# EMERGING DEVELOPMENT CORRIDORS IN INDIA: A COMPARATIVE STUDY OF

# KANPUR - LUCKNOW AND GHAZIABAD - MEERUT AXES (1971 – 1991)

*Dissertation Submitted to the School of Social Sciences, Jawaharlal Nehru University in partial fulfillment of the requirement of the award of the degree of*

**MASTER OF PHILOSOPHY**

TARUNA BANSAL


**Centre for the Study of Regional Development**
**School of Social Sciences**
**Jawaharlal Nehru University**
**New Delhi-110067**
**India**
**2002**

जवाहरलाल नेहरू विश्वविद्यालय
JAWAHARLAL NEHRU UNIVERSITY
Centre for the Study of Regional Development
School of Social Sciences
New Delhi-110067

# CERTIFICATE

I, Taruna Bansal, certify that the dissertation entitled **"EMERGING DEVELOPMENT CORRIDORS IN INDIA - A COMPARATIVE STUDY OF KANPUR-LUCKNOW AND GHAZIABAD-MEERUT AXES (1971–1991)"** for the degree of **MASTER OF PHILOSOPHY** is my bonafide work and may be placed before the examiners for evaluation.

Taruna

**(TARUNA BANSAL)**

Forwarded by

Atiya Habeeb

**(PROF. ATIYA HABEEB KIDWAI)**
**SUPERVISOR**

RKThorat

**(PROF. S.K. THORAT)**
**CHAIRPERSON**

Tel.: 91-011-6107676, 6167557 Ext. 2466, 2463 Gram: JAYENU Fax: 91-011-6165886, 6198243

*FOR*
*MAMMA & PAPA*

# *Acknowledgements*

*At this hour of ineffable joy over the completion of my dissertation, I find myself awkwardly transfixed in employing words that would judiciously convey to you Professor Atiya Habeeb Kidwai, the gratitude I have for your indispensable guidance.*

*The encouragement and constructive criticism courteously extended by all the faculty members of C.S.R.D are gratefully acknowledged.*

*I have indeed drawn heavily from the help and unconditional support extended by Bikram. Without his help, it would have been a humdrum task.*

*I am highly appreciative of the help, company and moral support provided by my friends especially Udaiveer and Vishal.*

*I cannot overlook the unceasing cooperation and affection of Bhaiya ji, Anusha and Pankaj.*

*The indomitable inspiration and blessings of my parents cannot be expressed in words as without there support this dream could not have been fulfilled.*

*I express my sincere thanks to Bhanu for helping me to compute the data, Bijay and Varghese for their cooperation in computer aided cartographic work.*

*I therefore humble myself in gratitude to thank you all for your unselfish assistance.*

Taruna

*Taruna Bansal*

# Contents

## List of Tables

## List of Figures

## List of Maps

# Chapter One

## INTRODUCTION

Settlements at all levels of hierarchy are one of the most dynamic features on the earth's surface. They can be conceived as a complex of oscillating and moving particles (population and its products) with production linkages connecting places of supply and demand in the present world of close contacts brought about by modern means of transport and communication[1]. They are also a manifestation of development and modernization embedded in the continuing process of urbanization.

The contemporary process of urbanization has mainly been influenced by the 'Industrial Revolution'. The new industrial towns were generally dynamic in nature, remained consistent and continued growing unlike the settlements of the past. They witnessed major changes, as a new set of production and economic processes started operating at the global level and started impinging on these cities. These phenomena, together with the modern means of transport and communication gave rise to a new urban system.

The present-day city has developed many layers. It forms a composite landscape commonly called a palimpsest, made up of different built forms superimposed one upon the other with the passing of time. In some cases the earliest layers are of truly ancient origin, rooted in the oldest civilizations.

---

[1] A. H. Kidwai (nee Aziz) (1968) *'Study of the Functional Linkages between Lucknow and Kanpur'*, Submitted to Indian Institute of Technology, Kharagpur, pp.1.

In the last two hundred years or so the layers seem to have accumulated even thicker and faster in response to burgeoning population growth, strong economic development and powerful technological change. [2]

Therefore, cities gradually became parts of a complex system of interrelated urban places rather than remaining a series of independent settlements. These urban systems refer to a set of towns and cities that are linked together in such a way that any major change in the population, economic vitality, employment or service provision in any one city will have repercussions for other places.[3] The development of these along the transportation links has resulted in the spread of the functional influence of the cities beyond the limits of the built-up area. Sometimes, an almost continuous ribbon of 'concrete structure' with humanity and occupation are found stretched nearly for hundreds of kilometers between two cities. Corridor cities[4] have emerged as one of the prevalent bi-centric urban systems at the regional level.

The concept of 'urban corridors'[5] is considered to be a model based on synthetic philosophy. These cities have a functional and locational relationship, which provides them with holistic and competitive advantages over mono-centric cities. Various studies have shown that some of these are still in the incipient stage of formation while others are quite advanced in form and connectivity.

---

[2] D. Harvey (1988) 'Urban Places in the 'Global Village': Reflections on the urban condition in Late Twentieth Century Capitalism', in L. Mazza (eds.) in *World cities and the Future of the Metropolis*, Milano, New York, pp.22.

[3] M. Pacione (2001) '*Urban Geography: A Global Perspective*', Routledge, London, pp. 111.

[4] *Ibid*, pp. 592.

5 B. K. Roy (2000) 'About a Synthetic Model: In Indian Urbanization (The Urban Corridors)', *Annals of the National Association of Geographers, India*, Vol. 20, No. 1, pp. 98.

## 1.1 AIMS AND OBJECTIVES

Conventional regional growth theory suggests that industrial expansion in major central cities lead to catalytic impacts on surrounding regions. Growth impulses and economic advancements should 'trickle down' to smaller places and must infuse dynamism into the most 'tradition-bound' peripheries in the long run. But, this has not occurred in India. Rather, here, the more prosperous commercialized agriculture encircles the major cities, whereas the peripheries of the great urban regions are characterized by backward, subsistence economic systems. [6] This leads to an over-centralized development pattern rather than balanced growth of the region.

In the backdrop of the above mentioned phenomena, the following objectives have been adopted:

1. To examine the process of corridor development in the areas of rapid and moderate urbanization.
2. To endeavour to construct a conceptual model for the socio-economic impact assessment of corridor development.
3. To compare the socio- economic profile of the region along the Lucknow-Kanpur and the Ghaziabad- Meerut axes, because the former typifies an axis of slow development and the latter of rapid development.
4. To explore the similarities and the differences between the two corridors and the reasons behind these disparities.
5. To analyze the changes those have occurred during the past two decades due to the improvement of the available infrastructure.

---

[6] B. J. L. Berry (1966) *'Essays on commodity flows and the spatial structure of the Indian Economy'*, Research Paper 3, Prepared for the International seminar on Urban and Industrial Growth of the Kanpur Region, Indian Institute of Technology, Kanpur.

## 1.2 DATABASE

The sources that have been used for the data collection include census data, documents and records, personal interviews and observations. For village level socio- economic analysis Census of India has been the prime source. The information on the different socio-economic variables has been taken from the district census handbooks of Lucknow, Unnao, Kanpur, Ghaziabad and Meerut. The following variables have been included in the analysis:

- density of population,
- sex-ratio,
- proportion of literates to the total population,
- proportion of scheduled caste population to the total population,
- proportion of workers to total population,
- proportion of female workers to the total female population,
- proportion of workers in agricultural activities to the total workers,
- proportion of workers in household activities to the total workers,
- proportion of workers in non-agricultural activities to the total workers.

Along with these socio-economic indicators, certain infrastructural variables have been incorporated in this study. The variables on infrastructural facilities include:

- availability of medical facilities in the village
- presence of educational institution
- access to market
- accessibility to pucca road
- availability of telephone facility

- availability of post-office in the village

To obtain the growth trend at two points of time, the Census of 1971 and 1991 were taken into consideration. Apart from the town directories, district gazetteers were used to study the historical background of the towns and cities. Besides these secondary sources, a field survey based on a self-administered structured questionnaire was also carried out. This was supported with interviews and participant observation.

## 1.3 METHODOLOGY

Socio-economic phenomena are multidimensional in nature. Research of these processes can rarely be conducted with a uni-dimensional approach or through adopting a single methodology. This study also relies on a multi-dimensional approach.

Methodology is always based on the kind of objectives a study has. In a study like this interactive technique tends to be the most popular. Interviews are a flexible and an adaptable way of finding things out. It has the potential of providing rich and highly illuminative material.[7]

In the first stage of this study, a field survey was conducted along the Kanpur-Lucknow and Ghaziabad-Meerut axes to gather information about business network along the road. The National Highway (NH) No. 25[8] was traversed from Lucknow and Kanpur. In between about 30 villagers were interviewed from different locations with the help of a structured questionnaire. The sample of respondents was picked up randomly from the identified villages on the basis of the need of the study. For example villagers near to the towns of

---

[7] C. Robson (1993) *'Real World Research: A resource for Social Scientists and Practioners-Researchers'*, Blackwell Publishers, Oxford, pp. 229.

[8] The bypass constructed for NH 25 from Unnao to Gangaghat was also traversed but as dhabas, hotels and petrol pumps dominated the road, survey was restricted to the road which traversed through the city of Unnao and is still dominated with all types of functions.

Unnao and Nawabganj were given more preference due to the relative importance of their location. These provided information regarding the villager's perception about the changes that have occurred overtime and the upcoming changes occurring in the region. To analyze the changing structure of land-use and the price variations, a random survey was conducted in four villages bordering the urban settlements. The land values have shown a sharp increase with rapid growth of population. To understand the variations in the land values at different places the rent paid in villages and their neighbouring towns have been compared.

Similar survey was conducted along NH 58 from Ghaziabad to Meerut. Here too, 30 villagers were interviewed, based on the method of random sampling after selecting the villages according to their importance with reference to the two intervening towns i.e. Muradnagar and Modinagar. The data obtained from this field work has been used to compare the roadside business, like dhabas, petrol pumps, auto repair shops, PCOs, general stores etc. along the two axes. The increment in the land value in the two regions has also been studied.

Apart from these exercises, the data obtained from the census for different social (literacy, percentage of scheduled caste population, infrastructure - primary school, electricity, market, medical facilities, pucca road, post office, telephone.), economic (workforce participation rate, female work participation rate) and demographic (density of population, sex-ratio etc.) parameters have been analyzed by computing ranges {(highest value-lowest value) / lowest value}. This has been done for both the regions for two points of time i.e. 1971 and 1991.

To investigate the differences, which have come up in due course of time, factor analysis (principle component analysis) has been done. The goal of factor analysis is to identify the composite impact of the factors based on a set of observable variables, and to classify the villages according to their performance. The impact of various socio-economic and infrastructural variables on the process of urbanization has been explained and their causal relationship has been sought.

To bring out more clarity in the differences in the two situations, a composite index (C. I.) has been computed. In the C. I., the demographic

parameters, workforce participation and infrastructural facilities have been used. Firstly, a C. I. of these components has been prepared separately and than they have been clubbed together to formulate a single composite score for each village along both the axes for 1971 and 1991.Thefollowing formula has been applied to compute the C.I-

$$C.\ I. = (x_i / X + x_j / X + \ldots\ x_n / X)$$

Where,

$x_i$ = value of different indicator

X = mean of that indicator

The analysis of the whole exercise has been therefore done to examine the differences and similarities between the two as well as to trance and access the development of the area.

### 1.4 LIMITATIONS OF THE DATA AND IN THE ADOPTED METHODOLOGY

Scope of the research often gets limited due to various reasons like unavailability of suitable data, discrepancies and non-comparability between the available data and so on. This study looks into the changes that have occurred over time along the corridors. As data of 1981 is not comparable with that of 1971 and 1991 for worker's classification, the year of 1981 has been left out of the present analysis.

The involvement of individuals in the issues of social research often raises certain methodological limitations. The following study, too, has its own limitations, which have to be taken into consideration for proper apprehension of the existing scenario.

Purposive sampling is often accused of not being representative of the reality due to assumed biasness of researcher's judgement in selecting the sample. In this study, attempts have been made to minimise this biasness by selecting the sample from various parts. The economic and political insecurity among the

respondents has often restricted the fieldwork due to their reluctance to interact with the researcher.

## 1.5 Study Area

Urban systems in India are very most complex due to their content, spread, social tensions and continuous growth leading to lack of amenities, employment opportunities etc.[9]

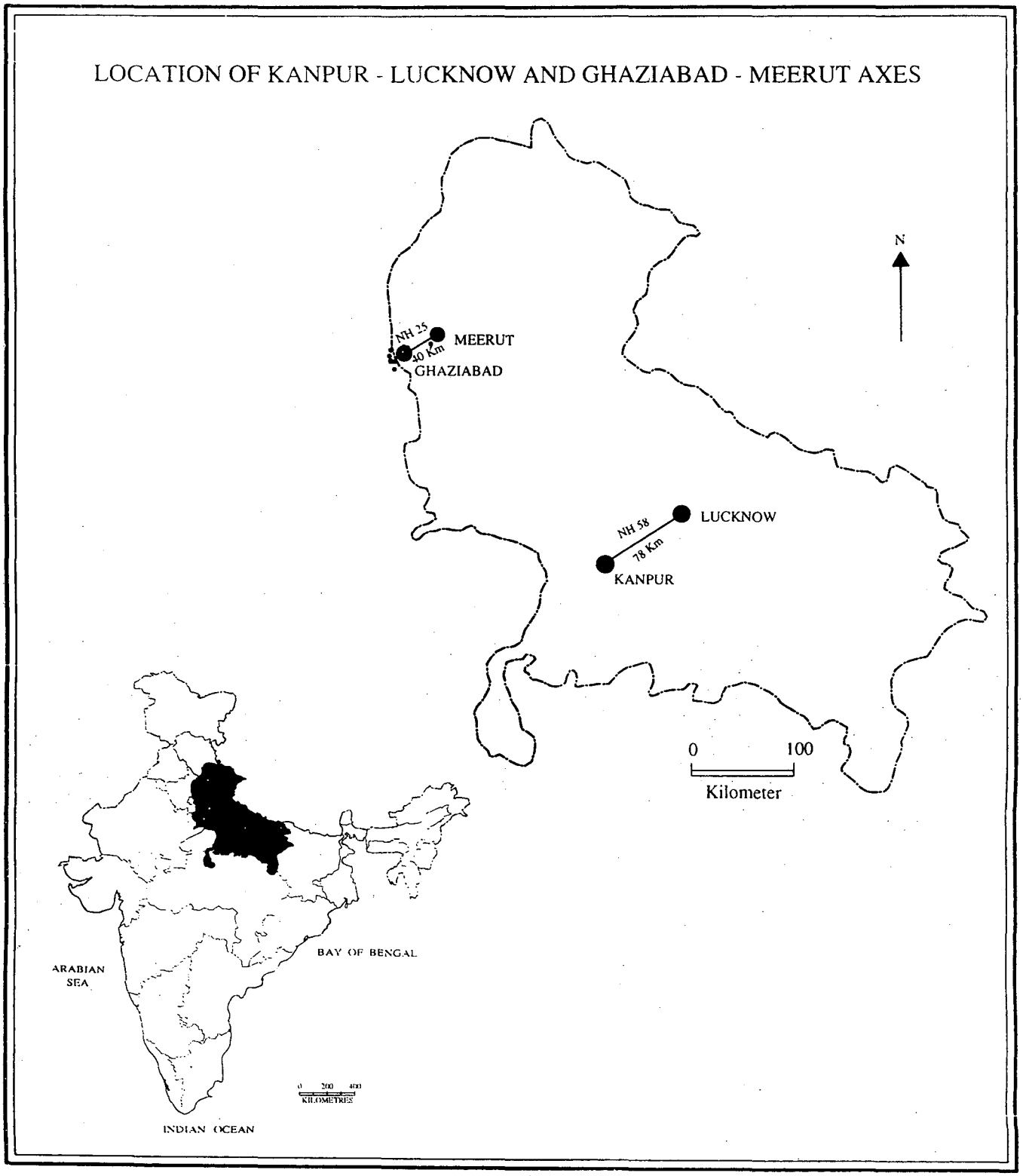
Uttar Pradesh is the most populous state of India with as many as six million cities – Kanpur, Lucknow, Varanasi, Allahabad, Agra and Meerut (Census of India, 2001). Among these, Lucknow and Kanpur, lying in the middle of the Gangetic plains gained importance and prominence over others due to their historical significance and favourable location (Map 1.1).

These two cities have a historical basis for origin as the first two million cities of the state. They are only 78 kilometers apart. Kanpur with its strong industrial base attracts a large number of workers from the agricultural area around it. Lucknow is the state capital and great cultural centre with enormous growth in its tertiary sector. The two metropolises are well connected through National Highway 25, and broad-gauge electrified railway line. The axis traverses through the districts of Lucknow, Unnao, and Kanpur through a total of about 41 villages and the towns of Nawabganj, Unnao and Gangaghat.

Ghaziabad on the other hand has gained prominence in the state's economy due to its proximity to Delhi, the country's capital. The city has flourished mainly in the form of a satellite town of Delhi. Meerut, a cantonment town since British period has grown very rapidly in the last few decades. The two cities are only 40 kilometers apart and are well connected through National Highway No. 58 and a railway line. The axis traverses through the districts of Ghaziabad and Meerut through approximately 27 villages and the towns of Modinagar and Muradnagar. This stretch has developed more as an industrial

[9] B. K. Roy (2000) *op. cit.* 5, pp. 96.

Map No. 1.1


LOCATION OF KANPUR - LUCKNOW AND GHAZIABAD - MEERUT AXES
N
NH 25
90 Km
MEERUT
GHAZIABAD
NH 58
78 Km
LUCKNOW
KANPUR
0
100
Kilometer
ARABIAN SEA
BAY OF BENGAL
INDIAN OCEAN
0 200 400
KILOMETRES

corridor. But, this is not the case with Kanpur-Lucknow axis. Here, improper planning has lead to uncontrolled change in the land use pattern, increase in land values, decreasing efficiency of highways, haphazard growth, housing problems and other problems of ribbon development.

It is therefore, imperative to study the phenomenon to understand the process of corridor development to tackle the problem of haphazard growth at the initial stage only so that this problem does not strangulate the corridor.

## 1.6 REVIEW OF LITERATURE

Urban form is a direct outcome of the way in which societies have developed and grown. It refers to the particular configuration of social relations, built forms and human activity in a city and its geographical sphere of influence[10]. These city spaces are further influenced and shaped by the social and historical processes. Urbanisation thus, is a process which involves social change, a progressive development from rural to urban, mediated by industrialization, division of labour and role differentiation.[11]

The literature on urbanization and related processes is vast. Since, the contemporary world is an urban world. The study of urban space and life is gaining importance in the social sciences as they offer a particular perspective on the ongoing changes. This necessitates a current review of the theoretical ideas on urbanization. Urbanization as a process has not been similar throughout the world. Third world urbanization has several characteristics, which distinguishes it from the developed world. Sub-urbanization and corridor development are other such processes which are influenced by local socio-economic determinants and require an in-depth study.

---

[10] E. W. Soja (2000) *'Postmetropolis: Critical Studies of Cities and Regions'*, Blackwell Publishers, London, pp.8.

[11] R. Frantenberg (1966) in H. Carter (1972) *'The Study of Urban Geography'*, Edward Arnold Publishers Ltd., London, pp. 27.

Urbanisation is seen as a product of increasing economic specializations and advancing technology. It is the only way through which it is possible to advance from a subsistence base to the industrial one through specialization of economic activities.[12]

In recent years, urbanisation has deeply penetrated into the countryside and improvements in transportation and communication have effectively extended urban influence into the rural hinterlands.[13] This has eventually led to sub-urbanisation which resulted in the growth of metropolitan villages and dormitory settlements growing almost solely because of out migration from central cities.[14] But, if suburban population growth goes hand-in-hand with central city growth, no suburbanization takes place.[15] In a narrower sense it refers to the relatively quicker growth of suburban areas as compared to the central city in the urban agglomeration. In a wider sense it includes mechanisms of suburban population change.

These suburbs have significant employment bases which are either factory-towns or economically independent areas which have been swallowed up by the expanding metropolitan areas.[16] These new urban forms are directly related to travel behaviour. This is directly influenced by deconcentration of urban land use to suburban locations.[17]

---

[12] H. Carter (1972) *'The Study of Urban Geography'*, Edward Arnold Publishers Ltd., London, pp. 28.

[13] A. Gilbert (1993) 'Third World Cities - The Changing National Settlement System', *Urban Studies*, Vol. 30, No. 4/5, pp. 728.

[14] M. Pacione (2001) *op. cit.*, pp. 83.

[15] T. Tammaur (2001) 'Suburban Growth and Suburbanisation Under Central Planning: A case of Soviet Estonia', *Urban Studies*, Vol. 38, No. 8, pp. 1342.

[16] E. W. Hill and H. L. Wolman (1997) 'City-Suburban Income Disparities and Metropolitan Area Employment - Can Tightening Labour Markets Reduce the Gaps', *Urban Affairs Review*, Vol. 32, No. 4, pp. 559.

[17] T. Schwanen, F. M. Dieleman and M. Dijst (2001): 'Travel Behaviour in Dutch Mono-centric and Poli-centric Urban Systems', *Journal of Transport Geography*, Volume. 9, pp. 185.

This shift in the incidence of strongest population growth away from the largest cities in the national urban system is known as counter urbanization.[18] Counter urbanization has replaced urbanization as the dominant force shaping the settlement patterns in the western world. [19] It is basically a process of population deconcentration; it implies a movement from a state of more concentration to a state of less concentration.

The phenomenon has also been termed as 'Polarisation reversal'. Such processes eventually lead to what Geyer and Kontuly[20] conceptualize as differential urbanization. They postulate that large, intermediate sized and small cities go through successive periods of fast and slow growth in a cycle of development.

Corridor cities are an intricate web of such cities in the modern urban agglomerations whose functional and localional relationships are based on complementary functions rather than on their physical proximity.[21]These are the spaces of urban influence which are generated on the basis of spatial arrangement and functions of rural-urban duality.

The concept dates back to the emergence of conurbation, which was first studied and explained by Geddes.[22] It is a built-up area created by the coalescence of several once separated urban settlements. Ribbon development along the main inter-urban routes is the initial stage of the development of corridors termed as

---

[18] M. Pacione (2001) *op. cit.* 3, pp. 75.

[19] B. J. L. Berry (1976) 'The Counter-urbanisation Process: Urban America since 1970', *Urban Affairs Annual Review*, Vol. 11, pp. 17.

[20] H. S. Geyer and T. Kontuly (1996) 'A Theoretical Foundation for the Concept of Differential Urbanisation', in H. S. Geyer and et al. (eds.) *'Differential Urbanisation: Integrating Spatial Models'*, Arnold, New York, pp. 290.

[21] M. Pacione (2001) *op. cit.* 3, pp. 592.

[22] P. Geddes in R. B. Mandal (1982) The Development of Conurbations in India: A Conceptual Framework', in R. B. Mandal and et al., (eds.) 'Urbanisation *and Regional Development'*, Concept Publishing House, New Delhi.

conurbation. Berry[23] identified a number of differing types of urban forms under the heading of 'Ribbons'. The first type is the well established shopping street, which usually runs from the nucleated centre to the lower order centres. The second form is the highway oriented ribbon. This is characterized by the assembly of motels, petrol pumps and restaurants. The third type is the urban arterial location, which consists of stores that require excessive space like furniture stores, building materials and lumber yards.[24]

In India, urbanization has not been a result of a single factor but of a combined set of socio-economic and demographic factors. Three distinct processes of urbanization have been witnessed here:

(i) Pre-colonial pattern, where cities were more or less evenly spread out within distinct political regions,

(ii) The colonial pattern which is characterised by the growth of primate cities surrounded by vast areas of slow urbanization or de-urbanization.

(iii) The post independence pattern characterised by three processes of metropolitanization, intermediate urbanization and rural urbanization or subsistence urbanization.[25]

As a result, a distinct urban system developed around the colonial primate port cities. These sub-systems have a dynamics of their own and have given rise to various patterns of urbanisation. Corridor development is one such pattern. These corridors have been designated as special urban regions. National

---

[23] B. J. L. Berry (1967) *'Geography of Market Centres and Retail Distribution: The Urban Case'*, Englewood Cliffs, New York, pp. 46.

[24] B. J. L. Berry (1967) *op. cit.* 23, pp. 27.

[25] V. L. S. Prakash Rao (1973) *'The Process of Urbanisation'*, Fulbright Newsletter, March 1973, pp. 10-14.

Commission on Urbanisation has classified 24 such urban corridors all over the country.

These have been identified on the basis of demographic criterion and economic priorities.[26] B. K. Roy visualizes them as the future urbanscape of the country.[27] He delineates 24 urban corridors for India, irrespective of administrative boundaries. His model is based on the population figures of the region and the arterial systems which connect the nodal urban centres with their influence area.

A number of studies have been carried out with the objective of accessing the impact of corridor development on the settlement pattern and on the process of urbanization. One such study of Lucknow-Kanpur Corridor[28] tried to appreciate the economic profile of the area between these two metropolises.

It also delineates the 'influence zone'[29] of the corridor on the basis of Isard's 'spatial-interaction model'.[30] Different prevailing potentials and constrains have also been identified to understand the process of urbanisation along this axis. The study only looked into the growth dynamics of towns and did not consider villages as integrated entity to the development of urban corridors.

Similar exercise has been done along Jalandhar-Ludhiana axis, which traverses for nearly 58 km through the districts of Ludhiana, Jalandhar and

---

[26] A. K. Jain (1990) *'The making of a Metropolis: Planning and Growth of Delhi'*, National Book Organisation, New Delhi.

[27] B. K. Roy (2000) *op. cit.* 5, pp. 96.

[28] A. Sharma (1993) *'Impact of Corridor Development on regional settlement pattern: a case study - Lucknow-Kanpur'*, Submitted to School of Planning and Architecture, New Delhi.

[29] The zone delineated as the area which is comprised of rural and semi-urban settlements and has the potential to incorporate urban characteristics within its rural fabric in the form of non-agricultural activities. It is usually located along the dominant transport route between the two metropolises.

[30] W. Isard (1960) 'Methods of Regional Analysis: An Introduction to Regional Science', The M.I.T. Press, Cambridge.

Kapurthala in Punjab.[31] The study aimed at analyzing the process of corridor development. It viewed the growth impulses of these urban centres and proposed that they would bring in a balanced development in the region. It overemphasized the role of industrialization and bypassed the importance of commercial agriculture, which could help in the development of mandi-towns.

A study was also conducted for evaluating the factors responsible for the growth and development of in-between settlements along the Ambala-Yamunanagar-Saharnpur corridor. [32] It was based on the concentration of industrial activity and population of the region.

