CHAPTER-VI

SUMMARY AND CONCLUSIONS

Economic development is a multidimensional phenomenon, and is to be stimulated by several factors. Economically less developed countries of the world are neither endowed with these factors in abundance nor deprived of them completely. In this backdrop, the present study assumes that if human resource is adequately developed and necessary infrastructure is created, most of the obstacles in the path of development would be removed and a continuous process of economic development and growth would be initiated in those countries. In keeping with the basic proposition, attempt is made in the present study to understand the process of rural transformation in Orissa State. In so doing, the availability and level of human resource development and infrastructure facilities in the rural areas in the state is examined and their impact has been assessed separately and jointly on the level of economic activities. Since human resource development, infrastructure facilities and economic activities are manifested in several forms, suitable indicators for them are selected and are combined through the technique of composite index to represent their respective levels of development.

Scope, Nature of the Data and Methodology.

The study is conducted at macro level by using cross section data from 77 Community Development Blocks in three districts, viz., Cuttack, Balasore and Mayurbhanja of Orissa State in two points of time, 1971 and 1981. Efforts are also

made to relate the study to the entire state by using cross section data of 13 districts of the state. The data are mainly unpublished secondary data collected from the official records of a large number of the districts and state level offices. However, for the district level analysis relating to the entire state, the data are obtained from the publications of Bureau of Statistics and Economics, Orissa, Bhubaneswar, and Census of India. Quantitative and econometrics methodology are generally used in analysis of the data.

Findings.

The major findings of the study are recalled here and are presented in the succeeding sections as per the organisation of the study. In the first place, we have discussed the major findings of the study in the district level analysis involving entire state. Finally, findings relating exclusively to the rural regions are presented.

Human Resource, Infrastructure and Level of Economic Activities in the Districts of Orissa State.

(i) The state is one of the backward states in the country with regard to human resource development and available infrastructure facilities and consequently, (as the study assumes) it appears to lag behind in the process of economic development.

(ii) The analysis of the characteristics of population

reveals that even within a relatively backward state, there are wide variations in population growth rate of different districts and if population growth rate is taken as one of the indicators of economic growth, different districts of the state are at widely different stages of development in this state. It is interesting to observe that population growth rate according to rank correlation is positively and significantly associated with each of literacy level and proportion of non-agricultural workers- the two indicators promoting economic growth.

(iii) Inter-district differences in respect to human resource development appear to exist in the economy of the state. While the districts, namely, Cuttack, Puri, Balasore and Sundargarh are noticed to be relatively advanced, the districts like Kalahandi, Koraput and Mayurbhanja are backward in human resource development. Although the relative position of the districts in this regard does not appear to have altered, the decline in the coefficient of variation from 1971 to 1981 indicates that the interdistrict disparities are gradually coming down.

(iv) In regard to rural infrastructure, Cuttack, Puri, Balasore, Sundargarh, Sambalpur and Ganjam are observed to be relatively developed districts and Kalahandi, Keonjhar, Koraput and Mayurbhanja are backward districts. The study indicates that interdistrict variations in infrastructure facilities are widening.

(v) A close and direct association between the level of human resource development and available infrastructure facilities is also observed in the economy. Such association appears to make a region economically more efficient in performing economic activities.

(vi) The study shows that the districts like Sundargarh, Sambalpur, Puri, Cuttack and Ganjam are relatively advanced districts with respect to level of development. Sundargarh district appears to be more advanced industrially than agriculturaly. While the districts, namely, Puri and Sambalpur indicate a trend of balanced development in agriculture and industry, the development of the districts, such as, Cuttack and Ganjam is lopsided towards agriculture. The rest of the districts, notably the districts like Mayurbhanja, Balasore, Keonjhar, Koraput and Kalahandi are backward districts.

