be permitted to a all-out of, say, 50 per cent of the difference between the MSP and the market price.

Re-Invigorating Agricultural Research and Education:

- ✓ Investment in public farming research in India needs to be augmented.
- ✓ There is a solid need to take steps to enhance research efficiency among the scientists in public agriculture research organizations by instituting presentation indicators.
- ✓ Private sector revolution and high yielding variety in seeds can result in productivity gains.

Encourage Use of Latest Technology:

- ✓ Cell phones have been imaginatively used by countries like Ghana, Kenya, Nigeria and Thailand to provide evidence on prices and cultivation to farmers which has led to massive amplifications in farm incomes.
- ✓ Opening up to new GM know-how sand aggressively building their own research capacity (like China and Brazil).
- ✓ Therefore, the adjusting procedure in India needs to progress so as to address the anxieties in a way that does not come in the way familiarizing high yielding technologies and quickly moving towards the world's agro-technological frontier.

Conclusion:

Theories of economic expansion pointed out that shift of labour from agriculture sector to industrial and facility sectors leads the development of all sectors. Nevertheless, the Indian involvement tells that notwithstanding remarkable growth of industrial subdivision, there has not been absorption of labour from the Indian cultivation sector. The share of agriculture sector to the GDP has been declined extremely. Labour in the agriculture sector remained more or less constant since independence. All these trends point out arrangement of economic development is very considerable needs. During the plan era there was tremendous increase of agriculture production, exports and also increase in agricultural labours in India.

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