

## INTRODUCTION

### 1.1 Background

India's commitment to planned economic development is a reflection of our society's determination to improve the economic conditions of our people and an affirmation of the role of the government in bringing about this outcome through a variety of social, economic and institutional means. The rapid growth achieved in the past demonstrates that we have learnt how to bring about growth, but we have yet to achieve comparable success in inclusiveness. Improved performance in agriculture is necessary if our growth is to be inclusive. Although, India's agriculture sector has an impressive long term record of taking the country out of serious food shortages despite rapid population increase. This was achieved through a favourable interplay of infrastructure, technology, extension and policy support. Obviously, rapid growth is essential because it provides the basis of expanding incomes and employment and also provides the resources needed to finance the programmes.

The share of agriculture in Gross Domestic Product (GDP) has declined from over half at Independence to less than one-fifth currently but it remains the predominant sector in terms of employment and livelihood with more than half of India's workforce engaged in it as the principal occupation. Deceleration, although most marked in rainfed areas, occurred in almost all states and covered almost all sub-sectors including those such as horticulture, livestock and fisheries where growth was expected to be high (*Appendix - I*). Consequently, growth of agricultural GDP has been well below the target of

4.00 per cent set in both IXth & Xth Five Year Plans. In fact Xth Plan growth averaged even less than that during IXth Plan because, as was noted in Mid-Term Appraisal (MTA), growth plummeted to below 1.00 per cent during its first three years (i.e., 2002-03 to 2004-05). There has been some upturn since then and growth has averaged more than 4.00 per cent in the subsequent years. But there is no reason for complacency. Not only is the period too short to reach firm judgement on trends, the prolonged deceleration over several years has meant that despite the improvements per capita output of cereals, pulses, oilseeds, and also of some major vegetables and fruits in 2006-07 remained below 1996-97 levels. Since agriculture is in the state's list and also feared that over the years the resource allocations by the state to agriculture through their budgetary resources have been shrinking. It is a very serious concern for making the country one of the fastest growing economies in the world. In view of this it is essential to study the budgetary resources allocated to the agricultural sector in the states including the state of Bihar.

## **1.2 Profile of the State**

Bihar has a total geographical area of 93.60 lakh hectare on which it houses a population of 82.90 million, thereby generating a population density of 880 persons per Sq. km (Census, 2001). Gross sown area in the state is 122.02 lakh hectares, while net sown area is 59.37 lakh hectares, indicating a cropping intensity of 206.00 per cent (Economic Survey of Bihar, 2008-09). The sectoral composition of NSDP is 35.00 per cent for primary, 11.0 per cent for secondary and 54.00 per cent for tertiary sectors.

The performance of the state economy over the period of 1985-86 to 2005-06, as indicated in table No. 1.1 revealed that Gross State Domestic Product (GSDP) at 1993-94 constant prices is Rs. 39332 crores in 2004-05 from Rs. 16759

crores in 1985-86 indicating growth of 234.69 per cent during the period. The per capita GSDP worked out to be Rs. 8846 in 2005-06.

**Table No. 1.1: Growth of GSDP (Gross State Domestic Product) at 1993-1994 constant prices**

*Rs. In Crore*

SN	Year	GSDP	Index
1.	1985-86	16759	100.00
2.	1986-87	NA	---
3.	1987-88	NA	---
4.	1988-89	NA	---
5.	1989-90	NA	---
6.	1990-91	20253	120.84
7.	1991-92	NA	---
8.	1992-93	NA	---
9.	1993-94	22812	136.12
10.	1994-95	25302	150.98
11.	1995-96	21781	129.96
12.	1996-97	26951	160.81
13.	1997-98	25921	154.67
14.	1998-99	NA	---
15.	1999-00	28914	172.53
16.	2000-01	34234	204.27
17.	2001-02	31278	186.63
18.	2002-03	36878	220.05
19.	2003-04	34407	205.30
20.	2004-05	39332	234.69
21.	2005-06	NA	---

*Source: Economic Survey of Bihar, 2006-07 & DSE, Govt. of Bihar*

With the current population growth rate of about 1.96 per cent for Bihar, the per capita Net State Domestic Product (NSDP) in Bihar has grown at 3.61 per cent. For the comparative position of Bihar, while the per capita NSDP for the whole country at current prices stood at Rs. 25,716, the figure for Bihar was Rs. 7875 which was barely 30.60 per cent of the national average. The disadvantaged economy of Bihar suffers not only from its comparatively lower growth rates, but from substantial year to year variation in growth rates as well. Agriculture growth is possibly the most important source of this variation, but many other sectors too are not free from this structural weakness. During the past decade, the growth rate varied between (-) 21.92 to 37.22 per cent in primary sectors; (-) 2.26 to 22.80 per cent in secondary sectors; and 2.03 to 18.44 per cent in tertiary sectors. For the aggregate GSDP, the yearly growth varies from (-) 4.73 per cent to 13.11 per cent.

The sector wise share of GSDP and workforce for the period of 1985-86 to 2005-06 are presented in table 1.2. It can be observed from table 1.2 that the contribution of the primary sector to GSDP which was 37.86 per cent in 1985-86 has declined to 28.74 per cent in 2005-06. In contrast, the share of the secondary sector to GSDP increased from 11.36 per cent in 1985-86 to 15.16 per cent in 2005-06. The share of tertiary sector in GSDP which was 50.78 per cent in 1985-86 increased to 56.10 per cent in 2005-06. It revealed that tertiary sector is the major contributor to GSDP. Further, the share of workforce in each sector is also indicated for some important years. The share of workforce in the primary sector which was 79.10 per cent in 1985-86 marginally slashed to 78.10 per cent in 1990-91 and further slashed to 77.35 per cent in 2000-01, after the bifurcation of the state in November 2000. The share of workforce in secondary and tertiary sectors remained almost stagnant throughout the period around 9.30 and 13.30 per cent respectively.

**Table No.: 1.2: Sector wise Share of GSDP and Workforce**

SN	Year	Primary		Secondary		Tertiary	
		Share	Workforce	Share	Workforce	Share	Workforce
1.	1985-86	37.86	79.10	11.36	8.70	50.78	12.20
2.	1986-87	34.78		11.08		54.14	
3.	1987-88	38.15		10.05		51.80	
4.	1988-89	36.12		10.98		52.90	
5.	1989-90	33.65		12.46		53.89	
6.	1990-91	35.18	78.10	11.75	9.30	53.07	12.80
7.	1991-92	37.60		10.76		51.64	
8.	1992-93	33.77		10.98		55.25	
9.	1993-94	35.14	77.30	11.78	9.40	53.08	13.30
10.	1994-95	36.28		12.60		51.12	
11.	1995-96	32.62		11.68		55.70	
12.	1996-97	34.55		10.72		54.73	
13.	1997-98	31.48		11.66		56.86	
14.	1998-99	30.39		11.76		57.85	
15.	1999-00	33.67		12.48		53.85	
16.	2000-01	39.02	77.35	10.50	9.35	50.48	13.30
17.	2001-02	33.34		10.64		56.02	
18.	2002-03	36.78		10.60		52.62	
19.	2003-04	32.45		10.98		56.57	
20.	2004-05	33.06		11.11		55.83	
21.	2005-06	28.74		15.16		56.10	

*Source: Economic Survey of Bihar, NSS data for 1993-94 and Census – 2001.*

The overall scenario emerges from the table 1.2 that more than two-third of the workforce is concentrated in the primary sector. While agriculture's contribution to GSDP declined, the workforce continued to perpetuate in this sector. The district level analysis on the basis of census - 2001 reveals that Patna district (44.83%) has the highest percentage of workers in the non-agricultural sector, followed by Munger (42.21%), Jamui (37.17%) and Begusarai (33.53%) districts. The proportion of workers engaged in non-agricultural activities is the lowest in Madhepura (10.39%), closely followed by Supaul (11.16%), Araria (11.89%) and Sheohar (12.58%) districts. It further transpires from the statement that out of 38 districts in the state only 15 districts where percentage of workers in the non-agricultural sector is above the state average (2.65%). The rest of the districts of the state are, by and large, agriculture prone districts. This clearly indicates that Bihar's economy is predominantly agrarian and a major portion of the state's workforce is still dependent on agriculture as its primary source of its livelihood. Further, in more than 50.00 per cent of the districts, the share of agricultural labourers is more than 50.00 per cent of the total workers.

Besides, being the state with the lowest per capita income, Bihar also suffers from high regional disparities within the state. The average per capita GDDP in 38 districts of Bihar is Rs. 7168, estimated for 2003-04 and 2004-05. Patna district is at the top with a figure of Rs. 29,482. Munger appearing as the second most prosperous district has a per capita GDDP figure of Rs. 9763. The two districts at the bottom the ranking are Sitamarhi (Rs. 4392) and Sheohar (Rs. 3967). Broadly, the per capita GDDP figures indicate that the districts in south Bihar are relatively more prosperous than those in the north.

### **1.3 Agriculture and Public Finance**

Public finance is not only about prudent fiscal management, it is also a theoretically consistent measurement of relevant parameters that is essential

for proper examination, analysis, diagnosis and policy intervention in areas pertaining to state finances. Being committed to fiscal responsibility and having substantially increased the capital outlays to create income generating capital assets in the economy, Bihar today is facing the challenge of translating its outlays into measurable and quantifiable outcomes. Till 2003-04, the state had a deficit in its revenue account, but in 2004-05, for the first time Bihar had a revenue surplus that was more than Rs. 1000 crore. This surplus has been increasing continuously, from Rs. 82 crore in 2005-06 to Rs. 4467 crore in 2007-08. In fact, 2005-06 marks a watershed in the finances of the state government signifying an earnest beginning of reforms in public finances; it was in 2005-06 that the state government enhanced its spending very substantially on social and economic services (includes agriculture and allied activities) as also more than doubled the capital outlay, while expenditure on general services was contained nearly at the existing level. The expenditure on economic services is meant to creative productive capacity in the economy. The expenditure on economic services in 2005-06 accounted for 10.49 per cent of the total expenditure. Agriculture and allied activities accounted for 12.44 per cent of the expenditure on economic services in 2005-06. A brief look of expenditures on economic service out of expenditures from consolidated fund and expenditures on agriculture and allied activities out of expenditures on economic services may be seen as follows:

**A. Expenditure from the Consolidated Fund in Bihar (In %)**

SN	Items	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
1.	General Services	31.92	38.90	37.76	31.85	29.31	28.26
2.	Social Services	17.94	23.91	30.40	29.18	31.26	32.90
3.	Economic Services	6.66	10.15	10.49	14.82	14.06	13.85
4.	Grants-In-aid Public	0.02	0.02	0.02	0.01	0.02	0.01
5.	Capital Pubic Debt & Loans	43.46	27.02	21.32	24.14	25.37	24.98
	Total	100.00	100.00	100.00	100.00	100.00	100.00

*Source: Economic Surveys of Bihar, 2007-08 and 2008-09, Govt. of Bihar.*

## B. Expenditure on Agriculture and Allied Activities vis-à-vis Total Economic Services

SN	Particulars	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
<b>Agril. &amp; allied</b>							
1.	Total Expenditure (In Rs. Crore)	255 (10.16)	254 (8.87)	407 (13.41)	504 (12.44)	596 (7.03)	759 (7.97)
2.	Revenue Expendit. (In Rs. Crore)	249	249	397	410	585	737
a.	Salary component (%)	51	70	44	47	39	31
b.	Non-salary component (%)	49	30	56	53	61	69
3.	Capital expenditure (%)	02	06	10	93	11	22
<b>Total Economic Services</b>							
1.	Total expenditure (In Rs. Crore)	2510	2862	3035	4051	8481	9520
2.	Revenue expendit. (In Rs. Crore)	1763	1498	2036	2367	4021	4438
a.	Salary component (%)	33	53	34	34	23	22
b.	Non-salary component (%)	67	47	66	66	77	78
3.	Capital expenditure (%)	30	1.68	1.09	1.04	0.62	53.38

NB: In parenthesis figures are in percentage to total expenditure on agriculture and allied activities to total economic services.

Source: Economic Survey of Bihar, 2007-08 and 2008-09

### 1.4 Brief Review of Agriculture Development

The agricultural sector of Bihar's economy is extremely important not merely because 90.00 per cent of its population earns their livelihood from this sector, but it is this sector wherein lies the great potential of its economy. Being situated in the Gangetic plain, Bihar is endowed with both extremely fertile soil and abundant water resources. Because of its geographical location, the state is also endowed with high bio-diversity and, consequently, the farmers here are capable of growing a large number of crops like food grains, oilseeds, fibres, fruits and vegetables. In addition, the agricultural sector also lends a base for the animal husbandry sector of the state's economy which again is an important source of income for its rural population (*Economic Survey of Bihar, 2008-09*).

Agriculture in the state is crucially dependent on monsoon. Although around 57.00 per cent of its gross cultivated area is irrigated, irrigation itself is crucially dependent on monsoon as it largely depends on the use of surface water. The average annual rainfall in the state is about 1098 mm.

Because of its rich biodiversity, the farmers in Bihar are able to produce a large number of crops --- cereals, pulses, oilseeds, fibre crops, fruits and vegetables. Since the production level varies considerably from year to year,

the average figures taking the five year period (2003-04 to 2007-08) of production of major crops in the state are --- 43.70 LT rice, 36.00 LT wheat and 14.90 LT maize. According to this the production of other cereals (which are all considered as coarse cereals), the total production of cereals is 95.40 LT. Further, taking into consideration the total production of pulses at 4.9 lakh tones, the total production of food grains is 100.30 LT, for a present population of above 99.00 million.

Since the agricultural economy of the state is still basically oriented towards subsistence, the food grains account for a very large part of the area under major crops (95.00%).

