URBANIZATION AND ECONOMIC DEVELOPMENT IN ORISSA (1961—1981)

Dissertation submitted to the Jawaharlal Nehru University
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CERTIFICATE

This is to certify that this dissertation entitled "URBANIZATION AND ECONOMIC DEVELOPMENT IN ORISSA: 1961-81" submitted by Miss PRITIREKHA DASPATTANAYAK in partial fulfilment of the requirements for the award of the degree of MASTER OF PHILOSOPHY, has not been previously submitted for any degree of this or any other University. This is her own work.

We recommend this dissertation be placed before the examiners for evaluation.

Prof. AMITABH KUNDU
Supervisor

Prof. A.K. MATHUR
Chairperson

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(PRITIREKHA DASPATTANAYAK)

PREFACE

The relationship between urbanization and economic development has been a matter of debate among the academicians. The present work intends to analyse the relationship in a backward economy like that of Orissa.

The whole study has been divided into six chapters. Chapter I deals with theoretical background of the problem, objective, data base and methodology; while Chapter II has been devoted to the discussion of the macroeconomics of the study area. Chapter III is the analysis of the various features of the process of urbanization and Chapter IV explains the spatial structure of economic development. In Chapter V attempt has been made to establish the possible inter-correlations between the processes of urbanization and economic development. Chapter VI incorporates townwise analysis of the socio-physical infrastructural facilities. And finally major findings have been given in the conclusion.

PRITIREKHA DASAPATTANAYAK

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CHAPTER I

INTRODUCTION

Development has usually been regarded as a phenomenon associated with the process of urbanization. Nonetheless, the relationship between development and urbanization does not work out to be positive empirically in all countries and regions. It is often argued that without urbanization, the development of desired economic and social organisations may be slow, if they evolve at all. This argument places urbanization as a pre-requisite to development. A review of the existing literature shows that the term has acquired a definite developmental connotation in the context of economic planning. It is also argued that urbanization accelerates the process of development, where it does not imply only growth of national income but also qualitative changes in the levels of living, provision of basic amenities and emergence of healthy value system and modern culture.

Urbanization, if broadly defined, is the process, whereby people move from rural areas of habitation to urban areas, resulting in large concentration of population in cities and towns along with a gradual and

continuous changes in their economic pursuits, with nature and level of social amenities and above all changes in the behaviour of the people. Thus urbanization leads to a change in the share of the population living in centres of human agglomeration called cities or laws coupled with diversification of the economy and relationship among the individual. The important point to be noted here is that the city growth is in all forms are not to be confused with urbanization.[1] Natural growth in population or growth due to natural and economic calamities may not be considered as process of urbanization. Mitchell (1969) refers to the term "as a process of becoming urban, moving to cities changing from agriculture to other pursuits common to cities and corresponding changing behaviour patterns."[2] This implies that the process of urbanization results in the release of working population from the task of providing food to the task of satisfying other physical and intellectual wants. In an ideal condition, this shift is made possible by the increasing efficiency of food production, requiring less and less people to work in it. The release of the workforce from the agricultural pursuits makes available

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1. Sovani, N.V. (1960), Urbanization and Urban India, New York, P.

2. Breese, G., Urbanization in the Newly Developing Countries, New Delhi, 1969, p.3.

labourers available in industrial and other non-agricultural sector of the urban centres.

It is generally observed that cities provide concentration of population from which industrial labour is drawn having greater variety of skills and resources. "Even more important, perhaps urbanization promotes values favourable to enterpreneurship and industrial growth; in particular, cities typically tend to favour a propensity to analyse traditional institutions and to innovate and accept change since, in a relatively impersonal and fragmented setting of urban life, the all embracing bonds of traditional community systems are difficult to maintain."[3]

Since the process of urbanization is intimately associated with economic development, it deserves close attention to understand the recent and future mechanisms of change in pre-industrial areas. In this context the definitions of urbanization given by different scholars have played a vital role so as to have a conceptual clarity. Lot of research on urbanization spawned by both early and more recent "Chicago School" (sociologists and human

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3. Wellisz, S.H., "Economic Development and Urbanization" in Leo Jakobson and Ved Prakash (eds.), Urbanization and National Development, Beverly Hills, California, 1971, p.39.

ecologists) has been done with the help of evolutionary-organic framework. As a result, a wealth of descriptive and theoretical material has emerged on the pattern of urbanization over time and space (e.g. Davis 1972; Hauser and Schnore, 1965; Hawley, 1981), the relationship between urbanization and other aspects of the industrial division of labour (Hawley, 1981; Gibbs & Martin, 1962), urbanization and Regional development (Mc Kenzie, 1933) and the elaboration of city systems (Mc Kenzie, 1929; Bougue, 1949 and Duncan, 1960).

Mc Kenzie (1929) focused on urbanization at the regional level early in this century. His work has influenced later interpretations of the urbanization process. According to him, changes in medium and long distance transportation technology and territorial specialization are the motors responsible for integration of urban centres within regions. So the dominant centres emerge towards which the activities of other urban centres in a region become directed. Hence systems of towns and cities emerge gradually.[4]

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4. Timberlake, Michael, "The World system perspective and urbanization" in Michael Timberlake (ed.), Urbanization in the world economy, Tokyo, 1985.

Gerald Breese (1969) has talked of urbanization in the modernization process of newly developing countries. While talking of the scale and pace of urbanization, he says that differences in urbanization may arise because (i) urbanization has taken place in the periods of colonization or exploitation by foreign countries or in connection with the emergence of nationhood following the end of colonial experience. From his study it is revealed that "the relationship between the degree of national urbanization and energy consumption appear to be a useful index: the countries most urbanized are generally those with high energy consumption rates."[5]

It is a fact that "urbanization is treated as the child of industrial revolution. So with the rise of industrialization, the pace of urbanization increases. Five major factors, however, stand out as the determinants of urbanization. Such as (i) agricultural revolution, (ii) industrial revolution, (iii) commercial revolution, (iv) increasing efficiency of transportation, (v) the demographic revolution."[6]

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5. Breese, G., Urbanization in newly developing countries, New Delhi, 1969, p.53.

6. Sundra Ranising, Urban Planning in India, New Delhi, 1979, p.2.

Simon Kuznet's study also emphasizes: "there is no inevitable technological connection between industrialisation and urbanization, suggesting that it is technically possible to combine the pursuit of agriculture with urbanization and the pursuit of modern industry with rural living albeit at a prohibitively high cost."[7]

For Davis and Golden since urbanization refers to a ratio where the urban population is divided by the total population, it is as much a function of the rural as of the urban population. The degree of urbanization in a given country or region can vary independently of the absolute number of people living in cities. They say that underdeveloped areas of the world are less urbanized than the developed ones. Both the authors have found that the degree of urbanization increases sharply as industrialisation increases. It is noticed that countries having peasant agrarian stage of economic development are least urbanized. While showing the precise extent of the association between

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7. Jakobson, Leo & Ved Prakash, "Urbanization and Urban Development: Proposals for an integrated policy base" in Leo Jakobson and Ved Prakash (eds.), Urbanization & National Development, vol.1, South and S.E. Asian Urban Affairs, 1971, p.16.

economic development and urbanization, the authors prove that Asia (excluding U.S.S.R.) and Africa are the mainly agrarian based with least urban share in the total population. The achievement of high levels of urbanization anywhere in the world had to wait for industrial revolution.[8]

Several empiricists working on urban problems have observed that the history of economic growth in the developed countries is associated with two broad processes: (i) change in occupational structure due to industrial revolution whereby the agricultural labour force shifted to manufacturing. This resulted a continuous economic development and led to a majority of the population being engaged in service or tertiary sectors; (ii) shift of population from rural to urban areas, as a result of which the process of urbanization occurred. So economic growth analysis in the developed countries should associate economic development with urbanization.

It is a well-known fact that since the studies of cities and urbanization have been confined largely to

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8. Kingsley, Davis and Hilda Hertz Golden, "Urbanization and the development of pre-industrial areas", Economic Development & Cultural Change, vol.3, 1954-5, p.8.

European and Western countries, many of the generalizations about urban phenomena are actually limited to Western experiences even though they are treated as universal phenomena.[9] But the experiences of developing countries or the Third World countries are not similar in terms of the process and pattern of urbanization to that of western countries.

There is an extensive debate on this issue of urban processes in two different worlds and two opposite viewpoints seem to have emerged on the academic scene. The Marxian interpretation of urbanization pays more attention to the ways in which urbanization processes are embedded in specific historical modes of production. More recently Marxian scholars have specifically directed their efforts towards understanding the 'nature of urbanization'. Harvey (1973, 1982), Casetells (1971), Pickvance (1978) and Gorden (1978) are the prominent scholars who, using Marxian concepts, have built framework to analyse the nature and pattern of urban growth. So from this perspective, urbanization cannot be understood independent of the production relations in the system.

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9. Ibid., p.6.

Castell has argued that urbanization has accompanied industrialisation but not because 'industrialization' per se has dominated, but because 'urbanization' was the expression of the capitalist logic that lay at the base of industrialization.[10]

The Marxian approach postulates that push factors play important role in the process of urbanization in Third World countries. Due to heavy pressure on land, people started migrating from rural areas to urban areas with a view to be employed especially in non-agricultural sector. They could not but engage themselves in unorganised urban sector which is at a very low level of productivity. As a consequence the tertiary sector expanded without secondary sector, which is alleged to be nothing but a spurious development in the Third World countries. Here, there is no systematic development from Primary sector to Secondary sector and then to Tertiary sector but a direct jump from Primary to Tertiary sector. No doubt, these push factors helpin the increase in urban population but can, in no way, help the process of healthy urbanization

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10. Timberlake Michael, "The World system perspective and urbanization" in Michael Timberlake (ed.), Urbanization in the World economy, Academic Press, New York, 1985, p.6.

and consequently it has been termed as urban aceretion.

In India, the present percentage of urban population is about the same as that of the United States in 1855. But urbanization is proceeding some what more slowly in India than in the United States at that time. This suggests that there are factors constraining India's economic development that were not in operation in America in its early history. Davis in fifties in the context of South and South-East Asian countries, observes that there is a process of '<u>Over-Urbanization</u>' which seems to be stronger in densely peopled agrarian countries.[11] Davis' concept of over-urbanization is later supported by Mc Gee (1967) as '<u>Pseudo urbanization</u>' and Breese (1969) as '<u>subsistence urbanization</u>'.

T.G. Mc Gee argued that the process of urbanization might be more accurately labelled as '<u>Pseudo urbanization</u>'. In some Third World countries, city growth is not to be equated with urbanization. Here, sectoral diversification it not occurring together with the redistribution of population from the rural to

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11. Kingsley Davis and Hild Hertz Golden, "Urbanization and the development of pre-industrial areas", <u>Economic Development and Cultural Change</u>, vol.3, 1954/5, p.16.

urban areas. This raises question regarding the possibilities of economic growth and the inevitability of the urban revolution.[12]

"In the context of Indian economy the theories of 'Over urbanization' was first challenged by N.V. Sovani."[13] He has questioned the 'push' factor as a result of increasing pressure on land in rural areas.[14] He held that while the increasing pressure on land has been a phenomenon for the last one century, the tremendous growth in urban population in such countries has occurred mainly during the last three or four decades. He even argues that excess urban growth could possibly be explained in terms of governmental investment in the few urban centres besides the push factors operating in the urban hinterland. He observes that the argument regarding the economic burden of rapid urbanization hampering economic growth in underdeveloped areas through misallocation of scarce capital resources may not be correct.

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12. Mc Gee, T.G., The Urbanization process in the III World: Explorations in search of a theory, London, 1971, p.25.

13. Kundu, A. and Sharma, R.K., "Industrialization Urbanization and Economic Development", Urban India, vol.3, No.1, 1983, p.52.

14. Sovani, N.V., Urbanization and Urban India, New York, p.9.

Kundu and Raza (1982) have also found a positive correlation between the growth of large cities' population and industrial workforce during the sixties, since the larger cities have a developed industrial base.[15] Their confidence in the causal relationship further was strengthened with the increase in urban population and the share of non-agricultural sector during 1971-81 at the macro level.[16] However, the regional pattern of growth of economy and urban population do not confirm to this generalisation,[17] as is evident in the cases of Orissa, Rajasthan, Andhra Pradesh and Madhya Pradesh. While talking about the process of urbanization in India, Ashok Mitra clearly discards the belief that India is over-urbanized and he maintains, if any thing it is 'over ruralised' since our rate of urbanization is one of the lowest in the world.[18]

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15. Raza, Moonis and Kundu, Amitav, Indian economy: the regional dimension, New Delhi, 1982, p.

16. Kundu, A. and Sharma, R.K., "Industrialization, Urbanization and Economic Development", Urban India, vol.3, No.1, 1983, p.52.

17. Ibid., p.53.

18. Mitra, A., "Urbanization, City structure and Urban land policy", Urban India, vol.3, No.1, p.26.

A section of the scholars, even go to the extent of claiming that the acid test of development lies in shift of population from the rural areas to the urban areas.[19] The effects of the process of urbanization are not confined to the economic transformation of a society, but their consequences are to be seen in the physical and social transformation of the people. These consequences further act forces conducive to the economic transformation of the society. In fact, urbanization is both a product of and a tool for development.[20] In other words, urbanization is to be seen both as a cause and effect of economic development.

The economic function of an urban centre is not limited to the people living within the municipal limits of the city but covers the economic life of these in the surrounding non-urban areas as well. These urban centres provide demand for the surplus agricultural production, supply inputs such as

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19. Dutt, R. and Sunderam, K.P.M., Indian economy, New Delhi, 1985, p.59.

20. Onyemelukwe, J.O.C., "Urbanization in a development context - patterns, problems and prospects in Nigeria" in Kayode, F. (ed.), Urbanization and Nigerian economic development, Ibadan, Nigeria, p.11.

fertilizer, pumping sets, tractors, engineering goods etc. in the region. This helps in accelerating the productivity levels of both land and labour. In sum, it can be said that the process of urbanization has a series of direct influences on the economy of any society. If it is seen from other way round, it can safely be said that the economic development also exerts influence on the process, pattern and pace of urbanization. The establishment of an individual plant in an entirely non-urban area but richer in terms of mineral resources, will in due course of time, attract ancillary and other manufacturing activities. The agricultural productivity would increase which will release workers from food producing sectors i.e. there would be a marked change in the occupational structure of the population. The increasing job opportunities would attract migrants from the neighbouring rural areas. The economic specialisation will move from agriculture to manufacturing, exchange and other services. This way of a few of the villages that were entirely based on the rural type of economy first turn to be small towns and finally develop into large urban centres whose economy no more depends on agriculture but on manufacturing and service sectors.

"The growth of urban centres also leads to changes in infrastructure which in turn further helps in regional development, industrialisation, transportation linkages, population distributed and the entire rural-urban continuum."[21] Hence "urbanisation is considered to be an important component of regional economic development."[22] The urban centres in any region are found to be providing a series of centralised services for its own population as well as for the surrounding regions.

In the preceding paragraph, the terms like economic growth and economic development have been quite frequently used. They, in layman's literature may seem to be synonymous and interchangeable, but in technical jargon they are sufficiently different from each other. But nonetheless, they are related processes. They act as both counterparts and competitors depending on the time span involved. This distinction is important both from theoretical and policy making stand-points.

Economic growth is a process of simple increase, implying more of the same while economic development

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21. Mandal, R.B. and Peters, G.L. (eds.), Urbanization & Regional Development, New Delhi, 1982, p.2.

22. Ibid., p.1.

is a process of structural changes implying economic growth plus something more. "Growth and development are different processes complementary in the long run but competitive in the short run. The distinction is one which ought to be recognized, if people really mean to communicate effectively with each other."[23]

Economic development is a discontinuous process, which following Rostow, Hoselitz and others, has been divided into 3 stages. The central period is a stage of "take off", the break with relatively stagnant or slow-growing economic past. Prior to the "take off" period is a time of building resources and skills, while subsequent to the take off is a state of self-sustained growth in economy.

Economic development is expected to achieve three things: (i) a rise in per capita income so that level of living of the people improves; (ii) A reduction in the rate of magnitude of unemployment; (iii) Reduction of population below the poverty line. To understand the impact of urbanization on economic development, it

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23. Flammang, RobertA., "Economic growth and economic development: Counterparts or competitors", Journal of Economic Development and Cultural Change, vol.28, 1979-80, p.6.

would be appropriate to take a comprehensive view of development and not to restrict its impact on only one variable i.e. per capita income.

In its broadest interpretation 'economic development' embraces a wide range of socio-economic, physio-political, and 'institutional changes, all of which are important in improving in some or other way, the standard of living or the quality of life of the population as a whole.[24]

So the concept of economic development is as complex as the concept of urbanization and consequently the study of the relationship between urbanization and economic development becomes an important subject matter in social sciences.

The process of development acts like an organic growth of a human body which is not a reversible process because one cannot revert the development, which has already taken place in one time and space but a decline may be the possibility in later stage. One can see the impact of urbanization through rural-urban migration, urban social structure, rural and urban economic order, inclusive of urban politics.

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24. Corner, Lorraine, Demographic Change and development, The Australian National University, 1982, p.1.

Level of urbanization has been taken as an index of economic growth. Specialization of activities based on surplus production, leads to urbanization. Industries, commerce and transportation have accelerated the process of urbanization in modern times. In developing countries like ours "level of urbanization can precede determination of level of regional development."[25]

However, it is not to be understood that the result of urbanization is always a positive phenomenon. In fact here lies the experience of the western countries during both the period of pre and post-industrial revolution. In the developed nations of the world, it was the strong economic pull factors that operated behind the process of urbanization. Contrary to this, the present day developing nations are experiencing the spurt in their urban population mainly because people are migrating to the urban areas in search of economic pursuits which are not sufficient for the growing pressure of population in the rural areas. The overall result is the growth of larger cities that

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25. Nair, N.G., "Level of Regional Urbanization and Development: A case study of Vidarbha (Maharashtra)" in R.B. Mandal and G.L. Peter (eds.), Urbanization and Regional Development, New Delhi, 1982, p.243.

are regarded as parasitic bodies draining the country side of people and resources and creating an increasingly unhealthy urban structure.[26]

On the basis of our experience of world urbanization it can be concluded that urbanization is a necessary but not sufficient condition for continued economic development, modernization and for raising the quality of life in general. Economic development and level of urbanization are complementary to each other and a side by side development in both the aspects is much desirable in the present context. A relatively voluminous body of literature, both analytical and descriptive is concerned with the relation of economic development to its antecedent and subsequent cultural change. There are statements that "the general nature of social transformation involved in economic development is contingent upon changes in social structure."[27] In a nutshell the relationship between the levels of urbanization and economic development could be treated as a bidirectional one and a subject for detailed empirical

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26. Wellisz, S.H., "Economic Development and Urbanization" in Leo Jakobson and Ved Prakash (eds.), Urbanization and National Development, Beverly Hills, California, 1971, p.40.

27. Nash, Manning, "Some social and cultural aspects of economic development", Journal of Economic Development and Cultural Change, vol.7, 1958-59, p.137.

investigation.

At present stage, the study of this postulated bi-directional relationship between the process of urbanization and economic development becomes more relevant in the developing and undeveloped regions of the world. This is mainly because during the recent past the growth of urban population has been tremendously high, while the economic development has been almost minimum.

In the preceding section the basic feature of the processes of urbanization and its economic consequences in such regions have already been dealt with. In a large country like India we have wide regional disparities in the levels of economic development. The state of Orissa is one among the least developed states in the country. The state has displayed a very high rate of growth of urban population, the levels of urbanization being one among the lowest. The present study therefore intends to explore the kind of interaction that has occurred between urbanization and economic development in Orissa during the period of 1961-81.

The state of Orissa is situated between 81^{o}-24' and 87^{o}-29' East longitude and 17^{o}-48' and 22^{o}-34' North longitude. It lies in the East coast of India

and is bounded in the north by Bihar, in the west by Madhya Pradesh, in the south by Andhra Pradesh and in the north-east by West Bengal. The state has got 482 kms of coast line. This state extends over an area of 155,782 square kms covering 4.74 per cent of the total area of India. It occupies tenth position among all states of the country in terms of size.

The population of Orissa is 26,272,054 in 1981 which is 3.84 per cent of the country's total population. The population is mostly confined to the fertile river valleys and coastal plains which provide scope for agriculture. There are 13 districts and 108 towns in 1981. The economy of Orissa is primarily agricultural. The crops grown in Orissa can broadly be classified in to cereals, pulses, oilseeds and cash crops. Orissa grows seven types of cereals, two major pulses, five types of oil seeds and nine types of cash crops in varying intensities. It is predominantly a rice growing land and the entire agricultural economy depends on rice production. Despite considerable industrial development since 2nd Five Year Plan, Orissa lags far behind in comparison to many other states of the country.

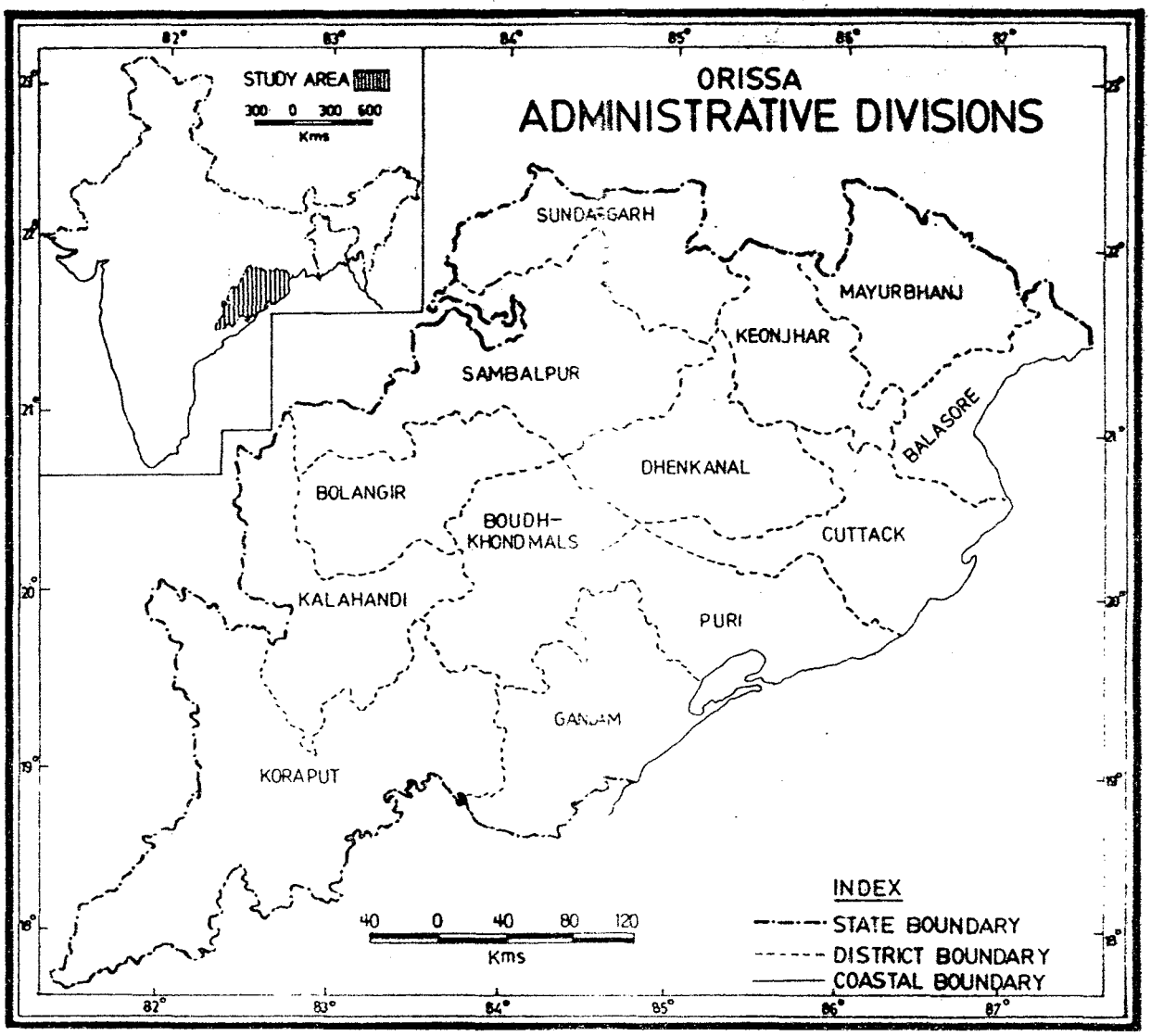
ORISSA
ADMINISTRATIVE DIVISIONS
STUDY AREA
300 0 300 600
Kms
SUNDARGARH
MAYURBHANJ
KEONJHAR
SAMBALPUR
BALASORE
DHENKANAL
BOLANGIR
BOUDH-
KHONDMALS
CUTTACK
KALAHANDI
PURI
GANJAM
KORAPUT
40 0 40 80 120
Kms
INDEX
STATE BOUNDARY
DISTRICT BOUNDARY
COASTAL BOUNDARY
82°
83°
84°
85°
86°
87°

Fig. 1.1

Objective:

Since economic development and urbanization are interrelated and interdependent on each other, so the major thrust of the study is to find out the relationship between economic development and urbanization in Orissa from 1961 to 1981.

The objectives of the study are as follows:

1. To study the spatio-temporal pattern of urban growth in Orissa (1961-81);
2. To analyse the spatial structure of economic development in Orissa district-wise, from 1961-81;
3. To examine the relationship between urbanization and development as manifested in spatial structure; and
4. To study the nature and levels of development in urban centres of Orissa in terms of their socio-physical infrastructural facilities.

DATA BASE & METHODOLOGY OF THE STUDY:

Whole data taken for the present study can be put under 3 categories:

(i) Demographic,

(ii) Agricultural, and

(iii) Non-agricultural.

(i) Demographic Aspects:

Data on the demographic aspects were mainly taken from the census volumes. They are General Population Tables of Orissa for 1961, 1971, 1981 published by the 'Census of India' and Population and Area of Cities, Towns and Urban Agglomerations 1872-1971 by Ashok Mitra and Ram Prakash Sachdev.

The following are the demographic indicators:

(i) Share of urban population to total population, district wise for 1961, 1971, 1981;

(ii) Share of population in small towns to the total urban population of the district for 1961, 1971, 1981;

(iii) Share of population in medium sized towns to the total urban population of the district for 1961-81;

(iv) Share of population in large sized towns to the total urban population of the district for 1961-81;

(v) Growth rate of small towns 1961-71 and 1971-81;

(vi) Growth rate of medium sized towns 1961-71 and 1971-81;

(vii) Growth rate of large sized towns 1961-71 and 1971-81;

(viii) Town density of 1961, 1971, 1981;

(ix) The density of new towns 1961, 1971, 1981.

(ii) Agricultural Aspects:

Agricultural development can be looked through mainly 3 factors, i.e. increase in area, improvement in the cropping pattern. All these following indicators are taken for early 1960's, 1970's, 1980's:

1. Output per hectare (land productivity)
2. Output per worker (worker productivity)
3. Per cent area cultivated
4. Per cent area irrigated
5. Cropping intensity
6. Growth in irrigated area
7. Fertilizer consumption in leg per one thousand hectare
8. Growth in agricultural output
9. Difference in land productivity between 1961-71
10. Difference in worker productivity between 1961-71
11. Difference in irrigated area between 1961-71.

The district-wise average figures for the net area sown, area sown more than once, total cropped area, net area under irrigation etc. were obtained from the Indian Agricultural Statistics published by the 'Directorate of Economics and Statistics, Ministry

of Agriculture'. Informations such as area under different crops, their output were obtained from the Agricultural situation in India published by the 'Ministry of Food and Agriculture, New Delhi'.

Data on the consumption of chemical fertilizers (NKP) have been obtained from 3 different sources for 3 different periods. For the average of (1) 1961 Effective demand for fertilizers in India, Govt. of India and IBRD, (2) 1971 Fertilizer Statistics published by the 'Fertilizer Association of India', New Delhi, (3) 1981 Statistics on fertilizer and agriculture in Eastern India, issued by the Fertilizer Association of India, Eastern Region, Calcutta. Besides all agricultural data of 1981 have been taken from Statistical Abstract of Orissa, Bureau of Statistics and Economics, Orissa, BBSR, Govt. of India, 1981.

Apart from these sources, there are other sources too, for some of the specific variables included in the present work. The district-wise figures of agricultural, growth rate for the period 1962-65 to 1970-73 are obtained from Population of India - Country Monograph, Series No.10 ESCAP - U.N., New York 1982. Crop-wise prices used in the computation of total agricultural output are taken from the book on

Performance of Indian Agriculture by G.S. Bhalla and Y.K. Alagh, New Delhi, 1979. District-wise values of output used in the computation of total land productivity are collected from the report on Food Grains Growth: A district-wise study, a joint work of Jawaharlal Nehru University and Planning Commission, New Delhi. These figures correspond to the periods 1962-65 and 1970-73. These money values were obtained for nineteen crops in the project by applying the average all India constant 1970-73 prices for both the periods. The money value for all the crops has been given in Appendix.

(iii) Non-agricultural Aspects:

Non-agricultural aspects of this study deals with the following indicators:

(1) Percentage of total factories, workshops, work-sheds to total number of census houses (1961-71);

(2) Percentage of urban factories, workshops, work-sheds to total number of urban houses (1961-71);

(3) Percentage of non-household manufacturing workers to total workers (1961-71);

(4) Percentage of household manufacturing workers to total workers (1961-71);

(5) Percentage of non-household manufacturing workers to total workers in urban (1961-71);

(6) Percentage of household manufacturing workers to total workers in urban (1961-71);

(7) Percentage of tertiary sector workers to total workers (1961-81);

(8) Percentage of tertiary sector workers to total workers in urban (1961-81);

(9) Difference in percentage of non-household manufacturing workers to total workers between 1961-71.

To make the above indicators the data have been collected from the (1) General Economic Tables of Orissa, Part II, B(i), (2) Housing and Establishment Tables, Part IV-B of 1961 and (3) for 1971, Housing Report and Tables, Part IV, Series 16, published by the Census of India.

Due to definitional change of the worker in 1961 census and in 1971 census, the data for 1961 is adjusted with that of 1971 to be compared. For this purpose General Economic Tables - 1961, Part II, B(ii), vol.XII, Orissa, published by Census of India is used.