Meerut-Ghaziabad is one of the well-developed corridors of the country.[33] A study conducted to analyze the developments along the axis, tries to construct a model, which investigates the basic socio-economic status of the Corridor Immediate Influence Zone (CIIZ) of the proposed Ghaziabad-Meerut Expressway. [34] It also assesses its potential impact on its sub-region, the Corridor Influence Zone (CIZ).

The literature survey in this section only mentions the major studies on corridor development. These studies are discussed in the next chapter where they have been used to formulate the theoretical perspective for the present study.

---

[31] S. K. R. Dosanjh (1994) *'Study of the Industrial Development along the Jalandhar - Ludhiana Corridor'*, Submitted to School of Planning and Architecture, New Delhi.

[32] Y. Sharma (1995) *'Impact of an emerging Industrial corridor on adjoining districts - Ambala - Yamunanagar - Saharanpur Corridor'*, Submitted to School of Planning and Architecture, New Delhi

[33] T. Jain (2000) *'Developmental Impact of the Proposed Ghaziabad - Meerut Expressway in NCR, India'*, Submitted to School of Planning and Architecture, New Delhi.

[34] *ibid*

## 1.7 ORGANISATION OF CHAPTERS

The first chapter introduces the theme of the study. The theoretical perspective of the concept of corridor development has been highlighted with the help of a number of studies on such corridors in different parts of the world in the second chapter. The subsequent three chapters give a profile in a comparative study of the two corridors taken as case studies in this dissertation. The conclusion and recommendations are presented in the last chapter.

# CHAPTER TWO

## THE CONCEPT OF CORRIDOR DEVELOPMENT: A THEORETICAL PERSPECTIVE

'The new global economy and the emerging informational society have indeed a new spatial form, which develops in a variety of social and geographical contexts: megacities. Megacities are discontinuous constellations of spatial fragments, functions and social segments.' With new technological innovations and economic specializations cities have started working as nodal centres in an urban system by linking themselves together. This system of cities can act as the centres of generating and transmitting innovations and stimuli of new industries which will in the long run infuse growth impulses in the region.

The established core-periphery relationship, on the contrary, comprises of core regions that consist of the primate city and dominates the rest of the space economy in its hinterland called the periphery. This periphery is dominated by the core and is dependent upon it and its rate of development is controlled and distorted so as to further the core's economic interests.[1] Subsequently, dispersion occurs into other regions due to the generation of agglomeration economics leading to stable regional urban hierarchies.

Klassen (1981) has explained the process of growth within individual urban agglomeration through the 'Stages of Urban Development Model'.

---

[1] H. W. Richardson (1996) 'Polarization Reversal in Developing Countries' in H. S. Geyer and et al., (eds.) *'Differential Urbanisation: Integrating Spatial Models'*, Arnold, New York, pp. 143.

The model[2] has four stages:

- Urbanization – When certain settlements grow at the cost of their surrounding countryside.
- Suburbanization – when the urban ring grows at the cost of the urban core.
- Counter-urbanization – When the population loss of the core exceeds the population gain in the ring resulting in the loss of population in the agglomeration.
- Re-urbanisation – When the core starts regaining population with the ring still losing population.

These processes of urban change are found in both the developed and the developing worlds but at varying degrees. In the developed world, urbanisation is said to be coupled with industrialization, economic development and modernization.[3] Thereby, cities act as organizers of economic, cultural and political space, as centres of innovation, as environments of opportunity and seedbeds of democratic change.[4]

The Third World experienced a very different kind of urbanization process. The 'Modernisation Theory' explains this as a convergent and evolutionary process. In this type of urbanization, cities mostly the primate cities play a pivotal role. They function as key portals, which are responsible of transmitting innovation to the rest of the society. While, the 'Dependency School' argues that the third world urbanization is not responding to the western models,

---

[2] The model is based on the changes in the direction and rate of population movement between urban core and urban ring which together comprise a functionally related daily urban system, Klaassen, (1981) 'Dynamics of Urban development', in M. Pacione (2001) *'Urban Geography: A Global Perspective'*, Routledge, London, pp.79.

[3] M. Pacione (2001) *'Urban Geography: A Global Perspective'*, Routledge, London, pp.592.

[4] A. Kidwai (nee Aziz) (1968) *'Study of the Functional Linkages between Lucknow and Kanpur'*, Submitted to Indian Institute of Technology, Kharagpur.

which is based on the generative role of the cities. The two have 'interdependent but unequal relationship'.[5] In the developing economy this gives rise to a hierarchy of exploitative relations resulting in the formation of core and periphery. Here, cores act as the capitalists that exploit their peripheral regions for their own benefits.

Wallerstein (1974) through his 'World System Approach' explains this phenomenon in the light of the interdependence of economic and urban development. He poised that the cores look at the periphery for markets, drain out labour and raw materials from it and in the process exhaust the latter of its resources and manpower. These theories explain that the exploitative nature of the cores in the third world has resulted in the phenomenon of peripheral-urbanisation process which is a distinctive characteristic of the Third World cities. But, through proper planning this can be taken as advantage for the development of corridors which have the potential of trickling down their spread effects into their rural hinterlands.

## 2.1 DEVELOPMENT OF URBAN CORRIDORS

In the industrially developed countries a new type of metropolitan expansion took place in the form of conurbations as a result of technological advancement and economic restructuring. The term first appeared when Geddes[6] used it to refer to 'town aggregates' or 'city regions'. These are urban areas embracing several contiguous built up areas with ribbons of factories along the main roads out of the city spreading into neighbouring areas. In addition, transport systems have been extended so that the metropolis is well connected with its hinterland. This gives rise to what Soria. Y. Mata (1882) calls a "ribbon city" - a conscious form of urban development. He felt that such linear settlements along

[5] Spybey, in M. Pacione (2001) *op. cit.* 3, pp. 433.

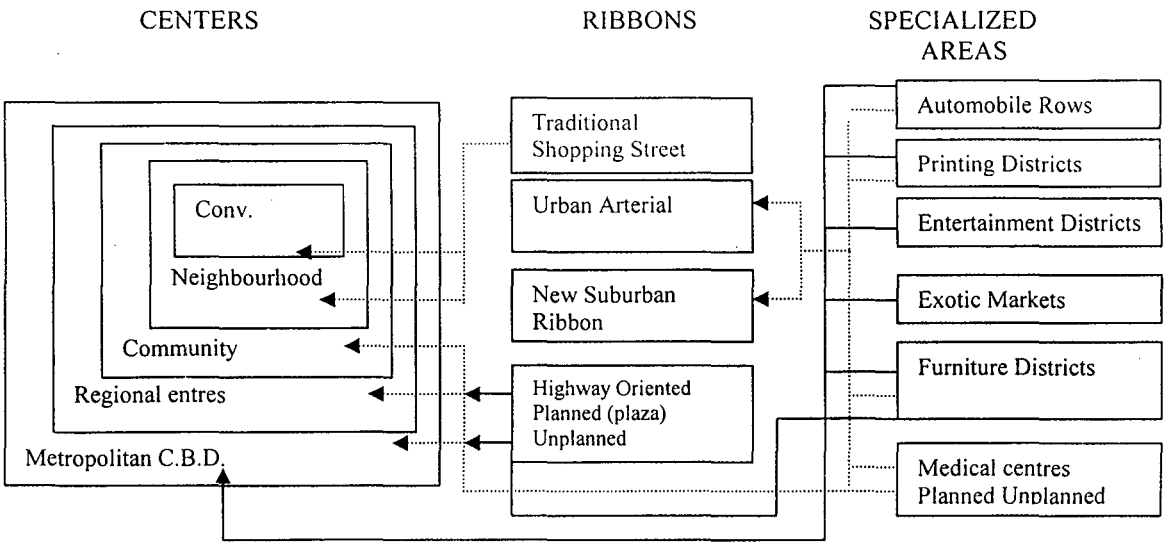
[6] P. Geddes in R. B. Mandal (1982) The Development of Conurbations in India: A Conceptual Framework', in R.B. Mandal and et al., (eds.) *'Urbanisation and Regional Development'*, Concept Publishing House, New Delhi.

transport routes would solve both urban and agrarian economic problems. Wolfe[7] defines ribbon development as a process of linear inclusion of urban conditions into rural areas.

Ellesen[8] is of the view that it is another process of urbanization wherein we find a sector extending outward from the edge of the belt that includes an area a mile wide on each side of major routes of transportation. In this type of distribution (i.e. Ribbon development) villages are in position to be influenced by the developments that are taking place outside the city.

Berry[9] identifies a number of differing types called 'Ribbons' (Figure 2.1).

Figure 2.1
**A TYPOLOGY OF BUSINESS DISTRICTS**




Source: Berry, B. J. L. (1962)

---

[7] Wolfe, in A. Sharma (1993) *'Impact of Corridor Development on regional settlement pattern: a case study - Lucknow-Kanpur'*, Submitted to School of Planning and Architecture, New Delhi.

[8] Ellesen, ibid.

[9] B. J. L. Berry (1967) *'Geography of Market Centres and Retail Distribution: The Urban Case'*, Englewood Cliffs, New York, pp. 46.

The first is the well established shopping street which usually leads from the nucleated centre to the lower order centres. The second is the highway oriented ribbon. This is characterized by the assembly of motels, petrol pumps and restaurants. The third type is the urban arterial locations. These are made up of stores which require excessive space like furniture stores, building and lumber yards.

Thus, ribbon development is an initial stage of corridor development wherein a narrow and linear growth takes place along the traffic artery with open land behind or on either side of the road.

Corridor cities are those bi-centric urban centers where close links have existed between two places of complementary function rather than simply on the basis of physical proximity.[10] These cities may have the same hierarchy of functions but are functionally independent. And, when considered together they make functionally integrated (though spatially separated) entities; in other words a "truncated central place hierarchy".[11]

This urban form at the regional level has been the result of the transnational political – economic processes. These are an intricate web of growing 'modern urban cities' whose functional and locational relationships provide them competitive advantages like less congestion and more locational freedom over other mono-centric cities. This relationship (both inter-urban and intra-urban) has thus, reestablished a mosaic of typogramic space – urban corridors.[12] These are primarily those contiguous areas which are spaced usually around large cities and towns articulating urban and rural liaison at various levels. The development of corridors can be explained through Figure 2.2.

---

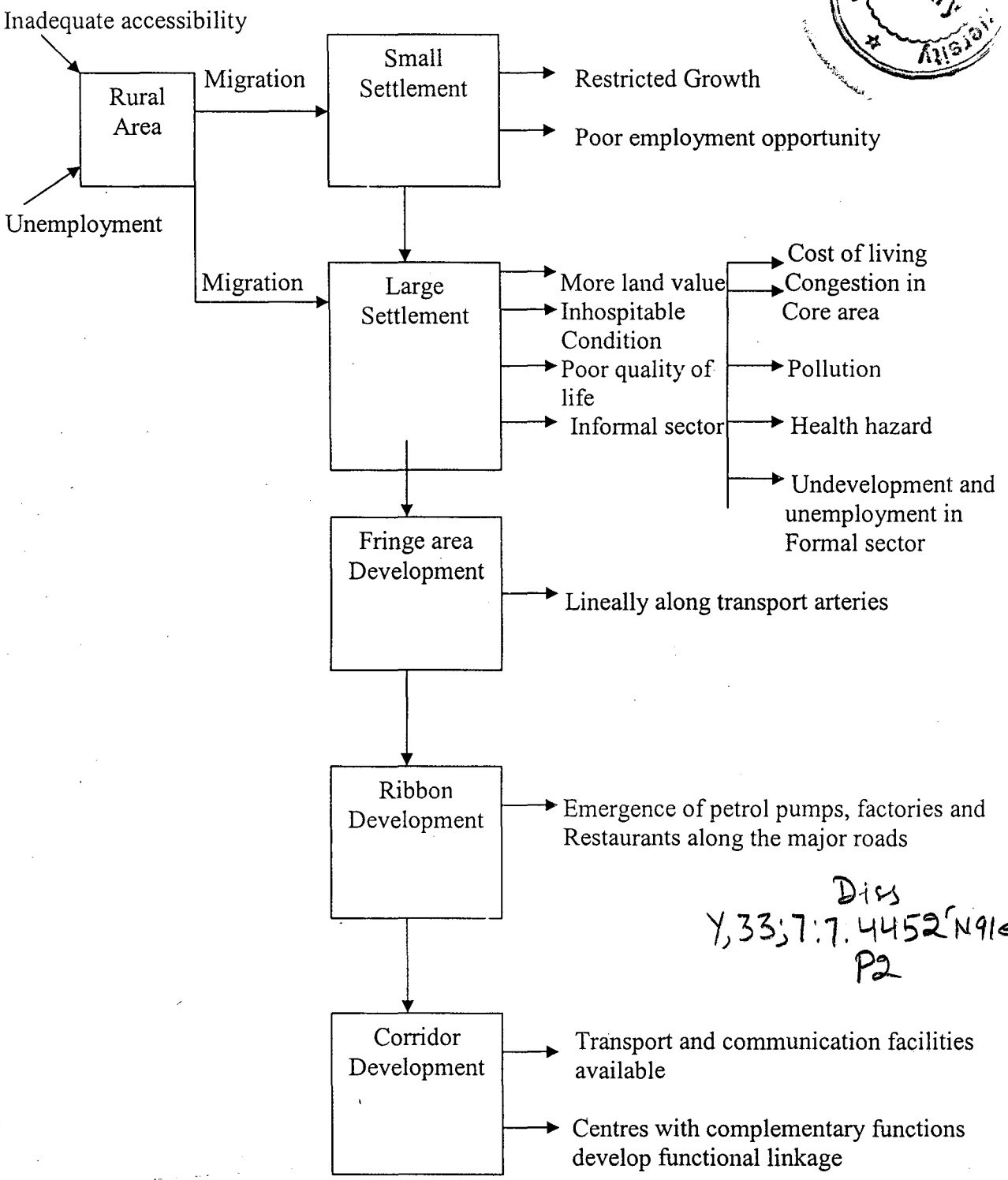
[10] M. Pacione (2001) *op. cit.4*, pp. 592

[11] A. Kidwai (nee Aziz) (1968) *op. cit .5*

[12] B. K. Roy (1993):'Urban Corridors in India: A Note on Thematic Mapping Approach', *Annals of the National Association of Geographers, India*, pp. 125.

Figure 2.2

**STAGES OF CORRIDOR DEVELOPMENT**




Jawaharlal Nehru University Library

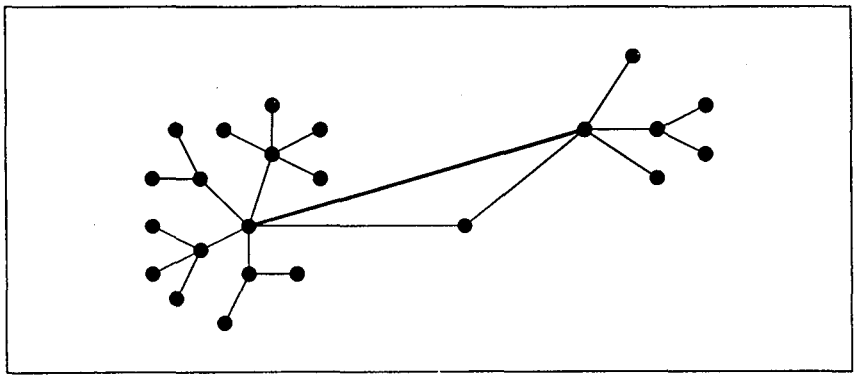
DISS
307.1409542
B2278 Em
TH9837

Diss
Y,33;7:7.4452'N91←N71
P2

TH9837

Figure 2.3

THE CORRIDOR CITY



## 2.2 URBAN CORRIDORS IN DIFFERENT PARTS OF THE WORLD

Examples of this type of specialisation are found in the polynucleated metropolis of the Randstad Holland, the Rhine – Rhur, North East Sea Board Urbanized Belt of U.S.A. and Tokyo – Yokohoma Metropolises.

### 2.2.1 *RANDSTAD HOLLAND*[1]

In Holland, the traditional metropolitan functions of government, trading and finance along with cultural, educational, manufacturing and retail are not concentrated in one dominating metropolis. Thus, there is no primate city rather these functions are spread out in several urban centres which although are close, remain physically separate. The region includes the cities of Rotterdam, Hague, Amsterdam, Harlem and Leiden. Rotterdam specializes in wholesaling and heavy industry and is a major port; the government function is firmly fixed at Hague and Amsterdam, instead of being a capital city is not the seat of the government, rather has wide range of port industries and light manufacturing. As a result of this, the enormous expansion of the secondary sector which has been the feature

[1] A. Kidwai (nee Aziz) (1968) *op. cit* .5

of all the world cities did not occur around one city but spread to a number of towns. And, each within easy reach, Prominent among these are Leiden and Harlem.

### 2.2.2 *THE RHINE – RHUR*[2]

This is a more complex urban agglomeration and an extreme case of the phenomena. It is characterized with number of cities and regional capitals with none dominating the other. Bonn is the political centre, Sieburg and Troisdrof the industrial towns, Cologne the shopping and financial hub, Dusseldrof is a banking centre with an international airport for the whole region. Mannesmann is the home of the iron and steel complexes.

### 2.2.3 *NORTH – EAST SEABOARD URBANISED BELT (U.S.A.)*[3]

The major cities are Boston, Horford, NewYork, Trenton, Philadelphia, Denver, Minneapolis, Baltimore and Washington. This is the longest linear concentration of urban mass strecthing for an approximate length of 960 kilometres. The corridor is located on the either side of the Hidson river. Here, Washington is the capital city, Denver, a commercial hub for agricultural products. NewYork, Boston, Philadelphia are port towns functioning as the main façade of the sea born foreign trade. Other cities are also specialised ones – industry or unifunctional towns.

### 2.2.4 *TOKYO – YOKOHOMA METROPOLIS*[4]

The area is centred along the Tokyo Bay linking the two great metropolis of Tokyo and Yokohama. It includes the cities of Kawasaki, Chiba, Saitama etc which are smaller cities under the domain of these metropolises. Tokyo, the capital, is the industrial town with specialised production functions. Yokohoma is a port town.

---

[2] A. Kidwai (nee Aziz) (1968) *op. cit* .5

[3] A. Sharma (1993) *'Impact of Corridor Development on regional settlement pattern: a case study – Lucknow-Kanpur'*, Submitted to School of Planning and Architecture, New Delhi.

[4] Ibid.

### 2.2.5 *THE PIEDMONT CRESCENT (U.S.A.)*[5]

The major cities are Raleigh, Reuham, Greensboro, Winston – Salem and Charlotte. Greensboro specialises in wholesale, Winston – Salem is educational and cultural functions and Charlotte in retail trade.

Similar type of phenomena is formed by Canberra and Queanbeyan of Australia although the 11 kilometres long link constitutes arterial life line with two way flow between the two. In Canada, Waterloo and Kitchner is also an example of twin cities .The other corridor is formed by Toronto and Hamilton cities in Canada which constitue the two nuclei of a vast urbanised region.

In France, Paris is an example of uni- functional metropolis while Lille-Roubaix- Tourloing ans St. Etienne form another polynuclear corridor.Britain has six such metropolises of Manchester, Liverpool, Birmingham, Leeds-Bradford, Tyneside and Glasgow.

In Japan apart from Tokyo- Yokohama metropolis, Osaka and Kobe are other two centres which form a spectacular example of corridor development. Other examples from Asia include Saigon in Veitnam and twin cities of Cholon in China which jointly share functions of capital, commercial and cultural activities. And, Wuhan conurbation formed by the merging of three towns of Wuchang, Hankow and Hanyang.

## 2.3 THE INDIAN CONTEXT

India is not an exception to the global phenomena. Urbanisation, here too has occupied an important place in the process of economic development of the country. Nevertheless in the developing countries like India urbanization has not been associated with industralization. Inspite of higher levels of growth of urban population level of urbanization in India, is as low as about 10 percent in some regions. In such a scenario, the development of corridors in a 'real sense'can only be a distinct possibility. Whatever urbanisation has been recorded implies

---

[5] Ibid.

basically drain of resources and economic surplus from the less advantageous regions to the advantageous ones.[6] This makes the possibility of development of corridors rare.

During the last few decades, India recorded rapid growth of the urban population. Urban centres developed due to rural – urban migration, which has been a result of 'push factors' rather than 'pull factors'. Because of increasing pressure on land and urban facilities new industries were established in the neighbourhood of certain large cities. Concentration of these led to the increase in the demand for skilled, semiskilled and unskilled labour force on these specific locations.

A number of scholars tried to explain these processess in the framework of 'urban corridors'. B.K.Roy[7] has attempted to formulate a corridor model on the basis of influence areas of towns ities with special refrence to 1,00,000$^{+}$ population size. The design is based on the integration of –

(a) qualitative and quantitative data of population in an area to fix up relationship of different urban centres in a hierarchical manner.

(b) presence of arterial systems and their influence on the surrounding rural areas. These are connected with the nodal urban centres through these transport routes.

(c) the spatial distribution of different economic activities and land-uses in the associated urban space.

These corridors have been identified irrespective of the boundaries of states and union territories. There are 25 such urban corridors (Table. 2.1) all over the country (Map 2.1).

---

[6] B. S. Butola (1995) 'Urbanization and Under-Development in the North-Eastern India', in J. B. Ganguly (eds.) *'Urbanization and Development' in North-East India: Trends and Policy Implications*, Deep and Deep Publications, pp. 41.

[7] B. K. Roy (1993) *op. cit.* 15, pp. 96-101.

Table: 2.1

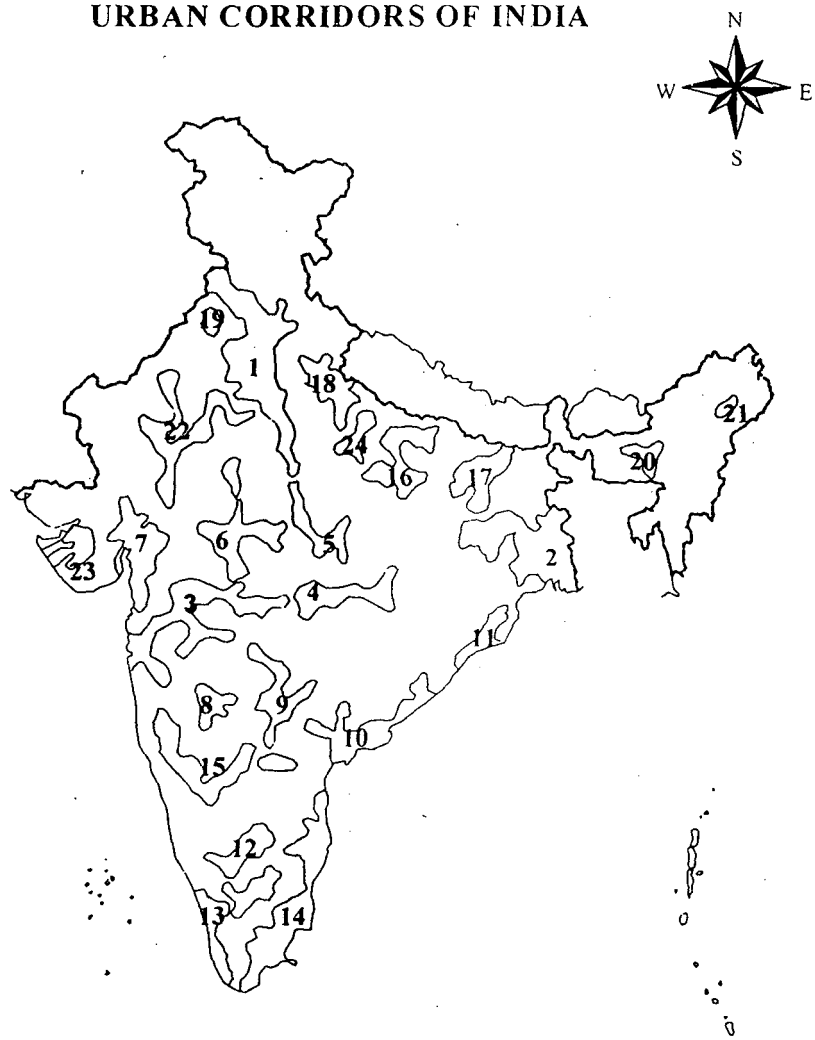
## Urban corridors of India and level of urbanisation

| Name of the Urban Corridors (Axis) | | Range of level of Urbanisation ( in %) |
|---|---|---|
| 1. | Delhi – Punjab | 60 and above; 15-40 |
| 2. | Dhanbad – Calcutta | 20-40; 5-10 |
| 3. | Amravati – Bombay | 25-40; 15-25; >80 |
| 4. | Nagpur – Bilaspur | > 60; 15-25 |
| 5. | Sagar – Jabalpur | 25-40; >40 |
| 6. | Indore – Ujjain | 25-40; 15-25 |
| 7. | Surat – Mahesena | 40-60; 24-40; >80 |
| 8. | Solapur – Bijapur | 25-40; 15-25 |
| 9. | Hyderabad – Warangal | > 60; 10-15; 15-25 |
| 10. | Andhra Coast | 25-40; 15-25 |
| 11. | Orissa Coast | 15-25; 25-40 |
| 12. | Kolar – Bangalore | 15-25; >60 |
| 13. | Kerala Coast | 15-25; 25-40; 5-10; >60 |
| 14. | Tamilnadu Coast | 15-25; 25-40; 5-10; >60 |
| 15. | Hubli – Dharwad | 15-25 |
| 16. | Varanasi – Gorakhpur | 5-10; 15-25 |
| 17. | Gaya – Darbhanga | 5-10; 15-25 |
| 18. | Moradabad – Bareilly | 25-40 |
| 19. | Bhatinda | 15-25 |
| 20. | Guwahati – Shillong | 25-40 |
| 21. | Dibrugarh | 15-25 |
| 22. | Ajmer – Jodhpur | 15-25; 25-40 |
| 23. | Rajkot – Jamnagar | 25-40; 40-60 |
| 24. | Lucknow – Kanpur | > 60 |
| 25. | Rourkela – Sambalpur | - |

Source: Roy, B. K. ( 2000)

Map 2.1

## URBAN CORRIDORS OF INDIA




1 Delhi-Punjab 2 Dhanbad-Calcutta 3 Amravati-Bombay 4 Nagpur-Bilaspur 5 Sagar-Jabalpur 6 Indore-Ujjain 7 Surat-Mahesana 8 Solapur-Bijapur 9 Hyderabad-Warangal 10 Andhra Coast 11 Orissa Coast 12 Kolar-Bangalore 13 Kerela Coast 14 Tamilnadu Coast 15 Hubli-Dharwad 16 Varanasi-Gorakhpur 17 Gaya-Dharbanga 18 Moradabad-Bareilly 19 Bathinda 20 Guwahati-Shillong 21 Dibrugarh 22 Ajmer-Jodhpur 23 Rajkot-Jamnagar 24 Lucknow-Kanpur.

