



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search  
<http://ageconsearch.umn.edu>  
[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Vol XIX  
No. 1

ISSN 0019-5014

CONFERENCE  
NUMBER

JANUARY-  
MARCH  
1964

# INDIAN JOURNAL OF AGRICULTURAL ECONOMICS



INDIAN SOCIETY OF  
AGRICULTURAL ECONOMICS,  
BOMBAY

From the point of view of distribution of agricultural implements in these two regions,<sup>3</sup> it is found that the number of tractors used is highest in Burdwan in 1956 and recorded the highest rate of increase during the period from 1951 to 1956. But in 1951 the number of tractors used in the 24-Parganas of Southern districts was the highest but showed a decline in 1956. In the West Dinajpur the number of tractors used increased from 1951 to 1956. The number of wooden ploughs, showed a steady rise in all these four districts from 1954 to 1956. The same declining trend in the number of iron ploughs, other small implements, harrows, spades, etc., is visible in all these districts including West Dinajpur. It has been found from the above analysis that in the use of agricultural implements the districts in the Southern region stand much above the Northern region even though the area sown in the Northern area is larger than that in the Southern area. This may mean that the ratio between land and modern machinery is higher in Southern area than in the Northern area. This may be one of the explanations of the higher output in the former region.

The above analysis reveals the variations in agricultural production and development in the two regions under discussion and it is found that the districts in the Southern region relatively stand much above the districts of Northern region in terms of productivity and development. This may be due to the fact of nearness of these Southern districts to the industrialised area, though the impact of industrialisation on the adjacent rural areas is not remarkable as is evident from the yield rate, use of modern implements, etc. This impact could be really significant only when industrialisation would create greater rate of urbanisation in general and in particular, an agricultural economy reorganised on the large scale basis through co-operativisation and mechanisation. These steps would not only raise the level of economy of agriculture to enable it to absorb the impact of industrialisation and thereby raise its productivity and development, but also would wipe out the gap between different regions in terms of productivity and development both in agriculture and industry.

---

#### A COMPARATIVE STUDY OF SOME ASPECTS OF AGRICULTURAL DEVELOPMENT IN TWO STATES OF EASTERN ZONE WEST BENGAL AND ORISSA

MADAN GOPAL GHOSH

and

NRIPENDRANATH BANDYOPADHYAY

*Agro-Economic Research Centre  
Visva-Bharati University, Santiniketan*

As a part of the study of the nature and extent of regional variation in Indian agriculture this paper proposes to examine the difference in the rate of development in two States of Eastern Zone—West Bengal and Orissa. The specific objects of

---

3. *Op. cit.*

our study are to assess the following : (1) *The extent of changes in these two States and the differential rate.* (2) *How far these rates are commensurate with the development expenditure incurred ?* (3) *How far conscious efforts at development can be held responsible for these changes ?* (4) *Other possible factors responsible for these changes.* For this paper we drew upon published data from State government sources. Data regarding performances in the agricultural sector of these two States were available only up to 1958-59 crop year. District figures, essential for greater insight into the intra-State regional variations were available only up to 1955-56 and that too for one State only, *i.e.*, West Bengal. This imposed serious limitation on the study.

