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# State Budgetary Resources and Agricultural Development in West Bengal

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## Introduction

State budgetary support to agriculture plays an important role in its development. The nature and magnitude of budgetary support influences the technical progress to a large extent. Needless to say, that the higher level of expenditure lays the foundation for higher rate of growth. Given the critical importance of agriculture to the Indian economy, capital assumes added importance. As the potential for further increases in crop area is nearly exhausted, the future growth of agriculture need to be yield based. The latter requires large investment in creating and maintaining productive assets like irrigation and rural infrastructure as well as in promoting growth agents like agricultural research, education and extension.

Government expenditures appear to have strong "trickle down" characteristics. Practically all states that have succeeded in reducing poverty have made sizable expenditure in agriculture and rural development programmes. It is often argued that agriculture did not been receive due attention it deserved in terms of resource allocation in recent years particularly since late 1980s (Chand, 2001; Mkpado and Arene, 2010; Roy and Pal, 2002). Consequently, the growth of agriculture has also tended to slacken during the nineties (GOI, 2000). Besides, Indian agriculture faces a greater challenge in increasing productivity and making agricultural production cost effective in the wake of economic liberalization and free trade regime. The scope and magnitude of foreign direct investment in Indian Agriculture is still very limited (Kant and Sinha, 2012; and Lokesha and Leelavathy, 2012). At the same time poverty remains rampant. Agricultural growth in recent years is not sufficient enough to make a dent on poverty, particularly rural poverty. In one hand the National Agriculture Policy (2000) fixed a target growth rate in excess of four per cent per annum in the agriculture sector in order to meet future demand. On the other hand, it noted that the agriculture sector is starved of capital, public investment is declining, and the incentive regime for agriculture still remains unfavorable. At the same time total number of people living below the poverty line is still quite high. In this critical juncture, the country can ill afford to neglect agriculture. Given the objectives of removal of the incidence of poverty and ensuring food and nutritional security, attaining a high growth rate in agriculture is a must (Planning Commission, 2007). The achievement of such a higher rate of agricultural growth is, however, contingent upon the necessary expenditures being made. Thus, understanding the nexus between financial support to agriculture and agricultural development is particularly important at a time when the government is undertaking a series of policy reforms. Public expenditures on agriculture have played an important role in West Bengal's economic development, particularly in rural poverty reduction. The period from the mid 1970s to the end of the 1980s when rural poverty showed a marked reduction was also a decade when public expenditures on agriculture

rose phenomenally (Roy, 2001). This also corresponded to a period when Government introduced several new programmes on agricultural development. There was an increased political commitment towards agricultural development which was backed by an increased allocation of resources and by a set of new pro-poor agricultural policies (Sen, 1997).

Agriculture being state subject in India, the primary responsibility of funding agriculture lies with the concerned states. The Union Government also supports agriculture through various schemes. For instance, major portion of agricultural research components are initiated and funded by the Union Government. So the case with investment items like special area programmes, development of agricultural financial institutions, and investment towards establishment of fertilizer industries. Also the expenditures under various centrally sponsored programmes of agricultural development are funded by the Union Government. Therefore, it is important to analyze agricultural funding at the state level. The regional pattern of agricultural expenditure and its association with agricultural productivity and rural poverty, hitherto, did not receive much attention. Most of the past studies have focused on specific aspects of falling public investment amidst rising private investment in Indian agriculture. The exhaustive literature and the conclusive evidences are based on the national-level investigations. But it might or might not be the case for most of the states. Thus, it would be more useful to examine the trend and magnitude at the state level. In view of the above facts, it was felt necessary to analyze the status of budgetary support to agriculture and its impact on agricultural development in West Bengal. The present study is a modest attempt in this direction with the following objectives:

1. 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 West Bengal.
2. To study the nexus between state budgetary support to agricultural and agricultural development in West Bengal.

## Methodology and Data

In this section, a brief description of the study domain, the concepts of budgetary support, the data sources and the analytical tools used to address the specific objectives are described.

