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ORISSA ECONOMICS ASSOCIATION
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PRESIDENTIAL ADDRESS

Dr. S. Tripathy

The Orissa Economic Association has done me great honour by electing me as President for the current session despite the constraint that I belong to the minority group of practising economists and, therefore, am devoid of academic glamour, ond aggrandizement. I am conscious of my limitations not being equipped with the latest tools of theoretical economic analysis and therefore, would beseech indulgence of the august gathering of economic academics here for any lapses that they may observe in the economic analysis presented in this address.

Economic growth since the advent of planning :

Orissa as a separate province came into existence in the year 1936 under the British Rule. After independence the State of Orissa assumed its present form in 1949 with merger of 23 feudal States on the first January, 1948 and another such feudatory state on the 1st January, 1949. As a result of this merger the area of the erstwhile province increased by 84 per cent and population by 60 per cent. The merger thus provided a great land mark in the economic history of Orissa.

When the 1st Five Year Plan was taken up in the year 1951, the economic situation of Orissa presented conditions of extreme backwardness with virtual absence of modern Industries a primitive agricultural technology, very few irrigation

facilities practically no power, hardly any industries, extremely inadequate infrastructure of railways and roads unsatisfactory public health conditions and total absence or near absence of modern educational facilities specially on technical subjects. The banking and commercial facilities were almost in non-existent. The feudal system of land lords over a wide area of the State and the extremely small land holdings had left the actual tiller of the soil at subsistence level with very little incentive for adoption of innovative agricultural technology. Floods and droughts were constant visitors. The administrative machinery at the time was primarily geared to discharge the traditional functions relating to law and order and revenue collection.

Economic planning under such a set up, became a challenging job. Raising the per capita income of the people, steeped in poverty amidst plentiful resources was, therefore, the main objective of the planning.

The extent of poverty in Orissa is so widespread and the standard of living of the vast majority of people is so poor, that the State could never hope to achieve any worthwhile level of economic growth under a "*laissez-faire*" doctrine. Therefore, planning became sine-qua-non for rapid economic growth in the State and Five Years Plan were launched.

In 1951 at the time of launching the First Five Year Plan the economic back drop of Orissa was very gloomy 20 per cent of the total population of 4.65 millions were tribal. The death rate was 29.9 per thousand. The literacy percentage was lowest in India. Although Orissa's population constituted 6 per cent of the total population of India, the State income was 3 per cent of the National income.

In the First Five Year Plan, the total investment of the State Plan was Rs. 18.32 crores, 29 per cent of which was spent on agriculture and allied programmes, 26 per cent on irrigation and power, 24 per cent on social services such as health, education etc., 15 per cent on transport and communication and the rest on industries mining and miscellaneous schemes. Highest priority was thus given in the 1st Plan period to the agriculture and related schemes, closely followed by irrigation and power and social services. In the 2nd Plan, the quantum of investment was increased to Rs. 85.59 crores, 46 per cent of which was spent on irrigation and power alone. Agriculture received the second priority with 22 per cent of the investment followed by social services with 17 per cent of the investment. The total investment in the 3rd Five Year Plan was about 2.5 times more than that of the Second Five Year Plan. Irrigation and Power continued to receive top priority in the investment structure with 36 per cent of the total plan outlay of Rs. 224.39 crores going to this sector. Agriculture and allied programmes, transport and communication and social services received almost equal importance with 19 per cent, 17 per cent going to these sectors respectively.

After conclusion of the 3rd Plan in March 1966, there was a pause in the programme of Five Year Plans and instead, three annual plans were taken up in the succeeding three years. The investments in the First, Second and Third Annual Plans were Rs. 47.16 crores, Rs 44.09 crores and Rs. 33.78 crores respectively with the sectoral priority of investment remaining generally in the same order as it was in the Third Five Year Plan period.

The Fourth Five Year Plan was started on the 1st April, 1969 and the total investment during this plan was Rs. 246.74

crores. The Irrigation and Power Sector continued to receive the lion's share with 46 per cent of the total investment going there and agriculture and allied programmes received 21 per cent of total investment. Third priority was given to investment in human resources and therefore, 17 per cent of the total investment went to the social services schemes. Industries, Mining, Transport and Communication continued to receive relatively low priority in the Plan. The size of the State's 5th Five Year Plan, now in progress, has been tentatively fixed at Rs. 567.01 crores, 41 per cent of this has been allocated to the Irrigation and Power Sector, 28 per cent to Education, Health and other social services, 18 per cent to Agriculture and allied programmes and 8 per cent to Transport and Communication and the rest to Industries, Mining and Miscellaneous Sectors.

With the increase in plan investments in the productive sectors as well as in social service sectors, there has been substantial progress in the physical achievement side. The foodgrains production was about 24 lakh tonnes at the end of the First plan and it increased to almost 60 lakh tonnes at the end of the 4th Plan. Fertilizer consumption increased from 0.107 lakh tonnes to 1.14 lakh tonnes. Irrigation, an important input for agriculture made impressive achievement. The Irrigation potential created at the end of the First Five Year Plan by the Major and Medium Irrigation Projects was 3.7 lakh acres and it increased to 35.9 lakh acres at the end of the Fourth Plan. The Irrigation potential created by minor irrigation projects increased from 1.6 lakh acres to 6.0 lakh acres. The installed capacity of electric power, which was 314 M. W. at the end of Second Plan increased to about 564 M. W. at the end of the 4th Plan. The number of villages electrified increased from 64 at the end of the First Five Year Plan to 10,162 at the end of the Fourth Five Year Plan. The road length, another

important infrastructure increased from 95.000 kms. at the end of First Five Year Plan to 52.000 kms. at the end of 4th Five Year Plan. Number of hospitals and dispensaries rose from 366 to 1096 during the same period. Number of hospital beds also increased from 3275 to 10,413. In the education side also impressive gains were made. The percentage of enrolment of children in the age groups of 6-10 years increased from 36.5 at the end of First Five Year Plan to 72.0 at the end of the Fourth Plan. The same for the age group of 11-13 years increased from 5.4 per cent to 25 per cenr and fcr the age grcup 14-17 years the increase was from 2.3 per cent to 18.0 per cent during the corresponding period.

Now the question arises as to what extent the huge investment of Rs. 708.87 crores from the First Plan to the end of Fourth Plan period has improved our economic condition. Many of the physical achievements, no doubt, have been impressive. But with the increase in flow of goods and services our population has also kept on increasing. Even now we are told that more than 60 per cent of the total population of the State live below the poverty line. The growth rate (per cent per annum) of the State income of Orissa between 1951-52 to 1961-62 was only 2.8 and growth rate of per capita income during the same period was only 0.9. In the years, 1960-61 to 1970-71, the growth rate of State income was 4.0 and that of per capita income was 1.6. If we take the entire period from the early parts of the First Five Year Plan to the early parts of the Fourth Five Year Plan i. e., from 1952-53 to 1970-71 into consideration, the growth rate of State income was 42 and that of per capita income was 2.0. This shows that in short period our growth rate of per capita income is even less than the growth rate of population.

The economic growth of Orissa also suffer by comparison with other States. The average per capita State domestic product

(State Income) at All-India Abstract prices for Orissa for the period of 1967-70 was Rs. 550/-whereas the same for Tamil Nadu Rs. 591/-, for West Bengal Rs. 630/-, for Maharahstar Rs 677/-,for Haryana Rs 836/- and for Punjab Rs. 953/-. Other criteria for comparison of relative economic development of Orissa vis-a-vis other States also indicate the same unhappy state of affairs. The percentage of villages electrified in Orissa (as on 31st March,1973) was 15.87 as against 36.34 for Andhra Pradesh, 42.27 for Maharashtra, 85.06 for Kerala, 96.99 for Tamil Nadu, 100.00 for Haryana. The literacy percentage (1971 census) of Orissa is 26.2 as compared to 35.8 in Gujrat 39.5 in Tamil Nadu, 60.4 in Kerala. Twenty of the other 28. States and Union territories have higher literacy percentage than that of Orissa. An estimate made in October, 1969 shows that 64.70 per cent of the total population of Orissa were living below the poverty line, and none of the other States for which such estimates were available including Andhra Pradeah, Assam, Kerala, Bihar, Uttar Pradesh and West Bengal had such a large proportion of their population below the poverty line.

Constraints for economic growth :

What are the conntraints for rapid growth of the economy of Orissa ? We all know that there exists a relationship between the economic development and investment. According to Dr.W.W. Rostow, a country in the 'take off' stage must have the gross national savings as percentage of gross national products at least upto 10 per cent. Taking the country as a whole it is seen that this ratio for India is 10.2. Even then we have yet to achieve self-generating 'take off' stage in our economy. As the gross national saving as percentage of gross national products increases per capita income normally goes up. In a Harrod-Domar model we find that with a propensity to save of 0.2 and average

productivity of investment of 0.5 G.N.P. will grow 10 per cent a year. But it has been seen that even average return of 20 per cent to capital in a developing country saving 10 per cent of its income annually would raise income by no more then 1 per cent annum as has been observed by A K. Cairncross. Similarly efforts to impute the recorded expansion in production in a developing economy to the additional labour and capital contributing to it invariably leave a large unexplained residue. In other words, the same amount of labour and capital for a developed country or for that matter an economically advanced States like Punjab and Haryana will ultimately yield a greater per capita income for their people than in a less developed State like Orissa. This is so because of the difference in economic structure or the structural defficiency which the latter State suffers from as compared to the former. This results in accumulation of more wealth in one State even at the cost of another.

Let us for a moment reflect on the history of economic doctrine involving accumulation of wealth. At the beginning of industrial revolution merchantilism was the dominant economic philosophy which emphasized that a nation's wealth consisted of gold and silver accumulated through foreign trade. The National economic policy, therefore, according to this philosophy should be accumulation of gold and silver through favourable trade balance. But this economic doctrine was challenged by Physiocrats who said that wealth consisted of subsistence goods obtained by working on land and therefore, agriculture was the only productive occupation. All those engaged in agriculture were productive labourers. Others including those in commerce and manufacturing industies were unproductive because thy had to be maintained on the surplus produced by agricufture. From this controversy arose Adam Smith's economic model which says that the purpose of all economic activities was to produce goods to satisfy human wants and therefore, the level of prospertity and social happiness reached by a people was

determined by the level of production of that society or the "wealth" of the nation. This level in turn was determined by labour productivity. The quote Adam Smith, "the greatest improvement in the productive powers of labour and greater part of the skill and dexterity and judgement with which it is anywhere directed or applied seem to have been the result of division of labour." But the nature of agriculture does not admit of so many subdivisions of labour nor of so complete a separation of one business from another as manufactures. This impossibility of making so complete and entire a separation of all different branches of labour employed in agriculture is perhaps the reason as to why the improvement of productive powers of labour in this art, do not keep pace with improvements in manufactures. This observation of Adam Smith seems significant for the economic situation prevailing in our under-developed State. We have a large agricultural population not because they needed but because of absence of alternative avenues of working opportunities in non-agricultural sector. The way to our development, lies through diversfication of productive occupation in which the available labour force was employed and progressive transfer of population from agriculture to manufactures. But Adam Smith was also opposed to merchantilism and this appears to be a contradiction of his stand that prosperity of a nation depended on the extent to which the division of labour has in it. Because through merchantilism foreign trade increases regulting in extension of the market which in turn would increase the division of labour. We all know that prosperity of ancient Orissa's civilisation was based on merchantilism with a highly developed foreign trade leading to extension of market and division of labour.

Let us revert back to our analysis of the constraints for rapid economic growth of Orissa. In the Agriculture Sector, the

small size of holdings and their numerous fragmentations and subdivisions have acted as a structural defect in bringing about the desired growth of the State's agricultural economy. The average size of an operational holding in Orissa is 1.89 hectares. The range was from 3.9 hectares in Kalahandi district to 1.22 hectares in both Cuttack and Puri districts. About 43 per cent of the holdings of the State were less than 1 hectares. The fragmentation of the operational agricultural holdings has made this structural defect more pronounced. On an average, there are 3.15 parcels per holding, and the average area per parcel is only 0.59 hectares.

Over 90 percent of States's population live in rural areas which is an indication of the severe pressure of population on land About 64 per cent of its population live below the poverty line. The scheduled caste and scheduled tribe population together constitute 38 per cent of the population and these people belong to the economically lowest stratum of the society. The small and marginal farmers with holdings of less than 2 hectares represent roughly 2.6 million house holds. Although these farmers operate over 76 per cent of all operational holdings, they control less than 39 per cent of total cultivable lands. While farms of 5 hectares or more r presenting more than 7 per cent of holdings account for about 1/3 of the land, the land less and agricultural labourers constitute about 8 million house holds. According to a World Bank Report, "the most important single constraint to agricultural development, however, is the semifeudal share croppihg and tenancy system which is still widespread despite land tenancy legislation. The share cropping system in particular is totaly counter productive to development, since the share cropper has to bear entire cost (and risks) of investment and innovation, while the landlord takes his share (usually half) of the benefits at no cost or risk."

Industry has always been receiving a low priority in the investment policy of our Plans. Although power as an input for industry received considerable emphasis in all the four Five Year Plans and three Annual Plans, so much so that surplus capacity in this sector has been created enabling us to sell powers to other States, yet industrial growth which would have followed the availability of power and development of infrastructural facilities had not taken place. The quantum of direct plan investment in industries has always been much less as compared to other sectors. A state endowed whit rich mineral resources, the way we are, could, by applying the law of comparative advantage have made a rapid stride in the industrial field had it received a little more emphasis in the 50's and 60's. Selling surplus power, no doubt, enables us to earn non-tax revenue. Yet we all know, that a nation or a State that sells raw materials is relatively economically less developed than the one which processes the raw materials and sells either intermediate or finished products. Several attempts have been made to encourage industrialists to set up factories in Orissa through cheap land tax concessions and other incentives. Yet the private sector seems to be very shy in making investment in orissa. Our only hope, therefore, remains in State and joint sector industries. But unless plan investment policv is re-oriented giving more emphasis to industries, this sector cannot be expected to progress much and contribute its share to the economic growth of the State.

Constraints for economic egalitarianism.

Increasing the size of the GNP is no longer the ultimate aim of economic growth. It has to be simultaneously equitably distribute among the factors of production, and for this purpose, egalitarian principles have been brought in through the concept

of socialism at the national policy level and through operation of special schemes like Minimum Needs Programme, Small Farmers'Development Agency, Marginal farmers and Agricultural Labourers' Agency, Tribal Development Agency etc. Socialism has been accpted as a goal because to quote our Prime Minister, "we find in it a solution to the problems of our country which is basically poor. There is no other way to remove the poverty of the people. Poverty largely means rural poverty. Over 60 per cent of our population live below the poverty line and of this over 90 per cent live in villages. There is not enough land to absorb all the available labour force in agriculture. Uneconomic sizes of land holdings do not permit use of innovative agricultural technology and modern inputs. As a result the per acre yields are very low A large section of agricultural labour remains unemployed for a eonsiderable part of the year because of non-availability of jobs. The marginal and small farmers also donot get sufficient work to do throughout the year. Under such situation, it may be difficult to achieve egalitrianism along with growth.

Let us for a moment take stock of the unemployment problem at the national level. At the end of the lst five year plan, 5.3 million people were unemployed. This figure rose to 7.1 million at the end of the Second plan period, 9.6 million at the end of the Third plan, 132 million at the end of three annual plans, and nearly 14 million people are unemployed at the end of the Fourth Five Year Plan. In addition to these estimates made by the planning commission, there is also considerable underemployment in the rural sector. It has been estimated that as much as 22.2 per cent of the rural work force work less than a full week. Even if we concentrate all our investments in the non-agricultural sector, it would not be possible to take away any substantial proportion of the rural

population from agriculture. Therefore integrated rural development which calls for radical departure form traditional principles practices and priorities with a view to harnessing the potential of science and technology for the optimum use of our natural assets-human. animal and physical and for banishing poverty from our midst may have to be adopted as a strategy for our planning. The Finance Minister of India presented this strategy in the last Budget Session of the parliament which called for creation of 100-120 million jobs in the rural aaeas to provide full employment for a total labour force of 300 million.

It has been recognised that the scope of absorption of the surplus agricultural labour force in agricultural sector itself is very limited. Re-distribution of land among landless labourers and marginal farmers through imposition of ceilings on individual holdings may bring some relief but not much. Therefore, industrial complexes have to be set up in rural areas to reduce the pressure on land and provide jobs to the people. For the idle labour force left after establishing industrial complexes and capital works in rural areas, it will be necessary to organise cooperative farms having viable and operationally convenient holdings. According to a World Bank study, both in productivity and per hectare yield, India is far behind most of the Asian Countries. The strategy for integrated rural development, therefore, calls for not just some improvement in the yield per unit of land for a few crops. "but a comprehensive fundamental programme to bring about social change in an ancient economy characterised by marked inequality in ownership of assets."

All the constraints of economic growth and egalitarianism cannot still perhaps be eliminated easily or quickly unless a revolutionary break through is achieved. The 20-point Economic

Programme alongwith the 5-point Economic Programme provides a frame coordinated and determined action to remeve some of these constraints and bring about a more rapid economic development.

After all our 5-year plans, we have passed from a deflationary unemployment equilibrium to an inflationary unemployment equilibrium through a Keynesian model. What is needed is perhaps a new Keynes who could bring about the much sought after deflationary employment equilibrium.

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STRUCTURAL CHANGE IN AGRICULTURE

Dr. Baidyanath Misra

In order to increase the pace of agricultural development, three things seem essential, to continuously improve the new technology and to field test widely on farms, second to provide the farmer with the needed infirastructure, input supplies, credit, marketing etc, so as to enable him to adopt the new technology rapidly and third, to create the necessary economic and social climate in the rural areas so that not only the benefits of new technology are evenly distributed between big and small farmers, but also the farmers are induced to participate in the process of development. The pace of development is set, to a considerable extent, by the rate of change that takes place in the attitudes and skills of the farmers.

It is obvious therefore that there is close correlation between these three components, technological change, institutional change and structural change. The benefits of technological change are easily recognisable. Dr. M. S. Swaminathan, for example, asserts that to produce 100 million tonnes of food grains, the country ought to need only 10 million hectares of land if all results of scientific work can be adopted on such an area. It appears possible to him 'to get a minimum of 10 tonnes of grain per hectare by growing two crops a year if facilities for irrigation and adequate quantities of fertilizers (i. e. 100 lb of N. 50 lb of P2 O5 and 30 lb of Potashper acre) are available. In other words, a little less than 25 million acres

of land (or about 49.5 million acre in terms of gross cropped area) should give us 100 million tonnes of cereals as against in all time high of about 118 or 120 million tonnes of cereals produced on 230 million acres of land in 1975-76. The miracle of new technology i. e.high yielding variety. chemical fertilizers. irrigation pesticidesetc is staggering. It is nothing short of a miracle.

However, this technology is mostly applicable to irrigated land, and at best no more than 25 to 30 per cent of land is irrigated in the country. What can be done in rainfed areas? In case of Orissa. for example. the yield of kharif rice is extremely low and the technology is primitive. Inspite of heavy rainfall, averaging between 500 and 1500 millimetres in different parts water becomes the first limiting constraint to crop yield A large part of the rainfall comes in a few high intensity storms during which the rate of fall greatly exceeds the rate at which the soil can absorbe it. Again within the rainy period, distribution is frequently erratic. Periods of excessive wetness may alternate with periods of extreme moisture deficiency, thus limiting crop development and limiting the choice of crop which can withstand such stresses. Loss of soil fertility becomes another limiting factor. In the absence of protective cover or other special measures, erosion hazard becomes common.

It is obvious therefore that agricultural production can be increased in these areas provided the constraints imposed by moisture stress and limited soil fertility are partly reduced. Research findings in dryland agriculture have shown that there are technological possibilities of increasing yield in semi-arid regions.

The 'Green Revolution' has become a reality in irrigated areas in which moisture supply is adequate or can be readily

regulated within acceptable limits. The new varieties developed for such situations have characteristics which enable them to make efficient use of climate and soil. Generally, they respond well and profitably to fertilizer, water, cultural methods and weed control. They have built-in genetic resistance to pests and diseases. Or else met is have been available for the control of the diseases and pests. There is therefore plenty of scope to reduce risk and uncertainty in agriculture. Not so in dryland agriculture.

As we have already seen, the limiting factor is water. But the total amount of water falling on the land of this area is probably ample in most years for supporting atleast one full crop and in many situations, and espacially in the heavier soils two full crop harvests. One of the first problems is to find ways to retain as much as possible of the water in the soil or near the place where it falls.

Ralph W. Cummings Director, ICRISAT has given several proposals. First thing to see is to make the surface as receptive as possible to take in the rain as it falls. The impact of raindrops tends to disperse the surface Layer, seal up the openings and reduce its receptivity to penetration of water. A cover of vegetation helps to intercept the rain drops and reduce the impact when they hit the surface. This in turn raduces the damage they do in reducing infiltration rates. Plants, as well as surface mulches also create small local impediments to surface movement of water and reduce movement of both water and soil across the surface. Second is to slow down the rate of movement of water to prevent soil erosion If a series of alternate ridges or beds and furrows are laid out across the slope so as to obstruct the direct down hill movement of water, it will have dual effect ; one of holding the water on

the land longer and giving the soil more time to absorb as much water as possible, and second, it reduces the damage of more rapidly moving surface water accumulations. The point is to reduce the hazard of crop failure from moisture stress so that the cultivator can be able to devote his attention to increase productivity of land by application of manures and fertilizers.

Another dimension which can be considered is the crop itself. Paddy is important in situations permitting ample irrigation. But the crops which should receive attention in semi arid regions are jowar, bajar, redgram. bengal gram and groundnut. Other upland crops of importance are saf lower, castor, maize, sesamun, cotton and many others of lesser extent.

All this implies that with the help of new technology it is now possible to increase the productivity of land and labour and improve the real incomes for farm families. Further, with proper crop planning, agriculture can provide productive employment for most of the people who are living on agriculture.

Alongwith technological change, there is need to improve the position of service and supplies. Take for example the question of credit. To produce more, farmers must spend more money on improved seeds, pesticides, fertilizers and implements. The modern technology is highly expensive. But few farmers have the funds required for scientific farm management and commercialised farming and therefore must rely on credit More institutional sources of credit, such as family, moneylender, trader and shopkeeper are not only inadequate, but highly expensive. Therefore institutional credit has to be developed in in order to provide credit at a cheap rate for meeting the cost of new technology.

Similarly marketing insitutions are of great importance to the farmer and to the people under commercial agriculture. Inefficient marketing is caused mainly by the following factors : absence of adequate infrastructure, poor storage and ware housing facilities, defective weight and measures arrangements, poor grading system, and lack of marketing research and government services. All these deficieneies have to be improved. Similarly, the role of farmers' cooperative organizations in buying and selling and of Govt. Marketing services cannot be over emphasized.

Another ingredient for agricultural development is training of farmers in new technology. The development and extension of technical knowledge in agriculture is all the more essential for the farmers if most of them are still repeating traditional farming inherited from their ancestors. One factor causing them to be poor is that they are utilising the same factors of production which have been used through past generation. New factors of production and new technical know-how are badly needed. The history of western agriculture shows that great progress can be achieved in agricultural production by means of research and extension services Lack of training hinders the rapid progress of agriculture in under-developed countries.

