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Problems of Agriculture Development in Bihar: An analysis

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ABSTRACT: Bihar lies in the river plains of the basin of the river Ganga. It is endowed with fertile alluvial soil ground water resources. This makes the agriculture of Bihar rich and diverse. Rice, wheat, and maize are the major cereal crops. Arhar, urad, moong, gram, pea, lentils, and khesaria are some of the pulses cultivated in Bihar. Bihar is the largest producer of vegetables, which is dominated by potato, onion, eggplant, and cauliflower. In fruit cultivation, it is the largest producer of lychee and the third largest producer of pineapple, as well as a major producer of mango, banana, and guava. Sugar cane and jute are two other major cash crops of Bihar. Although the economy of Bihar has started growing significantly since its bifurcation in 2000, it still remains one of the poorest states in India. Agriculture has been an important contributor to this high growth of the economy. Among the poorest states, Bihar scores very high in the under-development index (Government of India, 2013). Its combined poverty level was as high as 33.7 per cent as compared to the national average of 21.9 per cent during 2011–12. There has been a structural shift in the economy of Bihar from the primary sector to the services sector in terms of income share in the last one and half decades. However, agriculture still dominates the economy, contributing over a quarter of the state income and accounting for employment of about 70 per cent of the rural workforce.

KEYWORDS: Bihar ,Agriculture, Poorest, Economy, Workforce and Employment.

I. INTRODUCTION

Bihar lies in the river plains of the basin of the river Ganga. It is endowed with fertile alluvial soil ground water resources. This makes the agriculture of Bihar rich and diverse. Rice, wheat, and maize are the major cereal crops. Arhar, urad, moong, gram, pea, lentils, and khesaria are some of the pulses cultivated in Bihar. Bihar is the largest producer of vegetables, which is dominated by potato, onion, eggplant, and cauliflower. In fruit cultivation, it is the largest producer of lychee and the third largest producer of pineapple, as well as a major producer of mango, banana, and guava. Sugar cane and jute are two other major cash crops of Bihar. Although the economy of Bihar has started growing significantly since its bifurcation in 2000, it still remains one of the poorest states in India. Agriculture has been an important contributor to this high growth of the economy. Among the poorest states, Bihar scores very high in the under-development index (Government of India, 2013). Its combined poverty level was as high as 33.7 per cent as compared to the national average of 21.9 per cent during 2011–12.

There has been a structural shift in the economy of Bihar from the primary sector to the services sector in terms of income share in the last one and half decades. However, agriculture still dominates the economy, contributing over a quarter of the state income and accounting for employment of about 70 per cent of the rural workforce. Hence, robust growth of the agriculture sector holds the key for the economic and social development of the state. Keeping this in view, the Government of Bihar has launched many initiatives for improving productivity growth in the crop and livestock sectors. These include the development of irrigation, strengthening the input supply and extension programmes, and introduction of market reforms and farm mechanisation, among others. These initiatives are being implemented under different phases of the agriculture roadmaps as follows: the first agriculture roadmap (2008–09 to 2011–12); the second agriculture roadmap (2012–13 to 2016–17); and the third agriculture roadmap (2017–18 to 2022–23).

These roadmaps focus on the holistic development of agriculture with an emphasis on increasing productivity growth and improving farmers' income. These policy initiatives seem to have helped in accelerating Bihar's agricultural growth. In fact, the agriculture sector registered an annual growth of 3.1 per cent during the period 2000–01 to 2007–08, though with a low base. During the subsequent period from 2008–09 to 2011, agricultural growth increased considerably to 5.1 per cent, which led to the achievement of a very high growth rate of 8.1 per cent in Gross State Domestic Product (GSDP). However, during the subsequent period of five years (2012–13 to 2016–17), agricultural growth contracted to 0.6 per cent, which also pulled down the overall state economic growth to 5.8 per cent. There has been high volatility in growth over the years.