### *Basic features of West Bengal agriculture*

West Bengal with a population of around 83 million accounts for 7.6 per cent of the country's population and covers 2.7 per cent of the country's geographical area. About 72 per cent of people live in rural areas. The proportion of people living below the poverty line in 1999–2000 was 27 per cent which is marginally higher than the national average of 26 per cent. Agriculture is the mainstay of about 70 per cent population (CMIE, 2009). Rice is the state's principal food crop. Other major crops include wheat, jute, tea, potato, sugarcane, pulses, rapeseed and mustard, and forest produce. A significant part of the state is economically backward, namely, large parts of three northern districts of Cooch Behar,, Jalpaiguri and North Dinajpur; three western districts of Purulia, Bankura, Birbhum; and the Sundarbans area. Years after independence, West Bengal was dependent on other states for meeting its demands for food as food production remained stagnant and the Green Revolution bypassed the state. However, there has been a significant spurt in food production since the 1980s, and the state now has a surplus of grains. The land use statistics in West Bengal shows that the area under forest, pastures as well as the net sown area has declined considerably. But there is significant increase in gross cropped area and thus in the cropping intensity. The analysis of change in cropping pattern show a trend for diversification towards potato, sugarcane and oilseed crops and a reduction in area under cereals and pulses (Roy *et al*, 2009).

### *Concept*

The Government accounts are kept in the following three parts: Part I- Consolidated fund; Part II- Contingency fund; and Part III- Public Account. In Part I of the account, there are three main divisions, namely: Revenue, Capital and Debt. In our analysis, only the revenue account is considered which deals with the expenditure met usually from the revenue receipts of the government. Government is making expenditure on revenue account mainly to develop farm technologies and human capital that has very significant impact on agricultural productivity (Pal and Singh, 1997). Thus, there is a need for studying government revenue expenditure that helps in maintaining and facilitating capital formation for agriculture. The second division i.e., capital outlay deals with the expenditure met usually from borrowed funds with the objective, either of increasing concrete assets of a material character, or of reducing recurring liabilities, such as those for future pensions by payment of the capitalized value. It also includes receipts of a capital nature intended to be applied as a set off to capital expenditure (MoF, various issues). In this study, capital account and loans and advances have been excluded. Further, the terms government expenditure, public investment, government budgetary support, government outlays are used interchangeably throughout this report.

### *Data sources*

The study is based on published and unpublished secondary data. Data on government finances, agricultural output and related statistics were compiled for the period 1985/86 to 2005/06. For the sake of clarity we have classified the entire period into two sub-periods coinciding with the phases of economic development. These periods were: i) Period I: 1985/86-1990/91, which is characterized as pre-Reform, and ii) Period II: 1991/92-2005/06, which is termed as post-Reform period. These sub-periods also witnessed distinct pattern in agricultural investment. Besides government finance, a large number of related data were collected from various published and unpublished sources. Important datasets are on land use statistics; area, production and productivity of different crops; net state domestic product and gross state domestic product; work-force data; rural poverty; and data on various schemes on agriculture. The required information were collected from state Statistical Abstracts published by the Bureau of Applied Economics and Statistics, Government of West Bengal and from other publications from Department of Planning, Department of Agriculture; of West Bengal Government and Department of Population Census, Government of India. Data on area, production and productivity of different crops are taken from Government sources and CMIE data on total cropped area is used for converting the total expenditure data into per hectare expenditure.

### *Analytical tools*

In this analysis we presented our finance data at current and constant price. The choice of deflator is critical to isolate the effect of inflation while constructing a series at constant prices. However, selection of appropriate deflator is not a simple matter and entails some conceptual difficulties. After a careful examination of various deflators we find the GDP deflator more appropriate for this investigation. Thus the expenditure and state domestic product series have been prepared at 1993/94 prices by deflating the current price series by GDP deflator.