We have of course, to take steps to increase the supply of chemical fertilizers pesticides and improved seeds, increase irrigation facilities, and make arrangement for their proper distribution. All these new inputs are essential for the development of modern agriculture.

But what we want to emphasize here is that an outmoded agrarian structure is a serious obstacle to the modernization

of agriculture. Improved technology, increased supply of inputs and extnesion of infrastructure provide the basic framework under which agriculture can change, but if there is no change in economic and social structure, there is distortion in the results of development. It must be admitted that since indepependence, attempts have been made to eliminate all elements of exploitation and social injustice within the agrarian system so as to ensure equality of status and opportunity to all sections of the rural population. The principal measures taken in this regard are abolition of intermediary tenures, reform of tenancy, imposition of ceiling on agricultural holdings and redistribution of land, and the consolidation of fragmented agricultural holdings.

But the results have not been encouraging. The intermediary tenures covered about one-half of the country on the eve of independence. In most of the cases, there has been abolition of intermediary rights on payment of compensation except for a few minor intermediary tensures for which efforts for abolition are underway. As a result of the abolition of intermediary tenures about 50 million erstwhile tenants are estimated to have become peasant proprietors owning land directly under the state. Though it can be said that the abolition of intermediary tenures is for all practical purposes is complete, it has created certain amount of distortion in the rural economy because of the fact that no effort was made to limit the size of the home farms of the zamindars or to extend protection to the tenants-at-will, mostly share croppers on those home farms.

With regard to tenancy reform, three types of mearures were suggested by the Planning Commission. Fiistly rent should not exceed one-fifth to one-fourth of the gross produce.

Secondly, the tenants were to be accorded permanent rights in the land they cultivate subject to a limited right of resumption to be granted to land owners. Thirdly, in respect of non-resumable land, the landlord tenant relationship should be ended by conferring ownership rights on tenants, Though many States have enacted laws in respect of the above, the position of tenants continues to be insecure in most of the States, Not only the enacted legislation in many states falls short of the accepted policy, the implementation has been weak and ineffective. The Planning Commission's Task Force on Agrarian Relations (1973) has pointed out that the implementation of the enacted laws has been half-hearted, halting and unsatisfactory in large parts of the country'. Rent continue to be about 50 per cent and ejectment is common. As a result of which the objectives of land policy have not been achieved.

In respect of ceiling, laws were enacted by different States by 1961. But there was so much variation between ceiling laws of different States in regard to level of ceiling, unit of application, exemption etc. that fixation of celling did not bring about any change in the economic or social structure of rural areas. As the Planning Commission's Task Force has put it ".. ....as a result of the high level of ceiling, large number of exemptions from the law, malafide transfers and partitions and poor implementation, the results achieved have been meagre". This is evident from the fact that on the implementation of the ceiling laws only about one million hectares of land could be declared surplus. This works out to be less than one per cent of the total arable land in the country. The Government of India therefore, issued revised guidelines in August, 1972 in order to reduce the level of ceiling and bring about a measure of uniformity in the laws of different States. According to the new policy, the family is the unit for the determination of

ceiling area and most of the exemptions have been withdrawn. The Stat Governments have amended their ceiling laws in accordance with the new guidelines. It is now expected that about 1.5 million hectares of surplus land will now be made available. However, it is yet to be seen whether this revised law will fulfil the expectations.

In India, most of the agricultural holdings are not only small but they are fragmented. Emphasis was therefore laid on consolidation of holdings. But by about 1972, only 13 million hectares of land were consolidated. But this was mostly confined to the States of Punjab, Haryana and Western Uttar Pradesh. Other States are still struggling. Further, consolidation was done without taking effective steps to ensure security of tenure to tenants, particularly share croppers. This has resulted in lage scale ejectment of insecure tenants. All the same, whenever, there has been consolidation, there has been tremendous improvement in modernization of agriculture.

It may be said that inspite of the changes brought about during the last 25 years, there is a great deal of concentration of land, absentee landlordism, widespread share cropping and a preponderance of landless agricultural labourers. For example, with regard to land ownership it is estimated that about 72 per cent of the agricultural holdings are below 2 hectares in area and account for only 20 per cent of the total agricultural land. At the other end of the scale holdings above 8 hectares in area account for 5 per cent of the total number of holdings and 36 per cent of the total land. At the 1961 census it was estimated that one quarter of the agricultural land was under tenancy and that over 80 per cent of the tenancies were insecure. Further, it is estimated that 44 per cent of the rural households own no land or less than 0.4 hectare.

This inegalitarian economic and social structure has given rise to the following consequences : (1) When the new technology was evolved, it was expected that the application of science and technology backed by investment would improve the productivity of land. Agricultural production has increased but not productivity of land or man. Several studies have shown that the disparities in income and wealth have increasad between big and small cultivators. The new technology is no doubt scale neutral in the senese that it can be applied with equal effectiveness on big and small farms. But this can be done porovided water and other inputs are available in right quantities at the right time. Considerable investment is required for irrigation land improvement, seeds, fertilizers and pesticides. Modern technology is capital intensive. Further, with higher investment, the risks are also higher. How can the small farmer make this investment or undertake the risk ? Therefore, there is increasing disparity. (2) The modern techdology has worsened the condition of share croppers. Not only they are compelled to pay heavier rent than what is prescribed by law, but it has been reported that land owners have been, in the context of rising income and land values, trying hard to eject their tenants and bring the land under their direct cultivation. (3) The agricultural labourers have not improved their economic condition. Both the land owners and tenants are interested in keeping agricultural wages as low as possible. Some of the empirical studies also indicate that real wages of agril. labourers have not made any substantial improvement except in Kerala where they are somewhat better organized.

The prevailing agrarian structure has not only increased economic and social cleavage, it has not been helpful for the development of intensive agriculture. There has been only marginal improvement in intensity of cropping (4) Due to lack

of this social and economic cohesion, community work has not been successful in villages. Programmes like social forestry, community nursery, community development co-operative movement etc are not making effective headway.Even the institutions established for the benefit of the poor and under-privileged are dominated by the rural elite.

The present agrarian structure therefore poses a serious problem—it prevents the modernization of agriculture and community action for rapid rural development. Unless we change this agrarian structure by removing concentration of wealth and abolishing exploitation we cannot get the benefits of science and technology to improve the economic well-being of the common man, nor can we improve the economic base of agriculture so as to derive adequate investible surplus for the economic development of the country. Immediate action is therefore needed for a thorough change in the structural pattern of village life.

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PRODUCTIVITY IN ORISSAN AGRICULTURE

D. TRIPATHY, I.E S.

The extent of participation of the population of a state in agriculture is inversely related to the economic development. Considered from this angle Orissa seems to be under developed as 77.34% of its total workers are directly engaged in agriculture compared to 69-67% in case of India. Various studies have pointed out that the percentage of the population below the poverty line in case of Orissa is the highest in India. At present pace of industrialistion mass scale transfer of population from agriculture to industrial sector in Orissa is completely ruled out. Therefore, the ever increasing population has to be provided not only food but also employment in the agriculture sector. The income elasticity of demand for agaicultural commodities being very high, specifically in under developed states the supply of agricultural commodities has to match the demand, which requires not only increase in total production of such commodities but also increasing the productivity per unit area as increasing the area to be put under cultivation is limited. This paper attempts to, a) analyse the growth of production and productivity of selected crops in Orissa, b) the cause of low productivity and c) to suggest a few measures for increasing the productivity.

The investment under agricultural programmes and Irrigation and Power during different plan periods are presented in table 1. It is observed that agricultural programmes received lower priorities in both the Second and Third Plans, their respective shares in the total expenditure being around 9%.

After the plan holiday, when the Fourth Plan started the planners accorded a high priority to agriculture by allocating about 17% of the total plan outlay for agricultural programmes.

Table 1

Investment on agriculture and irrigation, power in different plan periods.

(R . in crores)

Plan	Total investment.	*Investment on agriculture.	Percentage to total investment.	Investment on Irrign. & power.	Percentage to total investment.
1	2	3	4	5	6
FIRST	18.42	5.15	28.02	4.81	26.15
SECOND	86.59	7.93	9.20	39.71	45.90
THIRD	225.01	21.85	9.17	80.87	35.95
66-67	47.07	6.31	13.40	19.35	41.10
67-68	44.10	5.82	13.20	18.13	41.12
68-69	33.78	3.57	10.57	17.13	50.72
FOURTH	226.60	43.71	17.05	117.13	45.70
FIFTH**	836.09	87.46	10.46	347.82	41.60

Source :— Economic Review of Orissa 1974-Bureau of Statistics & Economics.

* Agricultural programmes.

** Outlay.

From the table it is evident that irrigation and power received a consistently high priority from Second Plan onwards.

As Irrigation and Power infrastructure are essential pre-requisites for structural changes in agriculture, prinrity accorded to this sector seems to be quite consistent.

Agricultural productivity is a function of the strategic inputs like irrigation, improved seeds, fertilisers, improved implements and agricultural investments, the agricultural productivity in the year 1971-72 was 109.8 in comparison to 103.2 in the year 1951-52.

Table 2

Index of agricultural productivity (56-57 = 100)

Years	All crops
1951-52	103.2
1971-72	109.8

Source :— Ecomomic Review of Orissa, 1974, Bureau of Statistics & Economics.

In an important contribution Mishra (1) pointed out that the production of rice, the most important crop of Orissa, occupying about two-thirds of gross cropped area and 76.13% of the foodgrains area, (2) remained constant over a decade from 1964-65 to 1973-74. This has raised a very important question on the efficacy of planned investment in agriculture. Further, probe into the matter is likely to throw some light on the causes of this low productivity.

A compartive analysis about the linear rates of growth of area, production and productivity in respect of major crops is given in table 3. The rate of growth ot rice production in India is 1.68% whereas this rate is 0.37 in case of Orissa. The rate of growth of foodgrains production in Orissa is very low

compared to the rate for India. A comparison of the rate of growth of productivity presents more staggering picture. In Orissa the rate of growth of productivity of rice is negative and for foodgrains it is only 0.78% compared to all India average of 1.90%. The above annlysis suggests that there has been no break through in productivity in respect of foodgrains and the "green revolution" has no impact on food production in Orissa.

Table 3

LINEAR RATE OF GROWTH OF AGRICULTURAL **PRODUCTION**
1960-61 — 72-73

CROPS	INDIA			ORISSA		
	A	P	Y	A	P	Y
RICE	0.63	1.68	0.97	1.37	0.37	(-)0.74
WHEAT	4.31	12.42	5.86	50.42	150.12	13.19
PULSES	(-)1.15	(-)0.97	0.24	6.95	9.46	1.31
FOODGRAINS	0.84	2.99	1.90	2.54	1.58	0.78
OIL SEEDS	0.28	1.44	0.46	5.50	8.27	1.54

Source :— 1. Indian Agriculture in Brief, 13th Edition.
2. Compiled from Economic Review of Orissa 1974, Bureau of Statistics and Economics.

A = Area
P = Production
Y = Yield

But a very different picture is noticed in respect of crops like wheat and pulses. There has been a very high rate of growth of productivity of wheat. This is 13.19% compared to 5.86% in case of India. Similarly for pulses the rate of growth of production and productivity is much higher than the all India average rate. Specifically when the rate of growth of production of pulses in case of India is negative, it is as high as 9.46 % in case of Orissa.

The growth rate of production and productivity of oil seed crops remained almost stagnant in Indian agriculture. The Central Government and various State Governments realised the importance of these crops and tried to increase their coverage, production and productivity through various incentive schemes. Specifically the sharp increase in the prices of edible oils in recent months have focussed the attention of the authorities and the public. The most important factor that will determine the future prices of edible oils, other things remaining constant is the position of production and supply of these oilseed crops. In the light of their importance, as high as 8.27% rate of growth of production of thes crops in Orissa, when considered, seems to be fairly encouraging. Though the rate of growth of productivity is 1.54%, compared to all India average, it is quite high.

Productivity per unit of area reflects the extent of development of agriculture. Toble 4 show the comparative figures of productivity of different crops for Orissa and India. It is observed that only in case of rice, the productivity is about 17.15% lower in case of Orissa. In respect of oilseeds, wheat, pulses and total foodgrains, the productivity ies per hectare are 54.36%, 32.93%, 12.08% and 1.35% higher respectivety in case of Orissa than the all India average productivity.

Table 4

PRODUCTIVITY OF SELECTED CROPS (1972-73)

(Quintals per hectare)

CROPS	INDIA	ORISSA	Percentage deviation.
RICE	10.73	8.90	(-) 17.05
WHEAT	12.54	16.67	32.93
PULSES	4.65	5.20	12.08
FOODGRAINS	8.11	8.22	1.35
OILSEEDS	4.58	7.07	54 36

Source: 1. Indian Agriculture in Brief, 13th Edn.
2. Fully Revised Estimates. (See ref.2)

A comparison between the productivity of different crops in Orissa and other India States whose performances are better than that of Orissa is likely to reflect the extent of backwardness of agriculture vis-a-vis other States. Table 5 presents the production data for rice and wheat crops for Orissa and other States. It is seen that rice yield per hectare, in Orissa is less than half of the rice yield in Tamilnadu. Further, though the wheat yield per hectare in Orissa is higher than the all India average, it is still far bihind the yield rate in respect of Punjab and West Bengal.

Table 5

YIELD PER HECTARE (1973-74) (Quintals)

	RICE	WHEAT
ORISSA	9.34	15.77
West Bengal	11.25	19.08
Haryana	18.49	17.37
Punjab	22.89	22.03
Tamilnadu	20.35	-

Source :—Agricultural Guide Book pp. 91

The "green revolution" that Orissa witnessed through the adoption of HYV seeds, strategic inputs, like fertilisers was confined to a few irrigated pockets of the State. The Programme Evaluation Organisation (Planning Commission) of the Government of India took up an evaluation study of the AYV crops in different States of Inqia. (3) Its findings are likely to reflect tne Performances of HYV of paddy in Orissa vis-avit other State. Table 6 depidts the production data per acre of HYV area. From earlier discussions it was learnt that the productivity in respect of rice in Orissa is very poor compared to all India average productivity. But the table shows that so far as HYV paddy was concerned Orissa ranked second among the rice producing States and its per hectare yield was 59.38 qntls., in comparison to all India average of 44.36 qntls. The sample study, therefore, suggests that provided the supply position of inputs is reasonably good, the yield rate of rice can be increased substantially.

Various causes of low productivity of rice were pointed out by Misra4 in his study. However, in recent years, various studies conducted by indebendent organisations in India and Orissa have further provided some empirical findsng; for the low productivity in Orissan agriculture. As the physical and economic factors have not changed substantially since Misra's study was published, we shall concentrate on the technological, institutional and organisational aspects in the following paragraphs.

Table 6

HYV PADDY YIELL PER HECTARE

(Quintals)

STATES	YIELD
Andhra pradesh	47.33
Kerala	27.59
Tamilnadu	31.34
Mysore	44.46
ORISSA	59.38
West Bengal	65.65
All States	44.36

From Appendix Table 4.1 Evaluation study of the HYV Programme. Report for Rabi-1968-69 Wheat, Paddy and Jowar PEO (PC), Govt. of India, November, 1969.

The supply of HYV paddy seed in Orissa is highly inadequate and untimely. (5)

Table 7

Source of supply of. HY-V paddy seed	No. of cultivators benefited.
Block-Govt. Department	24
Others	64

Source :— Programme Evaluation Organisation Study.

Table 7 presents the data on the source of supply of HYV seed. Out of 88 cases only in the case of 24 cultivators the blocks were able to supply the HYV seed. The c-ultivators in 64 cases were to collect their own seed from various other sources. The quality of the seeds from other sources was very poor and the supply was untimely. Further the cultivators themselves were of the opinion that the seeds used by them from other sourdes led to lower yields than in the case where the departmental seeds were used.

Various studies have pointed out that the strategic input, fertilisers, can increase the yield to a substantial extent. However, the use of this input in Orissa is very low (see Table 8) Though there has been substantial increase in the use of fertilisers from 1.4 kgs-per hectare in 1964-65 to 9 kgs-per hectare in 1973-74, this is very low cowpared to all India average and substantially lower than the advanced states like Punjab. Poverty of the cultivators is the main factor for low use of fertilisers in Orissa. Further, the use of fertilisers for HYV crops is almost negligible even in Rabi season(6). Besides this, the use of fertilisers both in irrigated and unirrigated

areas is limited because of the technical and physical factors. In Orissa the floods and droughts are very frequent and specifically, in coastal areas, the risk of leaching of fertilisers is very high because of run off. The system of flow irrigation in Orissa is not conducive for application of fertilisers during Kharif season, and specifically in low lying areas in Rabi season. The flow water floods the fields and flows towards the low levels, thereby washing the fertilisers used in uplands.

Table 8

CONSUMPTION OF FERTILISERS

(in kg./hect.)

1973-74

STATES	N	P	K	Total
ORISSA	6.2	1.7	1.1	9.0
Uttar Pradesh	14.3	3.8	2.2	20.3
Haryana	18.6	3.3	0.9	22.8
Punjab	41.4	12.8	4.0	58.2
Andhra Pradesh	13.4	6.5	2.3	22:2
Tamilnadu	26.4	9.3	8.9	44.6
All India	11.2	4.0	2.2	17.4

Source : Agricultural Guide Book, 1976 (pp.91)

AIS, DIRECTORATE OF FOOD PRODUCTION, ORISSA.

The vital input, irrigotion is not only inadequate but also uneconomically used. "For paddy, the recommendation, regarding maintaining water levels at various stages of crop growth has not become popular partly due to inadequate, appreciation of the practices of the participants and partly due to unsuitability of the irrigation systems for adopting such water management practices."(7)

Because of the uncertainity in the supply of water and its inadequacy, there is reluctance on the part of the cultivators to take up crops during Rabi season. The following table shows the extent of under utilisation of minor irrigation and lift irrigation schemes in Orissa.

Table 9

EXTENT OF UNDER UTILISATION OF IRRIGATION **POTENTIAL**

	Kharif	Rabi	Total
(A) *MINOR IRRIGATION (1973-74)	30.35	64.71	40.22
(B) *LIFT IRRIGATION (1971-72)	91.40	51.20	71.98

Source: A. Report on the Survey of Minor Irrigation projects in the Coastal districts of ORISSA 1973-74. Bureau of Statistics and Economics, 1976. Out of 15 projects 4 were reservoir projects and 11 were lift irrigation projects.

B. Report on the Evaluation of Lift Irrigation projects in Orissa. State Evaluation Organisation, planning & Co-ordination Department, 1976 pp. 26-27.

According to the Bureau report[8] the under utilisation in Rabi is to the extent of 64. 71% and the total under utilisation is to the extent of 40.22% The study made by the State Evaluation Organistion presents more staggering figure of total under utilisation of about 72%.

The Bureau report says that the under utilisation was largely due to the silting of reservoir projects and want of field channels. In case of lift irrigation projects the causes of

under utilisation were inadequate discharge, breakdown of power and machinery, want of repair of machinery and field channels. The State Evaluation report[9] says that the main factor responsible for the under utilisation of irrigation potential in 18 projects was the poor response of the cultivators to the lift irrigation programme due to lack of enthusiasm for a better Rabi crop. In adition to this, low discharge of pumps, poor quality of land and soil and non co-operation of the block personnel were also some of the factors responsible for under utilisation of irrigation potential during Rabi season. The under utilisation of irrigation projects of large number of lift irrigation projects was attributable to some technological factors by low Horse Power of motors, lack of field channels and lack of co-operation of pump drivers.

It is not clear from the report of the State Evaluation organisation as to why there is lack of enthusiasm on the part of the cultivators for a better Rabi crop. This, without any explanation in the report, suggests that the extension facilities are not adequate. This is an organisational drawback that hinders the development of agriculture in a poor State like Orissa.

Table 10 presents the reasons for non adoption of intensive agricultural practices by the beneficiaries of lift irrigation. As high as 63% of the beneficiaries were of the opinon that either due to scarcity or unassured supply of water there was under utilisation of irrigation potential. Scarcity of water in lift irrigation is a technological factor. If, in as high as 28.37% cases there is scarcity of water it is worth enquiring about the techical feasibility economy of operation of the tupewells. The unassured supply of water presents a high risk for the cultivators in taking up productivity activities specifically in Rabi season in the face of sharp increase in the prices of agricultural inputs.

Table 10

REASONS FOR NON ADOPTION OF INTENSIVE AGRICULTURAL PRACTICES

REASONS	Nos.	Percentage to Total no. of beneficiaries.
Scarcity of water	90	28.37
Unsteadiness flow of water	48	13.75
Unassured water supply	72	20.63
Improper water management	30	8.60
Non co-operation of pump drivers	13	3.72
Other reasons	18	5·16

Source :— Report on the Evaluation of Lift Irrigation Projects in Orissa. State Evaluation Organisation, Planning & Co-ordination Department, 1976 pp 63

The institutional factor that hinders growth is the skewed distribution of ownership of land holding. From table 11 it is seen that about 76% of the cultivators having land holding below 5 acres operate only 38.50% of the area, whereas only 11.54% of the cultivators having holding above 10 acres, the ceiling limit fixed by the Government of Orissa, operate about 40.32% of the total area. Not only the small farmers are poor, they are also at a disadvantageous position vis-a-vis big cultivators to have access to credit, improved seeds and even extension. Further, uncertainty of land tenures deters many small farmers from taking up production of HYV crops. The factors like sub-division and fragmentation of land lead to inefficiency in production. Lack of proper marketing facilities deters many small farmers in remote rural areas from taking up cultivation of high valued cash crops like potato. In fact the farm management studies have shown that the cultivation of a high valued crop like potato resulted in loss, in an advanced agricultural district.[10] In the absence of proper marketing arrangement the small cultivators are to sell their products at prices prevailing at the time of harvest, to the middle men. They not only suffer from non-availability of various strategic inputs and pay high prices for them, but also suffer from low prices of their products leading to inefficiency in farm management.

Table 11

STATE : ORISSA

AGRICULTURAL CENSUS, 1970-71

Number of operational holdings and area operated by size class of operational holdings.

(Area in Hectares)

Sl. No.	Size-Class (Hectares)	Individual Holdings		Joint Holdings		Total	
		No.	Area	No.	Area	No.	Area
1	2	3	4	5	6	7	8
1.	Below 0.5	780497	216672.01	1171	367.89	731668 (21.47)	217039.90 (3.36)
2.	0.5-1.0	743137	552393.30	734	517.56	743871 (21.83)	552910.86 (8.57)
3.	1.0-2.0	1119220	1704925.15	1499	8989.55	1120719 (32.89)	1713914.70 (26.57)
4.	2.0-3.0	235546	612061.79	649	1671.67	236195 (6.93)	613733.46 (9.51)
5.	3.0-4.0	216123	748066.36	292	871.98	216415 (6.35)	748938.34 (11.61)
6.	4.0-5.0	124319	547005.74	394	1804.25	1124713 (3.66)	548809.99 (8.51)
7.	5.0-10.0	183102	1236239.50	1599	9683.45	184701 (5.42)	1245922.95 (19.32)
8.	10.0-20.0	40280	529576.86	369	3961.40	40649 (1.94)	533539.26 (8.25)
9.	20.0-30.0	5402	124388.49	4	102.28	5406 (0.15)	124485.77 (1.93)
10.	30.0-40.0	1316	44054.25	23	663.47	1339 (0.03)	44717.72 (0.69)
11.	40.0-50.0	807	34803.20	16	706.93	823 (0.03)	35510.13 (0.55)
12.	50.0 and above	807	59579.51	112	9613.45	919 (0.02)	69192.96 (1.07)
	Total :	3400556	6409761.16	6862	38953.88	3407418	6448715.04

Source : Report on AGRICULTURAL CENSUS of ORISSA, 1970-71-Board of Revenue, Orissa p.p.217

Figures in brackets indicate percentages.