Besides certain infrastructural indicators made for town-wise analysis for 1971 are collected from The Town Directory Orissa, Series 16, Part VIA

published by the Census of India, 1971. Following are the indicators:

1. Size class of the town
2. Population of the town
3. Growth rate of 1961-71
4. Growth rate of 1971-81
5. Sex ratio
6. Annual rainfall (in mms)
7. Distance of nearest city with the population of 1 lakh or more (in km)
8. Distance of state head quarter (km)
9. Distance of district head quarter (km)
10. Distance of sub-division head quarter/tahsil head quarter (km)
11. Bus route (distance in km from the main bus stand)
12. Railway line (distance in km from the negrest station)
13. Receipt through taxes (rupees per 1000 population)
14. Total receipt (rupees per thousand population)
15. Expenditure on general administration (rupees per thousand population)
16. Total expenditure (rupees per thousand population)
17. Road length in km (per thousand population)

18. Number of latrines
19. Protected water supply in '000 galons (per thousand population)
20. Number of domestic electric connections per thousand population
21. Number of industrial+commercial electric connections per thousand population
22. Municipal or non-municipal status of the town
23. Medical facilities
24. Educational facilities
25. Recreational facilities
26. Number of commodities manufactured
27. Number of banks agricultural-credit society and non-agricultural credit society
28. Household per 100 houses
29. Percentage of male literates
30. Percentage of cultivators
31. Percentage of agricultural labourers
32. Percentage of H.H. Industry
33. Percentage of other than H.H.
34. Percentage of construction workers
35. Percentage of trade and commerce workers
36. Percentage of other services
37. Male participation rate.

While articulating the level of medical, educational and recreational or cultural, banking and toilet facilities, the index is constructed with the help of some weightages given to different indicators. The index is given in the appendix.

For different purposes of the analysis, different methods are used. Taking the data for all the economic indicators at the district level, simple Correlation Coefficient Matrix is found out to see the degree of relationship among them.

To see the overall spatial structural development, Composite Index districtwise is constructed for 1961-81 by giving weightage to different indicators. The weightages were given by the method of Modified Principal Component analysis.

Stepwise Multiple regression district wise is applied for 1961-71 and 1971-81 to identify the explanatory variables for urbanization, urban growth and economic development.

Lastly, Simple Correlation Coefficient were obtained from the town-wise data to see whether the growth of urban centres can be explained in terms of their socio-physical amenities.

CHAPTER II

MACRO ECONOMIC SCENARIO OF ORISSA

The present chapter deals with the macro economic scenario of Orissa for the period from early sixties to early eighties. A detailed account of agricultural and industrial development in the state are being presented in chapter IV of this study. Hence in the present chapter, the economic indicators like 'net state domestic product' (net SDP) and per capita SDP and changes therein are being discussed.

Orissa is one among the economically most backward states of the Indian Union. Despite concerted efforts made during the planned economic era, the state still occupies the lowest rank in terms of the levels and the growth of economy. Per capita income in the state is barely a little more than two-thirds of the nation's average. Until 1977-78, 66.4 per cent of the population of the state was found to be living below the poverty as against the nation's average of only 48.1 per cent.[1]

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1. Dutt, R. and Sundram, K.P.M., Indian economy, New Delhi, 1985, p.62.

State domestic product (SDP) is one among the factors which is quite frequently used by the economists to measure the levels of economic development. Singh[2] has worked out the figures for net SDP at constant prices (1960-61) during the post-independent period. The state has recorded continuous increase in the net SDP during 1960-63 to 1977-80. In 1960-63, the net SDP valued Rs.400 crores, which became Rs.563 crores and Rs.673 crores in 1970-73 and 1977-80 respectively. However, this net addition could not keep pace with the growth in nations average and the result being the constant decline in Orissa's share in the country's average net SDP from the early sixties to early eighties. When the share of net SDP figures are compared with the share of population, we get a very alarming picture. In 1961, Orissa contained nearly 4.00 per cent of the population of the Indian union, while its share in the net SDP was only 2.91 per cent. Between 1961 and 1971, the shares of the two remained almost unchanged. From 1971 to 1981, while population share declined marginally, from 4 per cent to 3.84 per cent, the share of net SDP came down from 2.91 per cent to 2.61 per cent. Again, from the share point of view, Orissa occupies one among the lowest ranks in India.

2. Singh, A.K., "Inter-state Differences in levels and rates of growth of income in India: 1951-81" in G.P. Misra (ed.), Regional structure of Development and Growth in India, vol.1, New Delhi, 1985, pp.53-67.

Table II.1: Net State Domestic Product at Constant Prices (1960-61)

(Rs. crores)

States	1960-63	1970-73	1978-81
Andhra Pradesh	1032 (100.0)	1334 (129.3)	1739 (173.4)
Assam	268 (100.0)	408 (152.2)	531 (198.1)
Bihar	1032 (100.0)	1268 (122.9)	1530[a] (148.3)[a]
Gujarat	785 (100.0)	1127 (143.6)	1448 (184.4)
Haryana	245 (100.0)	443 (141.1)	604[a] (246.5)[a]
Jammu and Kashmir	97 (100.0)	138 (142.3)	199 (205.1)
Karnataka	577 (100.0)	908 (157.4)	1104 (191.1)
Kerala	441 (100.0)	648 (146.9)	753[b] (170.7)[b]
Madhya Pradesh	823 (100.0)	1106 (134.4)	1232 (149.7)
Maharashtra	1612 (100.0)	2156 (133.7)	3324 (206.2)
Orissa	400 (100.0)	563 (140.8)	673[a] (168.3)[a]
Punjab	383 (100.0)	648 (169.2)	916[a] (239.2)[a]
Rajasthan	594 (100.0)	795 (133.8)	995 (167.5)
Tamil Nadu	1120 (100.0)	1486 (132.7)	1791 (159.9)
Uttar Pradesh	1857 (100.0)	2325 (125.2)	2855 (153.7)
West Bengal	1348 (100.0)	1696 (125.8)	2027 (150.4)
INDIA	13754 (100.0)	19334 (140.6)	25830 (187.8)

Note: a=Average for 1977-80; b=Average for 1976-80; Figures in parantheses show index with 1960-61=100.

Source: Ajit Kumar Singh, "Inter-State Differences in Levels and Rates of Growth of Income in India: 1951-81" in G.P. Mishra (ed.), Regional Structure of Development and Growth in India, vol.1, New Delhi, 1985, p.55.

Table II.2: Orissa's share of Population and value of net SDP of India

Population		Net SDP*	
Year	Percentage share	Year	Percentage share
1961	4.00	1960-63	2.91
1971	4.00	1970-73	2.90
1981	3.84	1977-80	2.61

* Three year average.

Source: (a) M.K. Premi, Introduction to Social Demography, New Delhi, 1983, p.68.

As far as the compound annual growth in the net SDP is concerned, Orissa had recorded 3.42 per cent growth during the period 1960-63 to 1970-73 and ranked eighth among the other states. This rate of growth

Table II.3: Annual Rates of Growth (Compound) in S.D.P. at Constant Prices

States	1960-63 to 1970-73	1970-73 to 1978-81	1960-63 to 1978-81
Bihar	2.07 (16)	2.68[a] (9)	2.33[a] (14)
Madhya Pradesh	2.96 (9)	1.34 (16)	2.24 (16)
Orissa	3.42 (8)	2.45[a] (11)	3.08[a] (9)
Uttar Pradesh	2.24 (15)	2.57 (10)	2.38 (13)
INDIA	3.41	3.62	3.42

Note: Figures in parantheses show rank
(a) Average 1977-80; (b) Average 1976-79

Source: As given in table No.II.1 (p.33).

declined considerably during the following decade (i.e. 1970-73 to 1977-80), when it was 2.45 per cent only, giving only eleventh rank in that order. During these two periods, the corresponding figures for India were 3.41 per cent and 3.62 per cent respectively. This declining trend in the annual compound growth rate contrary to India's condition is an indicator of increasing inequality in India. This trend in the growth of SDP coupled with an increasing and high rate of growth in population ultimately results in declining or sluggish change in the per capita net SDP and per capita income of any region. This is exactly what has happened in Orissa during the period under study.

Table II.4 shows that till early eighties, per capita SDP was well below the national average at constant prices (1960-61). The per capita SDP was around Rs.226 during the period 1960-63, as against the national average of Rs.310. Though this state figure moved upto Rs.254 in 1970-73, it was still much below the nation's average of Rs.349 during the same period. Again at the beginning of 80's, while the state's figure was only Rs.263, the corresponding figure for India as a whole stood at Rs.389. Along

Table II.4: Per Capita SDP at constant prices (1960-61)

States	1960-63	1970-73	1978-81
Andhra Pradesh	284 (100.0)	304 (107.0)	345 (121.5)
Assam	309 (100.0)	343 (111.0)	352 (113.9)
Bihar	220 (100.0)	239 (108.6)	251[a] (114.0)[a]
Gujarat	376 (100.0)	403 (107.2)	419 (114.4)
Haryana	329 (100.0)	436 (132.5)	502[a] (152.6)[a]
Himachal Pradesh	259 (100.0)	376 (145.2)	386 (149.0)
Jammu and Kashmir	268 (100.0)	296 (110.4)	342 (127.6)
Karnataka	300 (100.0)	355 (118.3)	368 (122.7)
Kerala	295 (100.0)	301 (116.2)	298[a] (115.1)[a]
Madhya Pradesh	251 (100.0)	262 (104.4)	245 (97.6)
Maharashtra	403 (100.0)	423 (105.0)	547 (135.7)
Orissa	226 (100.0)	254 (112.4)	263[a] (116.4)[a]
Punjab	374 (100.0)	499 (133.4)	629[a] (168.2)[a]
Rajasthan	295 (100.0)	310 (105.0)	318 (107.8)
Tamil Nadu	329 (100.0)	356 (108.2)	407 (123.7)
Uttar Pradesh	249 (100.0)	261 (104.8)	277 (111.2)
West Bengal	383 (100.0)	379 (99.0)	381 (99.5)
INDIA	310 (100.0)	349 (112.6)	389 (125.5)

Notes: a = Average for 1977-80
Figures in parantheses show index with 1960-61=100

Source: As given in Table II.1, p.60.

with Orissa, the other states showing very lower per capita net SDP are Bihar, M.P., U.P. etc.

Taking the per capita SDP, in 1960-63, as base (100.00), we find that while the state's figure moved from 112.4 in 1970-73 to merely 116.4 in 1977-80, the corresponding figures for India were 112.6 and 125.5 (in 1978-81) respectively. The other states mentioned above also recorded very slow progress during the period. While index for Bihar and U.P., in 1978-81, could hardly reach the figures 114.0 and 111.2 respectively, it came down in the case of M.P., which stood at only 97.6. Though during the decade 1960-63 to 1970-73, the gap between the annual compound growth rates in per capita SDP at constant prices (1960-61) of the state of Orissa and the country as a whole was minimal (the figures being 1.16 per cent and 1.18 respectively), in the next decade i.e. 1970-73 to 1977-80, it was drastically widened. From 1970-73 to 1978-81, while Orissa recorded an annual compound growth of merely 0.50 per cent, the same for the country was around 1.37 per cent. The averages rates of growth for Orissa and India during 1960-63 to 1978-81 were 0.88 and 1.26 per cent respectively. The other poor states like,

Table II.5: Annual Compound Growth Rate in Per Capita SDP at constant prices (1960-61)

States	1960-63 to 1970-73	1970-73 to 1978-81	1960-63 to 1978-81
Bihar	0.83	0.7*	0.78*
Madhya Pradesh	0.44	-0.8*	-0.13
Orissa	1.16	0.5*	0.88*
Uttar Pradesh	0.57	0.73	0.59
INDIA	1.18	1.37	1.26

Note: * Upto 1977-80.

Source: As per Table II.1 (p.33).

M.P., U.P., and Bihar also recorded growth rate well below 1 per cent during the same period. Hence both in terms of levels of per capita SDP and the growth in it over time, Orissa occupied one among the lowest positions in India.

Tewari[3] has worked out the annual growth rate of per capita income in India during 1960-71 (at 1960-61 prices) and 1972-80 (at 1970-71 prices). It was found that Orissa was one of the two states (the

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3. Tewari, R.T., "Inter Regional Disparities in Levels of Development" in G.P. Misra (ed.), op. cit., pp.102-26.

other being M.P.), which experienced decline in the annual growth rate in 1972-80 as compared to the previous decade i.e. 1960-70. The rest of the states has recorded increase in their rate of growth.

Table II.6: State-wise Annual Growth Rate of Per Capita Income

States	Annual Growth Rate	
	During 1960-70 (at 1960-61 prices)	During 1972-80 (at 1970-71 prices)
U.P.	-0.432	0.380
Bihar	-0.350	1.123
Orissa	2.860	0.469
M.P.	-0.215	-0.491
INDIA	0.892	1.752

Source: R.T. Tewari, "Inter Regional Disparities in Levels of Development" in G.P. Misra (ed.), op. cit., p.113.

It is observed from the above table that Orissa recorded an annual growth of 2.86 per cent in per capita income during the decade 1960 to 1970, which was above the nation's average during the same period. This goes against the results of Singh's analysis. However, Orissa's growth rate came down drastically in the following decade (1972-80), while the country's figure increased significantly, the facts that were also noted by Singh (1982).

The task force set up by the Planning Commission to report on Housing and Urban Development has analysed the regional variation in per capita income at 1970-71 prices. The analysis shows that there has been significant increase in interstate inequality during 1961-81, and Orissa has contributed to this process of accentuation of regional imbalance. It is interesting that this analysis also suggests that the performance of the state economy was not bad during sixties. In fact, the growth rate in per capita income of the state was 38% as compared to the figure to only 21% of country as a whole. The situation changed drastically during the following decade. The per capita state NDP reporting a decline of over 5%. The corresponding decadal growth rate for India was positive and more than 7%. It is thus clear that Orissa's economy faced a major crisis in the seventies.

Keeping this broad macro economic change in mind, we now propose to discuss the processes of urbanization and economic development and the interrelations between them in the forthcoming chapters.

CHAPTER III

URBANIZATION IN ORISSA

Constituting an area of 4.74 per cent, Orissa claims 3.84 per cent population of the country in 1981 which is about 26.3 million. Among the states and Union territories, Orissa ranked eleventh in terms of the size of population. Except during the period 1911-21 when the total population of the State has declined, for the other decades there has been an acceleration in the growth rate of total population. Similar situation is noticed in case of the country as a whole. The state recorded a population growth rate of 25.05 per cent during the decade 1961-71 but this growth in the population drastically came down to 19.72 during the subsequent decade. The all India growth rate stood at 24.80 per cent and 24.75 per cent during 1961-71 and 1971-81 respectively. As per the figures of 1981 census, it is noted that nearly 170 persons are living in on an average in one square kilometre whereas the average density of the country stands at around 223 persons per km^2. In fact, density wise it has remained much below the Nation's average throughout the census history. A brief look at the population

distribution among the districts makes it clear that it is very uneven. While Cuttack records a density figure of 414 persons per km^2, the corresponding figure for Boudh-Khondmals is only 64 persons/km^2. Only four districts viz. Cuttack, Balasore, Puri and Ganjam show higher density than the state average.

GROWTH OF POPULATION:

A wide range of variation can be noticed in the pattern of growth of population from one district to another. Table III.1 gives the decenial growth rate of population for all the districts during 1961-71 and 1971-81. It is seen that during 1961-71 five districts: Sundergarh, Keonjhar, Balasore, Dhenkanal, Koraput and Puri recorded higher growth rate than the state average, the highest being in the case of Sundergarh. During the decade 1971-81, more than half of the districts recorded higher growth rate than that of the state's average and again it was Sundergarh which recorded the largest growth among the districts. Bolangir and Mayurbhanj have the lowest growth rate of population during 1961-71 and 1971-81 respectively.

It is revealed that Orissa as a whole as well as all the districts except Sambalpur have experienced a declining trend of growth of rate of population from

Table III.1: Decenial Growth Rate of Population, district-wise, 1961-71 and 1971-81

State/ Districts	Percentage growth rate of population	
	1961-71	1971-81
ORISSA	25.05	19.72
Sambalpur	22.29	23.27
Sundergarh	35.87	29.69
Keonjhar	28.55	16.14
Mayurbhanj	19.12	9.96
Balasore	29.28	23.09
Cuttack	24.96	20.64
Dhenkanal	26.04	21.84
Boudh-Khandmals	20.85	14.65
Bolangir	18.24	14.96
Kalahandi	22.92	14.26
Koraput	30.89	20.75
Ganjam	22.50	15.65
Puri	25.51	24.39

1961-71 period to 1971-81. Besides, there are five districts namely Sundergarh, Balasore, Dhenkanal, Koraput and Puri which have been experiencing high growth rate of population than the state average during both the decades. This could be explained in case of Sundergarh, in terms of the establishment of steel plant in Rourkela in mid-fifties. Similarly, Puri, being a district of historical as well as

touristic importance, having the capital city where a large scale of Government investment is made, has the advantage of high growth rate of population. But so far as Balasore, Dhenkanal and Koraput districts are concerned, this high growth rate of population may be due to their backwardness. This hypothesis gets strengthened when we look at the growth rates of some developed districts like Sambalpur, Cuttack and Ganjam that are relatively lower. Comparatively lower growth rates are found in the districts like Mayurbhanj, Bolangir, probably because of mass out-migration of population as a result of poor and stagnant economy.

LEVELS OF URBANIZATION:

For measuring urbanization a number of measures have been used in the literature. One very simple method is to consider the share of total population living in the urban areas as an index of urbanization. By this measure Orissa is one of the least urbanized states in India, since a little more than 11 per cent of its total population is found in the urban areas as against the average figure of around 24 per cent in the year 1981. The percentage share of urban population has increased very marginally since the

dawn of current century. During the pre-Independence period, the urban share of population increased merely from 2.47 per cent in 1901 to 3.00 per cent in 1941.

Table III.2: Levels of Urbanisation in Orissa, 1901-1981

Census year	No. of Towns	Total Urban Population (in '000)	Levels of Urbaniza-tion
1901	14	254.68	2.47
1911	18	275.16	2.42
1921	20	281.50	2.52
1931	21	317.25	2.54
1941	29	412.53	3.00
1951	39	594.07	4.06
1961	62	1109.65	6.32
1971	81	1845.40	8.41
1981	103	3132.56	11.82

The year 1911 is even marked with a slight fall in the share. This is precisely because of the fact that during 1901-11 the growth rate of urban population was much smaller than that of rural population. It is the post-Independence period where we experienced continuous but gradual increase from 4.06 per cent in 1951 to 6.32 per cent in 1961, 8.41 per cent in 1971 and finally 11.82 per cent in the year 1981. A similar

trend is noticed in the decenial changes in the levels of urbanization for the country as a whole during the present century. The urban share of population increased sluggishly from 10.8 per cent in 1901 to 13.9 per cent in 1941. The first census of independent India recorded 17.3 per cent of the total population in urban areas and this share increased to a little less than 24 per cent in 1981.

GROWTH OF URBAN POPULATION:

If the decadal rate of growth in population is looked (Table III.3) into, we again come across two distinct phases - the pre-Independence phase and post-

Table III.3: Growth of Urban Population

Census year	Decadal growth rate of urban population		Decadal Urban-Rural Growth differentials		Decadal growth rate of Urban popn above 20,000
	Orissa	India	Orissa	India	Orissa
1901	8.34	-	-	-	-
1911	8.04	0.3	-2.46	6.1	-1.54
1921	2.30	8.3	4.34	9.6	-15.58
1931	12.70	19.1	0.78	9.2	31.22
1941	30.03	31.9	20.32	20.1	11.20
1951	44.01	41.4	38.80	32.6	68.35
1961	86.79	34.0	69.80	15.0	104.06
1971	66.30	37.8	44.04	16.0	113.13
1981	70.02	46.0	54.93	27.0	82.10

Independence phase. It is revealed that growth rate of urban population during pre-Independence phase was much lower than that of the post-Independence phase. During the first decade in present century the decadal percentage increase in urban population was well below 10 per cent. Even this growth rate has gone down to 2.3 per cent during 1921-31. The death toll, being very high as a result of severe natural calamities during this period is one of the main causes of this extreme low rate of population growth. This phenomenon had profound effects on the overall population growth throughout the country. It is only during 1921-31 and 1931-41, that the urban growth exceeded 10 per cent mark, the figures being 12.70 and 30.03 per cent respectively. This low level of urban growth during the pre-Independence period was the result of stagnant colonial economy. The exploitative economic strategy of the British Government never allowed the local economy to prosper and as a result of it, the urban industrial growth was minimal.

However, the post-Independence period experienced some growth in the urban population. The rapidly growing economy as a result of the establishment of industries and their ancillary activities during the planned since fifties resulted in substantial spurt in urban population.

The growth of urban population during the first decade of planned economy (i.e. 1951-61) was nearly double of the previous decade. While the urban growth during 1941-51 was only 44.01 per cent, it jumped to 86.79 per cent during 1951-61. This was the largest growth rate during the whole decades of current century, which is probably because of the inmigration of population to the urban areas with the beginning of industrial era during 2nd Five Year Plan. The emerging better opportunities in the urban areas attracted people from the surrounding rural areas and this along with natural increase resulted in certain spurt in population. The urban growth in the following decade (1961-71) however came down to 66.30 per cent. With a marginal increase, it rose to 70.02 per cent during 1971-81.

Changes in the levels of urbanization is the function of urban-rural growth differentials (URGD) over time. This measure provides a very good idea of the process of rural-urban transformation.[1] It is observed that till 1931 urban and rural growth ran very close to each other and it is only after the year 1931 that they showed a diverging trend. The

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1. Mishra, S.K. & Puri, V.K., op. cit., p.185.

largest URGD is recorded during 1951-61.

While dealing with the data on urban population it should be kept in mind that the definition and concept of urban areas keep changing from census to census and it becomes very difficult to compare the figures over time. These definitional changes result in both inflation and deflation of the size of urban population. However, it is seen that such changes generally affect the lower order towns. Hence it would be highly meaningful to analyse the pattern of decadal growth rate of urban population above a certain cut-off point. Scholars generally take the population of class III and above towns for such analysis. When this is worked out for Orissa, some interesting features emerge out. Firstly during the first two decades of the present century there occurred a negative growth in urban population of such town, while there was a positive, though moderate, growth in total urban population during the same period. This was because the expansion of urban population was mainly due to the inclusion or reclassification of lower order towns. This way while urban population in class III and above towns declined considerably, total urban population

managed to increase somehow at a very slow rate. Secondly, excepting the periods 1931-41 and 1971-81, the decadal growth rate kept increasing. The highest being 113.13 per cent recorded during 1961-71. It should be recalled that the decadal growth rate of total urban population declined considerably during 1961-71 in comparison to previous decade. In the case of class III and above towns we find a record of growth rate during the same period. This unconformity can be explained by the fact that in 1971 census not many additions were made in the lower order towns and a major portion of the net increase in the total urban population came from the towns having population of 20,000 and above. And finally the rate of growth of population in class III and above towns has been considerably larger than the overall urban growth rates with exceptions of 1931-41 and of course the first two decades which experienced negative growth.

Distribution of Urban Population by size classes:

One of the basic features of the process of urbanization, in the third World countries, is the fact that the larger part of urban growth is shared by the higher ranking cities, which therefore claim a high share of the total urban population. There exists a complete absence of balanced growth of towns

Table III.4: Population distribution in different size categories 1961, 1971 and 1981

Size Category	1961 (% share)	1971 (% share)	1981 (% share)
Large	13.19	38.28	41.21
Class I	13.19	38.28	41.21
Medium	40.82	33.11	35.25
Class II	20.55	3.94	14.98
Class III	20.27	29.17	20.27
Small	45.99	28.61	23.54
Class IV	27.99	15.47	16.85
Class V	17.13	12.69	6.24
Class VI	0.87	0.45	0.45

in different sizes. The dominant towns being few in numbers grow very rapidly at the cost of towns of the lower orders, the result being the continuous tilting of the share of population in the favour of larger towns. Table III.4 gives the share of urban population in different sized categories for the years 1961, 1971 and 1981. It is seen that large towns have experienced continuous increase in their share while the medium and small towns have lost their share considerably from 1961-81. In 1961 only 13.19 per cent of total urban population was living in the class I towns. This share increased to 38.28 per cent in 1971 and

41.21 per cent in 1981. The medium sized towns recorded notable fall in the share between 1961-71 and during the next decade. However it recorded a modest increase. The small towns suffered heavily as their share came down drastically from nearly 46 per cent in 1981 to 28.61 per cent in 1971 and 23.54 per cent in 1981.

PATTERN OF GROWTH OF TOWNS IN DIFFERENT SIZE CLASSES:

One way of looking into the process of urbanization is to see through the growth rate of population in different size classes. Census organization divides the total urban population into six different categories for each census decade and this is taken to calculate the percentage growth rate. It was mentioned earlier that the size statuses of urban centres change from one census to another and this distorts the real picture of the process of growth over time. Apart from this the process of reclassification and declassification of urban centres also distorts the exact pattern. However, this problem can be solved by taking the growth rate of the total population of towns in a category in the base year and the population of the same towns in the succeeding time point, irrespective of the status of the towns taken.

Table III.5: Urban Growth Rate by size classes

Size Category	Per cent Growth Rate 1961-71	1971-81
Class I	382.88	83.00
Class II	-74.57	546.81
Class III	189.32	18.18
Class IV	-4.99	85.25
Class V	29.07	-16.32
Class VI	13.44	65.11

Here in the following paragraphs, the growth pattern of towns of different classes is presented in both ways - one which seeks the percentage change in population of each class for each census, and other which concerns the population of towns of a category in the base year and change in its population, irrespective of any change in their status in succeeding time point.

Table III.5 does not lead us to any meaningful conclusion, as we come across some unusual fluctuations in the pattern of growth. It is just because of the fact that the size status of each town keeps changing from one census to another and so the total population in each class. The negative growth in class II towns for example during 1961-71 can be explained by the fact that a majority of class II towns in 1961 attained the

status of class I in 1971 and not because they experienced shrink in their population. The same can be applied in the case of other classes. The belief about the faster growth of larger cities persists because tabulations are usually based not on individual cities/towns but on size classes. Hence the simplistic generalisations about the growth pattern that the larger towns are growing at the cost of lower ones are unlikely to be helpful in the formulations of a development strategy.[2]

Table III.6: Urban Growth Rate by Size classes*

Size Class	No.of towns in 1961	Total Popn 1961	Total Popn 1971	Growth Rate of 1961-71	No.of towns in 1971	Total Popn 1971	Total Popn 1981	Growth Rate of 1971-81
Class I	1	146308	205759	40.63	5	706499	1191810	68.69
Class II	4	285771	467923	63.74	1	72674	101089	39.10
Class III	7	186028	310241	66.71	18	503911	774689	53.74
Class IV	20	287336	414966	44.42	21	285528	402287	40.89
Class V	25	187424	263588	40.63	27	221122	323032	46.09
Class VI	2	6901	10472	51.75	2	8358	10159	21.55

* Worked out on the basis of total towns' population in each category of the base year.

2. Kundu, Amitabh, "Urbanization and the structure of human settlements, An analysis of the trends in the context of strategies for regional development" in K.P. Bhattacharya (ed.), Human Settlement, p.47.

From Table III.6 it is observed that class V and I towns have experienced the lowest growth rate during 1961-71 whereas class III and II towns have experienced the highest growth rate. It should be recalled that in the year 1961, there was only one class I town and this growth rate of class I town stands at 40.63 per cent. The medium sized towns of 1961 have recorded substantial gorwth in their populations and many of them improved their statuses by the 1971 census. It was found that a little more than two-fifths of the total urban population was confined in the medium sized towns, hence a major share of the urban growth came from such towns between 1961-71.

It is again revealed from the table that the variation in the growth pattern of different classes has been further accentuated during the next decade i.e. 1971-81. The standard deviation, worked out for the growth rates of both the two periods justify this generalisation. In the developing countries, the limited choice areas of investment of resources with expectations of getting quick returns, result in the imbalanced growth of towns and cities of different sizes. In India, from the second five year plan itself, large investments were made in various sectors of the economy

Its effects in space can be noticed in the seventies - the difference in the growth rates of cities and towns become much more notable. In Orissa also by the seventies, there appears to be sufficient amount of evidences which show regional imbalance in the growth rates of cities and towns. During 1971-81, the large towns - the class I towns - recorded the highest growth (68.69 per cent). As against this, the class VI towns recorded the lowest growth over the decade, the less than half of the previouse decade. One remarkable fact is that the class II towns experienced considerable decline in the growth rate in 1971-81 as compared to the previous decade.

Of the class II towns in 1961, viz. Sambalpur, Rourkela, Berhampur and Puri, all except Puri attained the status of class I category in 1971. Puri being an entirely historical and religious centre, could not compete with the other towns of industrial base and hence it recorded a very modest growth over the decade 1971-81.

It is usually suggested that the class I urban centres show a smaller range of disparity in the individual growth rates, in comparison to the towns

of the lower categories.[3] This disparity is having a decreasing trend in the higher order towns and just reverse is noticed in the lower order towns. Thus, the larger towns/cities are showing an indication of temporal stability in their economic base.[4] In the present case, as has been already seen, there was only one class I town$ in 1961. Therefore, comparison cannot be made between the standard deviations for two periods for this class of towns. However, we shall see the changes in the figures for standard deviation of the rest of the four size categories.

Size Category	1961-71	1971-81
I	-	24.89
II	27.98	-
III	49.49	23.59
IV	35.48	13.54
V	44.67	52.77
VI	51.70	41.10

It is seen that class III and IV towns have experienced considerable decrease in the disparity of their growth pattern. The class VI towns have also experienced a

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3. Ibid., p.47.

4. Ibid., p.47.

slight decrease in the disparity level. However, the class V towns have recorded further increase in the disparity in growth.

Taking the growth rate of individual towns in different categories, the frequency distribution has been worked out for the state during 1961-71 and 1971-81.