Growth analysis was carried out by computing compound (exponential) growth rate (CGR I for Period I; CGR II for Period II; and CGR ALL for Total Period), as in a biological production process like agriculture, CGR is considered to be more appropriate (Rath, 1980). Moreover, when time series data are taken into consideration, it is desirable to use a log-linear model, unless theoretical consideration points to the other clearly superior alternatives (Wagle, 1999). It also helps in reducing heteroscedasticity (Gujrati, 1995). The CGR was computed for all the time series data sets.


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## Results

The results of the study are reported and discussed under three different sub-sections, viz., changing profile of agriculture, trends and pattern of budgetary expenditure on agriculture, and nexus between state budgetary support to agricultural and agricultural development.

## Changing profile of agriculture

Since, agriculture is the mainstay of 70 per cent of rural households in West Bengal, its growth is vital for the growth of the state economy, and consequently the socio-economic upliftment of the rural masses. From this perspective, it is important to make a critical appraisal of the changing profile of agriculture in West Bengal. Table 1 shows the trend and magnitude in the growth of Gross State Domestic Product (GSDP), Net State Domestic Product (NSDP), Work-force and Foodgrain production in West Bengal since 1985-86. It also shows the annual compound growth rates therein for pre-reform period i.e., for the period 1985-86 to 1991-92 (CGR I); post-reform period i.e., for the period 1991-92 to 2005-06 (CGR II) and for the total period i.e. for the period of 1985-86 to 2005-06 (CGR ALL).

Available statistics shows that in nominal terms, the West Bengal economy grew around 13 per cent per annum. However, between 1985-86 and 1991-92, West Bengal's annual rate of real NSDP growth rate was just 2.77 per cent. The 1990s seemed to change this and as a result it rose to 6.38 per cent during 1991-92 to 2005-06. Sector-wise composition of GSDP and workforce points to a significant structural transformation in West Bengal economy (Roy *et al*, 2009). The share of primary sector (agriculture, forestry, fishing, mining and quarrying, etc.) in state's GSDP was more or less stagnant or fluctuating above and around 35 percent till the year 1998-99. But thereafter a steady decline is observed. By the year 2005-06, the share of primary sector was less than 25 per cent which further reduced to less than 20 per cent in recent years. Accordingly, there was corresponding decline in the dependence on agriculture too during the said period from 54.18 percent in 1985-86 to 40.51 per cent in 2005-06. So far as secondary sector (manufacturing, construction, electricity, gas and water supply, etc) is concerned, its share in the GSDP has reduced from 29 percent in 1987-88 to 18 percent in 1999-2000. Then it again increased to around 19 percent by 2005-06. However, one interesting observation is that though the contribution of secondary sector on state GSDP has reduced from 29 per cent to 19 percent, the dependence of work-force on this sector increased from 3.67 per cent in 1985-86 to 9.37 per cent in 2005-06. The share of tertiary sector (transport, storage, finance, communication, trade, etc) both in GSDP as well as Work-force dependence has increased throughout.

The contrast between the pre-reform and the post-reform periods in respect of the performance of agriculture in West Bengal is quite stark. Except for wheat and sugarcane, the yield performance of all the major crops was worse in the post reform period. The total foodgrain production which grew as high as 11.79 per cent per annum during pre-reform period, reduced to just 1.92 per cent during post-reform period (Table 1). Yields for major agricultural crops grew much faster in the 1980s than in the post reform period. The performance of some individual crops like few pulses and sugarcane has, however, been better in the post reform period. However, the performance of all non-foodgrains as a whole remains lackluster. The performance in respect of wheat and sugarcane is not surprising since both these crops are grown under irrigated environments and mostly by the relatively rich farmers (Roy *et al*, 2009).

The above findings points to the fact that the West Bengal economy is shifting away from primary sector to tertiary sector and of late the dependence on agriculture is reducing. In fact, thanks to growth in information technology and marketing services, West Bengal economy is now dominated by tertiary sector as more than half of the GSDP is now coming from this sector and it is providing employment to equal proportion of work-force.