### **1.5 Agricultural Productivity Growth and Stagnation across Crops**

In tables 1.3 (A), 1.3 (B) and 1.3 (C) the growth rates in area, production and productivity are indicated. It can be observed from 1.3 (A) that growth rate of area of rice and small millets was negative in pre-reform period whereas except wheat the growth rate of all crops was negative in post reform period. With respect to growth rate of production of food grains it was positive (1.40) in pre-reform period whereas that of negative (-1.64) in post reform period (1.3 B). So far as the growth rate of yield, it can be observed from the table 1.3 C that the yield of almost every crop in pre reform period was positive. But the growth rate of total cereals and total pulses declined. The rice yield, which increased by 1.82 per cent per annum during pre reforms period increased a bit faster at 1.92 per cent per annum, during the post reform era. In an opposite manner, the wheat yield increased at 2.72 per cent per annum during the pre reforms period surprisingly declined at (-) 0.90 per cent per annum during post reforms era. The rice productivity is considered to have stagnated during 1985-86 to 2005-06. However, the negative growth in productivity of wheat during the recent period may largely be due to aberrations in weather conditions, delayed sowing, increase in cost of production (due to rise in cost of diesel), lack of small duration varieties, low adoption of technology, etc. The trends in total food grains yields is stagnated largely due to lack of quality inputs, credit, poor transfer of technology and extension, etc (A Report of the Special Task Force on Bihar, 2008, GoI).



**Table No. 1.3 (A): Growth in Area Crop wise (Area in '000 ha)**

Year	Rice	Wheat	Maize	Ragi	Gram	Tur (Arhar)	Potatoes	Sugarcane	Sesame	Rapeseed & Mustard	Small Millets	Total Cereals	Total Pulses	Total Food grains	Total Oilseeds
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1985-86	5383.60	1835.00	689.00	96.40	140.60	62.40	138.60	109.40	12.80	79.60	70.80	8074.80	845.60	8920.40	196.56
1986-87	5375.20	1896.20	649.40	98.70	142.70	64.50	139.90	112.00	13.90	80.90	71.60	8091.10	866.70	8957.80	198.85
1987-88	5345.20	1972.50	688.30	102.30	145.60	66.40	143.40	118.45	14.60	81.80	72.40	8180.60	898.60	9079.20	205.42
1988-89	5308.60	2112.00	692.80	106.70	147.70	67.30	147.30	126.90	16.00	82.00	75.80	8295.90	921.80	9217.70	211.28
1989-90	5285.60	1988.10	700.60	104.30	169.50	74.70	153.30	124.60	18.80	100.30	69.80	8184.40	962.20	9110.60	235.86
1990-91	5390.40	1965.00	664.80	97.60	167.70	66.20	160.60	148.70	16.10	109.10	65.90	8183.70	941.80	9125.50	242.37
1991-92	5099.50	1984.80	689.00	91.10	150.40	64.90	168.20	144.90	15.00	104.10	57.80	7986.30	867.70	8854.00	227.82
1992-93	4516.70	1974.00	698.20	87.40	127.30	65.60	159.40	132.90	15.60	102.50	53.00	7381.50	786.70	8168.20	208.54
1993-94	4717.80	2069.60	721.60	94.20	131.60	75.90	162.70	119.90	24.80	108.20	53.30	7715.50	767.80	8503.30	243.28
1994-95	4717.80	2045.00	784.10	90.90	130.60	70.10	162.70	123.20	18.30	105.40	46.40	7712.30	772.10	8484.40	225.63
1995-96	4727.20	2088.60	742.30	85.80	126.40	65.30	163.40	122.10	17.40	104.50	42.50	7686.40	769.80	8456.20	220.49
1996-97	4682.00	2165.50	732.50	76.40	118.90	61.80	161.20	119.30	16.20	106.20	38.60	7695.00	676.70	8461.70	216.52
1997-98	4375.00	2075.60	715.60	60.80	109.60	58.20	158.40	116.40	15.10	105.10	35.70	7262.70	761.40	8024.10	209.82
1998-99	3952.60	2085.70	686.50	46.60	99.70	52.40	154.50	117.50	14.60	102.30	31.60	6803.00	656.20	7559.20	198.75
1999-00	3768.50	2185.60	674.30	34.70	92.80	48.30	150.60	112.60	13.80	99.80	28.90	6692.00	749.90	7441.90	189.64
2000-01	3656.84	2067.33	620.50	22.50	76.20	43.60	145.00	93.52	3.40	97.00	7.80	6400.15	717.22	7117.37	153.68
2001-02	3552.20	2126.33	594.34	19.60	68.20	41.30	140.00	113.43	3.10	93.10	7.00	6326.25	694.21	7020.46	142.74
2002-03	3584.70	2130.93	603.61	28.70	71.40	37.70	148.00	107.27	3.80	90.10	9.80	6383.43	697.79	7081.22	137.22
2003-04	3577.99	2076.84	616.43	15.20	80.30	38.90	146.00	103.59	3.80	83.70	7.00	6317.98	680.87	6998.85	140.51
2004-05	3188.25	2022.35	626.85	15.40	73.30	35.30	145.00	104.45	3.50	83.30	5.50	5879.91	649.22	6529.13	136.92
2005-06	3252.36	2003.73	648.82	14.50	62.20	33.30	142.30	101.24	3.60	82.10	7.40	5951.53	597.39	6548.90	135.09
CAGR All	-2.84	0.42	-1.05	-10.38	-1.74	-3.59	-0.12	-1.03	-8.59	-0.0002	-13.14	-1.76	-1.85	-1.77	-2.52
CAGR Pre-Reform 1985-86 to 1990-91	-0.15	1.59	0.16	0.83	4.12	2.16	3.01	5.65	6.32	6.56	-1.11	0.29	2.54	0.51	4.64
CAGR Post-Reform 1991-92 to 2005-06	-3.24	0.15	-1.89	-4.68	-0.43	-5.71	-1.20	-2.11	-4.86	-1.93	-7.30	-2.19	-1.91	-2.17	-4.54

Source: Agriculture at a Glance, Ministry of Agriculture, Government of India, Different issues and Economic Survey of Bihar – 2007-08 & 2008-09

**Table No. 1.3 (B): Growth in Production Crop wise (Production in '000 tones)**

Year	Rice	Wheat	Maize	Ragi	Gram	Tur (Arhar)	Potatoes	Sugarcane	Sesame	Rapeseed & Mustard	Small Millets	Total Cereals	Total Pulses	Total Food grains	Total Oil seeds
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1985-86	5921.00	2936.00	877.00	82.95	87.65	72.05	1442.30	6725.50	5.20	62.40	51.40	10826.00	594.40	11420.40	112.60
1986-87	6125.50	3148.00	896.00	82.29	88.95	72.67	1465.20	6804.30	5.70	63.20	50.70	11044.30	598.20	11692.50	128.70
1987-88	6253.60	3359.00	962.00	43.60	81.83	62.05	1685.20	8293.00	4.90	61.80	48.90	10310.80	550.40	10861.20	108.90
1988-89	6351.00	3557.00	1082.40	67.10	128.90	74.40	1480.20	5482.80	4.20	63.20	77.60	11363.80	577.10	11440.90	119.40
1989-90	6348.90	3270.02	1203.10	80.20	132.10	89.50	1458.10	6694.10	5.10	82.40	41.70	11220.00	614.30	11834.30	140.10
1990-91	6563.50	3560.40	1037.50	88.20	157.80	82.30	1494.70	7805.30	4.70	83.20	35.40	11583.20	675.70	12258.90	179.50
1991-92	4753.20	3594.30	1277.30	71.70	147.80	92.90	1525.80	7076.60	4.00	109.00	40.50	9788.00	609.90	10638.40	164.60
1992-93	3641.20	3449.50	1160.80	63.80	109.00	58.80	1483.80	6061.60	4.80	73.30	34.30	8389.10	525.50	9082.40	117.60
1993-94	6108.50	4365.70	1423.20	65.60	140.00	76.90	1626.70	4397.90	6.20	91.20	34.20	12040.60	518.60	12776.10	142.70
1994-95	6168.40	4254.00	1452.60	69.80	141.70	78.00	1472.40	5667.30	5.30	91.70	27.50	12181.40	590.80	12852.20	153.80
1995-96	6468.20	4138.40	1342.30	66.40	139.60	79.40	1562.80	5468.40	4.80	89.80	32.80	12048.10	560.70	12608.80	162.60
1996-97	7280.70	4560.70	1545.20	64.20	138.60	77.80	1264.70	5374.50	4.20	88.90	30.90	13481.70	745.40	14227.10	158.80
1997-98	7133.20	4432.60	1402.30	62.40	134.60	74.20	1355.80	5162.80	3.60	87.70	33.80	13114.30	665.70	13780.00	149.60
1998-99	6632.50	4180.80	1303.50	58.90	130.50	67.50	1361.00	4864.70	3.20	82.60	35.60	12211.30	697.50	12908.80	137.50
1999-00	6020.80	4273.00	1498.80	52.60	125.30	61.40	1365.00	4265.80	3.00	81.70	70.80	11985.40	672.60	12658.00	132.60
2000-01	5449.40	4438.00	1497.30	24.70	78.70	58.90	1390.00	3987.57	1.80	84.40	43.20	11437.38	621.54	12058.92	130.91
2001-02	5202.90	4391.10	1488.30	16.70	65.30	47.70	1400.00	5211.11	7.90	78.80	50.00	11135.09	547.09	11682.18	120.00
2002-03	5085.60	4040.60	1349.80	14.20	72.10	43.00	1412.00	4520.51	2.90	62.00	51.10	10527.05	560.89	11087.44	104.93
2003-04	5447.80	3688.90	1473.60	10.40	78.60	48.10	1477.00	4285.88	2.80	69.00	42.90	10653.18	556.81	11209.99	123.72
2004-05	2625.10	3279.91	1491.20	10.90	61.00	49.20	1482.00	3769.20	2.70	59.80	42.20	7434.97	471.70	7906.37	116.31
2005-06	3677.40	2763.30	1397.20	11.30	56.10	43.00	1479.00	4240.40	2.90	77.10	55.00	7664.76	447.00	8111.85	133.51
CAGR All	-1.80	0.79	2.42	-10.11	-2.59	-2.73	-0.35	-3.05	-3.26	0.16	0.12	2.34	-0.48	-0.69	-0.13
CAGR Pre-Reform 1985-86 to 1990-91	1.84	1.42	5.40	0.39	3.98	4.29	-0.39	0.81	-2.80	6.66	-6.83	1.39	2.20	1.40	5.17
CAGR Post-Reform 1991-92 to 2005-06	-2.30	-1.11	0.82	-4.95	-6.67	-4.63	-0.36	-2.95	-4.36	-2.52	3.35	-1.52	-1.01	-1.64	-1.84

Source: Agriculture at a Glance, Ministry of Agriculture, Government of India, Different issues and Economic Survey of Bihar – 2007-08 & 2008-09

**Table No. 1.3 (C): Growth in Productivity Crop wise (In Kg/ha)**

Year	Rice	Wheat	Maize	Ragi	Gram	Tur (Arhar)	Potatoes	Sugarcane	Sesame	Rapeseed & Mustard	Small Millets	Total Cereals	Total Pulses	Total Food grains	Total Oilseeds
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1985-86	1106	1600	1273	495	640	1095	1070	36414	232	696	730	1340	700	1280	570
1986-87	1142	1590	1296	498	695	1121	1047	37210	240	730	710	1370	690	1310	650
1987-88	1197	1435	1361	505	756	1251	1175	38013	256	743	680	1260	610	1200	530
1988-89	1196	1684	1562	629	873	1105	10079	43206	261	771	628	2320	686	1256	565
1989-90	1201	1645	1717	769	779	1198	9511	53725	268	822	597	2475	693	1255	594
1990-91	1218	1812	1561	904	971	1243	9307	52490	292	763	537	2413	779	1300	617
1991-92	932	1811	1854	787	981	1431	9071	48838	270	1047	701	2444	785	1173	723
1992-93	806	1747	1663	730	856	856	9309	45384	300	715	647	2461	708	1086	564
1993-94	1295	2105	1972	696	1064	1064	9998	36680	250	843	642	2413	789	1467	623
1994-95	1305	2090	1942	768	1083	1083	9050	46001	290	840	593	2413	833	1480	682
1995-96	1365	2095	1985	770	1095	1095	9560	44790	280	860	770	1570	730	1490	740
1996-97	1396	2120	2022	772	1099	1108	7850	45050	260	840	800	1750	970	1680	730
1997-98	1420	2145	2095	809	1085	1162	8560	44350	250	810	950	1810	880	1720	710
1998-99	1452	2180	2105	816	1098	1190	8810	41400	230	800	1130	1790	920	1710	680
1999-00	1450	2186	2125	910	975	1235	9060	42020	220	788	1410	1790	900	1700	700
2000-01	1489	2176	2413	1099	1033	1348	9745	42634	523	863	552	1787	867	1697	861
2001-02	1465	2065	2504	851	957	1155	9775	45937	2575	839	731	1760	788	1664	839
2002-03	1419	1896	2236	498	1010	1141	9935	42141	720	688	814	1679	803	1565	766
2003-04	1523	1776	2390	687	979	1237	9645	41369	748	824	760	1686	818	1602	879
2004-05	1292	1609	2386	708	835	1235	7658	36084	783	805	762	1264	725	1211	876
2005-06	1075	1617	2098	778	902	1291	8663	41884	800	926	776	1288	748	1238	992
CAGR All	1.30	0.82	3.08	1.48	1.42	0.45	7.49	-0.11	5.95	0.47	1.44	-1.01	0.98	1.20	2.48
CAGR Pre-Reform 1985-86 to 1990-91	1.82	2.72	5.86	3.83	7.03	2.05	5.69	9.13	4.38	2.47	-5.80	6.46	1.84	0.02	0.51
CAGR Post-Reform 1991-92 to 2005-06	1.92	-0.90	2.03	-0.34	-0.74	1.10	-0.27	-0.82	9.69	-0.45	1.18	-4.00	-0.05	0.73	2.80

Source: Agriculture at a Glance, Ministry of Agriculture, Government of India, Different issues and Economic Survey of Bihar – 2007-08 & 2008-09

### **1.5.1 Land use Pattern**

The land utilization pattern is indicated in table 1.4. The total geographical area in the state was 173 lakh ha till 1999, which came to about 93 lakh ha after the bifurcation of the state in November, 2000. The area under forest was 16.86 per cent in 1985-86, which slashed to 6.66 per cent in 2005-06, after the bifurcation of the state. It can be observed that the pattern displayed minimal changes over the period. The net sown which was 42.76 per cent of geographical area during pre reforms period increased to 59.70 per cent of geographical area during post-reforms period. The cropping intensity is almost stagnant at around 134.00 per cent. So, there is immense possibility to increase the gross cropped area i.e., vertical expansion (table 1.4).