The Bombay – Pune Corridor, studied by many, is an example of a prototype corridor which was well – planned. It includes dormitory settlements such as Badlapur, Vanging Neral, Karjaf. These have developed to accommodate Bombay's urban accretion. Transport linkages have been the major factor in the development process along this axis. Inspite of these linkages the two metropolises have survived as separate functional entities.

Radial Corridors of the National Capital Region have been planned to decentralise the population and their activities of the National Capital Region in the neighbourhoods in the form of satellite towns. The other purpose of this is to check the uncontrolled migration in the city. In this case, no new settlements have emerged rather, small towns with some additional advantage have been developed. The major function of these small towns is to inhabit the industries that is capable of providing maximum employment and opportunities in the non-agricultural sector. These have shown rapid growth and development due to favourable factors of accessibility, agglomeration economies of existing industries, skilled labour, infrasturcture and surrounding market areas. The satellite towns of Gurgaon, Ghaziabad, Faridabad, etc. have high potentials for the development of 'urban corridors'between them and Delhi.

Thus, in a country like India a proper integrated approach is required to modify the course of urbanisation in future so that it plays a major and positive role in the development process.

## 2.4 FACTORS LEADING TO CORRIDOR DEVELOPMENT

For the development of corridors, 'export functions' of the settlements and 'interaction' between them are the foundations. Corridors develop in the regions, which have experienced 'ribbon development'. Thus, those settlements which are located linearly at short intervals along the major transport routes are the centres of corridor development.

The factors which lead to this process can be identified as –

- Increasing integration of transport systems which includes both highways and railway lines as transport routes, these act as flows of energy between demand and supply areas.
- Large scale of export functions which involves the export of goods, services and capital to places of regional demand.
- Interaction between people and movement of goods and information.
- The surrounding and peripheral areas should have the potential of attracting and using agglomeration economics of the existing industries.
- Decentralisation of population in the neighbourhoods through government policies as is the case of the radial corridors of the National Capital Region.
- Historical advantage in the form of linear location and basic infrastructure.
- Mode of enterpreneurial activity and core of attraction.

The urban arterial systems in the form of flow of energy between the demand and supply centres generates new growth centres in between them. This characterstic is contrary to the growth of cities in India which are primarily concentrated in form. Development of corridors demands decentralisation of population and economic activities through out the influence zone as against the concentrtion of goods and services in the metropolises. The features that distinguish the corridor cities from other urban forms are as follows:

(a) There exists an integrated transportation pattern which is the major factor, as it assumes the role of connecting the city and its functional elements with its hinterland and other metropolis.

(b) High population density is one of the main characteristic of the area.

(c) The pattern of economic functions is characterized with a definite hierarchy and distinct segregation. Similar pattern must exist in the civic, cultural and administrative functions so that rural and urban areas can be clearly identified.

(d) The area possesses a variety of miscellaneous industries which owe their origin to the demands of regional market.

(e) There is influx of large numbers of immigrants, which provides a continuous supply of low-cost labour both skilled and unskilled.

(f) Presence of the 'assembly–line' factory system, which spreads rapidly to all types of manufacturing thus generating external economies for other sectors of the economy.

(g) Corridors cities are endowed with a varying degree of financial individuality as they have served as regional centres of banking and insurance.

(h) These centres link knowledge-intensive centres to large metropolis and have close links with places of complementary functions. [8]

## 2.5 CONCLUSION

1. Development of ribbons is the formative stage in the growth of corridor cities.
2. These bicentric centres have physical proximity with other urban centres.
3. The corridors are the space of urban influence in national and regional perspectives.
4. In India, the dominance of colonial primate cities have limited the growth of corridors to an extent.

---

[8] M. Pacione (2001) *op. cit.*, pp. 592.

# Chapter: Three

## SOCIO-ECONOMIC CHARACTERISTICS:

## KANPUR-LUCKNOW CORRIDOR

The history of Lucknow and Kanpur as cities dates back to antiquity. Lucknow had its beginning in the seventh century B. C. as a part of the Suryavanshi dynasty of Ayodhya, while Kanpur had its origin in the Mahabharta period.

In the pre-independence period, being a provincial capital Lucknow served as a city for nurturing the regional culture and as a centre for advanced and specialized education. Kanpur witnessed rapid growth in the post mutiny period and it was during this period that the foundation of the industrial base of the city was laid. At the beginning of the nineteenth century, Kanpur emerged as the leading industrial centre in the northern part of the country.

After independence, the two cities continued to grow as the first two cities of Uttar Pradesh. Kanpur underwent a period of turmoil, as gradual decline of industries began. Inspite of this, a large proportion of its workforce is engaged in the secondary sector with predominance of manufacturing industries. The economy of Lucknow, on the other hand, is dependent on the tertiary sector as it is a centre of administration, culture and education.

At district level, too, variations exist in the level of urbanization in these two districts. In 1991, Kanpur (urban) was the most urbanized district with 82.24 percent of its population residing in the urban areas, while, Lucknow recorded 62.66 percent of its population as urban. Unnao, the district between these two metropolises had a comparatively lower level of urbanisation (13.7 percent), as its

resources are drained out by these cities. These trends are attributed to factors like migration of people from rural to urban areas and conversion of villages into towns (Nawabganj got classified as Class V town in the 1991 Census).

## 3.1 KANPUR-LUCKNOW CORRIDOR

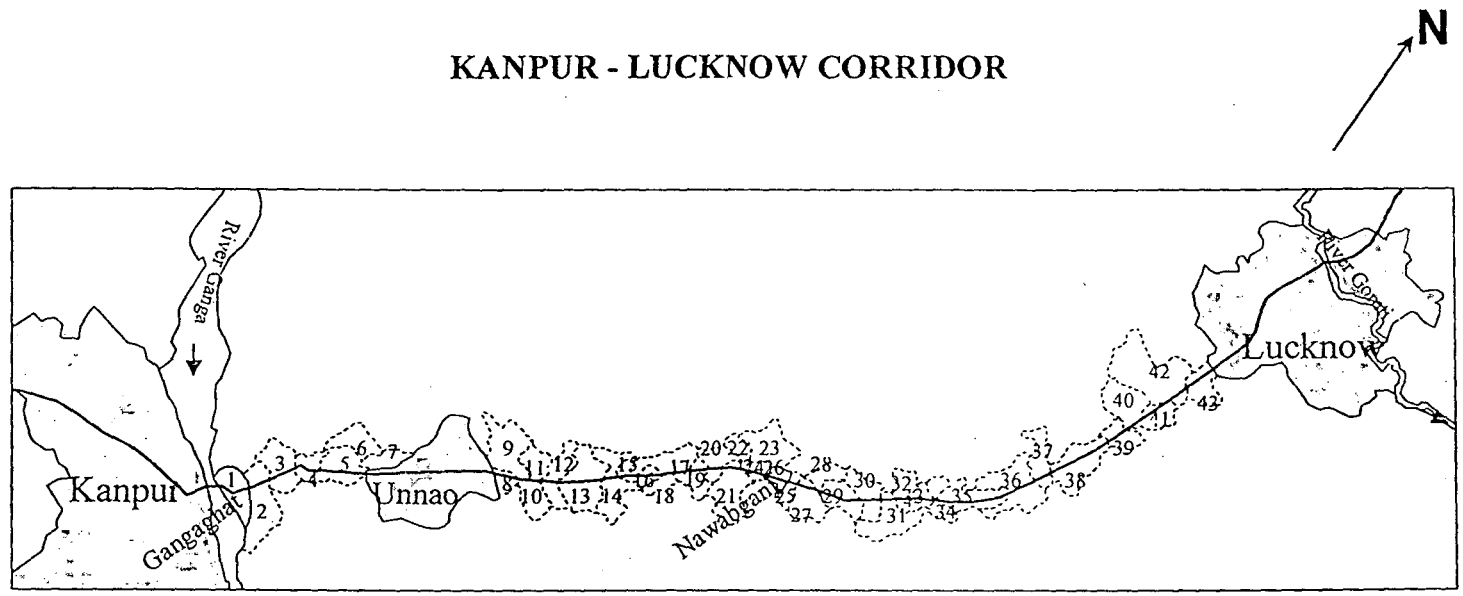
Distance between Kanpur and Lucknow is about 78 kilometers and is connected by the National Highway 25 (Map: 3.1). The region is equipped with efficient means of transportation (apart from NH 25, a bypass, a broad gauge and a meter gauge railway line connect them). In view of the above characteristics, one is led to anticipate that this linkage axis would be a fast developing area. However, no significant development has occurred here, in the past few decades only the cities of Kanpur and Lucknow have demographically grown and expanded physically.

Along the cities Gangaghat and Nawabganj have emerged as class II and class V towns respectively (1991), which were villages in the 1971 census. Gangaghat mainly a suburb has developed under the impact of the expansion of Kanpur city. It is basically an extended part of the city on the opposite bank of the River Ganga. Unnao, at a short distance of 28 kilometres from Kanpur has a developed economic structure on the basis of the variegated industries studded in this part of the corridor. Nawabganj is basically a mandi town with its economy based on agriculture. The fabric of this town is very much rural in nature.

Apart from these towns, the axis, which mainly traverses through Unnao and Lucknow districts comprises of large number of small rural and semi-urban settlements and groups of hamlets. It is imperative to appraise the socio-economic profile of the area over a period of time to understand their potentialities for development. Here, different social and economic attributes of the villages for the

Map 3.1

## KANPUR - LUCKNOW CORRIDOR




Rural Settlements
NH - 25
River
Urban Settlements

NAME OF THE VILLAGES:
1 Gangaghat 2 Netuwa 3 Fattepur 4 Sarrya 5 Sahijani 6 Debara Khurd 7 Magarwara 8 Khowajipur 9 Akrampur 10 Bajidpur 11 Tikar Garhi 12 Jhanjhari 13 Murtaza Nagar 14 Sonik 15 Algangarh 16 Bichpari 17 Jagdishpur 18 Ajgain 19 Kasambhi 20 Kunjpur 21 Gaura Katherwa 22 Mallaon 23 Baruwa 24 Khawajgipur 25 Amretha 26 Nawabganj 27 Parsandan 28 Makdumpur 29 Kusheri 30 Asa Khera 31 Rasulpur 32 Mirzapur 33 Lalpur 34 Mariya Mau 35 Bajehra 36 Bani 37 Sarai Sahazadi 38 Khandedeo 39 Banthra Sikanderpur 40 Miranpur Pinwat 41 Farrukhabad Chilawan 42 Gauri 43 Bahsa

year 1971 and 1991 are being considered to analyze their characteristics and changes that have occurred in the last three decades.

### 3.1.1 **Population of the Villages**

Population has increased on this corridor over time (1971 to 1991). However, the growth has mainly been attributed to 'natural growth' rather than to migration from other regions. Some of the villages like Gangaghat and Nawabganj were classified as towns only in 1981 and 1991 respectively.

Gangaghat has developed from a village to a class II town within a period of twenty years. This is mainly because of its proximity to Kanpur. It has developed as a satellite town of the city which has attracted people and industries in its vicinity.

### 3.1.2 **Distribution of Density**

In 1971, the villages along the axis were sparsely populated with nearly 70 percent of them having a density of less than 500 and only four had figures above 750 (Table 3.1). With population explosion, all the villages have crossed the lower limit. Only 12 percent of the villages had density below 500, and, for 26 percent of villages it was between 500 and 1000 in 1991.

Ajgain (3987) and Bichpari (3360) have recorded the maximum density even higher than some of the towns in the country (Appendix 1). This can be attributed to their location, close to towns. With the continuous growth of population in the cities there is no scope of expansion within city limits. The adjoining villages will receive the surplus population and activities. Nearly, 60 percent of the villages recorded a density of more than 1000 persons per sq. kilometres

Table 3.1

**Distribution of density**

| 1971 | | | 1991 | | |
|---|---|---|---|---|---|
| Range (persons per sq. kilometres) | No. of villages | Percent | Range (persons per sq. km) | No. of Villages | Percent |
| <250 | 11 | 25.58 | <500 | 5 | 12.20 |
| 250-500 | 21 | 48.84 | 500-1000 | 11 | 26.83 |
| 500-750 | 7 | 16.28 | 1000-2000 | 20 | 48.78 |
| >750 | 4 | 9.30 | 2000-3000 | 3 | 7.32 |
| | | | >3000 | 2 | 4.88 |
| Total | 43 | 100 | Total | 41 | 100 |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991.

### 3.1.3 **Sex-Ratio**

Age and sex selective migration has been one of the major tenets of urbanization process in the country. The sex-ratio has not shown any significant change in this region over time. About 50 percent villages have sex-ratio between 850 and 950. The percentage has shown a minimal increase. Only three villages have sex-ratio below 750 (Table 3.2).

This can be explained in context of village locations. Sarrya, located near Kanpur and Gangaghat; Bajidpur near Unnao and Farrukhabad near Lucknow show age and sex selective migration as they are adjacent to the larger cities. Bichpari is an exception as it always had a good share of female population. The figures have constantly remained near to the upper limit (952 in 1971; 958 in 1991).

Table 3.2

**Distribution of sex-ratio range**

| 1971 | | | 1991 | | |
|---|---|---|---|---|---|
| Range | No. of villages | Percent | Range | No. of villages | Percent |
| <750 | 3 | 6.98 | <750 | 3 | 7.32 |
| 750-850 | 16 | 37.21 | 750-850 | 15 | 36.59 |
| 850-950 | 20 | 46.51 | 850-950 | 21 | 51.22 |
| >950 | 4 | 9.30 | >950 | 2 | 4.88 |
| Total | 43 | 100 | Total | 41 | 100 |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991.

### 3.1.4 **Scheduled Caste Population**

Concentration of scheduled caste population is often associated with the proportion of agricultural workers. Only three villages had greater concentration (more than 60 percent) of scheduled caste population in 1971. These were Sahijani, Bajidpur and Sahijanpur. A striking change has been noticed here, as the former two have witnessed a decrease in their proportion while, Algangarh and Makdumpur have moved towards a higher proportion. About 25 percent of villages have about 40 to 60 percent of their population belonging to this group (Table 3.3). In 1991, also similar trends are visible. This indicates that there has not been a considerable change in the social profile of these villages.

Table 3.3

**Distribution of scheduled caste population**

| 1971 | | | 1991 | | |
|---|---|---|---|---|---|
| Range (%) | No. of villages | Percent | Range (%) | No. of Villages | Percent |
| <20 | 7 | 16.28 | <20 | 9 | 21.95 |
| 20-40 | 22 | 51.16 | 20-40 | 19 | 46.34 |
| 40-60 | 11 | 25.58 | 40-60 | 10 | 24.39 |
| >60 | 3 | 6.98 | >60 | 3 | 7.32 |
| Total | 43 | 100 | Total | 41 | 100 |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991.

### 3.1.5 **Literacy rate**

Literacy rate is an important indicator of socio-economic development. In the rural areas, where exposure often remains restricted and limited, increase in total literacy rate helps in understanding the consciousness among the people. The axis has experienced a considerable increase in its proportion of literate population. In 1971, about 65 percent of villages had literacy rates below 20 percent. Only, Gangaghat (52.97) and Algangarh (53.07) have more than 40 percent of its population as literate. The region has shown an increase over time and about six villages had more than 40 percent literacy (Table 3.4).

Only one village i.e. Miranpur Pinwat is an exception among them as its literacy rate is as high as 66 percent (See Appendix-1). During 1991, only 22 percent of the villages have less than 20 percent literacy.

Table 3.4

**Distribution of literates**

| 1971 | | | 1991 | | |
|---|---|---|---|---|---|
| Range (%) | No. of villages | Percent | Range (%) | No. of Villages | Percent |
| <10 | 4 | 9.30 | >20 | 9 | 21.95 |
| 10-20 | 24 | 55.81 | 20-40 | 26 | 63.41 |
| 20-30 | 11 | 25.58 | 40-60 | 5 | 12.20 |
| 30-40 | 2 | 4.65 | >60 | 1 | 2.44 |
| >40 | 2 | 4.65 | | | |
| Total | 43 | 100 | Total | 41 | 100 |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991.

### 3.1.6 **Proportion of Total Workers to the Total Population**

The proportion of working population has not changed significantly during the observed period. Even in 1971, about 35 percent of the villages had less than 30 percent of the total population as workers. About 55 percent of the villages recorded 30 to 40 percent workers in the total population. Only Bajehra had 60 percent of its population as working population. In 1991, about 78 percent of the villages the proportion of workers was between 25 to 35 percent. Only Lalpur had more than 45 percent of workers (Table 3.5).

This indicates that in the region overall scenario has not changed as about 30-35 percent of the population is working. Lower proportion of the workers indicates that people are not working and they may be engaged in various activities like study, social-work etc. that are not categorized as work in the census. Whatever, changes that have occurred are on local village level and which have no major impact on the region's economic perspective.

Table 3.5

**Distribution of total workers**

| 1971 | | | 1991 | | |
|---|---|---|---|---|---|
| Range (%) | No. of villages | Percent | Range (%) | No. of Villages | Percent |
| <30 | 15 | 34.88 | <25 | 2 | 4.88 |
| 30-40 | 24 | 55.81 | 25-35 | 32 | 78.05 |
| 40-50 | 3 | 6.98 | 35-45 | 6 | 14.63 |
| >50 | 1 | 2.33 | >45 | 1 | 2.44 |
| Total | 43 | 100 | Total | 41 | 100 |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991.

### 3.1.7 **Proportion of Female Workers**

Women's participation in the workforce has witnessed marginal changes over time. This region has a lower proportion of working women. Here, the percent of villages with less than 5 percent of female workers has gone down from 65 percent in 1971 to about 61 percent in 1991 (Table 3.6).

The proportion of female participation has shown increasing trends. It had increased in the villages where the proportion of female workers was between 5 and 10 percent in 1971. In the range of 10 to 20 percent female participation rate, the proportion of villages has increased from 7 percent to 12 percent. This indicates that in some villages like – Bajehra, Batgawan, Jagdishpur, Lalpur and so on, the working environment for women has improved. In some others like Magarwara, Mallaon, Parsandan etc. the percentages have fallen. The most striking among them is the case of Parsandan, where it has declined from about 40 percent to 10 percent (Appendix). Inspite of these changes, the overall picture that

emerges implies that even after twenty years, 80 percent of villages have female participation rate as low as 10 percent.

Table 3.6
**Distribution of female workers**

| | 1971 | | 1991 | |
|---|---|---|---|---|
| Range (%) | No. of villages | Percent | No. of Villages | Percent |
| <5 | 28 | 65.12 | 25 | 60.98 |
| 5-10 | 8 | 18.60 | 9 | 21.95 |
| 10-20 | 3 | 6.98 | 5 | 12.20 |
| 20-30 | 3 | 6.98 | 1 | 2.44 |
| >40 | 1 | 2.33 | 1 | 2.44 |
| Total | 43 | 100 | 41 | 100 |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991.

### 3.1.8 Workers Engaged in Agricultural Activities

In rural areas, agricultural is the main occupation of the people. With the acceleration in the process of 'development', the percentage of people engaged in agriculture goes down. Similar trend prevails along this axis, and the proportion of villages with 80 percent or more workers engaged in agriculture has declined form 46.5 percent to 41.46 percent (Table 3.7).

Batgawan and Gaura Katherwa are some of the villages that show a significant decline in the proportion of agricultural worker. Some of the other villages which have experienced decreasing trend are Magarwara, Miranpur Pinwat, Ajgain, and Banthra Sikanderpur. All these villages have noticed developmental change in their profile, which correspond with this decrease as people are shifting to non-agricultural activities (Appendix-1 and 2). On the other

hand, villages like Netuwa have shown a significantly increasing trend (by about 20 percent). In 1971, thirteen villages were in this group and in 1991 the number went to sixteen.

Table 3.7

**Distribution of agricultural workers**

| 1971 | | | 1991 | | |
|---|---|---|---|---|---|
| Range (%) | No. of villages | Percent | Range (%) | No. of Villages | Percent |
| <40 | 3 | 6.98 | <40 | 2 | 4.88 |
| 40-60 | 7 | 16.28 | 40-60 | 6 | 14.63 |
| 60-80 | 13 | 30.23 | 60-80 | 16 | 39.02 |
| >80 | 20 | 46.51 | >80 | 17 | 41.46 |
| Total | 43 | 100 | Total | 41 | 100 |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991.

### 3.1.9 **Household Workers**

Household activities are another important characteristic of the rural areas. These are usually confined to individual households in the villages. With 'economic transformation' gaining momentum in the country, these activities are loosing ground.

Declining trends of workers engaged in agricultural workers have been visible in this corridor. In 1971, about 45 percent of villages had nearly 2.5 and above proportion of workers engaged in such activities. In Jhanjhari about 20 percent of its workforce was involved in this sector (Appendix 1). But, the share of this segment has declined significantly. In 1991 only two villages – Bichpari and Gaura Katherwa had percentages above 1. About 58 percent of the villages did not comprise of any household activities during 1991 (Table 3.8).

Table 3.8

**Distribution of household workers**

| 1971 | | | 1991 | | |
|---|---|---|---|---|---|
| Range (%) | No. of villages | Percent | Range (%) | No. of Villages | Percent |
| <2.5 | 23 | 53.49 | No household activity | 24 | 58.54 |
| 2.5-5 | 10 | 23.26 | <0.5 | 11 | 26.83 |
| 5-7.5 | 5 | 11.63 | 0.5-1 | 4 | 9.76 |
| 7.5-10 | 4 | 9.30 | >1.0 | 2 | 4.88 |
| >10 | 1 | 2.33 | | | |
| Total | 43 | 100 | Total | 41 | 100 |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991.

This shows an extreme transformation in the occupational pattern of the villages. And, it is substituted with the decreasing proportion of workers in the primary occupation.

### 3.1.10 **Non-Agricultural Workers**

Non-agricultural activities are an important indicator of urbanization. The shift from primary to secondary or tertiary sector is best explained through the increasing proportion of workers in these activities.

In this sector, the proportion of villages with less than 10 percent of non agricultural workers has slipped to 22 percent in 1991 from 39 percent in 1971. This clearly indicates that the axis has witnessed change in its economic sector over the last twenty years. The villages in the range of 20-40 and 40-60,

proportion of workers in non-agricultural activities have shown increasing trend (Table 3.9).

Table 3.9

**Distribution of non-agricultural workers**

| 1971 | | | 1991 | | |
|---|---|---|---|---|---|
| Range (%) | No. of villages | Percent | Range (%) | No. of Villages | Percent |
| <10 | 17 | 39.53 | <10 | 9 | 21.95 |
| 10-20 | 7 | 16.28 | 10-20 | 10 | 24.39 |
| 20-40 | 11 | 25.58 | 20-40 | 14 | 34.15 |
| 40-60 | 5 | 11.63 | 40-60 | 6 | 14.63 |
| >60 | 3 | 6.98 | >60 | 2 | 4.88 |
| Total | 43 | 100 | Total | 41 | 100 |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991.

In 1991, Netuwa, Gangaghat and Akrampur had 60 percent of its working population in this sector. This can be explained through their proximity to the urban centers. Netuwa and Gangaghat bordered Kanpur while Akrampur shared its boundaries with Unnao. Even, Magarwara and Miranpur recorded more than 60 percent of nonagricultural workers. Some of the villages which have shown tremendous shift in their occupational pattern are Akrampur, Ajgain, Bani, Banthra Sikanderpur, and Jhanjhari (Appendix 1 and 2).

## 3.2 COMBINED PERFORMANCE OF THE SOCIO-ECONOMIC AND INFRASTRUCTURAL INDICATORS

The above analysis clearly shows that the region has witnessed changes in a scattered manner. It can be said that Ajgain, Magarwara, Miranpur-Pinwat, Banthra-Sikanderpur, Jhanjhari have shown development in terms of literacy rate and proportion of workers in non-agricultural activities. All this indicates that these villages have potential for further development.

### 3.2.1 **Principle Component Analysis**

Principle component analysis has been done to analyze the overall performance of these factors. All the above mentioned nine indicators have been taken into consideration. The first factor, which is linearly dependent on the constituent variables, explains about 35 percent, for both the periods. In 1971, Gangaghat was the most developed (3.21) followed by Netuwa (2.68) and Nawabganj (1.90) (Table 4.10). This shows that proximity to the city have played a significant role in their development. Nawabganj, a small village in 1971 developed to a mandi town in 1991. Magarwara and Akrampur have also developed due to their spatial advantage.

Villages, which are situated at a greater distance from the urban settlements, have shown comparatively poor performance. Gauri is an exception here, as inspite of its location in the vicinity of Lucknow city, the village had lower level of development (-0.69). Even after twenty years, there have been no significant change and its value is still negative (-0.22). Weak spread effects of Lucknow can not be held responsible for this under-development. However, Miranpur Pinwat, another village near Lucknow has shown developing trends. Its value has increased from – 0.87 to 2.85. Banthra, Ajgain, Magarwara were some

Table3.10

## Composite score on the basis of factor analysis

| Village Name **1971** | PCA | | Village Name **1991** | PCA |
|---|---|---|---|---|
| Gangaghat | 3.21 | | Miranpur Pinwat | 2.85 |
| Netuwa | 2.64 | | Ajgain | 1.97 |
| Nawabganj | 1.90 | | Banthra Sikanderpur | 1.91 |
| Magarwara | 1.10 | | Magarwara | 1.87 |
| Akrampur | 1.04 | | Bani | 1.28 |
| Banthra Sikanderpur | 0.93 | | Akrampur | 1.11 |
| Kasambhi | 0.87 | | Khowajipur | 0.96 |
| Sarai Sahazadi | 0.70 | | Jhanjhari | 0.83 |
| Farrukhabad Chilawan | 0.65 | | Bichpari | 0.74 |
| Khowajipur | 0.51 | | Sarrya | 0.62 |
| Sonik | 0.50 | | Sahijani | 0.61 |
| Sahijani | 0.45 | | Netuwa | 0.31 |
| Jhanjhari | 0.40 | | Kunjpur | 0.18 |
| Ajgain | 0.28 | | Bahsa | 0.17 |
| Jagdishpur | 0.24 | | Asa Khera | 0.09 |
| Parsandan | 0.22 | | Mallaon | 0.08 |
| Asa Khera | 0.14 | | Mariya Mau | 0.00 |
| Fattepur | 0.08 | | Murtaza Nagar | -0.00 |
| Bichpari | 0.05 | | Gaura Katherwa | -0.01 |
| Khawajgipur | -0.04 | | Sarai Sahazadi | -0.05 |
| Algangarh | -0.05 | | Tikar Garhi | -0.06 |
| Bani | -0.13 | | Gauri | -0.22 |
| Baruwa | -0.15 | | Kasambhi | -0.22 |
| Bajidpur | -0.17 | | Sonik | -0.39 |
| Bahsa | -0.17 | | Amretha | -0.44 |
| Murtaza Nagar | -0.29 | | Jagdishpur | -0.52 |
| Khandedeo | -0.45 | | Baruwa | -0.55 |
| Sarrya | -0.46 | | Khandedeo | -0.62 |
| Gaura Katherwa | -0.50 | | Kusheri | -0.67 |
| Tikar Garhi | -0.54 | | Rasulpur | -0.68 |
| Mallaon | -0.64 | | Bajidpur | -0.70 |
| Gauri | -0.69 | | Farrukhabad | -0.71 |
| Kunjpur | -0.76 | | Khawajgipur | -0.74 |
| Kusheri | -0.81 | | Parsandan | -0.86 |
| Debara Khurd | -0.84 | | Fattepur | -0.90 |
| Miranpur Pinwat | -0.87 | | Lalpur | -0.91 |
| Mirzapur | -0.94 | | Bajehra | -0.94 |
| Rasulpur | -0.95 | | Debara Khurd | -0.97 |
| Amretha | -1.09 | | Algangarh | -1.02 |
| Mariya Mau | -1.12 | | Mirzapur | -1.59 |
| Lalpur | -1.14 | | Makdumpur | -1.82 |
| Makdumpur | -1.22 | | | |
| Bajehra | -1.87 | | | |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991.