**Table 1:** Growth in GSDP, NSDP, Work-force and Foodgrain Production in West Bengal

| Year | GSDP (Rs. Crore) | | NSDP (Rs. Crore) | | Work-force | | Total Foodgrain | |
|---|---|---|---|---|---|---|---|---|
| | Current Price | Constant Price | Current Price | Constant Price | Total (Nos) | Primary sector share (%) | Production ('000 tones) | Yield (Kg/ha) |
| 1985-86 | 19220 | 39224 | 17415 | 35542 | 17306870 | 54.18 | 9128 | 1546 |
| 1986-87 | 20909 | 43560 | 18946 | 39471 | 17813136 | 53.98 | 9611 | 1539 |
| 1987-88 | 25396 | 43787 | 23012 | 39676 | 18334543 | 53.78 | 1031 | 1634 |
| 1988-89 | 27244 | 43244 | 24686 | 39185 | 18871552 | 53.57 | 11515 | 1821 |
| 1989-90 | 30669 | 45775 | 27790 | 41478 | 19424642 | 53.37 | 11857 | 1821 |
| 1990-91 | 34764 | 46352 | 31500 | 42000 | 19994305 | 53.17 | 11270 | 1735 |
| 1991-92 | 40207 | 47865 | 36433 | 43372 | 20581048 | 52.96 | 12856 | 2036 |
| 1992-93 | 42784 | 45515 | 38768 | 41242 | 21293243 | 52.11 | 12389 | 1959 |
| 1993-94 | 53424 | 53424 | 48398 | 48398 | 22038837 | 51.25 | 13101 | 2006 |
| 1994-95 | 59395 | 53996 | 53819 | 48927 | 22819844 | 50.38 | 13279 | 2077 |
| 1995-96 | 74091 | 61232 | 67136 | 55484 | 23638420 | 49.51 | 12886 | 1960 |
| 1996-97 | 82132 | 61753 | 74422 | 55957 | 24496884 | 48.63 | 13738 | 2134 |
| 1997-98 | 98876 | 69631 | 89595 | 63095 | 25397727 | 47.74 | 14354 | 2189 |
| 1998-99 | 117168 | 73230 | 106170 | 66356 | 26343632 | 46.85 | 14368 | 2197 |
| 1999-00 | 126834 | 76406 | 124808 | 75186 | 27337481 | 45.96 | 14846 | 2187 |
| 2000-01 | 139863 | 81316 | 128975 | 74985 | 28382384 | 45.06 | 13815 | 2231 |
| 2001-02 | 153865 | 85958 | 143910 | 80397 | 29481690 | 44.15 | 16501 | 2424 |
| 2002-03 | 165419 | 88459 | 153578 | 82127 | 30639014 | 43.25 | 15523 | 2374 |
| 2003-04 | 186429 | 96097 | 172540 | 88938 | 31858258 | 42.33 | 16009 | 2421 |
| 2004-05 | 206881 | 102926 | 188998 | 94029 | 33143637 | 41.42 | 16107 | 2480 |
| 2005-06 | 232556 | 110741 | 212453 | 101168 | 34499707 | 40.51 | 15688 | 2427 |
| *CGR-I* | *11.95* | *2.77* | *11.95* | *2.77* | *2.89* | *-0.38* | *11.71* | *3.40* |
| *CGR-II* | *12.71* | *6.19* | *12.90* | *6.38* | *3.69* | *-1.91* | *1.92* | *1.73* |
| *CGR ALL* | *12.98* | *5.19* | *13.12* | *5.33* | *3.47* | *-1.52* | *4.98* | *2.29* |

Data Source: Statistical Abstracts (Several Volumes), Bureau of Applied Economics and Research, Government of West Bengal. Note: GSDP figures for few years are derived from NSDP figures

The appreciable growth in agriculture that have taken the state towards self-sufficiency in food production during 1980s can be traced to developments in a number of directions, most importantly to the massive expansion of irrigation base, development of rural infrastructure, institutional support and technological change due to larger public expenditure on agriculture. But the magnitude of government expenditure on agriculture and the associated growth in agricultural production slowed down significantly during post-Reform period significantly.