Table III.7: Frequency distribution of decadal growth rates of towns and cities*

Decadal rate of growth	Decadal growth rate during 1961-71			Decadal growth rate during 1971-81		
	Large Towns	Medium Towns	Small Towns	Large Towns	Medium Towns	Small Towns
Less than 40%	-	45.45	47.62	20.00	26.32	66.00
40% - 80%	100	27.27	33.33	40.00	63.16	22.00
80% - 120%	-	18.18	14.29	40.00	5.26	10.00
120% - 160%	-	-	2.38	-	5.26	-
160% and above	-	9.09	2.38	-	-	2.00
Total	100%	100%	100%	100%	100%	100%

* Growth rate worked out for the towns in a category in the base year.

It is a fact that there were as many as 50 small towns and 12 medium sized towns whereas there was only one class I town in 1961. So the towns having the growth rate between 8 per cent to 12 per cent till 16 per cent and above are nothing but the freak towns who would

definitely experience a higher growth rate.

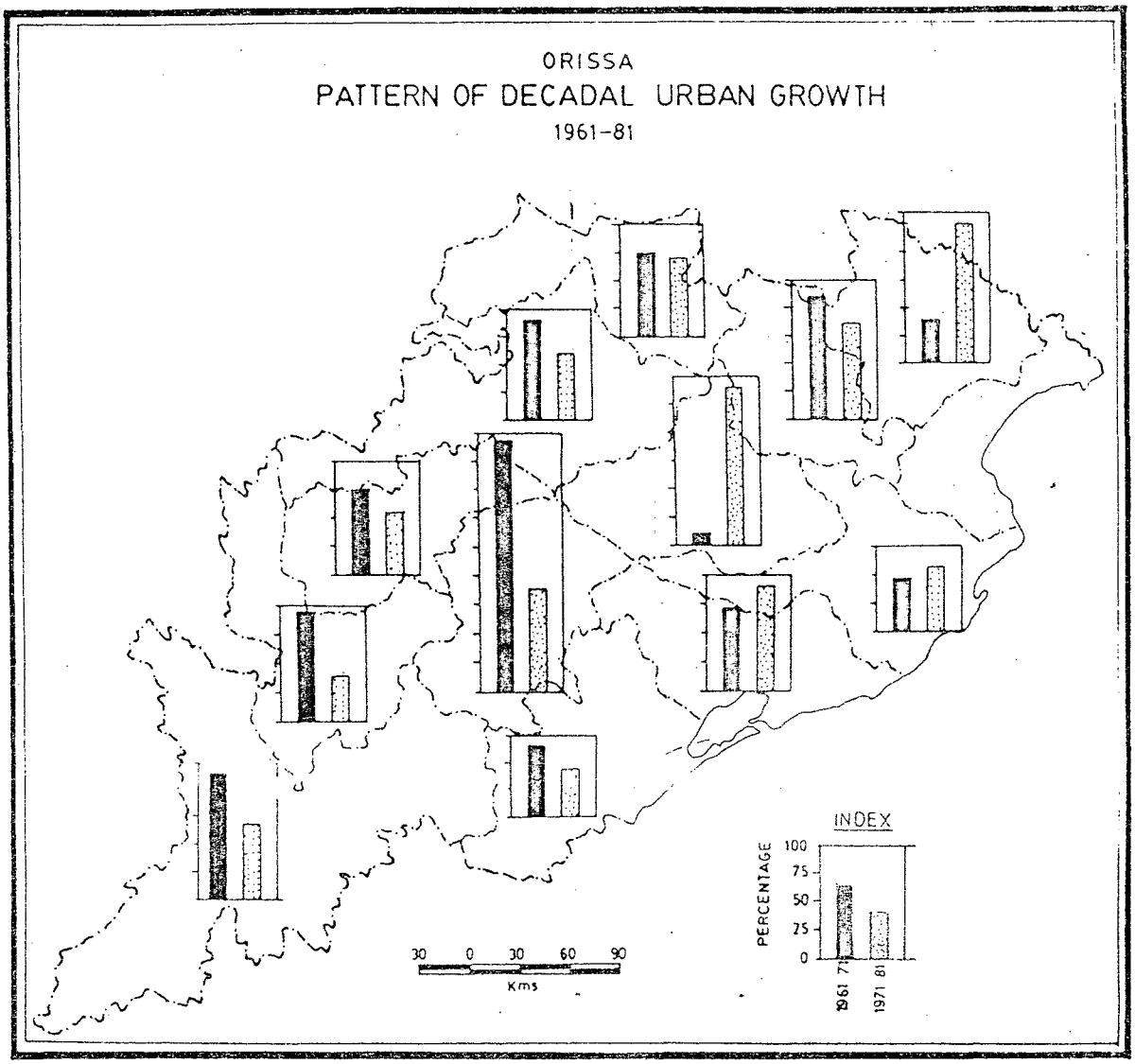
Over the next decade, however the frequency distribution of towns in the various class intervals of growth rate comes very close to the general belief that a larger number of smaller order towns experience very small rate of growth in their population while on the contrary a majority of the large towns/cities record comparatively higher growth rate. Nearly 80 per cent of the total class I towns in 1971 record decadal growth between the range of 40 to 120 per cent. The medium sized towns too follow more or less the same pattern whereas as many as three-fifths of these towns increase their population with a rate of 40-80 per cent between 1971-81. Nevertheless smaller order towns show little change in the pattern. The proportion of the small towns recording less than 40 per cent decadal growth has further increased in comparison to the previous decade. It can be concluded that during these 20 years, the large and medium towns though with varying degree, have shown a tendency of higher decadal growth. As against this the small towns show a low growth rate, several of them stagnating over time.

Regional pattern of urban growth:

The process of urbanization can also be studied through the spatial pattern of demographic expansion in the urban centres of various size-categories. It is noted (Table III.8) that the highest urban growth during 1961-71 was recorded by the poorest and least urbanized districts like Boudh-Khandmals, Koraput and Keonjhar, Kalahandi etc. During 1971-81 Keonjhar, Sundergarh, Dhenkanal, Mayurbhanj come up as fast urbanizing districts. These districts record extraordinary

Table III.8: District-wise pattern of urban-growth decadal 1961-81

Sr. No.	Name of the districts	All Towns		Towns above 20,000 popn	
		1961-71	1971-81	1961-71	1971-81
1.	Sambalpur	92.22	59.24	219.5	66.0
2.	Sundergarh	76.55	70.25	101.10	83.5
3.	Keonjhar	110.70	87.45	-	359.6
4.	Mayurbhanj	40.57	126.57	41.5	84.5
5.	Balasore	89.80	85.64	46.5	68.8
6.	Cuttack	46.51	55.45	71.00	80.5
7.	Dhenkanal	10.03	138.77	-	-
8.	Boudh-Khandmals	221.42	85.08	-	-
9.	Bolangir	74.52	53.45	-	113.2
10.	Kalahandi	97.92	42.36	-	62.5
11.	Koraput	117.30	67.47	330.5	47.5
12.	Ganjam	66.74	46.23	45.1	34.7
13.	Puri	71.77	88.62	110.1	84.9


ORISSA
PATTERN OF DECADAL URBAN GROWTH
1961-81
INDEX
PERCENTAGE
100
75
50
25
0
1961 71
1971 81
30 0 30 60 90
Kms

rate of growth in their urban population merely because of the fact that the base population in their urban areas is very small and even a small absolute addition results comparatively in larger rate. Besides, the economic backwardness of these districts must have accelerated both, the natural increase through higher birth rate and net additions through outmigration from the stagnant rural areas. The case of Sundergarh, Koraput can perhaps be explained in terms of their rapid industrialisation.

It is generally accepted that a district having sound economic base experiences comparatively faster growth in the towns having population of 20,000 and above. This way the growth pattern in such town can provide an indirect insight in to the urban hierarchy and the economic condition. Districts like Sundergarh, Sambalpur and Koraput which are going through a process of heavy industrialisation have recorded comparatively higher growth in such towns than the overall urban growth during 1961-71. In the following decade Keonjhar records the highest growth in such towns. It is seen that in 1961, this district did not have any such urban centre and the high growth between 1971-81 is the result of very small size of population in the base year. During this decade the other districts

which recorded higher growth in such towns than the overall urban growth are Sambalpur, Sundergarh, Cuttack, Bolangir and Kalahandi. However, the first three show a decline in growth compared to the previous decade. The rest of the districts have registered a growth rate of less than that of the overall urban population.

However in every census, the inclusion of new urban centres, which were previously treated as non-urban inflates the size of urban population. This phenomenon also distorts the real picture of the pattern of urban growth over time. Hence for every census, the population of new towns has been excluded to see the pattern of growth.

Table III.9: District-wise growth of urban population excluding new towns added

Sr. No.	Name of the Districts	1961-71			1971-81		
		No. of towns in 1971	No. of new towns in 1971	Decadal Growth Rate excluding new towns	No. of towns in 1981	No. of new towns in 1981	Decadal Growth Rate excluding new towns
1.	Sambalpur	9	4	67.60	8	-	59.20
2.	Sundergarh	4	-	76.60	4	-	287.50
3.	Keonjhar	4	2	36.70	6	2	1339.00
4.	Mayurbhanj	2	-	40.60	4	2	71.50
5.	Balasore	4	-	9.00	6	2	47.10
6.	Cuttack	8	1	43.00	8	1	48.50
7.	Dhenkanal	4	-	10.00	9	5	51.70
8.	Boudh-Khandmals	2	1	221.40	3	1	54.70
9.	Bolangir	6	1	61.60	7	1	40.70
10.	Kalahandi	5	2	40.50	5	-	42.40
11.	Koraput	10	4	52.20	14	4	45.90
12.	Ganjam	15	5	39.90	20	5	30.30
13.	Puri	5	-	71.80	9	4	71.20

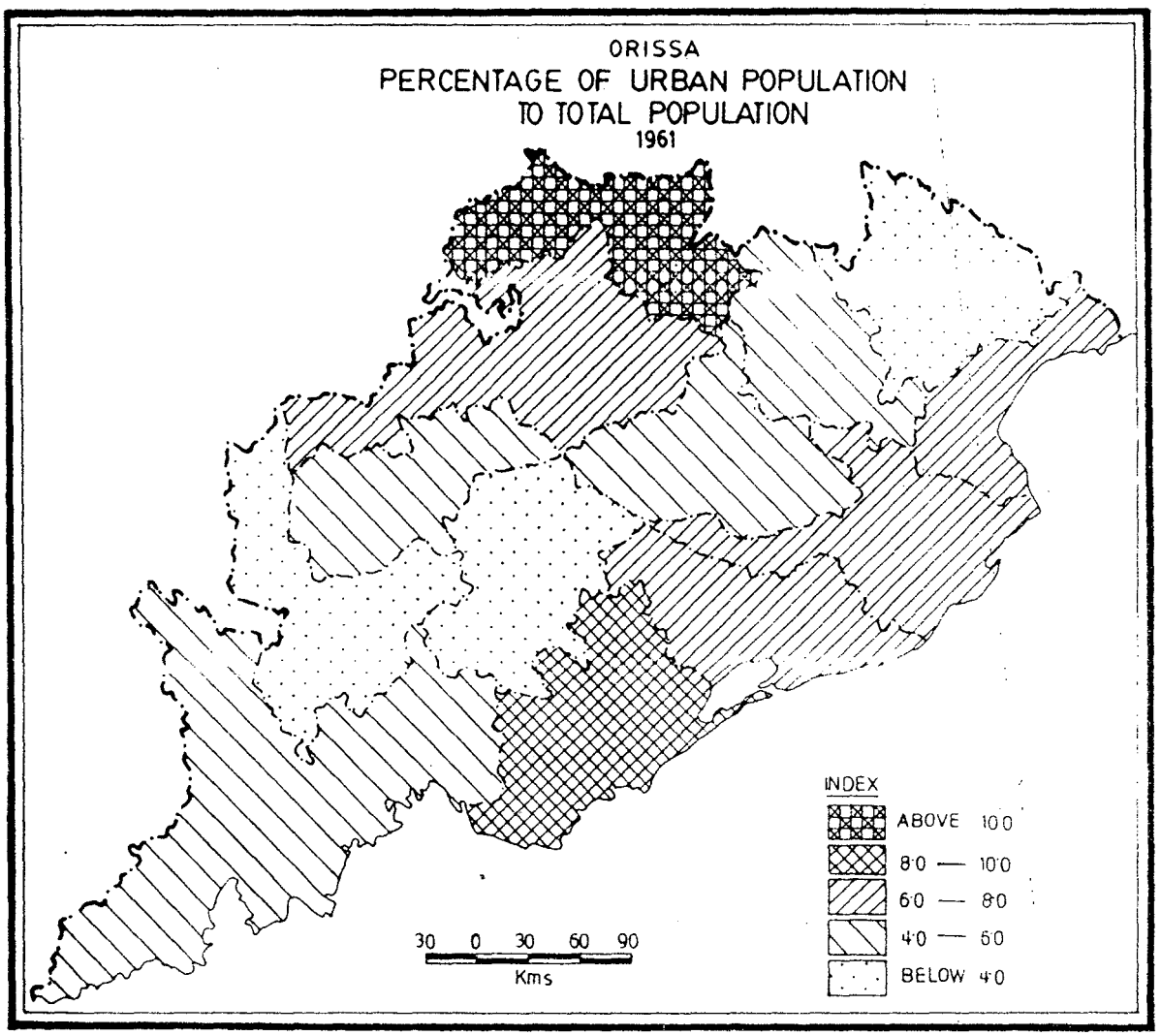

ORISSA
PERCENTAGE OF URBAN POPULATION
TO TOTAL POPULATION
1961
INDEX
ABOVE 10·0
8·0 — 10·0
6·0 — 8·0
4·0 — 6·0
BELOW 4·0
30 0 30 60 90
Kms

Fig. III.2

Table III.9 gives the pattern of urban growth excluding the population of new towns added. In total there were 20 new towns added in the year 1971, the maximum being in Ganjam (five), followed by Sambalpur and Koraput (four each). Out of the rest Keonjhar and Kalahandi shared two each and Cuttack, Boudh-Khandmals, Bolangir claimed one each.

The 1981 census put another twenty-seven towns in the list of urban centres of the state. Ganjam and Dhenkanal were at the top by sharing five each, followed by Koraput and Puri with four each. Districts like Keonjhar, Mayurbhanj and Balasore increased their number of towns by two each and Cuttack, Boudh-Khandmals and Bolangir again by one each. It is noticed that the district Ganjam which is having the maximum number of towns (15) in 1971 as well as in 1981 (20 towns) has also the highest number of new towns (5 each) in both the decades. This is probably because it is one of the largest districts in Orissa.

If this growth pattern is compared with that of the overall urban growth,we observe a clear-cut exaggeration in urban growth of each of the districts registering new towns in both 1971 and 1981. As is expected the growth differentials is larger in those

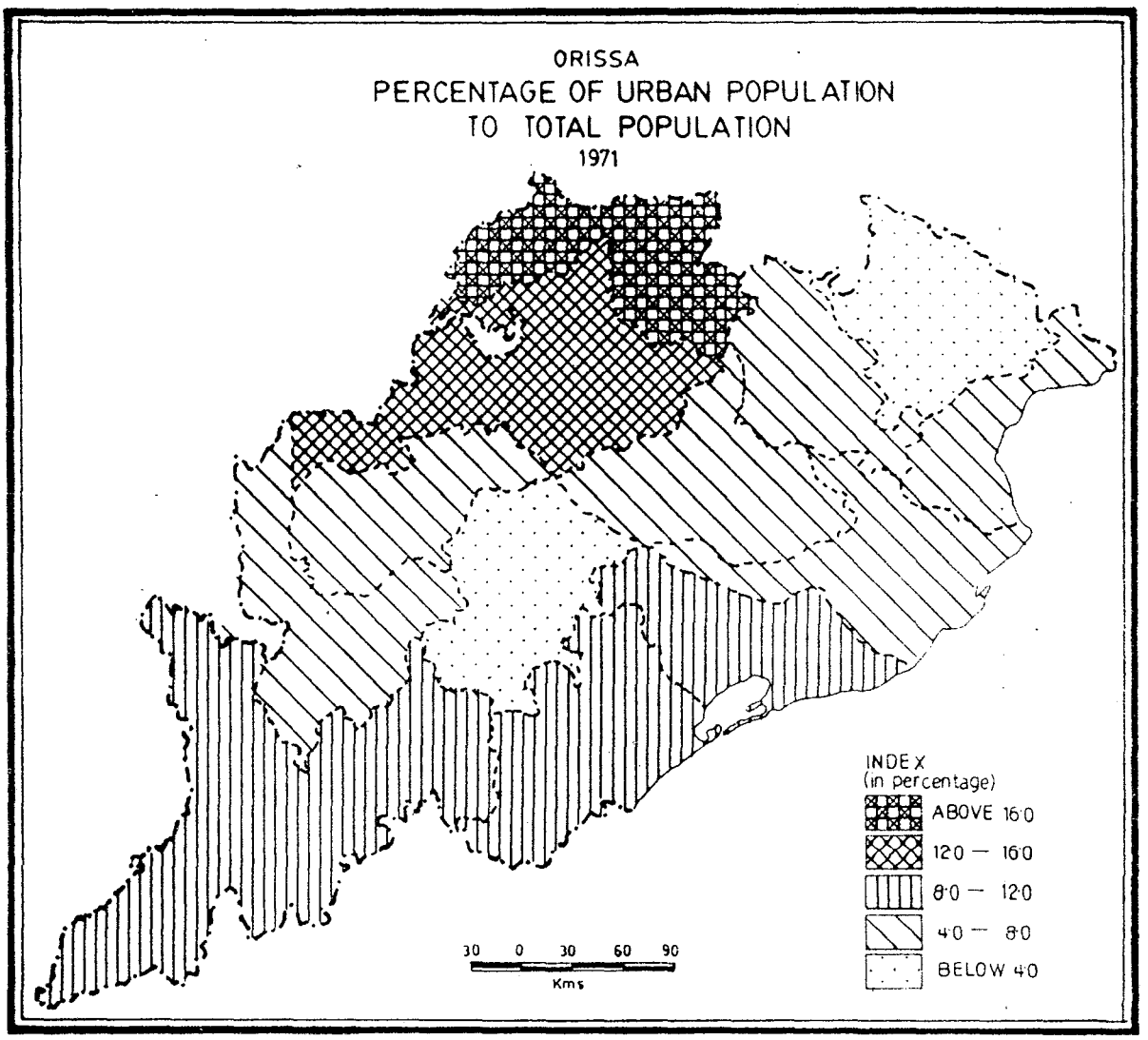

ORISSA
PERCENTAGE OF URBAN POPULATION
TO TOTAL POPULATION
1971
INDEX
(in percentage)
ABOVE 16·0
12·0 — 16·0
8·0 — 12·0
4·0 — 8·0
BELOW 4·0
30 0 30 60 90
Kms

Fig. III.3

cases where a larger number of towns have been added. During 1961-71, in the case of Keonjhar, Kalahandi, Koraput, Ganjam etc. we find the largest differentials between the overall, urban growth and the one computed excluding the new town. In such districts we notice unusual growth of urban population precisely because of the fact that the 1971 census qualified many rural centres as towns. During the following decade we find this with Mayurbhanj, Balasore, Dhenkanal and Ganjam. In the case of other districts though they exist some amount of differences, it is not very substantial.

This pattern of regional and temporal variation in urban population, as is expected, well correspond to the pattern of urban rural growth differentials (URGD) which has been presented in Table III.10.

Table III.10: Decadal Urban-Rural Growth differentials by districts (1961-71 and 1971-81)

Sr. No.	Name of the districts	URGD (1961-71)	URGD (1971-81)
1.	Sambalpur	75.75	40.89
2.	Sundergarh	41.52	59.82
3.	Keonjhar	85.84	76.72
4.	Mayurbhanj	21.97	118.52
5.	Balasore	-21.71	66.17
6.	Cuttack	23.00	37.83
7.	Dhenkanal	-16.48	121.8
8.	Boudh-Khandmals	202.97	73.46
9.	Bolangir	58.02	41.31
10.	Kalahandi	85.05	29.54
11.	Koraput	103.31	50.92
12.	Ganjam	48.26	34.49
13.	Puri	49.85	71.20

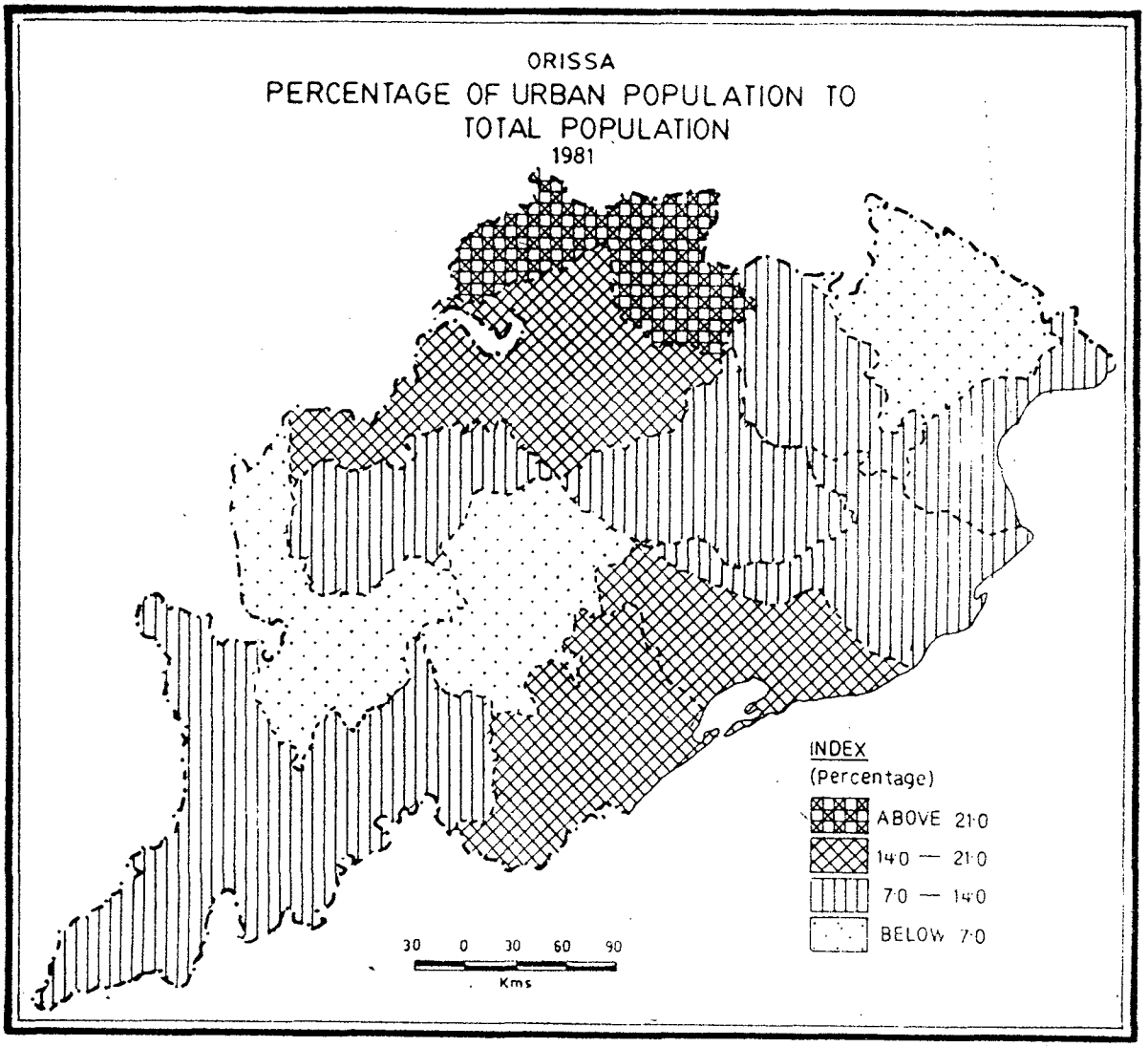

ORISSA
PERCENTAGE OF URBAN POPULATION TO TOTAL POPULATION
1981
INDEX
(Percentage)
ABOVE 21·0
14·0 — 21·0
7·0 — 14·0
BELOW 7·0
30 0 30 60 90
Kms

Fig. III.4

Levels of Urbanization:

Table III.11 gives the levels of urbanization in the districts for the years 1961, 1971 and 1981. The table reveals that there is a wide disparity and this has further been accentuated over time. Sundergarh had been the first ranking district during the whole period

Table III.11: Levels of Urbanization: 1961, 1971 & 1981

Sr. No.	Districts	%age of Urban Popn to total Popn			%age of Popn of towns above 20,000 to total Popn		
		1961	1971	1981	1961	1971	1981
1.	Sambalpur	7.65	12.02	15.53	3.83	10.00	13.47
2.	Sundergarh	17.90	22.18	30.52	14.58	20.58	30.52
3.	Keonjhar	4.30	7.05	11.38	-	2.55	10.08
4.	Mayurbhanj	2.36	2.79	5.74	1.69	2.00	3.36
5.	Balasore	6.49	5.47	8.25	4.18	4.74	6.50
6.	Cuttack	6.82	7.98	10.29	4.78	6.53	9.78
7.	Dhenkanal	4.58	4.00	7.85	-	-	2.26
8.	Boudh-Khandmals	1.18	3.15	5.21	-	-	-
9.	Bolangir	4.65	6.86	9.15	-	2.83	5.25
10.	Kalahandi	2.83	4.86	6.05	-	2.00	2.84
11.	Koraput	5.14	8.19	11.35	1.69	5.33	6.53
12.	Ganjam	8.32	11.33	14.32	5.32	6.30	7.34
13.	Puri	7.15	9.79	14.84	5.31	8.89	13.21

followed by Ganjam and Sambalpur in 1961, Sambalpur and Ganjam in 1971 and Sambalpur, Puri and Ganjam in 1981. It is seen that all the districts have reported an

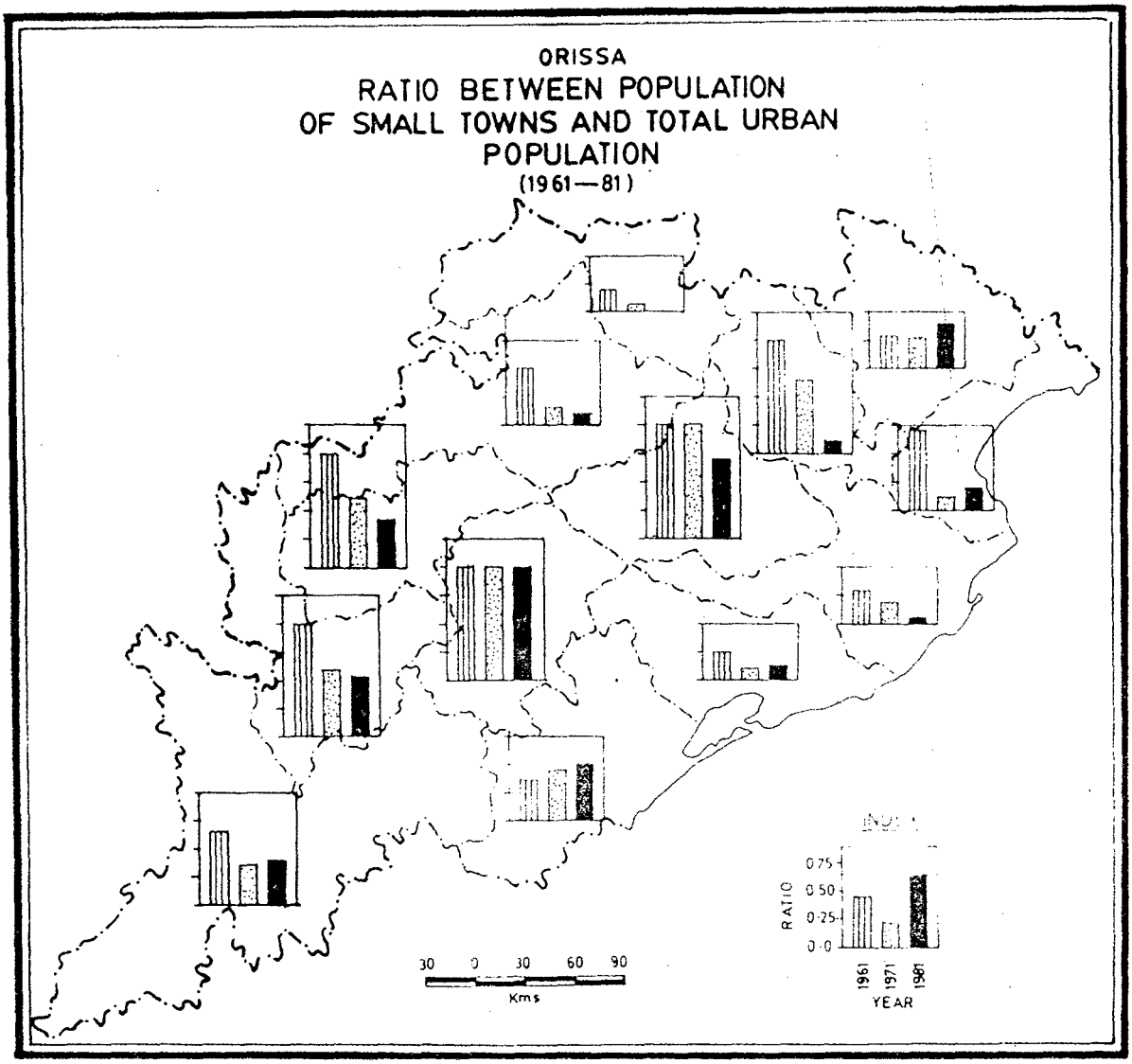

ORISSA
RATIO BETWEEN POPULATION
OF SMALL TOWNS AND TOTAL URBAN
POPULATION
(1961—81)
30 0 30 60 90
Kms
RATIO
0·75
0·50
0·25
0·0
1961
1971
1981
YEAR

Fig. III.5

increase in the share of urban population except Balasore and Dhenkanal whose shares declined from 1961 to 1971. One interesting picture emerges here is that there are four districts - Sambalpur, Sundergarh, Ganjam and Puri - which have recorded, throughout the period, more than average levels of urbanization in the state. These four were accompanied by Balasore and Cuttack in 1961. In the years 1971 and 1981, these are the only four districts which showed high average.

When the population of towns above 20,000 as percentage to total population is taken, we come across more or less the same sort of trend. Here again we find that it is Sundergarh which ranks first among the districts and this is the only district which does not have any town below 20,000 population in the year 1981. As against this Boudh-Khandmals has no town above 20,000 throughout this period. In 1961, apart from Boudh-Khandmals there were other four districts and in 1971 only one which did not have any town above 20,000. And finally those districts which were found to be the least urbanized ones, throughout the period, are found to have the least share of population living in the towns above 20,000.

