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measures from drought, the farmers of the unirrigated village have less reliance on land. This discourages them to bring about improvement on their farms.

(iv) It is observed that larger farms have significantly higher level of income, greater family expenses, superior ability to save as reflected by the net investible surplus and relatively more of investment on the improvement of land.

A STUDY OF FARM INVESTMENT IN THREE VILLAGES IN ORISSA

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In a predominantly agricultural State like Orissa, economic development is intimately connected with agricultural development. The modernisation and improvement of agriculture with the help of technical advances necessitate large amounts of capital investment per agricultural unit. The larger the proportion of current output that the cultivating families are able to invest in their farms, the greater would be the increase in the productivity of land and therefore the rate of economic development. But as most of the cultivating families are living just on the subsistence level, it is often found that many cultivating families consume a very large proportion of their output to the neglect of investment on their lands. In order to make an investigation on the pattern of farm investment, a survey was conducted in some of the villages of Orissa in August, 1964.

Methodology

The data presented in this paper were collected in three villages, namely, Barodia (to be known hereafter as village No. I), Nuadhan (village No. II) and Damodarpur (village No. III). All the three villages are situated in the Cuttack district of Orissa. Of these three villages, No. I and No. II were selected from the non-irrigated and irrigated villages of a development block respectively on the basis of stratified random sampling method and No. III was selected according to convenience of collection of data. Originally the idea was to conduct the survey in four villages—two from the irrigated area and two from the non-irrigated area which was exposed to flood, drought and other natural uncertainties. As information from the fourth village which is situated in non-irrigated area could not be obtained in time, ultimately three villages only were taken for the study. The total number of cultivating families in the village No. I was 100 and 40 families were selected, thus giving a representation of 40 per cent of the families in the sample. Similarly, in the village No. II out of a total number of 75 cultivating families 30 were selected on the basis of random sampling method thus giving a representation of 40 per cent. In the village No. III out of 51 cultivating families,

20 were selected but only 17 responded, thus giving a representation of 33.3 per cent of the families in the sample. Thus, on the whole 87 families from three villages were selected for the purpose of the present survey. Data collected for the purpose of present survey refer to the calendar year 1963.

Background of the Villages

Village No. I is situated at a distance of about 18 miles from Cuttack town by the side of the river Devi. It is a non-irrigated village exposed to flood and other uncertainties of nature. Village No. II is situated almost at the same distance from Cuttack by the side of the Cuttack-Machagan road. It is an irrigated village and natural conditions for agriculture are comparatively favourable. Village No. III is situated at a distance of 12 miles from Cuttack. It is an irrigated village and natural conditions for agriculture in this village are more or less similar to those of village No. II. The cropping pattern of these villages revealed that a high percentage of the cultivators in village No. I adopted double cropping system. As the area is subject to flood, reliance is made on a second crop if the first crop is destroyed. In fact all the households included in the sample from this village adopted double cropping. But in village Nos. II and III, which were situated in comparatively favourable natural conditions, large number of cultivators adopted single cropping system. The households included in the sample revealed that 83.3 per cent of the cultivating families from village No. II and 70.6 per cent of the families from village No. III raised only one crop in the year. This is shown in Table I.

TABLE I—DISTRIBUTION OF FAMILIES ACCORDING TO THE NUMBER OF CROPS RAISED BY THEM*

Number of crops	Village I	Village II	Village III
Single	—	25 (83.3)	12 (70.6)
Double	40 (100.0)	5 (16.7)	2 (11.8)
More than 2	—	—	3 (17.6)
Total	40 (100.0)	30 (100.0)	17 (100.0)

* Figures within bracket indicate percentage.

The size of the family has got important bearings on consumption, income and investment of the family. Table II gives the percentage of families of different size in the village.

TABLE II—DISTRIBUTION OF FAMILIES ACCORDING TO THEIR SIZE

Size of the family	Percentage of families		
	Village I	Village II	Village III
1—3	12.5	16.7	52.9
4—6	30.0	53.3	47.1
7—9	35.0	23.3	—
10 and above	22.5	6.7	—
Total	100.0	100.0	100.0

The amount of land actually cultivated by the families has also got an important bearing on the amount of agricultural investment and reference to it is essential. Table III shows the distributions of families according to the amount of land actually cultivated by them.