### **1.5.2 Cropping Pattern**

It is very important to look the cropping pattern over the years to have an insight into the dynamics of agricultural growth. The area under food grains which was nearly 88.00 per cent in 1985-86 is still at the same figure in 2005-06. The crop wise analysis reveals that the area under rice has fallen from 52.69 per cent in 1985-86 to 43.83 per cent in 2005-06. However, in case of wheat crop, it has increased from 17.96 per cent in 1985-86 to 27.00 per cent in 2005-06. Maize crop has also recorded a bit increase in area from 6.74 per cent in 1985-86 to 8.74 per cent in 2005-06. Overall, it indicates a stagnant agriculture (table 1.5).

It is clear from above discussions that there have not been significant changes in crop patterns, area, production and productivity of important crops in agriculture either in pre reform period or post reform period or in erstwhile Bihar or new Bihar.

**Table No. 1.4: Land use Statistics** (Area in '000 ha)

Year	Total Reported Area	Forest	Not Available for Cultivation	Permanent Pastures and other Grazing Land	Land Under Misc. Tree Crops & Grooves	Cultivable Waste Land	Fallow Land other than Current Fellows	Current Fellows	Net Area Sown	Area Sown more than Once	Total Cropped Area	Cropping Intensity (In %)
1	2	3	4	5	6	7	8	9	10	11	12	13
1985-86 (In %)	17328 (100.00)	2922 (16.86)	2994 (16.99)	138 (0.80)	266 (1.54)	387 (2.23)	1083 (6.25)	1988 11.47)	7409 (42.76)	2809 ---	10218 ---	137.91 ---
1986-87	17329	2923	3021	137	267	388	1082	1984	7386	2821	10207	138.19
1987-88	17330	2923	3038	137	267	388	1082	1978	7480	2847	10327	138.06
1988-89	17330	2923	3046	131	264	397	1089	1827	7604	2912	10516	138.30
1989-90	17330	2923	3075	130	269	393	1076	1738	7725	2694	10419	134.87
1990-91	17330	2949	3125	126	291	372	999	1765	7703	2783	10485	136.12
1991-92	17330	2947	3097	122	302	368	991	1772	7684	2742	10426	135.68
1992-93	17330	2948	3038	118	318	371	998	1798	7615	2728	10343	135.82
1993-94	17330	2946	2982	116	324	369	982	1862	7569	2699	10268	135.66
1994-95	17330	2947	2924	115	328	367	979	1896	7456	2598	10054	134.84
1995-96	17330	2949	2333	114	337	365	973	1896	7321	2512	9833	134.31
1996-97	17330	2949	2333	114	337	365	973	1928	7321	2512	9833	134.31
1997-98	17330	2949	2333	114	337	365	973	1928	7321	2512	9833	134.31
1998-99	17330	2949	2333	114	337	365	973	1928	7321	2512	9833	134.31
1999-00	17330	2949	2333	114	337	365	973	1928	7321	2512	9833	134.31
2000-01	9310	616	1638	18	231	46	135	576	5663	2330	7993	141.14
2001-02	9310	622	1642	18	235	46	135	563	5664	2233	7897	139.42
2002-03	9310	622	1643	18	237	46	133	499	5726	2233	7959	139.00
2003-04	9309	622	1643	18	238	46	130	512	5712	2170	7882	137.99
2004-05	9309	621	1645	18	239	46	132	647	5572	1828	7400	132.81
2005-06 (In %)	9308 (100.00)	620 (6.66)	1645 (17.67)	18 (0.19)	240 (2.58)	46 (0.49)	129 (1.39)	666 (7.16)	5557 (59.70)	1864 ---	7421 ---	133.34 ---

Source: Indian Agril. & Stat. Vol. I & II, 1989-90 to 1990-91 of Bihar, Bihar through figures 2003, Economic Survey of Bihar, 2008-09

**Table No. 1.5: Percentage Change in the Cropping Pattern (Area as a percent to GCA)**

Year	Rice	Wheat	Maize	Ragi	Gram	Tur (Arhar)	Potatoes	Sugarcane	Sesame	Rapeseed & Mustard	Small Millets	Total Cereals	Total Pulses	Total Food grains	Total Oilseeds	GCA (000 ha)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1985-86	52.69	17.96	6.74	0.94	1.36	0.61	1.36	1.07	0.13	0.78	0.69	79.03	8.28	87.30	1.92	10218
1986-87	52.66	18.58	6.36	0.97	1.40	0.63	1.37	1.20	0.14	0.79	0.70	79.27	8.49	87.76	1.95	10207
1987-88	51.76	19.10	6.66	0.99	1.41	0.64	1.39	1.15	0.14	0.79	0.70	79.22	8.70	87.92	1.99	10327
1988-89	50.48	20.08	6.59	1.01	1.40	0.64	1.40	1.21	0.15	0.78	0.72	78.89	8.77	87.65	2.01	10516
1989-90	50.73	19.08	6.72	1.00	1.63	0.72	1.47	1.20	0.18	0.96	0.67	78.05	9.24	87.44	2.26	10419
1990-91	51.41	18.74	6.34	0.93	1.60	0.63	1.53	1.42	0.15	1.04	0.63	76.60	8.98	87.03	2.31	10485
1991-92	48.91	19.04	6.61	0.87	1.44	0.62	1.61	1.39	0.14	1.00	0.55	71.37	8.32	84.92	2.19	10426
1992-93	43.67	19.09	6.75	0.91	1.23	0.63	1.54	1.28	0.15	0.99	0.15	75.14	7.61	78.97	2.02	10343
1993-94	45.95	20.16	7.03	0.92	1.28	0.74	1.58	1.17	0.24	1.05	0.52	76.71	7.67	82.81	2.37	10268
1994-95	46.92	20.34	7.44	0.90	1.30	0.70	1.62	1.23	0.18	1.05	0.46	76.71	7.68	84.39	2.24	10054
1995-96	48.07	21.34	7.96	0.87	1.29	0.66	1.66	1.24	0.18	1.06	0.43	78.17	7.83	86.00	2.24	9833
1996-97	47.62	22.02	7.45	0.78	1.21	0.63	1.64	1.21	0.16	1.08	0.39	78.26	7.80	86.05	2.20	9833
1997-98	44.49	21.11	7.28	0.62	1.11	0.59	1.61	1.18	0.15	1.07	0.36	73.86	7.74	81.60	2.13	9833
1998-99	40.20	21.21	6.98	0.47	1.01	0.53	1.57	1.19	0.15	1.04	0.32	69.19	7.69	76.88	2.02	9833
1999-00	38.33	22.23	6.86	0.35	0.94	0.49	1.53	1.15	0.14	1.01	0.29	68.06	7.63	75.66	1.93	9833
2000-01	45.75	25.86	7.76	0.28	0.95	0.55	1.77	1.17	0.04	1.21	0.10	80.07	8.97	89.05	1.92	7993
2001-02	44.98	26.93	7.53	0.25	0.86	0.52	1.78	1.44	0.04	1.18	0.09	80.11	8.79	88.90	1.81	7897
2002-03	45.04	26.77	7.58	0.36	0.90	0.47	1.86	1.35	0.05	1.13	0.12	80.20	8.77	88.97	1.72	7959
2003-04	45.39	26.35	7.82	0.19	1.02	0.49	1.85	1.31	0.05	1.06	0.09	80.16	8.64	88.80	1.78	7882
2004-05	43.08	27.33	8.47	0.21	0.99	0.48	1.96	1.41	0.05	1.13	0.07	79.46	8.77	88.23	1.85	7400
2005-06	43.83	27.00	8.74	0.20	0.84	0.45	1.92	1.36	0.05	1.11	0.10	80.20	8.05	88.25	1.82	7421

Source: Indian Agril. & Stat. Vol. I & II, 1989-90 to 1990-91 of Bihar, Bihar through figures 2003, Economic Survey of Bihar, 2008-09

## 1.6 Trends in GSDP in Agriculture and Allied Sectors

The trends in GSDP in agriculture and allied activities confirm the slow down in growth occurring during the post reform period. The compound growth rates of GSDP in crop husbandry, animal husbandry, dairy; fisheries, etc. are given in table 1.6. While the GSDP in agriculture grew at 8.61 per cent per annum, the growth in animal husbandry, forestry and fisheries was 12.36 per cent, 17.74 per cent and 4.56 per cent respectively during the post reform period. Other sectors i.e., soil and conservation, agricultural research and education and agricultural finance institutions grew at a relatively lower pace of 6.76 per cent, 4.74 per cent and 2.81 per cent per annum respectively. These sectors need greater focus for sustainable development of agriculture sector as a whole.

**Table 1.6: Compound Growth Rates of GSDP by Sector of Origin at Constant Price (1999-2000)**

SN	Particulars	Pre reform period (1985-86 to 1990-91)	Reform Period (1991-92 to 2005-06)	Total (1985-86 to 2005-06)
1.	Agriculture and Allied Activities (i to xii)	18.74	8.61	11.08
i.	Crop Husbandry	21.77	17.16	12.54
ii.	Soil and Water Conservation	13.03	6.76	16.83
iii.	Animal Husbandry	19.71	12.36	9.56
iv.	Dairy Development	25.98	6.45	16.96
v.	Fisheries	11.17	4.56	8.50
vi.	Forestry and Wild Life	17.24	17.74	8.70
vii.	Plantations	---	---	---
viii.	Food Storage and Warehousing	6.58	8.30	16.13
ix.	Agricultural Research and Education	7.51	4.74	10.22
x.	Agricultural Finance Institutions	7.54	2.81	5.82
xi.	Co-operation	20.26	7.83	6.85

## 1.7 Objectives

The specific objectives are as follows:

- i. *To analyze the trends in budgetary allocation of resources to the agricultural sector as a whole and the sub-sectors of agriculture in particular in Bihar.*
- ii. *To document and analyze schemes under operation in Bihar contributing to the development of the agricultural sector.*
- iii. *To enlist and analyse the impact of central sector schemes operating in the agricultural sector in Bihar.*

## 1.8 Methodology

Primarily, the study is based on secondary data, collected from the state's budget documents, Economic Surveys of Bihar, various statistical publications (Ministry of Agriculture, Govt. of India) and from the Department of Agriculture, Govt. of Bihar. The data were collected for the period of 1985-86 to 2005-06 i.e., 20 years. Time series data were calculated in Compound Annual Growth Rate (CAGR), which was drawn with the help of following statistical formulas:

$$Y = AB^t$$

For estimating  $\alpha$  (Intercept) and  $\beta$  (slope)

$$\text{CAGR} = (b-1) \times 100$$

$$B = \text{Antilog of slope } (\beta)$$

## 1.9 Organization of the Study

The study report is prepared into five chapters. Chapter -I deals with a brief introduction covering the aspects of profile of state, agriculture and public finance, agricultural development, objectives, methodology, etc. The second chapter - analyses the trends and pattern of budgetary expenditure on agriculture, while third chapter gives a brief review of the agricultural schemes being implemented in the state. The relationship between the state intervention and agricultural development has been sketched in chapter - four. The last chapter - fifth summaries the report and concludes with policy implications.



### TRENDS AND PATTERN OF BUDGETARY EXPENDITURE ON AGRICULTURE

#### 2.1 Introduction

Revenue and Capital expenditures are the two components of the state government's total budgetary expenditures, which are classified under major categories --- General services, social services and economic services. Apart from these, other areas of spending are capital outlay and repayment of loans and advances on the capital account and grants to local bodies, autonomous institutions, commercial undertakings of the state government and government companies. Among the general services expenditures like pension, interest payment, etc. are charged and the expenditure on those heads has been rising steadily. Among the social services the expenditures are on education, health and family welfare, water supply and sanitation and social welfare and nutrition. Under economic services expenditures are made on agriculture and allied sectors, rural development, power, roads, etc. The expenditure on economic services is meant to create productive capacity in the economy. The expenditure on economic services in the year 2007-08 accounted for 14.00 per cent of the total expenditure and more than one-third of the total developmental expenditure incurred by the state government. Agriculture and allied activities, irrigation and flood control, energy and transport accounted for more than 60.00 per cent of the expenditure on economic services. More than half of the total expenditure on economic services was on capital account. Moreover, this chapter concentrates on the broad trends and pattern of budgetary expenditure in agriculture in Bihar.