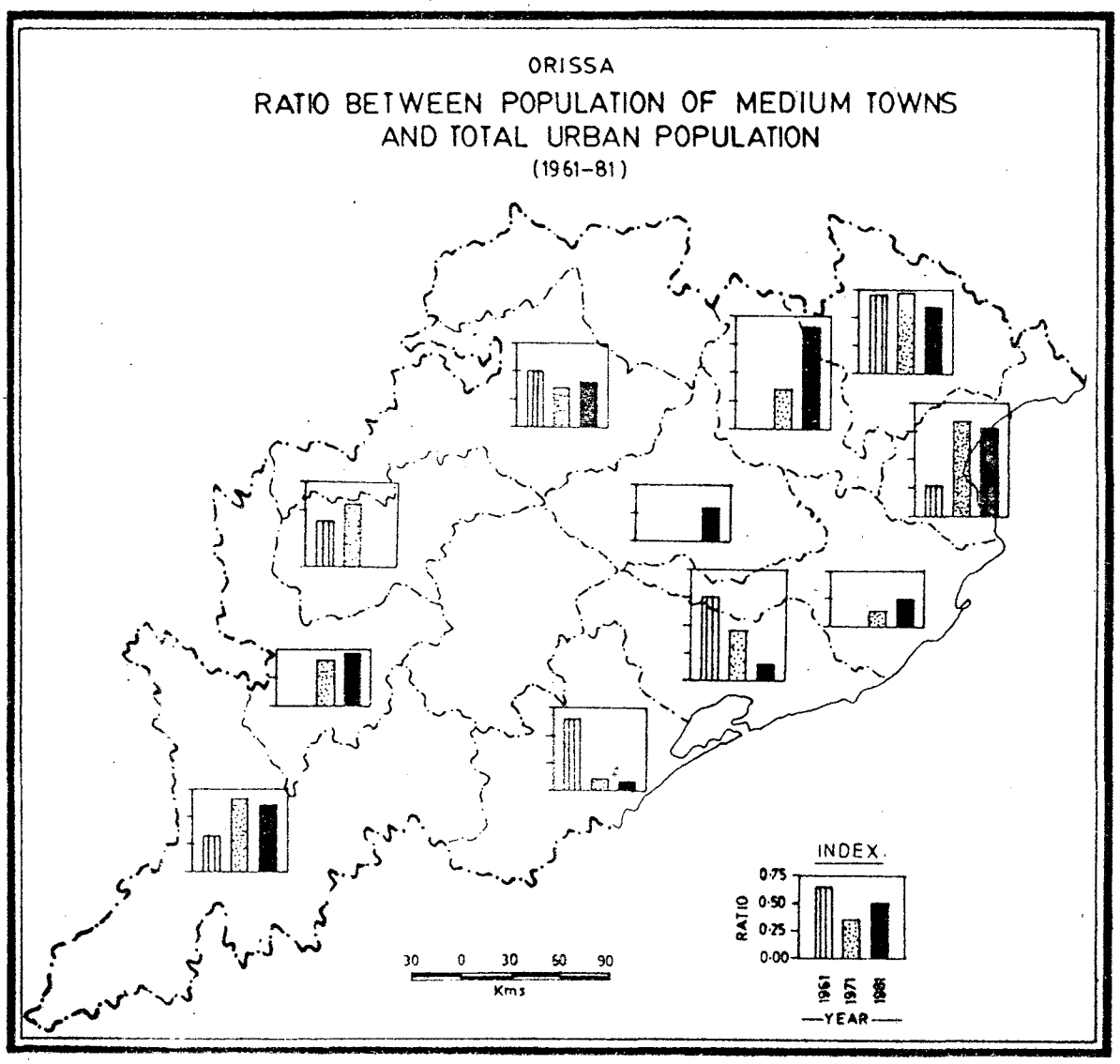

ORISSA
RATIO BETWEEN POPULATION OF MEDIUM TOWNS
AND TOTAL URBAN POPULATION
(1961-81)
INDEX
0·75
0·50
0·25
0·00
RATIO
1961
1971
1981
—YEAR—
30 0 30 60 90
Kms

Fig. III.6

Regional Distribution of Urban population in different size classes:

Table III.12 gives the ratio between population in each category and total urban population for the years 1961, 1971 and 1981. As should be expected, in a state like Orissa, in the year 1961 a high share of urban population was found in the small sized

Table III.12: Ratio between population of each size category and total urban population

Sr. No.	Districts	Small towns			Medium towns			Large towns		
		1961	1971	1981	1961	1971	1981	1961	1971	1981
1.	Sambalpur	0.50	0.17	0.13	0.50	0.36	0.41	-	0.47	0.46
2.	Sundergarh	0.19	0.07	-	0.81	0.21	0.21	-	0.72	0.79
3.	Keonjhar	1.00	0.64	0.11	-	0.36	0.89	-	-	-
4.	Mayurbhanj	0.29	0.28	0.41	0.71	0.72	0.59	-	-	-
5.	Balasore	0.72	0.13	0.21	0.28	0.87	0.79	-	-	-
6.	Cuttack	0.30	0.18	0.05	-	0.15	0.26	-	-	-
7.	Dhenkanal	1.00	1.00	0.71	-	-	0.29	0.70	0.67	0.69
8.	B.Khandmals	1.00	1.00	1.00	-	-	-	-	-	-
9.	Bolangir	1.00	0.59	0.43	-	0.41	0.57	-	-	-
10.	Kalahandi	1.00	0.59	0.53	-	0.41	0.47	-	-	-
11.	Koraput	0.64	0.34	0.42	0.33	0.65	0.58	-	-	-
12.	Ganjam	0.36	0.45	0.49	0.64	0.10	0.08	-	0.45	0.43
13.	Puri	0.26	0.09	0.11	0.74	0.45	0.15	-	0.46	0.74

towns. This share showed steady decline over the next two decades. Except Ganjam, which showed marginal increase in the share of population of small towns all the other districts recorded decrease from 1961 to 1971.

From 1971 to 1981, however the number of districts experiencing increase in the share rose to five and they were Mayurbhanj, Balasore, Koraput, Ganjam and Puri.

Unlike the small size towns no clear-cut pattern is found in the changing share over the period 1961-81 among the medium towns. There were seven districts which had medium sized towns in 1961 and of these, four Sambalpur, Sundergarh, Ganjam and Puri recorded decline and Mayurbhanj, Balasore and Koraput recorded increase in the population share of medium towns between 1961-71. Of the eleven in 1971 and as many as six districts, recorded decline between 1971-81 and the rest increased the share. Only Ganjam and Puri recorded continuous decline during both 1961-71 and 1971-81.

It was only Cuttack which had class I town in all the three censuses and its share marginally changed from 1961 to 1981. It is only in 1971 that other four districts showed large towns and of these only Puri and Sundergarh recorded considerable increase in their share. The rest two, Sambalpur and Ganjam showed marginal change. In both the cases, the shares fall down between 1971-81.

Regional pattern of the growth of towns of different sizes:

Table III.13 gives the pattern of decadal growth of urban population of small, medium and large sized towns during the period of 1961-71 and 1971-81. The growth rates have been worked out using the population of towns belonging to the category in the base year. It is revealed that in 1961 all the

Table III.13: Decadal growth of small, medium and large size towns - 1961-71 and 1971-81

Sr. No.	Name of the Districts	1961-71			1971-81		
		Small	Medium	Large	Small	Medium	Large
1.	Sambalpur	53.20	82.0	-	46.10	81.40	54.30
2.	Sundergarh	55.40	81.40	-	37.40	26.20	86.30
3.	Keonjhar	110.70	-	-	83.40	35.70	-
4.	Mayurbhanj	38.30	41.50	-	38.10	84.50	-
5.	Balasore	14.20	60.10	-	56.10	45.70	-
6.	Cuttack	60.30	-	40.60	43.70	37.10	58.70
7.	Dhenkanal	10.00	-	-	64.90	-	-
8.	Boudh-Khandmals	46.00	-	-	54.70	-	-
9.	Bolangir	61.60	-	-	31.70	53.20	-
10.	Kalahandi	95.10	-	-	28.30	62.50	-
11.	Koraput	69.40	35.40	-	42.00	48.00	-
12.	Ganjam	32.30	45.10	-	23.80	20.10	38.00
13.	Puri	48.30	79.90	-	42.90	39.30	10.80

districts had small towns and the districts like Sambalpur, Sundergarh, Mayurbhanj, Balasore, Koraput, Ganjam, Puri have the medium sized towns where except Koraput all

these districts have high growth rate of medium size towns. Cuttack is the only district having large town. Since a majority of the urban centres come under the category of small towns, the maximum number of districts show urban growth relating to small towns only. However, the small towns in 1961 show a large range of variation in their growth during 1961-71. The maximum rate of growth in small towns is noticed in Keonjhar without having medium and large size towns, and the lowest rate of growth is observed in Dhenkanal. Sambalpur has the maximum growth rate of medium size towns without having any large towns. Being only one district Cuttack has experienced the maximum growth rate of large size towns where there is no medium size town. It is also noticed that the rate of growth of medium size towns is larger than that of the small towns in all the districts, except Koraput.

In 1971, similarly all the districts have small towns and except Dhenkanal and Boudh-Khamdmal all have medium size towns. Only five districts namely Sambalpur, Sundergarh, Cuttack, Ganjam, and Puri have large towns. Keonjhar has the highest rate of growth in small towns where Ganjam has the lowest rate of growth. Mayurbhanj has the maximum rate of

growth in medium size towns and Sundergarh has the maximum growth rate in large towns. Out of those five districts who have large towns, all except Puri have the larger rate of growth in large towns than that of other towns. In the case of Sambalpur, the rate of growth of large towns was larger than that of the small towns but smaller than medium sized towns. Similarly the rate of growth of small towns was larger than that of the medium and large sized towns in case of Puri.

On the whole from this analysis it is concluded that large towns are growing faster. There are only five districts where the growth of large towns is taking place. But small towns in these five districts are not growing whereas other districts than these have high urban growth in small towns. So the growth of large towns is taking place at the cost of small towns as there is no backward and forward linkage to help in the growth of small towns in these five developed districts.

MAJOR FINDINGS:

Orissa is one of the least urbanized states of India, where a little more than one-tenth of the total population is found to be residing in urban areas. The post-independence period has experienced tremendous growth in urban population and as a result the urban rural growth differentials (URGD) has been high

significantly above the national figure.

The growth rate of population in towns above 20,000 population, has been increasing with certain fluctuations. The decade 1961-71 showed the largest growth. The urban pyramid worked out for 1961, 1971 and 1981 revealed that the large towns are growing at a faster rate in comparison to other towns in Orissa. It is noticed that the developed districts like Sundergarh and Puri are having a number of large towns and those districts like Cuttack, Bolangir, which do not have any class I towns but are economically slightly better, have experienced increase in the share of medium sized towns. Moreover small towns are growing in economically backward districts. They are Mayurbhanj, Balasore, Koraput and Ganjam. Besides the difference between urban growth as a whole and urban growth excluding new towns is larger in those districts which are deemed to be economically backward. The regional pattern of urban growth also clearly shows that the least urbanized and economically backward districts have recorded higher growth in small sized towns. It is recorded that the highest growth during 1961-81 in large sized towns is noticed in Sundergarh district, medium sized towns in Sambalpur and small sized towns in Keonjhar district.

CHAPTER IV

THE SPATIAL STRUCTURE OF ECONOMIC DEVELOPMENT IN ORISSA

The spatial structure of economic development can be articulated through two important dimensions given the present data base on the Indian economy. The first dimension relates to the structure of the workforce whereas the second dimension refers to regional distribution of income or value added.

From the very beginning of the emergence of man, work and production have been intimately linked with his day-to-day activities. However, only a part of the total population is found to be engaged in economic activities. The size and structure of the economically engaged population in a region, which refers to the distribution of workforce according to different occupations provide insights into the level and functioning of the regional economy. Clark, in his work conditions of economic progress argues that "there is a close relationship between development of an economy on the one hand and occupational structure on the other and economic progress, is generally associated with certain distinct necessary and predictable change in occupational structure."[1]

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1. Ruddar Dutt and K.P.M. Sunderam, Indian Economy, New Delhi, 1985, p.74.

The occupational structure of the labour force, its distribution among industrial sectors and rural-urban distribution within a region are highly relevant to an analysis of productivity and economic growth.

So far as the occupational structure of Orissa is concerned, it is dominated by the agricultural sector, 79.59 per cent of the workforce is engaged in primary sector followed by tertiary sector claiming 13.18 per cent and secondary sector claiming 7.23 per cent in 1971. In the following paragraphs we analyse the characteristics of the occupational structure of male workforce only (to avoid the definitional problems as the changes in the concepts used by census affected the female workforce data much more significantly) for Orissa during the period 1961 and 1981.

WORKFORCE PARTICIPATION RATE:

Orissa as a whole has experienced a declining trend of male workforce participation rate (MWFPR) over the period of present analysis. In the year 1961, male workforce participation rate (WFPR) for the state was 60.75 per cent which has come down to 55.32 and 54.38 in 1971 and 1981 respectively. While comparing this situation of Orissa to that of India as a whole a gradual decline is noticed at the national level as well. It should be accepted

here that this fall is due not only to the observed gradual declining trend but to be the result of changes in the workers' definition.

Table IV.1: Male Workforce Participation Rate, District-wise for 1961-81

Sr. No.	Name of the Districts	1961	1971	1981
1.	Balasore	57.21	50.67	50.43
2.	Bolangir	64.81	60.79	58.84
3.	Cuttack	57.80	51.53	50.56
4.	Dhenkanal	59.37	54.94	54.00
5.	Ganjam	53.03	52.61	51.70
6.	Kalahandi	63.10	60.16	60.31
7.	Keonjhar	58.59	54.14	53.25
8.	Koraput	65.19	60.21	60.16
9.	Mayurbhanj	59.87	54.80	55.65
10.	Boudh-Khandmals	64.54	59.68	59.65
11.	Puri	59.75	53.98	52.75
12.	Sambalpur	64.72	60.51	57.89
13.	Sundergarh	63.79	55.21	53.04
	ORISSA	60.75	55.32	54.38

From Table IV.1 giving the district level information on WFPR, it is observed that from 1961 to 1981 the male WFPR has declined gradually in almost all the districts where Kalahandi and Mayurbhanj have shown a little increase from 1971 to 1981. But the share of these two districts is low in 1981 than 1961.

Generally, the WFPR is higher in all the districts in 1961 compared to subsequent census years. When we analyse the situation separately for each district, it is noticed that in 1961, district Koraput exhibits the highest rate (65.19) followed by the district Bolangir, whereas district Ganjam is having the lowest rate (53.09) of male WFP. Similarly in 1971 Bolangir district occupies the highest position with 60.79 WFPR followed by the district Sambalpur. Here district Balasore experiences the lowest rate of male WFP. In 1981 Kalahandi district has shown the highest (60.31) rate while Koraput and Balasore again have the lowest rates (50.43) of MWFP.

It may be however noted that the definitional change in the workforce explains a part of the fall in WFPR in all the districts during 1961 and 1971. The steep fall in the WFPR in 1971 is mainly because of the fact that while 1961 census included the 'marginal workers' in the category of 'workers', the same were treated as 'non-workers' in the 1971 census. Apart from this the reference period was also changed in the year 1971 census. Part of the decline specially during the seventies must however be attributed to the fall in employment opportunities as a result of stagnation in the agrarian economy and general decline in per capita income.

Agricultural Workforce:

Orissa as a state is predominantly agriculture based. The percentage share of agricultural workforce in 1961 was 74.89, which further increased in 1971, when around 78% of the total workers was engaged in agricultural sector. But this has gone down to 74% in 1981. It is a matter of great concern that since other sectors of the economy of the state has not yet been fully developed, more and more people are engaged in agricultural activity only, where the unemployment is generally in the disguised form. Even the growth rate of agricultural workers is much larger than that of the growth of workers as a whole. One important point to be noted here is that the decline in the share of agricultural workforce is largely due to the decrease in the proportion of agricultural labour which is noticed in the decreasing labourer-cultivator ratio. One may hypothesise that the decline in the proportion of male workers in agriculture is due to the crisis in the agricultural sector and its incapacity to retain even the existing workforce. This is also reflected in the decline in the male workforce participation rate in the state, as noted above.

Agricultural Development:

Growth in agricultural production in any region is mainly attributable to the following factors:

i) Extension of area under cultivation;

ii) Increase in crop yields;

iii) Improvement in the cropping pattern, that is the substitution of the higher yielding crops for lower yielding ones.

Area under cultivation is the gross cropped area in a region. This can be increased by both bringing new lands under plough and by ploughing a plot of land more than once in a season. In the technological jargon while the former is known as the horizontal expansion, the later is denoted by vertical expansion.

Improvement in the yields is the function of increase in input and introduction of modern techniques. Improved varieties of seeds, consumption of chemical fertilizers, extension of irrigation, use of modern tools and techniques have resulted in notable growth and agricultural output in select regions in the state of Orissa.

Similarly, the substitution of low yielding crops by high yielding reflected in the changes in cropping pattern is also an important factors in the overall growth of the value of agricultural production. However, we do not intend to include the contribution

of this factor in the agricultural development in the forthcoming section.

The following indicators will throw light on changes in area under cultivation and crop yields:

1. Per cent area cultivated
2. Cropping intensity
3. Per cent area irrigated
4. Fertilizer consumption in kg. per one thousand hectare
5. Growth in agricultural output
6. Land productivity
7. Worker productivity.

1. Area under cultivation:

Area under cultivation may increase or decrease in different time periods due to many reasons. In the state as a whole, the percentage of area under cultivation shows significant fluctuation during 1961-81 though it showed a marginally increasing trend. Table IV.2 shows that a large number of districts are having fluctuations in their per cent area cultivated over the period under investigation. There were six districts in early sixties; eight in early seventies and seven in eighties that recorded higher than the state average of percentage of area cultivated. Of these

Table IV.2: Percentage of Area under Cultivation, District-wise (1960's-1980's)

Sr. No.	Name of the Districts/State	1960's	1970's	1980's
1.	Balasore	67.91	67.08	67.00
2.	Bolangir	51.47	44.62	46.15
3.	Cuttack	60.97	65.11	61.94
4.	Dhenkanal	35.04	37.32	37.04
5.	Ganjam	32.80	37.87	40.00
6.	Kalahandi	31.29	76.86	43.26
7.	Keonjhar	31.79	32.38	34.60
8.	Koraput	58.19	27.05	31.42
9.	Mayurbhanj	37.93	38.27	41.15
10.	Boudh-Khandmals	17.78	16.21	21.42
11.	Puri	41.11	43.69	45.22
12.	Sambalpur	36.43	35.68	34.62
13.	Sundergarh	29.07	29.42	27.43
	ORISSA	37.50	37.31	38.93

Balasore, Cuttack, Bolangir, Mayurbhanj, and Puri have recorded larger share than the state throughout the decade. On the other extreme we have the districts like Boudh-Khandmals, Sundergarh, and Sambalpur which have been constantly below the state's average. The districts like Balasore and Sambalpur are having a very marginal but constant decline in their per cent area cultivated from 1961 to 1981. But it is noticed that inspite of the declining trend, Balasore continues

to be the district having maximum percentage of area under cultivation since 1961 to 1981. Areas under cultivation has been increasing constantly from 1961 to 1981 in the districts of Ganjam, Keonjhar, Mayurbhanj, Puri. The net sown area is increasing either by reclaiming culturable waste lands or by reducing the arable areas left fallow, which is unsown throughout the year. Similarly the decrease in net sown area may be due to the effect of flood or drought.

The scope for further increase in the cropped area lies largely in the improvement in cropping intensity.

2. Area sown more than once:

During the recent past, it has been strongly felt that since further reclamation of new land is becoming uneconomical day by day, it is only through increasing the intensity of cropping that the increasing food demand can be met.[2] It has become possible to grow more than one crop from the same piece of land by increasing the use of chemical fertilizers without adversely affecting the quality of soil. Apart from

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2. Hassan, M.I., "Population Growth and Agricultural Development in Middle Ganga Plain - 1961-71", Unpublished M.Phil. Dissertation, SSS, J.N.U., New Delhi, 1986, p.82.

the use of fertilizers, the suitable systems of crop rotation, whereby different plants draw plant nutrients from the soil in different proportion, can result in tremendous growth in agricultural production without causing any damage to the soil fertility.

State as a whole has been experiencing an increasing share of multiple cropping over some period of time. The share of multiple cropped area increases from 14.24 per cent in early sixties to 22.65 per cent and 39.77 per cent in early seventies and eighties respectively. The districts of Cuttack, Ganjam and Puri have recorded larger share of net cropped area under multiple cropping than the state's average throughout the period. These three were accompanied by Bolangir in 1961 and Kalahandi in 1981. It may be recalled that Ganjam and Puri, Keonjhar and Mayurbhanj had recorded constant increase in net area sown over the period. Hence in such districts both the processes of extension and intensification have gone side by side.

From the Table IV.3, it is revealed that except Koraput, all other districts have shown constant increase in the cropping intensity from 1961 to 1981.

Table IV.3: Percentage share of multiple dropped area in net area sown: 1960's-1980's

Sr. No.	Name of the Districts/State	1960's	1970's	1980's
1.	Balasore	7.36	16.35	35.87
2.	Bolangir	14.96	16.75	31.78
3.	Cuttack	30.91	43.51	78.87
4.	Dhenkanal	10.95	19.39	28.31
5.	Ganjam	23.98	44.26	64.51
6.	Kalahandi	6.61	11.40	44.41
7.	Keonjhar	6.51	9.29	19.31
8.	Koraput	7.31	6.57	22.79
9.	Mayurbhanj	7.39	11.05	16.82
10.	Boudh-Khandmals	11.24	16.20	39.07
11.	Puri	31.84	41.14	67.76
12.	Sambalpur	11.31	19.15	27.66
13.	Sundergarh	5.26	9.90	15.08
	ORISSA	14.24	22.65	39.77

During 1961 to 1971 the cropping intensity has decreased slightly in the district Koraput whereas it has again increased sharply from 1971 to 1981.

The largest share (31.84 per cent) of net cropped area under multiple cropping is found in Puri followed by Cuttack in 1961. In 1971, Ganjam has the maximum share (44.26 per cent) followed by Puri and in 1981. Cuttack occupies the highest position with 78.87 per cent of net cropped area under multiple cropping. Contrary to this situation the cropping intensity

is found very low with 5.26 per cent and 15.08 per cent in 1961 and 1981 respectively in the district of Sundergarh. But during 1971, Koraput has the lowest share with 6.57 per cent in this.

It may be concluded that the intensification of cropping has been more pronounced in all the districts than expanding the agricultural land by bringing more and more area under multiple cultivation.

3. Irrigation:

Irrigation becomes important for agriculture in regions or states where erratic rainfall renders cultivation hazardous both in time and space. So for the farming operations in Orissa, irrigation is extremely important due to seasonal concentration and ill-distribution of rainfall both in space and time.

In Orissa, of the net area sown the per cent area under irrigation was very poor i.e. 5 per cent which has gone up to 22 per cent and 27 per cent in 1971 and 1981 respectively. Table IV.4 gives the district-wise percentage distribution of net irrigated area to net sown area in the three points of time. It is observed that till early sixties excluding two (Ganjam and Sambalpur), all the other districts reported well below 10 per cent of their net area sown under irrigation.

Table IV.4: Percentage area irrigated (1960's-1980's)

Sr. No.	Name of the Districts/State	1960's	1970's	1980's
1.	Balasore	4.35	15.58	23.78
2.	Bolangir	4.44	20.85	25.07
3.	Cuttack	8.95	52.70	54.45
4.	Dhenkanal	1.38	3.93	12.70
5.	Ganjam	12.53	38.30	54.9
6.	Kalahandi	0.62	2.12	10.09
7.	Keonjhar	0.71	3.53	9.36
8.	Koraput	0.62	2.12	5.28
9.	Mayurbhanj	0.20	1.11	11.06
10.	Boudh-Khandmals	2.33	7.82	15.96
11.	Puri	8.95	52.70	63.01
12.	Sambalpur	11.78	38.29	37.83
13.	Sundergarh	1.02	4.15	9.79
	ORISSA	5.04	21.91	27.34

From early sixties to seventies in all the districts there has been considerable increase in the share of irrigated area. However, districts like Mayurbhanj, Koraput, Kalahandi, Keonjhar, Sundergarh have reported marginal changes and these are the districts which remained at lower ladder even in early eighties. By early eighties we find that three districts have more than half of their net cultivated area under irrigation. They are Puri, Ganjam and Cuttack

in that order. These three along with Sambalpur recorded higher percentage than the state's average. There were as many as six districts which reported less than half of the state's average figure of percentage of irrigated land.

This shows that Puri, Cuttack, Ganjam, Sambalpur are the only districts that enjoy good facility of irrigation for their agricultural development. However, all the districts in general have increased their percentage of area under irrigation. Despite the phenomenal increase, the share of irrigated land in the state remained below the required level. A lot is yet to be done in the field of extension of irrigation to exploit the land resources optimally through intensive cultivation.

4. Fertilizer Consumption:

Indian agriculture is based on traditional method of cultivation where the cultivators have been using animal dung, compost, bones and other organic manures from time immorial to restore the soil nutrients mainly phosphorous, potassium, nitrogen used by the growing plants as well as lost in other ways. The land was also frequently left fallow to enable it to rebuild its nutrient strength. Certain practices like

green manuring or cultivation of legumes which fix atmospheric nitrogen and enrich the soil served the same purpose.

The recently growing need of more and more food has compelled the Indian cultivators to make use of more and more chemical fertilisers to replenish the soil with nutrients.[3] Increasing the supply of food and other farm products have bedome very necessary for the rapid growth of population. So an increase in the cropped area through multiple cropping as well as higher yields per unit of land are needed to meet the immediate demand. Use of these chemical fertilizers has helped in attaining both the objectives.

More than one crop can be grown by using fertilizer in a single season from the same piece of land. Besides, the use of fertilizers proves to be more useful when applied to an irrigated land with high yielding varieties of seeds.

Table IV.5 gives the fertilizer consumption/kg/ per one thousand hectare of land for the period 1960's-80's for all the districts of Orissa. It is observed that inspite of good progress in recent years the use

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3. Dutt, R. and Sundram, K.V.M., op. cit., p.390.

Table IV.5: District-wise Fertilizer consumption kgs/per 1000 hectare: (1960's-1980's)

Sr. No.	Name of the Districts/State	1960's	1970's	1980's
1.	Balasore	0.15	4.46	12.28
2.	Bolangir	0.07	0.33	12.15
3.	Cuttack	0.84	15.45	23.78
4.	Dhenkanal	0.07	1.79	5.60
5.	Ganjam	1.99	21.05	22.23
6.	Kalahandi	0.28	0.37	1.42
7.	Keonjhar	0.05	1.32	11.74
8.	Koraput	0.01	2.13	3.95
9.	Mayurbhanj	0.03	1.88	4.21
10.	Boudh-Khandmals	0.06	1.49	3.74
11.	Puri	0.47	7.39	19.31
12.	Sambalpur	0.15	21.52	31.44
13.	Sundergarh	0.07	1.56	10.58
	ORISSA	0.33	7.71	13.45

of fertilizers is yet much below the desired level in the state. During 1960's the average amount of fertilizer consumed in the state was only 0.33 kg per one thousand hectare. Though this level of fertiliser consumption has increased to 7.71 kg and 13.45 kg. during 1970's and 1980's, respectively, it is yet much below the national level.

Except district Ganjam in as many as twelve districts the consumption of fertiliser per thousand hectare was

even below one kg during 1960's. In the district Koraput the consumption of fertilizer was the lowest viz. 0.01 kg. During 1971 maximum kg (21.52) of fertilizer consumption is noted in Sambalpur followed by Ganjam where Bolangir district has consumed the lowest amount (0.33 kg) of fertilizer. Similarly in 1981, Sambalpur continues to be the first in fertilizer consumption (31.44 kg) followed by Cuttack. In the district Kalahandi the fertilizer consumption is the lowest i.e. 1.42 kg per thousand hectare of land. The maximum level of fertilizer consumption from 1961 to 1971 and to 1981 has increased from 1.99 kg. to 21.52 kg. and to 31.44 kg respectively. All the districts have experienced growth in the consumption of chemical fertilizers. The districts like Cuttack, Ganjam and Puri, Sambalpur showed higher fertilizer consumption than the State's average throughout the period except in 1971, when the fertilizer consumption has slightly less than state's average 7.7 kg. It may be recalled here that these are the districts which showed higher shares of both irrigated land and multiple cropping.

5. Growth in Agricultural output:

Agricultural output is the function of irrigation, level of fertilizer consumption, good yielding variety of seeds etc. besides the total area under cultivation.