Cropping pattern;

The net sown area in Bihar is 60% of its geographical area. This percentage is much higher than the all-India average of 42%. Such a high percentage of cultivated land is possible for two reasons. First, most of Bihar is plain area suitable for agriculture. Second, most of the forest had been converted into farmland during the last 2000 years. Currently, land under forest constitutes only 6% of the area. North Bihar is a productive agricultural center, while South Bihar is hindered by its flood and drought prone geography. In the south, the *Ahar-Pyne* system of agriculture has long been used to cultivate crops.

Food grains:

Rice is cultivated in all districts of Bihar. Autumn rice, aghani rice, and summer rice are three different varieties of rice grown at three different times of the year. The average production of rice is around 5 million tonnes each year. Some five decades back, wheat cultivation was very restricted to western districts of Bihar. After green revolution success, wheat was planted by Bihari farmers on a larger scale, and wheat now occupies the status of major crop of the rabi (spring) season. The average annual wheat production is approximately 4-4.5 million tonnes. Maize is also cultivated, with an average annual production level of approximately 1.5 million tonnes and a steady positive trend in production. The leading producer districts are Khagaria and Saharsa. Pulses such as moong, arhar, peas, and khesari are grown, more in southern than in northern Bihar. The leading districts are Patna, Bhojpur, Aurangabad, and Nalanda.

Vegetables:

The total area under vegetable cultivation is currently about 11% of the state's gross sown area, and is increasing. The important vegetable crops include potato, onion, tomato, cauliflower, and Brinjal. Hajipur in Vaishali is famous for an early variety of cauliflower that reaches market in the last week of September. Production of vegetables is well dispersed over the districts, with a concentration of production in some particular districts. Apart from Patna and Nalanda (Jehanabad), where vegetable production is quite extensive, the other districts with high shares in total vegetable production are Vaishali, Muzaffarpur, West Champaran, East Champaran, Katihar, and Begusarai.

Accelerated growth rate in rabi foodgrains output was seen in both area and yield increase. Stagnant kharif foodgrains production was 'argery due to sharp decline in kharif area at (-)1.32% per annum. Analysing the growth performance across different agro-climatic zones the study observed plateau districts to lag behind. The zones of alluvial plains particularly the South-West Plains recorded accelerated growth rates which, was comparable to the rate of growth achieved by agriculturally developed states during the eighties. Significantly, high growth districts generally did not form one geographical cluster. With only 10% area under non-food crops the agriculture of Bihar continued to be largely subsistence in character. Production of some specific non-food crops, however, registered an increase in specific regions For instance, sugarcane picked up fast in the North-West, and rapeseed/ mustard in the East Plains. Over the years, area shifts were taking place in favour of superior cereals.

Among the cereal crops, wheat (3.80%), followed by paddy (3.50%) showed relatively high growth rates. For wheat, both area and yield contributed to growth. In case of paddy growth was due to yield increase, as area showed shrinkage. Summer and winter paddy production witnessed impressive growth performance in the state-Among pulses, production of arhar and gram witnessed reversal largely due to area shrinkage. Districts in the plateau region, however, showed steady growth trend in their production.

II. REVIEW OF LITERATURE

Being a recent move, there have been various researches on different aspects of the initiative ranging from the economical to social and ethical dimensions. Some of these researches retrieved through internet searches have been reviewed here:

Julian M. Alston et al (2009) In developed countries, there have been a wide range of technological advances for agriculture, genetic improvement, usage of chemical fertilizers and pesticides, adoption of farm equipment and machinery, cultural and management practices.

Robert E. Evenson et al. (1999) Today India agriculture research is considered as one of the largest research works in the world. It has now achieved the progressive scale of agricultural growth due to adoption of modern technology and innovation. In many developed countries there is found declining trend of R & D for which there is found substantial down fall of overall productivity.

Lynn Martin et al (2013) The impact of environment and climatic change could be observed thoroughly which plays the most important role for production and any other economic activity. Along with the objectives of storage,

marketing facilities, recycling process, employment facilities, and customers based strategy on the entire idea of go green seems to be positive in the farm and rural environment .