For development of agriculture the following measures are suggested.

Since the vital input irrigation helps in the use of related inputs required for HYV crops more areas should progressively be brought under irrigation. Proper utilisation of management of existing irrigation facilities is likely to increase the actual area under irrigation substantially. The area under irrigation can be increased substantially if there is irrigation planning with reference to integrated development of flow and lift irrigation systems. Since under the major irrigation systems one of the main reasons for low productivity is excess of water due to lack of field channels, the cultivators may be persuaded, with proper demonstration, to have field channels in their fields. The financing agencies may consider the proposal of long term lending to the small and middle farmers for this form of land improvement.

Since Planning Commission is laying much stress on evaluation and monitoring, the findings of the evaluation reports regarding the under utilisation of irrigation potential should prompt the executing agencies to rectify the difficulties immediately. Otherwise this source of potential productive investment will become a dead weight on the economy.

The position regarding the extension does not seem to be encouraging. The unwillingness of the cultivators to opt for Rabi production programme reflects either highly inadequate or ineffective extension. Therefore, proper attention should be given to intensify extension, specifically in the areas having the potentialities of production.

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AGRICULTURAL PRODUCTION AND PRODUCTIVITY IN ORISSA — A NOTE *

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Agriculture has been considered as a priority sector ever since the launching of the first Five Year Plan in Orissa. The main thrust of agricultural development can be broadly grouped under four major schemes, such as, (1) Work Schemes that include irrigation, soil conservation and land reclamation; (2) Supply Schemes that include supply of such inputs as chemical fertilisers, improved and newer varieties of seeds, plant protection chemicals and equipments, and improved implements etc; (3) Credit schemes that include supply of credit through institutional agencies; and (4) Extension Programmes that include demonstration, training and education to agriculturists. The perfermance of these schemes in providing infrastructural support and external economics in substantial measures to the cultivators depends considerably on the overall land-tiller arrangement existing in the economy. The various land reform legislations in the shape of abolition of intermediaries like Zamindars and absentee land-lords, safe guard of the interest of the tenant-cultivators, and curbs on the economic powers of the big land holders are some of the major steps that have been taken in the State during various plan periods.

The question now rai sed by many is, have these measures improved production and productivity ?

* I am grateful to Dr. Baidyanath Misra for his comments and valuable suggestions.

The object of this brief paper is to examine the issue using only official data published in this regard with a view to establishing how far production and productivity of agriculture has undergone a change over the years of planning in Orissa and to account for the lacunae, if any.

Table 1 shows the Index Number of agricultural production in Orissa from 1950-61 to 1971-72 with 1956-57 as base.

TABLE I

INDEX NUMBER OF AGRICULTURAL PRODUCTION IN ORISSA

Base-1956-57 = 100

Year	Cereals	Fcodgrains	Non-food crc ps	All crops
1951-52	92.3	92.0	135.3	97.8
1952-53	97.9	97.5	113.7	99.7
1953-54	99.8	99.2	99.4	92.2
1954-55	96.2	95.8	109.9	9.7
1955-56	92.3	92.4	116.2	95.6
1956-57	100.0	100.0	100.0	100.0
1957-58	75.2	75.7	99.0	78.8
1958.59	95.5	95.3	99.3	95.2
1959-60	116.6	109.3	100.3	108.1
1960-61	111.0	108.1	110 6	109.0
1961-62	111.2	109.5	130.7	112.4
1952-63	111.2	117.3	184.8	126.5
1963-64	128.8	131.1	214.2	142.4
1964-65	131.9	133.9	247.9	149.4
1965-66	99.9	100.9	243.4	120.2
1966-67	114.4	117.7	246.5	135.1
1967-68	117.13	117.9	279.4	139.8
1968-69	131.46	134.0	286.2	154.1
1969-70	128.18	131.2	295.6	153.5
1970-71	132.09	135.2	283.1	155.3
1971-72	115.86	117.9	317.3	145.0
1972-73	128.6	132.7	291.5	154.2

Source : Economic Review of Orissa, 1974. B.S.E., Orissa, pp 190-195, p 46

An examination of the table shows that there has been an overall increase in total agricultural production by an extent of over 50 per cent during the two decades. However, index of cereal production (col.2) and production of food grains (col.3) show only an increase of 28 per cent and 32 per cent respectively. In almost all economic analysis of the agricultural situation of Orissa, this increase has been attributed to increase in cropped area (by addition to net sown area mostly) rather than increase in productivity.

The overall production figures, though encouraging do not, however, present a comfortable situation once the productivity of agriculture is examined. Table II presents the Index Number of agricultural productivity.

TABLE II

Base - 1956 – 57 = 100

Year	Cereals	Food grains	Non-food crops	All crops
1951-52	93.9	113.0	115.0	103.2
1955-56	94.8	82.0	113.8	93.7
1960-61	113.8	111.1	109.5	109.9
1965-66	89.4	84.9	186.2	100.5
1966-67	101.7	99.7	162.0	112.4
1967-68	98.5	96.7	187.7	113.6
1968-69	113.3	108.9	191.4	124.5
1969-70	106.7	103.7	185.8	119.5
1970-71	109.0	107.1	205.9	122.3
1971-72	92.0	90.1	213.1	109.8

Source : Economics Review of Orissa, 1974, BSE, pp, 196.

It is seen from the table that productivity (yield per unit of land) remained unchanged (rather it has declined during

1971-72) for cereals as well as for all food grains taken together. Therefore, there is some truth in the contention that the increase in production of cereals and total food grains noticed during the period is due to increase in cropped area. The picture of a virtual stagnant growth in productivity as seen in the table strengthens this contenion. When the entire agricultural productivity is examined (col. 5) only a marginal change in yield rate is noticed. The entire increase in agricultural productiuity seems to be contributed by non-food and cash crops. This is evident in the table (col.4). An examination of the productivity of non-food and cash crops in isolation shows a remarkable change in productivity. The increase in productivity registered over the period of twenty years is more than 100 per cent - a performance of great significance no doubt. One cannot cannot conclude, therefore, that the entire increase in total production noticed during the two decades is due increase in cropped area alone. At least such a presumption does not hold good in the case of non-food and cash crops. Even in the case of certain cereals, as we shall examine later, remakrable changes in productivity has been noticed. But the contributions of these crops, non-food and miscellaneous cash crops in particular, in the aggregate productivity of agriculture has been considerably minimised due to their relative lower weightage in terms of both area under the crops and per cent contribution to the total agricultural production.

In spite of the fact that productivity of non-food crops has shown a remarkable growth in yield rate, proportions of cropped area under such crops have not shown any significant change over the years. Table III where the Index Number of cropping pattern (accounting for 23 principal crops and 80 per cent of total cropeed area of the State), is shown, confirms this observation.

Table III

Index Number of Cropping pattern in Orissa

Base : trienniel 1961-62 = 100

1959-60	....	99.24
1960-61	....	99.79
1961-62	....	101.18
1962-63	....	97.65
1963-64	...	100.94
1964-65	....	102.15
1965-66	....	100.65
1966-67	....	101.55
1967-68	...	101.29
1968-69	....	99.38
1969-70	...	99.54
1970-71	...	100.15
1971-72	...	111.11

Source : Economic Review of Orissa, 1974, BSE, Orissa, pp 43

The table evidently speaks of the traditional nature of the agricultural sector where demonstration of superior productivity of certain commercial crops has left no noticeable imprint on the cropping pattern. What could be the reasons for this less than expected performance of the agrcultural sector ? Is this due to non-economic constraints or can it be largely explained in terms of economic variables ? Before any such attempt is worth examining in a diaggregated frame work the crops that have recorded noteciable increase in productivity. The identification of these crops would give an insight into the nature and

quantum of inputs that the crops require for their successful adoption and whether these are adeduately available to the farmers.

Table IV shows the yield rate of some such crops identified in Orissa that have proved to be showing a considerable improvement in productivity for the past twenty years.

Table IV

Average yield rate of different crop.

Quintals per Hectare

Crops	Year					
	1951-52	1955-56	1960-61	1964-65	1968-69	1971-72
CEREALS						
1. Wheat	6.0	6.3	6.1	5.2	10.9	8.8
2. Summer Rice	NA	NA	NA	8.8	11.7	15.0
3. Ragi	4.3	4.3	4.3	5.8	9.8	9.3
CASH CROP (Non-food and miscellaneous)						
4. Tobacco	3.9	6.1	7.6	6.6	6.0	8.4
5. Chillies (dry)	3.5	3.8	3.1	4.8	7.2	7.3
6. Ground Nut	6.9	7.2	8.0	8.4	11.8	14.1
7. Sugar cane	41.0	41.1	28.8	49.6	57.7	62.6
8. Potata	25.1	33.1	28.4	66.9	117.6	79.2

Source :—Economics Review of Orissa, 1974, BSE,

A NOTE ON SIZE AND ADOPTION OF NEW PADDY TECHNOLOGY IN ORISSA

***

LILY MISRA

In spite of the fact that agriculture, in general, still continues as a way of life for the cultivators in Orissa, the farmers in the areas enjoying assured irrigation facilities have witnessed the magic of increased production due to the new technology' introduced in the form of seed revolution accompanied by other associated inputs. The programme for the 'new technology', since its introduction in 1967-68, has however undergone severe physical, technological and organisational tests which have changed substantially both the content and the coverage of the programme. Further, it has also thrown a few challenges to the economists, administrators and agriculture scientists concerning the impact of the technology both from the point of view of aggregate benefit and the distribution of the gains of the 'new technology'.

In an analytical study, Misra[1] has pointed out the principal factors responsible for the low coverage and productivity of the HYV paddy in Orissa. Another study[2] specifically dealt with the problems associated with the 'new technology' and its prospect for the future. In another paper Tripathy[3] has shown that though the productivity of HYV paddy in Orissa compared to the national average remained quite high so far as the sample studies in the best HYN areas are concerned, the productivity of paddy per acre in Orissa in general was much lower than the advanced rice growing States of Indian Union. None of these studies, however, has enquired into the following aspects :

(a) Variations both in the total number of adoptors and the adoptors as detween different holding size groups ;

(b) Variations in the total HYV coverage and participation index as between holding size groups and

(c) Changes in the preference pattern of different High Yielding Varieties of Paddy. For the purpose of analysis we have mainly relied on the date persented different P.E.O. songsle Slndis in Hyvareas of Orissa.

The selected blocks from whicb the samples were drawn are Kendrapara and Nischintakoili. In both the blocks the percentage of HYV growers among cultivators increased from 4.10 and 1.10 in 1967-68 to 100 and 98 in 1972-73 for Kendrapara and Nischintakoili blocks respectively. Though the extension education helped to disseminate the knowledge to the farmers for initial adoption of High Yielding Varieties, the demonstration effect of increased production in the neighbour cultivator's field was instrumental for the achievement of nearly cent percent coverage of the number of cultivators under HYV paddy by 1972 73.

Table I

Percentage of HYV paddy growers among cultivators in selected paddy block of Cuttack district **from 1967-68 to 1974-75**

Block Year	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	73-74	74-75
Kendrapara	4	NA	66	95	98	100	70	72
Nischinta-Koili.	1	16	35	94	94	98	60	61

Source : Programme Evaluation Organisation, Planning Commission and Austrialian National University : The High Yielding Varities Programme in India, 1970-75 Part II, 1977, Annexure-III (P) Table 1 page-155.

However, the high rate of increase in the number of adoptors could not be sustained in the subsequent years. The productivity of High Yielding Varieties being highly sensitive to the use of chemical fertitisers the sharp rise in their prices during 1973-74 deterred the marginal farmers to shift their interest from HYV to local varieties. The changes noticed in the percentages of the HYV paddy growers begin amongst the cultivators in different holding size groups between 1972-73 and 1974-75 presented in Table II clearly brings ont this picture.

Table II

Percentages of HYV paddy growers amongst the cultivators

Size group in hectares.	YEAR	KENDRAPARA	NISCHINTAKOILI
0 - 1	1972-73	100	98
	1974-75	58	54
1 - 2	1972-73	100	100
	1974-75	99	98
2 - 4	1972-73	100	100
	1974-75	100	100
4 - 8	1972-73	100	100
	1974-75	100	100
8 - 20	1972-73	100	....
	1974-75	....	100

Source : PEO and ANU Study, Ibid, Annexure-IV (P) Table-3 page-163.

The marginal and small farmers were specifically in a disadvantegeous position because of their heavy reliance on the money lenders for their credit needs as the Central Co-operative Bank catering to the needs of the HYV growers was in default[4].

It is seen from table II that in both the blocks the percentage of HYV paddy growers declined substantially in size group I and marginally in size group II, whereas in other size groups this percentage remained at 100% between 1972-73 and 1974-75. Further, the rate of fall in the percentage in the case of the marginal farmers was much higher than it was for the small farmers. This indicates that though the 'new technology' is size neutral so far as the productivity is concerned, size has a definite role to play in the coverage of the cultivators under the 'new technology'. The above statement is corroborated from the correlation analysis made for the farmers adoption of the HYV paddy seed and the decile farm groups in two districts of Orissa in Table III.

Table III

Correlation Analyais of Relationship between Farmer Adoption of HYV paddy seed and Decile Farm groups from 1967-68 to 1969-70

District	Year	Season	Y = a+bx		
			a	b	r^2
Sambalpur	1967-68	Kharif	1.2	.2271	.8526*
	1968-69		1.3	.1936	.8674*
	1969-70		—4.1	.1636	.9609*
	1967-68	Rabi	—2.7	.1732	.8675*
	1968-69		—2.6	.1384	.9344*
Cuttack	1967-68	Kharif	3.4	.4529	.8350*
	1968-69		3.2	.2167	.7647
	1969-70		—5.6	.3341	.9420*
	1967-68	Rabi	3.6	.4222	.6615*

Notes where Y = Proportion of adonting farmers.
X = Decile farm size group
* = Significant

Source : Brian Lockword, P. K, Mukharjee and R. T. Shand : The HYV Programme in India Part I, PEO, ANU Research, School of Pacific Studies, 1971, Appendices B-P Table 13 page-171.

It will be noticed that for all the years the relationships between the size and adoption were positive and significant.

The area coverage in respect of the sample farms in the blocks surveyed are given in Table IV.

Table IV

Percentage of HYV paddy area to total paddy area amongst the sample participant farmers in selected paddy Blocks

Block Year	1969-70	1971-72	1972-73	1973-74	1974-75
Kendrapara	9	19	20	18	19
Nischintakoili	7	16	18	19	19

Source : PEO and ANU op. cit Annexure III (P) Table-1 page-156.

It will be seen that after 1972, there is decrease in the area coverage in respect of block Kendrapara. This percentage has remained stagnant at 19 in respect of Nischintakoili block. This shows that even in the best suited area, the participation rate has remained very poor. The data for the entire blocks give still poorer picture. From Table V it is evident that the index of particiration has fallen from 20% in 1972-73 to 14% in 1974-75 for Kendrapara block and 18% in 1972-73 to 12% in 1974-75 in respect of Nischintakoili block.

Table V

Index of participation or estimated percentage of area coveragr of HYV paddy in selected blocks of Cuttack district

Block Year	1969-70	1971-72	1972-73	1973-74	1974-75
Kendrapara	6	19	20	13	14
Nischintakoili	2	15	18	11	12

Source : PEO and ANU op. cit Annexure-III (P) Table-3 Page-157.

The already low participation rate has still gone down because of the higher prices of chemical fertilisers.

Further analysis of the proportion of HYV paddy area to total paddy areas as between size groups reveals some interesting features regarding the coverage between 1972-73 and 1974-75. In both the blocks the

Table VI

Proportion of HYVP area to total area sown by sample participant farmers by holding size groups for selected paddy blocks in Cuttack District

Block	Year	Percentage of HYV area by holding size groups			
		0-1	1-2	2-4	4-8
Kendrapara	1972-73	29	25	17	13
	1974-75	25	18	20	9
Nischinta-Koili.	1972-73	33	18	13	10
	1974-75	25	20	22	2

Source : PEO and ANUStudy Annexure-IV (P), Table-3 page-163.

area coverage has gone down for marginal farmers, in one block for small farmers below two hectares and in both the blocks in the highest size groups of 4-8 hectares. The lowering of the area coverage in case of the marginal farmers can be explained through the higher prices of chemical fertilisers and the weak credit structure in the HYV area[4]. The bigger farms depending highly on hired labour face acute shortage of labour during interculture and transplanting operation. The increased cost of the fertilisers and high cost of hired labour prevent them from having a large proportion of the total cultivated area under the HYV paddy.

The higher area coverage inspite of the high prices of fertilisers in the medium size groups, 2-4 hectares, indicated areas where mechanisation of agriculture is yet to take place probably the medium size farms are in advantegecus position for growing the High Yielding Varieties. The medium size farms having reasonable number of family labourers and reasonable amount of self-finance are probably the optimum size farms so far as the cultivation of HYV paddy is concerned.

The pattern of preference for different varieties of seeds have changed over the years, depending upon the suitability of varieties, to climate, availability of water, sensitivity of productivivy to the use of chemical fertilisers and the tastes of the rice consumers. In late sixties, there was a strong preference for IR-8. But in 1974-75 it is observed from Table VII that Ratna is the most popular variety and the area under IR-8 has become negligible. Even Jaya, the

Table VII

Proportion of HYV paddy area ds varieties in Rabi season, 1973-74 and 1974-75

Block	Year	Jaya	Raina	IR-8
Kendrapara	1973-74	25	72	3
	1974-75	17	82	1
Nischintakoili	1973-74	0	99	1
	1974-75	0	100	0

Source : PEO and ANU Study-Annexure-V (P) Table-8 page-173.

variety that gives the highest yield is less preferred to Ratna because of the higher sensitiveness of production to the use of fertilisers in case of the former.

In the course of the analysis of the data collected in recent years the following observations are made:

1. The tempo of steady growth of the number of participants in the HYV paddy programme upto 1972-73 could not be sustained in subsequent years.
2. The decline in the participation rate is highly pronounced and marked for the marginal farmers belonging to the lowest holding size group.
3. There is a direct and significant positive relationship between the size and the adoption of High Yielding Varieties.
4. The area coverage has gone down for both the small and large farmers whereas the coverage has increased significantly for the medium farmers.
5. The preference for IR-8 varieties in early years of introduction has given place to Ratna variety in the recent years.

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Notes and References

1. Baidyanath Misra : "RiceYield in Orissa"- Orissa Economic Journal, Vol. VII No. 2, pp. 1-22

2. B. Misra, H. K. Dasgupta and P. K. Das. "Problems and Prospects of New Technology of Rice for increased production in Orissa"- Orissa Economic Journal Volumnes-VI and VII Nos. 2 and 1 pp. 127-138.

3. D. Tripathy. "Productivity in Orissan Agriculture"- paper presented in 10th Orissa Annual Economic Conference at Konark, forthcoming in Orissa Economic Journal.

4. Programme Evaluation Organisation, Planning Commission and Austrialian National University : "The High Yielding Varieties Programme in India", 1970-75. 1977. page 57.

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IMPACT OF ECONOMIC DEVELOPMENT ON FARM HOUSEHOLD INCOMES IN VILLAGES GHATIKIA OF THE BHUBANESWAR BLOCK.

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There prevails a feeling that areas benefiting from green revolution have improved their farm incomes. An attempt in this survey is therefore made to examine such changes in farm households specially in the context of the economic development In general areas around Bhubaneswar are being referred to as an area having benefited from the 'green revolution.' This is also an area where considerable efforts have been made for economic development. The non availability of resource and time did not permit the selection of a comprehensive sample· Hence effort has been made to select a sample from a village nearer to Bhubaneswar. This village is covered by the extension Education Department of the University of Agriculture and technology, Bhubaneswar. As it is nearer to Bhubaneswar many interested agencies and institutions have been engaged in data collection. The farmers of this village were expected to be co-operative and responsive.

Data for this study have been collected by personal interview at two points of time 1964-65 and 1974-75 and both the years are normal years. During the gap period, a number of technological innovations (including high yielding varieties and improved methods of cultivation) have been introduced which might have produced there impact on the agricultural development of the village. The objective of the study is to find out the impact of such development on "Farm household Income" besides assessing the saving potential of the sample farmers.

Methodology :—

Due to limitation of time and resource 25 farmers representing 10 percent of the total village farmers have been randomly selected for the purpose of the study. The relevant data pertaining to 1964-65 have been collected during that year. However, when the same farmers have been contacted in 1974-75 it was discovered that three of the sample farmers are no longer in farming business. As such only remaining 22 farmers have been contacted for collection of data for thee year 1974-75. Thus the study used data of 22 farmers only at both points of time. These farmers have been classified according to two size groups.

Fourteen farmers belong to 0-5 are holding size group and eight farmers belong to holding size group above 5 acres.

After classifying the farmers according to the above groups, the classified data in both the groups have been subjected to statistical variance test which showed that the average income of the farmers in one group significantly differed from that of another during both the years under study.

To compare the changes in money incomes, the gross incomes of the sampled farmers for the years 1964-65 and 1974-75 have been computed at the then prevailing prices for 1964-65 and 1974-75 respectively. Since changes in money income may often offer a deceptive picture, effort in this study has been made to examine changes, if any, in the real incomes of sample farmers. The popular approach in this direction has been to use the constant prices for both the points of time or work out the real incomes by using general price index. These approaches have their limitations because the pattern of income distribution is likely to change over time as also the fact that the prices of all commodities do not necessarily move in the same direction or

changes in the same proportion. Hence the effort in this study is to work out money income for both the points of time (1964, 1974-75). Subsequently the 1974-75 money incomes were adjusted to 1964-65 prices, by using price indices.

As it was felt that due to population explosion, absolute changes in household incomes may convey an unrealistic picture these income changes were explained and compared on per capita basis.

TABLE 1

Average farm and Non-farm Income (In rupees) of the sample farm households of the village Ghatikia, in 1964-65 and 1974-75.

Farm Size	No. of observation.	Farm Incomes	Non-farm incomes.	Total.
	1964-65			
Below 5.0 acres	14	2250	1850	4100
5.0 acres and above	8	3850	1750	5600
All Farms	22	2,832	2041	4,873
	1974-75			
Below 5.0 acres	14	3285 (2168)	3719 (2455)	7004 (4623)
5.0 acres and above.	8	7431 (4904)	3238 (2137)	10,669 (7042)
All farms	22	5065 (3,342)	3544 (2339)	8609 (5682)

Figures in parantheses are incomes adjusted to 1964-65 general price index.

TABLE 2

PATTERN OF INCOME DISTRIBUTION (IN RUPEES) OF THE SAMPLED FARM HOUSE HOLDS OF VILLAGE GHATIKIA DURING THE YEAR 1974-75.

Farm size.	No. of observation.	Total income	Exp. on food items.	Exp. on non food items 2	Exp. on Farm inputs.	Balance saving potentia /
1	2	3	4	5	6	7
Below 5.0 acres.	14	7004 (100)	4483 (64)	1121 (16)	1261 (18)	139 (2)
5.0 acres and above.	8	10,669 (100)	6,188 (58)	1920 (18)	2134 (20)	427 (4)
All farms.	22	8,337 (100)	5,152 (61.8)	1392 (16.7)	1559 (11.7)	234 (2.8)

The figures in parantheses are the percentage.