It may be proper to briefly indicate the characteristic features of the two States under study. In respect of population density, per person availability of land, degree of urbanisation, respective shares of sectoral income, per capita State income and per capita revenue earnings these two States vary widely. According to 1951 Census figures Orissa belongs to low density areas of India with only 244 persons per square mile—a figure lower than all-India (316). The West Bengal is one of the highest density States in India with 775 persons per square mile. Urban population in Orissa constitutes only 4.1 per cent while that in West Bengal it is as high as 23.8 per cent. The percentage of self-supporting workers employed in primary sector (including mining) is 53.4 and income from this sector 40.0 per cent in West Bengal. The corresponding figures for Orissa are 75 per cent and 56.5 per cent respectively. Per capita total revenue works out to Rs. 22.79 in West Bengal and Rs. 13.46 in Orissa. Thus Orissa is a more backward State while West Bengal represents one of the comparatively advanced States. But there are certain points of similarity too. Both these States are primarily mono-crop and rice-producing. In the pre-land reform days these two States belonged to the old permanent settlement areas (excluding princely States) with considerable concentration of land holding and alienation of ownership from actual tillers. The number of layers of intermediary interests in land was numerous and share cropping as the form of management at the bottom was common in extensive areas of both the States. Of course princely States, numerous in Orissa, had a separate structure of their own and near-serf condition of actual tillers at the bottom in these tributaries were not found in West Bengal. Both the States lie within the heavy monsoon regions of the country, cultivation having been mainly dependent on rains. Canal and tank irrigation accounted for very small portion of the total cultivation area. Per acre productivity was lower in Orissa than that in West Bengal. Lesser natural fertility of soil was used to be taken as the major factor responsible for lower yield in Orissa. Soil experts do not share this opinion. Coastal regions and central plateau of Orissa, the main rice region of the State according to them has no evidence of lesser fertility. Though West Bengal's per acre yield in rice is better than Orissa it is considerably lower than rice producing regions of South India.

While emphasising certain characteristics of the two States under study it is necessary to point out that considerable variations exist between different regions within each State. Orissa is broadly divided into two parts—coastal and inland. In West Bengal there are considerable differences between 'low land' and 'up land'. Authorities like Daniel Thorner and Dr. Chen Han-Seng differ as to the demarcation of agrarian regions bearing common characteristics. While Thorner prefers

treating lower Ganges Valley as one region, Dr. Chen Han-Seng treats West Bengal and South Bihar as one region and lumps whole of Orissa with South Eastern Madhya Pradesh. In spite of their differences with Rural Credit Survey, Dr. Thorner and Dr. Seng agree to this extent that major parts of Orissa and West Bengal belong to two different agrarian regions. So our treatment of Orissa and West Bengal as two agrarian regions and comparison of over-all State data for broad purposes as indicated earlier appear to be permissible despite the existence of intra-State variations.

## II

In order to get some insight into the relative efficiency of development expenditures incurred we have taken figures of development expenditures in agriculture and related items of the two States as indicators of investments made. Expenditure on revenue account showed in cols. 1 to 4 of Table I reveals that both in absolute volume and rate of increase West Bengal was much ahead of Orissa. In West Bengal index of expenditure increases more or less steadily up to 262. Orissa's expenditure index indicates fall from initial level to a level of 73.07 in 1953-54. Increased expenditure starts from 1955-56 and moves at a faster rate and the index reaches 226.28 by 1958-59. Per acre yearly expenditure at the initial level (1951-52) was Rs. 1.72 in Orissa and Rs. 2.99 in West Bengal while in 1958-59 it was Rs. 3.88 and Rs. 7.07 respectively. Index of expenditure reveals that serious efforts to develop Orissa's agriculture started since the beginning of Second Plan only. Therefore the cumulative effect of each year's expenditure particularly those components having comparatively longer gestation periods should affect West Bengal agriculture more than that of Orissa.

Amongst long-term components, irrigation especially large multipurpose river valley schemes, received more importance in these two States. Central projects like Hirakud in Orissa and Mayurakshi and D.V.C. in West Bengal are projects of considerable value. Such projects by their very nature need a long gestation period before their full potential is realised but that does not fully explain why percentages of gross cropped area irrigated remained practically unchanged in Orissa and slightly decreased in West Bengal since 1951-52, the year prior to actual commissioning of the big river valley schemes into action. West Bengal with the increased net sown area shows a slight decrease in percentage terms. This was due to neglect of minor irrigation in the mean time and unpractical administrative steps impeding proper utilisation of available waters from these projects. While there was an increase in total area irrigated by canals the rate of increase was not sufficient to more than offset the decrease from other sources like tanks, lakes, *etc.* Table II shows how in West Bengal decrease in tank and other sources of irrigation outweighed the increase in canal irrigation.