### 3.2.2 **Composite Index**

Since the first principle component is only explaining 36 percent, Composite Index (C. I.) has been computed. The C. I. is based on demographic parameters, workers participation and available infrastructural facilities. Economic development has been the result or outcome of multiple factors like, demographic, economic (mainly working population) and infrastructural factors.

#### 3.2.2.1 **Composite Index for Demographic Variables**

Demographic factors which include density of population, sex-ratio, proportion of scheduled caste population, literacy rate and so on guided the performance of villages over time. In 1971, Gangaghat and Nawabganj were demographically most developed (Table 3.11). And, this is the reason that by the year 1991 (next two decades) they were classified as urban settlements. It was followed by Netuwa, Algangarh and Jagdishpur (Map:3.2). But, in 1991, these villages showed poor performance as they have shifted from the category of 'mean + 2 standard deviation' to 'mean to mean + 1 standard deviation.' Ajgain has improved as this is coming up as an important market centre along the axis. Similar characteristics have been noticed in the villages of Bichpari, Magarwara, Rasulpur and Lalpur. All these villages are either between Unnao and Kanpur or Nawabganj and Unnao. Gauri and Bahsa, inspite of being located in the vicinity of Lucknow have shown lower levels of development i.e. in the category of 'mean – 2 standard deviation' to 'mean – 1 standard deviation' and have not revealed much changes (Map:3.3). Other villages have more or less maintained similar positions over time.

Table 3.11

**Composite Index for demographic parameters**

| 1971 | | 1991 | |
|---|---|---|---|
| Category | Villages | Category | Villages |
| >6.22 | Gangaghat, Nawabganj | >5.58 | Ajgain |
| 5.11-6.22 | Netuwa, Algangarh, Jagdishpur | 4.79-5.58 | Bichpari, Rasulpur, Lalpur, Banthra, Miranpur |
| 4.00-5.11 | Sahijani, Magarwara, Khowajipur, Sonik, Bichpari, Ajgain, Baruwa, Khawajgipur, Asa Khera, Rasulpur, Lalpur, Sarai Sahazadi, Banthra, Farrukhabad Chilawan | 4.00-4.79 | Netuwa, Fattepur, Sahijani, Khowajipur, Jhanjhari, Sonik, Algangarh, Baruwa, Khawajgipur, Kusheri, Jagdishpur, Bani, Bajehra, Sarai, |
| 2.89-4.00 | Debara Khurd, Akrampur, Bajidpur, Jhanjhari, Fattepur, Murtaza Nagar, Kasambhi, Sarrya, Kunjpur, Gaura, Mallaon, Parsandan, Makdumpur, Kusheri, Mirzapur, Mariya Mau, Bani, Khandedeo, Miranpur, Gauri, Bahsa. | 3.21-4.00 | Sarrya, Debara Khurd, Akrampur, Murtaza Nagar, Kasambhi, Kunjpur, Gaura, Mallaon, Parsandan, Makdumpur, Asa Khera, Mirzapur, Mariya Mau, , Khandedeo , Gauri. |
| 1.78-2.89 | Tikar Garhi, Amretha, Bajehra | 2.42-3.21 | Bajidpur, Tikar Garhi, Amretha, Farrukhabad Chilawan |
| <1.78 | - | <2.42 | |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991.

### 3.2.2.2 Composite Index for Workforce Participation

Workforce is an important means of production, which is directly associated with the performance of a region's economy. Jhanjhari and Parsandan had highest proportion of workers in 1971 (Table 3.12). Both these villages have shown a decline in their share as in 1991, the values were below average.

Gangaghat, Bahsa, Netuwa, Fattepur all had higher proportions of workers in 1971(Map: 3.4). They still have large share of the working hands in the total population. Increase has also been experienced in Bichpari, Gaura, Kasambhi, Asa Khera, Lalpur, Bani and Mirzapur (Map: 3.5). This shows that the region has undergone haphazard process of development.

Table 3.12

**Composite Index for workforce participation**

| 1971 | | 1991 | |
|---|---|---|---|
| Category | Villages | Category | Villages |
| >9.42 | Jhanjhari, Parsandan | >9.58 | Gaura |
| 7.21-9.42 | Gangaghat, Bahsa | 7.29-9.58 | Bichpari, Kasambhi, Asa Khera, Miranpur, Lalpur, Bani |
| 5.00-7.21 | Netuwa, Fattepur, Sahijani, Debara Khurd, Magarwara, Akrampur, Sonik, Bichpari, Kasambhi, Mallaon, Khawajgipur, Nawabganj, Bani, Sarai. | 5.00-7.29 | Magarwara, Khowajipur, Jagdishpur, Kunjpur, Makdumpur, Kusheri, Banthra, Miranpur. |
| 2.79-5.00 | Sarrya, Khawajgipur, Bajidpur, Tikar Garhi, Murtaza Nagar, Algangarh, Jagdishpur, Ajgain, Kunjpur, Gaura, Baruwa, Kusheri, Asa Khera, Mirzapur, Mariya Mau, Bajehra Khandedeo, Banthra, Miranpur, Farrukhabad, Gauri. | 2.71-5.00 | Netuwa, Fattepur, Sarrya, Sahijani, Akrampur, Bajidpur, Tikar Garhi, Jhanjhari, , Murtaza Nagar, Sonik, Ajgain, Mallaon, Baruwa, Amretha, Parsandan, Rasulpur, Mariya Mao, Bajehra, Sarai, Khandedeo, Gauri, Farrukhabad, Bahsa. |
| 0.58-2.79 | Amretha, Makdumpur | 0.42-2.71 | Debara Khurd, Algangarh, Khawajgipur. |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991.

The decrease in the proportion of workers can be ascribed to the fact that they may have witnessed out- migration of the working population. Besides, with

the growth in the household economy, elderly and children are supposed to withdraw from the workforce.

### 3.2.2.3 **Composite Index for infrastructural variables**

A similar situation prevails in the sphere of available infrastructural amenities.

Table 3.13

**Composite Index for infrastructural facilities**

| 1971 | | 1991 | |
|---|---|---|---|
| Category | Villages | Category | Villages |
| >23.25 | Sahijani, Banthra, Magarwara | >26.36 | Magarwara |
| 14.94-23.25 | Netuwa, Asa Khera, Farrukhabad, Gauri | 16.68-26.36 | Kasambhi, Asa Khera |
| 6.63-14.94 | Kasambhi, Bani, Khowajipur, Ajgain | 7.0-16.68 | Netuwa, Sahijani, Khowajipur, Akrampur, Jhanjhari, Sonik, Ajgain, Banthra |
| <6.63 | Fattepur, Sarrya, Debara Khurd, Akrampur, Bajidpur, Tikar Garhi, Jhanjhari, Murtaza Nagar, Sonik, Algangarh, Bichpari, Jagdishpur, Kunjpur, Gaura, Mallaon, Baruwa Khawajgipur, Amretha, Parsandan, Makdumpur, Kusheri, Rasulpur, Mirzapur, Lalpur, Mariya Mau, Bajehra, Sarai, Khandedeo, Bahsa | <7.0 | Fattepur, Sarrya, Debara Khurd, Bajidpur, Tikar Garhi, Murtaza Nagar, Algangarh, Bichpari, Jagdishpur, Kunjpur, Gaura, Mallaon, Baruwa, Khawajgipur, Amretha, Parsandan, Makdumpur, Kusheri, Rasulpur, Mirzapur, Lalpur, Mariya Mao, Bajehra, Bani, Sarai, Khandedeo, Miranpur, Gauri, Farrukhabad, Bahsa |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991.

Magarwara, Sahijani and Banthra were most privileged in 1971 (Map 3.6). But by 1991, only Magarwara could continue with its position (Table 3.13). The other two i.e. Sahijani and Banthra along with Netuwa, Farrukhabad, Gauri and

Bani, showed a declining trend. Therefore, it can be assumed that location of a village has not been influential in providing better amenities and services to the village. The data on Gangaghat and Nawabganj are not available. But, the rest of the data clearly states that there has not been much improvement and development here.

This can be supported by the data, which shows that in 1971, thirty villages were below the average infrastructural base. The situation is the same after twenty years and during 1991, thirty villages had poor infrastructural facilities (Map 3.7). Only Jhanjhari, Sonik and Akrampur have been able to achieve better services and facilities. This implies that the spread effects of the functional linkages of Lucknow, Kanpur and Unnao have not been strong enough to facilitate the 'growth' along this axis.

### 3.2.2.4 **Composite Index for development**

The above assumption gains weight as the composite Index of Development shows absolutely the same picture. Magarwara, which was already developed in 1971, had the highest score (Map 3.8). The major reason of its development is its location between Kanpur and Unnao, the busiest stretch along the axis. It is followed by Kasambhi and Asa Khera, both of them have registered positive growth trend. On the contrary, villages like Netuwa, Banthra, Sahijani and Farrukhabad have shown a declining trend in the levels of development. Nearly 8 villages were below average level of development in 1991 (Map 3.9). The poor resource base, parasitic nature of the two urban centres, uneven development of Unnao are some of the features due to which proper and desired levels of development has not been achieved.

Table 3.14

**Composite Index for development**

| 1971 | | 1991 | |
|---|---|---|---|
| >33.67 | Netuwa, Sahijani, Banthra, Magarwara | >37.14 | Magarwara, |
| 24.65-33.67 | Farrukhabad | 26.67-37.14 | Kasambhi, Asa Khera |
| 15.63-24.65 | Khowajipur, Jhanjhari, Ajgain, Kasambhi, Parsandan, Asa Khera, Bani, Gauri | 16.00-26.67 | Netuwa, Sahijani, Khawajgipur, Jhanjhari, Sonik, Bichpari, Ajgain, Gaura, Bani, Banthra |
| 6.61-15.63 | Gangaghat, Sarrya, Debara Khurd, Akrampur, Bajidpur, Tikar Garhi, Murtaza Nagar, Sonik, Algangarh, Bichpari, Jagdishpur, Kunjpur, Gaura, Mallaon, Baruwa, Khawajgipur, Amretha, Nawabganj, Makdumpur, Kusheri, Rasulpur, Mirzapur, Lalpur, Mariya Mau, Bajehra, Khandedeo, Miranpur, Bahsa, Fattepur, Sarai | 5.43-16.00 | Fattepur, Sarrya, Debara Khurd, Bajidpur, Tikar Garhi, Murtaza Nagar, Algangarh, Jagdishpur, Kunjpur, Mallaon, Baruwa, Khawajgipur, Amretha, Parsandan, Makdumpur, Kusheri, Rasulpur, Lalpur, Mirzapur, Mariya Mau, Bajehra, Sarai, Gauri, Khandedeo, Miranpur, Farrukhabad, Bahsa, Akrampur, |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991.

## 3.3 RESULT OF THE FIELD SURVEY

The above result has been substantiated with a primary survey conducted along the axis. About 30 villagers were interviewed on the basis of a structured questionnaire and their perceptions about the changes were recorded. The road side business network has also been analysed. The result of the survey has been discussed in the following sections:

## 33.1 **Social Characteristics**

The spatial organisation of a region is an expression of different socio-cultural parameters like education, caste, language and religion. These characteristics influence the processes of urbanisation and industrialization.

### 3.3.1.1 **Educational level of villagers**

The 'classical human capital theory' draws upon the premise that the earning behaviour of an individual depends on his attributes alone, under the assumption that only skills and experience determine the earnings.[1] Let us see the diversification of the educational levels of the interviewed population.

Table 3.15

**Educational level of villages**

| Educational qualification | Percentage |
|---|---|
| Illiterate | 21 |
| Primary | 21 |
| Matric | 21 |
| Intermediate | 6.5 |
| Graduate | 14 |
| Others | 6.5 |

Source: Field Survey, February 2002

The illiterate and less educated villagers have migrated to the road-side for better economic benefits and have involved in small economic activities. There shops include small size establishments like dhabas, general stores etc. The highly

---

1 S. Acharya (1996) 'Access and Returns to Education: Analysis for Maharashtra', *Journal of Education Planning and Administration*, Vol. 10, No.4, pp. 393.

educated personals were either employed in the governmental institutions like primary health centres, gramin banks or in the factories in the nearby towns. Majority of them have their residence in the cities and travel daily to their workplace. The striking feature of this axis was that the demand for skilled and technical labourer is high and this is met by the educated migrants (Table 3.15).

### 3.3.1.2 **Migration Pattern**

Lucknow and Kanpur like other towns in the Ganges valley of Uttar Pradesh and Bihar are associated with higher levels of rural poverty.[2] Poor people migrate to these cities as these towns have a concentration of resources and activities. These cities also have a higher percentage of domestic industries than organized industry, transport, trade and construction.

Table 3.16

**Migration pattern of shopkeepers**

| Type of shopkeepers | Percentage of shopkeeper |
|---|---|
| Local resident | 64 |
| Migrants | 36 |

Source: Field Survey February 2002

Migration is always associated with available opportunities in the receiving regions and the prevailing occupations in the supply regions. Rural migrants mainly comprise of either landless peasant class or educated who are more likely to be pulled into the urban areas.[3]

---

2 J. R. Choudhari (1993) *'Migration and Remittances :Inter-Urban and Rural-Urban Linkages'*, Sage Publications, New Delhi, pp.66

3 J. P. Singh (1950) *'Patterns of rural urban migration in India'* Inter -India Publications, New Delhi, pp. 10.

In this region, land owning classes have also moved to the road side and have started business like furniture, construction material, agricultural equipments and so on. The other people who have migrated include educated and unemployed youth. They were engaged in activities which demand a certain level of education and training like medical shops. They have migrated from Bihar Haryana and neighbouring districts.

### 3.3.2 **Economic Characteristics**

Large number of shops, petrol pumps, automobile repair shops, establishments and factories are located on the axis in a linear pattern. The number has consistently increased with the growth of population. The leather goods factories and tanneries are prominent.

#### 3.3.2.1 *Kanpur-Unnao Stretch*

This stretch has maximum flow of goods and passengers among the three sections of the Kanpur- Lucknow axis (Table 3.17). The stretch is a single-lane road with very heavy traffic flow. Inspite of the construction of bypass, this road has dense population of establishments. However, this stretch lacks the presence of restaurants and petrol pumps. These are mainly found along the newly constructed bypass which is characterized with very fast traffic.

The stretch has maximum number of factories and tanneries. None of the industries have shifted to the bypass as it has been constructed through the low density area. Their owners have reported that they would loose their established market and their prime location. These factories get cheap labour force from the surrounding rural hinterlands. Kanpur is the major trading centre for their products. Some of the tanneries like Zam Zam tanneries are also involved in the export business.

Apart from tanneries, this stretch hosts a number of other industries. These include Gattha factory, beverages, pharmaceuticals etc. Automobile, cycle and rickshaw repair shops are also located here.

Table 3.17

**Distribution of different business along the road side for three stretches**

| | Kanpur-Unnao (28 km) | Unnao-Nawabganj (18 km) | Nawabganj-Lucknow (32 km) | Kanpur-Lucknow (78 km) |
|---|---|---|---|---|
| Restaurants & Dhabas | 15 | 7 | 30 | 52 |
| Petrol Pumps & Dharamkantas | 2 | 6 | 12 | 5 |
| Shops and Establishments | 68 | 25 | 115 | 208 |
| PCO | 7 | 15 | 30 | 52 |
| Automobile Repair Shops | 10 | 15 | 25 | 50 |
| Factories | 16 | 7 | 3 | 24 |
| Government Institutions | 5 | 2 | 3 | 7 |
| Educational Institutions | 1 | 2 | 2 | 5 |
| Others | 12 | 4 | 10 | 26 |

Source: Field Survey, February 2002

Besides industries, there are government institutions, which include three Gramin Banks, schools, poultry farm and hospitals. The shops are varied in nature, ranging from small general stores to large showrooms. The threshold population of these shops is restricted to the rural limits or the passers by.

3.3.2.2 *Unnao-Nawabganj Stretch*

Unnao to Nawabganj is a small stretch of 18 kilometres. The stretch is still in the incipient stage of corridor development as Nawabganj has developed recently as a mandi town. This includes the industrial area of Unnao which is

mainly composed of shoe factories. These factories are the large establishments with local labour and a vast market which is concentrated around Kanpur, Lucknow and other metropolises of the state. District Udyog Kendra is also located here along with District Inter College. Petrol pumps, shops and dhabas are scattered all along the stretch.

*3.3.2.3 Nawabganj-Lucknow Stretch*

Lucknow being the capital city of the state has its regional importance. It is about 32 kilometres from Nawabganj. The industries here are not found along the road as they have been shifted to the Lucknow Industrial area. Some small enterprises like soap factory, dal mill or leather factory are still there. Their market is restricted to the city and its neighbouring villages.

This is basically a deserted stretch as huge plots of land are under agricultural activities. Only two government institutions (Business Research Centre and Indian Industries Association) are there as others are concentrated in the city centre or on the other neighborhoods of the city.

The stretch is mainly dominated by leather factories, PCOs, petrol pumps and other establishments. There is diversification in the economy of the region. It is dependent on both industries and agriculture with some household activities. The survey showed that chikan work is done in almost every household on this axis especially between Lucknow and Unnao.

### 3.3.3 **Nature of Ownership**

The distribution of population densities and land values are directly related to the location of commercial activities. Shops are mainly concentrated in areas with proximity to the urban settlements. Land values, of shops are directly linked with the location of the establishment. In the initial stage of development establishment of industrial activity affect the land value. In the later stage, when

concentration of activities increases, the price of land decides the location of establishment.

Table 3.18

**Nature of ownership of the shops**

| Nature of shops | Percentage |
|---|---|
| Rented | 50 |
| Owned | 50 |

Source: Field Survey February 2002

The axis has nearly 50 percent of shops in the rented premises. Rest of the 50 percent establishments is located on the land belonging to the owner of the establishments. The phenomenon is a result of the distribution of land in the villages, as all the villagers do not have their plots along the roadside. The people having land along the road find it easier to establish commercial activities as value of real estate is increasing overtime especially in the urban areas.

### 3.3.4 **Rent of the land**

Rent often decides the location of different activities as it is related with the size of plot needed for a particular activity and tends to be higher in the preferred locations, usually nearer to the city center.

The price of land as well as the rent of land was higher in the villages near cities of Lucknow, Unnao and Kanpur. This can aptly be explained through the distance-decay model. Density of population as well as occupations does not decline immediately after crossing the city centre. It is only beyond certain point that this decline becomes apparent. Similarly, as we move further away from these cities, the rent decreases. Table 3.14 explains this in terms of ten villages with their location and rental values.

Table 3.19

**Rent values at different locations along the axis**

| Village | Rent (In Rs per sq. yard) |
|---|---|
| Fattepur (Kanpur) | 1200-1300 |
| Sahijani (Kanpur) | 1000 |
| Magarwara | 700-800 |
| Akrampur (Unnao) | 1000-1200 |
| Jhanjhari (Unnao) | 800-900 |
| Ajgain | 400 |
| Amretha (Nawabganj) | 700-900 |
| Asa Khera (Nawabganj) | 600-650 |
| Banthra Sikanderpur (Lucknow) | 700-800 |
| Gauri (Lucknow) | 1000-1500 |

Source: Field survey, February 2002

The rent is between Rs1000 to Rs1500 per sq yard near towns but, as one moves outside, the prices tend to decline. The lowest rent was found in the villages like Ajgain located far from any prominent urban center. The rent was comparatively high in Amretha, a neighbouring village of Nawabganj. This is because Nawabganj has developed as an important mandi town and grain market. A comparatively higher rent value was reported by the people of Ajgain and Akrampur (near Unnao) than that of Jhanjhari, which is about 2-3 villages far from the city. Rent was highest at Fattepur, the village closer to the cities of Gangaghat and Kanpur. This explains that the land near urban settlements has more demand than those in the hinterland and has become a favourable location for business activity.

## 3.4 Villager's perception of the changes that have occurred in the past two decades

Changes in different socio-economic phenomena are apparent with time. The stretch charecterised with population growth and increasing pressure on land

has shown mixed sign in terms of development over the past few years. This has resulted in a shift from agricultural to non-agricultural activities. People have moved along the road for better economic opportunities. A number of small businesses have cropped up which cater to local demands of basic services. These are mainly run by the migrants who have come here because of cheap land values, easy accessibility of land and better infrastructural facilities. Some poultry farms have developed. Household activities like chikan work etc. have increased but could not become significanct due to very low returns.

The factories, which have grown near Unnao and Kanpur, provide employment to the local people. However, the extent of employment is limited to the manual labour and the technical and skilled staffs are mainly migrants.

The common perception was that poor educational infrastructure had been responsible for the lower level of literacy. Although more people have got access to schools but lack of higher and technical institutes has forced people to migrate.

There has been a substantial increase in the flow of traffic particularly heavy vehicles which transfer raw materials and finished goods.

The construction of four lane road along the axis between Lucknow and Unnao was in progress. It was noticed that the stretch where construction was currently going on, the businesses were affected as passers-by were not halting at their shops. Shopkeepers along the road were afraid of the development of this super-highway as they were of the opinion that this would bring fast traffic which will diminish their business prospects in the long run.

The land values have increase substantially as availability of land per person has gone down due to increase in population. In and around the cities land is sold in smaller units like sq. feet, sq. yard and bissas, while in the villages it is sold in bighas. Table 4.16 gives a view of the changes that have occurred in the land value over time in different villages.

Table 3.20

**Land value changes over twenty years along the axis**

| Village | Land value | |
|---|---|---|
| | Twenty Years ago | At Present |
| Fattepur | 20,000-40,000/ bigha | 5-10 lakh/bigha |
| Sahijani | 30,000-40,000/ bigha | 6-7 lakh/bigha |
| Magarwara | 20,000-30,000/ bigha | 4-5 lakh/bigha |
| Akrampur | 1 lakhs / bigha | 2-3 lakh/bigha |
| Jhanjhari | 80,000-90,000/ bigha | 3 ½ lakh/bigha |
| Ajgain | 50,000/acre | 1 ½ lakh/acre |
| Amretha | 30,000-40,000/ bigha | 2-3 lakh/bigha |
| Asa Khera | 20,000/ bigha | 4 lakh/bigha |
| Banthra Sikanderpur | 10,000-12,000/ bigha | 1 lakh/bigha |
| Gauri | 1 lakh/ bigha | 2-5 lakh/bigha |

Source: Field Survey, February, 2002

This shows that land near the urban centres has higher demand compared to that of the villages. Table 4.16 shows that the overall land values have increased for about 30-40 percent. Land value is higher in the villages in the proximity of Lucknow and Kanpur. This is mainly because it is anticipated that with time some parts of these villages or the entire village will be incorporated within the city limits. As we move away from the city centre the prices are comparatively lower. The price of land in the same village showed a difference of about 4 to 6 times. It was reported that the land just behind the roadside plot was half and in some case even less than that. Price of land has risen mainly because land along the road has better infrastructural facilities.

Inspite of all these developments, the most peculiar feature of this axis is that these businesses are not employment generative. Inspite of so many factories and such a large proportion of industrial workers there are no medical institutions. Just 1-2 small hospitals exist but that too in the proximity of cities.

## 3.5 CONCLUSION

1. There have been high rates of population growth as densities of villages along the Kanpur-Lucknow corridor, have increased many times. In 1971, few had densities above 750 but, by 1991, there were villages with more than 3000 people per sq. kilometres.
2. Sex-Ratio has shown steady trend. Only a few villages in the vicinity of cities have witnessed a decline. This is due to sex-selective out migration from these villages.
3. There is an increase in the literacy rate of males as well as of females.
4. The overall percentage of workers has decreased from about 55 percent to 35 percent in the last two decade.
5. There has been a mixed scenario in case of female work participation rate. In some villages there has been decline while in others an increase has been noticed.
6. The proportion of agricultural workers has almost remained unchanged.
7. Sharp decline in the household activities is noticed. However, the famous chikan work of Lucknow in done at the household level.
8. Villages in the close proximity of cities have higher concentration of non-agricultural workers and, due to more economic benefits in this sector, there has been a shift towards it.
9. The road-side business network is dense in the stretch between Unnao and Kanpur. This stretch has the heaviest flow of goods and raw materials. Economic activities are concentrated only between this stretch. These activities are found along the link road, which connects these two cities. However, the highway that joins the metropolises of Kanpur and Lucknow is

barren between Unnao and Kanpur. It is dotted with a few petrol-pumps and dhabas (line-hotels that are used by lorry drivers). People are afraid that the ongoing construction of four-lane highway between Unnao and Lucknow will wash out their small businesses.

10. The region has experienced some in migration from the nearby districts and tehsils.

11. Migration has resulted in the change of the ownership of establishments. Number of rented establishments has increased.

12. Inspite of restricted growth, there has been 3 to 4 times increase in the value of land. This has been the result of population growth, unavailability of land and high incidence of migration.

13. The cities of Lucknow and Kanpur have drained away the resources of these villages, especially those in the Unnao district. Due to this, these villages have registered higher rates of out-migration.

14. Unnao city has not developed significantly because it falls in the labour market of Kanpur and Lucknow. Due to this its spread effects have been very weak.