Table IV.6: District-wise growth in agricultural output 1960's-70's and 1970's-80's

Sr. No.	Name of the Districts	1960's to 1970's	1970's to 1980's
1.	Balasore	-7.03	52.40
2.	Bolangir	-10.88	34.01
3.	Cuttack	-15.25	31.44
4.	Dhenkanal	3.31	18.14
5.	Ganjam	-11.03	56.32
6.	Kalahandi	-4.24	16.34
7.	Keonjhar	-5.79	-2.51
8.	Koraput	-4.24	16.34
9.	Mayurbhanj	18.44	-70.34
10.	Boudh-Khandmals	-11.52	32.57
11.	Puri	-15.25	31.44
12.	Sambalpur	6.00	2.53
13.	Sundergarh	11.61	-17.73

Table IV.6 summarises the agricultural growth rate for all the districts during the periods 1961 to 1971 and 1971 to 1981. It is found that during 1961 to 1971 all the districts except Dhenkanal, Mayurbhanj, and Sundergarh have the negative growth in agricultural output, the largest being the case of Cuttack and Puri (15.25 each). Among them the district Mayurbhanj with 18.44 per cent of growth in agricultural output occupies the first position followed by Sundergarh district with 11.61 per cent. But the situation is changed during

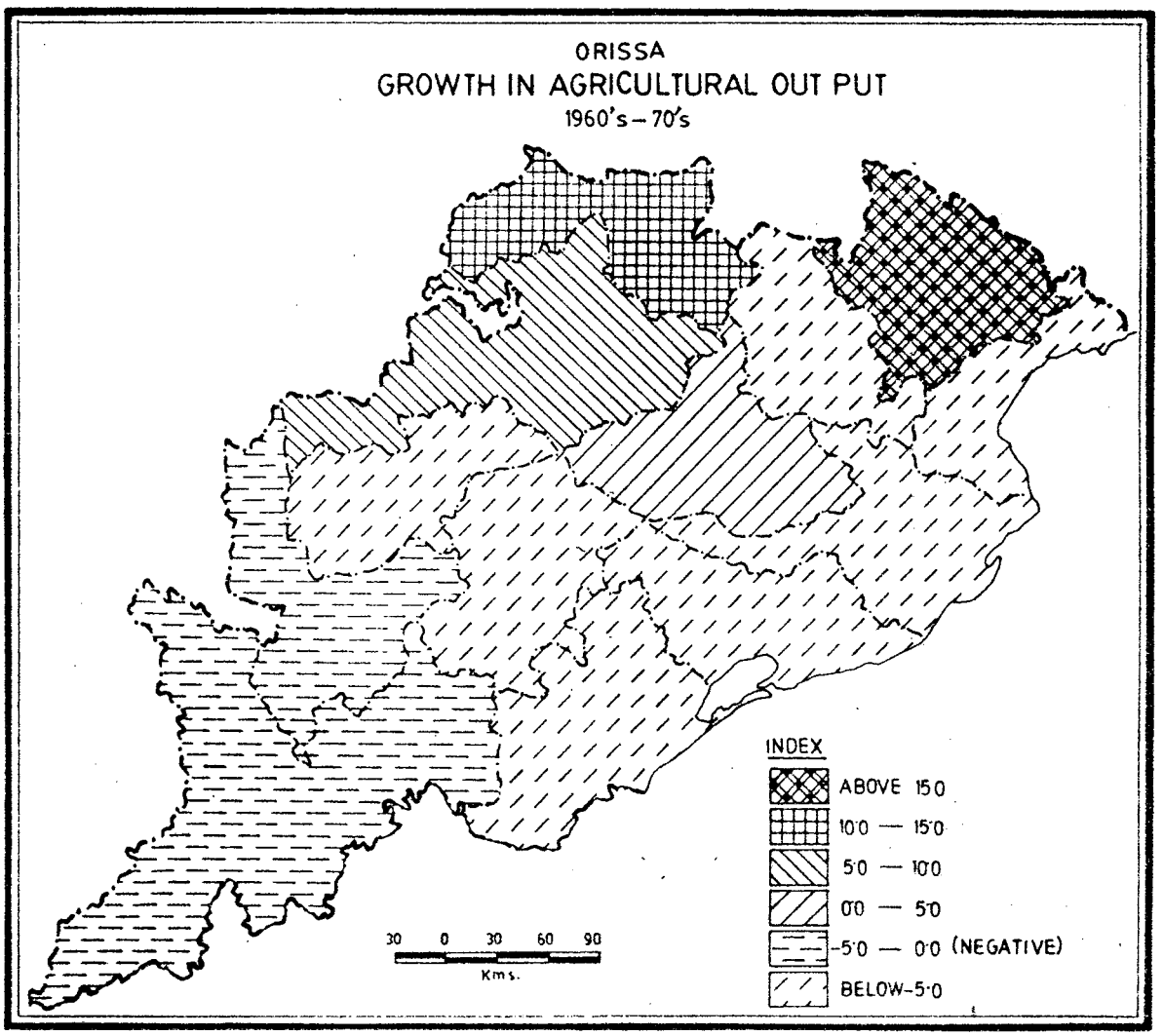

ORISSA
GROWTH IN AGRICULTURAL OUT PUT
1960's – 70's
INDEX
ABOVE 15·0
10·0 — 15·0
5·0 — 10·0
0·0 — 5·0
-5·0 — 0·0 (NEGATIVE)
BELOW-5·0
30 0 30 60 90
Kms.

Fig. IV.1

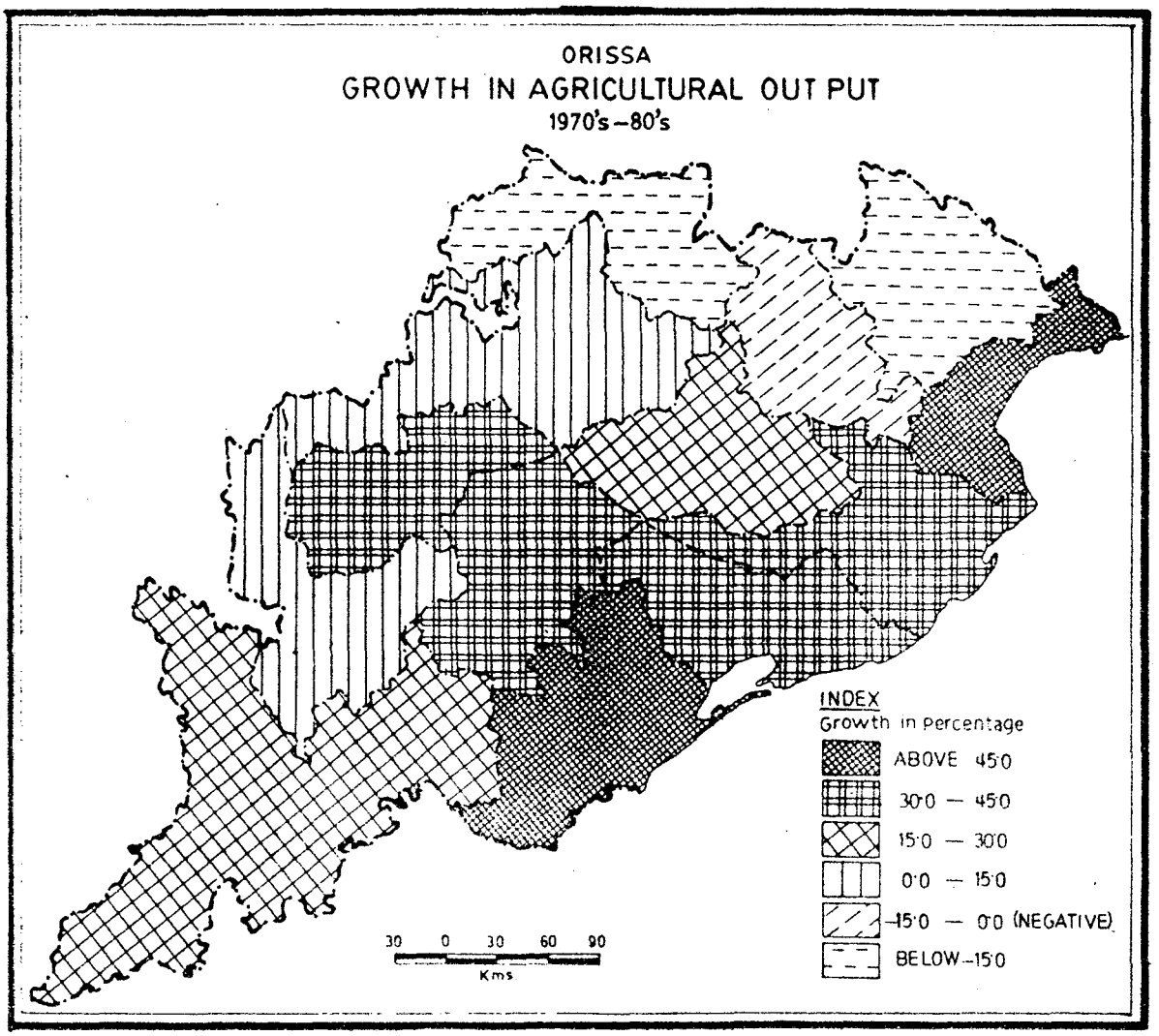

ORISSA
GROWTH IN AGRICULTURAL OUT PUT
1970's–80's
INDEX
Growth in Percentage
ABOVE 45·0
30·0 — 45·0
15·0 — 30·0
0·0 — 15·0
–15·0 — 0·0 (NEGATIVE)
BELOW–15·0
30 0 30 60 90
Kms

Fig. IV.2

1971-81. During this period except Keonjhar, Mayurbhanj and Sundergarh, all the other districts have recorded positive and substantial growth in agricultural output. Mayurbhanj which recorded highest growth from seventies to eighties has reported the tremendous decline in its output over the following decade. Keonjhar records decline in both the decades. Sundergarh which reported a growth of 11.61 per cent during 1961 to 1971 shows the negative growth of 17.73 per cent in the next decade. During this decade Ganjam records the highest growth followed by Balasore, Bolangir and Boudh-Khandmals.

PRODUCTIVITY:

The concept of productivity which includes technological advancements, effective managements of available resources and organizational set up for the agricultural production, is a very broad one. The productivity can be seen in terms of land or labour or both. In the present study after converting the total output of different crops in to money value, Land and labour productivity figures have been worked out. The following are the changes taken place in land productivity and labour productivity.

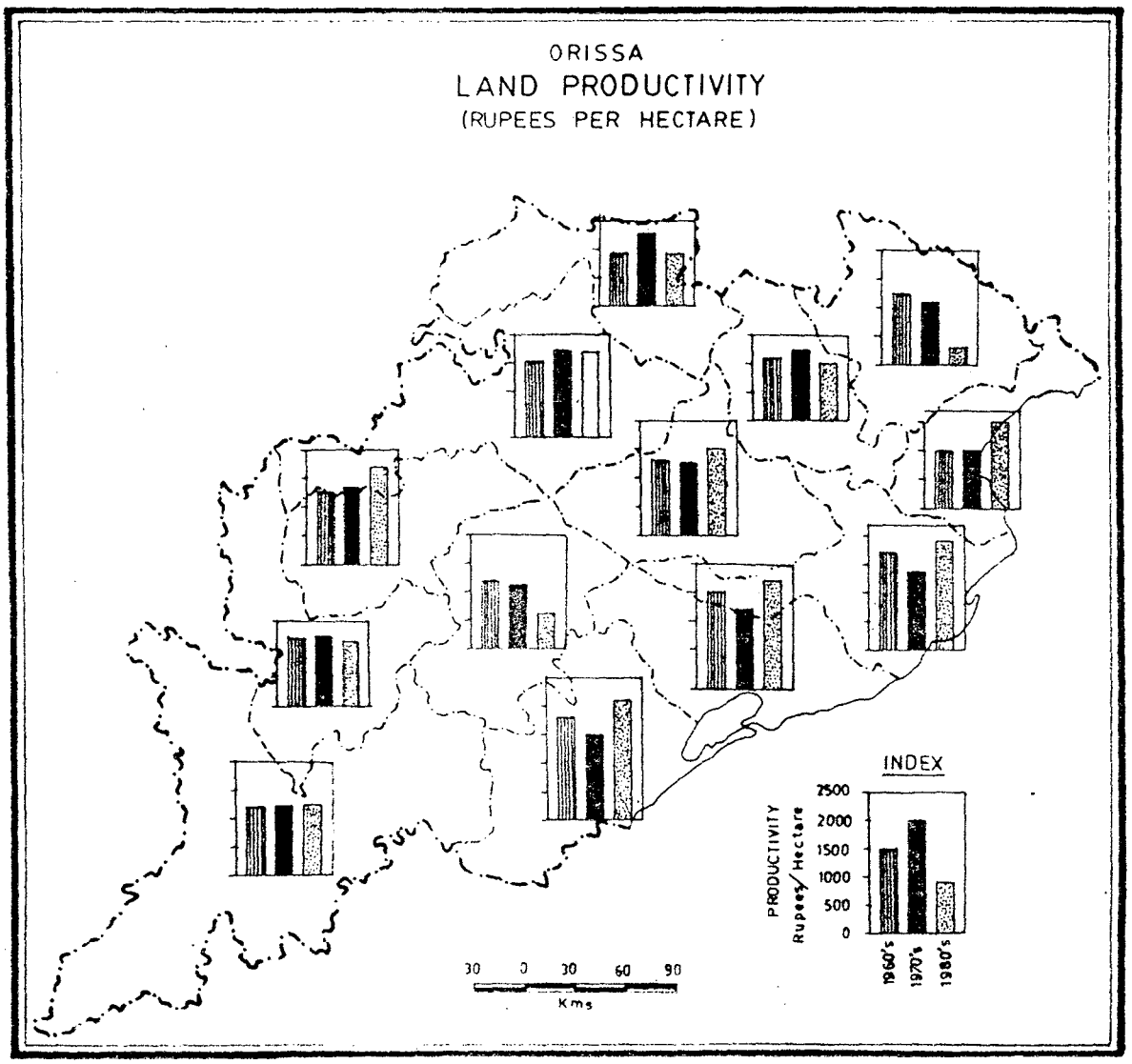

ORISSA
LAND PRODUCTIVITY
(RUPEES PER HECTARE)
INDEX
PRODUCTIVITY
Rupees/Hectare
2500
2000
1500
1000
500
0
1960's
1970's
1980's
30 0 30 60 90
Kms

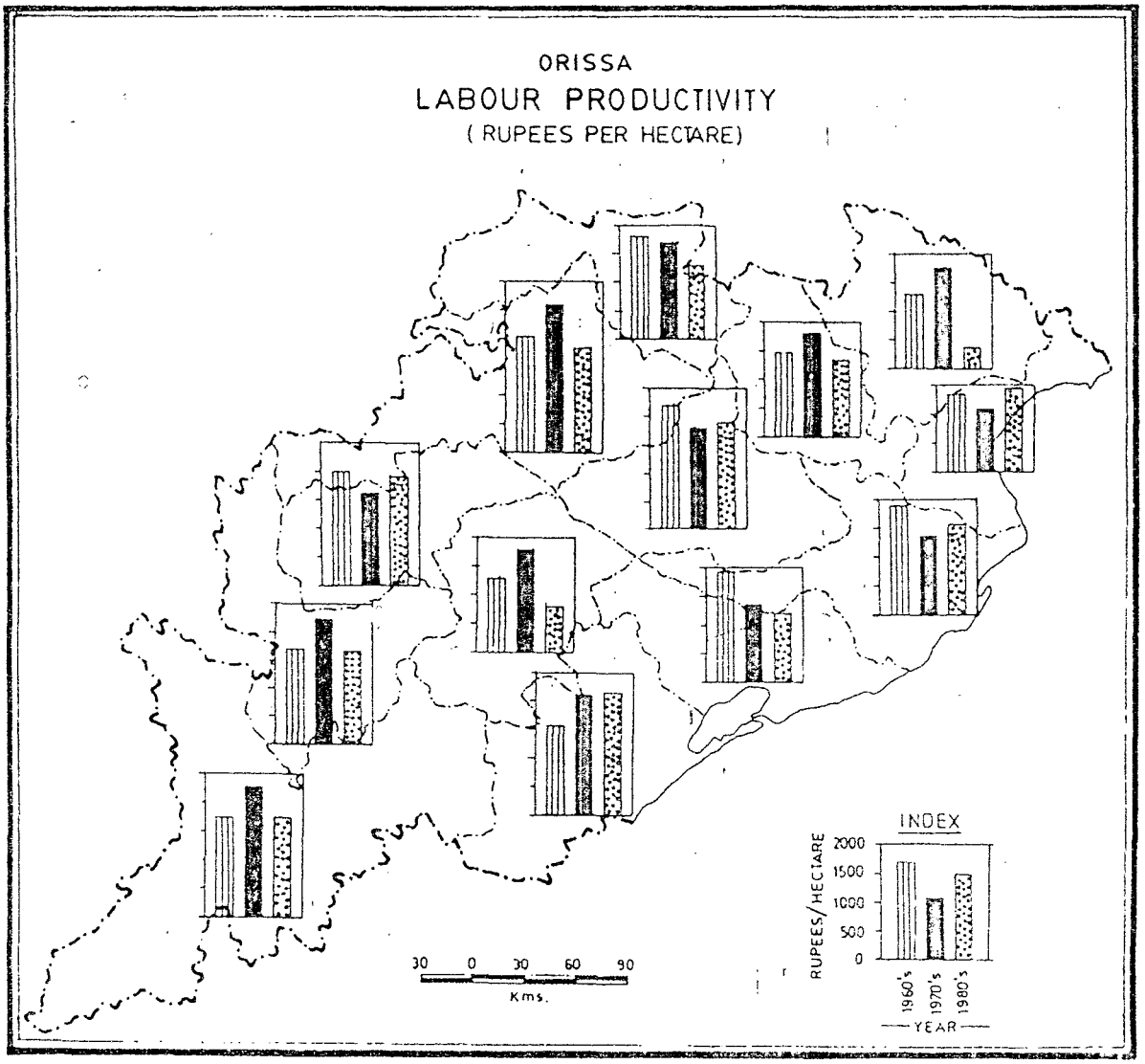
Fig. IV.3

6. Land Productivity:

The use of land productivity is becoming popular in agricultural analyses with the increasing pressure of man on land -- To meet the increasing demand of food, the land productivity is generally accelerated by raising multiple crops in a single season and by substituting the low value crops by high value crops. The land productivity of any region/state is expressed in terms of per unit of land (usually in hectare).

Table IV.7: Land Productivity - District-wise for 1960's-1980's (Rs./per hectare)

Name of the Districts/State	1960's	1970's	1980's
Balasore	1039	1037	1513
Bolangir	1257	1350	1721
Cuttack	1723	1414	1901
Dhenkanal	1302	1294	1507
Ganjam	1782	1472	2096
Kalahandi	1187	1200	1171
Keonjhar	1140	1245	1018
Koraput	1187	1200	1212
Mayurbhanj	1252	1071	294
Boudh-Khandmals	1189	1118	609
Sambalpur	1313	1551	1496
Sundergarh	970	1218	958
ORISSA			


ORISSA
LABOUR PRODUCTIVITY
(RUPEES PER HECTARE)
INDEX
RUPEES/HECTARE
2000
1500
1000
500
0
1960's
1970's
1980's
YEAR
30 0 30 60 90
Kms.

From the Table IV.7 which gives the land productivity of 1961-81, it is revealed that in almost all the districts the land productivity has fluctuated over a period of time. During 1961-71 the land productivity has been declined in seven districts named Balasore, Cuttack, Dhenkanal, Ganjam, Mayurbhanj, Boudh-Khandmals and Puri. Between 1971-81, there are as many as six districts like Kalahandi, Keonjhar, Mayurbhanj, Boudh-Khandmals, Sambalpur, Sundergarh which have recorded decline in the per hectare productivity of land. However, whole only two districts such as Mayurbhanj and Boudh-Khandmals have been experiencing a constant decline from 1961 to 1981. Similarly a constant increase in the land productivity is found in the districts like Bolangir and Koraput. The highest land productivity is noticed in Ganjam in 1961 and 1981 and Sambalpur in 1971. Four districts like Ganjam, Sambalpur, Cuttack, Puri are having the highest land productivity in all the three decades.

7. Labour productivity:

Land productivity does not take into account the growing size of labour force involved in agricultural practices. Since the labour productivity is worked out in terms of the total output per unit of labour,

it is a very good indicator of standard of living in agricultural region. The labour productivity is usually very low in a region or state where the labour is in excess and further increases in the number of workers, further deteriorates the condition.

Labour productivity is found out by dividing the money value of the total output with the number of the workers. Here we have worked out the labour productivity of all the districts [illegible]. It is evident from the Table IV.8 that the labour productivity

Table IV.8: Labour Productivity - District-wise for 1960's-1980's (Rs. per labour)

	Name of the Districts/State	1960's	1970's	1980's
1.	Balasore	1363	1076	1437
2.	Bolangir	2093	1593	1979
3.	Cuttack	1938	1372	1573
4.	Dhenkanal	2201	1816	1928
5.	Ganjam	1534	2092	2137
6.	Kalahandi	1699	2220	1696
7.	Keonjhar	1471	1788	1335
8.	Koraput	1699	2220	1702
9.	Mayurbhanj	1293	1760	361
10.	Boudh-Khandmals	1309	1807	799
11.	Puri	1938	1372	1683
12.	Sambalpur	2034	2579	1868
13.	Sundergarh	1774	1727	1281
	ORISSA			

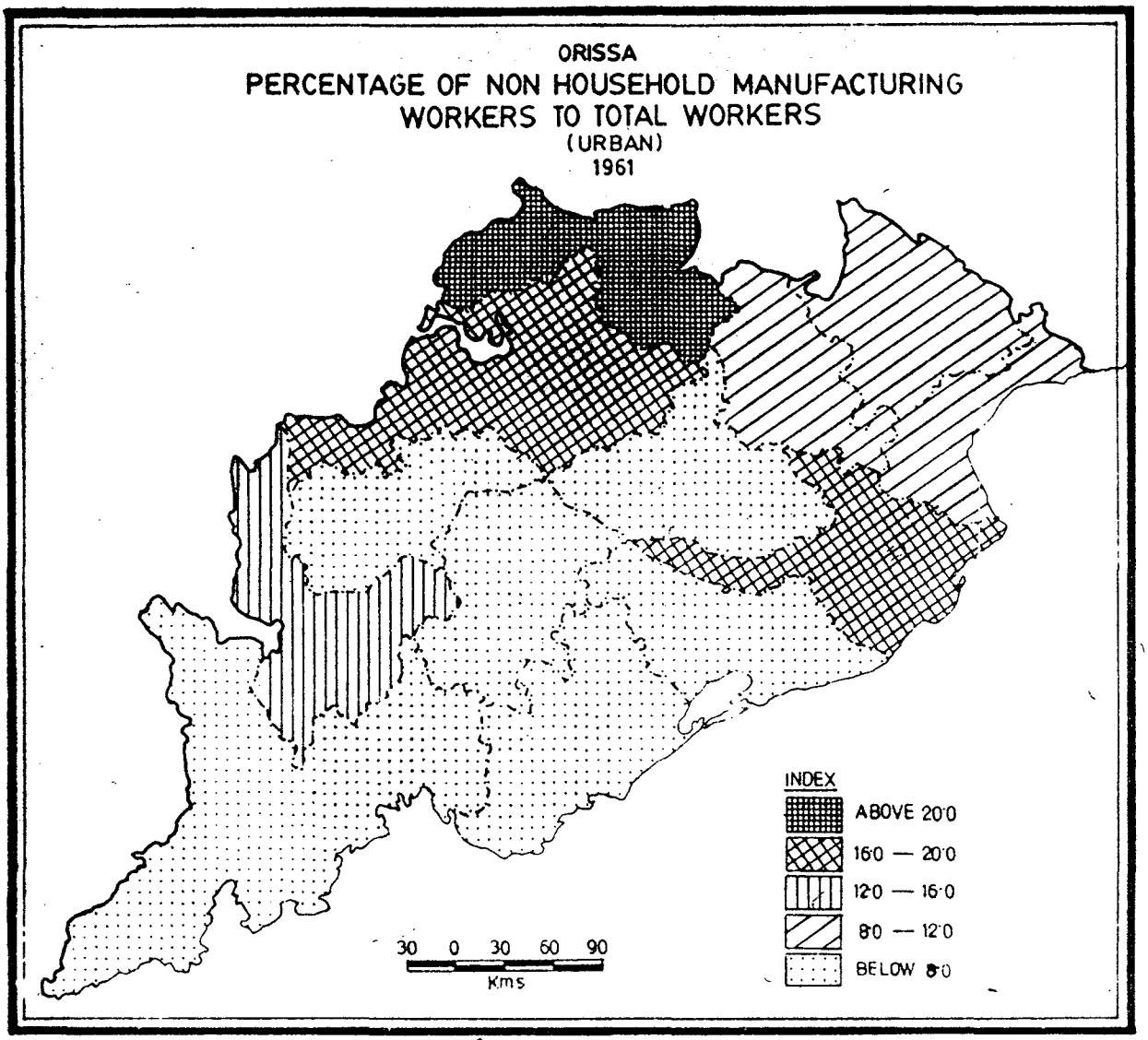

ORISSA
PERCENTAGE OF NON HOUSEHOLD MANUFACTURING WORKERS TO TOTAL WORKERS
(URBAN)
1961
INDEX
ABOVE 20·0
16·0 — 20·0
12·0 — 16·0
8·0 — 12·0
BELOW 8·0
30 0 30 60 90
Kms

Fig.IV.5

has increased constantly only in the district of Ganjam from 1961 to 1981. Similarly district Sundergarh is the only one which has been experiencing a constant decline in its labour productivity during 1961-81. There are as many as sex districts where the labour productivity has gone down during 1961-71. They are Balasore, Bolangir, Cuttack, Dhenkanal, Puri and Sundergarh. Again during 1971-81 the labour productivity has gone down in the districts of Kalahandi, Keonjhar, Koraput, Mayurbhanj, Boudh-Khandmals, Sundergarh and Sambalpur. Mayurbhanj with 1293 and 361 rupees as output per worker in 1961 and 1981 respectively and Balasore with 1076 rupees in 1971 are the lowest values among the districts. Similarly district Dhenkanal with Rs.2201, Sambalpur with Rs.2579 and Ganjam with Rs.2137 have occupied the first position in sixties, seventies and eighties respectively so far as their labour productivity is concerned.

On an average only Balasore, Ganjam and Koraput have recorded increase from early sixties to early eighties and hence the state's average figure also seems to have declined over the period of time.

It is thus revealed that though the land productivity has notably increased, the labour productivity has come down drastically. This is because the growing

pressure on land and expansion of agricultural workforce has not been adequately compensated through measures like extension of irrigation, use of fertilizer intensification of ploughing etc.

In the preceding paragraphs the process of development has been assessed in the agricultural sector. It is noted that the economy is highly dependent upon agriculture, although the non-agricultural sectors of the economy play equally important role in the overall economy of the region. The establishment of industrial plants and their ancillary unite after the 2nd Five year plan have resulted in tremendous transformation of economic structure of the region. This is to be seen in the changing structure of the workforce and its declining dependence on agriculture. However, in the absence of district-wise data pertaining to industrial output, value added etc., no direct assessment can be attempted. Nevertheless certain indirect measures like

(1) Percentage of total factories, workshops, worksheds to total number of census houses,
(2) Percentage of urban factories, workshops, worksheds to total number of urban houses,
(3) Percentage of Non-household manufacturing workers to total workers.

(4) Percentage of household manufacturing workers to total workers,

(5) Percentage of non-household manufacturing workers to total workers in urban,

(6) Percentage of household manufacturing workers to total workers in urban,

(7) Percentage of tertiary sector workers to total workers,

(8) Percentage of tertiary sector workers to total workers in urban areas,

can be used for articulating the patterns of changes taking place in the economy.

In the succeeding paragraph a brief account of the above indicators is given.

The processes of development in industrial or non-agricultural sector are generally explained through

i) the number of occupied census houses used as factories, workshops, worksheds,

ii) the number of industries, workshops, worksheds,

iii) the number of workers in this sector,

iv) the total industrial output.

But as mentioned earlier, due to the non-availability of district-wise data and the limited time and resources available for the study, it has been

restricted to the analysis of indicators (i) and (iii). Census house is defined "as a structure or part of a structure inhabited or vacant or a dwelling a shop, a shop-cum-dwelling or a place of business, workshop, school etc. with a separate main entrance."[4]

Non-Agricultural Development:

So far as the situation of Orissa in terms of its industrial establishment is concerned, not much difference is seen in the number of total factories, workshops, worksheds out of total census houses from 1961 to 1971. The industrial planning policy has affected the overall non-agricultural segments of Orissa in such a way that it is the small scale and ancillary factories that have come up more than the large scale industries.

As a whole, the development of industrial establishments in Orissa was very low, Dhenkanal occupying the highest position in 1961. During 1961-71 four districts like Balasore, Cuttack, Dhenkanal and Puri reported an increase in their percentage of factories, workshops, worksheds in the total number of census houses,

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4. Census of India, 1961, Orissa, Part IV-B, p.

Cuttack showing the maximum percentage figure of 1.24. Boudh-Khandmals happens to be the district with the lowest value both in 1961 and 1971 (see Table IV.9).

Table IV.9: Percentage of total factories, workshops, worksheds to the total number of census houses (Total) for 1961-81

Sr. No.	Name of the Districts/State	1961	1971	Change in share
1.	Balasore	0.35	1.10	0.75
2.	Bolangir	0.18	0.69	0.51
3.	Cuttack	0.36	1.24	0.88
4.	Dhenkanal	0.57	1.07	0.50
5.	Ganjam	0.48	0.76	0.28
6.	Kalahandi	0.10	0.64	0.54
7.	Keonjhar	0.13	0.56	0.43
8.	Koraput	0.16	0.41	0.25
9.	Mayurbhanj	0.19	0.53	0.34
10.	Boudh-Khandmals	0.09	0.27	0.18
11.	Puri	0.50	1.18	0.68
12.	Sambalpur	0.18	0.84	0.66
13.	Sundergarh	0.17	0.57	0.40
	ORISSA			

From Table IV.9, it is again seen that it is Cuttack which experienced or recorded highest increase in the share accompanied by Balasore, Puri, Sambalpur in that order, while Boudh-Khandmals ranking the last among all the districts recorded smallest increase over the decade.

Table IV.10: Percentage of total factories, workshops, worksheds to the total number of census Houses (Urban) for 1961-81

Sr. No.	Name of the Districts/State	1961	1971	Change in the share
1.	Balasore	0.57	3.47	2.90
2.	Bolangir	0.65	2.88	2.23
3.	Cuttack	0.82	3.11	2.29
4.	Dhenkanal	2.06	4.01	1.95
5.	Ganjam	1.03	2.22	1.19
6.	Kalahandi	0.54	2.51	1.97
7.	Keonjhar	0.67	1.43	0.76
8.	Koraput	0.34	1.48	1.14
9.	Mayurbhanj	0.86	3.25	2.39
10.	Boudh-Khandmals	0.90	1.08	0.18
11.	Puri	0.58	1.97	1.39
12.	Sambalpur	0.73	2.25	1.52
13.	Sundergarh	0.65	2.28	1.63
	ORISSA			

The situation in urban areas for 1961 and 1971 (Table IV.10) shows that proportion to factories, workshops, worksheds was the highest in the district of Dhenkanal at both the time points. Though the lowest percentage in 1961 is noticed in the urban areas of Koraput with 0.34%, Boudh-Khandmals happens to be the lowest in 1971.