***Trends and pattern of budgetary expenditure on agriculture***

Table 2 shows the trend in budgetary support to agriculture at constant prices. Though nominal public expenditures in agriculture have tended to rise year after year, in real terms, these have tended to diminish during mid 1990s and again during 2001-02 onwards. The decline on capital account was very sharp during pre-Reform period while the revenue account expenditure, in real terms, declined only in the post-Reform period. However, while looking into the total budget of the government, there is no such decline is there. Both


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in the total budget and in budget for economic services, the revenue account as well as capital account expenditure increased considerable in post and pre-Reform period (Roy *et al.,* 2009).

There is another way in which we can assess the intensity of agricultural expenditure. That is by examining agricultural investment per unit of gross cropped area. Government expenditure on agriculture, in Rs/ha GCA, shows a fluctuating pattern in real terms. And such a fluctuating pattern holds true at current prices too. Though nominal public expenditure on agriculture per unit of cropped area have tended to rise year after year, in real terms, these have tended to diminish in absolute magnitude since the beginning of 1980s. At 1993-94 constant prices, public expenditure on agriculture plunged to Rs. 391/haGCA in 2004-05 from close to Rs. 600/ ha GCA in 2000-01. More specifically, public expenditure in 1993-94 prices fell at 1.31% annually in the post-reform period from –0.92% annually during pre-reform period. Expenditure on agriculture and allied sector as a share of total budget of revenue account was as high as 7.55% in 1985-86, which continuously declined to as low as 2.39%. Again, the decline is steeper during post-Reform period than pre-Reform period. The trend is similar for expenditure on agriculture and allied sector as a share of Economic Services of revenue account (Roy et al, 2009). Another way of analyzing the trend in Expenditure on Agriculture is in terms of its percentage of NSDP as shown in Table 2. Though nominal public expenditure in agriculture, till 2000-01, have tended to rise year after year, expenditure in agriculture as a proportion of NSDP has been declining very fast. And during the post-reform period the decline was too severe. Since 2000-01 onward, the expenditure on agriculture declined even in nominal price leading to an overall slump. The total declined from 1% on an average during the pre-reform period to less than 0.4% in recent years. All these imply that over the years government neglected agriculture sector, while allocating public resources. The siphoning of resources from agriculture to other sectors had a telling effect on agricultural development in the state.

Another important aspect of agricultural expenditure is its composition. There has been a marked change in the composition in the total expenditure on agriculture (Table 3). The priorities are shifted towards animal husbandry, fisheries, forestry, storage and warehousing, and agricultural research and education away from crop husbandry, dairying, soil and water conservation, and other agricultural programmes. Crop husbandry, animal husbandry and forestry continued to remain as the most important item of public sector agricultural investment in West Bengal. Together they claimed around 52 per cent of the public investment during pre-Reform period, which further increased to around 60 per cent in post-Reform period. The main losers are plantations, co-operations and soil and water conservation.

Agriculture is the state subject in India. Thus most of the development schemes in agriculture are financed and implemented by the state government. However, the Union government too sponsors a number of schemes on agriculture in different states. Since 2000-01, the Department of Agriculture, Government of West Bengal, has been implementing various schemes under the Centrally Sponsored Macro Management Mode with a view to bring about all round development of agriculture in the state. However, the availability of information on such schemes is very limited and incomplete. The available information shows a wide year to year variation in the utilization of funds as well as physical target achievements under different schemes. For many years the physical targets are kept very low and physical achievements lags far behind financial achievements. In general, physical achievements are quite poor and highly fluctuating from year to year for almost all the schemes concerned (Roy *et al.,* 2009).