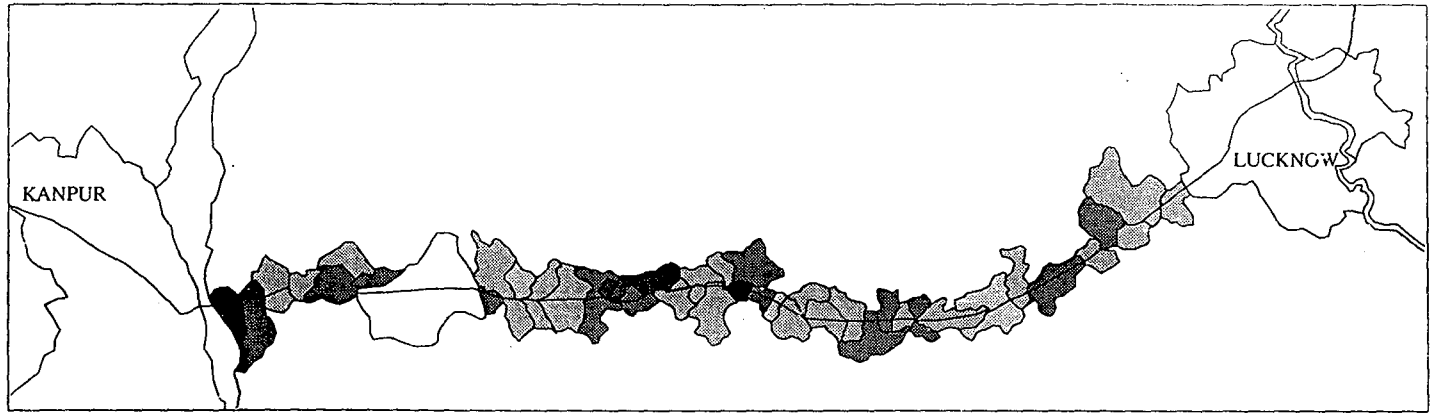
15. The cities have failed to reach the stage of 'over spill'. They have not been able to overspill their growth. Kanpur, although has shown some signs of overspill as some industries have come up between Kanpur and Unnao in the trans-Ganga area.

Map No. 3.2

# KANPUR - LUCKNOW CORRIDOR

## DEMOGRAPHIC PARAMETERS

1971




Value of Composite Index

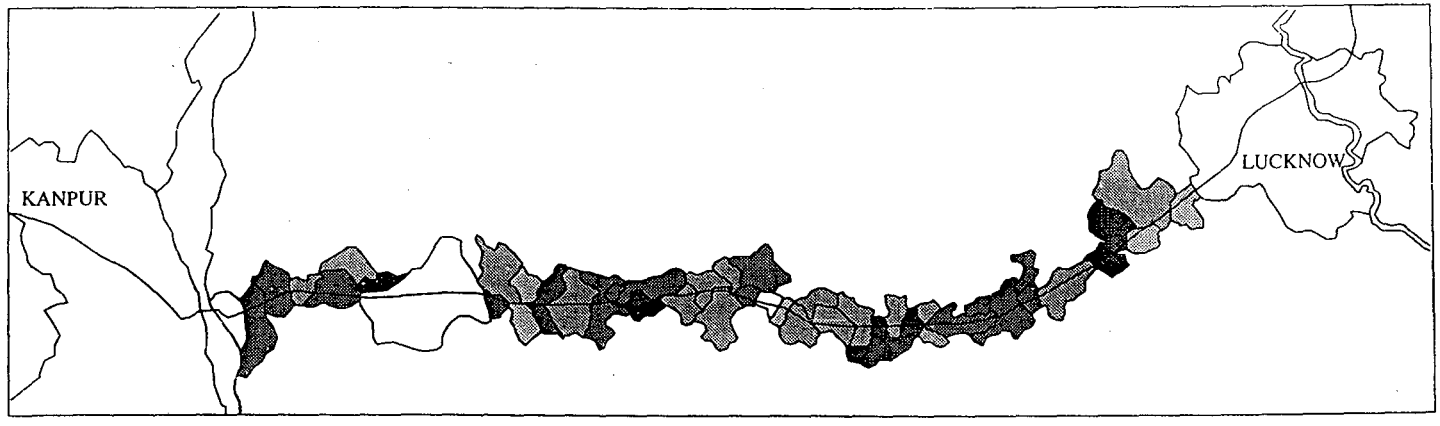
- Above 6.22
- 5.11 - 6.22
- 4.00 - 5.11
- 2.89 - 4.00
- 1.78 - 2.89
- Urban Settlements

Map No. 3.3

# KANPUR - LUCKNOW CORRIDOR

## DEMOGRAPHIC PARAMETERS

1991




Value of Composite Index

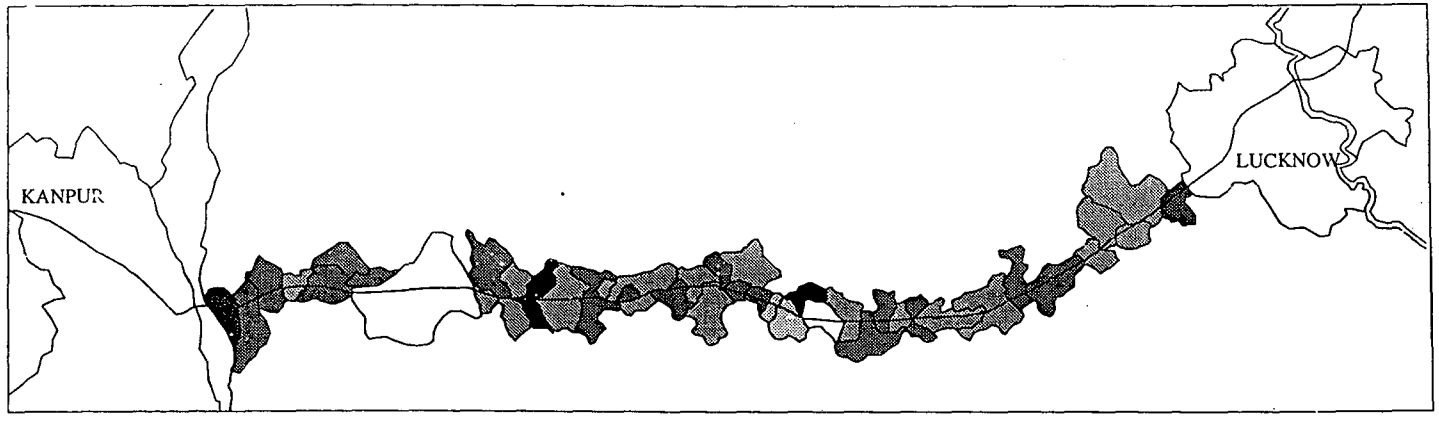
- Above 5.58
- 4.79 - 5.58
- 4.00 - 4.79
- 3.21 - 4.00
- 2.42 - 3.21
- Urban Settlements

Map No. 3.4

KANPUR - LUCKNOW CORRIDOR

# WORKFORCE PARTICIPATION

1971




Value of Composite Index

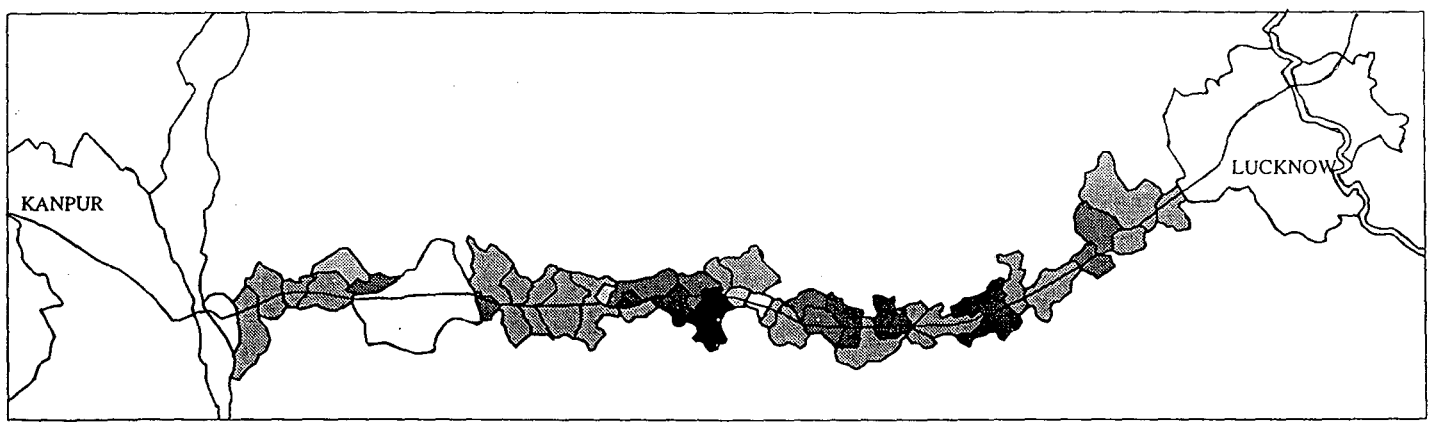
- Above 9.42
- 7.21 - 9.42
- 5.00 - 7.21
- 2.79 - 5.00
- 0.58 - 2.79
- Urban Settlements

Map No. 3.5

KANPUR - LUCKNOW CORRIDOR

# WORKFORCE PARTICIPATION

1991




Value of Composite Index

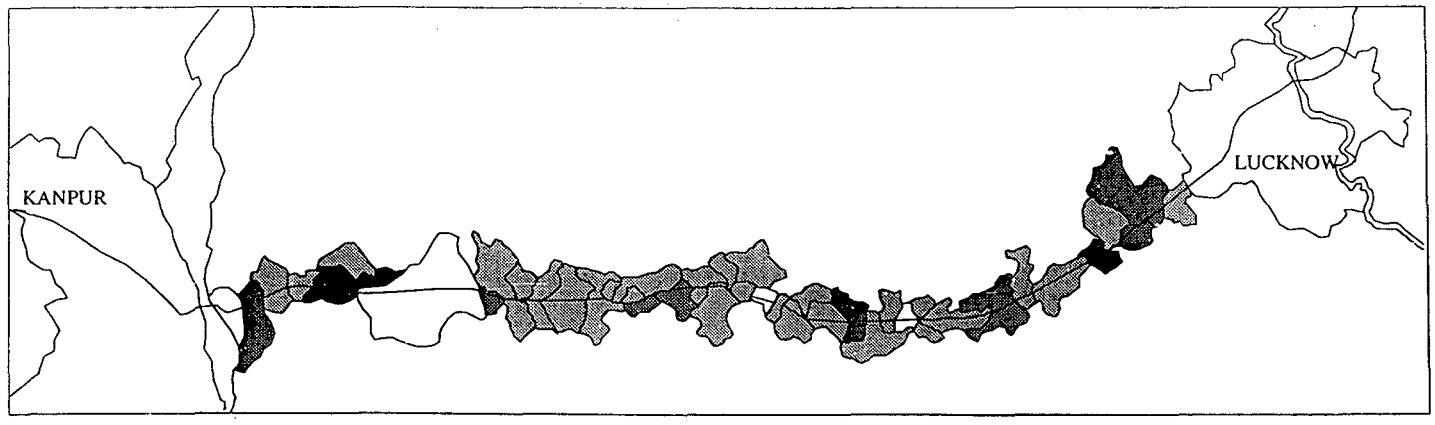
- Above 9.58
- 7.29 - 9.58
- 5.00 - 7.29
- 2.71 - 5.00
- 0.42 - 2.71
- Urban Settlements

Map No. 3.6

# KANPUR - LUCKNOW CORRIDOR

## INFRASTRUCTURAL FACILITIES

1971




Value of Composite Index

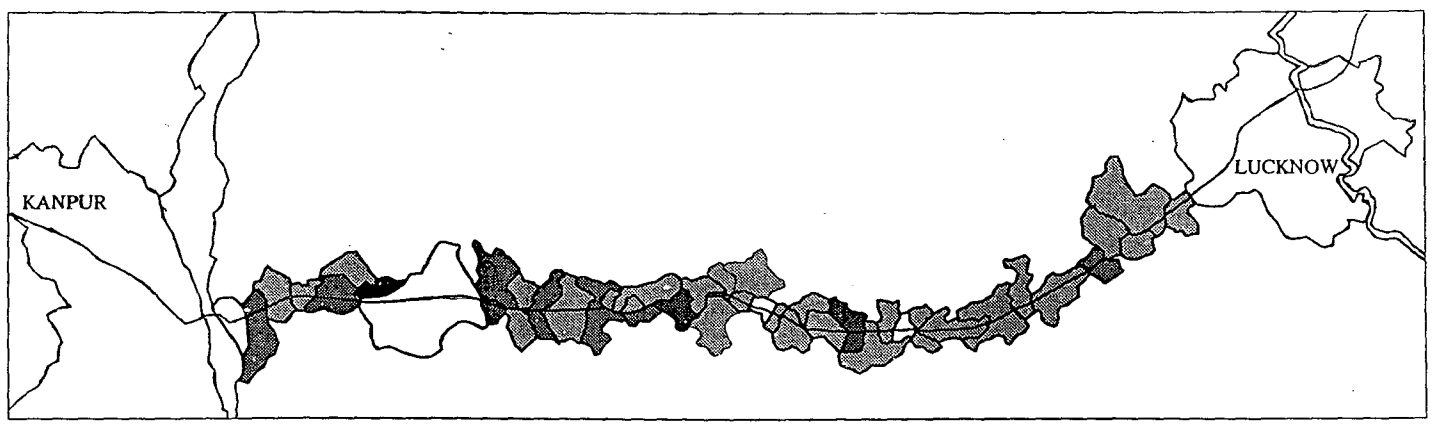
- Above 23.25
- 14.94 - 23.25
- 6.63 - 14.94
- Below 6.63
- Urban Settlements

Map No. 3.7

KANPUR - LUCKNOW CORRIDOR

# INFRASTRUCTURAL FACILITIES

1991




Value of Composite Index

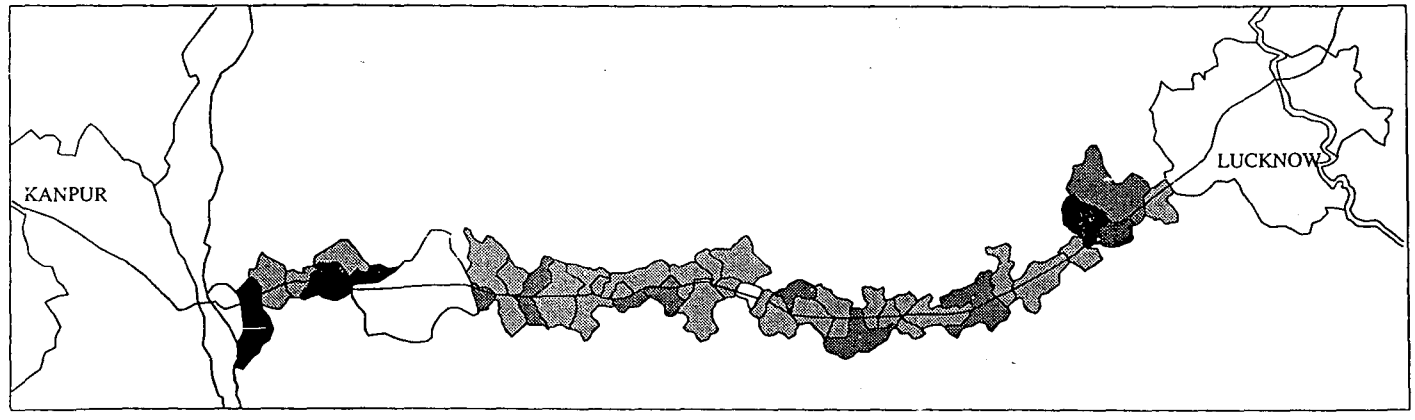
- Above 26.36
- 16.68 - 26.36
- 7.00 - 16.68
- Below 7.00
- Urban Settlements

Map No. 3.8

KANPUR - LUCKNOW CORRIDOR

# COMPOSITE INDEX OF DEVELOPMENT

1971




Value of Composite Index

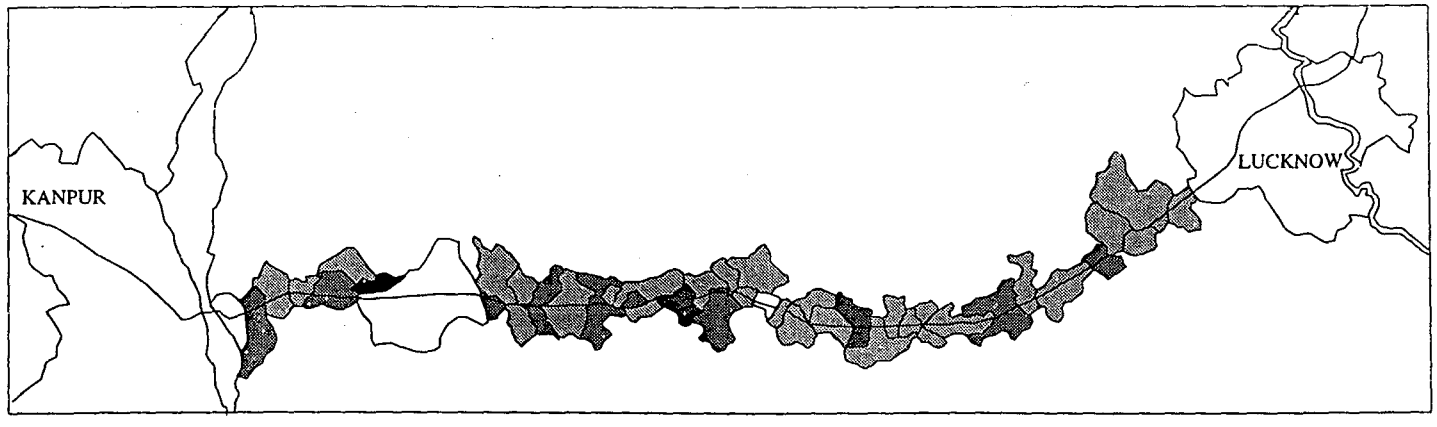
- Above 33.67
- 24.65 - 33.67
- 15.63 - 24.65
- 6.61 - 15.63
- Urban Settlements

Map No. 3.9

# KANPUR - LUCKNOW CORRIDOR

## COMPOSITE INDEX OF DEVELOPMENT

1991




Value of Composite Index

- Above 37.14
- 26.67 - 37.14
- 16.00 - 26.67
- 5.43 - 16.00
- Urban Settlements

# Chapter: Four

## SOCIO-ECONOMIC CHARACTERISTICS: GHAZIABAD-MEERUT CORRIDOR

Cities have often been regarded as 'centers of economic production and consumption', 'arenas of social networks and cultural activities' and 'seats of governance and administration.'[1] Spread of urban influences into the surrounding rural areas increases the probability of emergence of the phenomena like 'conurbation', 'megalopolises' or 'corridor cities'.

Emergence of Ghaziabad, a 'satellite town' of Delhi, dates back to the Eighteenth century. Being a growing town, its population has increased from 11,275 (1901) to 5,11,759 (in 1991) mainly on account of its rapid industrialisation. Before independence, the city had only two (vegetable oil) factories, but now it is an industrial town having large number of manufacturing units within its spatial limits. Meerut, a historical town, has also expanded over time. It has attained the status of a 'million city' in the census of 2001. According to the prevalent belief of people, the city of Meerut has its origin in the era of Ramayana.[2] Since 1935 and particularly after independence, the city has spread beyond the limits of the old town and many new localities have come into existence. The two cities are gaining prominence in the economy of Uttar Pradesh.

At district level, too, urban population has doubled during the decade 1981-91. Ghaziabad district has witnessed the maximum growth rate of urban population (98.43 Percent) in the state. Even, Meerut experienced high rate of

---

[1] M. Pacione (2001) 'Urban Geography: A Global Perspective' Routledge, London, pp. 31.

[2] Meerut Gazetteer, Government of Uttar Pradesh, 1965

population growth in the urban areas (47.55 percent) during the last decade. This shows that the region has experienced higher levels of urban growth, an indicator of economic development.

## 4.1 GHAZIABAD-MEERUT CORRIDOR

This corridor extends for a distance of about 40 Kilometres and traverses through the districts of Ghaziabad and Meerut. Until 1971, these two cities were in one administrative boundary, namely, district of Meerut. The district was bifurcated in 1981 and Ghaziabad came up as a separate administrative entity. The linear axis is dotted by nearly 27 rural and semi-urban settlements in 1971 (Map 4.1) of which only 18 villages retained their rural fabric in 1991. The rest have been engulfed by the major cities in the region.

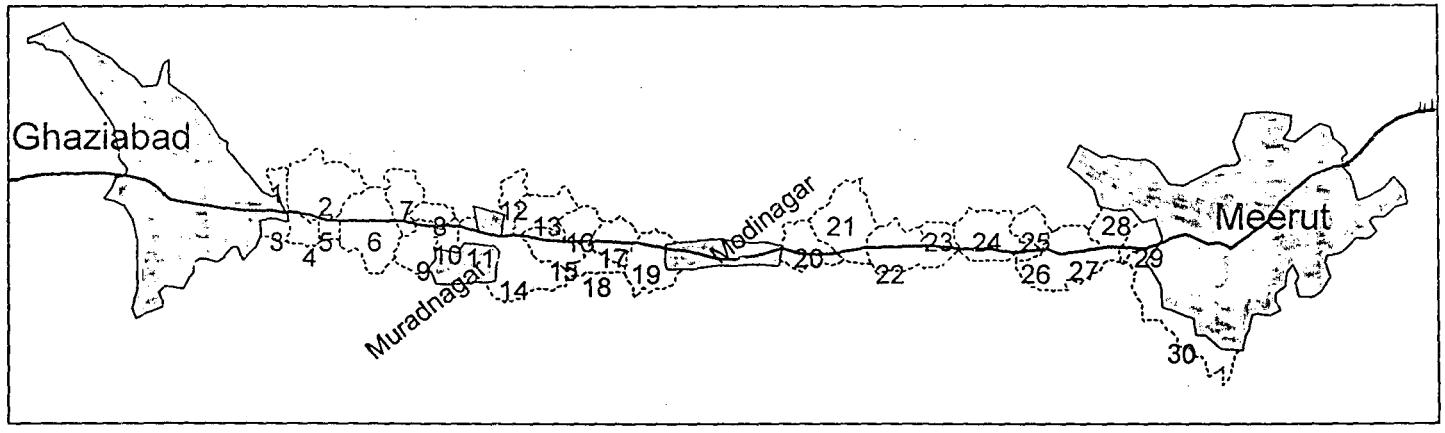
Apart from these hamlets and settlements, the towns of Modinagar and Muradnagar are also located on this axis. Modinagar was formed with parts of four revenue villages - Begumabad, Qadarabad, Bisokhan and Sikri Khurd. It is of recent origin and has been founded by G. M. Modi who established a sugar factory here in 1933. The town was administered as a 'town area' since 1945. It was declared as a notified area only in 1963. The town is about 20 Kilometres away from the Meerut city.

Muradnagar, on the other hand, was founded about four hundred years ago. It was basically a grain mandi; a *painth* (market) was held on every Tuesday in which a brisk trade of handloom cloth and jaggery were carried on. It is just 12 Kilometres away from the Ghaziabad city.

The two cities are well connected with National Highway 58 and a railway line. All the four cities lie within the area of about 40 Kilometres. The axis has a well-knitted pattern of corridor cities which are spatially separated but functionally interlinked and have inter-dependent economies. To understand the development process along this corridor, the socio-economic characteristics of the villages are analysed.

Map. No. 4.1

# GHAZIABAD - MEERUT CORRIDOR




NAME OF THE VILLAGES

1 Makramatpur Sikhroad 2 Dhargal 3 Mohiuddinpur main 4 Morta 5 Rasulpur Yabutpur*
6 Duhai 7 Basantpur Sainthly 8 Asalatnager 9 Mohiuddinpur Hisali 10 Mohhamedpur Dheda
11 Ukharlsi 12 Ajabpur Mangoli* 13 Jalalpur 14 Abupur 15 yusufpur Manota 16 Sadabad
Jakhewa 17 Kazampur 18 Sikri Klan 19 Sikri Khurd 20 Qadarabad 21 Daulatpur F.K.G
22 Mohiuddinpur 23 Aminagar 24 Baral Partapur 25 Industrial Estate Partapur 26 Kunda
27 Rithani 28 Mokkhampur 29 Hafizabad Moda 30 Meerut Abadi Janglat.
* Uninhabited villages

**Urban Settlements**

**NH-58**

**Rural Settlements**

### 3.1.1 **Population of the villages**

The villages along this axis have always been densely populated due to their closeness to the industrial towns. The basic reason of continuous population growth is natural increase and the axis has received migrants from the metropolis of Delhi. As one moves away from Ghaziabad towards Meerut, the proportion of migrants gradually tapers down.

In 1971, about 63 percent of villages had population less than 2000. Only three villages- Jalalpur, Meerut-Abadi-Janglat and Morta- had a population size of more than 4000. In 1991, the number of such villages increased to six. Abupur, Aminagar, Mohiuddinpur and Sikri Khurd were added to the list. (Appendix 3) Meerut-Abadi-Janglat came under the municipal limits of Meerut city. About 63 percent of villages had a population of more than 2000 (Table 4.1).

### 3.1.2 **Density Pattern**

In 1971, about 33 percent of the villages had a density between 300 and 600 persons per sq. kilometre and the same percent of village had a density between 600 and 900 persons per sq. kilometre. Only Mohiuddinpur Dheda had a density of more than 1200 persons per sq. kilometre. About five villages had a density of less than 300 persons per sq. kilometre. The villages which are sparsely populated include Asalatnagar, Dhargal, Hafizabad Moda, Mohiuddinpur and Sadabad Jakhewa.

By 1991, the region experienced high growth rate of population due to natural growth of population and this has resulted in higher density of the villages. In this year, all the villages except Asalatnagar had a density of more than 1000 persons per sq. kilometre. Villages like Makarmatpur Sikhroad, Partapur and Mohammedpur Dheda have a density of over 4000 persons per sq. kilometre.

Table 4.1

**Distribution of density**

| 1971 | | | 1991 | | |
|---|---|---|---|---|---|
| Range (persons per sq km) | Number of Villages | Percent of Villages | Range (persons per sq km) | Number of Villages | Percent of Villages |
| <300 | 5 | 18.52 | <1000 | 1 | 5.56 |
| 300-600 | 9 | 33.33 | 1000-2000 | 6 | 33.33 |
| 600-900 | 9 | 33.33 | 2000-3000 | 4 | 22.22 |
| 900-1200 | 3 | 11.11 | 3000-4000 | 3 | 16.67 |
| >1200 | 1 | 3.70 | >4000 | 4 | 22.22 |
| Total | 27 | 100 | Total | 18 | 100 |

*Source*: Computed from the data of town and village dircctories, Census of India, Registrar General of India, 1971 and 1991

These villages are densely populated as they are situated in close proximity to the cities.