The analysis, thus, suggests that Dhenkanal has a better position than other districts for both total and urban share of factories, workshops, worksheds to the total number of census houses in both 1961 and 1971. Similarly with regards to the minimum percentage of factories, workshops, worksheds out of total number of census houses in total as well as urban areas Boudh-Khandmals occupies the lowest position.

Table IV.11: Percentage of non-household & manufacturing workers to total workers (1961 & 1971 (Total)

Sr. No.	Name of the Districts/ State	1961	1971
1.	Balasore	1.05	1.45
2.	Bolangir	0.19	1.14
3.	Cuttack	2.37	3.15
4.	Dhenkanal	0.26	1.23
5.	Ganjam	0.99	1.81
6.	Kalahandi	0.12	0.009
7.	Keonjhar	0.41	1.44
8.	Koraput	0.54	1.37
9.	Mayurbhanj	0.18	0.006
10.	Boudh-Khandmals	0.12	0.01
11.	Puri	1.27	1.88
12.	Sambalpur	1.06	3.76
13.	Sundergarh	5.63	10.68
	ORISSA	1.14	2.30

From the Table IV.11 giving percentage of non-household manufacturing workers to total workers it is found that most of the districts in 1961 are having very low rate of workers engaged in non-household manufacturing sector. Sundergarh has the maximum percentage (5.63) of non-household manufacturing workers followed by Cuttack. In 1971 too Sundergarh gets the credit of having the highest percentage (10.68) of workers engaged in non-household manufacturing sector followed by Sambalpur. But in both the time points the lowest percentage of non-household workers is found in the district Boudh-Khandmals with 0.12 per cent and 0.01 per cent respectively.

Non-household activities are generally noticed in urban areas due to the growth of industrial sector. It may be argued that larger the number of workers engaged in non-household manufacturing activities (relative to total workforce), higher is the level of development in a region. The proportion of non-household manufacturing workers to total workforce is noted to be much higher in urban areas compared to the district as a whole (Table IV.12). But in as many as six districts, the percentage of non-household manufacturing workers has gone down between 1961 and 1971. They are

Table IV.12: Percentage of non-household manufacturing workers to the total workers (Urban) for 1961-71

Sr. No.	Name of the Districts/State	1961	1971
1.	Balasore	10.03	11.48
2.	Bolangir	5.08	9.11
3.	Cuttack	18.99	17.69
4.	Dhenkanal	5.22	5.45
5.	Ganjam	7.45	7.08
6.	Kalahandi	14.48	8.27
7.	Keonjhar	8.38	12.97
8.	Koraput	7.72	10.14
9.	Mayurbhanj	8.05	8.96
10.	Boudh-Khandmals	5.49	3.76
11.	Puri	5.25	5.76
12.	Sambalpur	17.70	16.32
13.	Sundergarh	29.03	28.84
	ORISSA	13.99	13.74

Cuttack, Ganjam, Kalahandi, Boudh-Khandmals, Sambalpur, Sundergarh. Remarkable decline is noticed in Kalahandi i.e. from 14.48% to 8.27%. High percentage of workers engaged in non-household activities are noticed in the district of Sundergarh followed by Cuttack, though the percentage for these two districts have slightly declined in 1971. Bolangir (5.08%) in 1961 and Boudh-Khandmals (3.76%) in 1971 are the districts having the lowest percentage of non-

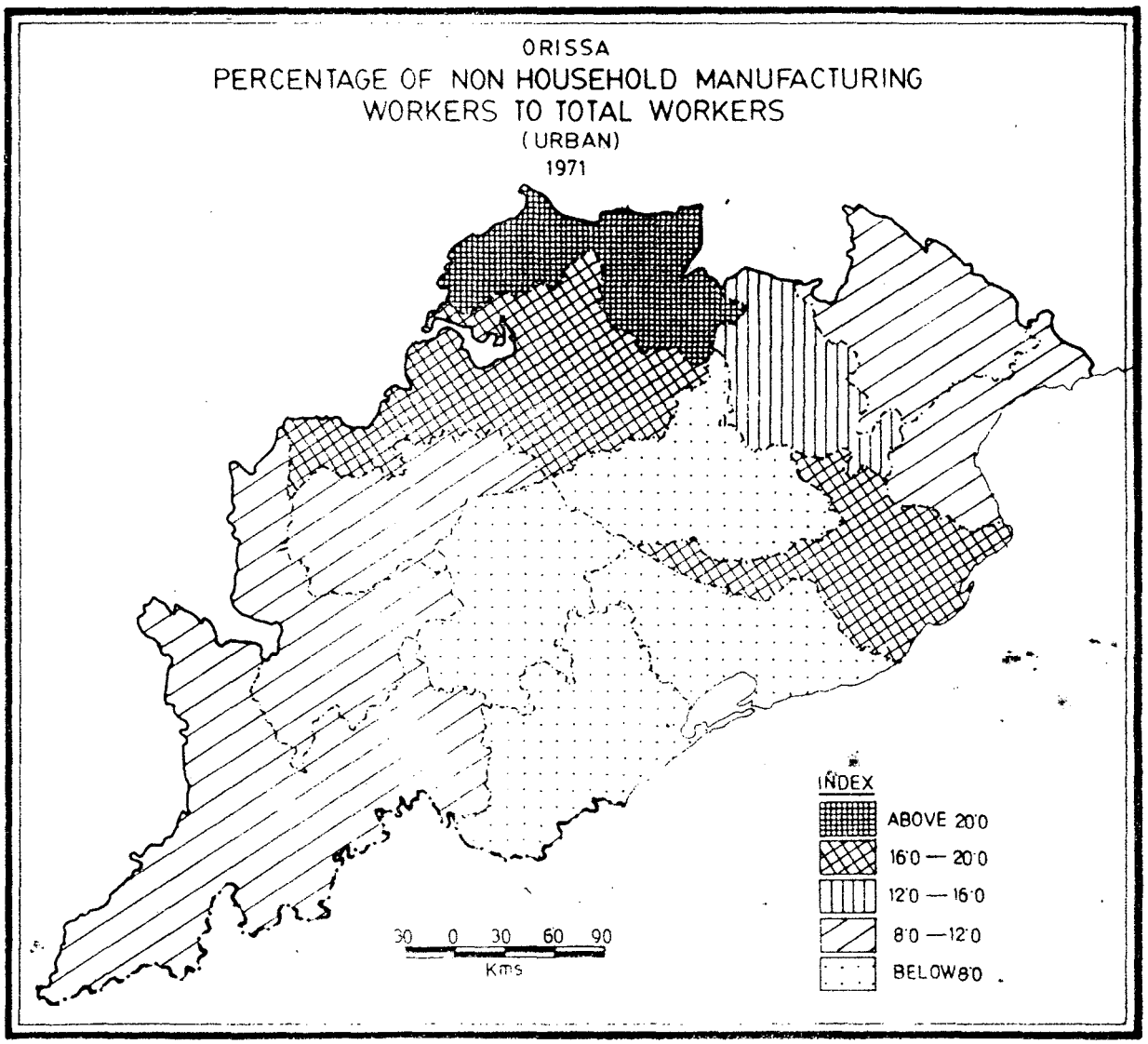
ORISSA
PERCENTAGE OF NON HOUSEHOLD MANUFACTURING WORKERS TO TOTAL WORKERS
(URBAN)
1971
INDEX
ABOVE 20·0
16·0 — 20·0
12·0 — 16·0
8·0 —12·0
BELOW 8·0
30 0 30 60 90
Kms

Fig. IV. 6

household manufacturing workers among all the districts.

Due to the establishment of Steel Plant in Rourkela in mid-fifties the situation in Sundergarh as a whole has changed tremendously where non-agricultural sector plays a dominant role. Unlike Sundergarh, Cuttack has been the seat of old administrative centre with high potentiality to generate many and different (especially non-agricultural) types of economic activities.

During the period 1961-71 all the districts have recorded steady decline in the share of worker engaged in household manufacturing industries (Table IV.13). This declining trend further continues over the following

Table IV.13: Percentage of Household manufacturing workers to the total workers (Total) for 1961-81

Sr. No.	Name of the Districts/State	1961	1971	1981
1.	Balasore	3.37	1.6	1.84
2.	Bolangir	7.26	4.8	4.42
3.	Cuttack	7.04	3.56	3.30
4.	Dhenkanal	6.43	3.87	3.75
5.	Ganjam	6.90	4.13	3.45
6.	Kalahandi	5.12	2.82	2.65
7.	Keonjhar	4.05	2.75	2.57
8.	Koraput	3.09	2.16	1.90
9.	Mayurbhanj	5.39	4.72	5.43
10.	Boudh-Khandmals	5.08	3.63	3.44
11.	Puri	7.28	3.52	3.88
12.	Sambalpur	9.00	6.09	6.04
13.	Sundergarh	3.65	2.73	2.59
	ORISSA	6.03	3.63	3.47

decade viz 1971-81, except a few districts like Balasore, and Puri, that have experienced a marginal increase. The district of Mayurbhanj is the only district which records an increase in the share of workers in household manufacturing industries. On an average, all the districts have recorded considerable decline during 1961-81 except Mayurbhanj, which shows a very small change.

Table IV.14: Percentage of Household manufacturing workers to the total workers (Urban) for 1961-81

Sr. No.	Name of the Districts/State	1961	1971	1981
1.	Balasore	4.48	2.45	2.85
2.	Bolangir	13.74	6.79	6.68
3.	Cuttack	7.04	3.56	3.30
4.	Dhenkanal	10.36	6.92	2.66
5.	Ganjam	12.35	8.03	6.76
6.	Kalahandi	4.50	2.74	2.28
7.	Keonjhar	2.37	3.05	3.56
8.	Koraput	5.74	3.46	3.07
9.	Mayurbhanj	11.17	3.98	4.19
10.	Boudh-Khandmals	27.30	13.09	6.86
11.	Puri	4.00	2.45	2.89
12.	Sambalpur	6.75	5.03	5.40
13.	Sundergarh	2.09	0.01	1.49
	ORISSA	6.81	44.14	3.84

Taking the figures (Table IV.14) of urban areas only, it is observed again that in as many as seven districts - Bolangir, Cuttack, Dhenkanal, Kalahandi, Koraput and Boudh-Khandmals - there has been a continuous decline in the share of urban workers employed in household manufacturing sector. It is only Keonjhar which records a continuous, though marginal increase from 1961 to 1971 and 1971 to 1981. The rest of the districts have experienced a decline in their share during the first decade considerably even though there had been marginal increase over the next decade. Despite this increase in the shares of such districts in 1981, the figures remain much less than that of 1961.

Table IV.15: Percentage workers in tertiary sector to the total workers (Total) for 1961-71

Sr. No.	Name of the Districts/State	1961	1971
1.	Balasore	13.99	10.81
2.	Bolangir	13.04	9.08
3.	Cuttack	22.01	16.40
4.	Dhenkanal	15.23	10.60
5.	Ganjam	19.71	16.70
6.	Kalahandi	13.43	8.90
7.	Keonjhar	9.01	11.16
8.	Koraput	9.98	11.07
9.	Mayurbhanj	7.49	8.19
10.	Boudh-Khandmals	15.20	9.89
11.	Puri	18.29	13.04
12.	Sambalpur	13.96	11.82
13.	Sundergarh	19.53	20.34
	ORISSA	16.95	13.18

When we look at the Table IV.15 it is revealed in 1961, there are only four districts like Cuttack, Ganjam, Puri and Sundergarh, that have higher percentage of workers in tertiary sector (to the total workers) than the state average i.e. 16.95 per cent. In 1971 this percentage for the state as a whole has gone down to 13.18 per cent. Except Puri, all those earlier mentioned districts have a higher percentage of tertiary workers than the state average. Mayurbhanj has the lowest percentage of workers engaged in tertiary sector in 1961 and 1971.

Table IV.16: Percentage of workers in Tertiary sector to the total workers (Urban) for 1961-71

Sr. No.	Name of the Districts/State	1961	1971
1.	Balasore	57.61	57.20
2.	Bolangir	65.36	59.17
3.	Cuttack	63.49	64.53
4.	Dhenkanal	52.48	56.72
5.	Ganjam	63.70	59.18
6.	Kalahandi	62.84	54.93
7.	Keonjhar	69.66	57.69
8.	Koraput	34.82	55.27
9.	Mayurbhanj	67.42	67.74
10.	Boudh-Khandmals	51.73	53.52
11.	Puri	25.43	72.95
12.	Sambalpur	58.15	54.49
13.	Sundergarh	51.13	54.92
	ORISSA	62.32	60.04

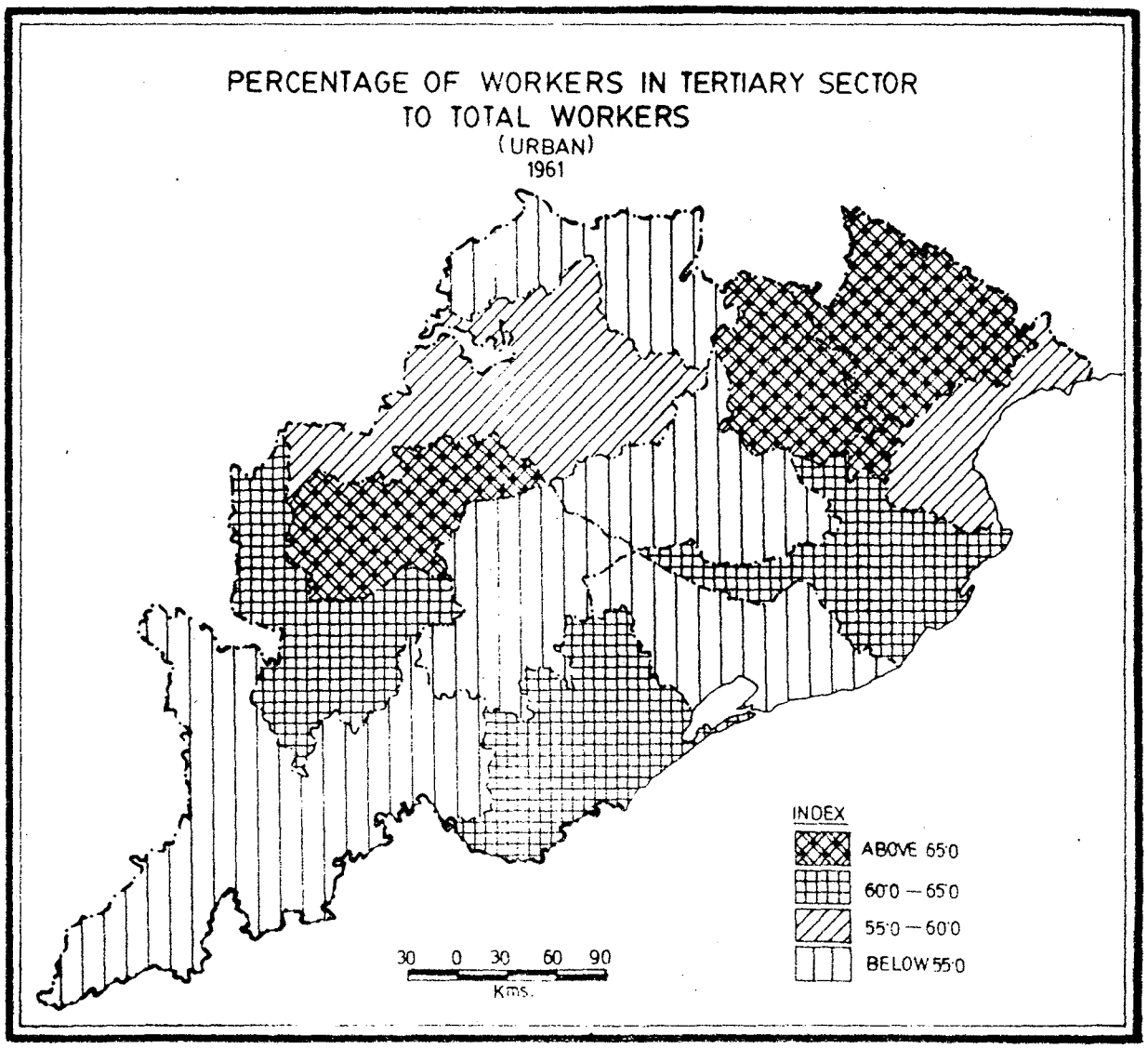
PERCENTAGE OF WORKERS IN TERTIARY SECTOR
TO TOTAL WORKERS
(URBAN)
1961
INDEX
ABOVE 65·0
60·0 — 65·0
55·0 — 60·0
BELOW 55·0
30 0 30 60 90
Kms.

Fig. IV. 7.

In the context of urban areas (Table IV.16) the percentage of workers in tertiary sector for Orissa has also declined between 1961 to 1971. There are six districts such as Bolangir, Cuttack, Ganjam, Kalahandi, Keonjhar, Mayurbhanj having higher percentage of workers in tertiary sector to the total workers than the state average i.e. 62.32 per cent in 1961. In 1971, this percentage for the districts Cuttack, Mayurbhanj, Puri is higher than the state average. Keonjhar and Puri show the highest percentage figure of tertiary workers in urban areas in 1961 and 1971 respectively.

On the whole, the share of tertiary sector workers has shown a declining trend in the state and in as many as six districts such as Balasore, Bolangir, Ganjam, Kalahandi, Keonjhar, and Sambalpur from 1961 to 1971.

The stagnation in the non-agricultural sectors of the economy is reflected in negligible changes in the share of workers in non-household manufacturing sector. The household manufacturing sector, on the other hand, experienced considerable fall. The share of workers in the tertiary sector too has declined marginally. It is on the whole not a healthy symptom. The non-agricultural sectors are yet to develop their potential to tilt the structure

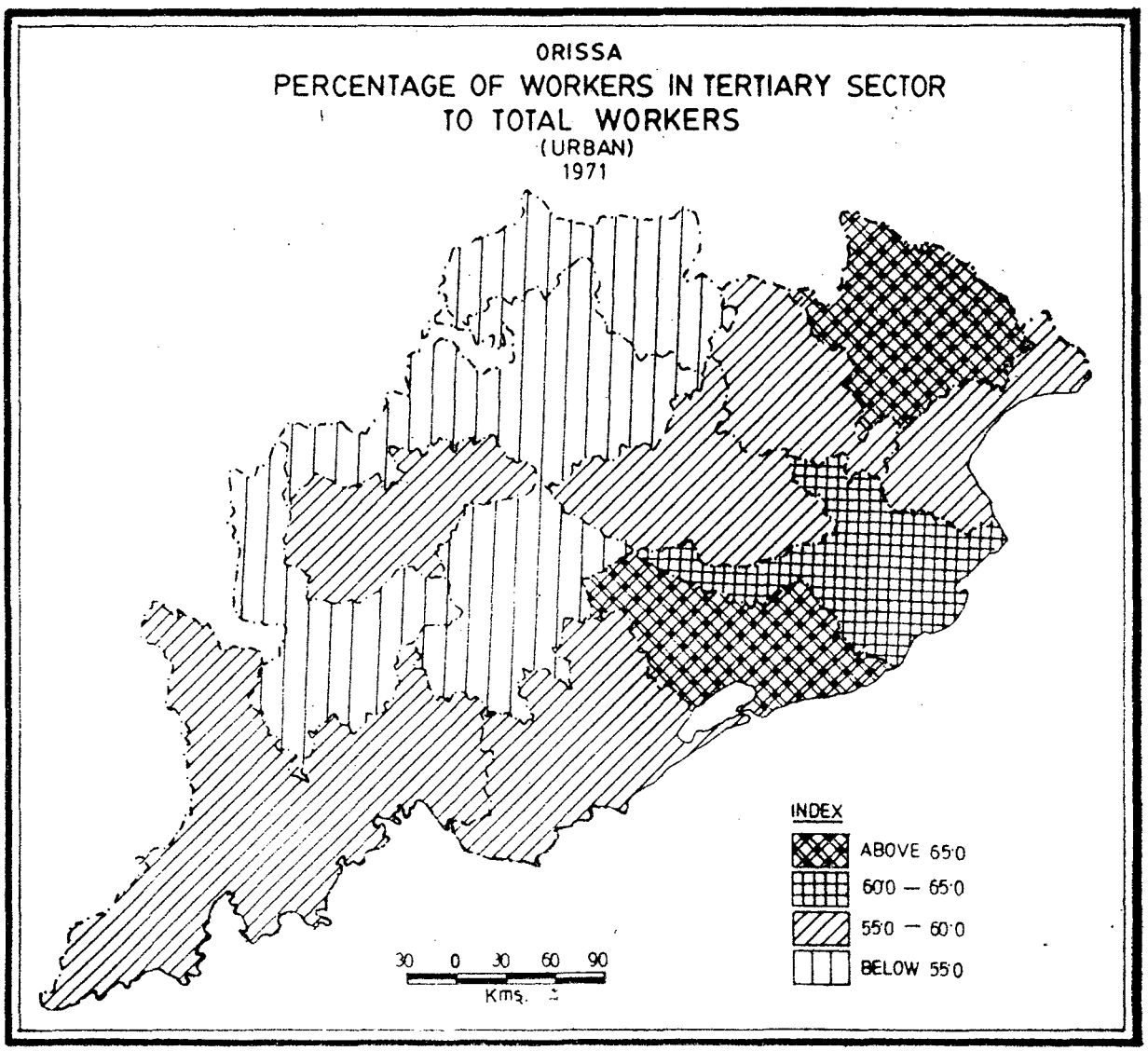
ORISSA
PERCENTAGE OF WORKERS IN TERTIARY SECTOR
TO TOTAL WORKERS
(URBAN)
1971
INDEX
ABOVE 65·0
60·0 — 65·0
55·0 — 60·0
BELOW 55·0
30 0 30 60 90
Kms.

Fig. IV.8

of workforce in its favour. The agricultural sector plays a dominant role. What is more alarming is the fact that industrially developed districts like Sundergarh, Koraput and Cuttack have failed to absorb the growing size of workforce in secondary and tertiary sectors.

Composite Index:

The overall spatio-temporal structure of economic development of Orissa can be visualised through the composite Indices which have been constructed for agricultural development and economic base. To articulate agricultural development, eight indicators viz. (1) Land productivity, (2) Labour productivity, (3) per cent area cultivated, (4) Per cent area irrigated, (5) Cropping intensity, (6) Growth in irrigated area, (7) Fertilizer consumption in kg. per one thousand hectare, (8) Growth in agricultural output, are taken. The economic base of Orissa is taken to be determined by the (1) percentage of total factories, workshops, workshed to total number of census houses, (2) percentage of non-household manufacturing workers to total workers, (3) percentage of household manufacturing

workers to total workers, (4) percentage of tertiary sector workers to total workers, (5) percentage of urban factories, workshops, worksheds to total number of urban houses, (6) percentage of non-household manufacturing workers to total workers in urban, (7) percentage of household manufacturing workers to total workers in urban, (8) percentage of tertiary sector workers to total workers in urban.

Table IV.17: Composite Index for Agriculture, district-wise (1961, 1971, 1981)

Sr. No.	Name of the Districts/	1961	1971	1981
1.	Balasore	2.59	4.01	2.38
2.	Bolangir	3.29	3.00	2.29
3.	Cuttack	5.86	5.04	3.21
4.	Dhenkanal	0.88	2.02	1.71
5.	Ganjam	6.71	6.23	3.29
6.	Kalahandi	1.94	1.85	1.94
7.	Keonjhar	2.00	0.72	2.19
8.	Koraput	1.74	0.64	1.41
9.	Mayurbhanj	-1.06	-2.79	4.15
10.	Boudh-Khandmals	2.64	2.51	1.49
11.	Puri	5.25	4.36	3.07
12.	Sambalpur	3.04	3.39	2.84
13.	Sundergarh	-0.36	0.04	1.75

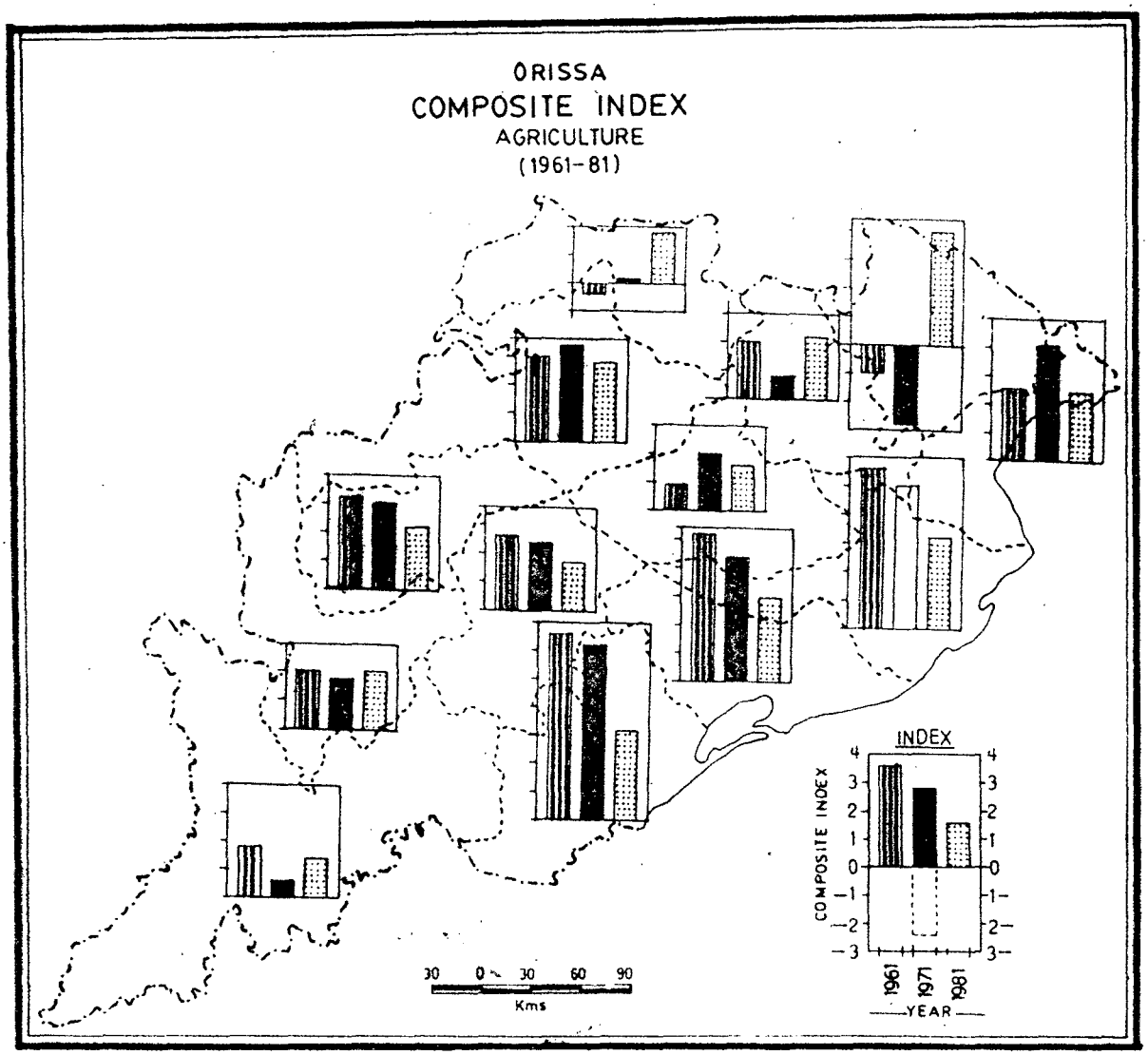
ORISSA
COMPOSITE INDEX
AGRICULTURE
(1961-81)
INDEX
COMPOSITE INDEX
4
3
2
1
0
-1
-2
-3
1961
1977
1981
YEAR
30 0 30 60 90
Kms

Fig. IV. 9

The Composite Indices of Agricultural Development for 1961, 1971 and 1981 showed that Ganjam, Cuttack and Puri continued to be the most developed districts ranking 1st, 2nd and 3rd respectively for first two census years. On the other extreme Mayurbhanj showed negativevalues of the composite index in both 1961 and 1971. Besides Mayurbhanj, the value worked out for Sundergarh is also negative in 1961. But the situation improves slightly in 1971. The 1st three ranking districts are followed by Bolangir, Sambalpur and Boudh-Khandmals in 1961 and Balasore, Sambalpur and Bolangir in 1971 in that order. Excluding the districts showing negative values there was only one district - Dhenkanal in 1961 which had shown composite index value of less than one. There are as many as three such districts in 1971. They are Keonjhar, Koraput and Sundergarh in descending order. Composite Index values for the year 1981 gives a ranking order of the districts quite different from earlier years. Here it is Mayurbhanj which ranks 1st followed by Ganjam, Cuttack and Puri. It may be recalled here that Mayurbhanj had negative values for both 1961 and 1971. On the other extreme it is Koraput which showed the lowest value, being the least developed one among the districts. However none of the districts unlike the previous time points, shows the composite index value

of less than one. It may be concluded here over the time the condition has certainly improved and the variation in the levels of agricultural development has been narrowed down from one decade to other.