(vii) With the exception of the district, Balasore, all the economically backward districts are found to be backward in regard to human resource development and infrastructure facilities. These districts are found to have low level of literacy and low rates of human capital formation. Critical infrastructure for rural development like irrigation, power supply through rural electrification and roads are observed to be inadequately available in those districts. Caste factor does not appear to inhibit economic development. Out of the seven districts, (such as, Kalahandi, Koraput, [illegible]

Keonjhar, Mayurbhanja, Phulabani, Sambalpur, and Sundargarh) with high percentage of population of backward communities, Sundargarh and Sambalapur are found to be economically advanced. However, a separate study appears to be necessary to ascertain whether people of backward communities are reaping the benefit of development. Balasore district which appears to be developed in human resource and infrastructure facilities is surprisingly seen to be one of the economically backward districts. The district is noticed to be deficient in irrigation and rural electrification. Thus, human resource development in the absence of complementary factors appears to be ineffective in precipitating economic development.

viii) The impact of human resource development on the level of economic activities, is seen to be positive. Most of the indicators of economic development, such as workers in non-agricultural activities, factory workers, area under H.Y.V. paddy, cropping intensity, land and labour productivity in agriculture in either one or both the years, are found to be positively influenced by human resource development. The impact of human resource development on non-agricultural activities, cropping intensity and agricultural productivity per hectare are seen to be significant. The indicators of human resource development like literacy, student enrolment and the proxy variables such as Schools and hospitals in terms of area are found to be positively and in some cases significantly associated with the level of economic development

and most of its indicators. The indicators of human resource development like teachers and the proxy variables (i.e. schools and public health institutions) in term of population show nonsignificant (in most cases negative) correlation with development index and most of its indicators. However, the impact of public health institutions in terms of population on factory workers and nonfarm activities are seen to be positive and significant and on the remaining indicators of development are negative and nonsignificant. Thus, human resource development in terms of population appears to foster economic activities biased towards urban development. Area under nonfood crops shows negative and significant correlation with human resource development and almost all of its indicators.

(ix) The study indicates that the impact of infrastructure facilities on the level of economic activities is positive and significant. Its impact is also found to be positive on each of the indicators of economic development except area under nonfood crops. It appears that expansion of infrastructure facilities induces expansion of nonfarm activities, facilitates technological breakthrough in agriculture, and thus, raises labour effieiency and labour productivity in agriculture. Most of the indicators of infrastructure facilities are found to be positively correlated with the level of economic activities.

Notably, among the indicators of infrastructure facilities, rural electrification appears to stimulate expansion of nonfarm activities, rather than private sources of irrigation. The study further indicates that providing infrastructure facilities in terms of area rather than population is more effective in the process of rural development. Providing infrastructure facilities in terms of population appears to encourage activities favourable for urban development. Area under nonfood crops is seen to be negatively and significantly influenced by infrastructure facilities. Growing cash crop is marred by non-availability of suitable varieties of cash crops to be grown in the region, lack of extension informations and field demonstration, inadequate availability of irrigation and absence of marketing, storage and grading facilities.

(x) The joint impact of human resource development and infrastructure facilities is found to be positive and significant on the level of economic development in 1981. The nonsignificant impact of the two explanatory variables on the level of rural development in 1971 is attributed to the inadequacy in the level of human resource development and wide spread application of traditional technology.

Available Developed Human Resource and Infrastructure Facilities in Rural Orissa:

(i) The analysis of the general characteristics of the population of the sample district at the block level is seen

to be very interesting. Population growth rates of the blocks are positively and significantly correlated with literacy percentage - an important indicator of promoting growth and development and reflecting the level of well-being. The percentage of scheduled castes and scheduled tribes population, the most economically and socially backward population of the society, are seen to be negatively related to population growth rates and literacy percentage and positively with agricultural labourers and coefficients are statistically significant at a very high level of confidence. It appears as if the population growth rate and literacy among the population of backward communities were very low and they probably do not possess material means of production adequately and are, therefore, forced to participate largely as agricultural labourers. The high negative and significant correlations between agricultural labourers and literacy percentage indicates that agricultural labourers are generally illiterate.

ii) In regard to the level of human resource development, Cuttack district is found to be leading ahead, Balasore district appears to be the next and Mayurbhanja district is seen to be lagging far behind. Over the decade, the relative position of the blocks in this respect is found to remain more or less the same. However, there is an indication that the laggard blocks are slowly improving their position.

iii) The block level analysis shows that in infrastructure facilities, Cuttack district is relatively more advanced

Balasore district follows behind and Mayurbhanja district is the most backward. Over the decade, the relative position of the blocks in this respect is found to remain unchanged. However, a thin trend of decline in the inter - block disparities is noticed from 1971 to 1981.

iv) Among the blocks, human resource development indicators are seen to be closely associated with the level of available infrastructure facilities. This indicates further that human resource development and expansion of infrastructure facilities very directly even in the rural regions. The study further supports that providing certain infrastructure facilities in consideration with space factor appears to be more reasonable.

v) In the region under study, Cuttack district is relatively advanced, Mayurbhanja district is backward and Balasore district occupies middle rank in human resource development and availability of infrastructure facilities. Blocks with high percentage of backward population generally lag behind in both the respects.