### 4.1.3 **Sex Ratio**

Sex ratios have shown a tremendous variation between 1971 and 1991. In 1971, about 40 percent of villages had a sex-ratio below 800. Some villages like Dhargal, Hafizabad Moda, Industrial Estate Partapur and Mohiuddinpur had the sex-ratio as low as 700 females per 1000 males. This indicates that these villages have experienced in-migration of male. Interestingly none of them remained rural in 1991. Hafizabad and I.E. Partapur became part of the Meerut city While, Dhargal along with Mohiuddinpur attained the status of an urban settlement. This indicates that these villages have been industrial in nature and industrial workers reside here.

Kunda was the only village with a sex-ratio of over 900 in 1971 (Appendix 3). The village shares its boundary with Meerut and it might have been used as a residential place by the poor families. But, the figure has drastically reduced to 757 in 1991. This indicates that with rapid

industrialization of Meerut and its industrial estate, the village has witnessed high proportion of male in-migration. In 1991, a large proportion of villages (about 68 percent) like Basantpur Sainthali, Mohiuddinpur and Yusufpur Manota had a sex-ratio between 800 and 900 (Table 4.2).

Table 4.2

**Distribution of sex-ratio**

| 1971 | | | 1991 | | |
|---|---|---|---|---|---|
| **Range** | **Number of Villages** | **Percent of Villages** | **Range** | **Number of Villages** | **Percent of Villages** |
| <700 | 4 | 14.80 | <800 | 4 | 22.22 |
| 700-800 | 7 | 25.93 | 800-900 | 13 | 72.22 |
| 800-900 | 15 | 55.56 | >900 | 1 | 5.56 |
| >900 | 1 | 3.70 | | | |
| Total | 27 | 100 | Total | 18 | 100 |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991

### 4.1.4 **Literacy rate**

Educated and trained people work as resource in an economy. Literacy is first step in achieving education and formal training. The region has experienced unexpected increase in its proportion of literate population. In 1971, more than 50 percent of villages had a literacy rate below 30 percent. Only two villages like Dhargal and Industrial Estate Partapur had literacy rate above 55 percent (Appendix 3). This can be explained through the industrial nature of these villages. These villages are also located at the peripheries of the city.

In 1991, only three villages had less than 40 percent of its population as illiterate (Table 4.3). Two villages among these are mainly dependent on agriculture. These are Baral Partapur and Kunda having more than 80 percent of its workforce engaged in primary activities.

Table 4.3

**Distribution of total literates**

| 1971 | | | 1991 | | |
|---|---|---|---|---|---|
| Range (%) | Number of Villages | Percent of Villages | Range (%) | Number of Villages | Percent of Villages |
| <20 | 2 | 7.41 | <40 | 3 | 16.67 |
| 20-30 | 13 | 48.15 | 40-50 | 8 | 44.44 |
| 30-40 | 8 | 29.63 | 30-60 | 7 | 38.89 |
| >40 | 4 | 14.81 | >60 | | |
| Total | 27 | 100 | Total | 18 | 100 |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991

### 4.1.5 **Proportion of Scheduled Caste Population**

The overall proportion of scheduled castes has decreased in the region during the study period. In 1971 Sadabad Jakhewa and Mokhampur had about 60 percent of its population belonged to this category. Infact the proportion was as high as 90 percent in Sadabad Jakhewa. The peculiar feature of this village is that about 90 percent of its villagers are engaged in non-agricultural activities. This is contrary to the general trend that 'presence of scheduled caste population indicates agricultural base of the economy of the region'.

Usually, it is observed that the villages with higher concentration of scheduled castes population have higher percentage of its workforce engaged in primary activities. This was true for Mokhampur which had higher proportion of scheduled caste population and about 70 percent of its workers were involved in agriculture.

In 1991, on the other hand only three villages of Daulatabad, Jalalpur and Qadarabad had more than 40 percent of their population categorized as scheduled castes. Here, only Jalalpur has witnessed increase in proportion of scheduled caste population. About 31 percent of villages had less then 20 percent scheduled caste population in 1991.

Table 4.4

**Distribution of scheduled caste population**

| 1971 | | | 1991 | | |
|---|---|---|---|---|---|
| Range (%) | Number of Villages | Percent of Villages | Range (%) | Number of Villages | Percent of Villages |
| <20 | 10 | 37.04 | <10 | 1 | 5.56 |
| 20-40 | 13 | 48.15 | 10-20 | 4 | 22.22 |
| 40-60 | 2 | 7.41 | 20-30 | 7 | 38.89 |
| >60 | 2 | 7.41 | 30-40 | 3 | 16.67 |
| | | | >40 | 3 | 16.67 |
| Total | 27 | 100 | Total | 18 | 100 |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991

### 4.1.6 **Total Workers**

The axis is basically an industrial stretch and it seems that it has been highly influenced by the mechanization process. This had also resulted in an increase of the income of households. With development in the economic condition of households, children and elderly are withdrawn from the workforce. This is evident from the decreasing ratio of the total work force in the region over the past twenty years.

Table 4.5

**Distribution of total workers**

| 1971 | | | 1991 | | |
|---|---|---|---|---|---|
| Range (%) | Number of Villages | Percent of Villages | Range (%) | Number of Villages | Percent of Villages |
| <30 | 20 | 74.07 | <25 | 6 | 33.33 |
| 30-40 | 5 | 18.52 | 25-30 | 10 | 55.56 |
| >40 | 2 | 7.41 | >30 | 2 | 11.11 |
| Total | 27 | 100 | Total | 18 | 100 |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991

In 1971, more than 40 percent of the population in Dhargal and I.E. Partapur was employed. About 74 percent of the villages had only 30 percent workers out of the total population.

After twenty years the proportion of villages having less than 30 percent workers has increased to 88 percent. Only Kunda and Daulatpur F.U.K. had more than 30 percent workers in the total population. The striking feature of these developments was that by 1991, about 30 percent of the villages (six in number) had less than 25 percent population as workers (Table 4.5). Makarmatpur Sikhroad, Asalatnagar, Mohammedpur Dheda, Sikri Kalan, Sikri Khurd and Aminagar fall in this category. It can be presumed that working population of these villages have migrated to other cities.

### 4.1.7 **Female Workforce Participation**

Indian women in traditional rural society generally work only when it becomes an obligation for them. Unfavorable working environment restricts them within the household limits. The proportion of their participation has been low (less than 10 percent).

Table 4.6

**Distribution of female workers**

| 1971 | | | 1991 | | |
|---|---|---|---|---|---|
| Range (%) | Number of Villages | Percent of Villages | Range (%) | Number of Villages | Percent of Villages |
| <1 | 16 | 59.26 | <1 | 4 | 22.22 |
| 1-3 | 4 | 14.81 | 1-3 | 6 | 33.33 |
| 3-5 | 3 | 11.11 | 3-5 | 5 | 27.78 |
| 5-7 | 2 | 7.41 | >5 | 3 | 16.67 |
| >7 | 2 | 7.41 | | | |
| Total | 27 | 100 | Total | 18 | 100 |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991

In 1971, Basantpur Sainthali and Ukhlarsi had about 8 percent of its women as worker. Their participation rate has gone down drastically over time. In 1991, only 2.1 percent of females were employed in Basantpur.

A striking characteristic of the region is that in 1971, about 60 percent villages had less than 1 percent of female in the workforce (Table 4.6). The proportion of villages in this category went down to 21 percent in 1991. The increase has been witnessed in the villages having about 1 to 5 percent of female workforce participation rate. It increased to about 60 percent in 1991 from 25 percent in 1971.

Daulatpur had higher ratios of about 8 percent and this is because the village is basically dependent on agriculture. Primary activities are more conducive for work for the women who usually lack technical skills required in the non agricultural activities. Similar is the case with Baral Partapur (7.1 percent) where 84 percent of the workers are employed in the agricultural activities. Asalatnagar is an exception where, in spite of low proportion of agricultural workers it has higher female workforce participation rate. This can be attributed to the household industries in the village, which account for about 6.5 percent of the total workers.

### 4.1.8 **Agricultural workers**

Table 4.7 shows that the proportion of agricultural workers has decreased over time. The percentage of villages with more than 40 percent of its workers in agriculture had fallen from about 52 percent in 1971 to nearly 40 percent in 1991 (Table 4.7). Though, a rise has been witnessed in the number of villages which are dependent mainly on agricultural activities (from 2 in 1971 to 4 in 1991). Along with Daulatpur, Kazampur, Kunda and Baral Partapur have joined the group. In these villages figures are as high as 93 percent for Kunda and 84 percent for Baral Partapur. In the other two, which have always been dependent on agriculture i.e. Daulatpur F.U.G. and Kazampur the figures have ranged between 60 and 70 percent.

Table 4.7

**Distribution of agricultural workers**

| 1971 | | | 1991 | | |
|---|---|---|---|---|---|
| Range (%) | Number of Villages | Percent of Villages | Range (%) | Number of Villages | Percent of Villages |
| <20 | 6 | 22.22 | <20 | 1 | 5.56 |
| 20-40 | 7 | 25.93 | 20-40 | 9 | 50 |
| 40-60 | 11 | 40.74 | 40-60 | 4 | 22.22 |
| >60 | 3 | 11.11 | >60 | 4 | 22.22 |
| Total | 27 | 100 | Total | 18 | 100 |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991

There has been a massive decline in the number of villages with less than 20 percent of agricultural workers. The number has gone down from six to two in 1991. The villages which had lower proportion of agricultural workers had subsequently achieved the status of urban. The former two have become part of Meerut city while, Dhargal is included in the town area of Mohiuddinpur. This shows that the region has experienced a shift in occupation pattern form primary to secondary.

### 4.1.9 **Household workers**

This sector has also witnessed a decline in its percentage. In 1971, about 11 percent of the villages had nearly 10 percent or more of household workers, but, in 1991, none of the villages had 10 percent of workforce engaged in household activities. The maximum proportion of these workers was found in the villages of Asalatnagar (Appendix 4). The village had higher female workforce participation rate (5.1 percent), which explains the presence of household workers in a large number. Nearly 40 percent of villages had their figures below 0.5 percent (Table 4.8).

In 1991 some villages like Makarmatpur Sikhroad, Ajabpur Mangoli, Jalalpur and Kunda did not have household workers. The former three are

basically dominated by non-agricultural activities due to their nearness to the cities. Makarmatpur is near to Ghaziabad, an industrial town while, Ajabpur Mangoli and Jalalpur share their limits with Muradnagar and 'Muradnagar Ordinance Factory' respectively.

Table 4.8

**Distribution of household workers**

| 1971 | | | 1991 | | |
|---|---|---|---|---|---|
| Range (%) | Number of Villages | Percent of Villages | Range (%) | Number of Villages | Percent of Villages |
| <5 | 12 | 44.44 | <0.5 | 6 | 33.33 |
| 5-10 | 12 | 44.44 | 0.5-1.5 | 5 | 27.78 |
| >10 | 3 | 11.11 | 1.5-2.5 | 2 | 11.11 |
| | | | >2.5 | 4 | 22.22 |
| Total | 27 | 100 | Total | 18 | 100 |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991

Kunda is an exception here, despite being an agriculturally dominated village there is no household industry. This can be substantiated with the fact that this village has no female workers.

### 4.1.10 Non-Agricultural Workers

Manufacturing, trade and commerce along with services are often regarded as the backbone of the urban economy. The villages with higher proportion of such workers have high potentials of achieving urban form in near future. The proportion of these workers in this region has obviously increased.

Table 4.9 show that in 1971 about 50 percent of the villages had less than 50 percent of its workers engaged in these activities. This has increased as in 1991 nearly 70 percent of villages had more than 40 percent of workers engaged in non-agricultural sector. Mohiuddinpur Main, Sadabad Jakhewa,

Dhargal and I.E. Partapur had a higher proportion of non agricultural workers in 1971 as well (more than 75 percent).

Table 4.9

**Distribution of non-agricultural workers**

| 1971 | | | 1991 | | |
|---|---|---|---|---|---|
| Range (%) | Number of Villages | Percent of Villages | Range (%) | Number of Villages | Percent of Villages |
| <25 | 2 | 7.41 | <20 | 1 | 5.56 |
| 25-50 | 12 | 44.44 | 20-40 | 3 | 16.67 |
| 50-75 | 8 | 29.63 | 40-60 | 4 | 22.22 |
| >75 | 5 | 18.52 | 60-80 | 9 | 50.0 |
| | | | >80 | 1 | 5.56 |
| Total | 27 | 100 | Total | 18 | 100 |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991

Interestingly by 1991 all of these villages were incorporated within the limits of their adjoining urban settlements. In 1991 Ajabpur and Mohammedpur Dheda had 80 percent workers. On the other hand are villages like Kunda which have a very low proportion of non-agricultural workers.

These trends indicate that there has been a massive shift towards this sector. This can be related to the industrial fabric of the axis. All the towns along this axis are noted industrial towns. The cities of Meerut and Ghaziabad are also expanding and developing as important service centres. Large numbers of corporate and commercial offices are coming to these places. The dynamics of development altered the regional structure of the axis significantly during the period 1971-1991.

The healthy developments in the economic base are reflected in the higher percentage of workers in the non-agricultural activities. But, this is not the only factor which has led to development. Infrastructure has played an important role.

## 4.2 COMBINED PERFORMANCE OF THE SOCIO-ECONOMIC AND INFRASTRUCTURAL INDICATORS

The above analysis clearly shows that the region has witnessed changes in a scattered manner. It can be said that Ajgain, Magarwara, Miranpur-Pinwat, Banthra-Sikanderpur, Jhanjhari have shown development in terms of literacy rate and proportion of workers in non-agricultural activities. All this indicates that these villages have potential for further development. A comparative analysis among the spatial units needs a combined performance of the indicators.

### 4.2.1 **Principle Component Analysis**

To understand these developments, factor analysis has been done with help of socio-economic variables. Although the first factor explains only 36 percent, Table 3.10 shows changes that have occurred in the performance of these indicators at the village level.

In 1971, Mokhampur and Meerut-Abadi-Janglat were at the higher end. By 1991, they became part of the Meerut city. Jalalpur, located near Muradnagar has developed and its score increased from 0.67 in 1971 to 1.44 in 1991. This can be attributed to the influence of the city. Similarly, Sikri Khurd and Makarmatpur Sikhroad have also developed.

Dhargal and Industrial Estate Partapur are exceptions to this phenomenon. Inspite of having negative values (-3.28 and –2.91 respectively) in 1971, they have come under the influence of Ghaziabad and Meerut cities respectively. One can explain this by assuming that it must be merely because of the spatial expansion of the cities over the period.

Kunda, Baral Partapur and Daulatpur on the other hand, have come down from their position in 1971. These villages have shown negative performance over time. This is mainly because they have experienced high out migration to the near by cities.

Table 4.10

**Composite score on the basis of factor analysis**

| Village Name (1971) | PCA | | Village Name (1991) | PCA |
|---|---|---|---|---|
| Mokhampur | 1.10 | | Jalalpur | 1.44 |
| Meerut Abadi Janglat | 1.02 | | Mohammedpur Dheda | 1.19 |
| Daulatpur F.U.K. | 0.87 | | Sikri Kalan | 0.75 |
| Qadarabad | 0.74 | | Sikri Khurd | 0.68 |
| Jalalpur | 0.67 | | Asalatnagar | 0.61 |
| Sikri Khurd | 0.55 | | Makarmatpur Sikhroad | 0.59 |
| Kazampur | 0.55 | | Mohiuddinpur Hisali | 0.44 |
| Abupur | 0.46 | | Mohiuddinpur | 0.44 |
| Morta | 0.44 | | Aminagar urf Bhudbaral | 0.38 |
| Kunda | 0.38 | | Basantpur Sainthali | 0.24 |
| Asalatnagar | 0.35 | | Qadarabad | -0.02 |
| Rithani | 0.34 | | Morta | -0.12 |
| Mohiuddinpur | 0.25 | | Yusufpur Manota | -0.22 |
| Sikri Kalan | 0.20 | | Abupur | -0.37 |
| Baral Partapur | 0.16 | | Kazampur | -0.74 |
| Aminagar urf Bhudbaral | 0.14 | | Daulatpur F.U. K | -0.92 |
| Mohiuddinpur Hisali | 0.09 | | Partapur | -1.97 |
| Basantpur Sainthali | 0.08 | | Kunda | -2.39 |
| Makarmatpur Sikhroad | 0.06 | | | |
| Sadabad Jakhewa | -0.05 | | | |
| Yusufpur Manota | -0.18 | | | |
| Ukhlarsi | -0.32 | | | |
| Mohammedpur Dheda | -0.35 | | | |
| Mohiuddinpur | -0.61 | | | |
| Hafizabad Moda | -0.74 | | | |
| Industrial Estate par | -2.91 | | | |
| Dhargal | -3.28 | | | |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991.

### 4.2.2 Composite Index

Such haphazard growth cannot be explained on the basis of these factors only. There are some hidden attributes which needs to be understood for better explanation. The composite score with demographic, workers and infrastructural parameters has been used in this regard. The Composite Index (C.I.) gives a different picture. Economic development has been the result or outcome of multiple factors like, demographic, economic (mainly working population) and infrastructural factors. The C.I has been shown through ranges which have been computed with mean as the central point.

### 4.2.2.1 **Composite Index for demographic variables**

The composite index of the demographic parameters reveals that Baral Partapur and Jalalpur have improved their position in terms of these variables (Table 3.11), Baral lies near Meerut while, Jalalpur is located in the proximity of Muradnagar (Map 4.2). Their location near towns has been responsible for their development. Villages like Industrial Estate Partapur, Dhargal and Morta, which enjoyed positions above average values have been amalgamated with the nearby urban centres. This can also be explained by the fact that in twenty years, eight villages were included in the limits of urban centres (Map 4.3).

Table 4.11

**Composite Index for demographic variables**

| 1971 | | 1991 | |
|---|---|---|---|
| >5.96 | Mohammedpur Dheda | >6.66 | Baral Partapur |
| 4.63-5.96 | Makarmatpur , Mohiuddinpur, I.E.Partapur | 5.33-6.66 | Jalalpur |
| 4.00-4.63 | Dhargal, Morta, Basantpur, Mohiuddinpur Hisali, Ukhlarsi, Abupur, Sikri Kalan, Aminagar, Hafizabad, Meerut Abadi Janglat | 4.00-5.33 | Makarmatpur, Mohammedpur, Dheda, Sikri Khurd, Qadarabad |
| 2.67-4.00 | Mohiuddinpur Main, Asalatnagar, Jalalpur, Yusufpur, Kazampur, Sikri Khurd, Qadarabad, Baral Partapur, Kunda, Rithani, Mokhampur | 3.02-4.00 | Morta, Basantpur, Asalatnagar, Mohiuddinpur Hisali, Abupur, Kazampur, Sikri Kalan, Daulatpur, Mohiuddinpur, Aminagar |
| | Daulatpur | 1.34-3.02 | Kunda, Yusufpur |
| 1.34-2.67 | Sadabad Jakhewa | | |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991.

On the other hand certain villages have shown downward movement in the performance of these variables. In 1971, Mohammedpur Dheda had the highest value (above mean + 2 S. D.) but it has come down to the range of

mean to mean +1 Standard Deviation. Makarmatpur and Mohiuddinpur have also come down.

In both the censured years, larger numbers of villages were in the category of mean + 1 Standard Deviation to mean (twelve in 1971 and ten in 1991). This indicated that there has been an overall improvement in this sphere as number of villages in this category has declined.

### 4.2.2.2 **Composite Index for Workforce Participation**

Demographic factors alone do not bring economic change. Changes in worker's structure and infrastructure have also been responsible for these developments. All types of workers like agricultural or non-agricultural, male or female play an important role in a region's economy. However, the shift from primary sector to secondary is an important indicator of urbanism and has direct relationship with the proportion of workers in each sector.

Table: 4.12

**Composite Index for workforce participation**

| 1971 | | 1991 | |
|---|---|---|---|
| >8.4 | Sikri Khurd, Meerut Abadi Janglat | >8.32 | Asalatnagar |
| 6.7-8.4 | Basantpur, Ukhlarsi, Abupur, Qadarabad | 6.66-8.32 | Sikri Kalan, Daulatpur, Aminagar |
| 5.00-6.7 | Mohiuddinpur Main, Jalalpur, Sikri Kalan | 5.00-6.66 | Basantpur, Baral Partapur |
| 3.3-5.0 | Makarmatpur, Dhargal, Morta, Asalatnagar, Mohiuddinpur Hisali, Mohammedpur Dheda, Yusufpur, Kazampur, Daulatpur, Mohiuddinpur, Aminagar, Baral Partapur, I.E. Partapur, Rithani, Mokhampur, Hafizabad | 3.34-5.00 | Morta, Mohammedpur, Dheda, Jalalpur, Abupur, Yusufpur, Abupur, Yusufpur, Sikri Khurd, Qadarabad, Mohiuddinpur Kunda, Kazampur. |
| 1.6-3.3 | Sadabad, Kunda | 1.68-3.34 | Makarmatpur, Mohiuddinpur Hisali |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991.

In 1971, Meerut Abadi Janglat and Sikri Khurd had higher score in terms of distribution of workers in different categories (Table 3.12). They were followed by Basantpur, Ukhlarsi, Abupur and Qadarabad (Map 4.4). Among these, Meerut Abadi Janglat got incorporated in the city limits.

All the other villages witnessed downward shift according to this index. This is mainly because workers have migrated to the nearby urban centres for more economic benefits. Villages like Asalatnagar, Daulatpur and Aminagar had performed better. These villages had their values below mean in 1971 but it came in the category of above mean + 2 Standard Deviation and mean +1 Standard Deviation to mean +2 Standard Deviation respectively in 1991 (Map 4.5).

#### 4.2.2.3 **Composite Index for Infrastructural Facilities**

Infrastructure plays an important role in the economic development of the region. It is obvious that the rural areas near urban settlements enjoy better infrastructure than those which have interior locations.

In 1971 Mohiuddinpur and Rithani had infrastructure facilities which were better than the other villages. These villages were located at the peripheries of cities (Map 4.6). Daulatpur, I.E. Partapur and Mokhampur also enjoyed infrastructural facilities which were easily accessible. By 1991 except Daulatpur, all these villages were amalgamated with urban centres. Some of the villages, where these facilities have become more easily accessible are Basantpur, Abupur, Sikri Kalan, Sikri Khurd, Mohiuddinpur, Aminagar and Baral Partapur (Map 4.7). Some of the villages are still below the average despite an increase in their infrastructural base from 1971. These include Makarmatpur, Asalatnagar, Mohammedpur Dheda, Mohiuddinpur Hisali, Jalalpur, Yusufpur, Kazampur and Qadarabad.

Table 4.13

**Composite Index for infrastructural facilities**

| 1971 | | 1991 | |
|---|---|---|---|
| >16.12 | Mohiuddinpur Main, Rithani | >10.5 | - |
| 11.56-16.12 | Daulatpur, I.E. Partapur Mokhampur | 7.00-8.75 | - |
| 7.00-11.56 | Morta, Kunda, Meerut Abadi Janglat | 7.00-8.75 | Morta, Basantpur, Abupur, Sikri Kalan, Sikri Khurd, Daulatpur, Mohiuddinpur, Aminagar, Baral Partapur, Kunda |
| 2.44-7.00 | Makarmatpur, Dhargal Basantpur, Asalatnagar, Mohammedpur Dheda, Ukhlarsi, Jalalpur, Abupur, Sadabad, Sikri Kalan, Sikri Khurd, Qadarabad, Mohiuddinpur, Aminagar, Baral Partapur, Hafizabad | 5.25-7.0 | Makarmatpur, Asalatnagar, Mohammedpur Dheda, Mohiuddinpur Hisali, Jalalpur, Yusufpur, Kazampur, Qadarabad |
| <2.44 | Mohiuddinpur Hisali, Yusufpur, Kazampur | | |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991.

### 4.2.2.4 **Composite Index for Development**

The above mentioned parameters are not independent of each other. Rather, they together acted as a set of factors that influenced the development and economic growth of these villages. These factors have been taken together to visualize the growth of villages. In 1971, all those villages situated close to the cities were more developed (Map 4.8). By 1991, these villages except Daulatpur were incorporated within the limits of urban areas.

Aminagar and Baral Partapur, located near Meerut, experienced higher levels of development and in 1991 these villages were among the most developed ones (Map 4.9). Makarmatpur is an odd one out as inspite of being situated in close proximity of Ghaziabad; the village has shown very poor performance (Table 4.14). The village has fallen from category of 'mean – 1 standard deviation to mean' to 'mean – 2 standard deviation to mean – 1

standard deviation'. Similar is the case with Kunda a village in the vicinity of Meerut city.

Table 4.14

**Composite Index for Development**

| | 1971 | | 1991 |
|---|---|---|---|
| >25.54 | - | >22.38 | - |
| 20.77-25.54 | Mohiuddinpur Main, Daulatpur, I.E. Partapur, Rithani, Mokhampur, Meerut Abadi Janglat | 19.19-22.38 | Daulatpur, Aminagar, Baral Partapur |
| 16.00-20.77 | Morta, Basantpur, Ukhlarsi, Sikri Kalan, Sikri Khurd, Qadarabad | 16.00-19.19 | Morta, Basantpur, Asalatnagar, Abupur, Sikri Kalan, Sikri Khurd, Mohiuddinpur. |
| 11.23-16.00 | Makarmatpur Sikhroad, Dhargal, Mohammedpur Dheda, Jalalpur, Abupur, Mohiuddinpur, Aminagar, Baral Partapur, Kunda, Hafizabad Moda | 12.81-16.00 | Jalalpur, Kazampur, Qadarabad, Kunda, Mohammedpur Dheda. |
| 6.46-11.23 | Asalatnagar, Mohiuddinpur Hisali, Yusufpur, Sadabad, Kazampur | 9.62-12.81 | Makarmatpur, Mohiuddinpur Hisali, Yusufpur. |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991

The reason behind this can either be that they have been drained of their resources or there are some other factors which have restricted their growth.

The overall performance of the axis has been positive as eight villages have developed in a real sense. They have become either separate urban entities or have been included in the adjoining urban centres. Some others have reached closer to be classified as urban.

### 4.3 RESULT OF THE FIELD SURVEY

The foregoing analysis has been substantiated with a primary survey conducted along the axis. About 30 villagers were interviewed on the basis of a structured questionnaire and their perceptions about the changes

have been recorded. The road side business network has also been quantified. The result of the survey has been discussed in the following sections.

### 4.3.1 **Social Characteristics**

Indian society is characterised with marked diversities in its social and cultural features. Through the processes of urbanisation and industrialization, the traditional rural society has acquired a new organisation of forces of social production. These changes have been witnessed in education, caste hierarchy, language etc.