1. Food expenditure refers to all cereals, pulses, milk, sugar, vegetables, and fruits.

2. Non. food items include fuel, clothing, education, religious function etc. It may be noted that none of the farmers spent on durable consumption goods like watches, transistors etc.

3. Farm inputs refer to seeds, fertiliser, manure, insecticides, pesticides, feeds and fodders, hired labour, irrigation changes maintenance and repairs of implements etc.

TABLE 3

COMPARISON OF HOUSEHOLD INCOMES OF 1964-65 WITH THOSE OF 1974-75 AT CURRENT PRICES AND ALSO AS ADJUSTED TO THE 1964-65 PRICE (IN RUPEES.)

Size of holding.	No. of observation.	Average household income in 1964-65.	Average household income in 1974-75 current prices.	Average household income in 1974-75 at 1964-65 prices
Below 5.0 acres.	14	4100	7004	4,693
5.0 acres and above	8	5,600	10,669	7,234
All farms	22	4.873	8.609	5,768

For price index, see

* Source :— Agricultural situation in India vol. XXVI, No.2,

Note :— The percentage of income spent on food item was adjusted with the help of food price Index and the rest was adjusted with the help of general price index.

The examination of data revealed that both the farm and non-farm incomes of sample farm households increased during the period under review. The details are in table I. Even when the 1974-75 incomes have been adjusted to 1964-65 prices, with the helf of general price index, the results confirmed that both the farm and non-farm incomes increased under the period under review. Since the adjustment with the help of general price index has its limitations as explained above, efforts have been made to explain tha pattern of income distribution of the sample farm house holds, for the year 1974-75 The data revaled that the farmers having land holding below 5 acres and those having above 5 acres spend 64% and 58% respectively

of their total income on food items, 16% and 18% respectively on non food items, 18% and 20% respectively on farm inputs and supplies and the balance of 2% and 4% respectively for durable consumption goods and Investment. This can be considered as the savings potential of the sample farm house holds, which needs to be tapped. From the details given in Table 2 it is seen that 2.8% of the total incomes are the savings potential. The percentage is very low. The original plan was to adjust the relevant percentage of income with respective price indices in accordance with the pattern of income distribution. However, only two consumer price indices are available, viz, food price indx and general price index. Under the circumstances, the pattern of income spent on food items is adjusted to the prices of 1964-65 with the food price index, and the rest has to be adjusted to the prices of 1964-65 with the help of general price index. The adjusted incomes are given in Table. 3

As can be seen from table 3 for the sample as a whole, the average income has increased from Rs. 4,873/- to Rs. 8,609/- during the period under review (1964-65 to 1974-75). The increase in income per sample farm house holds has been to the extent of Rs. 895/-. This increase is of the magnitude of Rs. 593/- and Rs. 1634/- for farmers having holding size below 5 acres and above 5 acres, respectively. In other words, the 1974-75 incomes, when adjusted to 1964-65 price indices, show that the incomes of house holds having holding size below 5 acres have increased by approximately 14 percent and that of those having holding size above 5 acres have increased by approximately 29 per cent. This clearly brings out the growing disparities of incomes between small and large farm sizes, which need to be narrowed down by suitable fiscal measures.

Table. 4

Comparison of percapita incomes of 1964-65 with those of 1974-75 at current prices and also as adjusted to the 1964-65 prices (in Rupees.)

Size of the holding.	No. of farms.	Percapita Income in 1964-65.	Percapita income in 1974-75 at current price.	Percapita Income in 1974-75 at 1964-65 prices.
Below 5 acres	14	574	980	656
5 acres & above.	8	746	1422	952
All farms.	22	636	1146	768

To account for the population growth during the period under review, the data on the size of the family of the sample farmers, have been used to work cut the per capita estimates of incomes of 1964-65 and 1974-75 as also of 1974-75 incomes adjusted to 1964-65 prices. The details are shown in the table above. As it is evident from the table, the per capita income during the period under review, declined in all the three situations. The analysis clearly brings out the fact that the effect of development has been nullified by the growth of population. Thus, though the households manage to improve their incomes, it is not possible for them to have significant changes in their standard of living on account of the growth in the size of their families.

SUMMARY

An attempt, in this study has been made to examine changes in farm household incomes in the context of growth. Village Ghatikia of Bhubaneswar Block has been selected for

this case study. The data have been collected by personal interview at two points of time (1964-65 an 1974-75) Incidentally both these years are normal agricultural years. Incomes have been compared both in money as well as real terms. Normally the real incomes are worked out by using the general price index. In this study the real incomes have been worked out by using the price indices relevant to the distribution of farm household incomes among different consumption and farm uses.

The results reveal that the average household incomes in money terms as well as real terms increased during the period under review. The increase is very much pronounced on the large sized farm compared to the small sized farm. However when the changes in incomes are examined on per capita basis, the results reveal that though the monetary incomes show an increase, the same thing is not true when the 1974-75 incomes are adjusted to 1964-65 prices.

RICE ECONOMY OF ORISSA - A CRITICAL STUDY

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1. INTRODUCTION :

Orissa is a major rice growing state of India. According to 1971 census for Orissa 91.59% of the population live in rural areas and 24.17% of the total population which constitutes 78% of the total working force are engaged in agriculture. Hence, the state economy is basically agricultural and will continue to be so for a long time. The agriculture of Orissa mainly means rice which is about 90% of the total food grain produced in the state.

The object of the paper is to study the growth of rice production of the state and the effect of weather on growth. A feeling that Orissa is a surplus state in rice is also examined in this paper.

2. GROWTH OF RICE PRODUCTION

The compound growth rates of production, area and productivity of kharif, rabi and the total rice of Orissa for a period of 12 years i.e. from 1963-64 to 1974-75 are given districtwise in Table 1. These were calculated by least squares fitting of the log arithmic transformation of the expontetial function $Y = ab^X$ where Y = production/area/productivity of kharif/rabi/total rice, X = time, a and b are parameters. The Table shows that for the state as a whole rabi production registered a growth rate of 14.5% compared to kharif produc-

Table 1

Compound Growth rates of production, Area and productivity of kharif, Rabi and Total Rice of Orissa from 1963-64 to 1974-75,

Districts	Bala-sore	Bolan-gir	Cuttack	Dhenka-nal	Ganjam	Kala-handi	Keon-jhar	Kora-put	Mayur-bhanja	Phul-bani	Puri	Sambal-pur	Sunder-garh	Orissa
Kharif Production	-0.87	-0.32	-1.14	1.30	0.80	-0.72	1.20	1.70	0.30	1.80	0.70	2.30	2.10	0.60
Rabi production	22.90	18.40	14.50	26.30	15.60	12.70	70.20	-1.83	84.40	5.70	27.60	13.90	19.10	14.50
Total production	-0.51	0.30	-0.16	1.40	0.90	-0.69	1.30	1.60	0.50	1.80	1.30	3.50	2.10	1.00
Kharif Area	-0.07	-0.03	0.20	1.40	0.40	-0.83	1.50	0.70	1:10	1.30	0.30	0.30	0.90	0.50
Rabi Area	18.40	16.30	10.80	22.60	15.50	18.50	56.60	-0.94	53.70	3.00	20.50	10.00	23.60	10.90
Total Area	0.10	0.30	0.80	1.40	0.50	-0.76	1.50	0.70	1.10	1.30	0.70	1.00	0.90	0.70
Kharif productivity	-0.83	-0.32	-1.42	-0.12	0.40	0.10	-0.35	1.00	-0.74	0.50	0.30	2.00	1.10	0.10
Rabi productivity	3.90	1.70	3.40	3.00	0.10	-2.75	8.60	-0.87	19.90	2.60	5.90	3.50	-3.64	3.30
Total productivity	-0.64	0	-0.94	-0.09	0.40	0	-0.30	0.90	-0.69	0.50	0.60	2.50	1.10	0.30

Note : Growth rates are expressed in percentages.

Table 1

Combined Growth rates of production Area and Productivity of Kharif, Rabi and Total Rice of Orissa from 1967-68 to 1974-75

Variable	Bolan-gir	Bala-sore	Cuttack	Dhenka-nal	Ganjam	Kalah-andi	Kora-put	Koraput	Mayur-bhanj	Puri	Sambal-pur	Sundar-garh	Orissa
Kharif Area	-0.83	-0.38	-1.45	-0.15	0.40	0.10	-0.32	1.00	-0.54	0.20	0.20	3.00	1.10	0.10
Total Area	0.10	0.30	0.80	-1.40	0.20	-0.20	1.80	0.70	1.10	1.30	0.20	-.00	0.80	0.30
Kharif Productivity	-0.05	-0.13	0.50	1.40	0.40	-0.82	1.20	0.30	1.10	1.30	0.30	0.30	.0.00	0.20
Total Productivity	-0.21	0.10	-0.10	1.40	0.30	+0.03	1.30	1.00	0.20	1.80	1.30	3.20	3.10	1.00
Kharif Production	33.30	18.40	14.20	38.20	15.60	15.10	20.30	4.80	14.40	2.50	52.40	13.30	19.10	14.20
Total Production	-0.83	-0.38	-1.14	1.30	0.50	-0.12	1.30	1.30	0.30	1.80	0.30	3.30	3.10	0.40

Note : Growth rates are expressed in percentages

tion which is only 0.6%. The rabi productivity showed a growth rate of 3.3% against 0.1% of kharif productivity. The area under rabi rice registered a compound growth rate of 10.9% as compared to that of 0.5% under the kharif rice. For most of the districts of Orissa the growth rates of kharif productivity were very low and even negative for rice growing districts like Balasore and Cuttack. But the growth rates of rabi productivity for most of the districts except Kalahandi, Koraput and Sundergarh showed positive trends. The growth rate for the total rice production for the state was only 1%, the growth rates for the area and productivity for the state as a whole being 0.7% and 0.30% respectively. These negligible growth rate figures indicate that Orissa has not yet reached the threshhold of the so called 'Green-revolution' or any technological break through in our agricultural sector.

The growth retes in percenteges for production, area and productivity for kharif, radi and total rice for the state taking 1970-71 as base are given in Table 2. Compared to 1970-71 the total rice produced in the state was reduced by 16.23% in 1971-72 and 9.10% in 1972-73 as most of the districts were affected by flood in 1971 and drought in 1972. The productivity per hectare was decreased by 17.98% in 1971-72 and 8.42% in 1972-73. But the area was increased by 2 19% in 1971-72 and reduced by 0.67% during 1972-73. During the year 1973-74 the production was increased by 0.6% with 4.93% increase in area. The year 1973-74 being a goad crop year the slight increase in production is not at all encouraging as the yield rate was 4.05% less than that in 1970-71. During 1974-75 the total production showed an increase of 12.16% over 1970-71 associated with 14.22% increase in the yield rate though the area was reduced by 1.75%. The Table also reveals an increasing trend in kharif production from 1972-73. The growth rate for the kharif production was 6.18% in 1673-74 and 16.64% in 1974-75, the corrasponding growth rates in kharif productivity were 0.78% and 18.32% respectively (base 1970-71).

Table 2

Growth rate of Area, Productivity of Rice for Orissa (Base 1970-71)

Year	1971-72			1972-73			1973-74			1974-75		
	Kharif	Rabi	Total	Kharif	Rabi	Total	Kharif	Rabi	Total	Kharif	Rabi	Total
Area	3.41	-7.45	2.19	-0.99	4.38	-0.67	5.40	-6.65	4.93	-1.38	-10.94	-1.75
Production	-13.26	-43.12	-16.23	-5.47	-42.04	-9.10	6.18	-50.16	0.60	16.64	-28.50	12.16
Productivity	-16.07	-38.54	-17.98	-4.43	-44.48	-8.42	0.78	-46.60	-4.05	18 32	-19.72	14.12

Note : Growth rates are expressed in percentages.

It is very discouraging to note that growth rates for the production and the productivity for the rabi rice were declining till 1973-74 in spite of the popularity of high yielding varieties. The yield rate was 24.44 quintals in 1970-71 as against 13.05 quintals in 1973-74. In 1974-75 the growth rate for production and productivity showed an increase of more that 40% over the previous year though they did not come upto 1970-71 level. These dealines in production and yield rate might be due to addition of substandard land for the cultivation of rabi rice mainly to boost production of individual farmers. Other reasons that might be attributed are the non-optimal use of chemical fertilizers and insecticides owing to their high cost and untimely distribution.

3. EFFECT OF WEATHER

Frequent occurrences of drought and flood are the main constraints of the agricultural development of the state Adverse weather in kharif season in the districts of Balasore, Cuttack, Puri, and Ganjam the main rice growing tract of Orissa greatly affects the state economy. As the kharif rice production in most areas of the state depends solely on the distribution of rainfall from June to October the rainfall data relating to the above period were analysed from 1962 to 1974. The following criteria were adopted to decide the condition of weather prevailing in a district in a particular year.

Decision criteria	Weather condition
$r_o \angle r_n - 2 s_{rn}$	Drought
$r_o 7/ r_n + 2 s_{rn}$	Flood
$r_n - 2 s_{rn} \angle r_o \angle r_n + 2 s_{rn}$	Normal

Where,

r_o = observed rainfall from June to October in a year

r_n = normal rainfall from June to October in the corresponding year

s_{rn} = standard deviation of the normal rainfall from June to October

Using the ab ve criteria the occurrence of drought, flood and normal weather in the different districts of Orissa during the kharif season from 1962 to 1974 is shown in Table 3. The whole of Orissa was in drought condition during 1965, 1966 and 1974. In 1971 the most rice growing areas of the state were affected by flood. A frequency distribution of weather prevailing in the districts of Orissa from 1962 to 1974 is also presented in Table 4. This table shows that the districts of Balasore, Cuttack, Koraput, Mayurbhanja and Phulbani are more troquently affected by drought and flood during the years 1962 to 1974.

To study the effect of drought and flood an the kharif rice the annual growth rates in percentages of kharif production and area taking 1963-64 as base (which was considered as a normal year) have been presented in Table 5. in the drought year 1965-66 there was 24.91% decrease in kharif production although the area was reduced by 1.76%. The year following was also a drought year and the production was decreased by 16.71% associated with 1.27% decrease in area. In the drought year 1972-73 tth kharif production was decreased by 12.9% though there was 1.10% increase in area. The year 1974-75 was also a drought year., but the yield was increased by 7.46% with an increase of area only to the extent of 0.70%. This might be due to better irrigation facilities, better crop protection measure and intensive effort on the part of the government and farmers to increase production. The instabillity in the growth rates of kharif rice which might be attributed mainly to weather hazards is not a healthy sign for the economic development of the state.

Table. 3

Occurrence of Drought, Flood and Normal Weather in Orissa from 1962-74.

Districts	1962	63	64	65	66	67	68	69	70	71	72	73	1974
Balasore	0	2	1	0	0	0	2	2	2	1	0	2	0
Bolangir	0	2	2	0	0	2	0	2	2	2	2	0	0
Cuttack	0	2	1	0	0	2	2	2	1	1	0	2	0
Dhenkanal	0	2	2	0	0	0	0	2	2	1	2	2	0
Ganjam	1	2	2	0	0	0	1	2	2	2	2	0	0
Kalahandi	2	2	2	0	0	2	0	2	1	1	2	2	0
Keonjhar	0	2	2	0	0	2	2	2	2	1	0	2	0
Koraput	0	2	0	0	0	2	2	0	1	1	2	2	0
Mayurbhanj	0	2	0	0	0	0	2	0	2	2	0	1	0
Phulbani	2	2	0	0	0	0	0	2	2	2	0	2	0
Puri	2	2	2	0	0	2	2	2	2	1	0	2	0
Sambalpur	0	2	2	0	0	2	2	2	2	2	0	2	0
Sundergarh	0	2	2	0	0	2	0	0	2	2	0	2	0

Note . 0 = Drought, 1 = Flood , 2 = normal weather

Table 4

Frequency Distribution of Weather conditions in Orissa for a 13- year period (1962-74)

District	Drought year	Flood year	Normal year
Balasore	6	2	5
Bolangir	6	—	7
Cuttack	5	3	5
Dhenkanal	6	1	6
Ganjam	5	2	6
Kalahandi	4	2	7
Keonjhar	5	1	7
Koraput	6	2	5
Mayurbhanj	8	1	4
Phulbani	8	—	5
Puri	4	1	8
Sambalpur	5	—	8
Sundergarh	7	—	6

Table 5

Growth rate (%) of production and Area under Kharif Rice for Orissa (Basa 1963-64)

Year	Production	Area
1964-65	2.63	0.54
1965-66	-24.91	-1.76
1966-67	-16.71	-1.27
1967-68	-18.93	-0.92
1968 69	-9.39	-2.26
1969-70	-9.63	1.01
1970-71	-7.86	2.12
1971-72	-20.08	5.60
1972-73	-1290	1.10
1973-74	-2.16	7.63
1974-75	7.46	0.70

4. DEFICIENCY IN RICE PRODUCTION

Orissa is often considered as a surplus state in rice though the state experiences frequently the ravages of drought and flood. This feeling has been examined for a period of 5 years from 1970-71 to 1974-75. Our aim in this section is to show whether the rice produced in the state meets our requirement at the minimum level.

The break up of the cereal production from 1970-71 to 1974-75 is presented in Table 6. The production of wheat was very meagre and the millets which was about 7% of the total production can not act as a measure food crop. Rice constituted more than 90% of the cereal production and is the staple food for the state. So we have considered rice as the principal food crop for the state in the following analysis.

Table 6

Cereal Production of Orissa from 1970-71 to 1974-75

Year	1970-71	1971-72	1972-73	1973-74	1974-75
Rice	93.25	91.33	91.11	91.76	89.38
Wheat	0.42	0.97	1.94	1.73	2.42
Millets	6.32	7.70	6.95	6.51	8.20

Note : Figures are in percentages.

The minimum requirement of an adult is estimated to be 0.425 kg. of cleaned rice (1 kg. of rice = 0.66 kg. of cleaned rice) per day and that comes to 2.35 quintals per annumn. The adult population of any year is estimated by multiplying the projected population for that year with the factor 0.86 (the adult equivalent). Annual growth rate of 2.5% was considered for finding the projected population for the years 1971-72 to 1974-75 The population for 1970-71 was taken as the 1971 census population. Our total annual requirement of rice is both for human consumption as well as for seed requirement for the next year's crop. Hence, the rice requirement for :

Human consumption = 2.35 quintals × adult population

Seed requirement = 0.75 quintals × total gross cropped area

Table 7 gives district wise production of rice, annual rice requirement, deficiency in production expressed as a percentage of the requirement for the years 1970-71 to 1974-75. The mean deficiency expressed as a percentage of the requirement as well as its standard error for each district and the state are also displayed. The table shows that all the districts except the district of Sambalpur were deficient in production to meet the total rice requirement. The mean deficiencies for the districts of Cuttack, Phulbani and Koraput were about 30%

Table 7

Production, Estimated Requirement and Deficiency of Rice for the districts of Orissa from 1970-71 to 1974-75.

Districts		1970-71	1971-72	1972-73	1973-74	1974-75	Mean deficiency(%)	S.E. of mean deficiency(%)
1		2	3	4	5	6	7	8
1. Balasore	P	398.89	222.96	335.16	313.32	442.17		
	R	400.95	414.54	418.31	430.57	438.05		
	D	0.51	46.21	19.87	27.23	(+) 0.93	18.58	± 8.79
2. Bolangir	P	296.89	267.76	232.71	273.32	246.71		
	R	279.20	285.37	290.46	298.73	302.97		
	D	(+)6.33	6.17	19.88	8.50	18.57	9.35	± 4.76
3. Cuttack	P	610.21	379.46	633.93	547.58	877.80		
	R	821.48	841 42	862.25	880.15	900.13		
	D	25.71	54.90	26.47	40.05	2.48	29.92	± 8.69
4. Dhenkanal	P	316.71	228.74	294.27	279.99	316.98		
	R	286.66	291.88	298.33	306.30	314.42		
	D	(+)10.48	21.63	1.36	8.58	(+) 0.81	4.06	± 5.35
5. Ganjam	P	390.99	369.50	291.44	436.72	436.35		
	R	491.50	500.29	512 70	525.96	538.95		
	D	20.44	26.14	43.15	17.12	19.03	25.18	± 4.74
6. Kalahandi	P.	265.80	275.08	198.23	216 64	150-45		
	R.	257.78	264 13	267-17	273.74	278.29		
	D	(+) 3.10	(+) 4.14	25.80	20.85	46.02	17.09	± 9.45

Note : P = production in '000 metric tonnes
R = Estimated requirement in '000 metric tonnes
D = Deficiency as % of total requirement
(+) indicates surpluses as % of total requirement

Table 7 (Continued)

1		2	3	4	5	6	7	8
7. Keonjhar	P	174.28	132.44	152.04	230.67	263.58		
	R	208.29	212.47	216.82	225 62	229.34		
	D	16.32	37.66	29.87	(+) 2.23	(+) 14.93	13.34	± 9.79
8. Koraput	P	336.29	288.35	307.47	391.64	344.69		
	R	440.52	449.80	465.56	475.92	487.22		
	D	23.66	35.89	33.95	32.83	29.25	31.12	± 2.15
9. Mayur-	P	247.53	229.15	284.25	283.95	421.11		
bhanja	R	312.96	324.64	329.95	337.68	345.53		
	D	20.90	29.41	13.85	15.91	(+)21.87	11.64	± 8.80
10. Phulbani	P	73.09	73.45	81.06	83.61	47.03		
	R	131.93	135.72	139.05	141.96	144.38		
	D	44.60	45.88	30.67	41.10	67.42	45.93	± 6.00
11. Puri	P	430.10	408.39	443.21	440.25	447.41		
	R	502.07	516.04	527.91	538.79	549.81		
	D	14.33	20.86	16.04	18.28	18.62	17.63	± 1.12
12. Sambalpur	P	658.78	581.88	539.83	686.00	681.91		
	R	418.16	425.66	432.62	450.34	452.57		
	D	(+)57.54	(+)36.70	(+)24.78	(+)52.32	(+)50.67	(+)44.40	± 5.99
13. Sunder-	P	142.53	180.34	153.52	184.67	193.89		
garh	R	221.84	229.68	234.45	244.25	245.68		
	D	35.75	21.48	34.51	24.39	21.07	27.44	± 3.20
14. Orissa	P	4342.10	3637.50	3947.12	4368.36	4870.09		
	R	4773.34	4891.64	4995.59	5131.03	5227.82		
	D	9.03	25.63	20.98	14.86	6.84	15.47	± 3.53

Note : P = production in '000 metric tonnes
R = Estimated requirement in '000 metric tonnes
D = Deficiency as % of total requirement
(+) = indicates surpluses as % of total requirement

or more over the five year period. Only the district of Sambalpur had a surplus of 44% of its total requirement on an average over the years 1970-75. While considering the total requirement the state had a deficiency of 6.84% in 1974-75 as against 14.86% in 1973-74. The average deficiency of the state over the five year period was 15.47%. If the consumption of rice is kept at its minimum level it is evident fron the above analysis that Orissa is not a surplus state.