<u>Human Resource Development, Infrastructure and Rural Development in Orissa.</u>

(i) In regard to rural development almost all the blocks of Cuttack district (except a few) are found to have values of composite development index remaining above the regional

average. The number of blocks belonging to the above category are three in 1971 and none in 1981 in Mayurbhanja district, and none in 1971 and one in 1981 in Balasore district. Thus, in the level of rural development Cuttack district appears to be more advanced and Balasore and Mayurbhanja districts are backward. A comparison between the quartile groups of the blocks obtained on the basis of the level of rural development in 1971 and 1981 indicates that the process of rural development would have started in the latter two districts during the decade under study, and Balasore district would have registered a little higher rate of progress.

(ii) The impact of human resource development on the level of economic activities is seen to be positive and significant. Its impact on each of the indicators of economic development (Except area under nonfood crops) is also observed to be positive and significant. Further, it is broadly observed that each of the indicators of human resource development is positively correlated with each of the indicators of economic development. However, there are some surprising observations. Student enrolment, teachers and village agricultural workers, for example, are found to be negatively related with development index and separately with some of its indicators either in one or both the years. Student enrolment signifies the rate of human resource development expected to join labour force. Human capital, thus formed is not able to join the labour

force soon after their coming out of schools and therefore, its impact does appear to be negative. However, such negative impact, in most cases, are nonsignificant. Providing village agricultural workers in terms of cultivators does not appear to be as effective as providing them in terms of area.

(iii) The impact of available infrastructure facilities is observed to be positive and significant on the level of rural development. The area under nonfood crops, as seen earlier, is not significantly influenced by available infrastructure facilities. Irrigation is observed to raise agricultural productivity and the incremental income from agricultural sector seems to have been diverted to nonagricultural sector. Quantitative improvement in road length irrespective of its quality does not appear to further the process of development. The impact of rural electrification on development measured in terms of villages electrified does not appear to be significant when relatively small villages are electrified. Co-operative credit obtained for agricultural purposes appears to be diverted to non-agricultural activities. Certain infrastructure facilities provided in terms of area rather than population are more effective in the process of rural development.

(iv) Human resource development and infrastructure facilities are observed to jointly account for the variations in the level of rural development. Their impact is also seen to be positive and significant on each of the indicators of development,

such as, cropping intensity, area under H.Y.V. paddy, fertilizer consumption and workers on nonfarm activities except area under nonfood crops. However, the variations in the workers in nonfarm activities in 1971 are not explained by human resource development and available infrastructure facilities. Non farm activities have not been significantly expanded in early seventies and the scope for expansion of these activities are also much limited during that period. The nonsignificant impact of the explanatory variables on the area under nonfood crops has already been discussed.

(v) The classification of blocks on the basis of the relative level of development in economic activities, human resources and infrastructure shows that almost all the highly developed and developing blocks belong to Cuttack district. Balasore district is seen to acquire potential for development. Mayurbhanja district appears to be the most backward in the region. Group specific analysis of available human resource and infrastructure facilities indicates that inadequacy in irrigation and rural electrification may reduce the effectiveness of other adequately available developed human resource and infrastructure facilities in the process of rural development. Time lag and demonstration effects are also seen to have important bearings on the process of development.

(vi) The study reveals that all the blocks with high percentage of population of backward communities except the block, Dangadi in Cuttack district are economically backward. The rate of acquiring growth potential by these blocks are

also seen to be slow. However, ascertaining whether backward population is averse to economic development needs separate investigation.