III. METHODOLOGY

The method used in this paper is descriptive-evaluative method. The study is mainly review based. It is purely supported by secondary source of data, i.e. books, journals, papers and articles and internet.

IV. RESULT AND DISCUSSION

Factors influencing growth of agriculture :

Bihar is considered destination for second Green Revolution in the country. Several reports including the National Farmers Commission have emphasized the need for accelerated development of agriculture in eastern India for securing food security of the country.

Examining the impact of a set of independent variables on the value of agricultural output, it was observed that fertilizer consumption as also coverage of HYV seeds were the important determinants of agriculture growth in the state. Normal rainfall was equally important to provide stalty to the accelerating agricultural growth in the state. State agriculture faces multifaceted challenges that emanate both from within the system and also from outside. Low productivity across all the enterprises, crop, horticulture, milk, meat, egg and fishes has traditionally described the state agriculture. The low productivity has consequential effects on low income and high poverty of its population.

Growth in Input Use:

Fertilizer :

Consumption of fertilizer increased from 9.06 kg/ha. in 2000-01 to 57.02 kg/ha. in 2010-11. However, it lagged far behind Punjab (162.2 kg/ ha.), Haryana (107.0 kg/ha.), Uttar Pradesh (86.0 kg/ha.) and all-India average (67.1 kg/ha.). Across zones/districts it was relatively high in regions with high foodgrains production. It was positively related with irrigation network as well. Some of the districts with low irrigation network in the plains as well showed relatively high consumption of fertilizers, influenced possibly by normal rainfall. In terms of composition, however, fertilizer use was unbalanced in the state, more in favour of nitrogen (67.5%) and deficient in phosphorus (22.5%) and potash (10.0%). Unbalanced use of fertilizer was excessive in zones/districts with high production of foodgrains as also irrigation network . With elasticity of foodgrains yield to nutrient ratio index being negative the adverse impact of such an unbalanced use of fertilizer was clearly discernible and, therefore, called for gearing up the agricultural extension network in the state, promoting balanced use of fertiliser as also enhanced use of manure and compost in the state.

Irrigation :

Despite vast irrigation potential the availability of irrigation in only 43.0% of net sown area was much less in the state. Over the years, it was not increasing either. Again, the fall in net irrigated area by 1.04 lakh hectares for canal, 0.49 lakh hectares for tubewells, 1.62 lakh hectares for other wells and 0.38 lakh hectares for tank/pond irrigation during 1977-91 was a serious cause of concern and called for necessary policy initiative to reverse such trends. Irrigation intensity was low at 122% in the state as against 180.0% in Punjab and 163.0% . in Haryana. Districts with high component of cash crops showed relatively high irrigation intensity. Prominent among these districts were Gopalganj (170.0%), Katihar (178.0%) and Purnea (161.0%). Irrigation was used mostly for food crops with their share at around 93.0% in 1990-91. Among the foodgrains it was cereals (93.0%) and among cereal crops it was paddy (46.0%), followed by wheat (40.0%) having dominant share in irrigation. In the plateau zones, however, most of the irrigation was going to non-food crops. With elasticity of irrigation positive on yield, fertilizer consumption, crop intensity and crop diversification, any development strategy aimed at output maximization called for further strengthening of irrigation network in the state.

HYV Seeds :

Area under HYV Seeds was expanding in the state with its significant influence on agricultural output. Across different zones/districts the use of HYV seeds was positively correlated with irrigation. In terms of area coverage, however, it was much less as compared to the agriculturally developed states. Again, HYV seeds were available for restricted number of crops, that too under irrigated condition. With almost half of the state under dry land, the available HYV package was quite inadequate for the state. Moreover, seed multiplication rate as also replacement rate was low in the state. In addition to poor supply network, the absence of proper storage facilities and multiplication of quality seeds were reported to be the major constraints in the state.