5. SUMMARY

Our achievement in the agricultural sector over the several plan period is not at all satisfactory. Frequent occurences of drought and flood regress the agricultural development of the state. The growth rates in production and productivity of rice were found to be 1 % and 0.3 % respectively over the years 1963-64 to 1974-75. These negligible growth rate figures are not good signs for a developing economy. The study reveals that the total rice produced in the state was not sufficient to meet the minimum requirement of the state. The deficiency on an average for the state over 1970-71 to 1974-75 was found to be 15.47% with a standard error of $\pm$ 3.53%. So we have still a long way to go to achieve the self sufficiency in the food grain production.

(Continued from page 44)

An analysis of the table shows that among the cereals Ragi has registered an increase in productivity by over 100 per cent. In the case of wheat the increase is nearly 50 per cent and in the case of Summer rice, although figures for earlier years are not available, the increase in comparison to the latest available figure is nearly 70 per cent.

In the case of the commercial crops (non-food and miscellaneous crops) shown in the table, all, except sugar cane (where the increase in yield rate is about 50 per cent), have registered an increase in yield rate by more than 100 per cent. In the case of potato the yield rate has increased by more than 200 per cent.

Table IV gives ample evidence of a significant increase in productivity of certain crops including some of the cereals where the overall performance is extremely poor. Therefore, it would be erroneous to presume that there has been no qualitative improvements in agriculture of Orissa. In a disaggregated analysis of productivity figures enough evidence of a substantial growth of productivity exist whose impact on over agricultural productivity is yet to be felt for various constraints.

An examination of the crops shown in table IV would show beyond doubt that the successful adoption of these crops depends on two major economic variables, i. e. controlled irrigation as a pre-condition of their adoption and adequate finances to meet the heavy cash ond current expenditures associated with their cultivation. Are these two inputs adequately available in Orissa ?

The State has a very low irrigation potential. The irrigation potential from all sources constitute about 19.4 per cent of net sown area and about 18.36 per cent of gross cropped

area[2]. Most of the irrigation potential has been created through multi-purpose major and medium irrigation projects. The distribution of water from these projects is extremely defective[3]. Total absence of field channels cause management of irrigation difficult. Dependence on minor sources of irrigation such as dugwells, tube wells or other types of lift irrigation is extremely low in the state for which adoption of some of the cash crops, inspite of the demonstration of higher productivity is yet to gather momentum. A push-button system of irrigation as an independent source as well as a supplementary source to canal irrigation is far more efficient than a system of canal irrigation. Unless subsoil water resource is harnessed in increasing, proportions no shift in cropping pattern is likely to occur in the near future.

It is not the productivity but profitability of the crop entreprise that influence the adoption of different crops. Profitability, in turn, depends primarily on the input mix where purchased inputs account for a large part of it. The crops in which a break-through in productivity has been noticed are the crops that invariably require a substantially higher cash and out-of-pocket expences. Herein comes the role of credit institutions. Credit is one input that helps the farmers to apply other inputs. In a modern agriculture it is not land and labour, but capital and scientific knowledge that becomes the major scurce of growth in agriculture.[4] The performance of credit cooperatives, the only institutional source of agricultural finance in Orissa till recent times, is the poorest of all states. The per

2. As on 1972-73 — See ; Economic Review of Orissa, 1974, BSE,PP,50.
3. For a Commentry Orissa's Irrigation, see, "Irrigation in Orissa' by G. C. Kar, "20 Point Economic Programme and Orissa, Ravenshaw College Planning Forum, 1976, PP, 102-11.
4. For analysis of role of credit see for e. g., Hanumanth Rao, C. H., 'Farm size and credit policy', Economic and Political Weekly, Dec. 1970, PP. A-157-161.

hectare short term advanee administered by primary credit societies in the State is far below the national average and in absolute terms below Rs. 20.[5] The story of medium and long term institutional credit is not worth the mention.

In the absence of adequate institutional finance one can not expect the agricultural sector perform any better. The alternative source of finance would involve an interest rate between 50 to 120 per cent. Such unbearable rates of interest would push up the cost of cultivation of even the most profitable crop where the entire profit will be wiped out. Unless adequate institutional finances are made available to the farmers, the cropping pattern would not show any significant change in favour of such crops whose high yield potential has been demonstrated in tnis State.

Given infrastructural supports in the form of irrigation and finance, will the non-econmic variables, such as conservatism and callousness of the farm-operators in general pose a serious bottle-nect ? What would our experience dictate ?

It is not always true that Orissa's agriculture stands adjusted to a low level of subsistence equilibrium with resource of relatively low quality and capacity. The farmers are certainly not callous to technological changes. This fact has been clearly shown in a number of studies by official agencies and individual researchers. A study af Puri district by Misra et al,[6] and Cuttack district by Pal[7] and Kar[8] show enough

5. Government of Ind a Draft Fifth Five Year Plan, 1974-79.
6. Misra, B., et al, 'Problems and Prospects of New Technology of Rice for Increased Production in Orissa', Orissa Economic Journal, June, 1973, Jan-June, 1974 combined I ssue, PP 45.
7. Pal, T. K., "Change in Rice Farming in selected areas of Asia" — a study of Cuttack. International Rice Institute, Philippines, 1975, PP 138.
8. Kar G. C., "Economics of High Yielding Varieties of Paddy - a case study "Indian Journal of Agricultural Economics, Conference Issue, July-Sept. 1975, (Summary), PP 24.

evidence of farmers participating in High Yielding Varietics Programme in substantial numbers. There has been no difference in the rate of adoption of the new technology among the farmers of different size classes. Rather it is seen, that the proportion of net sown area devoted to high yielding crops tend to be inversely related to the size of holding, in an absolute sense. Not only in terms of adoption, but also in terms of performance, significant achievements have been recorded by all classes of farm-operators. A sample survey[9] conducted in Ganjam and Bolangir districts during kharif, Bolangir and Cuttack districts during Rabi seasons of 1972-73 has demonstrated an yield rate for high yielding paddy of no less significance for all size classes of farm-operators. However, the yield rates noticed in these districts falls short of the one visualised by the agricultural development agencies of the State.[10] The yield rates read along with the rates of application of chemical fertilizers would make it amply clear that the short fall in yield rates are primarily due to a less-than-optimum application of chemical plant nutrients. Here too the inefficiency of the existing credit institutions is celarly visible. Thus, the allegation that farmers of Orissa refatalists, tradition-bound, backward, and callous to technological changes, and these vairiables has largely accounted for the general backwardness of agriculture, is untentable. The backwardness of agriculture can largely be explained interms of economic variables and their extreme inadequacies.

Performance of Punjab agriculture, both in production and productivity, has set the mark which every state of the

9. Institute of Agricultural Research Statistics, "Sample Survey for Assessment of High yielding Varieties Program" Annual Report 1972-73, PP, 135, 349.

10. For an examination of packages of practices recommended for high yielding varieties see, for example "Agricultural Guide Book, Agricultural Information Section, Directorate of Agriculture, Orissa, Appendix I, VII,.

country piously hopes to achieve. The gap in productivity is the widest between Punjab and Orissa and every available literature comparing the relative performance of Orissa agriculture have made mention of this glaring difference. It must be noted that the gap between Punjab and Orissa with regard to irrigation potential as well as credit facilities are equally glaring. In the year 1971-72 more than 75 per cent of net sown area of Punjab was under assured irrigation round the year along with a net work of tube wells as supplimentary sources of irrigation. During the same year in Orissa only 18 per cent of the gross cropped area received irrigation with an insignificant dependence on ground water irrigation.

In Punjab too, water management is excellent with bunds and field channels and provision for drainage. Whereas in Orissa it is one of the most neglected aspects of irrigation. In the case of agricultural finance through institutional agencies the two states lie at two extreme ends too. The per hectare short term advance administerd by primary credit societies in Punjab is one of the highest in the country.[11] If it is true that in Punjab food production incrersed from 41.79 lakh tonnes in 1966-67 to 62.52 lakh tonnes in 1968-69, mostly through an increase in productivity, it is equally true that the credit limit that the cooperative banks enjoyed from the Reserve Bank of India in that state went up from Rs. 10.62 crores in 1966-67 to 34.44 crores in 1968-69.[12]

The following conclusions are drawn from this study.

1) It is not true that agriculture in Orissa in spite of two decades of planning, has not undergone any qualitative change.

11. Draft Fifth Five Year Plan, Opp. cited, PP 84

12 Chidambaram, M. A., "Rural Credit Institutions and Agricultural Development" paper presented at work-shop-cum Seminar on Rural Institutions and Agricultural Suppliment, Oct. 13-16,1971, National Institute of Community Development, Hyderabad (Mimeo)

2) In some crops the improvement in productivity has been substantial.

3) But their adoption in substantial measures is yet to be noticed, the cropping pattern does not show any significant change due to various economic constraints

4) The major economic constraints are, lack of irrigation facilities particularly that of controlled irrigation in the shape of lift irrigation and inadequacy of institutional credit- While the farmer serves as a pre-condition of adoption of new techniques of production, the latter guarantees the use of the other inputs in optimal dose.

5) The Psycho-Sociological barriers of development have largely been rooted out in the agricultural sector and an environment for rapid agricultural development exists in the State.

6) Any action for improving the agricultural situation of Orissa should, therefore, aim at creation of irrigation potential, primarily through exploitation of sub-soil water resource ; and development of large number of credit institutions to provide both short term and long term finance in optimal quantities.

PART TWO

BANK FINANCES AND ECONOMIC DEVELOPMENT OF ORISSA.

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"An institution such as banking system which touches and should touch the lives of millions has necessarily to be inspired by a larger social purpose and has to subserve national priorities and objectives", said the former Prime minister while nationalising banking in Parliament. 14 major commercial banks were nationalised in June, 69 for the achievement of socialistic objectives. To allocate scarce deposits to the priority sectors like agriculture and small scale industry and for mobilising resources for planned economic development of the country, banks cann't be left from the purview of Governmental control. Last but not the least, utilisation of bank deposits for national growth and removal of regional disparities were accepted as the basic goal of bank nationalisation.

For last seven years, the commercial banks have tried to follow these objectives and the performace of the commercial banking sector has been confined to opening up of new branches in unbanked areas, sponsoring of twenty regional banks extending additional size able credit to agriculture and other priority sectors, providing credit to persons of small means and accelerating the twenty point economic programme.

If one reviews the performance at the nationalised banks, one will find impressive performances. By April, 1976 of the total 12677 bank offices, there were 7499 rural offices, 6th of every hundred new branches opened after nationalisation as many as 48 per cent have been opened in the rural areas. So far as the deposit mobilisation is concerned the amount of deposits mobilised has increased from 4640 crores in 1969 to 15,000 crores in 1976, representing an increase of 225 per cent. On the eve of nationalisation, bank deposits as proportion of national income amounted to 15 per cent, whereas at present this ratio has exceeded more than 25 per cent. Percapita diposits in June, 1969 were Rs. 88 but by June, 1976 the amount increased to Rs 226. So far as the deployment of credit is concerned it has sufficiently lent to the priority sectors like agriculture, small business, road and water transport and professional services to which commercial banks previously paid very little attention. They have financed the procurement and distribution of essential commodities, rendered assistance to small and marginal farmers, provided rural credit and credit facilities for minor irrigation and exploitation of ground water. The banks have faced the challenge of promoting the housing in the slum areas, employment prospects of the unemployed persons, development of backward adibasis and removal of imbalances in different regions of India. A glance at Tables No.1 and No.II in the Appendix will explain this point much better.

COMMERDIAL BANKS & ORISSA

(a) **Branch Expansions**

One of the important ways through which the Commercial Banks can directly participate in the economic development of a region is through the expansion of branches. This is also the method through which the commercial banks can directly participate in the solution of the problem of rural credit. The

All India Rural Credit Review Committe have observed that the credit supplied by the primary credit societies forms a very small fraction of the total credit needs of agriculture. The societies are financially weak, suffer from paucity of finance to meet the needs of production oriented credit. Long-overdues and mismanagement are responsible for the failures of these societies. When we consider the case of Orissa, we find strangely a very slow progress so far as the expansion of branches in unbanked towns are concerned. When the national average of population for one one bank office is 29,000 and underdeveloped States like Bihar, Madhypradesh, U.P. and Assam have one bank office for 50,000 population, Orissa is having one branch office for 80,000 population. When we compare the developed districts with the back ward districts, the developed districts have one branch for 65,000 population and the backward districts have one branch for 1,00,000 population.[2]

(b) **Deployment of Credit.**

When we consider the case of Orissa for the mobilisation and utilisation of bank credit the results are still shocking. A Commerce Reserch Bureau Investigation indicates that bank deposits mobilised in the State of Orissa by 74 June were to the extent of 104 crores. This is 0.9% of the total deposits mobilised in India. So far as percapita deposit is concerned, it is Rs 61 as against Rs. 194 in case of all India average. When we come to the bank advances we find that it is only 46 crores that is Rs. 27 percapita. More than half of the deposits mobilised in the state have fled away in search of investment else where. This is just conforming to the thesis that a poor country becomes poorer because it is poor.[3]

(c) **Priority sectors and the State Bank.**

The most important priority sector is agriculture. The problem of the agricultural credit in the background of drying up of the traditional source of credit like village money lender

with the introduction of 20-Point Economic Programme is stupendous. The National Commission on Agriculture has estimated that by 1985 the credit needs of agriculture will be 16549 crores. The main responsibility of providing this credit will fall on commercial banks, the rural banks and the co-operatives. So far as commercial Banks are concerned, it has been found that they have an urban orientation, meaning thereby they are the agents of mobilising rural saving for investment in urban areas. The State Bank of India made an advance of only 15.60 crores by December, 1974. The total deposits pooled by the State Bank of India were near about 50 crores. As a result a credit deposit ratio of 32% as against the national average 71% is found in Orissa. So it can easily be concluded that compared to other states 40% of the State Bank deposits originating in the State is invested elsewhere. Similarly also the advances made to the small industries an 1.7% as against the national average of 12%.(4). The advances made to the priority sector have also been advanced more to rich farmers than to the small farmers. More advances of State Bank of India have gone to the semi-urban or urban plots near a jeepable road than to the remote places except the provision of inputs. Banks, thus, have become the instrument of transferring funds from the weaker rural areas to the urban affluent. This trend should be stoppd immediately in the interest of the State. This has not only aggravated inter state disparties but alsa intraregional disparities. Some people have contested the point that the leakage of deposits from Orissa to other affluent states decreased and a time will come when the deposits mobilised in the State will be invested here. These advocates have taken the investments of the banks in the debentures and equities floated by the government Electricity Board or semi-Government organisations. But this much can be stated here that, had not these banks purchased those debentures and securities other financial institutions would have subscribed to them easily.

When other states are taking the advantage why should a poor state like Orissa will suffer on that account. This further strengthens our arument that there is leakage of credit from a poor state like Orissa to other affluent States.

(d) **Regional Banks :**

The only hope of rural credit is the regional banks. If the main thrust of rural banks will be on rual credit then a simple sum of Rs. 15 crores capital for starting these banks should be extensively increased. Here again in Orissa, we have several banks started by U.C.O. Bank, Indian Overseas Bank and others. These banks are operating in areas having a population of 10,000/-. But the last census was taken in 1971 and as such these areas are now semi urban areas. But, here again we have to find the difficulty of the traditional concept of security. It is said that the viability of the project to be financed would be the basis of their advance. Such banks may compete with the commercial banks, and as such the demarcation of sphere would be desirable to aooid wasteful competition. The deposits mobilised in the area should be utilised in the area itself. The banks are expected to have rural orientation and should fill the gap created after the abolition of the traditional moneylender.

(e) **Other Institutional Finance :—**

So far as other institutional finance is concerned the case study of Orissa presents a still shocking feature. Very recently Mr. C. L. Dadhich wrote two articles in the Economic Times, Dec. 20 and 21, 1976 on "Refinance for Farm Development". Agricultural Refinance and Farm Development corporation was started to refinance the agricultural schemes. During the period from 1963 to 1976 the Corporation has disbursed about Rs. 594 crores spreading over 2905 schemes. Orissa has got 0.8% of the

total refinance disbursed whereas states like U. P., which is also not so developed, hos got more tnan 14%[5]. The I.D.B.I. which lends to the priority sector like small scale industries and assists the development of backward areas must have disbursed more than 900 crores by now and Orissa has got hardly 9 crores. If population can be taken as a criterion of allocation with 4% of population of Indian Union Orissa should have got at least Rs. 36 crores. This calls for a self-analysis and thorough introspection.

THE TASKS AHEAD.

(a) In the first place we cannot allow the deposits mobilised in our State to be utilised elsewhere. Orissa exports iron ore and all types of valuable minerals alongwith bank deposits. Such a tendency should be arrested by establishing the head office of the State Bank of India in Orissa for proper scrutiny, supervision, and management of the branches located in the State. This will safeguard the interest of the State by stopping this leakage.

(b) The Regional Banks which are established in Orissa should recruit staff from the rural areas of the state. These banks should utilise the deposits mobilised in the area. They should integrate their activities with the graingolas or grain banks where people borrow grains during lean season and payback the principal and the interest after the harvest is over. If necessary, they have to extend consumption loans which directly increase the efficiency of labour and appoint officers well versed with rural psychology to start vigorous campaign to discourage extravagant and unnecessary consumption.

(c) We must prepare ourelves to undertake the economic reponsibilities. We have to develop consultancy organisations of our own. The IPICOL of Orissa have established recently a consultancy arganisation. The eonsultancy arganisation can also

be developed elsewhere at least to make the people conscious that a sleeping partner does not get his due share.

(d) Our infrastructure must be developed to attract new economic venture. The missing links of our states economic nerve centres like Jakhapura- Bansapani and the like should be quickly developed.

(e) Allocational plans for branch expansion through out the State having potentiality for development and minimum facitities of a post office with telegraph facilities, should be prepared. The head bank should be requested to extend their branches on those potential areas of the State.

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APPENDIX No, I.

New Offices opened.
(July 69 - April, 1976) (Rs. crores).

Types of Banks	Unbanked Centres	Banked Centres	All Centres
1. State Bank of India	1,165	1073	2,238
2. 7 S.B.I. Subsidiaries	490	447	937
3. 14 Nationalised Banks	3.1.73	3544	6717
4. 50 Private Sector Banks	1022	1691	2713
5. 20 Regional Rural Banks	50	22	22
Total	5900	6777	126.77

Commerce, July 24th 7976-Page 183. Compiled by Banking correspondent.

APPENDIX No. II.

Sectoral Deployment of Credit (Rs. Crores).

Item	June, 69	April, 75	April, 76.
Public food procurement	233	564	1573
Agriculture	188	785	1042
Small Scale Industries	286	1043	1188
Exports	258	750	981
Other priority sectors	30	322	543
Total priority Sectors	995	3464	5327
Percent to total	(28)	(39)	(49)
Large and medium Industries and wholesale	2605	5323	5640
Trade in public and private sector	(72)	(61)	(51)
Total advances	3600	8787	10967

Commerce— 24th July, 1976 - Compiled by Banking correspondent.

BANKING FACILITIES - DECEMBER END, 1974

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Name of the State.	Bank Offices		Bank Deposits.			Bank Credit.		
	Number	population per bank office in (000s)	Rs. in crores	Percent	Percapita Rs.	Rs. in crores.	Percent	Percapita Rs.
1.	2	3	4	5	6	7	8	9
Maharastra	2354	21	2514	21.7	457	2209	26.8	401
Orissa	262	57	104	0.9	61	46	0.6	27
All India	20817	26	11612	100	194	8251	100	138

Commerce Research Bureau. July 24, 1976 page 205.

APPENDIX IV (ALL SCHEDUIED COMMERCIAL BANKS)

State and District wise distribution of offices opened after nationalisation—June, 1969 - Dec, 1974.

Name of the State.	Rural	Semi-urban	Urban and metropolitan	Backward districts	Developed districts	Total	Offices opened in unbanked areas
Karnataka	10.8	7.9	8.6	11.4 (53.6)	8.2	9.7	10.7
Andhrapradesh	7.6	8.4	7.8	8.1 (46.4)	7.7	7.9	7.4
Oriss	2.3	2.3.	0.9	1.8 (41.5)	2.1	1.9	2.2
All India	100.0	100.0	100.8	1.00 (45.3)	100	100	100

Complied from the Table No. I 'Regional Disparities and expansion of Bank branches, by K. K. George, Easter Economist Dec. 10. 76.

APPENDIX V.

Statewise and Districtwise population per office at the end of June, 1969 and Dec. 74 (All Scheduled Commercial Banks.

	June 69			December 74		
Name of the State	Backward districts	Developed districts	Total	Backward districts	Ddveloped districts	Total
Karnatak	40013	36822	38755	19109	14991	40026
Andhrapradesh	117353	50966	76724	44978	23392	32708
Orissa	365745	159690	219446	99127	62461	76197
All India	97462	46221	66322	41456	22491	30550

The source same as above.

INSTITUTIONAL CREDIT AND AGRICULTURAL DEVELOPMENT A COMPARATIVE CASE STUDY IN MAYURBHANJ DISTIRICT

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Introduction

There are now various instituional credit agencies in Orissa providing credit for agricultural development. Cooperative agencies are the oldest among them. They have been in the field for the last seven decades. Central Cooperative banks provied short and medium term loans directly to individuals as well as through primary cooperative societies. Cooperative land Development banks advance only long term loans to individual farmers on the pledge of land. The 14 nationalised commercial banks as well as the State Bank of India have also expanded the scope of their activities by including agricultural credit as a part of their banking activities. They have opened branches in rural areas and are providing short and medium loans to individuals. Some of the commercial banks have also been authorised by the Reserve Bank of India to provide agricultural credit through cooperative credit agencies. Regional Rural Banks which are of recent growth, have started opening net work of branches in rural areas at the block level in some selected districts like Puri, Bolangir and Koraput.

Scope of the Study

The purpose of this study is to maka an assessment of the trend of loans advanced and their recovery position since

1970 in respect of 3 different credit agencies in Mayurbhanj district, i.e. The Mayurbhanj Central Ccoperative Bank, The Baripada Coopertive Land Developmenent Bank and the United Bank of India, Baripada, as representatives of the nationalised commercial banks. This district is not covered by any regional rural bank as yet. In the 1st. part of the paper, I have given the picture of each individual institution and then tried to make a comparative analysis of different institutions. In the second part of the paper, I have made a comparative study of the position of Orissa vis-a-vis other State of India in the matter of agricultural finance. Finally I have tried to analyse the factors responsible for the backwardness of agricultural credit in our State and suggested some remedies.

Trend of Loans advanced

Tables I (A), I (B) and I (C) below give a picture of the trend of loans advanced by the Mayurbhanj Central Cooperative Bank for various agricultural and allied purposes. Records in respect of different kinds of loan have not been maintained by the bank in an uniform manner in the last few years since 1970. Accounts in respect of all kinds of loans were being maintained upto 1973-74 in terms of cooperative year, i.e. from July to June. Since 1972-73, Rabi, dugwell and miscellaneous agricultural loans are being transacted in terms of cooperative year, whereas, accounts in respect of Kharif loans are being maintained by the bank in terms of calender year since 1973: This is due to the fact that Kharif loans ae transacted between April and September and the kharif season extends to 2 cooperative years.

TABLE I (A) (in lakhs of rupees)

Year of operation.		Total amounts of loans advanced
1970-71.	....	25.06
1971-72.	....	34.76
1672-73.	....	27.08.
1973-74.	...	37.42.