Human Resource Development, Infrastructure, Agricultural Productivity and Agricultural Wages:

(i) The study indicates that while inter-regional differences in land productivity remain more or less the same (or resister a marginal rise) during the decade from 1971 to 1981, the said differences in labour productivity are gradually declining. It is a reflection on the inter-regional migration of agricultural labourers from agriculturally less productive area to more productive area.

(ii) Regression results show that land and labour productivity are positively and significantly affected by human resource development and available infrastructure facilities. However, the impact of human resource development and infrastructure facilities on labour productivity is seen to be more effective in 1981 rather than in 1971. It supports our earlier assertion that the rise in level of human resource development and available infrastructure facilities paves the way for technological break-through in agriculture and thus, enhances labour efficiency and labour productivity in agriculture.

(iii) Agricultural wage rate (real) in the state is seen to have increased from 1973 to 1978. Inter-district variations in wage rate are observed to decline gradually from 1973 to

1978. The decline in the inter-district variations in labour productivity in agriculture appears to be reflected in the decline in the inter-district variations in agricultural wage rate.

(iv) Agricultural Wage rate is seen to be positively influenced by agricultural labour productivity. However, wage rate and labour supply in agriculture are related positively in 1973 and negatively in 1978. The positive relationship between them indicates that agricultural labour would have migrated to the high wage districts (from low-wage districts) which have witnessed an early technological break-through in agriculture. However, the relationship between agricultural wage rate and each of labour productivity and labour supply are are not significant. Agricultural labourers of the backward communities appear to be exploited and discriminated in payment of wages.

(v) The study reveals that human resource development is positively and non-significantly related to agricultural wage rate in 1973. Such phenomenon is attributed to the inadequacy in human resource development which does not facilitate technological progress in agriculture and raise labour productivity and wage rate in agriculture. In 1978, agricultural wage rate is positively and significantly influenced by human resource development. However, the conclusion (in 1978) is less reliable due to doubtful nature of 1978 agricultural wage statistics.

vi) Agricultural wage rate is observed to be positively and non-significantly correlated with the level of available infrastructure facilities in 1973 and positively and significantly correlated with it in 1978. Impact of infrastructure facilities on agricultural labour productivity is found to be nonsignificant in 1973. Therefore, agricultural wage rate would not have been influenced by available infrastructure facilities. However, in 1981, agricultural labour productivity is seen to be positively and significantly affected by available infrastructure facilities and thus, agricultural wage rate is observed to be positively influenced by infrastructure facilities. However, the limitation of agricutlrual wage statistics in 1978 (as cited earlier) is likely to affect the conclusion drawn for that year.

Conclusions:

In initiating a self generating process of rural development, the present study concludes in general, that developing human resources should be accompanied by the provision of adequate infrastructure facilities. Both these factors together create conditions favourable for the rural people to participate more effectively inthe process of development. However, we make the following specific suggestions for developing human resources and infrastructure facilities in the rural areas on the basis of the findings of the study:

i) In consideration with the wide-spread illiteracy prevailing in the rural areas developing human resources through education appears to be imperative. It is an undeniable fact that sizeable proportion of the rural population do not possess adequate amount of material means of production and their only means of earning livelihood is their labour. What is, therefore, necessary is to raise the efficiency of labour of this section of the rural population through education and other human resource development programmes, and to provide employment opportunities to them. However, the puzzling phenomenon is the non-significant impact (both negative and positive) of the rate of human capital formation (enrolment of student) on the level of economic activities. Under this circumstance, we propose that human resource development programme through education in the rural areas should give emphasis on need based education, so that the rural yough after coming out of educational institutions would be able to participate gainfully in economic activities in the rural millieu. The present system of education appears to be rather effective in the process of urban development than rural development, and generally encourages migration of the educated rural youths and thereby, subjecting the rural economy to be predominantly operated by illiterate workers. It also creates a misleading impression in the mind of the rural youth that rural economic activities provide low status jobs. The reason is two fold in carrying such impression. In the first place, rural economic activities are less productive. Secondly, the rural people are treated

like second class citizens by the so called civilized and educated people of the society in several respects. Thus, human resource development through education should appropriately be recognised to further the process of rural development and it should be accompanied by the programmes for raising productive efficiency of rural economic activities which would ensure reasonable returns, and rural people ought to be treated with due respect.