The proportion of net area sown, an index of extension of cultivation shows some increase in West Bengal while Orissa in 1958-59 remained at the level of 1951-52. This is particularly significant in view of Orissa's greater potentiality of extension compared to West Bengal. In fact, West Bengal having 65.5 per cent of available land already under cultivation has limited possibility of extension. Therefore efficiency of irrigation schemes should be valued in terms of their help in stabilising production and increasing the crop intensity in this region.

TABLE I

Years	Percentage Increase in Development Expenditure		Expenditure on per Acre of Crop Area (in Rs.)		Percentage of Area Irrigated		Percentage of Net Sown Area		Percentage of Cropped Area to Net Area Sown		
	Orissa	West Bengal	Orissa	West Bengal	Orissa	West Bengal	Orissa	West Bengal	Orissa	West Bengal	
1	2	3	4	5	6	7	8	9	10	11	
1951-52	..	100	100	1.72	2.99	18.0	23.94	100.12	99.36	107.82	114.04
1952-53	..	75.07	110.75	1.27	3.18	19.9	21.58	101.48	103.49	106.04	115.69
1953-54	..	73.07	156.15	1.24	4.43	12.3	21.60	100.97	104.84	106.82	116.35
1954-55	..	87.38	157.86	1.52	4.63	13.7	21.04	99.03	101.46	108.01	115.84
1955-56	..	132.59	215.82	2.30	5.73	17.7	22.47	99.03	104.98	108.01	115.77
1956-57	..	161.92	257.52	2.73	6.99	19.1	23.35	101.69	102.45	108.72	115.79
1957-58	..	174.57	265.33	3.00	7.20	19.7	21.58	100.06	109.63	107.57	114.82
1958-59	..	226.28	262.15	3.88	7.07	18.5	22.18	100.21	110.22	107.97	116.44

Source : (i) Statistical Abstract, West Bengal, 1959, published in 1962.

(ii) Statements showing progress of Development Schemes under Second and Third Five-Year Plans, Government of West Bengal, Finance Department.

\* Base—1950-51.

TABLE II—AREA IRRIGATED BY DIFFERENT SOURCES IN WEST BENGAL

Area irrigated in '000 acres	1947-48	1948-49	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57
1	2	3	4	5	6	7	8	9	10	11
Government Canals .. .. .	277	281	279	259	421	309	316	425	590	594
Private Canals .. .. .	223	241	304	431	699	857	891	849	903	921
Tanks .. .. .	942	880	1035	1042	939	840	858	730	751	762
Wells .. .. .	9	23	31	31	30	38	38	35	37	38
Other Sources .. .. .	604	468	680	683	702	576	553	465	486	491

Source : as given in Table I.

TABLE III—INDEX OF YIELD PER ACRE AND PERCENTAGE OF AREA UNDER CROPS—RICE AND JUTE

Year	Yield		Jute		Area		Jute	
	Rice				Rice			
	Orissa	W. Bengal	Orissa	W. Bengal	Orissa	W. Bengal	Orissa	W. Bengal
1	2	3	4	5	6	7	8	9
1951-52 .. .. .	108.06	91.90	109.09	115.65	62.40	73.85	1.07	6.82
1952-53 .. .. .	112.72	97.42	100.00	125.22	63.62	72.67	0.77	5.84
1953-54 .. .. .	115.23	124.13	100.00	121.74	63.78	73.98	0.39	3.75
1954-55 .. .. .	112.01	95.76	100.00	118.26	63.65	71.41	0.58	4.00
1955-56 .. .. .	108.78	102.30	100.00	109.13	62.63	70.58	0.74	5.42
1956-57 .. .. .	117.74	108.01	90.90	86.96	62.13	71.69	0.59	4.79
1957-58 .. .. .	85.48	98.90	100.00	104.78	64.32	73.97	0.63	5.14
1958-59 .. .. .	110.57	89.23	81.82	128.70	63.21	71.17	0.65	5.92

Source : (i) as given in Table I. (ii) 100=1950-51.