TABLE I (B) (in lakhs of rupees)

Year.	Total amounts of Kharif loan advanced
1973. ...	23.61
1974. ...	39.39
1975.	53.96
1976. ...	67.86

TABLE I (C) (in lakhs of rupees)

Year of operation.	Amount of loans for Rabi crop	Amount of loans for dugwell.	Misc. agricultural loans.
1972-73.	2.70	— ...	—
1973-74.	2.21	0.23 ...	—
1974-75. ...	6.40	3.77 ...	0.44
1975-76.	6.46 ...	33.24 ...	8.52

Table 2 below gives a picture of the volume of loans advanced by the Baripada Cooperative Land Development Bank since 1970-71. The bank advances long term loans only for a period ranging from 7 to 20 years for dugwells, tanks, land shaping, bamboo-sabai cultivation and for purchase of agricultural machineries.

TABLE II

LOAN ADVANCED BY BARIPADA COOPERATIVE LAND DEVELOPMENT BANK.

(figures in rupees)

Year of operation.	Amount of loan advanced.	No. of loanees
1970-71. ...	2,80,050 ...	93
1971-72. ...	3,21,425 ...	109
1972-73. ...	3,33,277	146
1973-74.	5,04,690	259
1974-75. ...	8,88,216 ...	375
1975-76. ...	9,38,088. ...	330.

Table 3 below gives the picture of loans advanced by the United Bank of India, Baripada since 1973. Though agricultural loan operations were started by the bank in 1972, business in full swing began in 1973. The bank advances short term crop loans for all kinds of kharif and Rabi crops. Besides, the bank also advances medium term loans for pump sets, dugwells, land reclamation sabai planatation, dairy, fishery etc.

Table III

LOAN ADVANCED BY UNITED BANK OF INDIA

(in lakhs of rupees)

Year of operation.	Amount of loans advanced		
	Short.	medium	Total.
1973.	1.38	0.45	1.83
1974.	2.16	0.51	2.67
1975	1.85	0.38	2.23
1976	0.55	0.12	0.67

From tables I (A), I (B) and I (C) it is evident that excepting the year 1972-73 when there was a slight fall, there has all along been an increasing trend in the amount of loans advanced by the Central Cooperative Bank. Rabi loans, which were advanced by the Bank for the first time in 1972-73, registered an increase of about 300 percent in the year 1974-75 over the amount advanced in 1973-74. Dugwell loans and miscellaneous agricultural loans, which were introduced in the District as a part of the Intensive Tribal Development Project registered very short increases. In 1975-76, loans under dugwells scheme increased by about 900 percent over that of 1974-75. The volumes of miscellaneous loans increased by about 2000 percent over the same period. Miscellaneous loans are advanced for land shaping, and for purchasing agricultural machineries, bullocks,

and goats etc. Table II reveals a trend of contineous increase of the amount of loans advanced by the Land Development Bank. This has recorded an increase of about three and half times in 1975-76 over that of 1970-71 and the number of people benefited has increased by more than 4 times.

while there has all along been an increasing trend in the amount of loans advanced by the Cooperative Banking Agencies under study, the table III forU.B.I. gives a different picture. There was an increase in the amounts of both short and long term loans in 1974 over that of 1973, whereas the amounts of loans advanced decreased successively in 1975 and 1976. This reveals a preference on the part of the borrowers for loans from cooperative agencies.

Recovery of loans.

In banking business recovery of loans is very important. Progress of business depends on the extent of success in recevery. Tables 4,5 and 6 below depict the extent of recovery of loans by the 3 banks under study.

Table IV (figures in lakhs of rupees)

(Recovery of loans by Mayurbhanj Central Coop. Bank)

Year.	Demand.	Collection.	percentage of collection
1970-71.	36.63	16.59	45.00 %
1971-72.	43.17	18.97	45.95 %
1972-73	69.96	36.36	51.97 %
1973-74.	65.43	38.11	58.00 %
19J4-75.	74.03	56.48	76.00 %
1975-76	80.97	65.45	81.00 %

Table V (figures in rupees)

(Recovery of loans by the Baripada Co-operative L. D. Bank)

Year.	Loans advanced.	Loans out-standing.	Recovery percent-age.	Overdues	Bad debt
1970-71.	2,80,050	13,08,427	68.5 %	67,533	Nil.
1971-72	3,21,425	15,33,595	51.8 %	158,119	Nil.
1972-73	3,38,277	17,07,434	60.4 %	173,993	Nil.
1973-74	5,04,690	20,05,800	70.0 %	157,748	Nil
1974-75	8,88,216	25,77,767	81.5 %	105,363	Nil.
1975-76	9,38,088	31,58,740	90.2 %	58,062	Nil.

Table VI (Figures in lakhs of rupees)

(Recovery of loans by the United Bank of India, Baripada)

Year.	Amount advanced.		Amount recove-ered.		Percenta of recovery.		Amount over due.		Amount of bad debt.	
	Short.	medium	S.	M.	S.	M.	S.	M.	S.	M.
1973.	1.38	0.45	0.13	0.08	80%	60%	Nil	Nil	Nil	Nil
1974.	2.16	0.51	1.44	0.21	80%	50%	.07	.02	Nil	Nil
1975.	1.85	0.38	119	0.24	50%	45%	.15	.07	Nil	Nil
1976	0.55	0.12	1.53	0.31	40%	30%	.26	.10	.09	.05

A comparative analysis of the above 3 tables reveals that both the amounts and percentage af recovery of loans are steadily increasing in respect of the Central Cooperative Bank as well as the Land Development Bank, where as both the amounts and the percentage of recovery of the loans advanced by the U.B.I. are steadily declining. In case of the U.B.I. the recovery percentage of the short and lond term loans have declined from 80% and 60% in 1973 to 40% and 30%r espectively 1976. In case of the Land Development Bank over dues have steadily declined, whereas in case of U.B.I. over dues have

increased since 1974 and bad debts have started accummulating in 1976. The increasing trend in the outsanding amount of loans of the L. D. Bank is due to the fact that loans cover long pericds extending upto 20 years.

CAUSES OF POOR PERFORMANCE OF COMMERCIAL BANKING AGENCIES VIS-A-VIS THE COOPERATIVE BANKS.

Though the cooperative banking agencies in Orissa bave their own weakness, in matters of agricultural finance they enjoy a comparative advantage over the commercial banking institutions in the State. This is due to the following reasons :—

(1) Special assistance is rendered by Government machinery for the recovery of cooperative loans which is not available for the commercial bank. Though a commercial bank is free to take legal action against defaulters in the courts of law, it will probably not be economical to do so for the recovery of small amounts of short term crop loans. No legal action has yet been taken by the United Bank of India, Baripada for recovery of agricultural loans. The bank only keeps on pursuing the defaulters and reporting to higher formations about such cases.

(2) Mayurbhanj is one of the economically backward districts of the State. Number of agencies doing banking business is probably more than the capacity of the area to absorb credit. In Baripada itself there are branches of three nationalised commercial banks, i.e. State Bank of India, Bank of India and the United Bank of India, besides the two cooperative banking agencies. Bank of India is the lead bank for the district. The limited scope is shared among all these agencies. Unlike the cooperative banks, providing agricultural credit is not the primary function of a commercial bank.

(3) The cooperative banks have the advantage of enjoying the confidence of the block level staff. As the contact and liaision between the cooperative banks and the block level officers are old and more intimate, the block staff have a preference to the cooperative agencies. There are cooperative Extension Officers at the Block level. Cases of borrowers identified at the block level are usually referred to the co-operative banks rather than to the Commercial Bank.

(4) Government have a tedency to treat the cooperatives as agencies of development, whereas a Commercial Bank functions more or less as a banking agency.

The Cooperatives have not Performed According to Expectations

The advantages of Cooperative Banks mentioned above amply speak of their weakness also. They thrve on the hely and patronage received from the Reserve Bank of India and the State Government. In spite of long years of their performance and Government assistance enjoyed in terms of resources, management cadre and technical guidance, their performance in Orissa is far from satisfactory. According to the survey of State and Central Cooperative Bank advances in 1975 prepared by the Division of Field Surveys of the Economic Department of the Reserve Bank of India, "regional imbalances in the flow of cooperative credit continued. Maharashtra (Rs. 1237 crores) and Gujrat (Rs. 555 crores) together acccunted for more than half of ahe total short term loans advanced during 1975. As against this the share of States like Himachal pradesh, Jammu and Kashmir, Manipur, Orissa and west Bengal was less than one percent each." In case of short term loans advanced by the cooperative banks in Orissa though there was a quantitative in crease from 14,89 lakhs in 1974 to 18,45 lakhs in 1975, the percentage to all India total continued unchanged at 0 6%. The

States with a lower percentage than that of Orissa in 1975 were Manipur, Jammu and Kashmir, Himachala Pradesh and Bihar.

Why cannot the agricultural credit expand in Orissa.

Availability of credit does not guarantee their proper utilisation. Utilisation of credit very much depends upon the infrastructural development of agricultural economy of the State for absorbing the credit available. Spirit of Enterprise of the people, their level of education and awareness to utilise the credit also go a long way for their success. Successful utilisation of credit in Maharashtra, Gujrat & Punjab is certainly due to the fact that the economy there has greater capacity to absorb large volumes of credit.

Due to the economic back-wardness of the people of the State and the recurrence of droughts and flood there is a tendency on the part of the borrower to utilise the loans for consumption purposes and hence proper utilisation is not made and recovery becomes difficult. Auction sale of movables and immovables of the cooperative loanees on court proceedings is not an uncommon feature in rural areas.

Bank loans can be properly utilised if irrigation facilities, both flew and lift, are improved and electricity is provided to the cultivators. Irrigation provides the basis for all kinds of improved farming. there should be better coordination between the credit agencies and the development agencies of the State at all levels, so that the credit is utilised properly.

Conclusion

Coordination of the working of different credit agencies and planning of credit are yet other problems. Commercial banks have an edge over the cooperative banks in the matter of raising

and mobilising resources. Their resources can be transferred from one area to another depending upon demand and supply. They have their own deposits. On the other hand the ratio of the owned funds (including deposits) of the cooperative agencies to the loans advanced by them is much less compared to the Commercial Bank. They rely heavily on the funds from the Reserve Bank of India. Consequently rates of interest charged by Cooperative Banks are higher compared to commercial banks.

Requirements of credit in the Agricultural Sector should not be considered in compartmentalised manner. Needs of development should be considered in a composite manner and there should be perfect coordination, not only between the commercial and cooperative banking structure, but also between the short term and long term credit wings of the cooperatives. Rural credits need nationalisation. Solution to this problem also involve issues regarding restructuring of banking in the country, which is currently engaging the attention of the Banking Commission. *

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INVESTMENT OF FUNDS BY THE SCHEDULED COMMERCIAL BANKS FOR THE DEVELOPMENT OF AGRICULTURE IN ORISSA IN THE POST NATIONALISATION PERIOD.

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Amongest the various 'Capital Complements' necessary for the improvement in agriculture, finace certainly plays a very crucial role. Agriculturists require finance for short, medim and long term purposes. The sources form which they obtain the finances are mainly two; (i) the private source, comprising of moneylenders, relatives, traders and commission agents etc. and (ii) the institutional source, consisting of the Government, the Cooperative sector and the commercial Banks. Surprisingly, we can notice that the agencies in the non-institutional sector have always predominated over the institutional sector in the matter of providing finances to the farmers. Further more, it is disheartening to note that within the institutional sector, the role played by the commercial banks in the past in the field of farm finance was quits negligible and far from satisfactory. The present study analyses the causes of the failure of the Commercial Banks in the field of agricultural finance and offers possible remedies to strengthen the agricultural credit base of the commercial banks.

Prior to nationalisation, the share of institutional agencies in rural credit was negligible. They provided only 18.5% of the total credit needs of the agriculturists in the State. The following table will clearly show the share of each sector in the field of agricultural credit.

Table I

Percentage Distribution of Amount of Cash Loan borrowed in 1961-62 according to credit agency in Orissa*.

Sources	Percentage distribution of amount of cash loan
1. Government	3.9
2. Cooperative sector	14.6
3. Commercial bank	—
Total institutional credit.	18.5
Private source	
4. Land lords	0.2
5. Agricultural Moneylenders	14.8
6. Professional money lender	29.2
7. Traders	17.6
8. Relatives	3.7
9. Others	16.0
Total private source credit.	100.0

*Source: Agricultural Census 1970-71, Board of Revenue, page-57.

The table above explains the significant role played by private agencies in the field of farm finance. It could provide 81.5 per cent of the total credit requirements of the agriculturists. Further, amongst the private agencies, the moneylenders (agricultural and professional) alone provided 44 per cent of total credit needs of the agriculturists in Orissa. On the other hand the table also exhibits the insignficant role played by institutional agencies comprising of the Government the co-operatives and the commercial banks. The table also reveals the negligible role played by commercial banks in providing finance to the agriculturists of the State.

The reasons, why Commercial banks were quite shy in not involving themselves in the agricultural sector, are not very far to seek. There are causes on both organisational and technological sides which prevented banks to risk their funds in this risky sector. On the organisational side, the prevalence of the faulty land tenure system, absence of any system of records and documents proving the right of ownership on land by the agriculturists, non-implementation of the land reform measures etc. prevented the commercial banks from extending loans to the agriculturists. Similarly on the technological side, the widespread practice of traditional methods of cultivation, lack of adequate provision of irrigation, too much of dependency on the monsoon, extreme fragmentation and subdivision of landholding, callousness amongst the farmers in effecting improvements in agriculture, poor asset struture manifesting poor credit worthiness of the farmers etc. have accounted for tightening the flow of credit to the agricultural sector. As a result of all these the farmers in the State were perpetually compelled to depend upon the moneylenders and in the process they got themselves heavily exploited by them.

POST-NATIONALISED PERIOD

The nationalisation of Commercial banks, which come into force on July 1969 was, thus, thought to be the only solution to remove all the obstacles faced by the Commercial banks in providing credits to the agriculturists. Besides, nationalisation was expected to help in improving the agricultural propuction as well as the standard of living of the people in the rural sector.

With nationalisation, the Commercial banks' activity in providing farm credit to the agriculturists too has expanded considerably. The following table highlights the progressive rate played by Commercial banks in the field of agricultural credit.

Table II

Advances to Agricultural Sector

(Amount in thousand rupees)

Sector	Dec. 1972		June, 1973		June, 1974	
	No. of account	Amount outstanding.	No. of account	Amount outstanding.	No. of account	Amount outstanding.
1. Agriculture excluding plantation	12449	15465	15824	219.60	32,745	463.74
a) Direct finance	12255	13061	15371	169372	31304	32636
b) Indirect finance	194	2404	453	49.88	1441	13738
2. Total Bank credit.	36977	435349	41184	550652	69239	635656
3. (1) as% of (2)		3.8		3.9		7.2

Source : Banking statistics Vol. 1,1972
Vol. 2,1973
Vol. 3,1974
Reserve Bank of India.

From the table it is clear that the share of agriculture proper, in the total bank credit of the State, is on the increase. In December, 1972 only 3.8 percent of bank credit went to the agriculture proper, in June, 1973 it went up to 3.9 percent and in June, 1974 it further increased to 7.2 percent. In terms of absolute amount, in December, 1972 only Rs. 154.65 lakhs were allocated to the agricultural sector, in June, 1974 a sum of

Rs. 463.74 lakh was allocated for the said purpose. During these three years, an increase of 199.8 percent of agricultural credit took place. A further analysis reveals that the Commercial banks have supplied both direct and indirect finances to the agriculturists. But it is interesting to note that where as direct finance in 1974 increased by only two and half fold over 1972 level, indirect finance increased by five fold during the same period. This explains the fact that Commercial banks in the post nationalisation period have taken interest in the permanent improvement of the agricultural land by sanctioning more loans for longer periods.

However, when the breal up of total amount of agricultural credit among different districts is taken into consideration, we find that a few coastal districts have enjoyed the major share of agricultural credit over that of the inland districts. The following table explains the percentage share of agricultural credit of each district to the total agricultural credit of the State.

Table III

Districtwise percentage share of agriculture credit proper to the total agricultural credit of the State.

State/Districts	Dec., 1972	June, 1973	June, 1974
Orissa			
(Amount in thousand Rs)	154.65	219,60	463,74
Balasore	18.6	9.8	6.2
Bolangir	1.8	3.4	4.2
Boudh & Khodmal	0.	0.02	0.2
Cuttack	28.8	24.7	17.7
Dhenkanal	2.9	7.8	6.2
Ganjam	6.5	5.9	6.7
Kalahandi	0.2	0.3	0.4
Keonjhar	0.4	0.3	0.9
Koraput	11.8	12.3	7.3
Mayurbhanj	0.2	0.6	0.4
Puri	10.9	8.5	30.9
Sambalpur	18.2	20.3	16.3
Sundergarh	2.0	2.1	1.3

Source : Banking statistics-Vol-I, 1972, Vol-2, 1972, Vol.-4 1974

The above table exhibits that if we divide the districts between coastal and inland, we find in the coastal districts like Balasore, Cuttack, Puri and Ganjam, the percentage share of the agriculture proper to the total agricultural credit of the state remains at a high level in all the years from December, 1972 to June, 1974. The inland districts, Sambalpur, Dhenkanal and Koraput however enjoy a fair share of agricultural credit during these years. But the rest 6 districts Bolangir, Boudh Khondmal, Kalahandi, Keonjhar, Mayurbhanj and Sundergarh fail to receive even 5 percent of the total agricultural credit. In certain districts, it is as low as 0 2 percent of the total agricultural credit of the State.

Secondly, these neglected districts have been perpetually given an unfair treatment and in all the years under review their share has changed only insignificantly.

Thirdly, even amongst the costal districts the share of certain districts have started falling significantly, over the years. Notable amongst them are Balasore and Cuttack. Where as in 1972 their shares accounted for 18.6 percent 28.8 percent respectively, these percentages have gone down to 6.2 and 17 respectivcly.

Finally, the fall in the percentage share of agricultural credit in certain districts has not materially resulted in any substantial increase in the percentage share of agricultural credit of other meglected districts. The increase, if at all evident, is only marginal.

Thus there is an unfair discrimnation in the allocation of funds by Commercial banks for agricultural activities in the districts. This discriminatory advance is made irrespactive of the fact that a section of the rural workers consisting of cultivators and agricultural labourers depend upon agriculture for bare existence.

The following table shows the percentage of workers depending upon agriculture for their livelihood and occupation.

Table IV

Percentage of people depending upon agriculture in each districts. 1970-71.

Districts	Cultivator	Agricultural labourers	Total agricultural workers
Sambalpur	51.88	30.84	82.72
Sundergarh	56.05	21.58	77.63
Keonjhar	57.26	23.48	80.74
Mayurbhanj	47.04	36.16	83.20
Balasore	59.29	28.90	88.19
Cuttack	56.26	28.58	80.84
Dhenkanal	52.75	27.95	80.70
Phulbani	56.48	29.56	86.04
Bolangir	57.81	29.06	86.87
Kalahandi	55.40	33.03	88.43
Koraput	55.22	31.06	86,28
Ganjam	44.81	34.50	79.31
Puri	51.38	27.05	79.33
Orissa	48.51	27.29	75.80

Source : Agricultural Census 1970-71 Board of Revenue Govt. of Orissa.

From the table it appears that in all the six neglected districts such as Bolangir, Boudh Khondmal, Kalahandi, Keonjhar Mayurbhanj and Sundergah, there occurs a large concentration of agricultural workers. The percentages of total agricultural workers (cultivators and agricultural labourers) in these districts are 86.87, 86.04, 88.43 80.74, 83.20 and 77.63 respectively. The

percentage of total agricultural workers in other districts more or less reveal the same trend of concentration. Yet it is surprising to see how banks invested more funds in these favoured districts with utter disregard to the genuine needs of the very neglected regions.

Besides providing finance to the agriculture proper of the State, banks also provide finance for allied activities concerning agricultural sector. In this case also, banks in Orissa have not invested enough funds. This sector which consists of the development of poultry farming, fruitgrowing, diary farming, piggery development etc. has received very low assistance from the banks. Where as by June 1974 in Bihar and West Bengal banks have invested Rs 52.14 lakhs and Rs 139.81 lakhs repectively, in Orissa the bank investment for allied activities only accounted for Rs 16.12 lakhs. In the previous year it was only Rs 9.42 lakhs. In 1972 it stood at Rs 5.96 lakhs only. When we look to the allocation of funds under this head in different districts of the State we notice the same element of discrimination. The coastal districts and a few inland districts have received the major portion of the funds under allied actvities.

CAUSES OF DISCRIMINATION & POLICY MEASURES

One possible argument that the commercial banks can putforth in support of the discrimination is that farmers are not dynamic and they have not commercialised agriculture, have no credit worthiness and therefore fail to payback the loan timely. This is not the pecularity of the agriculturists of Orissa alone. This is a common feature with all the agriculturists all over the country.

With this background the commercial banks have to formulate well thought out policies to make agricultural development a success in the whole of the State.

1. In co-operation with district planning authorities and block development officials, an intensive survey of the rural sector must be made by the scheduled commercial banks. For this task the banks can take the assistance of the economists and researchers who have specialised on banks and banking activities. After thorough scrutiny about the place, position of the tillers and their aptitude, liberal bank loans should be advanced in these areas. Lead bank surveys have no doubt contributed a lot in this sphere but their full importance has not yet been realised by the people in the rural sector.

2. While sanctioning loan, the banks must keep an eye on the end use of credit. Loan for productive purposes should be the only consideration while granting loan to the agriculturists. For this, the farmers should be encouraged to furnish proper credit plan and the production programme to the concerned banks for consideration. This of course, calls for some changes in the operational work of the banks. However all these will help banks to solve many of the intricacies involved in the process of sanctioning loan.

3- Often the banks complain about the low of absorbption capacity of bank loans in particular regions. If this be a fact, the banks instead of keeping them aloof from that particular area, must try all posible means to further the loan absorbtion capacity of that area. Say, for instance, if owing to lack of adequate irrigation facilities, farmers in a particular region are not in a position to raise one or two craps a year, banks must take all necessary steds to persuade the authorities and the people of that region to under take vast net work of irrigation so that viability of the agricultural sector can be increased. For all these activities bank finances must flow liberally. If this is true incase of irrigation, this will also hold good for other activities like control of flood, marketing, provision of other agricultural inputs.

4. Areas where raising of crops by normal methods create difficulties, full attention should be given for the development of allied activities like poultry farming, diary farming, cattle breeding etc. With liberal finance from the banks, such activities will be helpful in these regions and through suitable marketing agencies, the surplus products raised in these places can be marketed to needy districts, This will help them to pay back the bank loans.

5. Commercial banks have generally invested a very low amount of credit in the agricultural sector of the backward States. Their investment of bank loan in States like Bihar, West Bengal is much more in comparision to the State of Orissa Whereas in 1974 thay invested Rs. 1781.32 lakhs in Bihar and Rs. 2005.27 lakhs in West Bengal respectively, their investment in Orissa for agricultural development accounted only Rs. 463.74 lakhs. It will not be out of place here to comment that the banks must seriously think of investing the surplus funds of other prosperous states in the agricultural development of the backward states.

Finally a sceme of differential rate of interest may be thought of the agriculturists of poor and backward States. This, besides bridging the regional and sectoral imbalance, will help in eradication of poverty from the poor states.