## **2.2 Trends of Budgetary Agricultural Expenditure**

In this section a detailed analysis is made on budgetary allocation to agricultural expenditure in the state:

### **A. Growth of Budgetary Expenditure on Agriculture at Constant Prices**

The total expenditure, expenditure on economic services and expenditure on agriculture on revenue and capital accounts at constant prices of 1993-94 have been presented in table 2.1. Total budgetary expenditure in the state increased continuously and significantly during the period of 1985-86 to 2006-07. It increased more than six times from Rs. 4591 crore in 1985-86 to Rs. 28,221 crore in 2006-07, even after the bifurcation of the state in November 2000. Of the total expenditures, expenditures on revenue and capital constituted at 80.51 per cent and 19.49 per cent respectively in 1985-86, were 77.18 per cent and 22.82 per cent respectively in 2006-07. On the other hand, the total expenditure on economic services increased from Rs. 1,548 crore in 1985-86 to Rs. 7,804 crore in 2006-07. It increased more than five times during the period under study. When we look at the trends in expenditure on agriculture in the state during the referred period (22 years) different picture emerges. It has just increased 1.22 times in 2006-07 over 1985-86 figures, after many ups and downs during the period. The Growth rate of expenditure on agriculture, which was 1.12 per cent during pre-reform period (1985-86 to 1990-91) declined to 0.87 per cent during post-reform period (1991-92 to 2006-07) and was 0.89 per cent during the entire period i.e., 1985-86 to 2006-07 (table 2.1 (a)). It reveals that the growth rate of budgetary support to agriculture has fallen. Another distressing feature is that the expenditure on capital account fallen from Rs. 21.30 crore in 1985-86 to Rs. 14 crore in 2006-07. This clearly indicates the shrinkage of human resources engaged in agricultural

sector as well as fall in capital investments required for future growth. The almost stagnant expenditure in agriculture sector has led to deceleration or stagnant agriculture in the state.

**Table No. 2.1: Trend in Expenditure on Agriculture**

(Rs. In Crore at constant price 1993-94)

Year	Total			Economic Services			Expenditure on Agriculture		
	Revenue	Capital	Total	Revenue	Capital	Total	Revenue	Capital	Total
1985-86	3696.06	895.60	4591.66	1250.26	298.70	1548.96	336.90	21.30	358.20
1986-87	3786.80	940.30	4727.10	1336.40	295.80	1632.20	339.70	22.40	362.10
1987-88	3856.70	875.20	4731.90	1339.50	315.06	1657.56	342.80	26.60	369.40
1988-89	2964.50	9240.40	4888.90	1391.52	360.08	1751.60	345.90	22.75	368.65
1989-90	4280.60	998.50	5279.10	1425.61	340.15	1765.76	362.75	23.60	386.35
1990-91	4670.80	1045.80	5716.60	1455.78	350.19	1805.92	360.82	25.43	386.25
1991-92	5738.69	1065.99	6804.68	1472.25	375.16	1847.41	367.74	24.23	391.97
1992-93	6569.55	1173.89	7743.44	1921.29	347.05	2268.34	334.68	23.64	358.32
1993-94	7318.64	1114.61	8433.25	2182.81	296.68	2479.40	390.07	24.04	414.11
1994-95	7731.22	823.32	8554.54	1815.02	255.38	2070.40	386.67	14.90	401.57
1995-96	8456.17	960.78	9416.95	1768.64	292.75	2061.39	469.67	9.56	479.23
1996-97	9841.17	1263.36	11104.53	2249.11	336.26	2585.37	359.69	2.19	361.88
1997-98	10332.24	1689.38	12021.62	1946.43	495.82	2442.25	406.98	5.10	412.08
1998-99	10623.00	1549.00	12172.00	2177.00	864.00	3041.00	372.00	15.00	387.00
1999-00	16128.00	3420.00	19548.00	3072.00	2467.00	5539.00	595.00	32.00	627.00
2000-01	14345.00	2601.00	16946.00	2299.00	1641.00	3940.00	456.00	29.00	485.00
2001-02	9916.00	1340.00	11257.00	1148.00	671.00	1819.00	244.00	23.00	267.00
2002-03	7382.00	2201.00	9583.00	9151.00	644.00	1557.00	187.00	37.00	224.00
2003-04	12663.00	6976.00	19640.00	1476.00	4160.00	5636.00	242.00	17.00	259.00
2004-05	14638.00	5416.00	20055.00	2036.00	2117.00	4153.00	397.00	34.00	431.00
2005-06	19269.00	5899.00	25167.00	2755.00	4269.00	7024.00	507.00	98.00	605.00
2006-07	21780.00	6441.00	28221.00	3470.00	4334.00	7804.00	421.00	14.00	435.00

Source: CMIE (Public Finance), April 1991, May 1998 & Nov. 2006 Issues.

**Table No. 2.1(a): Growth Rate on Agriculture Expenditure at Constant Prices 1993-94**

Period	Year	Growth Rate (In % Per Annum)
Pre-Reform	1985-86 to 1990-91	1.12
Post-Reform	1990-91 to 2006-07	0.87
Overall	1985-86 to 2006-07	0.89

## B. Growth of Per hectare Budgetary Expenditure on Agriculture

The trend of per hectare budgetary expenditure on agriculture and allied sectors of revenue account at constant prices (1993-94) is given in table 2.2. The table reveals that per hectare expenditure on agriculture and allied services of revenue account at constant prices was Rs. 328 in 1985-86 increased to Rs. 683 in 2005-06. But the increase is not stable. This clearly reveals from the figures of 2001-02, 2002-03 and 2003-04, which were Rs. 308, Rs. 234 and Rs. 307, lower than the year 1985-86

level. So one can say that expenditure on agriculture and allied is almost stagnant for the last 20 years. Such trend of expenditure can not be compatible with objective of achieving 4.00 per cent growth in agricultural sector in the state.

**Table No. 2.2: Trends in Expenditure on Agriculture of Revenue Account at Constant Prices**

<b>Year</b>	<b>Expenditure (Rs./ha)</b>
1985-86	328
1986-87	332
1987-88	331
1988-89	328
1989-90	347
1990-91	343
1991-92	352
1992-93	322
1993-94	379
1994-95	383
1995-96	476
1996-97	365
1997-98	412
1998-99	378
1999-00	605
2000-01	570
2001-02	308
2002-03	234
2003-04	307
2004-05	536
2005-06	683

### **C. Expenditure as a Share of Total Budget**

Expenditure on agriculture and allied sectors as a share of total budget of revenue account is given in table 2.3. The table shows that in the year 2005-06 the share of agriculture sector is 1.93 per cent as against 9.12 per cent in 1985-86 showing decrease of 7.19 per cent over period of two decades. It appears that the agriculture sector has been totally neglected in the planned development efforts of the government of Bihar despite the fact that around 23.00 per cent of state GDP comes from agriculture.

#### D. Expenditure as a Share of Expenditure on Economic Services

Expenditure on agriculture and sub-sectors as a share of expenditure on economic services of revenue account is given in table 2.3. It can be seen from the table that in the year 1985-86, the share of agriculture expenditure was 26.95 per cent to the expenditure on economic services which decreased to 12.13 per cent in the year 2006-07 thereby showing decrease of 14.82 per cent over the period of two decades. During the pre-reform period this share decreased from 26.95 per cent to 24.79 per cent. During the reform period this share decreased from 24.98 per cent to 12.13 per cent thereby showing decrease by half of level of 1991-92. Thus, within economic services also less attention is given to agriculture sector throughout the period of 21 years.

**Table No. 2.3: Expenditure on Agriculture of Revenue Account as a Share of Total Budget and as a Share of Economic Services (In %)**

Year	As a Share of Total Budget	As a Share of Economic Services
1985-86	9.12	26.95
1986-87	8.97	25.42
1987-88	8.89	25.59
1988-89	8.72	24.86
1989-90	8.47	25.45
1990-91	7.73	24.79
1991-92	6.41	24.98
1992-93	5.09	17.42
1993-94	5.33	17.87
1994-95	5.00	21.30
1995-96	5.55	26.56
1996-97	3.65	15.99
1997-98	3.94	20.91
1998-99	3.50	17.09
1999-00	3.69	19.37
2000-01	3.18	19.83
2001-02	2.46	21.25
2002-03	2.53	20.44
2003-04	1.91	16.40
2004-05	2.71	19.50
2005-06	2.63	18.40
2006-07	1.93	12.13

### E. Expenditure on agriculture as a percentage of NSDP

Expenditure on agriculture and allied activities of revenue account as a percentage of NSDP at constant prices (1993-94) is given in table 2.4. The Net State Domestic Product (NSDP) is estimated to be Rs. 17,821 crore in the year 2005-06 as against Rs. 8,293 crore in the year 1985-86 registering an increase of 2.15 times during the period of 1985-86 to 2005-06. The expenditure on agriculture as a percentage of NSDP is estimated to be 2.87 per cent in the year 2005-06 as against 4.06 per cent in the year 1985-86 showing decrease of 1.19 per cent. The comparison of pre-reform and reform period shows that during pre-reform period expenditure on agriculture as a percentage of NSDP decreased from 4.06 per cent to 3.52 per cent and in reform period it has also decreased from 3.73 per cent to 2.87 per cent.

**Table No. 2.4: Expenditure on Agriculture of Revenue Account as a percentage of NSDP at constant prices (1993-94)**

*(Rs. In Crores)*

Year	NSDP	Agriculture Expenditure	Percentage
1985-86	8293	337	4.06
1986-87	8950	340	3.80
1987-88	8455	343	4.06
1988-89	9523	346	3.63
1989-90	9365	363	3.88
1990-91	10253	361	3.52
1991-92	9873	368	3.73
1992-93	9100	335	3.68
1993-94	9319	390	4.18
1994-95	9501	387	4.07
1995-96	9391	470	5.00
1996-97	10371	360	3.47
1997-98	10651	407	3.82
1998-99	12455	372	2.98
1999-00	15905	595	3.74
2000-01	21609	456	2.11
2001-02	17252	244	1.41
2002-03	21516	187	0.87
2003-04	17713	242	1.37
2004-05	20204	397	1.96
2006-07	17821	507	2.87

### 2.3 State Agricultural Plan (SAP) and Changing Nature of Expenditure on Agriculture

In table No. 2.5, the plan outlay for the agricultural sector is indicated. It can be observed from the table that the share of agriculture and allied activities is continuously decreasing over the plan periods. The percentage share of agriculture and allied activities to total expenditure was 12.23 per cent during the First Five Year Plan, which declined to 2.07 per cent in Tenth Five Year Plan. On the other hand, the total plan outlay has been increased to 606 times during the 1951-56 to 2006-07. Similarly the plan outlay for agriculture and allied sector has been increased from Rs. 960.45 lakh in First Five Year Plan to Rs. 98,840.26 lakh in Tenth Plan, almost 102 times increase during last five decades. But the overall picture on plan outlay for agricultural sector reveals that this sector has been neglected and its share reduced to a negligible figure particularly in eighth, ninth and tenth five year periods.

**Table No. 2.5: Plan Outlay on Agriculture**

(Rs. In lakh)

Plan	Total Plan Expenditure	Expenditure of Agricultural & Allied Activities	Agricultural & Allied Activities (%) of total Expenditure
First Plan (1951-56)	7852.06	960.45	12.23
Second Plan (1956-61)	13684.82	1208.56	8.83
Third Plan (1961-66)	25709.64	1894.07	7.37
Annual Plan (1966-69)	16302.70	1076.10	6.60
Fourth Plan (1969-74)	33450.62	2088.24	6.24
Fifth Plan (1974-79)	86255.54	5565.56	6.45
Annual Plan (1979-80)	18453.23	1672.08	9.06
Sixth Plan (1980-85)	256766.62	9678.65	3.77
Seventh Plan (1985-90)	375654.40	18765.42	5.00
Annual Plan (1990-91)	36904.46	3450.09	9.34
Annual Plan (1991-92)	37850.54	3865.34	10.21
Eighth Plan (1992-97)	1126863.20	32620.15	2.89
Ninth Plan (1997-02)	2354630.45	66730.22	2.83
Tenth Plan (2002-07)	4765840.56	98840.26	2.07

Sources: Various issues of Budgetary document, Planning Department, Govt. of Bihar

### 2.4 Conclusions

This chapter has brought out trends and pattern of budgetary expenditure in agriculture during the period of 1985-86 to 2005-06. However, a detailed analysis did not present an encouraging scenario. The total budgetary

expenditure in state increased more than six times, the total expenditure on economic services increased five times and expenditure on agriculture merely increased 1.22 times during the referred period of 22 years. The distressing feature is that the expenditure on capital account fallen by one-third during the period, which indicates the shrinkage of human resources engaged in agricultural sector as well as fall in capital investments require for future growth. However, per hectare expenditure on agricultural and allied services of revenue account at constant prices of 1993-94 registered unstable growth, which can not be compatible with objective of achieving 4.00 per cent growth in agricultural sector in the state.

So far as the share of agriculture in total budget of revenue account is concerned, it was 1.93 per cent in 2005-06 as against 9.12 per cent in 1985-86. It clearly indicates that agricultural sector has been totally neglected in the planned development efforts despite the fact that agriculture accounts for 23.00 per cent of SGDP. The share of agriculture expenditure to the expenditure on economic services declined from 26.95 per cent in 1985-86 to 12.13 per cent in 2005-06. It finds that within the economic services also low priority was given on agriculture sector during the referred period.

The expenditure on agriculture as a percentage of NSDP decreased from 4.06 per cent in 1985-86 to 2.87 per cent in 2005-06. As regards the percentage share of agriculture and allied activities to total expenditure, it also declined from 12.23 per cent in First Five Year Plan to 2.07 per cent in Tenth Five Year Plan. The overall picture on plan outlay for agricultural sector reveals that this sector has been neglected and this is clearly manifested in the low growth rates experienced in this sector.