The proportion of double cropped area did not increase at all in Orissa while in West Bengal it registered a marginal change. The very nature of our irrigation projects supplying rain water deposits for *kharif* only limit the scope of double cropping. Higher intensity in Murshidabad, Nadia, 24-Parganas, Howrah and Cooch-Bihar instead of Burdwan, Birbhum, Bankura and Midnapore tend to suggest that non-economic agencies like refugee influx and population pressure might have played greater role in bringing about whatever little intensification was achieved. Most of these are border districts, accommodating largest share of displaced persons. More than normal growth rates bears indirect evidence to this feature. We have already noted that both in respect of extension as well as intensification of cropping there was little change in these two States. Let us see how far changes in per acre yield of the major crops cultivated were achieved. Table III furnishes indexes of per acre yield of rice and jute. The index has been computed taking 1950-51 as the base when West Bengal's per acre yield was 10.96 maunds and that in Orissa was 5.58 maunds. The index for Orissa was 115.23 in 1953-54 the bumper crop year for Eastern Zone. There was a further rise in 1956-57 in Orissa when the index was 117.74. Orissa's production suffered mainly in 1957-58 due to flood devastation. But on the whole per acre yield in this State was maintained at a level at least 10 per cent higher than the initial level. But West Bengal index rose at a level higher than the bumper year when the index shot up to 124.13. But in all other years the index was lower than 1950-51 and lowest in 1958-59. Thus West Bengal with much larger development expenditure a considerable part of which was devoted to spectacular irrigation projects and community development project not only failed to increase per acre yield in its high valued major crop, rice, but also failed to maintain old level in most of the years. It may be argued that yield figures being initially higher in West Bengal it was difficult to further increase that rate. This argument appears to be absolutely untenable in view of considerably higher rate of yield in South India itself. When compared with yield rates in rice producing foreign countries, West Bengal yield rate appears miserable and nowhere near the optimum rate. The fact that rice prices were generally higher during these years raises the obvious question why this failed to influence production of rice in this zone. How far increasing difference between harvest price and wholesale price in West Bengal till 1958-59<sup>1</sup> inhibited production and led to usurpation of major profit by traders and speculators and whether the same feature prevented growth of production in Orissa in spite of decreasing difference between the prices in these two States along with other distorting effects of an inflationary situation forms a subject for study by itself.

The index for per acre production of jute, the most important cash crop in this zone shows some decrease in Orissa. The index was more than 10 per cent lower in 1958-59. Per acre yield of jute for the same year in West Bengal was 28 per cent higher than the initial level. Acreage under jute in West Bengal was 4.92 in 1950-51 and average yield 2.30 bales (of 400 lbs. each) per acre. In Orissa this crop accounted for 0.74 per cent of total cropped area in 1950-51 when the per acre yield was 2.25 bales. Percentage of acreage in West Bengal increased up to 5.92 in 1958-59 while in Orissa there was a marginal decrease from the already low percentage. It is interesting to note that extension of jute acreage in

1. Prices of Rice in East India, 1953-61, Agro-Economic Research Centre, Visva-Bharati, Santiniketan.

West Bengal closely fits in with the extent of decrease in rice acreage in percentage terms. The zig-zag time path of jute acreage may be largely due to variability of harvest prices of the commodity.

The foregoing discussion confined to comparing State figures revealed that West Bengal showed some improvement in agricultural production and intensity of cropping while Orissa presents a picture of stagnation. But this degree of change even in West Bengal was so small that before coming into any conclusion it is necessary to make a deeper examination of the factors contributing to progress. The following section is therefore devoted to a brief discussion of intra-district differences in agricultural performance in West Bengal, the State showing relative improvement.

### III

In this section, the differential rates of change in extension, intensity and per acre production of two major crops, rice and jute in the districts of West Bengal are studied.<sup>2</sup> District population figures based on 1961 Census reveal that density as well as urbanisation was highest in Howrah, Hooghly and 24-Parganas, districts around Calcutta. But the percentage variation in population was highest in Nadia, Jalpaiguri and Cooch-Behar followed by 24-Parganas and Burdwan. It is in the latter districts excluding Burdwan that largest concentration of displaced persons from East Pakistan have taken place. Murshidabad, Malda and West Dinajpur, the border districts too saw considerable refugee influx in the period under review.