In conclusion, it can be said that even after nationalisation of banks discrimination is made while investing funds in different states of the Indian Union dy the Commercial banks. Even within the states, this element of discrimination is noticed. As a result some districts have gained and benefited more at the cost of other districts of the Stats. So it is high time that Commercial banks should definitely rationalise their policies for the development of agriculture in the backward states like Orissa so that they can deserve the reputation of being called as the real friends of the poor people of the poor states.

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INSTITUTIONAL CREDIT FOR AGRICULTURE - ITS PRACTICE AND MAGNITUDE OF DIVERSION IN JAGATSINGHPUR BLOCK OF CUTTACK DISTRICT.

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Dr. Prafulla Kumar Das

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Introduction :

Agriculture in Orissa whether traditional or modernized has problems of financing, saving and credit. In a traditional agriculture probleme of farm finance and credit rise largely from a seasonal production cycle which is super-imposed on a non-seasonal consumption patterm. As we know, diversion of credit from production to non-production leads to inflationary pressure and such diversion affects the repaying capacity of the borrowers and further causes the problems of overdues.

Before granting credit to the farmers, the financial institutions should give more stress on the prospective repayment capacity rather than on the strict credit worthiness based on the availability of existing tangible assets of the farmers. The essentiality of considering the type and adequacy of the security offered and the current indebtedness of the loanee cannot be denied but at the same time it must be recognised that adherenee to the security aspect alone would fail to infuse dynamism necessary for the development of the agricultural sector.

Above all, misutilisation of loans reflects adversely on the character of different institutional agencies. One of the distinguishing features of institutional credit is that it aims at an

improvement of the economic conditions of the borrower. A certain degree of discreteness in the lending policy is intended to ensure that loans are given for productive and essential purposes, and not for financing un productive and wasteful expenditure.

Objectives :

This paper attempts to assess (i) the practice and magnitude of diversion of institutional loan and (ii) the percentage of diversion and recoveries of the loan received by the mers.

Design of the study :

This study was undertaken in Jogatsinghpur area of Cuttack District during the year 1973-74 and required information was obtained for the period 1972-73 with the help of specially designed questionnaire. The samping technique adopted in this study was two-stage random sampling. Four villages were selected from the district where all possible institutional agencies have financed agriculture. Farmers included in the sample was classified according to the size of holdings, such as, marginal farmers (0-1 hectare), small farmers (1-2 hectares) and medium farmers (above 2 hectares) and from each size group 15 holdings were selected. In this way 45 holdings from borrowing categories were selected for this study.

RESULTS AND INTERPRETATION.

Practice and magnitude of diversion :

Diversion in the use of loan has been ascertained by two ways. Firstly, respondents were asked to state the purpose for which they had borrowed and those for which they had used them. The proportion of these was considered to represent the extent of diversion.

Practice of Diversion :

Table 1 illustrated the extent of practice of diversion as divulged by the respondents.

It was seen in table 1 that the cases of diversion decreased with the increase in farm size. This trend holds good both for short and medium term loans. This was obviously true since small farmers always try to meet their consumption expenditure through diversion of crop loans in absence of other alternatives. However, between short term and medium term loans, the proportion of diversion was much higher in medium term loans as compared to short term loans. From this it can be concluded that medium term credit acts as ways and means for almost every farm borrowers.

Table 1

Practice of diversion of loans among different size groups in Jagatsinghpur area of Cuttack District during the year 1972-73.

Size group	Not diverted	Number of respondents who had diverted the loans			
		partly	Wholly	Total	Grand total
ST					
I	2 (13.34)	10 (66.66)	3 (22.00)	13 (86.66)	15 (100.00)
II	3 (20.00)	6 (40.00)	6 (40.00)	12 (80.00)	15 (100.00)
III	5 (33.33)	7 (46.46)	3 (20.01)	10 (66.67)	15 (100.00)
Total	10	23	12	35	45
MT					
I	—	2 (40.00)	3 (60.00)	5 (100.00)	5 (100.00)
II	—	4 (100.00)	—	4 (100.00)	4 (100.00)
III	1 (20.00)	3 (60.00)	1 (20.00)	4 (80.00)	5 (100.00)
Total	1	9	4	13	14

(Figures in parenthesis indicate the percentage of diversion of respondents for using loans in different purposes).

Extent of Shortfalls'

Table 2 reveals the extent of shortfall in sanctioning of loan in all these sizes of the farms. The differences in amount applied for and sanctioned were reported by the sample farmers by personal interview. The amount of shortfalls per holding and per hectare are given here.

Table 2

Extent of differences in amount applied for and actual amount received by the farmers in Jagatsinghpur area of Cuttack District during the year 1972-73

Size group	Amount of loan applied for		Actual amount received		percentage of loan received to amount applied for.
	Per farm	Per hectar	per farm	per hectare	
I	60	826	293	306	68.83
II	920	460	377	189	50.00
III	1200	300	697	174	25.00
Average	907	462	455	210	47.94

It was observed from table 2 that in all the farm size groups, the amount of loan applied for was higher than the actual amount received by the borrowers. Hence it was concluded that the institutional agencies did not fulfil the credit requirements as desired by the borrowers. The shoftfalls might be due to the low repayment capacity and/or poor risk bearing ability of the borrowers.

Table 3

Extent of differences in amount of loans sanctioned and borrowed in relation to size of farms in Jugatsinghpur area of Cuttack District during the year 1972-73.

Size group	No. of farms reporting shortfall	Percentage of total farms	Percentage o ftotal loan sanctioned	Per farm in Rs.	Per hectare in Rs.
I	12	80.00	68.83	293	306
II	10	66.67	50.00	377	189
III	15	100.00	25.00	697	174
Average	12	82.22	47.94	455	219

Table 3 corroborated the extent of shortfall in the amount of loan sanctioned and amount actually borrowed, according to various size groups of farms. The percentage of farms reporting shortfall is highest in size group-III. Expressed as percentage of total loan sanctioned, the highest in size group-I and the lowest being in size group-III. Expressed in per hectare basis, which is a more standardised measure, the largest amount of shortfall observed in size group-1, followed in descending order in size group-II and III.

Table 4 provided the percentage distribution of farms reporting shortfalls classified according to the reasons by the borrowers. While many more reasons than those cited, the table mentioned only the prominent ones.

Table 4

Distribution of farms according to reasons for shortfall in different size groups in Jagatsinghpur area of Cuttack District during the year 1972-73

Reasons	Size Group I	Size Group II	Size Group III
1. Shortage of funds in the society.	25	10	30
2. Earlier loan not full repaid	45	30	20
3. Required amount of land could not be mortgaged.	10	—	—
4. Failure to produce documents in proper time.	—	—	—
5. Did not require more	—	—	—
6. Reasons unknown	20	60	50
Total	100	100	100

The table indicated that the largest percentage of farms reported shortfall because of the fact that they did not repay

the previous year loan and they were listed as defaulters. Similarly quite a large percentage of farmers reported their ignorance about the reasons of shortfall. It would be better on the part of credit institutions to inform about the reasons of the shortfall of credit to the borrowers, rather than keeping them in darkness. It was really surprising to notice that no borrower reported shortfall due to failure to produce necessary documents in proper time, which is one of the very common causes of shortfall in many regions of this country.

Timeliness of production loans :

Production loans were designed to finance production operations of crop from the commencement of preparatory tillage of land to the markting of final produce. Provision should be made such that cultivators or borrowers must receive loans in appropriate periods for the production purposes. It is needless, therefore, to emphasize that the whole purpose of financial institutions is lost if the loans/are not given in time.

Table 5 provided the percentage of farmers reporting timeliness of loans in all the size groups.

Table 5

Percentage of farmers receiving production loans in time in Jagatsinghpur area of Cuttack District during the year 72-73

Size Group	percentage of loan received in time.	of those not getting loans in time (%)	
		Borrowing from private seurces.	Utilising past savings.
I	35	76	24
II	37	70	30
III	48	65	35
Average :	40	71	30

As can be observed form table 3 that majority of farmers reported having obtained loans not in proper time. Of

those farmers who did not get loans in time, as many as 76, 70 and 65 percentage of borrowings were made from private sources to meet their production expenses. In the corresponding situations a few number of farmers reported having utilised their past savings to meet the production expenses.

Farmers knowledge and views on the crop loan system :

Table 6 revealed the percentage distribution of farmers according to their knowledge about crop loan system their views on its working and suggestions for improvement. It may be pointed out that, the farmers do not know the real significance of different agricultural productive loan system. They have hardly any understanding of the significance attached to the various components of the loan.

Table 6

Percentage distribution of farmers according to their views on grop loan and suggestions for improvement in Jagatsinghpur area of Cuttack District During the year 1972-73.

Particulars	Size Group-I	Size Group-II	Size Group-III
AGENCY PREFERRED			
1. commercial Bank	40	48	65
2. Primary credit Cooperative Society	60	45	35
3. Land Development Bank	20	30	40
4. Non-institutional agencies	25	—	—
5. Convert Crop loans into medium term loans	60	75	40
6. Avoid insistance on mortagage of land.	90	45	30
7. Prompt disposal of application and timeliness of delivery	100	100	100

Another noticeable feature was that the borrowers in size group I preferred more to cooperative loans while larger percentage of farmers in size group II & III preferred loan to Commercial Banks.

As regards suggestions for improvement in the loan scheme, all farmers in all the size grops wanted prompt disposal of applications and timeliness of delivery. Similarly 90 per cent of the borrowers belonging to size group I desired that there should not be any insistence on mortage of land and majority of farmers in all the size groups wanted that short-term loan should be converted to medium term loans.

Production loan recoveries :

Table 7 revealed the position of production loan recoveries as they stood at the end of the reference year.

Table 7

Distribution of farmers according to reasons for overdues in Jagatsinghpur area of Cuttack District during the year 1972-73.

Particulars	Size Group I	Size Group II	Size Group III
1. Number of borrowing farms	15	15	15
2. Number of farms in overdues	8	5	3
3. Per cent of farms in overdues	53.33	33.33	20
Of those in overdues percent offering reasons as :			
(i) Next season loan may not come in time	20	25	25
(ii) Fear of availability of inputs.	—	—	—
(iii) Crop damaged	—	—	—
(iv) Spent on house hold consumption.	50	20	25
(v) Withheld selling expecting higher price in future.	10	30	40

It was reviewed from the table that while the amounts borrowed were much higher in case of larger size groups, the percentage of overdues were much less. The slightly higher overdues fraction in the size group-III reported that they had spent on consumption purposes. Also, as can be seen from this table, the percentage of overdues in all the cases tends to decrease with the increase in the size of the farms. Among the reasons quoted for overdues by the borrowing respondents, the expenses on household consumption and withheld selling of farm produce with a view to get better price in future dates were found to be most important.

SUMMARY AND CONCLUSION

The percentag of diversion was more in case of marginal farmers than that of small and medium size farms, between short term and medium term loans as compared to short term loans. Since the farms of this locality are not mechanised nor they use improved draught power ar implements, the medium term loans are used as ways and means loan to make up the deficiency.

The amount of loan applied for was higher than the actual amount received by the borrowers. Hence it is concluded that institutional agencies did not fulfil the credit requirements of the borrowers. This might be due to several factors like low risk bearing ability low repayment capacity, expected low returns and apprehension about the diversion and misuse of credit. As regards to the extent of shortfall, the largest amount of shortfall observed in size group I followed in discending order II and III.

Majority of the farmers reported having obtained loans not in proper time. Of those who did not receive loans in proper time, as many as 65 per cent to 76 per cent of their credit

needs was met from private sources. It was found that the percentage of overdues in all the cases tends to decrease with the increase in the size of the farms. The reason for this may be that smaller farms spend more on consumption out of their total earnings.

In view of the above findings, the following suggestions are made :

1. Institutional agencies should give up their outmoded security oriented credit policy and should grant crop loan on the basis of farm plan approved by the technical staff of the department of agriculture. Efforts should be made by the different development agencies working in rural sector to remove the superstition in the mind of many as regards to internal credit rationing. In absence of this many farmers in rural areas cannot come to the main stream of the agricultural development.

2. Stress shold be laid on punctual payment of the loans.

3. Short-term credit should be diverted to medium term credit only during the years of natural calamities.

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ANATOMY OF CREDIT IN KANDARPUR VILLAGE : A CASE STUDY.

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The significance of credit as a critical input in the economic planning of India is recognised by all serious thinkers in the country. The transformation through which this country is passing ever since the political independence, with special attention on integrated rural development, has served to emphasize the need of credit in our developmental programmes. In this study an attempt is made to take a closer look into the structure of rural credit in a village in the district of Cuttack in Orissa.

The selected village is on the Cuttack- Paradeep highway and is about 10 km from the Central Rice Research Institute at Cuttack. It is well served by a co-operative society. Recently a "Gramya Bank" has also started operation in this village.

Information required for this study was collected by complete enumeration of all house-holds and by personal interviews on the basis of a prepared questionnaire. The period covered was the calendar year 1976. The composition of the house-holds and the amount borrowed during the year is presented in Table. 1.

Table 1

Distribution of house-holds and amount borrowed.

House hold type.	No. of house holds	Average size of holding (Area in acres)	House holds borrowing No.	%	Amount borrowed (Rs)	Borrowing per house hold (Rs)
1	2	3	4	5	6	7
Fully Owner	33	1.19	14	42.42	4,045.00	288.93
Partly Owner	36	1.34	20	55.55	7,143.00	357.15
Fully Tenant	8	0.82	5	62.50	470.00	94.00
Land less	9	—	—	—	—	—
Over all	86	1.22	39	45.35	11,658	298.92

Average calculated by dividing total amount borrowed by the number of households borrowing.

As can be seen the village is small with only 86 household 77 of which were cultivating some land. Average holding in the village was very small viz. 1.22 acres only. The remaining 9 families were landless belonging to the class of village artisans or labourers. Many of the families had some income from salaried employment or small businesses. It was, however, not possible to ascertain the income from different sources.

39 of the house-holds had a total borrowing of Rs. 11,658.00 during the year with an average borrowing of Rs. 298.92 per house-hold. The largest amount borrowed was by the partly owners with 55.55 percent of borrowers in this group and an average borrowing of Rs. 357.15. 62.50 per cent of the 8 fully tenants borrowed Rs 470.00 with an average borrowing of only Rs. 94.00 and 42.42 per cent of the fully owners borrowed Rs. 4,045.00 with an average borrowing of Rs. 288.93. None of the 9 landless families had any borrowing during the year.

It would seem from the table that borrowing had some relationship with ownership and size of holding. The lowest average borrowing was recorded for the class having the smallest size of holding and no land of their own and vice-versa.

Table 2

Distribution credit by source and type of borrowing.

Type of borrower	No. of house holds	Amount borrowed (Rs)	Borrowing per household (Rs)	%
CO-OPERATIVES				
Fully Owner	6	3,050.00	508.33	45.15
Partly Owner	9	3,605.00	400.55	53.37
Fully Tenant	1	100.00	100.00	1.48
Over all.	16	6,755.00	422.19	100.00
FRIENDS & RELATIVES				
Fully Owner	7	695.00	99.28	23.94
Partly Owner	9	1,838.00	204.22	63.31
Fully Tenant	4	370.00	92.50	12.75
Over all	20	2,903.00	145.15	100.00
BANKS				
Fully Owner	1	300.00	300.00	15.00
Partly Owner	2	1,700.00	850.00	85.00
Fully Tenant	—	—	—	—
Over all	3	2,000.00	666.67	100.00

Table 2 presents the distribution of borrowing by source and type of borrowers. The major source of borrowing in the village was the co-operative society with a total lending of Rs. 6, 755.00 which was nearly 58 per cent of the total amount borrowed in the village. Friends nnd relatives lent out

Rs. 2, 903.00 and banks contributed Rs. 2, 000.00 representing 25 per cent and 17 per cent respectively of the total borrowings. None of the house-holds reported any borrowing from village money lenders. Possibly, as a result of the proclamation of the emergency and the moratorium declared on debts from this class of lenders, some of them might be masquerading as 'friends and relatives'. In any case the date reveal the importance of co-operative society as the largest source of credit in the village.

Even though the amount borrowed from friends and relatives was much lower than that from the co-operative society it satisfied the credit needs of a larger number of borrowing house-holds. During the same period banks had granted credits to only three house-holds.

An interesting feature of the borrowing pattern is that except from banks the average amount of borrowing was the highest from the co-operative society. Further, while banks had sanctioned no credits to the fully tenant class only one loan was sanctioned to this class by the cooperative society. 4 out of 5 borrowers in this class had obtained loans from friends and relatives. Also, number of loans obtained from friends and relatives were higher than the combined number of loans obtained from the cooperative society and banks.

Table 3

Distribution of credit by type of borrower

Type of borrower.	Upto 100	101-300	301-500	501-700	701-900	above 901
Fully Owner	5	6	1	1	—	1
Partly Owner	6	7	3	—	3	1
Fully Tenant	4	1	—	—	—	—
Over all	15	14	4	1	3	2

Table 4

Distribution of credit by source

Source	Upto 100	101-300	301-500	501-700	701-900	above 901
Co operative.	6	4	2	1	1	2
Friends and relatives.	9	9	2	—	—	—
Banks.	—	1	—	—	2	—
Over all	15	14	4	1	3	2

A more detailed analysis of the borrowing pattern is presented in tables 3 & 4. The former of these shows that 29 or nearly 74 per cent of the borrowing was limited to only Rs. 300.00 Of these 15 house-holds borrowed upto Rs. 100.00 only and the remaining 14 borrowed amounts in the range of Rs. 101.00-300.00. There were only 5 borrowers with borrowings of over Rs. 700,00 and only one of them was a fully owner. 4 out of 5 fully tenant borrowers had Rs. 100.00 as the limit of their borrowing. The latter table (table 4) shows that both the co-operative society and friends and relatives tended to keep their individual lendings to within Rs. 300.00, While the co-operative society had granted four loans of over Rs. 500.00, two of which were above Rs. 900.00, there was no lending by friends and relatives above Rs. 500.00. In comparison the banks, it may be surmised, were interested in sanctioning larger amounts of loans to individual borrowers. The one small loan in the range of Rs. 101.00-300.00 from this source was for Rs. 300.00. The other two loans were for Rs. 800.00 and Rs.900.00.

The pattern of credit utilization by different types of borrowers in the village is presented in the following table.

Table 5

Utilisation of credit by type of borrowers.

Type of borrower	Fertilizer Amount (Rs.)	Insecticide Amount (Rs.)	Labour Amount (Rs.)	Seed Amount (Rs.)	F. Y. M. Amount (Rs.)
Fully Owner	2875.00	370.00	365.00	260.00	175.00
	(71.07)	(9.15)	(9.02)	(6.43)	(4.33)
Partly Owner	5530.00	450.00	740.00	303.00	120.00
	(77.42)	(6.30)	(10.36)	(4.24)	(1.68)
Fully Tenant	385.00	45.00	—	40.00	—
	(81.92)	(9.57)	—	(8.51)	—
Over all	8790.00	865.00	1105.00	603.00	295.00
	(75.40)	(7.42)	(9.48)	(5.17)	(2.53)

N. B. Figures in parenthesis are percentages.

It is seen that the major part of the credit was utlized for the purchased of chemical fertilizers Overall 75 per cent of the credit was spent on this input, the highest utilization per cent being 82 for the fully tenants with the lowest at 71 for the fully owners. Payments for wages of hired labour accounted for nearly 9.40 per cent of the total credit during the period. Surprisingly, a very small amount of the total credit was spent on insecticides. Considering the wide spread of the modern rice varieties in the village, particularly during the dry season, one would have expected a large expenditure on this input, since the modern varieties are claimed to be more susceptible to insect pests than the traditional ones. Credit utilization for seed and farm yard manures were understandably low as these are usually produced in the farm.

The results of the investigation indicate the following features of the credit structure in the village studies. Institutional credit as represented by the total amount of credit granted

by the co-operative and the banking sector is currently playing the major role in the village. This is, however, some way linked to the ownership of land. While non-institutional borrowing is much lower than institutional borrowing it still has some relevance for a large number of borrowers. In majority of the cases the quantum of individual loans obtained from the co-operatives society and friends and relatives were small. By comparison the banks advanced larger sums to their borrowers.

The credit utilization pattern revealed that the amounts borrowed were exclusively spent on production purposes. This perhaps can be attributed to the anxiety of the borrowers to be in a position to repay their loans. Recent changes in the policy of the co-operative societies to advance no credit to the defaulters may nave something to do with this welcome change in the attitude of the borrowers. Nevertheless, the pre-occupation with the future repayments has tended to restrict their borrowings to small amounts. The question as to whether credit should be based on needs or ability to repay has not yet been answered.

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SHORT TERM CREDIT REQUIREMENTS: ECONOMIC FEASIBILITY TEST.*

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J. P. Singh
and
M. L. Chakraverty

Inadequate capital has been identified as a major cause of low productivity and slow adaption of technology on a majority of Indian farms. [1,2] Inadequacy of credit to supplement own resources is one of the most important constraints on Indian farms.[3] Therefore, it becomes impossible for the non-viable farms to adopt and take advantage of the new technology. The introdction of social control and subsequent nationalisation of major Commercial Banks had changed the situation radically. Commercial and Co-operative Banks were called upon to play an important role in the financing of investment for agricultural development.

They had very little experience in this line of business. Being institutional agencies, they could not adopt the rule of the thumb attitude of money lenders and others. They needed well defined criteria to appraise proposals for financing investments in agriculture.

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* The authors are thankful to Dr. B. Misra, Dr. H. K. Dasgupta, Dr. P. K. Das and Dr. S. Mohanty for their valuable suggestions.

1. L. R. Singh, J, P. Bhati & S. L. Oain. The supply utilisation and Economic Rationale of Credit use on progressive and less progressive farms.
   1. J. A. E., Vol. XXVI, No. 4, Oct-Dec., 1971, pp. 474-479.
2. U. S. Singh, D. Jha. "A normative Analysis of the impact of capital availability on Farm income and Demand for S. T. credit on farms in Delhi". 1. J. A. E., Vol. XXVI. No. 4, Oct-Dec, 1971 pp. 524-532.
3. Haridant Singh & A. S. Kahlon. "A study of credit requirements and Advances to farmers in Patiala District".
   1. J. A. E. Vol. XXVI, No. 4. Oct-Dec., 1971, pp. 496-503.

In view of this, the present study was designed with the specific objective of estimating the credit needs (safe amount) in terms of short-term credit of representative medium size farm situation in the operational Research Project area of Cuttack District.

The operational Research Programme (O. R. P), which is now in operation, is basically a production programme. Its primary aim is to induce technology among the farmers. The success of this programme largely hinges on assured supply of some key inputs like fertilisers, seeds, pesticides, improved machineries etc. But the problem with which most of the farmers in Orissa are confronted is the inadequacy of self-financing. This pinpoints the necessity of providing adequate finance to the farmers by the credit institutions. As stated earlier, the institutional agencies had very little experience in financing investments in agriculture. It is seen that, in many cases, the farmers are either under-financed or over-financed which is harmful both to farmer-borrower and the banker. It is therefore necessary to make a rational estimate of credit requirements, which has been discussed in this paper.