### AGRICULTURAL DEVELOPMENT SCHEMES

#### 3.1 Introduction

In Bihar, agricultural development problems are complex. The state is moving towards agricultural crisis due to stagnation in agricultural production and further reduction in cultivable land. Due to stagnation in agricultural productivity and increase in input prices, crop production turned to be a losing business for farmers in Bihar. In this situation growth of agricultural sector has assumed importance in order to maintain food security and improving the living of rural population. In order to promote growth in agricultural sector, the state and central governments have implemented a number of schemes relating to inputs, mechanization, natural resource management, pests and diseases, technology, extension, etc. in different modes. The central government provides assistance to the state to implement the schemes, which are known as centrally sponsored schemes. Some of these schemes are 100.00 per cent centrally sponsored while in other cases 90.00 per cent or 75.00 per cent. Besides, centrally sponsored schemes, there are also state funded schemes and externally funded schemes. This chapter analyses the schemes both centrally and state sponsored for agricultural development. A brief of plans and outlay (2007-08) may be seen in table No. 3.1.

**Table No. 3.1: Plan Outlay for the Financial Year 2007-08 of Agriculture Department, Bihar**

(Rs. in lakh)

SN	Schemes	Outlay as per direction of Planning Department (letter No. 124 dated 10/01/2007) for 2007-08			Remarks
1	2	3	4	5	6
<b>(A) State Plan Schemes</b>					
1.	Seed production by BRBN	372.00	---	372.00	
2.	Assistance to RAU for Estb. of Horticulture College	2000.00	---	2000.00	
3.	Strengthening of soil, seed & fertilizers lab.	1555.00	---	1555.00	
4.	Horticulture Mission Programme including Chief Minister' Mission Programme in Non-NHM districts	1200.00	---	1200.00	
5.	Seed Production on Govt. Farms	500.00	---	500.00	
6.	Tal and Diara Development	109.00	---	109.00	
7.	Training of Farmers/Extension workers through strengthening of training infrastructure organization of Kisan Mela	500.00	--	500.00	
8.	Soil Conservation work	300.00	---	300.00	
9.	Sugarcane Research Institute	450.00	---	450.00	
10.	Rajya Kisan Aayog	100.50	---	100.50	
11.	Assistance for Agril. Research & Education (RAU)	700.00	---	700.00	
	<b>Sub-total (A)</b>	<b>7786.50</b>	<b>---</b>	<b>7786.50</b>	
<b>(B) Centrally Sponsored Schemes</b>					
8.	Macromode (10.90)				
a.	ICDP	100.00	900.00	1000.00	
b.	IPM	20.00	180.00	200.00	
c.	SJDP including Jute Technology Mission	15.00	108.00	123.00	
d.	Agriculture Mechanization	600.00	1035.00	1635.00	Additional State share Rs. 485 lakh
e.	Integrated & balanced use of fertilizer	25.00	225.00	250.00	
f.	NWDPRRA	10.00	90.00	100.00	
g.	SUBACS	---	---	---	From Cane Deptt.
9.	ISOPOM (25:75)	280.00	840.00	1120.00	
10.	Support to State for Extension Reforms (ATMA) including Kisan Samman Yojana	1500.00	---	1500.00	Central share flows through autonomous institute i.e., BAMETI (ESTB. 486 Lakh, Work Plan – 1014 lakh Rs.)
11.	Micro Irrigation	1000.00	---	1000.00	Central share flows through autonomous institute
12.	Development of market infrastructure	---	---	---	
	<b>Sub-total (B)</b>	<b>3550.00</b>	<b>3378.00</b>	<b>6928.00</b>	
<b>(C) Establishment</b>					
14.	Agril. Extension Project	500.00	---	500.00	
15.	4 SAO's Offices	10.00	---	10.00	
16.	PPM	13.00	---	13.00	
17.	Tal Development	5.00	---	5.00	
18.	Seed Testing Lab	5.00	---	5.00	
19.	Seed Certification Agency	120.00	---	120.00	
	<b>Sub-total (C)</b>	<b>653.00</b>	<b>---</b>	<b>653.00</b>	
	<b>Grand Total</b>	<b>11989.50</b>	<b>3378.00</b>	<b>15367.50</b>	

Source: Annual Report 2006-07, Dept. of Agriculture, Govt. of Bihar.

### **3.2 Centrally Sponsored Schemes**

Constitutionally, agriculture is a state subject. The primary responsibility for increasing agriculture production, enhancing productivity and capitalizing on the vast untapped potential of the sector is the responsibility of the state. The role of the Centre is to compliment and supplement the efforts of the states in a catalytic way so that the states are able to realize increase in production by experiencing higher yields. Therefore, a number of schemes have been implemented by the Centre to incentivize the states to revitalize their agricultural sector. Followings are the centrally sponsored schemes:

#### **i. Macro Management of Agriculture (MMA)**

This scheme is a centrally sponsored and formulated with the objective to ensure that central assistance is spent on focused and specific interventions for the development of agriculture in the state. It launched in 2000-01 in all the states and Union territories but it became operational in 2001-02 in Bihar. The scheme provides sufficient flexibility to the states to develop and pursue the programmes on the basis of their regional preferences and priorities. The expenditure is shared by the centre and state on 90:10 bases respectively. At present four programmes are in operation under MMA, which are as below:

- A. Integrated Cereal Development Programme (ICDP)
- B. Integrated Plant Protection Programme (IPPP)
- C. Farm Mechanisation
- D. Fertilizer Management

The physical and financial achievement made in the year 2008-09 may be seen from the table 3.2.

**Table No. 3.2: Physical and Financial Progress of Macro Management of Agriculture (2008-09)**

(Rs. In lakh)

SN		Name of the Scheme	Target		Achievement		%
			Physical	Financial	Physical	Financial	
1	2	3	4	5	6	7	8
<b>Integrated Cereal Development Programme (ICDP)</b>							
1.	i.	Crop Demonstration	17805 acre	356.10	21688	330.33950	92.77
	ii.	Distribution of HYV/Hybrid Seed	181850 qtls	363.70	49319 Qtls	242.91340	66.79
	iii.	Kisan Upadan Mela for 7 days	76 Nos.	76.00	82 Nos.	70.85632	93.23
	iv.	State Level Mela	4 Nos.	9.00	4 Nos.	8.99986	100.00
	v.	State Holder's Interface/Workshop	78 Nos.	21.00	60 Nos.	15.28809	72.80
	vi.	Officer Training	76 Nos.	3.80	57 Nos.	2.80877	73.89
	vii.	Farmers Training	1860 Nos.	93.00	1217 Nos.	75.77975	81.48
	viii.	Transfer of Technology through electronic media, publicity	---	27.71	---	24.68631	89.08
	ix.	Monitoring, Contingency, etc.	---	7.00	---	6.78205	96.89
		<b>Total for ICDP</b>	---	<b>957.3110</b>	---	<b>778.45305</b>	<b>81.32</b>
<b>Integrated Pest management (Plant Protection)</b>							
2.	1.	Farmers Field School	353 Nos.	60.01	322 Nos.	51.97126	86.60
	ii.	Pheromone Trap with Lure (No. Min. 3)	17120 Nos.	16.264	16060	14.92020	91.74
	iii.	Master Trainers Training	20 Nos.	8.75	20 Nos.	7.56128	86.41
	iv.	Seed Treatment with Bio-Pesticide Fin @ 25% of cost max. Rs. 70/kg	19245 kg	13.4715	11063.748 kg	8.27435	61.42
	v.	Spray of Chemical Pesticide in case of Pest Oubreak	---	1.50	---	0.69270	46.18
			<b>Total for IPM</b>	---	<b>99.9955</b>	---	<b>83.41979</b>
<b>Farm Mechanization</b>							
3.	i.	Tractor	3198 Nos.	1439.10	3543	1565.10000	108.76
	ii.	Power Tiller	1618 Nos.	970.80	1194	716.31999	73.79
	iii.	Manually operated implements/tools	---	174.06	34002	22.53233	127.85
	iv.	Specialized power driven equipment	2507 Nos.	936.45	2216	545.63765	58.27
	v.	Power Threshers/Winnowers	4415 Nos.	1059.60	4288	977.95586	92.29
			<b>Total for Farm Mechanization</b>	---	<b>4580.01</b>	---	<b>4027.54583</b>
<b>Fertilizer Management (INM)</b>							
4.	i.	Chemicals Glassware for Soil testing Lab	23 Nos.	23.00	14	13.97837	60.78
	ii.	Soil Health Card (Plasticcoated/Covered)	100000 Nos.	10.00	63800	6.37499	63.75
	iii.	NADEP/Vermicompost Fin @ 25% of cost maxm. Rs. 1500/unit	1440 Nos.	21.60	507	7.60500	35.21

Source: Annual Report 2008-09, Dept. of Agriculture, Government of Bihar.

## ii. Integrated Scheme for Oilseeds, Pulses, Oil Palm and Maize (ISOPOM)

The programme has been launched in 2004 by consolidating on-going schemes of technology mission on oilseed (1986), pulses (1990-91), oil palm (1992) and maize (1996). The sharing basis of scheme is 75:25 between centre and state respectively. Crop wise targets and achievements of pulses, oilseeds and maize are given in table 3.3.

**Table No. 3.3: Targets and Achievements of Pulses, Oil seeds and Maize Crops 2008-09.**

*(Rs. In lakh)*

Crop	Target		Achievement		%	
	Physical	Financial	Physical	Financial	Physical	Financial
Pulses	163918	2430.24	29981.77	472.57	18.29	19.45
Oilseeds	21218	761.88	8375.05	226.35	39.47	29.71
Maize	78498	3152.06	29818.25	1189.95	37.98	34.47
Total	263634	6344.18	68175.07	1888.89	25.85	37.75

*Source: Annual Report: 2008-09, Dept. of Agriculture, Govt. of Bihar.*

## iii. Jute Development Programme/Jute Technology Mission

In high humidity and rainfall districts like Purnea, Araria, Katihar, Supaul, Kishanganj, Saharsa and Madhepura cultivation of jute takes place in kharif season in about 1.50 lakh hectare in 2008-09.

## iv. Intensified Field Development and Training Support

A sum of Rs. 700 lakh has been allocated for the financial year 2008-09 for capacity building of extension officers and staff. Under the scheme Para Extension Workers are planned to include in the existing extension system.

## v. Support to State for Extension Reforms (ATMA)

Alike the National Agricultural Technology Project (NATP) the Centre has sponsored a programme named as support to state for extension reforms. The expenditure is shared by the centre and state on 90:10 basis respectively. It has been implemented in all the 38 districts of the state. It emphasizes on new

experiments, participation of women cultivators, use of information technology etc. in agriculture extension.

**vi. National Horticulture Mission (NHM)**

Under this scheme the share between the Centre and state is 85:15 basis respectively since launching of the 11<sup>th</sup> Five Year Plan. Now the scheme is implemented in 23 districts of the state namely East Champaran, West Champaran, Muzaffarpur, Vaishali, Samastipur, Darbhanga, Purnea, Araria, Kishanganj, Katihar Bhagalpur, Banka, Munger, Patna, Nalanda, Gaya, Khagaria, Aurangabad, Jamui, Madhubani, Rohtas, Begusarai and Saharsa. The total outlay under the scheme is Rs. 13.33 crore in 2008-09.

**vii. Micro-Irrigation**

It is a centrally sponsored scheme under which 40.00 per cent is shared by the central government, 20.00 per cent by the state government and 40.00 per cent by the farmer either by self or the bank loan. Under the scheme drip and sprinkler irrigation system are installed.

**viii. Flood prone River Yojana**

This programme is implemented in conservation of soil and water in the flood prone area of Punpun and Koshi rivers. A sum of Rs. 10 lakh has been allocated in 2008-09.

**ix. National Watershed Development Projects for Rainfed Areas (NWDPA)**

This programme was launched during the 8<sup>th</sup> five year plan and is a 100.00 per cent centrally sponsored scheme with 80.00 per cent subsidy and 20.00 per cent loan. This scheme intends to generate successful models of development in the community development blocks of the state where less than 30.00 per cent area is under assured means of irrigation. This scheme aims at comprehensive development of all dry land area and is expected to generate

sufficient employment. Under this scheme a sum of Rs. 50 lakh has been allocated for the year 2008-09 and targeted to treat the watershed area by undertaking 154 structures.

#### x. **Agricultural Mechanization**

Application of agricultural implements is important for the development of agriculture in the state. It facilitates the agricultural operations and saves the time. Under this scheme subsidies are given on purchase of agricultural machines/implements (from combine harvester to khurpi/spade). Subsidies on purchase of agricultural machines/implements are also given under different agricultural schemes operating in the state (table 3.4).

**Table No. 3.4: Subsidy Given on Agricultural Machines/Implements during 2008-09**

SN	Name of the Implements	Target		Achievement	
		Physical	Financial (Rs. In Lakh)	Physical	Financial (Rs. In Lakh)
1.	Tractor	3198	1439.10	3543	1565.10
2.	Power Tiller	5890	3534.00	1381	801.22
3.	Hand Machine	---	174.06	34.002	222.53
4.	Power Machine	2507	936.45	2216	545.63
5.	Power Thresher/Winnow	4415	1059.60	4288	977.955
6.	Multi Row Seed Driller	200	5.00	200	5.00
7.	Wheel Hoe	200	1.00	200	1.00
8.	Sprayer/Duster	2970	45.72	2568	19.648
9.	Combine Harvester	60	300.00	4	1.50
	Total	---	7514.93	---	4139.58

#### xi. **National Agricultural Development Programme (NADP)**

With a view to achieve 4.00 per cent agricultural growth during the Eleventh Five Year Plan (2007-12), a centrally sponsored programme named as NADP/RKVY has been launched. The programme is 100.00 per cent financed by the Government of India. A sum of Rs. 6634 lakh has been sanctioned for 2008-09.