#### 4.3.1.1 **Educational level of villagers**

Individual's attributes and skills are directly linked to their earning behaviour. The level of education of a region has far reaching impacts on the occupational pattern of the area. It is often assumed that the educated youth are more susceptible to migration than the uneducated people. The educational level of the interviewed villagers explains the diversification of their occupations (Table 4.15).

Table 4.15

**Educational level of the villagers**

| Educational Qualification | Percentage of shopkeepers |
|---|---|
| Illiterate | 37.5 |
| Primary | 25.0 |
| Matric | 12.5 |
| Intermediate | 12.5 |
| Graduate | 12.5 |
| Others | 0.0 |
| Total | 100 |

Source: Field survey, February 2002.

This is evident from the survey, as educated persons either work in government offices or factories while illiterates or matric pass have restricted themselves to small scale business or wage labourer in factories. The educational level of the shopkeepers shows that most of the shopkeepers are either illiterate or have just attained primary education. On the axis only a few shopkeepers were graduates (only 12.5 percent).

### 4.3.1.2 **Migration pattern**

Rural-urban migration represents a basic transformation of the structure of a society in which people move from generally smaller (mainly agricultural) communities to larger (mainly non-agricultural) communities.[3] Migration of people along this axis was found to be directly linked to the occupational structure.

About 38 percent of shopkeepers interviewed were migrants (Table 4.11). The migrants are mainly from the neighbouring districts of Bulandshahar, Moradabad or tehsils like Mawana, Baghpat, Surana etc. The main reason behind migration has been economic considerations and work availability.

Table 4.16

**Migration pattern of the villagers**

| Shopkeepers | Percentage |
|---|---|
| Local residents | 62.5 |
| Migrants | 37.5 |
| Total | 100 |

Source: Field Survey, February 2002.

[3] King, K.J. and Golledge, R.G. (1978) *'Cities, Space and Behaviour: The Elements of Urban Geography,'* Prentice -Hall, New Jersey, pp. 260.

Most of them were fresh graduates who have started their business few years back. These shopkeepers are concentrated mainly near the cities. Some of them have changed their occupation due to either closure of factories or better prospects in the present occupation like dhabas etc. or for economic benefits.

The residents on the axis are also migrants as they have moved from the agricultural village to the roadside for economic benefits. There has been a change in their occupation as they no longer remained engaged in agricultural or related activities. These migrants return to their villages at the end of the day. The interviews with several villagers revealed that in spite of having agricultural land, the production was not enough for commercial purposes. The products are mainly used for self consumption. Some of the common agricultural products are wheat, jowar and vegetables.

### 4.3.2 **Economic Characteristics**

Large number of shops, petrol pumps, automobile repair shops, establishments and factories are located on the axis in a linear pattern. The number has consistently increased with the growth of population and economic development. The whole axis has a vast stretch of establishments and factories on both sides of the highway (NH 58). There are as many as 72 factories along the whole stretch. Common among them are sugar mills, rice mills, organics, textiles, polymers, steel plants and *bhatta* (brick building).

#### 4.3.2.1 *Ghaziabad – Muradnagar Stretch*

Roadside business, here has developed immensely over the years along this stretch as villagers from the interior part of the village have come up on the road with small to big establishments. About 44 out of the 72 factories lie within 20 kilometres between Ghaziabad and Muradnagar (Table 4.17). Important among these are the Fine Generators, SAI steel plant, Toyota, MM Polymers, Ghaziabad Organics and Muradnagar Ordinance Factory.

The largest numbers of factories are found here, as all the polluting units of the Delhi metropolis were asked to shift. It provided ready market, source of raw materials and also cheap labour from the neighbouring rural areas. This stretch has better prospects than the other neighbourhoods of Delhi except Faridabad and Noida.

The diversification of occupational pattern is an important characteristic of this corridor. Green plant nurseries have developed over the past few years along the road. There are as many as seven of them. This is an occupation, which is developing mainly in the proximity of large cities. These cities provide ready market to fresh flowers and plants. These nurseries have been developed in areas which are not very fertile and conducive for cultivation.

4.3.2.2 *Muradnagar-Modinagar Stretch*

Tata Kisan Kendra, Nav Bharat Paper Mills and Amrit Ganga water are some important industries of Muradnagar – Modinagar stretch. There are about 14 factories in this stretch of 8 kilometres (Table 4.17). Shops and establishments are numerous, mainly found near the limits of the human settlements. All types of shops starting from general stores to showrooms of different appliances and accessories are found here.

4.3.2.3 *Modinagar-Meerut Stretch*

Partapur Industrial Area is located between the cities of Modinagar and Meerut. Here, too, various types of industries are found starting from Birla factory to Engineering industry, cement factory to rice or sugar mills.

Being a national highway, the road has a heavy traffic flow. This has helped in the mushrooming of small dhabas and restaurants along the road. In the stretch of just 40 kilometres there were as many as 82 such eating places (Table 4.17).

Table 4.17

**Roadside business network along the corridor**

| Business type | Meerut to Modinagar (12 kms) | Modinagar to Muradnagar (8 kms) | Muradnagar to Ghaziabad (20 kms) | Meerut to Ghaziabad (40 kms) |
|---|---|---|---|---|
| Restaurant and Dhabas | 30 | 20 | 32 | 82 |
| Petrol Pumps and Dharamkantas | 86 | 4 | 5 | 15 |
| Shops and Establishments | 137 | 58 | 85 | 280 |
| PCOs | 13 | 6 | 23 | 42 |
| Automobile Repair Shops | 5 | 8 | 15+2 (Service Stations) | 30 |
| Factories | 14 | 14 | 44 | 72 |
| Government Institutions (Including Banks) | 2 | | 4 | 6 |
| Educational Institutions | 14 | 4 | 8 | 26 |
| Others | 7 | 11 | 18 | 36 |

Source: Field Survey, February 2002

The most interesting feature was that they were varied in nature. Some were very small in size while others were large motels. Along the three stretches the number of these establishments was mainly dependent on the distance between the two cities.

Petrol pumps, dharamkantas and automobile repair shops are also related to the traffic behaviour of the region. As these cities are industrial towns with two more intervening towns, there is heavy flow of goods, passengers and services on this axis.

Repair shops mainly include automobile cycle repairing, or tyre remoulding etc. there are altogether about 45 such establishments. Maruti Automobile Company has its service station between Ghaziabad and

Muradnagar. Other basic services include telephone, furniture stores and educational institutions.

Another interesting feature of this axis was the presence of large number of educational and research institutions all along the axis. These institutions were either government or privately owned. Among former are Kendriya Vidyalaya, government school at Mohiuddinpur Main, Institute of Teacher's Education etc. privately owned institutions include Public schools, management institutions, computer institutions, polytechniques etc. There are about four management and technological institutes between Ghaziabad and Modinagar. These institutions are again concentrated near the cities.

A peculiarity of this axis is that there were very few government institutions. Only three such institutions – Uttar Pradesh Sugar Factory, Food Corporation of India (FCI) godowns and Block Development Officer's office, were noticed. There were banks (Bank of India, Gramin Bank), police stations, Kotwali, primary health centres, power house etc. all along the corridor.

### 4.3.3 **Nature of ownership and rent of the land**

The establishments form an unplanned neighbourhood. An examination of the pattern of shop ownership reveals some interesting contrasts.

Most of the shops are rented, as the land is not owned by any particular person. It mainly belongs to the government. But, the rental values in different villages show that the rent decreases as one move away from Ghaziabad towards Meerut. Table 4.18 clearly shows these differences.

The rents are higher in the cities of Muradnagar and Modinagar. This is mainly because all the economic functions of these towns are concentrated along the road itself. Their spatial expansion is limited. The rents near Ghaziabad are higher because this region is speckled with numerous educational and technological institutions which have a vast catchment area.

Table 4.18

**Rental values at different locations**

| | Villages | Nearest town/city | Value (per Sq mt) in Rupees |
|---|---|---|---|
| 1 | Morta | Ghaziabad | 900-1000 |
| 2 | Makarmatpur Sikhroad | Ghaziabad | 900-1000 |
| 3 | | Muradnagar | 1200 |
| 4 | Jalalpur | Muradnagar | 500-600 |
| 5 | | Modinagar | 1500 |
| 6 | Daulatpur | Modinagar | 600 |
| 7 | | Meerut | 1000-1200 |
| 8 | Aminagar | Meerut | 300-400 |

Source: Field Survey; February 2002

In the case of villages, the shops have higher rent near Ghaziabad as they have the tendency of expanding their threshold population to the metropolis of Delhi. But, here too figures are low in case of government owned shops which have been rented. Such shops are usually given at rent for about Rs150-200 per sq. metre.

## 4.4 VILLAGER'S PERCEPTION OF THE CHANGES THAT HAVE OCCURRED IN THE PAST TWO DECADES

The economy of cities changes over time and each city varies from another in the level of economic change. The rural hinterlands of these cities have also experienced these transformations. These changes are mainly dependent on trade and transportation.

The major economic change which has occurred over the period is the transformation of occupational pattern of the villages. More and more agricultural workers are shifting to the non-agricultural sector. They migrate from villages to the nearby arterial locations. Due to this, large number of shops has mushroomed in the last few years. The interviewed villagers informed that 'some twenty years ago the number of shops could have been

counted on fingers' but now a linear arrangement of shops and other establishments have been formed all along the highway.

Table 4.19

**Changes in the land value over a period of 20 years**

| Village | Land value | |
|---|---|---|
| | 20 years Before | At Present |
| Makarmatpur | 600-700/ sq yard | 3000/sq yard |
| Morta | <5000/ Bigha | 3000/ sq yard |
| Mohiuddinpur Dheda | 150-200/ sq yard | 1000/ sq yard |
| Abupur | 5000/ bigha | 7 lakhs / bigha |
| Qadrabad | 4000-5000/ bigha | 5-6 lakh/bigha |
| Budbaral | 100-150 sq yard | 2000/sq yard |

Source – Field Survey, February 2002

With increasing population the per capita availability of land has decreased, which has resulted in higher land values. The increase has been many fold along this axis in last twenty years (Table 4.19).

The table shows that the present prices have been told in the form of 'rupees per sq. yards', or 'per sq. feet'. The earlier measurement of land was in the form of rupees per bigha. [4] In the villages between Muradnagar and Modinagar, the measurement is still in bighas.

About twenty years ago, the land was much cheaper as it was easily available. The data reveals that at that time too the land values were highest in Makarmatpur, (about 600-700/sq yard) the village adjacent to Ghaziabad. Here the land was available only in the form of small plots. This was because people had started shifting to these villages due to its proximity to Delhi. As one moves towards Meerut, the prices go down to just Rs. 100-150 per sq yard (Table 4.19).

[4] 1 Bigha = 20 Bissa, 1 Bissa in Uttar Pradesh is of approximately about 1500 sq. feet

At present a similar trend is noticed, although the price has increased ten to twenty times, they are highest near Ghaziabad and the graph shows a decreasing trend as one reaches Meerut.

Apart from the factories, large numbers of management and educational institutions have come up. These together have increased the flow of traffic on the highway. Twenty years ago, it was one-lane road but higher incidence of accidents led the government to take initiatives of widening the road. This has regulated the flow to some extent but still the road is prone to accidents due to an increase in the number of heavy vehicles.

## 4.5 CONCLUSION

1. The density of population and services has increased along the axis. The main reason behind this is high rates of population growth. In some villages migration has also been influential.
2. In 1971, villages near urban centres had experienced sex-selective migration. But, the scenario has changed since 1991.
3. The overall proportion of literates has increased in these villages. And, only those villages, where 80 percent of its population is engaged in the agricultural activities the literacy rates are below 40 percent.
4. There has been a massive decline in the proportion of scheduled caste population. This is because villages have witnessed a shift from agricultural to non-agricultural activities.
5. There has not been much change in the workforce structure as only marginal increase has occurred in the proportion of total workers. Keeping in view, the high population growth rates it can be assumed that the working class of these villages has migrated to the nearby urban centres.
6. Female participation is higher in villages where agricultural and household manufacturing are dominant sources of income.

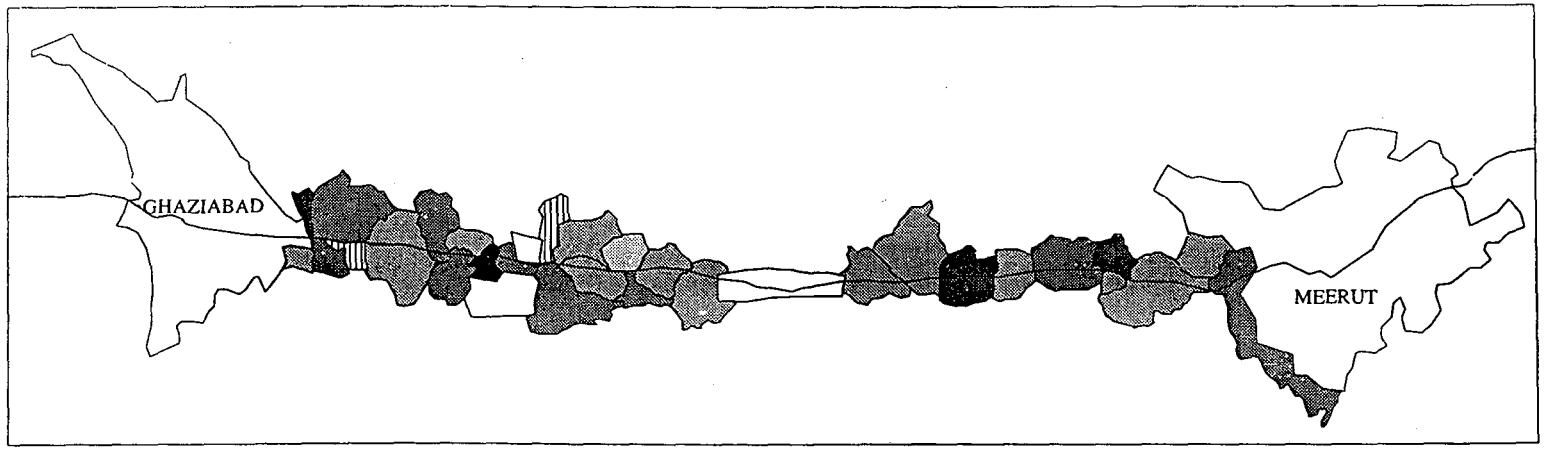
7. There has been a shift from agricultural to non-agricultural activities. But, there are villages where agriculture still predominates like Kunda and Baral Partapur.
8. Percentage of workers in household activities has declined significantly.
9. Non-agricultural activities are gaining grip over the region's economy and, people are shifting to this sector for more economic benefits.
10. There has been major development along the NH as people from the interior parts of the villages have migrated to road side locations. There has been considerable increase in small trade and business due to favourable location.
11. The incidence of migration has become more prominent as people from nearby districts and tehsils are setting up different economic activities here because of its economic importance.
12. Rents have increased and are higher in towns and cities. Villages in the proximity of these towns have much higher rents than those lying in the interior of the axis.
13. Land values have increased by two to three times. Land is also being distributed through plotting. Prior to this, the land was available in vast stretches.
14. There has been overall increase in the number of vehicles, goods and passengers along the NH. The road has become more congested.
15. There is interdependence and linkages between the towns and villages which makes the axis a potential area for corridor development.
16. The major development of the axis is attributed to the upcoming of large number of educational, management and research institutions along the National Highway. Factories have also come up in large numbers in the industrial areas.

Map No. 4.2

# GHAZIABAD - MEERUT CORRIDOR

## DEMOGRAPHIC PARAMETERS

1971




Value of Composite Index

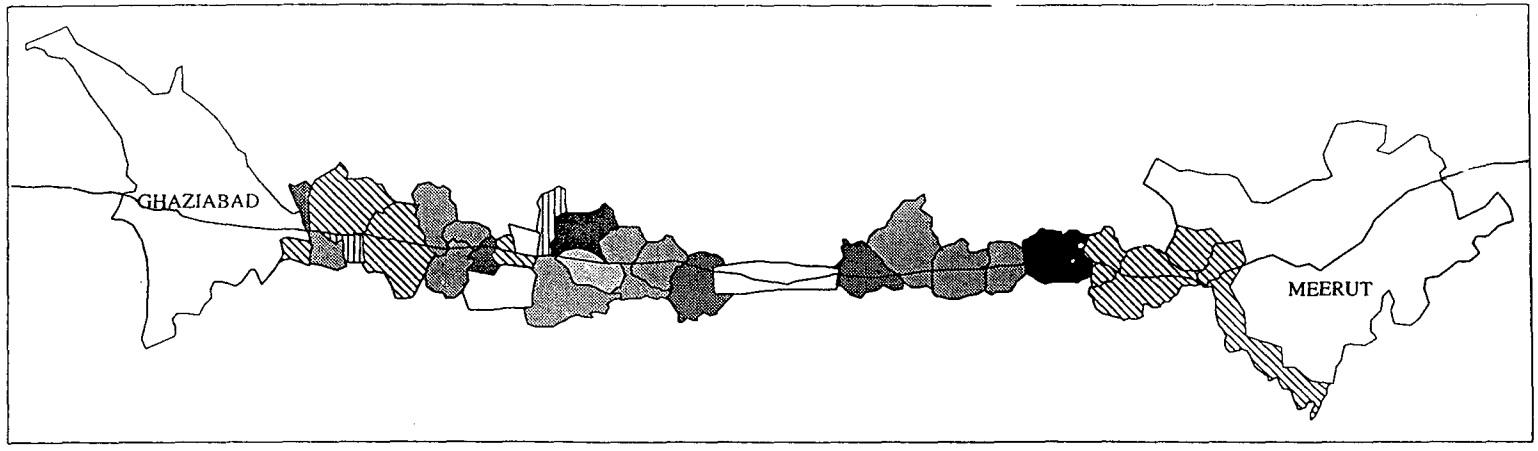
- Above 5.96
- 4.63 - 5.96
- 4.00 - 4.63
- 2.67 - 4.00
- 1.34 - 2.67
- Uninhabited
- Urban Settlements

Map No. 4.3

# GHAZIABAD - MEERUT CORRIDOR

## DEMOGRAPHIC PARAMETERS

1991




Value of Composite Index

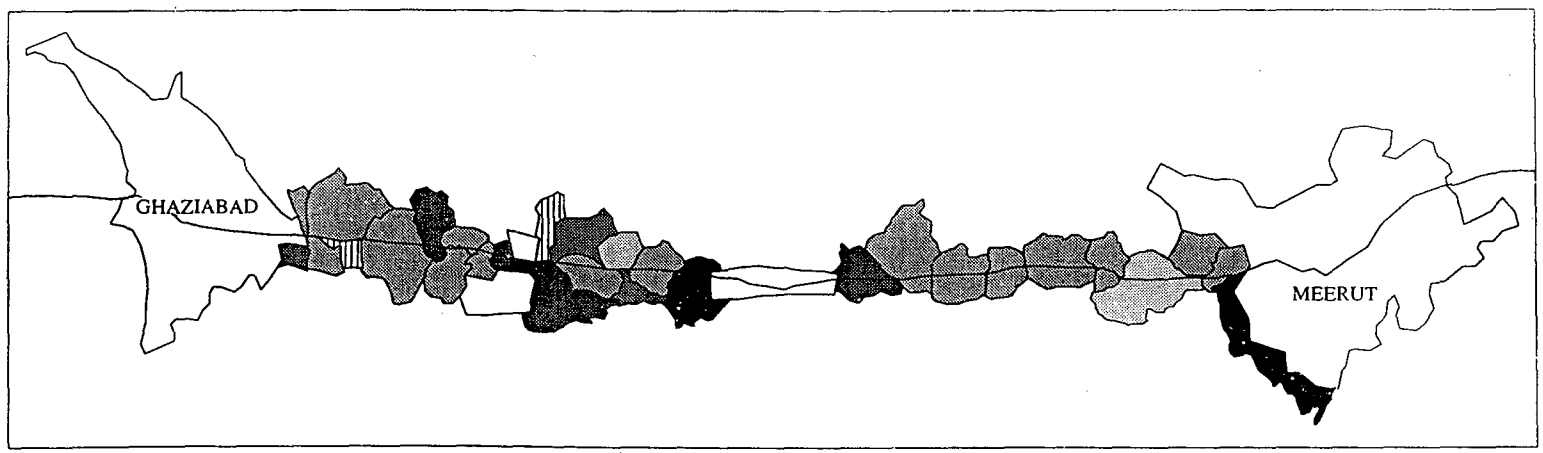
- Above 6.66
- 5.33 - 6.66
- 4.00 - 5.33
- 3.02 - 4.00
- 1.34 - 3.02
- Data not available
- Uninhabited
- Urban Settlements

Map No. 4.4

# GHAZIABAD - MEERUT CORRIDOR

## WORKFORCE PARTICIPATION

1971




Value of Composite Index

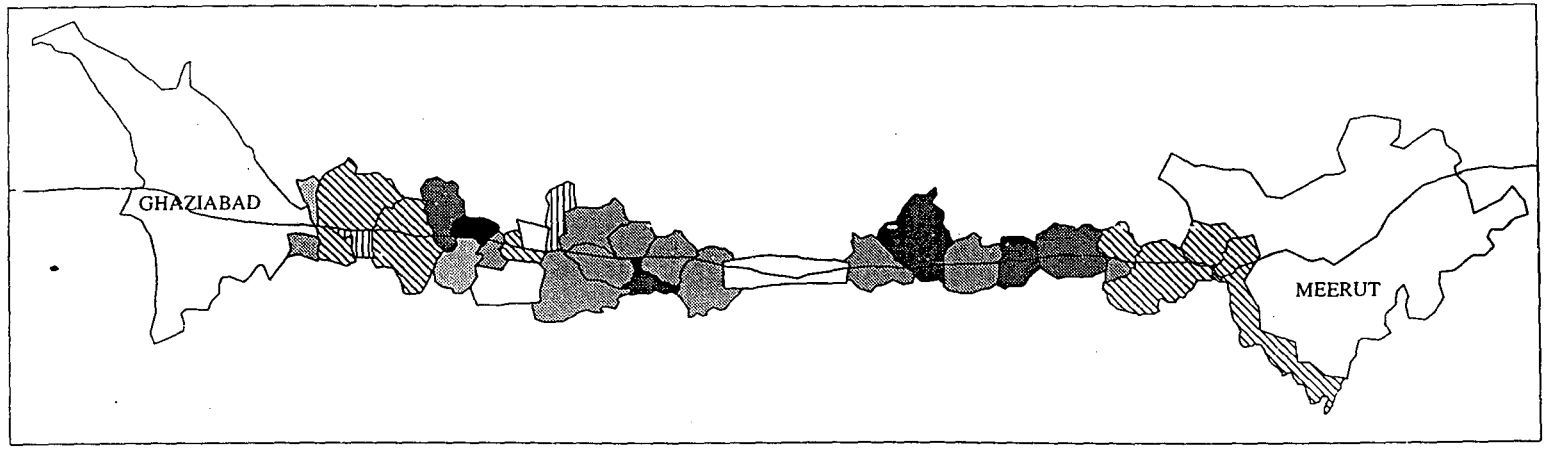
- Above 8.40
- 6.70 - 8.40
- 5.00 - 6.70
- 3.30 - 5.00
- 1.60 - 3.30
- Uninhabited
- Urban Settlements

Map No. 4.5

# GHAZIABAD - MEERUT CORRIDOR

## WORKFORCE PARTICIPATION

1991




Value of Composite Index

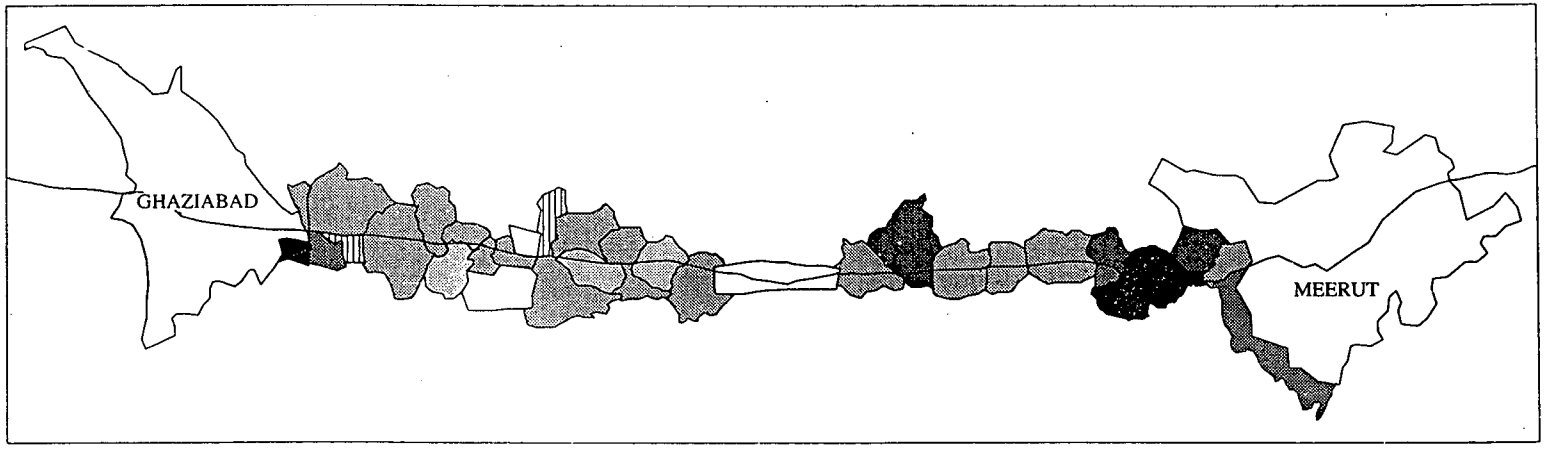
- Above 8.32
- 6.66 - 8.32
- 5.00 - 6.66
- 3.34 - 5.00
- 1.68 - 3.34
- Data not available
- Uninhabited
- Urban Settlements