ii) Quantitative development of human resources irrespective of quality cannot be effective in the process of development. Human resource development through education should therefore, emphasize not only quantity but also quality of education. Thus, the increase in the student enrolment should witness a corresponding rise in school facilities and number of teachers.

iii) Human resource development through health and medical care measures is seen to be significant in the process of rural development. Thus, previding health and medical facilites, safe water, etc., within a reasonable distance will be much heloful in the process of rural development, by reducing rate of morbidity, raising productive efficiency and avoiding loss of capitalized value in human beings which arises out of premature deaths. Although, due to cost and technical factors, it is difficult to provide specialized health and medical facilities, the rural area should not be deprived of these facilities of generalised nature.

iv) Rural area should also be provided with high level of developed human resources, such as agricultural extension officers, bankers, other professional and technical personnel who have the aptitude to work in rural areas and to provide expertise and guidance for rural transformation. Such talents have the tendency to migrate to the urban areas and thereby, depriving the rural areas of their expert services.

v) The role of village agricultural workers should be made a dynamic so that they can effectively assist the process of agricultural modernization. The process of modernization entails dynamism and thus, changes are frequent during the course of modernization. Agricultural modernization in the region, at present, is confined to rice technology. Thus, after the initial impact of the village agricultural workers on spreading H.Y.V. seed technology in paddy, its further spread-work rests with the farmers through external effect since the non-adopters learn to apply the technology from their immediate early adopters. In order to make the role of village agricultural workers more significant in the process of agricultural modernization, they should be equipped with the knowledge of modernizing most of the major crops grown in the region, besides having the knowledge of introducing new crops to be grown profitably in the area. It should be remembered that the village agricultural workers are the key development extension agents reposed with the responsibility of modernizing the most dominant sector of the economy.

vi) Human resource development in the absence of adequately available infrastructure facilities, cannot be itself precipitate a dynamic process of rural development. The most important infrastructure facility is irrigation, the inadequacy of which is seen to create serious bottlenecks in the process of development. Irrigation is helpful not only in modernization of agriculture, but also in the expansion of non-farm activities by generating investible surplus in agricultural section. Within the irrigation system, private irrigation appears to be non-existent. The future policy makers for rural development should take note of the awefully inadequate irrigation facilities in the State.

Although the State has witnessed road expansion substantially within the decade, such roads being mainly Kuchha by nature, do not ensure all weather road transport facilities. This probably explains the non-significant impact of road length on the level of development. What is necessary is to provide a net work of all-weather roads connecting at least a cluster of villages with motorable route so that rural economy shall be exposed to market economy. It would thus break open the closeness of rural economy, make the rural economy more monetized and enhance its productive efficiency.

Rural electrification should not merely be shown in so many numbers of villages electrifed, but be shown in so many consumer units served for different specific purposes. Speeding up of rural electrification is to create precondition for a faster rate of rural transformation. In furthering the process of rural development and reaping the benefits from the huge investment in rural electrification attempts should be made to utilize the power supplied to rural areas more efficiently, depending upon the development potential of the given area. Thus, it would be better to provide extension infometions to the electrified villages as-to how efficiently the supplied power can be used by exploiting resource potential of the said villages. Adapting to the changing environment brought through rural electrification should not be expected to be quick by the village people accustomed to age old traditional production technology. In fact, supplying electricity to the villages, examining their resource potential, providing necessary extension informations for gainful use of the supplied power and exploiting potential resources would entail sufficient inter-departmental co-ordination and integration. However, in accelerating the process of rural development it is necessary to obtain optimum performance of rural development projects for which inter-departmental linkage is an absolute necessity.