## **xii. Supply of DAP Fertilizer**

Due to change in Fertilizer Import Policy in 2007-08, the central government has provisioned to provide import duty to the farmers as on DAP. Under this scheme, handling and transportation cost of DAP will be borne by the centre. The centre has allocated Rs. 400 lakh under the scheme in the state.

## **3.3 State Sponsored Schemes**

Given the substantial yield gaps in agriculture on one hand and low farmers' income and wide spread rural poverty on the other, and also taking into account the richness of natural resources and high level of people's aspirations, a gradual approach for liberating the people of Bihar from the trap of poverty will neither be economically sound, nor socially expedient. The entire challenges calls for a concerted time bound development effort that could substantially change the technical base of Bihar's agricultural sector. In this background, the state government has prepared a Road Map of Agriculture and Allied Sector in Bihar which identifies a number of development interventions during the period of 2008-12. Accordingly the state has undertaken many schemes, which are described as below:

### **i. Chief Minister Rapid Seed Extension Yojana/Seed Production by Bihar Rajya Beej Nigam (BRBN)**

This is one of the important schemes of Agricultural Road Map in the state. The scheme covers paddy crop for kharif and wheat, lentil and gram crops for rabi seasons. The scheme is aimed to make available quality seeds to all the farmers of the state. Under the scheme foundation seeds are made available at the half prices to two farmers of each village for half acre of land. A bag containing 6 kg for paddy and 20 kg for wheat are being made available. During kharif 2009, 81028 farmers distributed across the 40514 villages were given foundation seed and during 2008-09, 30287 quintals of foundation seed



for paddy, wheat, gram and lentil crops were made available to 2,22,000 farmers in the state.

**ii. Seed Production on Government Farms**

Seed production programme in state government's seed multiplication farms has been launched under state plan with a view to provide seeds suited to local climate and soil at reasonable prices. 215 farms have been selected for the production of seed.

**iii. Tal and Diara Development**

This scheme is implemented in 18 districts of Bihar namely Patna, Nalanda, Bhojpur, Saran, Muzaffarpur, Vaishali, East Champaran, West Champaran, Samastipur, Begusarai, Bhagalpur, Khagaria, Saharsa, Katihar, Munger, Buxar, Lakhisarai and Supaul. During 2008-09 an expenditure of Rs. 214.51 lakh has been incurred against the allocation of Rs. 250 lakh i.e., 85.80 per cent. The main components of the scheme are:

- i. Distribution of vegetables' saplings
- ii. Demonstration
- iii. Bio-pulse village
- iv. Farmers' training

**iv. State Horticulture Mission (SHM) in Non-NHM Districts**

A centrally sponsored scheme NHM (National Horticulture Mission) is implemented in 23 districts of the state out of 38 districts in Bihar. With a view to cover all the districts the state has implemented its State Horticulture Mission in remaining 15 districts under the state plan. A sum of Rs. 100 lakh has been allocated for implementation of the programme in 2008-09.

**v. State Farmer Commission**

To study the problem of farmer and farming intensively, the state government has constituted a state farmer commission in the year 2006 under the state plan scheme. A sum of Rs. 75 lakh has been allocated for implementation of the scheme in 2008-09.

**vi. Strengthening of Soil, Seed and Fertilizers Laboratory**

Under the scheme, one soil testing laboratory is to be established in one block of each of the districts in the state. It will be operated by the trained agriculture graduates of agri-clinics. A sum of Rs. 800 lakh has been allocated for implementation of the scheme in 2008-09.

**vii. Bihar State Seed Certification Agency**

Certification of seed produced from different sources in the state is very important. There is a seed certification centre in the state. To strengthen this centre, the state has allocated Rs. 100 lakh during the financial year 2009-10.

**viii. Assistance to Rajendra Agricultural University for Agricultural Education and Research (Mandan Bharati Agriculture College, Saharsa)**

A sum of Rs. 7000.00 lakh has been approved by the state government for establishment of Mandar Bharati Agriculture College at Saharsa under Rajendra Agriculture University, PUSA, Samastipur for the financial years 2007-08 to 2011-12. Out of it Rs. 1200.00 lakh has been sanctioned for expenditure during the financial year 2008-09. It is hoped that establishment of the college in Kosi region of the state will bring qualitative change in agricultural education and research resulting to accelerate the agricultural development in the state.

**ix. Horticultural College, Nalanda**

The scheme of a horticultural college at Nalanda under Rajendra Agricultural University PUSA, Samastipur was launched in 2006-07 and a sum of Rs. 9014.00 lakh has been approved for its establishment during the financial years 2006-07 to 2010-11. Out of it a sum Rs. 1200 lakh has been sanctioned and released for the year 2008-09.

**x. Land Conservation Scheme**

With a view to conserve soil and water, land conservation scheme has been launched by the state government in the watershed areas. It aims at enhancing productivity, income, employment and environmental externalities. The scheme is designed to harmonize the use of water, soil, forest and pasture resources in a way that conserves these resources while raising agricultural productivity, both by conserving moisture in the ground and increasing irrigation. Besides, to provide employment, minimize the effect of weather, development of natural resources, etc. is the main objectives of the scheme. A sum of Rs. 300 lakh has been allocated for implementation of the scheme during 2008-09.

**xi. Construction and Rejuvenation of Agricultural Office Buildings**

A scheme for construction and rejuvenation of Agriculture office buildings has been undertaken during 2008-09 with an allocation of Rs. 785 lakh.

**xii. Punpun and Kosi FPR Programme**

With a view to conserve soil and water in flood affected area of Punpun and Kosi rivers, a scheme has been implemented during 2008-09. A sum of Rs. 10 lakh has been allocated for the purpose.

To pursue above schemes (central & state) the state government has made a total budgetary allocations of Rs. 19134 lakh during the financial year 2008-09.

### 3.4 Brief Review of Studies of Schemes

i. Evaluation of the National Integrated Pest Management (IPM) in Bihar (*AER Centre, Bhagalpur, Study No. 06/1999*). This scheme has been evaluated for the reference periods of 1994-95 to 1996-97 (3 years) in 1999 by the Agro-Economic Research Centre, T M Bhagalpur University, Bhagalpur (Bihar). The objectives of the IPM Programme were to keep pest and weed population below economic injury level by adopting alternative and non-chemical pest control methods such as cultural, mechanical, biological and judicious use of chemical pesticides, to conserve environment and eco-system by minimizing pollution due to chemical pesticides, to promote sustainable agriculture, and to improve the quality of food. The broad objective of the evaluation was to assess the impact of IPM programme in FFS areas with special reference to adoption of improved agro-economic practices, use of bio-control method and reduction in the use of chemical pesticides as compared to non-FFS areas.

The impact of the programme was assessed through awareness of farmers. The study revealed that the opinion regarding different factors do not differ significantly except in case of mechanical control for FFS farms whereas for non-FFS, the opinion regarding awareness does not differ significantly. In regard to cost effectiveness of FFS and Non-FFS farms in cultivation of paddy, the study finds the marginal and small farmers borne higher cost of labour for pest control in comparison to medium and large farmers, which may be due to lack of money. Generally they use family labour and control the pest manually while medium and large farmers control the pest through chemical pesticides. The large and medium farmers use to hire labour for agricultural practices and the cost of labour were high and therefore, they hesitate to use the IPM approach in their field. In case of non-FFS, farmers were found using mostly chemical methods of pest control in their farm. Such application of chemical pesticides requires fewer labourers and so the cost of labour for pest

control diminishes. The study further reveals the fact that the effect of IPM demonstration was visible more prominently in FFS farms.

The recommendations of the study highlights continuation of awareness programme, infrastructural facilities, co-ordination between the functionaries, setting up laboratories, development of knowledge and skill upgradation programme for extension personnel, proper delivery system, dissemination of the knowledge of plant protection, etc.

ii. Evaluation of NWDPR (AER Centre, Bhagalpur Study No. 27/2009) This scheme has been evaluated in 2009 with a view to evaluate progress, achievements and problems in project implementation so as to provide critical and timely information and guidelines to the project management for decision support. In order to have a comparison, 'Before and after' approach of evaluation has been followed. The findings revealed that there is increase in community and private plantation area after the implementation of the project. Due to increase in water harvesting structures (tanks, check dams, ponds, etc.) the area under irrigation increased marginally. The land development and creation of new water harvesting structures in all the selected watershed areas have not much effectively brought additional areas under the important crops both in kharif and rabi. The watershed development programme could not slash to the cost of production. The study finds that the volume of disposal of the produce has increased but it may be due to distribution of benefits amongst the households or villagers. Moreover, the project has facilitated in keeping larger number of livestock. But in absence of clear and agreed livestock holding and grazing practices there can not be favourable long term impact on conservation of common land resources. As regards the quality of life, the study reveals that there is a general improvement in quality of life but in overall sense, the impact of the

programme in these watersheds has been somewhat lower. The programme has significant positive impact on creation of employment opportunities.

The study has also identified some issues that need attention of the policy makers as well as project functionaries. The emerging issues and recommendations are encouragement/incentivization programme for participation of majority of villagers, to avoid conflict between the beneficiaries and non-beneficiaries development of community land resources and introduction of income generating activities for the landless and other weaker sections, preparation of detailed project report (DPR) for micro watershed area in the initial year of the project and displaying at public place, regular monitoring of programme, association of Watershed Development Team (WDT) in the post-project area, etc.

### **NEXUS BETWEEN STATE INTERVENTION AND AGRICULTURAL DEVELOPMENT**

#### **4.1 Introduction**

Since independence the state intervention in agriculture sector has influenced the agricultural economy of the state in a significant way. These interventions are either in form of controls and restrictions or concessions and incentives. Usually, it is made suited to the time or period as pre-reform and post-reform, pre-green revolution and post-green revolution, etc. Various types of interventions were related to land reforms, capital formation, investment, marketing, pricing, inputs, research and development, technology, infrastructure, etc. These measures have led to significant change in all spheres of agricultural economy. Some special programme for some crops has led to increase in production of these crops. With the one-set of economic reforms there is renewed importance of state intervention in the state.

This chapter focuses on the impact of agricultural expenditure on production, NSDP, poverty, farm sector distress and impact of government schemes on agricultural development.

#### **4.2 Impact of Agricultural Expenditure on Production, NSDP and Poverty**

##### **A. Production**

Because of rich bio-diversity, the farmers in the state are able to produce a large number of crops --- cereals, pulses, oilseeds, fibre crops, fruits and vegetables. Since the production level varies considerably from year to year. The average levels (2003-04 to 2007-08) of production of major crops in the state are - 43.7 LT rice, 36 LT wheat and 14.9 LT maize. Adding to this, the production of other cereals, the total production of cereals is 95.4 LT. Further

taking into consideration the total production of pulses at 4.9 LT, the total production of food grains is 100.3 LT for a population of about 99 million. In addition to food grains the major crops are include oilseeds and fibres and the average levels of their production are 1.3 lakh tones (oilseeds) and 13.1 lakh bales of (fibre crops). In fact the compound annual growth rate of production of total food grains during 1985-86 to 1990-91 (pre-reform period) is just 1.4 per cent, which fell negative (-1.64 %) during 1991-92 to 2005-06 (post-reform period). A similar pattern of expenditure on agriculture is observed. The expenditure on agriculture as a share of total budget fell continuously from 9.12 per cent in 1985-86 to 6.41 per cent in 1991-92 i.e., during pre-reform period and further to 1.93 per cent in 2006-07 i.e., post-reform period. The expenditure on agriculture of revenue account as a percentage of NSDP at constant prices (1993-94) also fell from 4.06 per cent in 1985-86 to 3.73 per cent in 1991-92 (pre-reform period) and further to 2.87 per cent in 2005-06 (post-reform period). A decline trend in expenditure on agricultural activities has affected the agricultural production. But it is not the sole reason for negative growth in agricultural production during the post-reform period rather some other variables like credit, awareness, extension, etc., also determine the same.

## **B. NSDP (Net State Domestic Product)**

The Growth rate of NSDP from agricultural sector is just 1.38 per cent during 1999-2000 to 2008-09 (QE), which is apparently one of the lagging sectors compared to secondary (11.13%) and tertiary (6.76%) sectors. With the current population growth rate of about 1.96 per cent for Bihar, the per capita NSDP in Bihar has grown at 3.61 per cent. In 2005-06, while the per capita NSDP for the whole country at current prices stood at Rs. 25716, the figure for Bihar was Rs. 7875, which was barely 30.60 per cent of the national average. Because of lower growth rate of the primary sector, the sectoral composition of the NSDP has been undergoing a slow but steady change over the years. In the



beginning of the current decade, the sector composition of NSDP was as follows primary (35 %), secondary (11 %) and tertiary (54 %).

At present, the changed composition stands at Agriculture (27%), secondary (17%) and tertiary (56%). The pattern of expenditure on agriculture and the growth of NSDP can be seen with the help of data depicted in table 2.4. It revealed that the value of NSDP is increasing continuously, accounting twice in 20 years (1985-86 to 2005-06), the share of agricultural expenditure in NSDP is continuously declining. The share which was 4.06 per cent in 1985-86, went on reducing with a few ups and downs throughout the period (till 2005-06). Agriculture in the state is suffered from calamities like; flood and drought. In the circumstances, it is necessary to give utmost priority on management of flood and watershed management in rainfed areas or drought regions. If these measures are taken, the growth of NSDP from agricultural sector would have been much higher.

