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In conformity with the overall trend in the State the yields of wheat have uniformly fallen while that of barley have risen. The reasons already given do not in any way affect the earlier conclusions to make out a separate case for the region. On account of less vulnerability to acidic soils barley should be preferred in the region.

The district-wise productivity of the cereals has further confirmed the inverse relationship of area brought under cultivation and yield partly on account of the utilisation of marginal and sub-marginal lands and partly due to the normal tendency of dissipation of efforts and scant input factors over a wider area. The rise in the yields in the later period over the earlier period is more in case of cereals which have already not attained the normal level of productivity and stand to gain more. If this be so the low productivity of the area stand better chances of improvement since it has not yet attained the optimum level of productivity beyond which, of course, the productivity must coincide with the application of science and technology.

It may, therefore, be concluded that there is no inherent inhibition with the area as such. An optimum utilisation of the existing resources and systematic growth of new resources can give good results. The region with a low normal density of 81 persons per sq. mile (State 153 and India 373), with its vast unutilised land resources holds out greater promise for future development. The proper and speedy development of this area becomes all the more imperative due to fast rate of population growth both in the State and the country as a whole.

SOME ASPECTS OF REGIONAL VARIATIONS IN AGRICULTURAL PRODUCTIVITY AND DEVELOPMENT IN WEST BENGAL*

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Existence of regional variations in productivity and development is an important characteristic of economically underdeveloped countries especially those countries which had to undergo colonial exploitation. These western colonialists came to these countries and established large industries in few selected centres which were mainly export-oriented and consumer goods industries including few plantation industries. But the establishment of these industries was neither accompanied by urbanisation nor by the general reorganisation of agricultural

*N.B. : Tables presented in this paper are based on data on land utilisation, area under production of crop, agricultural machineries and irrigational implements, sources of irrigation, etc., published in Statistical Abstract—West Bengal 1960, by State Statistical Bureau of Government of West Bengal.

economy through the introduction of large scale production and mechanisation. The industries that were developed were concentrated in a very limited area with very little impact on agricultural economy from the point of view of productivity and development adjacent to these limited industrial area and practically no impact on the agricultural area lying far off from the industrialised centres. The economic development of India since 1951-52, *i.e.*, since the First Plan, too, has not led to the substantial growth of urbanisation (in 1951, the rate was 17.60 which increased to 18.03 in 1961).¹ Neither has it brought about re-organisation of agriculture on the basis of large-scale production. Yet the incurring of huge overhead costs and growth of infra-structure would have some impact on the productivity and development of agriculture. But the gap between the two regions, *i.e.*, one region closely adjacent to the area of industrial development and the other far-off from such development, remains. This can be noted from the study of variations in agricultural productivity and developments of the two regions of West Bengal—one being in the Sub-Himalayan region popularly known as Northern Zone and other in the Gangetic region known as Southern Zone of West Bengal. We have selected two districts from each region, *i.e.*, West Dinajpur and Maldah from the Northern Zone and 24-Parganas and Burdwan from the Southern Zone. In this study, we have not taken into consideration the more or less constant factors over the last decade, like physical condition, *i.e.*, climate, condition and quality of the soil, etc., of the two regions as well as some important non-physical but variable factors like use of manures and fertilizers, per capita productivity, etc., due to non-availability of reliable data. This paper concentrates its study on the area under crop, yield per acre, area under irrigation, sources and modern means of irrigation, use of modern implements, etc., over time and in the two regions.

We have selected two principal crops of this area : one is a food crop, *i.e.*, rice and the other cash crop, *i.e.*, jute.

From Table I, it may be observed that out of a total area of 1731.50 acres in the Burdwan district of Southern area, the percentage of area sown varied from 68.44 in 1952-53 to 69.05 in 1956-57, the highest percentage being 69.80 in 1953-54. In the 24-Parganas of the Southern area, the percentage of area sown varied from 45.06 in 1952-53 to 44.80 in 1957, the total area of the district being 3630.2 acres. In the West Dinajpur district of Northern region the percentage of area sown is almost static at 77 with a slight fall in percentage to 75 in 1953-54 and 1954-55. From Table I, it would be found that the land utilisation is very high in West Dinajpur and Maldah—the two most densely populated and industrially backward areas. In Maldah again the percentage of area sown has increased from 76.52 in 1952-53 to 81.43 in 1955-56 and again declined to 79.63. The percentage of area not available for cultivation is on an average 20 in Burdwan, being the highest and on an average 9 per cent in the Maldah, being the lowest. The proportion of the area under other uncultivated land excluding current fallows is the highest in Southern regions, the rate being almost the same at 7 per cent throughout the period under discussion and lowest in the West Dinajpur, the rate varying from 4.43 per cent to 4.36 per cent during the period 1952-53 to 1956-57. This figure varied from 6.25 to 5.72 per cent in Maldah during the corresponding periods. Again the area under current fallow is the highest in the Northern area

1. *Indian Population Bulletin*, August, 1962.