**Table 2:** Trend in Expenditure on Agriculture (at Constant Price)

(Rs. in 000)

| Year | Total Expenditure (Budget) | | | Expenditure on Agriculture | | | Revenue Expenditure on Agriculture | | |
|---|---|---|---|---|---|---|---|---|---|
| | Revenue | Capital | Total | Revenue | Capital | Total | Rs./ha GCA | As % Total of Expenditure (Budget) | As % of NSDP |
| 1985-86 | 46129237 | 2488370 | 48617608 | 3671302 | 351519 | 4022821 | 513.69 | 7.55 | 1.03 |
| 1986-87 | 56197456 | 4310413 | 60507869 | 3880826 | 461925 | 4342751 | 498.46 | 6.41 | 0.98 |
| 1987-88 | 52197795 | 4208968 | 56406763 | 3674278 | 351395 | 4025673 | 472.00 | 6.51 | 0.93 |
| 1988-89 | 55152775 | 4310323 | 59463099 | 3841399 | 443424 | 4284823 | 503.45 | 6.46 | 0.98 |
| 1989-90 | 59272400 | 6180151 | 65452551 | 3833263 | 110536 | 3943799 | 498.64 | 5.86 | 0.92 |
| 1990-91 | 68374994 | 4914938 | 73289932 | 4117181 | 338330 | 4455511 | 475.29 | 5.62 | 0.98 |
| 1991-92 | 63377201 | 3724758 | 67101959 | 4476760 | 297903 | 4774663 | 516.57 | 6.67 | 1.03 |
| 1992-93 | 60252112 | 2805531 | 63057643 | 4272955 | 84720 | 4357675 | 500.33 | 6.78 | 1.04 |
| 1993-94 | 69057500 | 4020400 | 73077900 | 4773776 | 104366 | 4878142 | 549.94 | 6.53 | 0.99 |
| 1994-95 | 69369613 | 700363 | 70069976 | 3606341 | 204808 | 3811150 | 413.65 | 5.15 | 0.74 |
| 1995-96 | 71291506 | 9622151 | 80913657 | 3641728 | 125491 | 3767219 | 405.88 | 4.50 | 0.66 |
| 1996-97 | 77912405 | 10863985 | 88776390 | 3900287 | 173926 | 4074213 | 431.78 | 4.39 | 0.70 |
| 1997-98 | 79731578 | 4463311 | 84194890 | 3676802 | 235620 | 3912422 | 398.23 | 4.37 | 0.58 |
| 1998-99 | 89018013 | 4465935 | 93483948 | 4357384 | 168351 | 4525734 | 468.05 | 4.66 | 0.66 |
| 1999-00 | 117460510 | 6062833 | 123523343 | 4998067 | 127440 | 5125507 | 523.61 | 4.05 | 0.66 |
| 2000-01 | 128508470 | 7690700 | 136199170 | 5325820 | 105794 | 5431614 | 584.19 | 3.91 | 0.71 |
| 2001-02 | 130695658 | 7070001 | 137765659 | 4653183 | 155818 | 4809001 | 475.84 | 3.38 | 0.58 |
| 2002-03 | 123854426 | 4194386 | 128048813 | 4019152 | 95842 | 4114994 | 422.60 | 3.14 | 0.49 |
| 2003-04 | 132770491 | 3897630 | 136668120 | 3785462 | 61728 | 3847190 | 391.81 | 2.77 | 0.43 |
| 2004-05 | 140030434 | 9126964 | 149157399 | 3722568 | 87708 | 3810276 | 390.91 | 2.50 | 0.40 |
| 2005-06 | 148175530 | 7870096 | 156045625 | 3733619 | 199705 | 3933324 | 391.67 | 2.39 | 0.37 |
| CGR I | 6.24 | 12.88 | 6.69 | 1.66 | -12.14 | 0.81 | -0.92 | -5.01 | -1.12 |
| CGR II | 7.07 | 6.43 | 6.95 | -0.41 | -3.29 | -0.52 | -1.31 | -7.36 | -6.79 |
| CGR ALL | 5.84 | 3.48 | 5.71 | 0.37 | -6.35 | 0.02 | -0.99 | -5.33 | -4.96 |

Data Source: Statistical Abstracts (Several Volumes), Bureau of Applied Economics and Statistics, Government of West Bengal