### **C. Poverty**

Incidence of poverty has been very high (table 4.1) in the state compared to national average for decades. Estimates of poverty by the NSSO surveys, also establishes this point. The incidence of rural poverty in Bihar has come down from a level of 64.40 per cent in 1983-84 to 45.70 per cent in 2004-05. Urban poverty has declined from 47.30 to 34.60 per cent during the same period. Nevertheless, the poverty ratio for 2004-05 is still quite high compared to the corresponding ratios at the national level---- rural (28.30%) and urban (25.70%).

**Table No. 4.1: Poverty Ratios in Bihar vis-à-vis India**

Year	Bihar		India	
	Rural	Urban	Rural	Urban
1983-84	64.40	47.30	45.70	40.80
1987-88	52.60	48.70	39.10	38.20
1993-94	58.20	34.50	37.30	32.40
1999-00	44.30	32.90	27.10	23.60
2004-05	42.10	34.60	28.30	25.70

*Source: Economic Survey of Bihar – 2008-09, Govt. of Bihar.*

But declining public expenditure in agriculture is not the sole reason for so acute poverty rather there are various other factors. The employment pattern of different social groups is an indicator of the link between livelihood issues and poverty. The Work Participation Ratio (WPR) is the highest among ST (45.20%), followed by SC (39.70%) while the overall WPR for the state is 33.70 per cent. The share of agricultural labourers, whose lives are fraught with insecure and seasonal employment and landlessness, is very high among SC (77.60%), ST (62.50%) and the state's (48%). The proportion of cultivators among various social groups indicates that 5.00 per cent of the state's cultivators own more than 10 acres of land each. Most of the cultivators are small or marginal size. The proportion of cultivators is very low for SC (7.9%), ST (21.3%) and the state's (29.3%). However, the population of BPL has declined, which may be due to increase in rural non-farm employment and various programmes implementing over the years to address deprivations like SHGs, SGSY, IAY, TPDS, and the most recent NREGS.

### **4.3 Impact of Agriculture Expenditure on Farm Sector Distress**

There is no direct or positive relationship between the agricultural expenditure and farm sector distress. Distress in agriculture is a symptom of whole host of other factors. Due to stagnation in agricultural productivity and increase in input prices, crop production turned to be a losing business for cultivators in Bihar. Per hectare net income in rice production has been

negative during last 4 years. The profitability over operating cost is estimated to Rs. 3453 against Rs. 23231 in Punjab. Besides, ample opportunities for pulses production in the state, area under pulses declined by 3 lakh hectare during the last 15 years and pulses productivity remained stagnant during last 10 years. The state agriculture is dominated by small land holders. Newly 96.00 per cent farm households have less than 2 hectare land and they own 67.00 per cent of agricultural land in Bihar. Marginal farmers constitute about 90.00 per cent of total farm households and they own about 43.00 per cent of land in Bihar. In the process of agricultural development these farmers lagged much behind since they do not have resources for acquisition of modern agricultural technologies. This disadvantaged category of farmers did not get credit. They (96%) are indebted to non-institutional sources on exorbitant annual rate of 30-60 per cent. Nearly 4-5 farmers are covered under the crop insurance scheme in the state and even 57.00 per cent are unaware about crop insurance scheme. So, this is what the gross agricultural scenario in the state wherein distress is quite natural.

#### **4.4 Impact of Government Schemes on Agricultural Development**

In Bihar, agricultural development problems are complex. If we examine the agricultural growth in Bihar for longer period (30 years) there has been visible growth in agricultural sector but the state is still much behind to the national agricultural development and about 40 years behind to Punjab agriculture. Agricultural scenario was comparatively better in the state than most of the states in 1950s. So there is need to understand the fabrics of problem. In Bihar, irrigated crop area (59%) is higher than corresponding national average (42%) but per hectare productivity of almost all crops is lower than national averages. Besides, poor infrastructure and low crop productivity, there is no impact of organized arrangement of marketing of agricultural produce, however the Bihar Agricultural Produce Marketing Act, has been repealed in

2006. The main problem of development of agriculture and allied sector is the slackness in implementation of various schemes at ground level. Field functionaries are either demotivated or lack orientation to development activities. Public and Private Investments in agriculture have declined during last 15 years which resulted in decline in state net agricultural domestic product (NASDP) by 0.44 per cent during 1999-2006 and decline of 1.00 per cent in 1997-02 (Ninth Five Year Plan). However, the present government has substantially enhanced the allocations for agricultural sector and sponsoring various innovative schemes, as discussed in last chapter. The state government has drawn an Agriculture Roadmap for 2007-12 with a view to achieve 4.00 per cent agricultural growth in the state at the end of 11<sup>th</sup> Plan. So far as the specific impact of the government schemes in the state is concerned, the study has endorsed two evaluative studies in last chapter, which did not show glaring performance of the scheme. Thus, there is need to broaden the canvas of the schemes and get those implemented with all wisdom and energy.

#### **4.5 Conclusions**

Above discussions reveal that the government has increased agricultural expenditure in the state but when it is analyzed in terms of expenditure on agriculture as a share of total budget, it seems declining from 9.12 per cent in 1985-86 to 1.93 per cent in 2006-07. The CAGR of production of total food grains also fell (-1.64%) in post-reform period (1991-92 to 2005-06). Similarly, the share of agriculture expenditure in NSDP is also declining. The incidence of poverty has been low in 2004-05 compared to 1983-84. Several other factors are also responsible for this. Stagnation in agricultural production, soaring input prices, poor infrastructure, etc. has caused agriculture to be a losing business. These all have led to poor agricultural development in the state.

### SUMMARY AND CONCLUSIONS

#### 5.1 Background

India's commitment to planned economic development is a reflection of our society's determination to improve the economic conditions of our people and an affirmation of the role of the government in bringing about this outcome through a variety of social, economic and institutional means. The rapid growth achieved in the past demonstrates that we have learnt how to bring about growth, but we have yet to achieve comparable success in inclusiveness. Improved performance in agriculture is necessary if our growth is to be inclusive. Although, India's agriculture sector has an impressive long term record of taking the country out of serious food shortages despite rapid population increase. This was achieved through a favourable interplay of infrastructure, technology, extension and policy support. Obviously, rapid growth is essential because it provides the basis of expanding incomes and employment and also provides the resources needed to finance the programmes.

The share of agriculture in Gross Domestic Product (GDP) has declined from over half at Independence to less than one-fifth currently but it remains the predominant sector in terms of employment and livelihood with more than half of India's workforce engaged in it as the principal occupation. Deceleration, although most marked in rainfed areas, occurred in almost all states and covered almost all sub-sectors including those such as horticulture, livestock and fisheries where growth was expected to be high. Consequently, growth of agricultural GDP has been well below the target of 4.00 per cent set

in previous plans. In fact Xth Plan growth averaged even less than that during IXth Plan because, as was noted in Mid-Term Appraisal (MTA), growth plummeted to below 1.00 per cent during its first three years (i.e., 2002-03 to 2004-05). There has been some upturn since then and growth has averaged more than 4.00 per cent in the subsequent years. But there is no reason for complacency. Not only is the period too short to reach firm judgement on trends, the prolonged deceleration over several years has meant that despite the improvements per capita output of cereals, pulses, oilseeds, and also of some major vegetables and fruits in 2006-07 remained below 1996-97 levels. Since agriculture is in the state's list and also feared that over the years the resource allocations by the state to agriculture through their budgetary resources have been shrinking. It is a very serious concern for making the country one of the fastest growing economies in the world. In view of this a study on *State Budgetary Resources and Agricultural Development* has been assigned by the Ministry of Agriculture, Govt. of India to Agro-Economic Research Centre for Bihar & Jharkhand, T M Bhagalpur University, Bhagalpur to undertake the same in Bihar.

## 5.2 Objectives

- xiii. To analyze the trends in budgetary allocation of resources to the agricultural sector as a whole and the sub-sectors of agriculture in particular in Bihar.*
- xiv. To document and analyze schemes under operation in Bihar contributing to the development of the agricultural sector.*
- xv. To enlist and analyse the impact of central sector schemes operating in the agricultural sector in Bihar.*

## 5.3 Methodology

Primarily, the study is based on secondary data, collected from the state's budget documents, Economic Surveys of Bihar, various statistical publications

(Ministry of Agriculture, Govt. of India) and from the Department of Agriculture, Govt. of Bihar. The data were collected for the period of 1985-86 to 2005-06 i.e., 20 years. Time series data were calculated in Compound Annual Growth Rate (CAGR).

#### **5.4 Profile of the State**

Bihar has a total geographical area of 93.60 lakh hectare on which it houses a population of 82.90 million. Gross sown area in the state is 122.02 lakh hectares, while net sown area is 59.37 lakh hectares, indicating a cropping intensity of 206.00 per cent (Economic Survey of Bihar, 2008-09). The sectoral composition of NSDP is 35.00 per cent for primary, 11.0 per cent for secondary and 54.00 per cent for tertiary sectors.

The performance of the state economy over the period of 1985-86 to 2005-06 revealed that Gross State Domestic Product (GSDP) at 1993-1994 constant prices is Rs. 39332 crores in 2004-05 from Rs. 16759 crores in 1985-86 indicating growth of 234.69 per cent during the period. The per capita GSDP worked out to be Rs. 8846 in 2005-06.

With the current population growth rate of about 1.96 per cent for Bihar, the per capita Net State Domestic Product (NSDP) in Bihar has grown at 3.61 per cent. For the comparative position of Bihar, while the per capita NSDP for the whole country at current prices stood at Rs. 25,716, the figure for Bihar was Rs. 7875 which was barely 30.60 per cent of the national average. The disadvantaged economy of Bihar suffers not only from its comparatively lower growth rates, but from substantial year to year variation in growth rates as well. Agriculture growth is possibly the most important source of this variation, but many other sectors too are not free from this structural weakness. During the past decade, the growth rate varied between (-) 21.92 to 37.22 per cent in primary sectors; (-) 2.26 to 22.80 per cent in secondary sectors;

and 2.03 to 18.44 per cent in tertiary sectors. For the aggregate GSDP, the yearly growth varies from (-) 4.73 per cent to 13.11 per cent.

The contribution of the primary sector to GSDP which was 37.86 per cent in 1985-86 has declined to 28.74 per cent in 2005-06. In contrast, the share of the secondary sector to GSDP increased from 11.36 per cent in 1985-86 to 15.16 per cent in 2005-06. The share of tertiary sector in GSDP which was 50.78 per cent in 1985-86 increased to 56.10 per cent in 2005-06. It revealed that tertiary sector is the major contributor to GSDP. Further, the share of workforce in each sector is also indicated for some important years. The share of workforce in the primary sector which was 79.10 per cent in 1985-86 marginally slashed to 78.10 per cent in 1990-91 and further slashed to 77.35 per cent in 2000-01, after the bifurcation of the state in November 2000. The share of workforce in secondary and tertiary sectors remained almost stagnant throughout the period around 9.30 and 13.30 per cent respectively.

## **5.5 Agriculture and Public Finance**

Bihar today is facing the challenge of translating its outlays into measurable and quantifiable outcomes. Till 2003-04, the state had a deficit in its revenue account, but in 2004-05, for the first time Bihar had a revenue surplus that was more than Rs. 1000 crore. This surplus has been increasing continuously, from Rs. 82 crore in 2005-06 to Rs. 4467 crore in 2007-08. In fact, 2005-06 marks a watershed in the finances of the state government signifying an earnest beginning of reforms in public finances; it was in 2005-06 that the state government enhanced its spending very substantially on social and economic services (includes agriculture and allied activities) as also more than doubled the capital outlay, while expenditure on general services was contained nearly at the existing level. The expenditure on economic services is meant to creative productive capacity in the economy. The expenditure on economic services in 2005-06 accounted for 10.49 per cent of the total expenditure.



Agriculture and allied activities accounted for 12.44 per cent of the expenditure on economic services in 2005-06.

## **5.6 Brief Review of Agriculture Development**

- Being situated in the Gangetic plain, Bihar is endowed with both extremely fertile soil and abundant water resources. The farmers here are capable of growing a large number of crops like food grains, oilseeds, fibres, fruits and vegetables. In addition, the agricultural sector also lends a base for the animal husbandry sector of the state's economy which again is an important source of income for its rural population. Agriculture in the state is crucially dependent on monsoon. Although around 57.00 per cent of its gross cultivated area is irrigated, irrigation itself is crucially dependent on monsoon as it largely depends on the use of surface water. The average annual rainfall in the state is about 1098 mm. Since the production level varies considerably from year to year, the average figures taking the five year period (2003-04 to 2007-08) of production of major crops in the state are --- 43.70 LT rice, 36.00 LT wheat and 14.90 LT maize. According to this the production of other cereals (which are all considered as coarse cereals), the total production of cereals is 95.40 LT. Further, taking into consideration the total production of pulses at 4.9 lakh tones, the total production of food grains is 100.30 LT, for a present population of above 99.00 million. Thus, agricultural economy of the state is still basically oriented towards subsistence, the food grains account for a very large part of the area under major crops (95.00%).
- With respect to growth rate of production of food grains it was positive (1.40) in pre-reform period whereas that of negative (-1.64) in post reform period. The yield of almost every crop in pre reform period was positive. But the growth rate of total cereals and total pulses declined.

The rice yield, which increased by 1.82 per cent per annum during pre reforms period increased a bit faster at 1.92 per cent per annum, during the post reform era. In an opposite manner, the wheat yield increased at 2.72 per cent per annum during the pre reforms period surprisingly declined at (-) 0.90 per cent per annum during post reforms era. The rice productivity is considered to have stagnated during 1985-86 to 2005-06. However, the negative growth in productivity of wheat during the recent period may largely be due to aberrations in weather conditions, delayed sowing, increase in cost of production, lack of small duration varieties, low adoption of technology, etc. The trends in total food grains yield is stagnated largely due to lack of quality inputs, credit, poor transfer of technology and extension, etc.