Flow of Credit :

There was a wide gap between credit requirements as estimated by various committees and actual credit flow. In terms of credit available per hectare, it was just Rs. 312/- in Bihar as against Rs. 5,961/- in Kerala, Rs. 2,155/- in Tamil Nadu and Rs. 1,189/- in Punjab in 2000-01. With co-operatives and Regional Rural Banks becoming red, the onus responsibility of credit disbursement seemed to be shared largely by commercial banks in the state. In the context of deposits increasing and advances remaining stagnant, their involvement however remained desirable.

Operational Holdings and Tenancy Status :

The state witnessed fast increase in the number of operational holdings thereby reducing the average size of holding and making them operationally non-viable. Skewness in land distribution continued to be serious in the state. High incidence (around 60%) of tenancy cultivation dominated largely by absentee landlords (estimated at around 16.60 lakh ha.) further choked the growth prospects, as such segment of land remained out of investment gamut. High fragmentation of land (17-20 parcels on an average) was still worse, as it restricted and hindered dissemination of modern technology in the state agriculture.

Changing Land Use Pattern :

Availability of agricultural land was low at 62.50% in Bihar as against 86.70% in Punjab and 68.10% in U.P. With high current fallow and culturable waste, the net sown area was still low at 45.20% only. The net sown area showed shrinkage at (-) 0.79% per annum largely due to expanding current fallow, area under miscellaneous trees and land under nonagricultural use. In some districts increasing barren land as well explained the declining net sown area. Shrinking net sown area with population increasing fast implied land-man ratio getting further adverse for agriculture in the state. Gross cropped area was declining more as a result of stagnant and inefficient irrigation.

Technological factors:

There are two agricultural universities, five agricultural colleges, one horticulture college, one agriculture engineering college one dairy technology college and one veterinary college in the state. All the 38 districts have a functional Krishi Vigyan Kendra (KVK). ICAR has also a presence with eastern states regional headquarter at Patna. Besides, National Research Centre for Litchi and Makhana are established in state. However, State productivity remains low because of the slow adoption of modern technologies by the farmers. Dominance of cereals in cropping pattern reflect on the subsistence nature of state agriculture. Institutional extension system faces the challenge to take latest technologies to farmers field.

Land Issues:

More than 91 percent of all holdings fall in the category of marginal holdings with farm size less than 1 hectare. Each such holding is again fragmented in small parcels. Land records are obsolete, making any institutional investment virtually impossible. Small farm agriculture create serious problems for economy of scale.

Rainfed agriculture:

State agriculture still heavily depends on monsoon. In the last 5 years, there has been drought or drought like situation in four consecutive years. Kharif crops are almost a gamble leaving little prospect for investments in costly inputs. Canal Irrigation is scanty. Irrigation is majorly (70%) dependent on diesel based tube wells. High cost of diesel based irrigation make it a very difficult input foreven rabi crops.

Lack of Infrastructure:

Road connectivity, storage godown and power availability to agriculture sector is inadequate to usher accelerated agriculture development in the state. Lack of institutional credit: slow pace of implementation of kisan credit card leave large number of farmers dependant on high cost non institutional lending sources seriously impeding use of modern agri inputs and adoption of modern technology.

Flood & Drought:

State agriculture is dependent on Monsoon. A heavy rainfall lead to flood and a deficient rainfall could lead to drought. The paradox of flood and drought occur simultaneously almost every year making agriculture highly vulnerable and unstable

V. CONCLUSION

Despite accelerating growth rates in foodgrain as well as non- foodgrain production, the status of agriculture in Bihar was not comparable to agriculturally developed states or even all-India average. With similar area. West Bengal

produced more than double of paddy output in Bihar. Similarly, Haryana with half of the area produced almost equal of wheat output to Bihar. The case of other crops such as maize, arhar, gram, sugarcane, rapeseed/mustard, potato, etc. was not different. It was largely because yield of these crops in Bihar was much less than those in agriculturally developed or other states. Moreover, the yield gap between the potential and the actual was large at 50-70% in the date, depending upon the crop and irrigated condition.

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