Table IV.10: Composite Index for Industry, district-wise (1961-71)

Sr. No.	Name of the Districts	1961	1971
1.	Balasore	5.81	6.21
2.	Bolangir	6.22	7.03
3.	Cuttack	9.49	9.00
4.	Dhenkanal	6.73	6.74
5.	Ganjam	7.60	7.57
6.	Kalahandi	6.01	5.18
7.	Keonjhar	5.21	6.33
8.	Koraput	4.12	5.41
9.	Mayurbhanj	5.81	6.47
10.	Boudh-Khandmals	6.66	5.75
11.	Puri	5.56	6.63
12.	Sambalpur	7.94	9.10
13.	Sundergarh	11.29	12.59

Due to the non-availability of data the composite index for industry has been worked out only for 1961 and 1971. Despite this limitation, a meaningful spatio-temporal trend is emerging through the analysis of the indices for industrial development as given in table IV.18. As is expected, Sundergarh, because of the

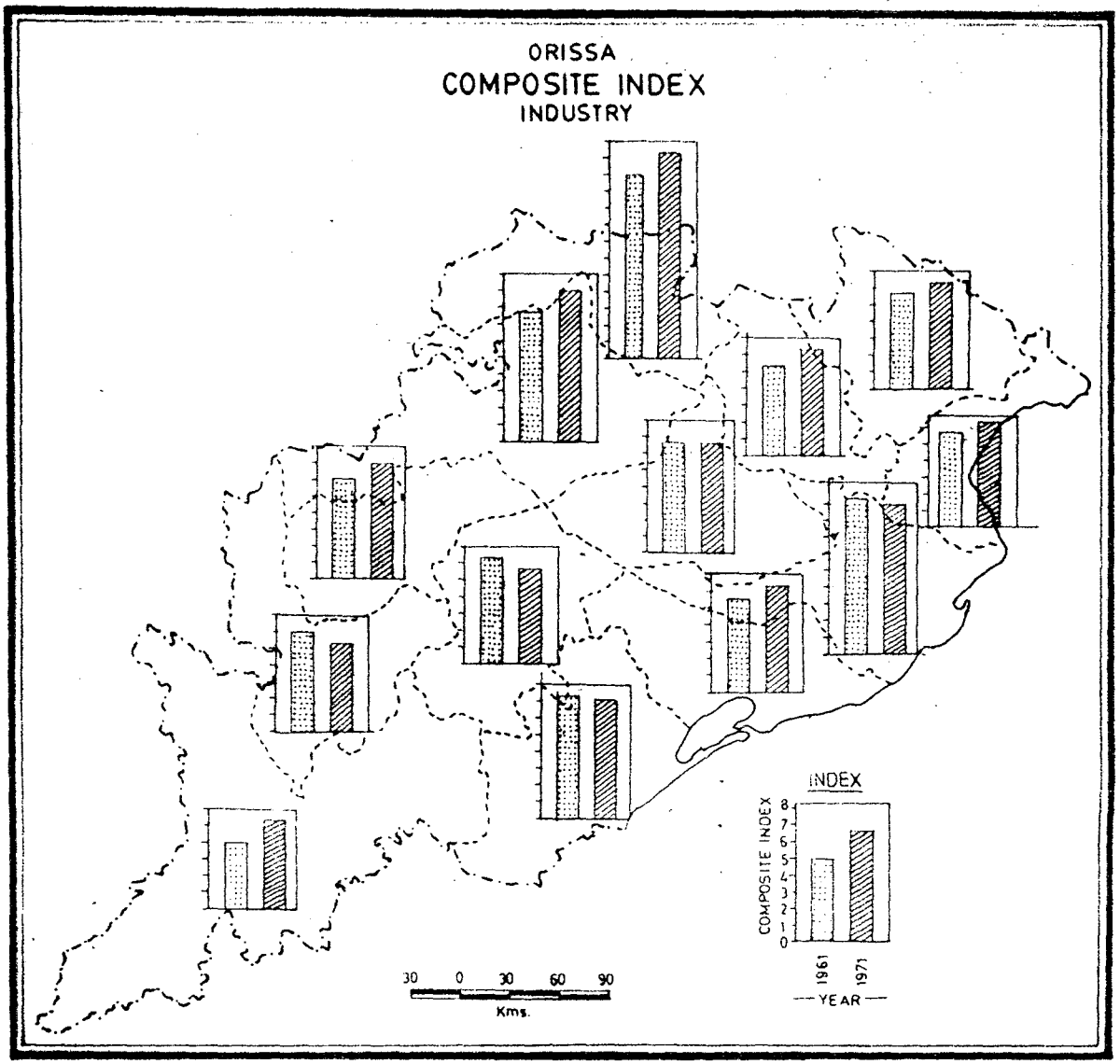
ORISSA
COMPOSITE INDEX
INDUSTRY
INDEX
COMPOSITE INDEX
8
7
6
5
4
3
2
1
0
1961
1971
YEAR
30 0 30 60 90
Kms.

Fig. IV-10

establishment of large steel plant at Rourkela and its ancillary activities, ranks first among the districts in both 1961 and 1971. This is followed by Cuttack and Sambalpur occupying the 2nd and 3rd position respectively in 1961. However, this order changes in the year 1971 as the 2nd rank goes to Sambalpur. Cuttack comes only next to it. The other three districts in that order are Ganjam, Dhenkanal and Boudh-Khandmals in 1961 and Ganjam, Bolangir, Dhenkanal in 1971. In the year 1961 Koraput, Keonjhar, were the least developed districts, while Kalahandi occupies the lowest ranking order in 1971.

Cuttack, Ganjam and Puri are the districts which showed high value of composite index for both agricultural and industrial development in 1961. Table IV.19 gives the distribution of districts in three categories - High, Medium and Low. This has been worked out by arranging the districts in descending order. It is observed that Cuttack and Ganjam continue to remain in the same category viz. highly developed, in 1961 and 1971. Puri is placed in the category of medium rank. It is only Boudh-Khandmals which comes in the medium category for both agriculture and industry in 1961, while there are two districts - Koraput and Mayurbhanj that come in third category. Similarly for

Table IV.19: Distribution of Districts in various category of Composite Indices

	1961		1971		1981
	Agriculture	Industry	Agriculture	Industry	Agriculture
High	Ganjam	Puri	Ganjam	Sundergarh	Mayurbhanj
	Cuttack	Cuttack	Cuttack	Sambalpur	Ganjam
	Puri	Sundergarh	Sambalpur	Cuttack	Cuttack
	Bolangir	Ganjam	Balasore	Ganjam	Puri
Medium	Sundergarh	Dhenkanal	Sundergarh	Bolangir	Sambalpur
	Boudh-Khandmals	Boudh-Khandmals	Bolangir	Dhenkanal	Balasore
	Balasore	Bolangir	Boudh-Khandmals	Puri	Bolangir
	Keonjhar	Kalahandi	Dhenkanal	Mayurbhanj	Keonjhar
Low	Kalahandi	Mayurbhanj	Kalahandi	Keonjhar	Kalahandi
	Koraput	Balasore	Keonjhar	Balasore	Sundergarh
	Dhenkanal	Puri	Koraput	Boudh-Khandmals	Dhenkanal
	Sundergarh	Keonjhar	Sundergarh	Koraput	Boudh-Khandmals
	Mayurbhanj	Koraput	Mayurbhanj	Kalahandi	Koraput

(Worked out by arranging the districts in descending order)

1971, Bolangir and Dhenkanal come under the medium category for agricultural and industrial aspect. Kalahandi, Keonjhar, Koraput show low values of agriculture and industry in 1971. In 1981, Mayurbhanj, Ganjam, Cuttack and Sambalpur districts come in the category of high agricultural development. Sundergarh, Balasore, Bolangir and Keonjhar belong to medium category. At the low category of agricultural development, there are five districts like Kalahandi, Sundergarh, Dhenkanal, Boudh-Khandmals and Koraput.

MAJOR FINDINGS:

Agriculture plays a pre-dominant role in the economy of the state and though the percentage of workers engaged in agriculture declined slightly, still a little more than seven-tenths of the total workforce get employment in agriculture. The reclamation of new land becoming uneconomic day by day, the farmers have gone in for intensive cultivation by bringing more and more lands under multiple cropping. The use of modern inputs like irrigation and consumption of chemical fertilizers have, therefore, recorded tremendous improvement during the period. A lot is yet to be done. The consumption

of fertilizer per unit of land and the share irrigated land in the net cultivated area are still far below the desired level. The overall result of all these is to be seen in the levels of productivity and growth in agricultural output. Though the land productivity could somehow manage to maintain its average level over the decades, labour productivity reported substantial decline throughout the state. This is because the growing pressure of labour force on land has not been compensated proportionally by improvement in agricultural practices, use of tools and inputs etc.

Now, moving to the non-agricultural sectors of the economy we observe that both non-household and household manufacturing sector failed to register growth in the share of workers engaged. The share of workers in the tertiary sector also showed a steady decline and these sectors failed to keep pace with the growth in the size of workforce.

The regional pattern of development reveals that the male workforce participation rate for almost all the districts has declined over the period of time under consideration except in Koraput and Mayurbhanj where it has shown fluctuation from 1961 to 1971 and 1971 to 1981. District Ganjam in 1961 and Balasore in 1971 and 1981 have registered very low rate of male workforce

participation rate among all the districts. The analysis of agricultural development shows that there are four districts: Ganjam, Cuttack, Puri and Sambalpur that have been experiencing higher share of cultivated area, cropping intensity and the levels of modern inputs like irrigation and fertilizer consumption throughout the period of the study. Of these four, Ganjam and Sambalpur have experienced a constant increase in their land productivity. Even in terms of labour productivity Ganjam records constant increase while the rest of the districts show significant fluctuations. Sundergarh, Balasore, Boudh-Khandmals, Mayurbhanj, have shown very low share in the levels of land productivity and besides they have experienced constant decline. Moreover, levels of labour productivity are extremely low in case of Mayurbhanj, Boudh-Khandmals, Balasore, Sundergarh. And again Mayurbhanj and Sundergarh have experienced negative growth in their agricultural output. Other districts too do not show any impressive increase.

In general, Ganjam, Cuttack, Puri and Sambalpur are the important districts that are agriculturally developed and Boudh-Khandmal, Keonjhar, Mayurbhanj, Sundergarh, Kalahandi are the agriculturally backward districts.

The non-agricultural aspect of the economy gives a different picture than agricultural development. On the whole household industry in almost all the districts except Balasore and Puri has declined over the period of time. So far as the district as a whole is concerned it is Mayurbhanj and in terms of the urban areas it is Keonjhar where household industry has been increasing throughout the period 1961-81. These are also the districts that are agriculturally backward. The situation of non-household manufacturing industry has slightly changed in almost all the districts. District Sundergarh, which is one of the backward districts agriculturally, followed by Cuttack and Sambalpur occupies the first position in terms of the non-household manufacturing industry. There are four districts like Cuttack, Ganjam, Puri and Sundergarh where the tertiary sector is prominent in both 1961 and 1971. Districts like Mayurbhanj, Koraput, Keonjhar, Dhenkanal, Bolangir and Balasore are having low share of workers engaged in tertiary sector. As a whole this sector shows a declining trend over the decade. Boudh-Khandmals, Koraput, Bolangir, Dhenkanal, Kalahandi, Mayurbhanj

are the districts highly backward in terms of non-agricultural segment of the economy. Sundergarh, Cuttack, Ganjam, Sambalpur and Puri on the other hand are developed districts in terms of the non-agricultural sectors.

CHAPTER V

CORRELATES OF THE PROCESSES OF URBANIZATION AND THE CHANGING ECONOMIC SCENARIO

As expected, the inputs of agriculture are found to be making notable contribution in the land productivity of the state. This is indicated by the fact that the percentage irrigated area, cropping intensity and fertilizer consumption are having very strong and positive correlation with the land productivity per hectare. The use of fertilizer is generally associated with more and more land being brought under artificial watering methods. The percentage distribution of irrigated land has well corresponded to the level of fertilizer consumption and intensification of cultivation. Labour productivity too has positive correlation with per cent irrigated area and cropping intensity.

Percentage share of factories to the total census houses has positive correlation with percentage of total workers in household industries. Its correlation with non-household workers is comparatively low though positive. This indicates that larger the share of the factories in the total census houses, the

Table V.1: Correlation Matrix showing inter-relation between selected economic indicators 1961

	1	2	3	4	5	7	9	10	11	12	13	14	15
1.	1.000												
2	.277	1.000											
3	.094	.154	1.000										
4	.757	.292	.146	1.000									
5	.933	.340	.205	.735	1.000								
7	.773	-.039	-.008	.701	.639	1.000							
9	.167	.203	.849	.323	.313	.062	1.000						
10	.633	.373	.230	.365	.614	.508	.535	1.000					
11	.175	.320	-.293	-.005	.065	.115	-.133	.584	1.000				
12	-.094	.151	-.006	.013	.064	.075	.005	.027	-.155	1.000			
13	.660	.590	-.104	.740	.611	.353	.165	.358	.300	-.166	1.000		
14	-.220	.141	-.032	.051	-.137	-.028	.069	-.258	-.236	.845	-.086	1.000	
15	.083	-.232	-.372	.015	.059	.063	-.342	-.115	.347	-.403	.197	-.454	1.000

1961

1 Land productivity
2 Labour productivity
3 Per cent area cultivated
4 Per cent area irrigated
5 Cropping intensity
7 Fertilizer consumption in kg. per one thousand hectare
9 Percentage share of N.C.A. to the total geographical area
10 Percentage of total factories, workshops, worksheds to total number of census houses
11 Percentage of urban factories, workshops, worksheds to total no. of urban houses
12 Percentage of non-household manufacturing workers to total workers
13 Percentage of household manufacturing workers to total workers
14 Percentage of non-household manufacturing workers to total workers in urban
15 Percentage of household manufacturing workers to total workers in urban

greater would be the concentration of workers in household industries. When the same thing is analysed for the data of urban areas exclusively, we find almost the same trend. Here again there exists a positive and significant correlation between the share of factories in the total census houses and the share of household workers to the total workers in the urban areas.

In the year 1971 again we find that the output per hectare i.e. land productivity on the one hand and irrigated area, area under multiple cropping and fertilizer consumption, on the other, are highly correlated. However, when growth in irrigated area is analysed in terms of its relationship with land productivity, it is seen that the land productivity has not kept pace with the decadal growth because the two are negatively correlated. As was seen in the case of early sixties, in early seventies too, the irrigated land cropping intensity and fertilizer consumption are positively correlated among themselves.

The growth in the agricultural output occurred between early sixties and early seventies which is negatively correlated with share of irrigated land, fertilizer consumption and intensification of cropping.

Table V.2: Correlation Matrix showing inter-relation between selected economic indicators 1971

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	1.000														
2	.407	1.000													
3	-.098	-.251	1.000												
4	.759	-.106	.108	1.000											
5	.647	-.165	.082	.394	1.000										
6	-.235	-.349	-.018	-.056	-.037	1.000									
7	.763	.348	-.022	.778	.707	-.240	1.000								
8	-.466	.157	-.207	-.646	-.583	.363	-.377	1.000							
9	-.038	-.255	.900	.226	.206	.048	.065	-.205	1.000						
10	.420	-.336	.328	.672	.656	-.019	.440	-.308	.572	1.000					
11	.009	-.195	.244	.116	.192	.091	.095	.267	.519	.695	1.000				
12	.217	.018	-.236	.111	.006	.010	.168	.282	-.161	.115	1.048	1.000			
13	.597	.589	.382	.321	.175	-.073	.477	.042	.336	-.013	.089	-.078	1.000		
14	.118	.008	-.027	.051	-.125	.181	.156	.314	.035	.093	.095	.902	-.101	1.000	
15	.034	.230	-.446	-.046	.090	-.455	.069	-.312	-.500	-.353	-.250	-.501	.358	-.628	1.000

1971

1 Land productivity
2 Labour productivity
3 Per cent area cultivated
4 Per cent area irrigated
5 Cropping intensity
6 Growth in irrigated area (1971-1961)
7 Fertilizer consumption in kg. per one thousand hectare
8 Growth in agricultural output (1971-61)
9 Percentage share of NCA to the total geographical area
10 Percentage of total factories, workshops, worksheds to total no. of census houses
11 Percentage of urban factories, workshops, worksheds to total no. of urban houses
12 Percentage of non-household manufacturing workers to total workers
13 Percentage of household manufacturing workers to total workers
14 Percentage of non-household manufacturing workers to total workers in urban
15 Percentage of household manufacturing workers to total workers in urban

However, it is seen that growth in the irrigated area in different districts well corresponds to the growth in agricultural output. This means the larger space of irrigated area has not necessarily brought about an increase in agricultural output but it is the percentage growth in irrigated area, which has resulted in increasing output.

Unlike 1961, it is seen that the percentage share of factory workshop has got stronger correlation with the percentage share of non-household workers rather than the household workers in 1971. But when the same thing is analysed in the case of urban areas we come across entirely a different picture. Here the share of workshop factories has negative correlation with the share of workers in household industry and positive but notably insignificant with non-household industry. It may be recalled here that in the case of 1961 we had observed a totally different.

In the year 1981, we find the same sort of relationship between the inputs on the one hand (like fertilizer consumption, cropping intensity and share of irrigated area) and levels of land productivity on the other. Even the correlations among these inputs are positive and significant. Since many of the variables for the non-agricultural sectors are not

Table V.3: Correlation Matrix showing inter-relations between selected economic indicators 1981

	1	2	3	4	5	6	7	8	9	10	11
1	1.000										
2	.863	1.000									
3	.503	.194	1.000								
4	.762	.407	.431	1.000							
5	.694	.362	.491	.851	1.000						
6	.653	.445	.294	.797	.473	1.000					
7	.372	.239	.835	.228	.430	.084	1.000				
8	-.052	-.091	-.131	.279	-.041	.405	-.201	1.000			
9	.095	.062	-.201	.263	.141	.257	-.382	.471	1.000		
10	-.704	-.796	-.105	-.366	-.388	-.408	-.101	.331	.001	1.000	
11	.592	.632	.372	.526	.646	.324	.297	-.325	.285	-.780	1.000

1981

1 Land productivity
2 Labour productivity
3 Per cent area cultivated
4 Per cent area irrigated
5 Cropping intensity
6 Growth in irrigated area (1981-71)
7 Fertilizer consumption in kg. per one thousand hectare
8 Growth in agricultural output (1981-71)
9 Percentage share of NCA to the total geographical area
10 Percentage of total factories, workshops, worksheds to total number of census houses
11 Percentage of urban factories, workshops, worksheds to total number of urban houses

available for the year 1981, only the share of workers in non-household and household manufacturing industries have been taken for the correlation analysis. Even if these two non-agricultural indicators show positive correlation, no meaningful or logical inference can be drawn regarding the relationship between these two on one hand and agricultural variables on the other hand.

One important conclusion emerges out here regarding the relationship between changes in irrigated area and changes in agricultural output. During 1971-81, growth in irrigated area is no more a contributing factor in the increase in agricultural output as had been seen in the previous decades where the positive correlation was found between the growth in agricultural output and in irrigated area. The levels of urbanization in the state, too, does not show any significant correlation with agricultural development. Industrial development, on the other hand, has very strong and positive correlation with the levels of urbanization and the correlation between the two has become stronger from 1961 to 1971. (Table V.4)

It is expected that in an economically backward region, the growth of small towns and their share in the total urban population would be largely determined

Table V.4: Correlates of Levels of urbanization with Agricultural Development and Industrial Development

Year	Correlation Coefficient of	
	Agricultural Development	Industrial Development
1961	-0.0055	0.7404*
1971	0.1035	0.9090*
1981	0.0710	N.A.

* Significant at 1 per cent level.

by the changes in the agricultural sector of the economy. However Table V.5 does not support this view. It is found here that these two are having very insignificant correlation with agricultural development. It may be

Table V.5: Correlates of share of small towns and growth of small towns with Agricultural Development

Year	Correlation Coefficient	
	Share of small towns	Growth rate in small towns
1961	-0.1643	-
1971	-0.0903	-0.2760
1981	0.1235	0.0070

said that the process of agricultural development and growth of small towns and changes of their share in the total urban population have been independent of each other. It is worth mentioning that even the growth

of the towns with population of 20,000 and above, during 1961-71 shows a negative but insignificant correlation with industrial development (Table V.6).

Table V.6: Correlates of Growth Rate of towns (20,000 and above) with Industrial development

Year	Correlation Coefficient
1961-71	-0.1639
1971-81	N.A.

The urban growth as a whole, also does not establish any significant correlation with either industrial or agricultural development in the region. During 1961-71, urban growth showed a very insignificant and negative correlation with both the sectors of the economy. As far as agricultural development is concerned, the relationship with urban growth has become positive and comparatively stronger as is observed in Table V.7.

Table V.7: Correlates of Urban growth with agricultural development and industrial development

Year	Agricultural Development	Industrial Development
1961-71	-0.0022	-0.2817
1971-81	0.3872	N.A.

Nevertheless the correlation coefficient is not significant even at 10 per cent level of confidence.

It may be recalled that the levels of urbanization showed very high and positive correlation with industrial development. It can therefore be concluded that higher levels of urbanization well correspond with higher values of the composite index for industries. However, a higher urban growth among the districts was not at all determined by industrial development in the region rather they have shown independent movement over time.

CHAPTER VI

TOWNWISE ANALYSIS OF SOCIO-PHYSICAL INFRASTRUCTURAL FACILITIES

The pattern of urbanization in a region is determined to a largeextent by the geographical location, connectivity of the urban centres and distribution of infrastructural facilities of the region. It has been often argued that other things being constant, the nearness to large cities provide sufficient market facilities and the resultant backward and forward linkages give rise to a continuous growth of towns. In a backward economy, the small towns are largely stagnant, mainly because of the inadequate Government investment. As against this the towns that get larger share of Government investment have better economic base are the ones which are rapidly growing.

In the present chapter therefore a town-wise analysis of the urban growth and certain demographic features as well as the nature and level of development of urban centres of Orissa in terms of socio-physical infrastructural facilities has been presented.

It has been noted in the earlier chapter that the towns in Orissa are experiencing disparate levels of growth during past three decades. There are

significant regional variations which can be explained on the basis of their location and their individual characteristics. Attempt is made to find regional characteristics of their economy and the pattern of urban growth in the region. It would however be important to examine the individual characteristic of the town-like location, accessibility, to administrative centres and to the large cities (population of more than 1 lakh), levels of infrastructural facilities and public amenities as measured by the Municipal revenue, which explains the growth of the towns. It has been hypothesised that the factors specific to the towns, particularly its connectivity and levels of infrastructural facility, have significant effect on its economy which in turn promote or hinder its demographic expansion. In order to examine the validity of this hypothesis, an attempt has been made in this chapter to analyse if the urban growth or the growth of population of towns shows any distinct pattern or not - particularly if that varies depending upon connectivity and other infra-structural facilities provided in the town.

The analysis has been attempted in two sections. In the first section towns have been put into different categories on the basis of their connectivity which

is measured in terms of distance from the central location. Three different parameters have been taken to articulate this dimension. They are:

i) Distance from the sub-divisional Head Quarter/ District H.Q./State H.Q.

ii) Distance from the class I city

iii) Distance from the nearest railway station.

Towns have been grouped into 4 or 5 categories initially to find the distribution pattern of towns among these categories. Subsequently there have been further two to three categories and the growth rate of urban population for the towns in the different distance category from the central location (Administrative H.Q., Class I city, Railway stations) have been measured.

In the second section of analysis, indicators of infrastructural facilities have been constructed for Orissa. Indicators have also been constructed for per capita Municipal revenue and expenditure which indirectly provides more and better infrastructural facilities in the town. Finally, a set of indicators relating to the population size and urban growth during the recent decade has been analysed.

A correlation matrix has been constructed which gives the idea of the level of interdependencies. On the

basis of the values of correlation, attempts have been made to test the hypothesis that level of infrastructural services and the quality of services as reflected to Municipal expenditure, determine the level of urban growth and vice-versa.

(i) Nearness to Administrative Head Quarters:

Proximity of urban centres to the administrative Head Quarters (State, District and sub-divisional) exerts influence on the growth pattern of individual towns. However, the following paragraphs would be confined only to physical proximity of the urban centres to the District and sub-divisional Head Quarters.

From the table given below it is evident that no town is located within a distance of 10 kms. from the district Head Quarters except the district headquarters themselves. The maximum number of towns is found to be located in the distance range of 50-100 kms. The second largest concentration of towns is found in the distance range of 101 kms. and above.

Table VI.1: Frequency distribution of of towns by the distances from district and sub-divisional head-quarters - 1971

Distance (in kms)	District H.Q.		Sub-divisional H.Q.	
	Number	Percentage	Number	Percentage
0 - 10	13*	16.67	49**	62.82
11 - 25	7	8.97	13	16.67
26 - 50	8	10.26	12	15.38
51 - 100	35	44.87	4	5.13
101 & above	15	19.23	-	-
Total	78	100.00	78	100.00

Note: * All these 13 are the district Head Quarters themselves.

** Out of this, 48 are the sub-divisional Head Quarters themselves.

It is again evident that there is only one town lying within a distance of 10 kms. from the sub-divisional Head Quarters. The largest concentration is found in the distance range of 11-25 kms. and the number of towns declines significantly with the increase in the distance from sub-divisional Head Quarters. And as is expected no town is found beyond the distance of 100 kms.

(ii) Growth of towns by administrative status:

The table given below shows that the towns having district Head Quarter grew at a very fast rate during the period 1971-81. Though the sub-divisional Head

quarters and other towns too grew rapidly, the growth-rate of these towns was much less than that of the District Head Quarter. The sub-divisional Head Quarters and other towns as shown in the table recorded almost equal growth rate during 1971-81. Secondly except the towns under the category of 'other towns', the district and sub-divisional head-quarters have recorded substantial increase in their growth rate during 1971-81, as compared to the previous decade. (see Table VI.2).

Table VI.2: Orissa:Growth rate of towns/urban agglomerations by administrative status as recorded in 1971 census

Administrative Status	No.of Towns in 1961	No.of Towns in 1971	Growth Rate in %age 1961-71	1971-81
District Head Quarter	13	13	58.79	87.07
Sub-divisional Head Quarter	31	35	26.66	61.17
Other Towns	15	30	62.62	62.25

Note: The tabulation has been done for the data of the base year 1971 and the categorization of urban centres and their population correspond to the base year 1971.

(iii) Growth rate by accessibility to the means of transport:

The adequacy of transport and communication facilities is often used as an indicator for the

levels of development in a region. The transport facilities play vital role in the growth of urban centres. Towns or cities having close accessibility to the means of communication have greater range of influence over the surrounding region. As a result they experience considerable spatial extention, while those urban-centres which are located at a greater distance from the available transport facilities, experience very low rate of growth. Among the transport means the railways and the roadways occupy important position.

As far as the railways are concerned, the picture however seems to be far from satisfactory in the state as a whole. It is found that out of the 81 towns in 1971, only 36 were connected by railway [illegible]. Of the rest, 12 towns were found to be located within a distance of 2 to 25 kms. from the nearest railway stations and as many as 33 towns were found beyond 26 kms of distance.*

The table below presents relevant data about the towns not connected by railway stations.

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* These break-ups have been taken from the Census of India, 1971, Orissa, Town Directory, Part-VIA, p.16.

Table VI.3: Towns not connected by rail

Distance from nearest rail heads	No. of towns
Upto 1 km	-
2 to 5 kms	2
6 to 10 kms	2
11 to 15 kms	3
16 to 25 kms	5
26 kms and above	33
	45

The thirty-five towns that had railway connections in 1971 recorded a growth rate of 38.11 per cent between 1971-81. As against this the towns that did not have railway connection increased their population at a rate of 39.46 per cent which is comparable to those having railway stations. The table given below summarizes the picture of the effect of increasing distance from the railway station and the growth of urban population (see Table VI.4).

It is striking that the growth rate among the towns, not connected with railway stations display increasing growth rate with increasing distance. Hence the general hypothesis that the urban growth rate and the distance from the nearest railway station are inversely related is rejected. This shows that accessibility to

Table VI.4: Accessibility to railway connections and urban growth (as per 1971 figure)

Distance from the nearest railway station (in kms)	No. of towns in 1961	No. of towns in 1971	Growth rate in %age 1961-71	1971-81
0	30	35	58.55	38.11
1 - 25	10	9	14.31	12.55
25 - 50	15	15	53.29	43.53
50 +	12	19	40.51	55.21

Note: Tabulation has been done for the date of the base year 1971 and the categorization of urban centres and their population correspond to the base year 1971.

railway connections does not play any role in the growth of urban areas or towns. Another important trend which emerges here is the fact that except those towns that were found to be located beyond 50 kms from the nearest railway station, all the other categories of towns recorded a decrease in their growth rate during 1971-81, as compared to the previous decade. The process of urbanization and the development of railways are taken to be interrelated and interdependent historically, which is not found in case of Orissa.

In the background of this picture of inadequacy of railway communication in the State and many of the towns being far away from their nearest railway stations,

the data relating to the road transport facilities available for the towns is worth analysing. It is true that the quality of the roads and the nature and frequency of transport facilities available leave scope for improvement. But even then, it seems rather satisfying that none of the towns is located very far away from the bus route and that each town is communicable by public or private transport buses.

(iv) Nearness to cities:

Physical proximity of the towns to the class I cities is supposed to be an important factor for the urban growth. The large cities provide market and other service functions to the surrounding towns and this is in the form of backward and forward linkages. All these are supposed to help the smaller urban centres in improving their economy. The ultimate result is noticed in the integrated growth or urban centres of different size classes. It is worth-mentioning that in many of the developing economies of the world, this postulated interdependence between urban centres of different size categories realising through backward-forward linkages seems to be absent

Orissa, too, does not seem to be an exception to this. It is found that the number of towns which

lie in the zone of easy influence of the cities, by virtue of their physical proximity, is very small. More than two-thirds of the total urban centres are located at a distance of more than 100 kms from their nearest class I cities.

Table VI.5: Frequency distribution of towns by distance from the nearest class I city

Distance (kms)	No. of towns	%-age
0 - 25	4	5.12
26 - 50	9	11.54
51 - 100	15	19.23
101 & above	50	64.11
Total	78	100.00

The number of towns tends to increase with increase in the distance from the nearest class I city. The largest concentration is found at a distance of more than 100 kms. The general picture therefore is one of dispersal of towns away from the influence of the city.[1] The towns in 1961 if arranged accordingly, also reveal the same pattern of dispersal.

1. Census of India - Orissa, Town directory, 1971, p.16.

The growth rates of towns in different distance categories from the nearest city, however, does not give a clear-cut trend. The largest growth during 1971-81 was recorded among the towns located at a distance of 26-50 kms and the lowest among the ones, located within 25 kms. (see Table VI.6)

Table VI.6: Growth Rate of the towns from class I city (as per 1971 figures)

Distance from the nearest railway station (in kms)	No. of towns in 1961	No. of towns in 1971	Growth Rate in %age 1961-71	1971-81
0 - 25	4	3	50.67	28.39
26 - 50	8	9	61.88	63.26
51 - 100	11	16	50.40	41.93
101 +	36	48	53.26	52.58

Note: Tabulation has been done for the data of the base year 1971 and the categorization of urban centres and their population correspond to the base year 1971.

If the growth of the same towns is analysed during the previous decade i.e. 1961-71, it is noticed that the towns that were within a range of 25 kms from their nearest city recorded considerable fall in the growth rate from 1961-71 to 1971-81. Similarly, the towns between the distance 51-100 kms also recorded decrease in their growth rates over the two decades. The rest of the categories, however, do not show any remarkable change in their growth rates.