Methodology :

The study[4] was undertaken in the operational Research Project area of Cuttack District. A sample of four villages was randomly selected. All the cultivators were listed and were classified into three size groups, i. e. below 2.5 acres, 2.5 to 5 acres and above 5 acres. The medium size holding group formed the core of this analysis, because this strata represented majority of the farm situations in the area under study. From this group, 20 farms were randomly selected. The data on the existing farm resource restrictions and input-output coefficients[5]

4. Based on a field study specially carried out for the purpose of this paper.
5. For details, see, B. M. Desai and D. K. Desai "Farm Production credit in changing agriculture" Indian Institute of Management, Ahmedabad, 1971, p. 29.

were pooled and averaged to form a synthetic medium size farm situation. Budgeting technique was used as a tool in selection. of crops and crop combination consistent with resource availability. The farm situation was re-organised and an alternative farm plan was prepared in which improved package of practices recommended by the experts of O. R. P., CRI, Cuttack was introduced.

Short-term credit requirements were estimated as the difference between the working capital in the alternative plan and existing plan adjusted with the cash available.

For determining the economic feasibility of the credit proposal, "3R's test"[6] was applied i.e. criteria of returns, repayment capacity and risk bearing ability.

EMPIRICAL RESULS :

The synthetic farm situation of 3.5 acres, operational holding, having canal as source of irrigation. The exi.ting cropping pattern consisted of crop enterprises of having low per acre returns to fixed factors. Table-1 [7] provides information on crop enterprises in the existing and alternative farm plans. A careful appraisal of the table indicates that major crop shown in the existing plans were local paddy in the Kharif and H.Y.V. of paddy in Rabi season. The per acre returns to fixed factors were Rs. 437/- and Rs. 781/- for local and H.Y.V. of paddy respectively. The area covered under hight income crops like potato was found to be much less, although the land is quite suitable to increase the area. The major reason for such low income crop combination was the limitation of the working

6. For details, see. S. S. Johl and C. V. Moore "Essentials of Farm Financial Management" (To-day & Tomorrow's Printers & Publishers, New Delhi) 1970, pp 82-85.

7. All the tables are presented at the end of the discussion.

capital resource. Thus the income could be increased through the introduction of improved package of practices i.e. improved seeds, recommended doeses of fertilizers, pesticides and the shifting of area from low to high income crops.

Taking into consideration, the possibility of borrowing inactivity within the major resource restrictions, this farm was re-organised. In the alternative plan (Table-1), the area under potato was increased from 1 acre to 2 acres. Additional crops like mustard and mung were included in the cropping programme. With these changes, the returns to the fixed factors increased by Rs. 6981/-, which is 126 percent over the existing plan.

For successful implementation of alternative plan these was an increase demand for additional working capital, which went up by Rs. 3577/- (Rs. 103/- in Kharif and Rs. 2544/- in Rabi)· These additional expenses were to be met from borrowed funds. For this credit proposal, the loan instalments were worked out for Kharif and Rabi seasons separetely as most of the Commercial Banks insist on payment of loan in half-yearly instalments. The interest was charged at the rate of 11 to 12 percent depending on the amount of loan. Thus, Kharif instalments (Rs. 1090/-), consisted of principal and interest (Rs. 1033/- + Rs. 56.75) and Rabi instalment (Rs.2849/-) consisted of principal and interest (Rs. 2544/- + Rs. 305.28) were worked out.

FEASIBILITY TEST :

To assess the soundness of credit proposal, the following economic feasibility tests were used.

1. Test—I (Returns from the Investment)
2. Test—II (Repayment capacity)
3. Test—III (Risk bearing ability)

Test—I :

It was found the altenative plan would give an additional gross income of Rs. 10,558/- and additional returns to fixed factors of Rs.6981/- per year. The marginal analysis for determining the profitability of the credit proposal has been presented in Table-2. It was found that the net marginal returns were Rs. 6981/-, which were sufficient to repay Rs. 3939/- (Rs. 1090/- in Kharif and Rs. 2849/- in Rabi). The above credit proposal thus satisfied the first test.

Test—II :

With a view to examine whether the income generated in alternative plan would be sufficient to repay the Kharif and Rabi instalmens after meeting the production costs, family living expenditure etc., the repayment capacity was estimated without and with credit as in Table-3.

With the provision of credit the repaying capacity in Kharif was Rs 2360/-, which was sufficient to repay the kharif loan instalment of Rs. 1090/-. Repaying capacity in Rabi was Rs. 6081/-, which was sufficient to pay the Rabi loan instalment of Rs. 2849/ . The repaying capacity without credit in Kharif and in Rabi was Rs.502/- and Rs. 1256/- respectively. The table further reveals that repaying capacity during the year increased from Rs. 1758/- to Rs. 8441/- which was sufficient to cover the total loan. Thus, this tests- has proved the soundness of the credit proposal.

Test—III

Agriculture is exposed to natural hazards and hence variation in income is likely to be there. So to incorporate the probable variations in expected income, the gross income was deflated with a suitable returns variability co-efficient. The gross income in the present study was deflated by 17.45 percent, and the repaying capacity was estimated as in Table-4. After

accounting for the probable risks even at 99 percent level of confidence, the repaying capacity during Kharif and Rabi was Rs. 1212/- and Rs. 3420/- which was sufficient to repay the loan instalment of Rs. 1090/- and Rs. 2849/- in Kharif and Rabi season respectively. The test of risk-bearing ability also justified the soundness of the credit proposal.

CONCLUSION :

From the above discussion, it can be concluded that the credit proposal for advancing short-term credit of Rs. 3577/- (Rs. 1033/- in Kharif and Rs. 2544/- in Rabi) on the medium size farm situation was a sound proposition for both banker as well as for the farmer-borrower in the area under study.

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TABLES

Table 1 Economic Analysis of synthetic medium size farm in O. R. P. area.

Crops	Existing Farm Plan					Alternative Farm Plan				
	Acres	Gross returns Rs.	Variable expenses. Rs.	Return to fixed factors Rs.	Return to fixed factors/acre. Rs.	Acres	Gross returns Rs.	Variable expenses. Rs.	Return to fixed factors Rs.	Returns to fixed factors/ acre. Rs.
Kharif.										
Paddy (local)	3.5	3640	2112	1528	437	—	—	—	—	—
Paddy (H.Y.V)	—	—	—	—	—	3.5	6578	3145	3433	981
Sub-Total—	3.5	3640	2112	1528	437	3.5	6578	3145	3433	—
Rabi										
Paddy (HYV)	2.5	4168	2216	1952	781	1.5	2850	1500	1350	900
Potato	1.0	3462	1820	1642	1642	2.0	7800	3360	4440	2220
Mustard	—	—	—	—	—	2.0*	2900	1000	1900	950
Mung	—	—	—	—	—	2.0**	1700	720	980	490
Sub Total	3.5	7630	4036	3594	—	3.5	15,250	6580	8670	—
Grand Total.	—	11,270	6148	5122	—	—	21,828	9725	12,103	—
Increase over existing.										
Kharif —							2938	1033	1905	
Rabi —							7620	2544	5076	
Total —							10,558	3577	6981	

* 2.0 acres available after Potato harvest

** 2.0 acres available after mustard harvest

Table 2

Marginal Analysis of credit proposal.

Additional Returns Rs.	Additional costs. Rs.
Additional income over the existing plan = Rs. 10, 558/-	Total additional cost = Rs. 3577/-
Net marginal returns = Rs. 6, 981/-	

Table 3

Estimation of repaying capacity

Sl. No.	Items	Without credit (Rs.)		With credit (Rs.)	
		Kharif	Rabi	Kharif	Rabi
1.	Gross Returns	3640	7630	6578	15,250
2.	Working expenses	2112	4036	3145	6580
3.	Returns over cash expenses	1528	3594	3433	8670
4.	Family living expenses	1008	2216	1055	2467
5.	Other loans due	18	122	18	122
	Repayment capacity	502	1256	2360	6081
	Loan instalments	1090	2849	1090	2849

Table 4

Estimation of Risk bearing Ability

Sl. No.	Items	With credit facility (Rs.)	
		Kharif	Rabi
1.	Deflated gross returns	5430	12,589
2.	Working expenses	3145	6580
3.	Returns over cash expenses	2285	6009
4.	Family living expenses	1055	2467
5.	Other loans due	18	122
	Repayment capacity	1212	3420
	Loan instalment	1090	2849

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3. **Harwant Singh and A. K. Kahlon**
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"Essentials of farm financial Management" (To-day and Tomorrow's Printers & Publishers, New Delhi), 1970, pp. 82-85.

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IMPACT OF INSTITUTIONAL FINANCE ON TRIBAL FARMERS OF PHULBANI DISTRICT.

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Dr. Benudhar Bhuyan

Introudction :—

The Tribal farmers in Phulabani District have insufficient capital (both invested and working), low income and poor farming knowldge. Hence credit assumes great significance. Provision of institutional credit is very poor in the district. Further previously it was related with the credit worthiness of the farmer. Now it has been realised that credit should more profitably be linked with the productive capacity of the farmer. The emphasis, now has been shifted from security oriented credit to need based credit. However, so far, institutional credit has not shown any significant effect. The service co-operative societies are advancing both short term as well as medium term loans to the farmers. Except the "State Bank of India" no other commercial banks are operating in the district. Private finance is dominating the field. Money lender-cum-traders play pivotal role in the financing the agriculturist. They usually charge usurious rates of interest which ranges from 25% to 50%. Generally the expected crop is mortagaged and in some cases the land is given for mortgage. Thus pratically the rate of interest is 100%.

The panacea for this economic and social ills lies in expansion of institutional credit in the area. Besides giving sufficient amount of credit, emphasis is to be given on utilisation of this credit. In view of tremendous importance of this subject, effort is made in this study to examine the impact of institutional credit on farm productivity.

Objectives of the study are the following :—

1. To examine the relationship of credit with various farm inputs in different farm sizes.
2. To examine the relationship of different inputs requiring farm finance with farm returns in different farm sizes.
3. To formulate guide lines for proper allocation of credit of farms.

Hypotheses :—

1. Certain inputs on farms are more closely related to credit than other and the relationship of credit with inputs varies from one size of holding to another.
2. Proper allocation of funds used in various inputs increases the gross returns of the farms.
3. The inputs having higher correction with output have also higher correlation with credit.

Sources of data :—

The data for this study are being obtained by botn survey and cost accounting method from about 100 sample cultivators receiving institutional credit. The cultivators have been selected on basis of random sampling.

Methodology :—

Farmers have been grouped into two size groups viz. below 5 acres and above 5 acres. Of the 100 farmers 80 farmers belong to below 5 acre size group and the rest 20 farmers belong to above 5 acre size group. Zero order correlation of various inputs with credit has been worked out to examine the relationship of credit with these inputs. The zero order correlation of various inputs with output has been worked out and same has been compared with their respective credit correlations.

Table 1

Relationship Between institutional credit and inputs in differment size of farms (1976-77) in rupees.

Farm size,	No of sampled Farmers.	Average Institutional credit received by farm.	Input pnrchased per farm.	Co.rrelation co.efficient
Below 5 acres.	80	1480	450	0.35
Above 5 acres.	20	2250	960	0.60

The above table shows that farms below 5 acre size have received Rs. 1480/- on an average each compared to Rs. 2250/- received by each farm above 5 acre size. Farms having land below 5 acres utilise 30.4% of the total institutional credit on inputs in constrast to 41. 7% in case ot the farmers having land above 5 acres. The correlation co. efficient between the amounts used to purchase inputs and the amount of institutional credit is O. 35 in case of farmers below 5 acre size and is found to be non-significant. A greater percentage of loan in cash is utilised for purpose of consumption and social obligations. The poor farmers remaining below poverty line undergo semi-starvation. They subsist on many non food materials like mango, Jackfruit, mango kernel, Mahua flower, tamarin seed and others. In case of farmers having land more than 5 acres the correlation co-efficient between input and credit is 0.60 and is significant at 10 per cent level.

Table 2

Relationship between various inputs and credit in differnt farm sizes. (1976-77)

Various inputs,	Average amount spent per farm below 5 acres In. rupees.		Average amount spent per farm above 5 acres in rupees.	
	Amount,	% to total credit	Amount	% to total credit.
Implements.	120	27	500	52
Fertiliser	160	35	240	25
Insecticides	80	18	120	13
Others.	20	20	100	10
Total.	450	100	960	100

The above table shows that the farms below 5 acre size groups spend on an average Rs. 120/- on implements, Rs. 160/- on fertiliser, Rs. 80/- on insecticides, Rs. 90/- on other inputs per annum. The corresponding expenditures for farms above 5 acre size are Rs. 500/- Rs. 240/- Rs. 120/- and Rs. 100/-. The farms below 5 acre size spend about 35% of the total institutional credit (highest) on fertiliser as compared to 52% (highest) in case of the farms above 5 acre size. The lowest percentage of credit (18%) in case of farms below 5 acre size is spent on insecticides where as in case of farms above 5 acres the lowest percentage of credit (10%) are utilised on other inputs.

TABLE 3

Relationship between various inputs and output in different farm sizes (1976-77)

Various Inputs.	Farms below 5 acres.		Farms above 5 acres	
	Amount spent on each input per farm on an average in Rupees.	Correlation co. efficient with out-put.	Amount spent on each input per farm on an average in Rupees.	Correlation co. efficient with output
1	2	3	4	5
Implements	120	0.25	500	0.40
Fertiliser	160	0.45	240	0.50
Insecticides	80	0.35	120	0.45
Others	90	0.30	100	0.30
Total	450		960	

To know the extent of relationship between input and credit correlation co. efficents between various inputs and output has been worked out in the table above. It is clear in the above table that the expenditure on fertiliser results in the highest return than all other inputs. Because the co rrelation co efficient between expenditure on fertiliser and total return is 0.45 in case of farms below 5 acres and it is 0.50 in case of farms above 5 acres. In both the cases the correlation co efficients are significant. Next to fertiliser, insecticides is considered as a favourable input in both the sizes of farms as is evident from the table. As the farmers are applying fertilisers and insecticides newly to their crops the output has gone up significantly. Response of output to implements in both the cases is very poor and ranks third as inditcated by the correlation coefficients. The correlation coefficients are found to be non-significant. The reason is that development of land or deep ploughing and other operations by

help of implements will result in higher returns at late years. The result is not so impressive immediately. The demonstrations of various crops have their demonstration effect for which the farmers are spending more fertiliser and insecticides than on implements.

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SUMMARY

The Tribal farmers in Phulbani District are very poor. Besides being poor they are conservative, traditonal, rigid and resist for any change. They are reluctant to obtain loans from the nationalised Banks, Cooperative societies and other institutions. They are habituated to obtain loan from the Sahukars, the trader-cum-many lenders at a higher rate of interest. In this study an attempt has been made to find out the impact of institutional credit on tribal farms in Phulbani District. On cost accounting and survey methcd the necessary data have been collected from 100 cultivators selected on random sampling basis from two sizes of farms i.e. below 5 acres and above 5 acres. The study relates to the year 1976-77. Zero order correlation of various inputs with credit has been worked out to examine the relationship of credit with these inputs. Also zero order correlation of various inputs has been worked out. It has been found that farmers having land below 5 acres have received Rs. 1480/- institutional credit and farmers having land more than 5 acres have received about Rs. 2250/- institutional credit per annum. Of this heavy amount is spent for consumption and social expenditures correlation coefficient between input and credit is 0.35 in case of farmers having land below 5 acres and is found non significant. The corresponding correlation coefficient

is 0.60 in case of farmers having land more than 5 acres. In examining relationship between various inputs such as implements, fertiliser, insecticides and others and credit it is found that highest percentage of credit is spent on fertiliser by the farmers having land below 5 acres as compared to utilisation of the highest per-centage of credit on implements by the farms above 5 acres. The out put has the most favourable response to fertiliser in case of farms in both the size groups where as insecticides rank second in both the size of farms. Implement as an input has not yet its impact on output.

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REPORT OF THE SECRETARY, ORISSA ECONOMICS ASSOCIATION

Respected President, Respected Dr. Sadasiva Misra, Padmabhusan Radhanath Rath, my Respected teacher Dr. B. Misra, Principal Nimapara College, ladies and gentleman.

As the secretary of the Association I take this opportunity to report to you about the activities of the Association. The All Otissa Economics Asscciatien was founded on 26th January 1968. Its objectives are to promote the study of and research in economic theory and its applications to different disciplines such as agriculture, industry, forestry, animal husbandry engineering and finance. Besides it is to analyse the current economic problems of the State and suggest possible solutions for them.

The Associatien was fortunate to have Dr.Sadasiva Misra as its founder president. It has the privilege of having its president Dr. Debendra Chandra Misra, Dr. Bidyadhar Misra, Dr. Baidyanath Misra and Dr. Chakradhar Misra. Inspite of their multifarious duties they continue to take keen interest in the activities of the Asscciatien and are a great source of inspirarion in advancing the objectives of the Association.

The Associaiion organises its conferences annually in different parts of the State on invitation received from colleges. The colleges which have already hosted the conferences are Ravenshaw College, Dhenkanal College. Khalikote College, Bhadrak College. Baragarh College, Kendrapara College, Samanath Chandra Shekhar College, Utkal University and Orissa University of Agriculture & Techonology. The conference should have been held this year at Khalikote College, but due to some difficulties it was not possible to hold there. The

Nimapara College invited to host it and the Principal and Staff member of the Nimapara College have taken a lot of trouble to organise it here 25 K. M. away from their college within a short time for which I am really thankful to them. In each conference research papers presented by the members are discussed and eminent personalities in the line are invited to speak on the subject. Last year, the conference was inaugurated by the Honourable Governor of Orissa Sri Akbar Ali Khan. Two topics "Fiscal Policy in the context of Planning and Development of Orissa" and "Industrial Development of Orissa" were discussed in the conference besides the diseussion on Economic Development of Orissa in the context of 20 Point Economic Programme. Padmabhusan Sri Radhanath Rath was the Chairman in the diseussion. Dr, Haraprasanna Misra Managing Director, I. P. I. C. O. L., and Sri F. A. Moses, I. A. S. Director of Industries participated in the discussion on Industrial Development of Orissa. Dr. D. C. Misra, Director of Higher Education in his presidential address narrated the current educational problems of the State. Dr. Baidyanath Misra and Dr. Bidyadhar Misra gave key note addresses on Industrial Development in Orissa and Fiscal Policy in the context of Planning and Development of Orissa respectively. This year there are two important economic topics relating to the present day economic problems of the State.

Membership :

The membership of the Association is drawn not only from the Economics Department of different colleges, but also from other disciplines who are directly or indirectly involved in the economic devolopment of the State. At present the membership runs to about one hundred.

Journals :

The Association publishes its journals consisting of two issues per year and has so far brought out 20 issues. The papers presented in the conference are published regularly in the journal of the Association. The Association owes a great deal to Dr. Bidyadhar Misra for his keen interest in editing the journals each year. Through its conferences and publications media, the Association could serve to focus the attention of the Government and public on different economic problems of the State. Due to lack of sufficient research papers there is a difficulty in getting the journals published in time. Reprints of articles are supplied to the authors free of charge. Conventionally a souvenir is brought out by the Association each year. This year due to difficulty of arranging necessary finance the souvenir could not be published.

Finance :

The Finance is really a problem of the Association. Except the membership fee there is no permanent source of income. It used to receive grants in-aid from the Youth Welfare Board and has received only last year an amount of Rs. 10.000/- as grants-in-aid from theplanning and Co-ordination Department, Government of Orissa. The amount received from membership fee is hardly sufficient to meet the establishment expenditure of the Association such as papers, postage etc. throughout the year. There is need for adequate finance to organise annual conferences, seminars and symposia besides publishing the regular issues of the journals. Unless it receives grants-in-aid regularly from the State Government and other organisations it is difficult to finance the normal activities of the Association throughout the year. Regarding the staff the Association has only a part time assistant with a remuneration of Rs.20/- per

month. In view of increafing work of the Association there is a need of permanent clerk-cum typist to do all clerical work.

No seminars or symposia have been conducted last year. It has been proposed to conduct a special seminar on implementation of 20 point programme and economic development of the State on 15th August 1976. But due to some unavoidable difficulties it has been postponed.

For the first time the Association has given actual expenditure amounting Rs. 800/- to about 60 members, who have claimed T. A. for their journey to and fro to attend the 9th annual conference of the Association.

The Association is also going to have a discussion on implementation of 25 Point Programme and Economic Development of the State.

The Speaker of the Legislative Assembly Sri Braja Mohan Mohanty has spared his valuable time to act as the Chairman of the Reception Committee for which we are really grateful to him.

Padmabhusan Sri Radhanath Rath who is a constant source of inspiration to the Orissa Economics Association has come over here to grace the occasion as the Chief guest inspite of illness for which we are deeply grateful to him.

We are highly obliged to Dr. Sadasiva Misra who acts as the guide of the Association. Inspite of his busy engagements he considers the activities of Association as his own and tries to make it a success.

The Association is ever obliged to Dr. Baidyanath Misra who takes keen interest to make the Association run with

normal activities. He gives priority to the activities of the Association and takes keen interest to see that the Orissa Economics Association must do some work for the economic development of the state. He is the man to organise all functions and so he is the architect of the whole show for which we are much obliged to him.

Dr. Benudhar Bhuyan

Secretary.

Orissa Economics Association.

FORM OF DECLARATION

FORM NO. 1

(See Rule 3)

I, Sri Bidyadhar Misra, declare that I am the printer and publisher of the Journal entiled 'Orissa Economic Journal' to be printed at The Virgoan Printers, Bhubaneswar-4 and published at Bhubaneswar and that particulars in respect of the said Journal given hereunder are true to the best of my knowledge and belief.

1. Title of the newspaper	...	Orissa Economic Journal
2. Language (s) in which it is (to be) published.	...	English
3. Periodicity of its publication (a) Whether a daily; tri-weekly; bi-weekly; fortnightly; or otherwise,	...	Half Yearly
(b) In the case of a daily; please state whether it is a morning or evening newspaper.	...	
(c) In the case of a newspaper other than daily; please state the day (s)/ date (s) on which it is to be published	...	
4. Retail selling price of the newspaper per copy.		
(a) If the newspaper is for free distribution please state.	...	
(b) If it has only an anuual. subscription and no retail price please state the annual subscription.	...	Rs. 10/ Annual subscription
5. Publisher's Name	...	Dr. Bidyadhar Misra
Nationality :	...	Indian
Address :	...	Professor of Analytical and Applied Economics. Utkal University.
6. Place of publication (Please give the complete postal address).	...	Department of Analytical and Applied Economics, Utkal University.

7. Printer's Name	...	Dr. Bidyadhar Misra.
8. Name (s) of the printing press (es) where printing is to be conducted and true and precise description of the premises on which the press (es) are installed.	...	The Virgoan Printers, Bhubaneswar-4
9. Editor's Name	...	Dr. Bidyadhar Misra
10. Nationality	...	Indian
11. Address	...	professor of Analytical and Applied Economics. Utkal University
12. (a) Owner's Name (s). (Plase state the particulars of individual or of the firm; joint stock company; trust; co-operative society or association which owns the newspaper).	...	Honorary Secretary, Orissa Economics Association
(b) Please state whether the owners own any other newspaper and if so, its name, periodicity, language and place of publication.	...	No
13, Please state whether the declaration is in respect of		
(a) New newspaper		
(b) An existing newspaper	...	An existing journal
(c) In case the declaration falls under item (b) the reason for filing the fresh declartion		

Sd/ **B. Misra**
Signature

Date—1. 2. 1977