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**Table 3:** Changes in the Composition of Expenditure on Agriculture of Revenue Account as a share of Agricultural Expenditure

(Per cent)

| Particulars | 1985 -86 | 1990 -91 | 1995 -96 | 2000-01 | 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | CGR I | CGR II | CGR ALL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agriculture and Allied Activities | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| (i) Crop Husbandry | 20.84 | 20.39 | 17.31 | 19.87 | 21.38 | 21.84 | 21.83 | 23.07 | 25.01 | 2.00 | -0.25 | -0.17 |
| (ii) Soil and Water Conservation | 2.96 | 2.55 | 2.90 | 2.29 | 1.42 | 1.60 | 1.63 | 1.55 | 1.34 | -2.88 | -3.96 | -3.06 |
| (iii) Animal Husbandry | 9.79 | 12.51 | 12.38 | 15.21 | 14.84 | 16.29 | 16.33 | 17.44 | 16.95 | 4.22 | 3.86 | 2.82 |
| (iv) Dairy Development | 19.67 | 18.33 | 21.22 | 14.56 | 14.12 | 14.21 | 16.04 | 11.66 | 9.05 | -1.39 | -3.94 | -2.44 |
| (v) Fisheries | 5.49 | 5.59 | 6.12 | 7.64 | 6.44 | 4.61 | 3.84 | 5.17 | 5.73 | -0.61 | 1.19 | 1.14 |
| (vi) Forestry and Wild Life | 12.59 | 17.35 | 19.89 | 17.78 | 19.54 | 17.31 | 17.19 | 17.27 | 17.62 | 6.69 | 0.53 | 1.47 |
| (vii) Plantations | 3.80 | 3.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -1.65 | 0.00 | NA |
| (viii) Food Storage and Warehousing | 4.98 | 8.59 | 9.11 | 10.64 | 10.05 | 11.01 | 10.64 | 9.98 | 9.39 | 7.97 | 2.86 | 3.01 |
| (ix) Agricultural Research and Education | 5.31 | 5.01 | 6.06 | 6.44 | 6.16 | 7.48 | 7.02 | 7.26 | 6.08 | -0.92 | 3.63 | 1.72 |
| (x) Co-operation | 13.72 | 4.69 | 4.29 | 4.20 | 4.64 | 4.88 | 4.62 | 5.80 | 5.49 | -25.19 | 4.11 | -2.75 |
| (xi) Other Agricultural Programmes | 0.86 | 1.51 | 0.72 | 1.37 | 1.43 | 0.76 | 0.85 | 0.79 | 3.40 | 8.90 | -7.96 | -0.57 |

Data Source: Statistical Abstracts (Several Volumes), Bureau of Applied Economics and Statistics, Government of West Bengal

***Nexus between state budgetary support to agriculture and agricultural development***

It is well known that agriculture is one of the most important sectors in the West Bengal economy as it contributes around 20 per cent of the Gross State Domestic Product (GSDP) and provides around 43 per cent employment to the total work force in the state (CMIE, 2009). The growth of agriculture sector has also both direct and indirect impact on reducing rural poverty and inequality (Karmakar and Sarkar, 2013; Roy, 2001). Therefore, agricultural growth assumes paramount importance in accelerating overall economic growth. State budgetary support to agriculture also induces private household investment in agriculture (Roy, 2001). As a sizable amount of public expenditure is meant for creating and facilitating infrastructure and it augments productive capacity, the level of public expenditure is crucial for growth of output (Diwedi *et al.*, 2011). Accordingly, it has been pointed out that the decline in public investment in agriculture during early 1980s, would have adverse impact on the growth of agricultural output (Rath, 1989; Roy, 2002). Though agricultural GDP and its growth rate did not decline as predicted during the decade of 1980s, following decline in the public investment, there is no disagreement about the importance of public investment for long run output growth.