TABLE I—AREA OF DISTRICTS AND LAND UTILISATION AS PERCENTAGE OF DISTRICT AREA DURING THE PERIOD 1952-53 TO 1956-57

Year	Percentage of District Area Utilised as					
	Area of district in acres	Area sown	Area not available for cultivation	Area under other un-cultivated land excluding current fallow	Current fallow	
(1)	(2)	(3)	(4)	(5)	(6)	
(a) Southern Districts of West Bengal						
(i) Burdwan						
1952—53	1731.5	68.44	20.80	7.40	3.33
1953—54	1731.5	69.80	21.03	6.95	2.19
1954—55	1731.5	68.64	21.09	6.90	3.35
1955—56	1731.5	69.35	21.21	6.80	2.61
1956—57	1731.5	69.05	19.54	6.73	2.82
(ii) 24-Parganas						
1952—53	3630.2	45.06	16.79	8.04	1.35
1953—54	3630.2	46.08	16.78	7.49	0.92
1954—55	3630.2	46.00	16.86	7.34	1.07
1955—56	3630.2	46.30	17.00	7.24	0.72
1956—57	3630.2	44.80	17.49	6.89	1.85
(b) Northern Districts of West Bengal						
(i) West Dinajpur						
1952—53	886.7	77.99	16.22	4.43	1.35
1953—54	886.7	75.93	16.24	4.98	2.84
1954—55	886.7	75.60	16.34	5.07	2.98
1955—56	886.7	77.71	16.49	4.53	1.26
1956—57	886.7	77.20	16.41	4.36	2.04
(ii) Maldah						
1952—53	890.9	76.52	9.54	6.25	7.68
1953—54	890.9	80.99	9.76	5.62	3.61
1954—55	890.9	74.22	9.65	6.34	9.57
1955—56	890.9	81.43	9.93	5.84	2.79
1956—57	890.9	79.63	9.99	5.72	4.64

and lowest in the Southern area. This again indicates the relative underdevelopment of the Northern districts. It is known that the current fallow results from the backwardness of the economy. Existence of current fallow generally results from the following factors : poverty of cultivators, inadequate supply of water, soil erosion and unremunerative nature of farming.

It is evident that yield of rice per acre is the highest in the Burdwan taking both regions together and it has recorded a rise from 13.12 maunds to 15.56 maunds during the same period (Table II). Rice yield in West Dinajpur is the lowest and at the same time recorded a decline in 1957-58. It may also be noted that yield rate per acre as a whole is lower in the Northern region than that in the Southern region. It is found that the per acre yield in the Northern region is 6.65 maunds in 1957-58, which is significantly much lower than that in the Southern region, the rate being 15.56 maunds in Burdwan. The lowest yield rate of rice is found in Maldah in the Northern region, the rate being 6.10 maunds per acre in 1957-58. In Southern districts, the jute yield rate per acre is highest and that too in the Burdwan district where yield per acre varied from 2.50 maunds to 3.40 maunds. In the Northern districts, yield of jute per acre is lowest in the Maldah again.

Development : In the previous section we have analysed the trend and disparities in the agricultural productivity in the two different regions under study. In the present section a study of the variation in the rate of development in the two regions has been made. The rate of use of implements, percentage of area irrigated and source of irrigation have been used here as some indicators of development.

It is found that the total area irrigated in West Bengal is under steady increase. Burdwan in the Southern region has the largest area under irrigation and next comes the districts of 24-Parganas of the same region. On the other hand, in the Northern region, area irrigated by different sources is considerably small. Considering the two regions under discussion, Burdwan is the only area which is getting facilities of government canal as an important source of irrigation. It may be noted that the area irrigated by private canal and tank has shown a marked decline throughout the period from 1955-56 to 1956-59 in all the districts but in Maldah where a steady rise is visible. In Burdwan and West Dinajpur districts, only areas irrigated by well are found. It has been noted in the previous section that yield rate per acre is much higher in Burdwan than other districts and in Burdwan alone modern canal under government management irrigated the area.

Again in the southern area especially in the 24-Parganas, the number of modern irrigation implements used is largest when compared to those used in the northern areas. But the number of pumps used as irrigation implements has declined in Burdwan, while it has increased in all other districts. The use of Persian wheel has showed a decline in number in all the districts but in West Dinajpur, this increase is negligible. The decline is very sharp in Maldah, while a rising trend is visible in all the districts in the use of domes, etc., from 1951 to 1956.²

2. Based on the figures taken from the Statistical Abstract of West Bengal 1960 by State Statistical Bureau, Government of West Bengal.

TABLE II—YIELD PER ACRE OF RICE AND JUTE

District/Year	(in maunds)															
	Rice								Jute							
	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58
<i>Southern Districts</i>																
1. Burdwan	13.12	11.48	11.75	16.88	14.08	14.34	12.66	15.56	2.50	3.25	3.40	3.03	3.04	3.28	2.08	2.41
2. 24-Parganas	10.57	8.28	8.47	14.29	9.62	11.70	13.26	9.40	2.50	3.19	2.55	4.10	3.00	2.87	2.17	2.60
<i>Northern Districts</i>																
3. West Dinajpur	8.41	7.44	9.50	9.88	10.65	8.52	10.07	6.65	2.00	2.15	2.71	2.53	1.80	2.61	1.51	2.00
4. Malda	9.77	7.94	9.99	10.85	7.82	8.16	9.82	6.10	2.00	2.07	3.57	3.05	1.74	2.15	1.43	1.42

From the point of view of distribution of agricultural implements in these two regions,³ 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

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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.*