- The land use pattern revealed that the total geographical area in the state was 173 lakh ha till 1999, which came to about 93 lakh ha after the bifurcation of the state in November, 2000. The area under forest was 16.86 per cent in 1985-86, which slashed to 6.66 per cent in 2005-06. It can be observed that the pattern displayed minimal changes over the period. The net sown which was 42.76 per cent of geographical area during pre reforms period increased to 59.70 per cent of geographical area during post-reforms period. The cropping intensity is almost stagnant at around 134.00 per cent. So there is immense possibility to increase the gross cropped area i.e., vertical expansion.
- The cropping pattern over the years shows that the area under food grains which was nearly 88.00 per cent in 1985-86 is still at the same figure in 2005-06. The crop wise analysis reveals that the area under rice has fallen from 52.69 per cent in 1985-86 to 43.83 per cent in 2005-06. However, in case of wheat crop, it has increased from 17.96 per cent

in 1985-86 to 27.00 per cent in 2005-06. Maize crop has also recorded a bit increase in area from 6.74 per cent in 1985-86 to 8.74 per cent in 2005-06. Overall, it indicates a stagnant agriculture.

- The trends in GSDP in agriculture and allied activities confirm the slow down in growth occurring during the post reform period. While the GSDP in agriculture grew at 8.61 per cent per annum, the growth in animal husbandry, forestry and fisheries was 12.36 per cent, 17.74 per cent and 4.56 per cent respectively during the post reform period. Other sectors i.e., soil and conservation, agricultural research and education and agricultural finance institutions grew at a relatively lower pace of 6.76 per cent, 4.74 per cent and 2.81 per cent per annum respectively. These sectors need greater focus for sustainable development of agriculture sector as a whole.

### **5.7 Trends and Pattern of Budgetary Expenditure on Agriculture**

The analysis of trends and pattern of budgetary expenditure in agriculture during the period of 1985-86 to 2005-06 did not present an encouraging scenario. The total budgetary expenditure in state increased more than six times, the total expenditure on economic services increased five times and expenditure on agriculture merely increased 1.22 times during the referred period of 22 years. The growth rate of expenditure was 1.12 per cent during pre-reform period, which fell to 0.87 per cent during post-reform period and for the overall period it was just 0.89 per cent, indicating a declining trend of budgetary support to agriculture. The distressing feature is that the expenditure on capital account fallen by one-third during the period, which indicates the shrinkage of human resources engaged in agricultural sector as well as fall in capital investments require for future growth. However, per hectare expenditure on agricultural and allied services of revenue account at constant prices of 1993-94 registered unstable growth, which can not be

compatible with objective of achieving 4.00 per cent growth in agricultural sector in the state.

The share of agriculture in total budget of revenue account is concerned; it was 1.93 per cent in 2005-06 as against 9.12 per cent in 1985-86. It clearly indicates that agricultural sector has been totally neglected in the planned development efforts despite the fact that agriculture accounts for 23.00 per cent of SGDP. The share of agriculture expenditure to the expenditure on economic services declined from 26.95 per cent in 1985-86 to 12.13 per cent in 2005-06. It finds that within the economic services also low priority was given on agriculture sector during the referred period.

The expenditure on agriculture as a percentage of NSDP decreased from 4.06 per cent in 1985-86 to 2.87 per cent in 2005-06. As regards the percentage share of agriculture and allied activities to total expenditure, it also declined from 12.23 per cent in First Five Year Plan to 2.07 per cent in Tenth Five Year Plan. The overall picture on plan outlay for agricultural sector reveals that this sector has been neglected and this is clearly manifested in the low growth rates experienced in this sector.

### **5.8 Agricultural Development Schemes**

In Bihar, agricultural development problems are complex. The state is moving towards agricultural crisis due to stagnation in agricultural production and further reduction in cultivable land. Due to stagnation in agricultural productivity and increase in input prices, crop production turned to be a losing business for farmers in Bihar. In this situation growth of agricultural sector has assumed importance in order to maintain food security and improving the living of rural population. To promote growth in agricultural sector, the state and central governments have implemented a number of schemes relating to inputs, mechanization, natural resource

management, pests and diseases, technology, extension, etc. in different modes. The central government provides assistance to the state to implement the schemes, which are known as centrally sponsored schemes. Some of these schemes are 100.00 per cent centrally sponsored while in other cases 90.00 per cent or 75.00 per cent. Besides, centrally sponsored schemes, there are also state funded schemes and externally funded schemes.

The Centrally Sponsored Schemes included schemes such as: (i) Macro Management of Agriculture (MMA) (ii) Integrated Scheme for Oilseeds, Pulses, Oil Palm and Maize (ISOPOM) (iii) Jute Development Programme/Jute Technology Mission, (iv) Intensified Field Development and Training Support, (v) Support to State for Extension Reforms (ATMA), (vi) National Horticulture Mission (NHM), (vii) Micro-Irrigation, (viii) Flood prone River Yojana, (ix) National Watershed Development Projects for Rainfed Areas (NWDPPRA), (x) Agricultural Mechanization, (xi) National Agricultural Development Programme (NADP) and (xii) Supply of DAP Fertilizer.

The State Sponsored Schemes included schemes such as: (i) Chief Minister Rapid Seed Extension Yojana/Seed Production by Bihar Rajya Beej Nigam (BRBN), (ii) Seed Production on Government Farms, (iii) Tal and Diara Development, (iv) State Horticulture Mission (SHM) in Non-NHM Districts, (v) State Farmer Commission, (vi) Strengthening of Soil, Seed and Fertilizers Laboratory, (vii) Bihar State Seed Certification Agency, (viii) Assistance to Rajendra Agricultural University for Agricultural Education and Research (Mandan Bharti Agriculture College, Saharsa), (ix) Horticultural College, Nalanda, (x) Land Conservation Scheme, (xi) Construction and Rejuvenation of Agricultural Office Buildings and (xii) Punpun and Kosi FPR Programme

To pursue above schemes (central & state) the state government has made a total budgetary allocations of Rs. 19134 lakh during the financial year 2008-09.

## **5.9 Brief Review of Studies of Schemes**

- i. Evaluation of the National Integrated Pest Management (IPM) in Bihar revealed that the opinion regarding different factors do not differ significantly except in case of mechanical control for FFS farms whereas for non-FFS, the opinion regarding awareness does not differ significantly. In regard to cost effectiveness of FFS and Non-FFS farms in cultivation of paddy, the study finds the marginal and small farmers borne higher cost of labour for pest control in comparison to medium and large farmers, which may be due to lack of money. Generally they use family labour and control the pest manually while medium and large farmers control the pest through chemical pesticides. The large and medium farmers use to hire labour for agricultural practices and the cost of labour were high and therefore, they hesitate to use the IPM approach in their field. In case of non-FFS, farmers were found using mostly chemical methods of pest control in their farm. Such application of chemical pesticides requires fewer labourers and so the cost of labour for pest control diminishes. The study further reveals the fact that the effect of IPM demonstration was visible more prominently in FFS farms.

The recommendations of the study highlights continuation of awareness programme, infrastructural facilities, co-ordination between the functionaries, setting up laboratories, development of knowledge and skill upgradation programme for extension personnel, proper delivery system, dissemination of the knowledge of plant protection, etc.

- ii. Evaluation of NWDPRRA revealed that there is increase in community and private plantation area after the implementation of the project. Due to increase in water harvesting structures (tanks, check dams, ponds, etc.) the area under irrigation increased marginally. The land development and creation of new water harvesting structures in all the selected watershed areas have not much effectively brought additional areas under the important crops both in kharif and rabi. The watershed development programme could not slash to the cost of production. The study finds that the volume of disposal of the produce has increased but it may be due to distribution of benefits amongst the households or villagers. Moreover, the project has facilitated in keeping larger number of livestock. But in absence of clear and agreed livestock holding and grazing practices there can not be favourable long term impact on conservation of common land resources. As regards the quality of life, the study reveals that there is a general improvement in quality of life but in overall sense, the impact of the programme in these watersheds has been somewhat lower. The programme has significant positive impact on creation of employment opportunities.

The study has also identified some issues that need attention of the policy makers as well as project functionaries. The emerging issues and recommendations are encouragement/incentivization programme for participation of majority of villagers, to avoid conflict between the beneficiaries and non-beneficiaries, development of community land resources and introduction of income generating activities for the landless and other weaker sections, preparation of detailed project report (DPR) for micro watershed area in the initial year of the project and displaying at public place, regular monitoring of programme,

association of Watershed Development Team (WDT) in the post-project area, etc.

### **5.10 Nexus between State Intervention and Agricultural Development**

Since independence the state intervention in agriculture sector has influenced the agricultural economy of the state in a significant way. These interventions are either in form of controls and restrictions or concessions and incentives. Various types of interventions were related to land reforms, capital formation, investment, marketing, pricing, inputs, research and development, technology, infrastructure, etc. These measures have led to significant change in all spheres of agricultural economy. Some special programme for some crops has led to increase in production of these crops. With the one-set of economic reforms there is renewed importance of state intervention in the state.

Discussions reveal that the government has increased agricultural expenditure in the state but when it is analyzed in terms of expenditure on agriculture as a share of total budget, it seems declining from 9.12 per cent in 1985-86 to 1.93 per cent in 2006-07. The CAGR of production of total food grains also fell (-1.64%) in post-reform period (1991-92 to 2005-06). Similarly, the share of agriculture expenditure in NSDP is also declining. The incidence of poverty has been low in 2004-05 compared to 1983-84. Several other factors are also responsible for this. Stagnation in agricultural production, soaring input prices, poor infrastructure, etc. has caused agriculture to be a losing business, which have led to poor agricultural development in the state.



## Policy Prescriptions

In view of declining contribution of agriculture to GSDP, stagnation in agricultural productivity and other complexities in agricultural development, following policy measures are prescribed for achieving 4.00 per cent agricultural growth with justice:

- i.* There is need to ensure supply of quality inputs to all the farmers in the state at affordable prices, so that production and productivity of all the major crops, particularly cereals, could be enhanced (*Attn: Department of Agriculture, Government of Bihar*).
- ii.* There should be strengthening of public agricultural extension services for transferring agricultural technology at the grass-root level (*Attn: Department of Agriculture, Government of Bihar*).
- iii.* There should be sensitization programmes for the officials and field staff for afresh motivation and orientation to development activities (*Attn: Department of Agriculture, Government of Bihar*).
- iv.* There is need to maximize farm income by way of taking up income generating supporting schemes in agri-allied sectors and non-farm sector (*Attn: Departments of Planning, Development, Agriculture & its Allied, Government of Bihar*).
- v.* There is also need to build an efficient marketing system through integrated efforts (*Attn: Dept. of Agriculture, Govt. of Bihar*).
- vi.* Last, but not the least, budgetary allocations to agriculture should be increased and duly utilized (*Attn: Departments of Finance, Agriculture, Government of Bihar*).

## *References*

1. Economic Survey of Bihar, 2008-09, Government of Bihar.
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4. Various issues of Budget Documents of Government of Bihar.
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APPENDIX - I

**Average GDP Growth Rates --- Overall and in Agriculture (% per year at 1999-2000 prices)**

SN	Period	Total Economy	Allied & Agriculture Sectors	Crops & Livestock
1.	Pre-green revolution 1951-52 to 1967-68	3.69	2.54	2.65
2.	Green revolution period 1968-69 to 1980-81	3.52	2.44	2.72
3.	Winter technology dissemination period 1981-82 to 1990-91	5.40	3.52	3.65
4.	Early reforms period 1991-92 to 1996-97	5.69	3.66	3.68
5.	IXth Plan 1997-98 to 2001-02	5.52	2.50	2.49
6.	Xth Plan period 2002-03 to 2006-07	7.77	2.47	2.51
	of which 2002-03 to 2004-05	6.66	0.89	0.89
	2005-06 to 2006-07	9.51	4.84	4.96

*Source: National Accounts Statistics, 2008 (New Series); CSO, Ministry of Statistics & Programme Implementation, New Delhi*

Annexure – I

INSTITUTE FOR SOCIAL & ECONOMIC CHANGE  
Nagarabhavi, P O : Bangalore 560 072

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Comments for  
**STATE BUDGETARY RESOURCES AND AGRICULTURAL DEVELOPMENT IN BIHAR**

The following changes are required in the report:

1. It is found that many errors and missing reference in the report. For example, what is the reference for decline in the productivity of wheat due to climate change? (Page No. 8). Please correct such misstates.
2. Chapter – I Table 1.1 GSDP figures should be in 1993-94 constant prices instead of 1999-2000.
3. Please include table 2.1 (a) Growth rate on agriculture expenditure.
4. Include expenditure Rs. per ha at current prices also in Table 2.2.
5. Include the two more tables in Chapter – II, Table on Changes in the composition of expenditure on agriculture and allied activities of revenue account (in %).

One more table on compound annual growth rate of expenditure on agriculture and allied activities during Pre and Post-reform period.

Sd/-  
08/02/2010  
**(G B Lokesh)**

Annexure - II

Action Taken Report (ATR)

Title of the Study Report: **STATE BUDGETARY RESOURCES AND AGRICULTURAL DEVELOPMENT IN BIHAR**

Date of Receipt of the  
Comments: 20/02/2010

1. Necessary changes made.
2. Figures based on 1993-94 at constant prices incorporated.
3. Table No. 2.1 (a) incorporated.
4. In table 2.2, available data are presented.
5. In Chapter – II tables were given as per availability of data.

**Ranjan Kumar Sinha**  
*Research Officer-Cum-Project Leader*