Analysis of figures of irrigated cropped area in different districts indicate that in 1950-51, the year before any of the large schemes came into action, Birbhum and Bankura had highest percentage of irrigated cropped area, being 60.45 and 43.63 per cent respectively. Both these districts showed considerable fall in irrigated area afterwards. The waters from the Mayurakshi scheme were available from 1955-56. In 1956-57 these two districts showed some turn for the better. Burdwan and Hooghly had certain parts under an old canal irrigation scheme and some other parts started receiving D.V.C. waters since 1959. Hooghly showed a stable increase of 10 per cent over the years. The margin of increase in Burdwan was smaller but stable. Amongst other districts, Midnapore in the South and Jalpaiguri and Darjeeling in the North had some areas irrigated mainly from sources other than canals. Irrigation was very poor in border districts of Malda, Cooch-Behar, 24-Parganas and Nadia. Murshidabad, one of the border districts, had larger area under irrigation (16 per cent) than the other districts mentioned above. Some increase in the percentages of cropped area was achieved by these districts not served by river valley schemes. Lack of expected increase in Burdwan, Birbhum and Bankura, beneficiaries of D.V.C. and Mayurakshi and some increase in formerly non-irrigated areas point out to the fact that minor irrigation and maintenance of old non-canal irrigations suffered in these areas.

The index for net area sown based on 1950-51 level showed Cooch-Behar, Nadia and 24-Parganas among districts registering considerable progress, being 123,

---

2. Detailed Tables giving data on which this Section is based, have not been appended to save space.

119.50 and 114.48 per cent respectively in 1956-57. Intensity of cropping is also highest in Nadia and Murshidabad (152 and 143 per cent respectively in 1956-57). Malda, Howrah, West Dinajpore, Darjeeling and Cooch-Bihar showed degrees of intensity higher than the State average. Thus it can be inferred that extension in area for cultivation was mostly due to rehabilitation of refugees in areas formerly uncultivated. The same factor might have partially contributed to greater intensity of cropping in certain districts of West Bengal. Though West Bengal remained overwhelmingly rice producing, the districts showing comparatively more jute cultivation show influence of factors like changes in population characteristics and climate. Jute is grown more in low lands of South and North Bengal with sufficiency of waters. It is these districts that share common physical and topographical features with East Pakistan border States and have attracted more refugee peasants used to similar climatic and soil conditions.

### *Conclusions*

Examination of figures relating to expenditure incurred for bringing about short-term as well as long-term improvement in agriculture in two States and a few indicators of performances lead us to the following tentative conclusions.

1. Orissa lagged both in total volume as well as rate of increase in expenditure compared to West Bengal. Attempts have started since the initiation of the Second Plan to make up this lag.
2. The overall extent and rate of change is not at all commensurate with either the need or the expenditure incurred for the purpose.
3. West Bengal shows more change than Orissa but the rate of change was not commensurate with the differential rate of expenditure.
4. Major portion of expenditure was used for spectacular and multipurpose river valley schemes and community development projects. The latter agencies' failure to make any serious change have been accepted more than once by Programme Evaluation Organisation itself. Our investigation definitely shows serious neglect of small irrigation and not too satisfactory performance of big irrigation projects yet.
5. Changes in extension of cultivation were more due to population changes rather than conscious planned efforts. The same factor might have only partially contributed to more intensive cultivation in some parts of the State. Other factors contributing to the change were just urbanisation and commercialisation of agriculture.
6. Changes in prices of foodgrains especially paddy makes consideration of this crop as subsistence and non-commercial redundant. But rise in paddy price has not yet been able to augment production to any considerable degree. This raises serious doubt as to the efficiency and possibility of achieving greater production and assuring better distribution through manipulation of price mechanism only.