TABLE III—DISTRIBUTION OF FAMILIES (PERCENTAGE-WISE) ACCORDING TO THE AMOUNT OF LAND ACTUALLY CULTIVATED BY THEM

Land actually cultivated	Percentage of families		
	Village I	Village II	Village III
Land completely leased out	7.5	13.3	29.5
Less than 2 acres	10.0	26.7	23.5
2—5 acres	57.5	53.3	23.5
5—8 acres	22.5	6.7	23.5
Above 8 acres	2.5	—	—
Total	100.00	100.0	100.0

From Table III it is clear that in all the three villages a large proportion of the cultivating families were cultivating land upto 5 acres. Very few families had land above 8 acres. In the sample only one family in the village No. I had land above 8 acres.

Findings of the Survey

As data regarding investment and capital formation in agriculture require information regarding gross annual income and expenditure, it is necessary to define these terms precisely, specially the items included in the calculation of gross income and family expenditure. Gross annual income was calculated taking into consideration both agricultural and non-agricultural sources. In agricultural income were included receipts from the following sources.

- (1) Value of the crop produced.
- (2) Value of the livestock products.
- (3) Wages received from others for farm work.
- (4) Value of sale of agricultural assets during the year.

In non-agricultural income were included receipts from the following sources.

- (1) Non-agricultural labour.
- (2) Trade.
- (3) Transport.
- (4) Service and profession.
- (5) Value of the sale of non-agricultural assets during the year.
- (6) Other remittances from outside.

The annual expenditures of families were divided into two categories—household expenditure and agricultural expenditure. Household expenditure has been further sub-divided into two categories—expenditure on food items like rice, wheat, *dal*, etc., and expenditure on non-food items like cloth, medicine, stimulants, education, ceremonies, etc. Agricultural expenditure includes expenditure on manure, seed, hired labour wages, etc. Having calculated gross annual income and expenditure on the above basis the savings and debt position of the family was ascertained. Then the manner of utilisation of savings and debts was analysed in order to know whether they were invested in the farm for the creation of new capital assets or not.

An attempt was made to find out the expenditure made by the agricultural families on land, livestock, farm house, equipment, irrigational structure, etc. It was noticed that a cultivating family on an average made capital investment of Rs. 282, Rs. 179 and Rs. 85 per year in No. I, No. II and No. III villages respectively in agriculture from its current earnings. The average annual incomes (as calculated on the basis stated) of a family in these villages were Rs. 2,169, Rs. 2,152 and Rs. 1,081 respectively. So the percentage of annual income that was devoted for agricultural investment was 13 per cent, 8.3 per cent and 7.9 per cent respectively in No. I, No. II and No. III villages (Table IV). It may be noticed that although village No. I was situated in the flooded and non-irrigated area, its investment in agriculture both in the absolute and in percentage term was the highest. This was contrary to the expectation. But as most of the investment was on the purchase of land (which is an investment from the point of view of individual families and not from the point of view of society) and not on improvement of land and agriculture, the higher investment was probably due to availability of larger quantity of land for purchase.

TABLE IV—AVERAGE INCOME, AGRICULTURAL INCOME AND AGRICULTURAL INVESTMENT PER FAMILY

Villages	(in Rupees)			
	Average income	Average agricultural income	Average agricultural investment	Average agricultural investment as percentage of average income
No. I	2,169	889	282	13.0
No. II	2,152	672	179	8.31
No. III	1,081	686	85	7.9

An enquiry about the investment made by different income groups showed that in all these three villages no appreciable amount was invested by families belonging to income groups below Rs. 750 per annum. This was mainly due to the fact that in these income groups the amount of land cultivated by families was very small and often they preferred to lease out their small holdings to others. Concentration of families investing both for agricultural and non-agricultural purposes was greater in the income groups above Rs. 750 and below Rs. 2,500. This is because from the point of view of ownership of land most of the families belonged to these income groups.

It was also noticed that the families investing more than Rs. 500 were pursuing more than one occupation. Another thing which was observed from the survey is that a large number of families, *i.e.*, 56 out of 87 were investing upto Rs. 300 in agriculture and 7 families who had completely leased out their land were not investing anything on land.