Socio-physical infrastructural facilities:

Infrastructure, also known as "social overhead capital" represents the investment in basic services that are absolutely necessary for directly production activities.[2] According to Hirschman, the social overhead capital comprises all public services as well as agricultural overheads like irrigation drainage system etc. Though it is very difficult to develop an accurate definition of the term 'infrastructure' and to establish its relationship with economic development, there is a general unanimity about its necessity for maximising the rate of economic growth.

The level of Municipal services or the infrastructural facilities and the urban growth can have bidirectional relationship. Firstly, if the level of Municipal services is high, then the urban growth can be high as higher level of infrastructure would attract people and industries. Secondly, if the urban growth is high, this could be due to concentration of industries and other economic activities; all may strengthen the tax base of local authorities

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2. R.C. Sinha and D.K. Bajpai, "Infrastructure and economic development: A study of road transport in Uttar Pradesh", Lucknow, 1987, p.20.

that would result in higher level of municipal services.

Infrastructural facilities can be grouped under two broad categories - physical and social. Among the physical infrastructural facilities, water supply, toilets/laterines, electricity, roads are included. On the other hand social infrastructure includes medical,educational, recreational and banking facilities.

Apart from the indicators discussed so far, there are several other indicators through which the levels of economic development of the urban centres can be analysed. They are households per 100 houses, rate of male literacy, male work force participation rate, percentage of workers in different industrial categories.

On an average infrastructural facilities are found to be extremely poor in most of the urban centres. This is particularly so in the case of small and medium sized towns. This is indicative of economic backwardness, which is again reflected in smaller revenue collections and low Government investments, the ultimate result being the slow urban growth or stagnation. However, the large towns do have a better base of both social and physical infrastructure. In such towns the large revenue collection as well as Government investment

has resulted in economic growth and expansion of urban population.

It is worthnoting that the physical and social infrastructural facilities do not show any significant correlation among themselves. Even with the total receipt of revenues, it is only the number of industrial and commercial electric connections which shows significant and positive correlation. Again from among the social infrastructural indicators it is only the number of educational facilities which is significantly correlated with total receipt of revenue. However, the total number of banks is also found to be positively correlated with total municipal expenditure in towns.

Correlates of population size and urban growth:

A town-wise correlation analysis shows that population size of the urban centres is positively correlated with receipt through taxes per capita and total receipt. This shows that in the large cities or towns revenue collection by the local governing body is larger. The population size of the urban centres is also positively correlated with the socio-physical infrastructural facilities like number of latrines, number of educational facilities, number of domestic electric connections. The availability of these infrastructural facilities is

possible because of more revenue being collected by the Municipal or local governing body of the town. This means that when the large towns have more of Municipal revenue, they generally have more and better infrastructural facilities.

It is also found that population size is positively correlated with percentage share of workers in trade and commerce or other services and male literacy rate. The large cities, thus, have a developed industrial base and a greater share of workers is engaged in the economic pursuits like trade and commerce and other services.

As would be seen below, the larger towns are not necessarily the ones, experiencing high urban growth at least during the decade 1961-71. When we look at the correlation of urban growth during 1961-71 it is noticed that it has significant correlation with very few indicators like Distance from the District H.Q., number of industrial and commercial electric connections, Distance from the bus-route. This implies that during this decade the urban growth is noticed in those areas which are away from the District H.Q. and the bus routes

The urban growth during 1971-81 is found to be positively correlated with population size, distance

from the State H.Q. and the nearest city, total receipt through taxes, number of educational facilities, percentage of male literates and percentage of workers in other services.

On the whole it is revealed that three indicators like (1) Distance from the State/District H.Q., (2)Distance from the Class I city, (3) Distance from the Railway stations do not play any positive role in the growth of the towns. On the other hand, it seems that urban-growth is high in those towns which are away from the influence zone of the State and District H.Q. class I city or Railway station. It is already mentioned in the earlier section of this chapter that District H.Qs and the Class I cities are growing very rapidly. The positive correlation of urban growth with the population size reveals the fact that the larger urban centres are experiencing higher urban growth and it is these towns that are having higher level of infrastructural facilities. On the other hand the distance from the sub-divisional H.Qs seems to be playing an important role in the growth pattern of urban centres.

MAJOR FINDINGS:

The District Head Quarters in Orissa have grown at a very fast rate and a substantial increase in the

growth rate of District Head Quarters and sub-divisional Head Quarters is recorded during 1971-81. Besides the growth rate among the towns not connected with railway stations display an increasing trend with increasing distance during the same period. Except those towns which were found to be located beyond 50 kms from the nearest railway station, all the other categories of towns recorded some amount of decrease in their growth rate during 1971-81. More than two-thirds of the total urban centres are located at a distance of more than 100 kms from the nearest class I cities. The number of towns tends to increase with increase in the distance from the nearest class I or a large city. It is true for both 1961 as well as 1971. Growth rate is very high and there is an increase in growth rate also in those towns which are located at a distance of 26-50 kms from the nearest class I city followed by the towns at a distance of more than 100 kms during 1961-71 and 1971-81. Moreover, a large number of towns are located at a distance of more than 100 kms from the nearest class I city.

As far as administrative centres are concerned, generally one can say District Head Quarters lead to growth. So location of administrative centres seems to be a sufficient condition for promoting growth. Secondly

distance from the city centre is once again not very important factor in the urbanization. Because here the backwash effect is prominent than the spread effect. Besides, there is no forward and backward linkage between the large cities and their immediate periphery where growth rate tends to be low. But the towns which are at a distance of more than 50 kms are growing at a faster rate. Lastly, one cannot say having railway station increases the growth rate of the towns. Small towns have shown high growth rate which are away from the railway station.

Many small towns other than District and sub-divisional Head Quarters which are located at a large distance from the class I cities and without railway transport system and infrastructural facilities are also having high urban growth. They lack transportation and communication, infrastructural facilities. So one would hypothesise that it is not due to industrialization but the push factor operating in the rural areas, which force the rural people to migrate to nearby small towns. The urbanization in Orissa is not yet being supported by transportation, and infrastructural facilities.

CONCLUSION

The present study is an attempt to examine the nature of relationship between the process of urbanization and economic development in Orissa for the decades from 1961 to 1981. Orissa is one of the least urbanized and economically underdeveloped states of the Indian Union. Nevertheless the state has experienced considerable urban growth in the recent past and as is expected a larger share of this growth has gone in favour of large towns and cities. While the small and medium sized towns have recorded steep fall in their shares in the total urban population, an opposite trend is to be noticed in the case of large towns and cities. Wide regional variations are also noticed in the pattern of urban growth as well as in the levels of urbanization.

It is striking to note that the backward districts have registered high urban growth in the small towns. On the other hand the developed ones have greater number of large and medium sized towns and these are growing at a significantly higher rate compared to the smaller towns. More specifically, the districts that have experienced rapid industrialization have a few large cities and are experiencing fast demographic

expansion. As against this, the districts, having long history of urbanization and a balanced development of agriculture and industries, have the dominance of medium sized towns with balanced urban pyramid.

Urban growth in the economically backward districts is to a large extent due to the addition of new towns. And since the additions to the number of towns takes place in the lower level of urban hierarchy, these are the districts which have recorded growth in the number of small sized towns. The existing small towns with population below twenty thousand have also recorded fast urban growth in these districts.

The economy of the state is found to be largely dependent upon agriculture where more than seven-tenths of the total workforce is engaged in agricultural activities. Though the agricultural sector has registered some progress during 1961-81 the levels of productivity (both land and labour) are far below the national level. The workforce has been growing in the agricultural sector which has led to a fall in labour productivity throughout the region, though land productivity has shown an increasing trend. In general Ganjam, Cuttack, Puri and Sambalpur are found to be agriculturally developed. On the other hand among

the agriculturally backward districts Boudh-Khandmal, Keonjhar, Mayurbhanj, Sundergarh, Kalahandi are more conspicuous. During 1961-71 Mayurbhanj and Sundergarh districts and during 1971-81 districts like Ganjam, Balasore, Bolangir and Boudh-Khandmals have recorded higher growth in agricultural output.

The failure of the non-agricultural sector is seen through the declining share of workers in the manufacturing sector (both household and non-household) as well as the tertiary sector. On the whole districts like Sundergarh, Cuttack, Ganjam, Puri and Sambalpur are better off, while Boudh-Khandmals, Kalahandi, Mayurbhanj, seem to be the most backward districts in terms of the dependents of workforce on secondary or tertiary sectors.

The composite index, worked out for agricultural as well as industrial development also shows the similar trend. Districts like Ganjam, Cuttack and Puri are agriculturally developed throughout the period. Values of composite index for industries show that Sundergarh, Cuttack, Ganjam are developed districts during 1961 and 1971.

An analysis of the pattern of agricultural development in the state shows that land productivity is having strong and positive correlation with the share of irrigated land, cropping intensity, fertilizer consumption in 1961, 1971 as well as in 1981. Growth in irrigated area does not show a clear pattern of relation with the indicator of agricultural development during sixties and seventies. As far as the non-agricultural segment of the economy is concerned,it is noticed that the share of census houses under factories is positively correlated with household industry in 1961. However this correlation is insignificant in case of non-household manufacturing industry both in 1961 and 1971 but negative with household manufacturing industries in 1971. Except Mayurbhanj which shows a very small change, all the districts have recorded considerable decline in the share of workers in household manufacturing industries during 1961-81. As far as workers engaged in non-household manufacturing industries are concerned, Sundargarh, Cuttack and Sambalpur districts have the maximum percentage for the time points of 1961, 1971.

The townwise analysis of Orissa,while studying the nature and levels of development,reveals that the District Head Quarters of Orissa are growing at a very

fast rate without having any influence over their immediate hinterland. But urban growth is rapid at a distance from the district head quarters, perhaps in the sub-divisional Head Quarters. Besides the backwash effect of the large cities appear to be important in the immediate peripheral zone and urban growth in the immediate vicinity of the large cities is very low. This is due to lack of strong forward and backward (production) linkages between the large cities and their peripheral towns. It is interesting to note that greater is the distance from the large towns, higher is the urban growth. Moreover, an easy access to the class I cities or to the railway stations does not appear to be an important factor promoting urban growth in case of Orissa. Apart from sub-divisional and District Head Quarters, there are several small towns located at a great distance from the large cities with not much infrastructural facilities, railway connection etc. that are also experiencing high urban growth.

It has been noted that the pattern of urbanization in the state of Orissa shows a negative correlation with the pattern of industrialization and economic growth. Some of the backward districts (Koraput,

Balasore, with addition to Keonjhar and Puri in 1961 and Boudh-Khandmals and Kalahandi in 1971) with low level of sectoral diversification and very small per cent of work force in manufacturing sector have experienced rapid urban expansion. Moreover, it is observed that the proximity to infrastructural or market facility available in the class I city, transport connectivity etc. are not important explanatory factors for urban growth. The rate of growth of population on the other hand is very high in towns at considerable distances from the cities, District Head Quarters and Railway stations. Based on this, one would hypothesise that urban growth in the state has not been supported by healthy economic development that are dependent on infrastructural and marketing facility. Urbanization seems to be largely due to push factors operating in rural areas. It is the low and falling labour-productivity in agriculture and decline of traditional industries that have forced the labour force to flee the rural areas and seek absorption in the nearest small towns. Unfortunately, they have not been attracted by the employment opportunity in the formal sector of the economy in the developed districts as pull factors are too weak. Consequently they only move to the nearby small towns which is responsible for the rapid demographic expansion of the latter.

Appendix 1

Total Population and Total Urban Population - 1901-81

Census year	Total population	Urban population
1901	10302917	254684
1911	11378875	275159
1921	11158586	281498
1931	12491056	317254
1941	13767988	412528
1951	17645946	594070
1961	17548846	1109650
1971	21944615	1845395
1981	26272054	310535

Appendix 2

Urban Population in Different Size Class

Size Category	1961	1971	1981
Class I	146308	706499	1292899
II	285771	72674	470064
III	186028	538211	636056
IV	300417	285428	528742
V	181471	234226	196001
VI	9655	8357	13798

Appendix 3

Total Population, Urban Population, Popu- of towns above 20,000, Urban Population excluding new towns

Districts	Total Population			Urban Population		
	1961	1971	1981	1961	1971	1981
Balasore	1415923	1830504	2253090	91905	100154	185927
Boudh-Khandmal	514427	521675	712772	6088	19568	37116
Bolangir	1068686	1263657	1452675	49659	86663	132988
Cuttack	3060320	3827678	4617748	208597	305623	475096
Dhenkanal	1028935	1293914	157565	47088	51812	123710
Ganjam	1872530	2293808	2652699	155844	259856	379996
Kalahandi	1009654	1163869	1329780	28573	56553	80508
Keonjhar	743315	955514	1109746	31964	67347	126245
Koraput	1498271	2043281	2467329	76971	167259	280101
Mayurbhanj	1204043	1434200	1576987	28420	39951	90514
Puri	1865439	2340859	2911720	133406	229147	432217
Sambalpur	1508686	1844898	2274125	115375	221777	353158
Sundergarh	758617	1080758	1336818	135760	239685	408059

	Population of towns above 20,000			Urban Population excluding new towns	
	1961	1971	1981	1971	1981
Balasore	59186	86766	146451	100154	147299
Boudh-Khandmal				19568	30275
Bolangir		35761	76265	80246	121950
Cuttack	146283	249947	451616	298367	453934
Dhenkanal			35630	51812	78615
Ganjam	99619	144509	194708	217960	338686
Kalahandi		23277	37765	40141	80508
Keonjhar		24365	111862	43682	969141
Koraput	25321	108906	161116	117184	244016
Mayurbhanj	20348	28684	52986	39951	68495
Puri	99055	208102	384638	229147	392399
Sambalpur	57783	184489	306325	193400	353158
Sundergarh	114543	222419	407997	239685	928759

Appendix 4

Total workers, workers in Agriculture, Manufacturing, and Tertiary sectors - all areas

Districts	Total workers			Workers in agriculture (males)		
	1961	1971	1981	1961	1971	1981
Sambalpur	789421	564771	830803	364125	434011	484364
Sundergarh	383029	293053	434217	162294	180401	200943
Keonjhar	334911	261689	360528	170179	204037	219047
Mayurbhanj	623718	395627	603305	295579	328089	348209
Balasore	453500	470383	616957	339613	400187	456502
Cuttack	1007267	992914	1274955	608257	744346	815503
Dhenkanal	425260	359500	497418	227049	284210	316328
Boudh-Khandmals	290151	185139	281179	128000	156253	172574
Bolangir	514572	385394	509634	279175	233926	354326
Kalahandi	458968	348273	479017	258115	304819	345908
Koraput	809887	621289	962987	391260	512427	604738
Ganjam	921548	590869	923903	351231	425984	478055
Puri	849026	639092	848743	403260	466302	534994
ORISSA	7587992	6850651	8623646	3990137	4766950	6087970

	Workers in H.H. manufacturing industry			Workers in Non-H.H. manuftg. industry		Workers in tertiary sector	
	1961	1971	1981	1961	1971	1961	1971
Sambalpur	71087	39677	50175	8349	24486	110200	77080
Sundergarh	13970	8854	11242	21567	34621	74812	65938
Keonjhar	13557	8042	9279	1366	4217	30179	32631
Mayurbhanj	33607	22593	32744	1092	3300	46726	39175
Balasore	15301	7918	11363	4765	7140	63457	53365
Cuttack	70904	37445	42106	23864	33188	221732	172519
Dhenkanal	27345	15047	18644	1126	4773	64786	41251
Boudh-Khandmals	14745	7960	9667	345	1086	44091	21708
Bolangir	37367	20354	22508	998	4818	67114	38534
Kalahandi	23524	10738	12677	593	3552	61657	33903
Koraput	25049	15471	18320	4453	9813	123293	79379
Ganjam	63566	30802	31879	9115	13533	181615	124699
Puri	47248	23979	28724	8264	12817	118728	88722
Orissa	457271	248610	299328	86197	157344	1225146	902673

Appendix 5

Total workers, Workers in manufacturing and tertiary sectors - Urban areas only

Districts	Total workers			Workers in H.H. manufg industry			Workers in Non-H.H.mfg industry		Workers in tertiary sector	
	1961	1971	1981	1961	1971	1981	1961	1971	1961	1971
Sambalpur	44174	69810	353158	2981	3515	5905	7879	11395	25688	38047
Sundergarh	71287	79149	408059	1488	753	1806	20698	22829	3644	43470
Keonjhar	15477	23111	126245	367	704	1408	1297	2997	10154	13333
Mayurbhanj	9460	10881	90514	1057	433	1145	762	975	6378	7371
Balasore	29722	28885	185927	1331	707	1479	2981	3228	17122	16522
Cuttack	73525	94700	475096	6402	3882	5545	13962	16754	46679	61106
Dhenkanal	15775	14698	123710	1635	1017	1082	823	801	8279	8337
Boudh-Khandmals	2461	6569	37116	672	860	768	135	247	1273	3516
Bolangir	16620	24928	132988	2283	1692	2578	844	2271	10863	14751
Kalahandi	10180	17105	80508	458	469	551	1474	1415	6397	9396
Koraput	28045	50649	280101	1612	1752	2765	2164	5135	97640	27992
Ganjam	52012	72181	379996	6426	5798	7194	3874	5112	33130	42715
Puri	48480	69604	432217	1938	1702	3680	2547	4008	36568	50775
ORISSA	416318	561820	3105635	28349	23284	35906	58240	77167	259453	337342

Appendix 6

List of Crop-wise prices used in the computation of total Agr. Output

Crop	Price (Rs./tonne)
Rice	1158.97480
Wheat	813.00532
Jowar	781.21013
Bajra	681.50721
Maize	648.74835
Ragi	716.79924
Barley	665.00000
Gram	983.12749
Tur	1194.04800
Groundnut	1505.23070
Rapeseed/mustard	1845.92680
Sesamum	2340.04300
Lineseed	1678.89590
Castorseed	1665.74710
Sugarcane	1034.44120
Cotton	1229.46600 per bale
Jute	255.14744 -do-
Mesta	327.12539 -do-
Tobacco	5152.99900 per tonne

Source: Appendix 3. Performance of Indian Agr. - Bhalla & Alagh, New Delhi, 1979.

Appendix 7

Weightages given to socio-physical amenities

1. Civic and other amenities:

		Weightages
No. of Latrines -	Water borne	- 3
	Service	- 2
	Other	- 2

2. Trade, Commerce, Industry and Banking:

Number of Banks+Agricultural Credit societies+ Non-agricultural credit societies

	Weightages
Bank	- 2
Agricultural society	- 1
Non-agrl. society	- 1

3. Medical facilities:

	Weightages
Allopathic Hospital = H(A) Primary Health Centres = PHC Vetenary Hospital = H(Vet) Dispensary = D(A)	Each one is given as 1 and simple addition is done.

4. Educational facilities:

	Weightages
i) Primary	= As it is
ii) Junior Secondary	= 2
iii) Higher Secondary	= 3
iv) Shorthand,typing & others	= 3
v) Poly Technic	= 4
vi) Arts & Science College	= 5
vii) Medical or Engineering	= 6

5. Recreational facilities:

	Weightages
i) Public Library	= As it is
ii) Drama Hall	= 2
iii) Cinema	= 3
iv) Stadium	= 3

6. Banking facilities:

	Weightages
i) No. of Banks	= 2
ii) Agriculture credit	= 1
iii) Non-agricultural credit	= 1

Appendix 8

Name of the Towns on the basis of the Administrative Status

Administrative Status	Name of the towns	Administrative Status	Name of the towns
District H.Q.	Balasore	Sub-H.Q.	Kuchinda
	Baripada		Malkangiri
	Bhawanipatna U.A.		Nayagarh
	Bolangir		Nawrangpur
	Chhatrapur		Padampur
	Cuttack		Parlakhemundi
	Dhenkanal		Patnagarh
	Keonjhar		Rairangpur
	Koraput		Rajgangpur
	Phulbani		Rayagada
	Puri		Sonepur
	Sambalpur U.A.		Titlagarh U.A.
	Sundergarh		Umarkot
			Talcher
Sub-H.Q.	Anandpur	Others	Brajarajnagar
	Angul		Rourkela U.A.
	Aska		Birmitrapur
	Athgarh		Chandbali
	Banki		Chowdwar
	Barbil		Bhuban
	Bargarh		Kantabanji
	Baudh		Khariar Rd.
	Berhampur		Khariar
	Bhadrak		Hinjili
	Bhanjanagar		Surada
	Bhubaneswar		Bellaguntha
	Deogarh		Khalikote
	Gunupur		Gopalpur
	Jajpur		Jatni U.A.
	Jajpur Rd. U.A.		
	Jaleswar		
	Jeypore		
	Jharsuguda		
	Kendrapara		
	Khurda		
	Kotpad		

Appendix 9

Name of the Towns - on the basis of the distance from the Railway connections

Distance	Name of the towns
0 kms.	Balasore
	Barbil
	Bargarh
	Baripada
	Berhampur
	Bhadrak
	Bhubaneswar
	Birmitrapur
	Bolangir
	Brajarajnagar
	Chhatrapur
	Cuttack
	Dhenkanal
	Gunupur
	Jaleswar
	Jatni
	Jeypore
	Jharsuguda
	Kantabanji
	Khariar Rd.
	Koraput
	Parlakhemundi
	Puri
	Rairangpur
	Rajgangpur
	Rambha
	Raigada
	Rourkela
	Sambalpur
	Titlagarh
	Barpali
	Joda
	Kesinga
1-25 kms	Angul
	Athagarh
	Gopalpur
	Hinjili
	Khalikote
	Khurda
1-25 kms	Sunabeda
	Talcher
	Tarbha
	Chowdwar
26-50 kms	Anandpur
	Aska
	Bhawanipatna
	Bhuban
	Jajpur
	Kavisuryanagar
	Khariar
	Kotpad
	Kuchinda
	Nowrangpur
	Patnagarh
	Palasara
	Purushottampur
	Sundergarh
50 & above	Banki
	Boudh
	Bellaguntha
	Bhanjanagar
	Baguda
	Chandbali
	Deogarh
	Junagarh
	Kendrapara
	Keonjhar
	Malkangiri
	Nayagarh
	Padampur
	Paradeep
	Phulbani
	Sonepur
	Surada
	Umarkot

Appendix 10

Name of the Towns - on the basis of Distance from the Nearest class I city - 1971

0-25 kms:
- Chatrapur (Ganjam)
- Gopalpur (Ganjam)
- Hinjili (Ganjam)

26-50 kms:
- Aska (Ganjam)
- Bhubaneswar (Puri)
- Birmitrapur (Sundergarh)
- Cuttack (Cuttack)
- Jatni (Puri)
- Khariar (Kalahandi)
- Khurda (Puri)
- Rajgangpur (Sundergarh)
- Rambha (Ganjam)

51-100 kms:
- Athgarh (Cuttack)
- Banki (Cuttack)
- Bellaguntha (Ganjam)
- Bhanjanagar (Ganjam)
- Buguda (Ganjam)
- Dhenkanal (Dhenkanal)
- Jajpur (Cuttack)
- Jajpur Road (Cuttack)
- Kavisuryanagar (Ganjam)
- Kendrapada (Cuttack)
- Khalikote (Ganjam)
- Nayagarh (Puri)
- Polasara (Ganjam)
- Puri (Puri)
- Purushottampur (Ganjam)

100 kms & above:
- Anandpur (Keonjhar)
- Anugul (Dhenkanal)
- Balasore (Balasore)
- Barbil (Keonjhar)
- Bargarh (Sambalpur)
- Baripada (Mayurbhanj)
- Barpali (Sambalpur)
- Boudh (B.Khandmals)
- Berhampur (Ganjam)
- Bhadrak (Balasore)
- Bhawanipatna (Kalahandi)
- Bhuban (Dhenkanal)
- Bolangir (Bolangir)
- Brajrajnagar (Sambalpur)
- Chandbali (Balasore)
- Deogarh (Sambalpur)
- Gudari (Koraput)
- Gunupur (Koraput)
- Jaleswar (Balasore)
- Jeypore (Koraput)
- Jharsuguda (Sambalpur)
- Joda (Keonjhar)
- Junagarh (Kalahandi)
- Kantabanji (Bolangir)
- Keonjhar (Keonjhar)
- Kesinga (Kalahandi)
- Khariar Road (Kalahandi)
- Koraput (Koraput)
- Kotpad (Koraput)
- Kuchinda (Sambalpur)
- Malkangiri (Koraput)
- Nawrangpur (Koraput)
- Padampur (Sambalpur)
- Paradip (Cuttack)
- Parlakhemundi (Ganjam)
- Patnagarh (Bolangir)
- Phulbani (Boudh-Khandmala)
- Rairangpur (Mayurbhanj)
- Rayagada (Koraput)
- Rourkela (Sundergarh)
- Sambalpur (Sambalpur)
- Sonepur (Bolangir)
- Sunabeda (Koraput)
- Sundergarh (Sundergarh)
- Surada (Ganjam)
- Talcher (Dhenkanal)
- Tarbha (Bolangir)
- Umarkot (Koraput)

Appendix 11

List of Towns with their total population (1961, 1971, 1981)

Districts	Name of the Towns	Total population		
		1961	1971	1981
SAMBALPUR:	Sambalpur U.A.	57738	105085	162190
	Brajarajnagar	16196	31817	53863
	Jharsuguda	19227	24727	54886
	Bargarh	15375	22865	35352
	Barpali		9017	3577
	Deogarh	6839	8906	13580
	Padampur		7349	10374
	Kuchinda		6838	9366
	Govindpur		5173	
SUNDERGARH:	Rourkela U.A.	90287	172502	321326
	Birmitrapur	20301	28063	31108
	Rajgangpur	13843	21876	31926
	Sundergarh	11329	17244	23699
KEONJHAR:	Barbil	19340	24342	33034
	Keonjhar	12624	19340	28059
	Joda		17353	26294
	Anandpur		6312	24498
	Balageda (Bolani)	-	-	9516
	Daitari	-	-	4844
MAYURBHANJ:	Baripada	20301	28725	52992
	Rairangpur	8119	11226	15503
	Karanjia	-	-	14886
	Udala	-	-	7133
BALASORE:	Balasore	33931	46239	65771
	Bhadrak	25285	40487	60573
	Chandbali	9406	6717	7808
	Jaleswar	10202	6711	13147
	Soro		16410	18599
	Basudevpur	-	-	20029
	Chandbali	-	-	7808
CUTTACK:	Cuttack	146308	205759	326468
	Chowdwar	13478	24300	-
	Kendrapara	15830	20079	27519
	Jajpur	13802	16707	22292
	Jajpur Road U.A.	5989	13846	20917
	Banki	5934	9296	12594
	Athgarh	7256	8931	11089
	Paradeep	-	6705	33055
	Jagatsingpur	-	-	21162
DHENKANAL:	Dhenkanal	13727	19615	35651
	Talcher	8147	11794	16230
	Bhuban	9476	11350	15516
	Angul	15738	9053	18058

contd...

BOUDH-KHANDMAL:	Phulbani	-	10677	17682
	Boudh	6088	8891	12593
BOLANGIR:	Bolangir	18663	35748	54748
	Titlagarh U.A.	7433	15840	21463
	Kantabanji	8863	10589	14784
	Patnagarh	7592	10085	13578
	Sonepur	7108	8084	10851
	Tarbha	-	6417	6926
	Binka	-	-	11038
KALAHANDI:	Bhawanipatna U.A.	14300	23264	37798
	Khariar Rd	6400	9226	11447
	Kesinga	-	8536	11117
	Junagarh	-	7876	10197
	Khariar	7873	7651	9949
KORAPUT:	Jeypore	25291	34319	53584
	Sunabeda	-	27980	40128
	Rayagada	14537	25064	35724
	Koraput	7461	21505	31644
	Nawrangpur	10380	13739	19083
	Gunupur	10180	12702	16706
	Kotpad	6368	9856	11605
	Umarkot	-	9826	14309
	Malkangiri	-	7494	15576
	Gudari	-	4775	5657
	Machhkund		4957	
	Chandili	-	-	12487
	Balimela Ngr.	-	-	9426
	Chitrakonda	-	-	7756
	Pappadahandi	-	-	6416
GANJAM:	Berhampur	76931	117662	162407
	Parlakhemundi	22708	26917	32318
	Aska	9024	12954	16392
	Bhanjanagar	9952	12353	15111
	Chhatrapur	7835	10835	14142
	Hinjili	1028	10821	13760
	Polasara		10579	13039
	Surada	8703	9833	11248
	Kavisuryanagar		9500	11866
	Purushottampur	-	9898	10739
	Bellaguntha	5762	7113	7918
	Khalikote	3365	6889	8340
	Rambha		6771	8196
	Buguda		5148	8710
	Gopalpur	3536	3583	4502
	Kashinagar			9175
	Kodala			8532
	Chikti			8176
	Digapahandy			7853
	Ganjam			7572

contd...

PURI:	Bhubaneswar	38211	105491	219419
	Puri	60815	72674	101089
	Jatni U.A.	16068	29894	41751
	Khurda	12497	15879	22386
	Nayagarh	5815	5109	7754
	Banpur	-	-	11861
	Nimapara	-	-	11412
	Pipli	-	-	8672
	Kantilo	-	-	7873

Appendix 12

Significant correlations of Population size and urban Growth (1961-71 and 1971-81) with other indicators

With Population Size	Correlation Coefficient
Receipt through taxes ('000 popn)	.405*
Total receipt ('000 popn)	.332*
No. of latrines	.855*
No. of Ind.+Comm. electric connections	.391*
Educational facilities	.731*
Percentage male literates	.368*
Percentage workers in trade and commerce	.761*
Percentage workers in other services	.311*
Bus route distance	-.343*
With Urban Growth (1961-71)	
Distance from district H.Q.	.225**
Bus route distance	.250**
No. of electric connections (ind.+commercial)	.264**
Distance from the railway connections	-.337*
Percentage male literates	-.258**
With Urban Growth (1971-81)	
Population size	.250**
Distance from the nearest city	.237
Distance from the State H.Q.	.328*
Receipt through taxes (per '000 popn)	.254**
Educational facilities	.366*
Male literates (percentage)	.472*
Percentage workers in other services	.401*

* Significant at 1 per cent level.
** Significant at 5 per cent level.

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