The significant impact of the proxy variable for co-operative infrastructure on nonfarm activities asserts that co-operative finances being available with ease and less rigidity are probably diverted to nonfarm activities. Minimizing rigidity and redtapism in providing finances to the rural people should be of considerable importance for the rural development. Thus, the financial institutions responsible for financing rural development should keep down the procedural formalities to the minimum and speed up the disposal of finances for viable rural development programmes. Timely provision of finance would accelerate the pace of rural development by encouraging the rural people to undertake new productive ventures.

vii) Providing certain kinds of developed human resources and infrastructure facilities in terms of area rather than population should be given more attention as they are seen to be more effective in the process of rural development. However, cost consideration is a factor to reckon.

viii) The regions with high percentage of scheduled castes and scheduled tribes population need adequate attention in developing human resources and providing infrastructure facilities. Inadequately available developed human resources and infrastructure facilities may be the factors inhibiting development in these regions.

ix) The problem of time lag appears to deter the effectiveness of certain facilities in the process of rural development. Minimizing the problem of time lag through appropriate interdepartmental linkage process would be immensely helpful in the process of development. Providing certain facility may be the responsibility of one department, but effective utilization of the facility provided, in the process of rural development may rest on a number of other departments. Had the activities of all such concerned departments been well coordinated and commenced concurrently, the problem of time lag would have minimized to a great extent.

x) Resource constraint is the major impediment limiting the scope of developmental programmes from embracing the entire economy. Under such circumstance, we propose that given the level of human resource development and infrastructure facilities, some specific and viable programmes of rural development should be initiated in a village or a cluster of villages (which is not separated from the rest of the region through natural barriers like rivers, hill ranges, etc.) so that demonstration effect of development would percolate to the backward regions and thereby, making the pace of development rapid.

xi) An average level of human resource development and infrastructure facilities in the present study does not imply that a given region has reached the threshold level of development in these regards which is essential for promoting growth and development. Attempts should be made, at least, to determine the threshold level of development of some of the important indicators of human resource development and infrastructure facilities and to provide them upto that level in the backward regions. The present study does not have the time and resources at its disposal to proceed further in assessing the threshold level of development of the different indicators of developed human resources and infrastructure facilities. In case, relevant data would be available for quite a good deal of observations covering all the community development blocks of the State, we feel in deriving some possible solutionsto this problem. Future policy formulations for the development of backward regions would have been smooth had the threshold level of growth promoting indicators been assessed properly.

xii) In regard to economic activities the study indicates that growing cash crops is not popular in state agriculture. But to uplift farm family economy, suitable cash crops should be introduced and popularised. The present agricultural extension system ought to disseminate innovational informations for high yielding technology for cash crops along with its usual function of disseminating H.Y.V. rice technology. Besides

for fetching remunerative returns for agricultural products, facilities like grading, storage and processing should be provided in the rural areas within approachable distance.

xiii) Over the decade, the increase in nonfarm activities (which is also reflected in a relative decline of overcrowding in agriculture) heralds a healthy trend for rapid development in the rural area. Rural people to have realised the economic benefits of nonfarm activities and have shown a positive response to participate in the process of induced development by switching over to those activities. A little more attention through extension informations and provision of other facilities and services would be much helpful in the expansion of those activities and hence, a faster rate of development in the rural areas.

However, implementing the programme for development, it is necessary to identify the relative level of development of each block in regard to human resource development, available infrastructure facilities and level of economic activities. Developing human resources and infrastructure facilities should be carried out commensurate with the growth potential of the block. For this purpose, planning the use, conservation and development of growth potential of each block in the light of its own needs and resource base appears to be necessary. Such a planning would make planning process more decentralized and more responsive to the needs and

potentialities of particular area, provide better information about resource needs, help identifying the gaps in human resource development and infrastructure facilities, highlight other factors constaining development and speed up the process of development.

Approaching the process of rural development in this way would also make the programme of rural development presently in operations (in the State) more effective. The objectives in many of the programmes, viz., I.R.D.P. (Integrated Rural Development Programme), E.R.R.P.,(Economic Rehabilitation of Rural Poor), I.T.D.P., (Integrated Tribal Development Programme), N.R.E.P, (National Rural Employment Programme) C.A.D.A. (Command Area Development Authority,) etc., are to generate additional employment and income for families living below poverty line. These programmes are more or less group specific and short run in nature. However, these programmes will be more effective if assisted by the long run programmes of developing human resources and providing infrastructure facilities.

The present study does not assume that the developmental plan in operations, does not give attention in developing human resources and providing infrastructure facilities in the rural areas. What it emphasises is to attach a relatively greater attention to the rural regions, if the objective of our development policy is to provide greater good to the greatest number. Can an economy prosper, keeping its rural regions backward ?