

ANALYSIS OF IMPACT OF IRRIGATED AREA ON THE PRODUCTION OF PADDY FROM THE YEAR 1987-88 TO 2003-04 IN THE STATE OF BIHAR

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Introduction

Importance of Agriculture

Agriculture has been a way of life and continues to be the single most important livelihood of the masses.

Agriculture accounted for 14.5% of GDP in 2010-11. Its role remains critical as it accounts for about 58.2% of the employment in the country. The prosperity of rural economy is also closely linked to agriculture and allied activities. India's foreign trade is deeply associated with agriculture sector. Many important industries in India find their raw material from agriculture sector. Cotton and Jute, textile industries, sugar, vanaspati are directly dependent on agriculture, Handloom, spinning, oil milling, rice thrashings are various small scale and cottage industries which are dependent on agriculture sector for their raw material.

Thus, agriculture sector influence the growth if Indian Economy.

Agriculture Scenario in Bihar

Traditionally, Bihar's economy is dominated by the agriculture sector. Around 90% of the populations still live in rural areas where agriculture, along with animal husbandry has been the mainstay of their livelihood. This has become even more true with the bifurcation of the state which took place in November 2000. Bifurcation took away the mineral rich part from Bihar and the State was left with its fertile land and abundant water resources. Agriculture, therefore, is sure to play the most important role for the development of the state.

Bihar is endowed with fertile Gangetic alluvial soil with abundant water resources, particularly ground water resources. With different soil categories associated with different agro-climate zones, the farmers in the state grow a variety of crops. Besides cereal, the state produces pulses, oilseed, fibre crops, sugarcane, fruits, vegetables, and other minor food crops. Recently there has been diversification in the production of crops, including the introduction of floriculture in many districts of the state, catering to the rising demand. During the recent years, the economy has shown a turnaround, throwing new issues and enhancing people's aspirations. But, despite this progress, rural Bihar is far from benefiting fully from the opportunities generated by rapid growth. The state government is trying utmost to bridge the rural-urban divide by promoting higher agriculture growth. The support mechanisms for increasing the agricultural development are being further strengthened, to ensure that growth of Bihar economy remains sustainable in the years ahead. Services like irrigation, seed, fertilizers, farm mechanization, credit flows, and awareness programmes focused.

According to Economic Survey of Bihar (2011-12). Bihar has a geographical area of 93.6 lakh hectares with three important agro-climate zones – North-West, North-East and South. The North-West zone has 13 districts. The zone receives an annual rainfall of 1040-1450 mms. The soil is mostly loam and sandy loam. The North-East Zone has 8 districts. This zone receives rainfall ranging from 1200-1700 mms. The soil here is loam and clay loam. Finally, the South-Zone having 17 districts receives an average rainfall of 990-1300 mms and the soil consist sandy loam, clay and clay loam.

Irrigated Area of Paddy**(in hect.)**

Year	Paddy (Irr. Area)
1987-1988	1751632
1988-1989	1858526
1989-1990	1795164
1990-1991	1839238
1991-1992	1750068
1992-1993	1637144
1993-1994	1952730
1994-1995	1190935
1995-1996	2024861
1996-1997	2012586
1997-1998	1981597
1998-1999	1930392
1999-2000	1065809
2000-2001	1976883
2001-2002	1631138
2002-2003	1789808
2003-2004	1972865

Production of Paddy in Bihar

Year	Paddy
1987-1988	3361153 (43.4)
1988-1989	4944491 (48.59)
1989-1990	4820187 (48.69)
1990-1991	4997264 (48.42)
1991-1992	3712753 (40.10)
1992-1993	2689851 (36.35)
1993-1994	4714898 (43.26)
1994-1995	4466549 (41.96)
1995-1996	5037987 (47.79)
1996-1997	5759843 (46.76)
1997-1998	5395078 (48.15)
1998-1999	5291475 (45.58)
1999-2000	5547322 (45.13)
2000-2001	5444370 (44.88)
2001-2002	5202869
2002-2003	5085586 (45.64)
2003-2004	5447795 (48.25)

Production of Paddy in Bihar

Variable	Coefficient (B)	Std.err.	t value	dof	Standard Error of Estimate SEE	Coefficient of determination (R ²)
Intercept	-7,968,038.8	3,060,480	4.49	11	618,125.7	0.6134
Area	*6.6	1.5	4.17			

* Significant at 1% level of probability, Dof is degree of freedom.

Null hypothesis that was constructed was there is no impact of irrigated area on the production of rice. The table showed that the β value for production and irrigated area was 6.6 When the calculated t (4.17) was compared with the table t (2.71) it was found out that the calculated t was a significant value. Thus null hypothesis was rejected. The SEE was 618,125.73 and R^2 was 0.6134. This means that 61.34% of variation in the production was due to irrigation.

Suggestions

Use of New Technology for the Production of Rice

In Bihar, in fewer districts an experiment have started. The Cultivation of Paddy was done by SRI Vidhi technology. This has been the third year when this technology has been applied. It has broken a very strong myth associated with paddy, that paddy needs lots of irrigation so the water requirement is very high.

With the help of this technology of cultivation where the use of general variety of seeds is the option with no requirement of special HYV seeds and also the need of water is low the production can increase double folds. This kind of technology should be started in all the districts of Bihar. And researches on more such technologies should be encouraged.

Encouragement to Modern Method of Technology for Rice

During Period, I, II, total study period, maximum area was allotted to rice among all the five crops. But during all the three periods, productivity wise, the crop was third highest. The study is a post green revolution study, still the most important crop of the State – Paddy needs a more revolutionary approach to improve the productivity. More & More modern methods of production should be encouraged.

Lazer focus of Procurement of Grains by the Government of Crops and Construction of Ware Houses

Compound growth rate of productivity of Wheat was highest in total study period of 25 years. Production & productivity wise also it performed well in all the periods still the farmers could not encash much benefit out of it.

In Bihar, due to lack of attention on the procurement of grains, the farmers were subjective to vagaries of market & this resulted in selling of crops at a lower price i.e. distress sale. Farmers could not get minimum support price on their produce. Hence their wellbeing was relatively very less than farmers of other developed states.

Government should focus on the Procurement of crops. More & More warehouses should be constructed.

Strengthening the PACS System and Constructions of Railway Rakes

Rice and Wheat are the two most important crops of the state. During the periods the production of rice & wheat was highest.

Still due to poor warehousing facility, weak PACS system, lack of railway rakes etc. the procurement of these crops suffered. Due to this, the finance wise the farmers are not strong enough. Due to this, the investment level in agriculture in also low.

By constructing more and more warehouse, by strengthening the PACS system, and by making railway rakes in all the districts the procurement of these two crops can be enhanced.

Strong Functioning of Irrigation Department

For water sector programmes of repairs and maintenance of canals and water bodies, greater coordination between agricultural scientists and irrigation department, and implementation of controlled irrigation through drip irrigation and sprinkler irrigation in water-scarce regions.

Inventing flood tolerant crop variety in flood prone area should be the priority.