Pattern of Investment

The quantum of total investment by the families was further analysed in detail to show the particular lines in which investments were made to increase the productivity of land. The items on which cultivating families usually invest the savings from their output were broadly classified as purchase of land, equipment, livestock, construction of irrigational structure, farm houses, etc. A detailed study of the pattern of investment on these items in the three villages showed that in village No. I, eight families (*i.e.*, 20 per cent of the total number of families in this village) invested Rs. 5,650 or 78.03 per cent of their total investment of Rs. 7,240, on the purchase of new land. In absolute terms, the highest amount of investment in this village was made on the purchase of land. In village No. II only one family (*i.e.*, 3.3 per cent) had invested Rs. 1,500 or 76.9 per cent of their total investment of Rs. 1,950 on the purchase of new land. In absolute terms this is the highest amount of investment made for agricultural purpose. But when the utilisation of saving both on agricultural and non-agricultural items was taken into consideration it was noticed that the highest amount in absolute term in this village had been spent on ornaments. In village No. III none of the families had invested anything on the purchase of new land. Thus, it was found that the amount invested in village No. I which is flooded and non-irrigated was more than that in No. II and No. III villages which were favourably situated from the point of view of natural conditions. This may be due to the fact that in No. II and No. III villages very little land was available for purchase or sale, whereas in village No. I land was available for purchase and sale transactions. Hence the amount invested in this village on the purchase of land was more.

Another important item of investment in rural areas is the purchase of bullocks. In village No. I, four families (10 per cent of the total number of families) invested Rs. 535 or 38.1 per cent of their total investment of Rs. 1,401 on the purchase of bullocks. In village No. II only two families (or 6.7 per cent) invested Rs. 330 which formed 45.2 per cent of their total investment of Rs. 730. In village No. III, three families (17.6 per cent) invested for this purpose Rs. 500 or 54.3 per cent of their total investment of Rs. 920.

On irrigation structure it was only in village No. III, two families (or 11.8 per cent) invested Rs. 110 or 12.22 per cent of their total investment. This meagre amount of investment by a few families is rather disquieting, because to improve the productivity of land in the area large amount of investment is needed for this purpose.

On equipment and farm houses no investment was made during the year in all the three villages. This clearly revealed another weak point of the economy with reference to capital formation in agriculture. In order to cultivate land in a better way, to store the agricultural products and to sell them in the most profitable market and provide better accommodation facilities to the workers and cattle, investment on these items is essential.

These are some of the main items of investment in the agricultural sector. In the non-agricultural sector ornament was one of the most important items on which agricultural families had spent large sums of money. In village No. I, 30 families (75 per cent) had spent Rs. 3,840 or 31.9 per cent of their total saving on ornaments. In village No. II, 26 families (or 86.7 per cent) had spent Rs. 2,960 or 36.72 per cent of their total saving on ornaments. It is only in village No. III that only one family had spent Rs. 100 on ornaments. Other non-agricultural items on which savings were utilised were construction of houses and advancement of loans.

An enquiry into the sources of finance revealed that most of these investments were financed out of savings and in a few cases borrowing from relatives, traders and other indigenous sources of finance was resorted to. The role played by co-operatives, government agencies and other organised sectors of rural finance was insignificant. Out of the 87 families covered by the study, government granted loans only in 6 cases (6.9 per cent)—*taccavi* loans upto Rs. 50 each. Most of the cultivating families in these villages did not have any tangible development programme at their hands. Co-operatives and government agencies were not approached to finance such plans.

Thus from the above analysis it appears that the amount invested by the agriculturists in the three villages on different lines of farming business was not sufficient. The farmers were used to a particular mode of investment and they usually followed this trodden track. Families which had savings utilised those mostly on purchase of land and ornaments. From the social point of view the investment on the purchase of land is not a productive investment. It appeared that the farm families were not production-minded and did not invest on projects which would increase the productivity of land and agriculture.

A CASE FOR GREATER CAPITAL FORMATION IN AGRICULTURE FOR THE FUTURE PLANNING OF RAJASTHAN

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The study of capital formation in a particular sector is important because it indicates both the present attitudes and abilities for development on the one hand and the future propensities of growth on the other. The present paper examines the trends of agricultural development in the State with particular reference to the needs of capital investment, the extent of capital outlays in the government and the individual sectors; the institutional sector, being unimportant, has been referred in a general way. The main purpose of the study is to present a case for greater capital formation in agriculture for a rapid and self-sustaining economic growth in the State.