The contrast between the pre-reform and the post-reform periods in respect of the performance of agriculture in West Bengal is quite stark. Except for wheat and sugarcane, the yield performance of all the major crops was worse in the post reform period. This is most likely due to the slowing down of public and private investment in agriculture (Roy *et al*, 2009). The state budgetary support to agriculture at constant price, which grew 0.81 per cent per annum during pre-reform period reduced in absolute figure during post-reform period. One of the most significant consequences of this poor growth performance in the post reform period has been the rise in unemployment in West Bengal (Govt. West Bengal, 2004). It is widely recognised that agriculture is facing difficulties; some would even argue that it is facing a crisis manifested in several dimensions. Agricultural output growth rate has stagnated in recent years and as a consequence agricultural employment growth has been low and aggregate unemployment has risen.

Most of the development schemes in agriculture in West Bengal are financed and implemented by the state government. Union government too sponsors a number of schemes on agriculture in different states. Though the availability of information on such schemes is very limited and incomplete but a positive impact of the programme on overall development of agriculture and employment generation was observed in all the available evaluation studies. Beneficiaries of the scheme were benefited by way of increase in their income though in different proportions, and farmers have acquired fair knowledge and skill on IPM and INM and they are adopting the same in rice and vegetable cultivation. Demonstration of micro-nutrient has given very strong and positive results in zinc, boron and molybdenum deficient regions of the state and adoption of bio-village concept has created good impact among farming community towards organic. The farmers are well motivated to grow new crops like maize, sunflower, groundnut and pulses.

The agrarian crisis in West Bengal has both long-term structural and institutional as well as short term manifestations. The long-term structural features are a sharp decline in the share of agriculture in the State Gross Domestic Product (SDP) accompanied by a very low rate of labour force diversification away from agriculture. This has resulted in declining relative productivity of agriculture *vis-à-vis* that of the non-agricultural sector. A large dependence of working population on land has also resulted in a steep decline in per capita land availability. The crisis has been exacerbated further by rapid decline in the state budgetary support to agriculture and plateauing of the existing agricultural technology. The gradual withdrawal of the state from active participation in development activities has resulted in a steep decline in public investment in agricultural infrastructure in general, and in agricultural science and technology in particular (Roy, 2001). This has resulted

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in deterioration of rural infrastructure, stagnation of agricultural research and development, and neglect of extension services. These factors have combined to impinge adversely on the production potential of the agricultural sector in the state. The most important manifestations of the declining budgetary support to agriculture are deceleration of agricultural growth combined with increasing inefficiency in input use thereby adversely affecting the profitability of agricultural production. The growth of agriculture both in terms of gross product and in terms of output has visibly decelerated during the post-reform period compared with that during the eighties. Given the importance of agriculture in West Bengal, the repercussion of a fall in agricultural growth will be felt in all sectors of the economy and, in particular, the incomes and welfare of poor who depend on agriculture will be severely affected.

## Conclusion and Policy Implications

Public sector investment in agriculture has all along occupied a prominent place in investment in rural area, particularly in certain categories like road, irrigation, market, research and education. The real public expenditure on agriculture, in West Bengal, indicate periodic ups and down. Decline in government expenditure particularly during the 1980's and the early 1990's is attributed to number of these factors, particularly to the erosion of the capacity of the state government due to growing deficit in the revenue account. The deceleration in the real government expenditure on agriculture in West Bengal is being associated with decline in the growth rate in the agricultural output particularly the food grain output and slowing down the rate of poverty reduction. This has raised serious concern because of the linkages of public expenditure with agricultural growth and poverty in rural area. There is a pressing need for a more fundamental change in strategy to raise resources and accelerate the pace of agricultural development. The government needs to concentrate on rectifying the inefficiencies which may induce more private investments. Additional resources need to be mobilised through larger support from the Union government and by increasing user charges on electricity and irrigation. There has not been much progress at all towards mobilising surpluses for rural investment or increasing user charges for electricity or irrigation water so that the feasibility of any significant step up in public investment is at present severely constrained by fiscal problems. Critics point out that since the late 80's there have been a strong growth in private sector investment in agriculture. However increase in private investment does not alone can lead to sustained agricultural growth.

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