Map No. 4.6

GHAZIABAD - MEERUT CORRIDOR

# INFRASTRUCTURAL FACILITIES

1971




Value of Composite Index

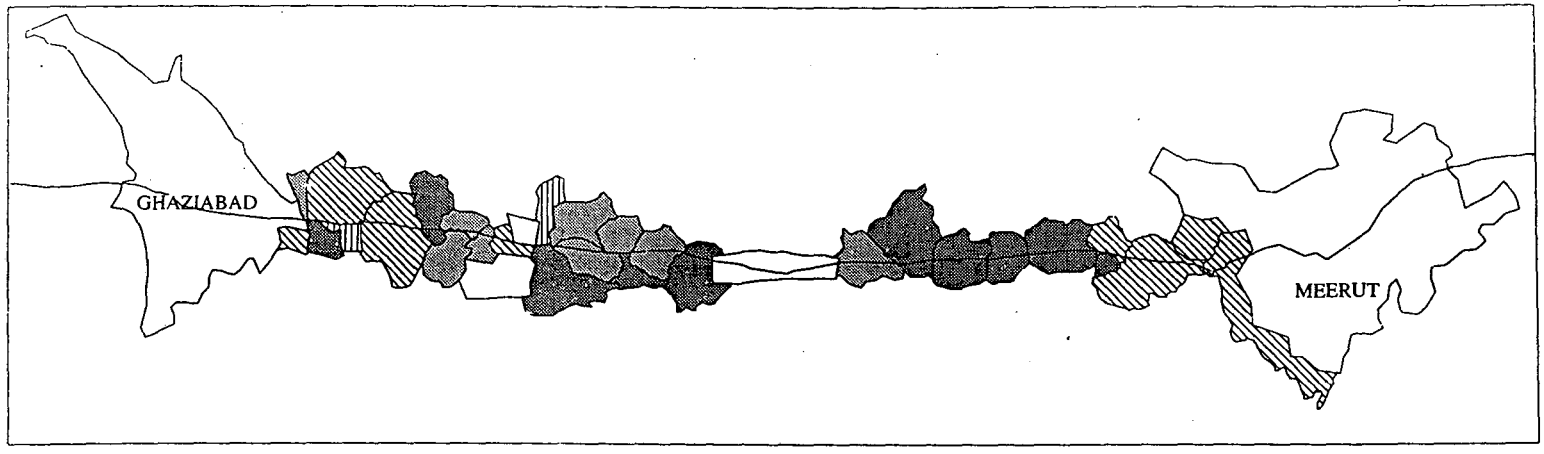
- Above 16.12
- 11.56 - 16.12
- 7.00 - 11.56
- 2.44 - 7.00
- Below 2.44
- Uninhabited
- Urban Settlements

Map No. 4.7

# GHAZIABAD - MEERUT CORRIDOR

## INFRASTRUCTURAL FACILITIES

1991




Value of Composite Index

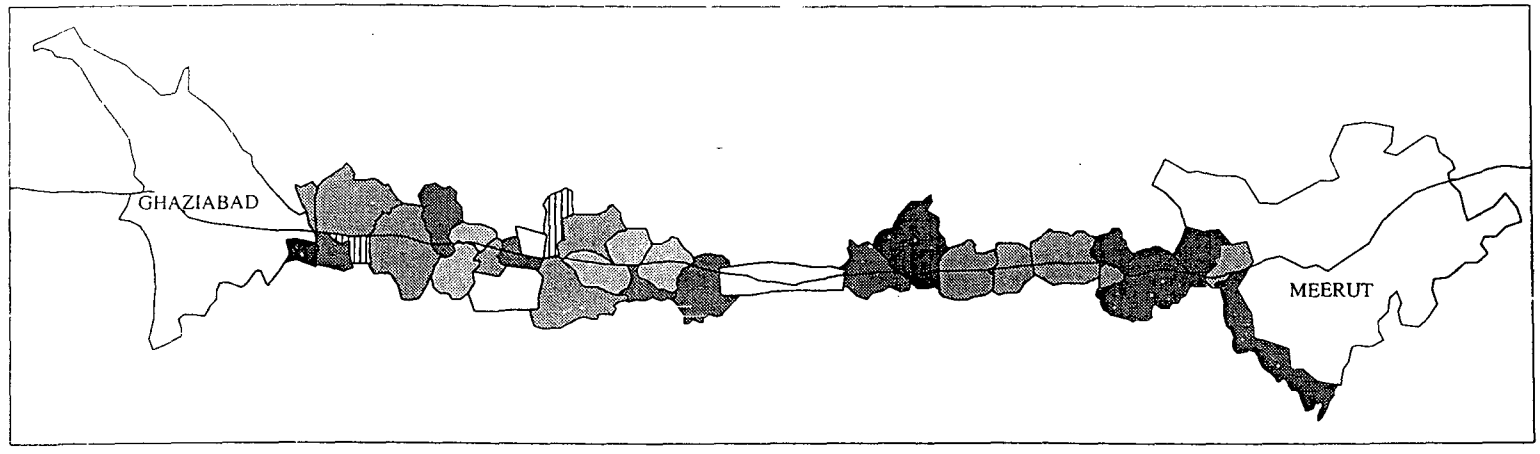
- Above 10.50
- 8.75 - 10.50
- 7.00 - 8.75
- 5.25 - 7.00
- Below 5.25
- Data not available
- Uninhabited
- Urban Settlements

Map No. 4.8

# GHAZIABAD - MEERUT CORRIDOR

## COMPOSITE INDEX OF DEVELOPMENT

1971




Value of Composite Index

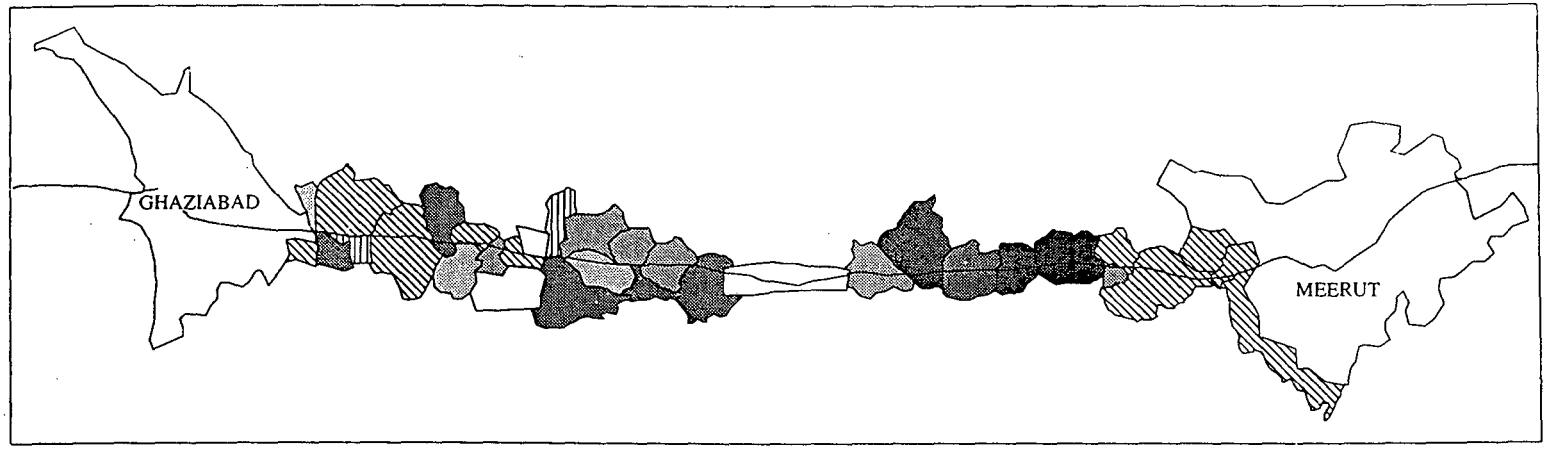
- Above 25.54
- 20.77 - 25.54
- 16.00 - 20.77
- 11.23 - 16.00
- 6.46 - 11.23
- Uninhabited
- Urban Settlements

Map No. 4.9

# GHAZIABAD - MEERUT CORRIDOR

## COMPOSITE INDEX OF DEVELOPMENT

1991




Value of Composite Index

- Above 22.38
- 19.19 - 22.38
- 16.00 - 19.19
- 12.81 - 16.00
- 9.62 - 12.81
- Data not available
- Uninhabited
- Urban Settlements

# Chapter: Five

## DEVELOPMENT PROCESS ALONG THE TWO AXES

### 5.1 Introduction

Uttar Pradesh is primarily an agricultural state, with a high proportion (above 80 percent) of its population living in the rural areas, and engaged in the agrarian economy.[1] Although, urbanization and non- agricultural employment have been increasing over time, conditions of production in agriculture and the distribution of agrarian assets like land, agricultural inputs, equipments etc. still remain the most important determinates of the material condition of its people. At the state level, different regions have shown diverse nature of development pattern.

Lucknow – Kanpur, considered as a bi-nucleated metropolises in the national context, have primarily functioned as regional cities and their influence have not been felt at a national economy. While, Meerut – Ghaziabad have emerged as important centres having dominance in their rural hinterlands. With time, the primacy of Lucknow-Kanpur as the major urban centres of the state has declined. This is mainly because other cities like Meerut and Ghaziabad have been able to carve out hinterlands for themselves.

External economies and socio-economic overheads of the urban centres influence the spatial pattern of industrialisation. These, in turn tend to get located in the proximity of infrastructural facilities. The benefits from this type of economic development get impounded in a few pockets of apparent urban affiance.

This changing nature of urban phenomenon necessitates a comparison between the two axes. It would help in understanding the forces which are

---

[1] Dreze, J. and Gazdar, H. (1996) 'Uttar Pradesh: The Burden of Inertia', in Sen, A. and *et al.* (eds.) *Indian Development*, Popular Publisher, Bombay, pp. 37.

behind these changes. It is observed that the developmental indicators in these regions have a high degree of mutual inter-dependence. This helps in determining the role and importance of these indicators in the process of regional development. Regional imbalance is due to the disparities in various distribution of socio-economic factors and there related dimensions.

## 5.2 **Basic Demographic Indicators**

The demographic evidences act as important indicators of the expansion of human capabilities.

High density of the people, available opportunities and services influences the number and nature of economic and social contacts.[2] Density is often defined as the index of concentration of population per sq. kilometre. It is related to the overall growth of population in a region. The villages of Ghaziabad – Meerut axis are more densely populated (Table 4.2) when compared to the villages on Lucknow – Kanpur corridor (Table 3.2). In 1991 Ghaziabad – Meerut axis had about 40 percent villages with densities more than 3000 as against 5 percent villages in Lucknow – Kanpur corridor. Besides this, the proportion of villages with density below 1000 in 1991 is greater in the Lucknow – Kanpur axis. This explains that population has grown at a much faster rate in western part of the state. Ghaziabad as a district had witnessed highest growth of urban population during the decade of 1981-1991.

Sex – ratio denotes the incidence of female mortality rate but also indicates the incidence of sex-selective migration in the region. The tables 3.3 and 4.3 show that along Lucknow-Kanpur axis sex-selective migration is more predominant. There are three villages where the ratio is below 750which indicates high in-migration of males. Theses villages provide living space to the working population of the adjoining towns. The other axis, there has

---

[2] Prasad, L (1985) 'The growth of a small town : a sociological study of Ballia (U.P.); Concept Publishing Company, New Delhi, pp.65.

experienced improvement in sex- ratio. In 1971, eleven villages had less than 800 females for every 1000 males. By, 1991, the number went down to four. This means that people who have migrated are taking their families with them.

Literacy plays a crucial role in determining the demographic outcomes in a society by reducing mortality and fertility rates. In the traditional rural society of India, it can be taken as a measure of the degree to which the people are bound by tradition and superstition operating within the environment of primary production.[3] A momentous achievement has not been experienced in this sphere. Overall, improvement is found along Meerut – Ghaziabad where average literacy rate has risen to nearly 40 percent from 20 percent. On the other hand, Kanpur-Lucknow corridor is far behind as 75 percent of its villages has less than 40 percent literacy in 1991 (Table 3.4 and 4.4).

Table 5.1

**Comparison between Composite Index of Demographic Parameters**

| Category | Kanpur – Lucknow Axis | | Ghaziabad – Meerut Axis | |
|---|---|---|---|---|
| | 1971 | 1991 | 1971 | 1991 |
| Above mean + 2 s.d. | 2 | 1 | 1 | 1 |
| mean + 1 s.d. to mean + 2 s.d. | 3 | 6 | 3 | 1 |
| mean to mean + 1 s.d. | 14 | 14 | 10 | 4 |
| mean to mean – 1 s.d. | 21 | 15 | 12 | 10 |
| mean – 1 s.d. to mean –2 s.d | 3 | 4 | 1 | 2 |
| Below mean – 2 s.d. | 0 | 1 | 0 | |
| Total | 43 | 41 | 27 | 18 |

Source: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991

To capture the overall changes and differences; a composite index (C.I.) has been constructed for these four different indicators.

[3] Kundu, A. (1996) 'Measurement of Urban Processes', Oxford University Press, Delhi, pp. 52.

Table 5.1 cites the changes that have occurred over time along two axes. These have been compared on the basis of ranges computed by taking the values mean and standard deviation. The range has been calculated in this way since the values vary greatly for both the regions at two different points of time. In 1991, there were as many as 20 villages in Lucknow-Kanpur region which were below the average level. Their number has decreased from 24 to 20. This indicates that there has not been much improvement in this sphere.

Corresponding to this, the Ghaziabad-Meerut has 12 villages below mean in 1991 and 13 in 1971. But, here around seven to eight villages have developed at much faster rates and they have been incorporated within the municipal limits of their neighboring towns and cities. Therefore, this axis has recorded higher levels of development when compared to its counterpart.

### 5.3 **Economic Base of the region (workers)**

The phenomenal growth of population is an unhealthy symptom for the economic system. It becomes more dangerous when it corresponds with a shift of people from the low-productive agricultural employment to another petty informal sector marked by low levels of economic returns. In present India, the concept of economic viability is directly related to the employment situation and, also to the development of urban sectors which results in lashing out 'backwash effects' in the rural hinterland.

The difference in workforce participation rate at various places can be explained in terms inflow of workers from the rural areas as well as from urban centres. The proportion of workers along Ghaziabad-Meerut corridor has decreased to about 30 percent as only two of its villages had higher percentages in 1991 (Table 4.6). A similar condition prevailed in 1971 when two of the villages had more than 40 percent of its population classified as workers. This reveals that the rural working class is being accepted in the neighbourhood urban centres.

The condition is almost reverse on the other axis where even in 1991 about 25 percent of its villages had more than 30 percent workers. There were around 28 such villages in 1971 (Table 3.6). Even in 1991 only two villages had less than 25 percent of its population as workers. Along this axis villagers work in their surroundings and even if they are employed in the towns, they commute. This is not the case with Ghaziabad-Meerut axis as people have migrated to towns and cities.

Women usually occupy a less favoured position in the urban labour market. In most of the developing countries they find employment within the informal sector. In formal sector, they are commonly engaged in household activities and petty commodity production.[4] It has been argued that it is an important indicator of demographic transition and development. As educated and working women tend to have lesser number of children which impedes the rate of growth of population.

It is often cited that the percentage of female workforce participation is higher in areas where agricultural and household activities are predominant. In under developed states like Uttar Pradesh, females have disadvantaged position. Moreover, here male in-migration and lower life expectancy rates are also responsible for female deprivation.[5] Along both the axes, the female participation rate is below 5 percent for majority of villages. About 60 percent of villages along Lucknow-Kanpur have female participation rate below 5 percent in 1991. While, about 85 percent in the villages between Ghaziabad and Meerut has less than 5 percent female workforce participation rate.

The processes of urbanisation and industrialisation cannot be studied in isolation. They are intrinsically intertwined with the regional structure of the agrarian economy. There has been a displacement of labour force from

---

[4] Pacione, M., (2001) 'Urban Geography: A Global Perspective', Routledge, London, pp. 483.

[5] Draze, J., and Gazdar, H., (1996) 'Uttar Pradesh: The Burden of India', in Sen. A, and et al. (eds.) 'Indian Development', - pp. 44-45.

primary sectors to modern industrial sectors; still, agricultural workers play an important role in the rural economy.

Ghaziabad-Meerut axis has experienced greater diversification in its economic structure as the proportion of villages with more than 40 percent of agricultural workers has gone down from 52 percent in 1971 to 40 percent in 1991 (Table 4.8). The scenario is entirely different on other axis where nearly 80 percent of villages still have more than 60 percent of its workers engaged in the agricultural activities. This shows that the agricultural economy is dominant and development of non agricultural activities have been insignificant.

In rural area, household activities have an important role in its economy. It includes handicrafts, food products production and so on. With the process of modernization which is generated through urbanisation and economic development, this sector is loosing its grip on the rural economy. This is evident from the data (Table 3.9 and 4.9) which shows remarkable decrease in the proportion of workers engaged in this sector. Surprisingly, this change is found along both the axes. However it is sharper along Lucknow-Kanpur as in 1991 about 60 percent of its villages had no such activity left within its economy. While in the other axis some twenty percent villages still had more than 2.5 percent of its workers engaged in similar activities.

The economic viability of a region can be best analysed through its strength of the industrial sector. The manufacturing sector, in fact, provides life to the economy system as it plays leading role in transmitting growth impulses through their backward and forward linkages.[6] The proportion of non-agricultural workers in these villages has been regarded as a proxy variable for the process of urbanisation.

The proportion of workers in nonagricultural activities has shown an increasing trend. The increase has been more significant along Ghaziabad-

[6] Kundu, A. (1996) *op. cit.* 3, pp. 42.

Meerut route (Table 3.10 and 4.10). There has been increase in the number of villages where non-agricultural activities account for more than 60 percent of workers (about 57 percent of villages) in 1991. On the contrary only 4 percent of villages on the other axis have the proportion above 60 percent. About 20 percent of villages here have less than 10 percent of its working population engaged in non-agricultural activity. Contrary is the situation in Ghaziabad-Meerut axis. Along this axis only one village had less then 20 percent of its workers in these activities.

This is the most prominent indicator which shows a marked difference in the probability of the axes being developed as 'corridors'. Ghaziabad – Meerut axis has changed its economic structure to an extent where majority of its villages would be classified as urban in near future (urban settlement should have 75 percent workers in nonagricultural activities). They have density of population more than 400 persons per sq. kilometre and 60 percent of their workers are engaged in nonagricultural activities. Even if they do not have a population size of 5000, they would come as industrial estate or can be merged with the adjoining urban centres. It clearly exhibits that the process of modernisation has been faster along this axis. And, here the manufacturing sector has been able to generate growth impulses in the rural hinterland.

Aggregative composite index (C.I.) of these indicators has been worked out. The C.I. shows that most of the villages along both axes are in the category of mean – 1 s.d. to mean that is below average. The only difference lies in the fact that the number of villages have increased for Kanpur – Lucknow axis (from 21 in 1971 to 23 in 1991) and decreased from fifteen in 1971 to ten in 1991 for the other axis (Table 5.2). This shows that the economic base of Ghaziabad-Meerut has strengthened while in the former it has weakened. The number of villages in the category of 'mean + 1 s.d. to mean + 2 s.d.' has increased along Kanpur-Lucknow axis.

Table 5.2

**Comparison of Composite Index for workforce participation**

| Category | Kanpur – Lucknow Axis | | Ghaziabad – Meerut Axis | |
|---|---|---|---|---|
| | 1971 | 1991 | 1971 | 1991 |
| Above mean + 2 s.d. | 2 | 1 | 2 | 1 |
| mean + 1 s.d. to mean + 2 s.d. | 2 | 6 | 4 | 3 |
| mean to mean + 1 s.d. | 14 | 9 | 3 | 10 |
| mean to mean – 1 s.d. | 21 | 23 | 15 | 2 |
| mean – 1 s.d. to mean –2 s.d | 2 | 3 | 3 | 2 |
| Below mean – 2 s.d. | 0 | 0 | 0 | 0 |
| Total | 43 | 41 | 27 | 18 |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991

## 5.4 Social Amenities and Economic Infrastructure

It has been argued that urbanisation leads to an increased availability of a wide range of services and alternatives in terms of types of work, housing, food, clothing, educational facilities, medical facilities, modes of travel, voluntary organizations and so on.[7] Power supply, communication and urban transport are the prominent basic amenities for the living population. These are also essential for efficient functioning of a city.

There is a high degree of interdependence between these facilities and the management of cities and development of its hinterland. Those facilities without which primary, secondary and tertiary production activities cannot function. In the wider sense it includes all public services from law and order through education and public health to transportation, communication, power,

[7] Lewis, O. (1965) 'Further Observation on the Folk - Urban Continuum and Urbanisaton with special Reference to Mexico City', in Hauser, P.M. and et al. (eds.) The study of Urbanisation, John Wiley and Sons, New York,pp.449.

Water supply and sanitation as well as agricultural overhead capital and drainage system.[8]

Some of the villages along the Kanpur-Lucknow axis have higher levels of infrastructure facilities. In 1991, the villages were concentrated only in two categories of 'mean to mean + 1 s. d.' and 'mean to mean - 1 s. d.

Table 5.3

**Comparison between the Composite Index of infrastructural facilities**

| Category | Kanpur – Lucknow Axis | | Ghaziabad – Meerut Axis | |
|---|---|---|---|---|
| | 1971 | 1991 | 1971 | 1991 |
| Above mean + 2 s.d. | 3 | 1 | 2 | 0 |
| mean + 1 s.d. to mean + 2 s.d. | 4 | 2 | 3 | 0 |
| mean to mean + 1 s.d. | 4 | 8 | 3 | 10 |
| mean to mean – 1 s.d. | 30 | 30 | 16 | 8 |
| mean – 1 s.d. to mean –2 s.d | 0 | 0 | 3 | 0 |
| Below mean – 2 s.d. | 0 | 0 | 0 | 0 |
| Total | 43 | 41 | 27 | 18 |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991

Some villages on Kanpur – Lucknow axis have better access to these facilities. This implicates that this region has been provided with the basic infrastructural facilities that are necessary for the development of corridors. On the Ghaziabad – Meerut axis villages with better infrastructural facilities have been included in the adjacent urban centres.

### 5.4 Composite Indices for development

For the final composition a composite index has been worked out. It depends on the premise that disparity in the distribution of indicators reflects

[8] Jimenez, E. – "Human and Physical Infrastructure: Public investment and pricing policy in Developing countries" in Handbook of Development Economics, Vol. III Elsevier Science 1995, PP. 2774.

their significance in the development process. The composite index of development provides on overview of the changes and differences that have occurred in the study area over time (Table 5.4).

Both the regions have experienced development but at pace. Kanpur – Lucknow axis has witnessed slower growth as in 1991 28 of its villages were below average level of development against 30 villages in 1971. Although, the number has decreased, this is not a vigorous sign of progress.

Table 5.4

**Comparison between the total Composite Indexes**

| Category | Kanpur – Lucknow Axis | | Ghaziabad – Meerut Axis | |
|---|---|---|---|---|
| | 1971 | 1991 | 1971 | 1991 |
| Above mean + 2 s.d. | 4 | 1 | 0 | 0 |
| mean + 1 s.d. to mean + 2 s.d. | 1 | 2 | 6 | 3 |
| mean to mean + 1 s.d. | 8 | 10 | 6 | 7 |
| mean to mean – 1 s.d. | 30 | 28 | 10 | 5 |
| mean – 1 s.d. to mean –2 s.d | 0 | 0 | 5 | 3 |
| Below mean – 2 s.d. | 0 | 0 | 0 | 0 |
| Total | 43 | 41 | 27 | 18 |

*Source*: Computed from the data of town and village directories, Census of India, Registrar General of India, 1971 and 1991

While, along Ghaziabad – Meerut route the number of villages below average value have decreased significantly from fifteen in 1971 to eight in 1991. Moreover, around seven villages here have been incorporated within the city limits due to the spatial expansion of the cities. The Kanpur – Lucknow axis has not witnessed any such development. Only, Gangaghat and Nawabganj could manage to attain the status of urban centres.

Apparently Ghaziabad – Meerut axis has shown higher rates of development and has experienced more industrialisation and urbanisation. Nearness to the metropolis of Delhi has been one of the dominant factors which have been responsible for these striking developments.

## 5.5 Comparative analysis of the road – side business network

National highways have always been the centres for ribbon development. These are usually characterised with the garish assembly of motels, petrol pumps and restaurants. This is mainly because of heavy flow of traffic on these urban arteries.

Ghaziabad – Meerut axis lie within the distance of 40 km with two intervening industrial towns of Muradnagar and Modinagar. The presence of these urban centres at such physical proximity has given rise to functional interlinkages and interdependence among them. The whole stretch is densely covered with various types of establishments, factories, petrol pumps and so on. Proximity to Delhi has led to the development of nurseries and factories with their market areas expanding to the metropolis. The main feature of this stretch has been the growth of large number of educational, research and management institutions along the road. These are concentrated mainly near the cities of Ghaziabad and Meerut.

A very different picture is visible on Kanpur – Lucknow route. The stretch is marked with the presence of piece of vacant land and a number of agricultural fields. This type of land was hardly available along the other stretch. Whatever, land was visible it was either in shape of big nurseries or orchards. Along this axis, industries have grown but they are restricted to the Kanpur-Unnao stretch. Infact major development has got concentrated here. Some factories have come up near Lucknow. The shops and establishments are also found mainly near big villages or towns. Educational institutions are rare.

Therefore, it can be said that the business has developed more on the Ghaziabad-Meerut route. Trade related activities have come up on Lucknow-Kanpur axis but they are not as strong as those on the former. Due to this, the growth impulses are not as strong as those found in the former axis. The major factor behind this uneven development has been that the twin cities of Kanpur

and Lucknow have mainly played the role of parasitic cities rather than generative ones. They have drained out the resources of their rural hinterland. Nevertheless, growth of Nawabganj and Gangaghat show some scope and through proper planning it is possible to generate growth centres here with strong backward and forward linkages.

### 5.6 **Other socio-economic characteristics of the axis**

With population growth and un-availability of land, the land values have increased sharply all over the world. These regions are not an exception. Here, too, in last two decades the price of land has increased four to five times. The land near the road has become more costly due to its economic significance and ability of attracting passengers. Along both the axis, a peculiar feature was noticed that above twenty years ago the land was available in vast stretch of bighas and acres. But, with mounting population pressure on land and decreasing man-land ratio, now the land is available only in small plots of some bissas and sq. yards. (1 Bigha = 20 Bissas).

Another similar feature of these axes was that rental values were higher in villages lying in the proximity of urban areas. And, those away from it had cheaper rents. The difference between them was about two times.

Migration has been an important phenomenon of these areas. The regions have witnessed both in and out migration. 'In-migration' has taken place in the sense that people from the interior part of the villages have moved up along the roadside. Out-migration of the educated people to the urban centres has been dominant in the villages along Ghaziabad-Meerut axis. The literate population of these villages moves to the cities for better employment opportunities.

Therefore, in spite of striking differences in their development process and economic structure, the two axes have some similarities between them.

And, such urban centres usually develop complementary and supplementary functions among themselves.

## CONCLUSION

1. Ghaziabad-Meerut axis has experienced higher growth rate of population than Kanpur-Lucknow axis.
2. The former is more densely populated due to its proximity to the metropolis of Delhi.
3. The proportion of literates, too, has risen at a faster rate here than on Kanpur-Lucknow axis.
4. Demographically, therefore, this axis is more developed as around eight of its villages have merged with the urban settlements within a period of twenty years. While, only Gangaghat and Nawabganj have developed on the other axis.
5. The overall percentage of workers engaged in agricultural activities has declined. The decline has remained more significant along Ghaziabad-Meerut axis. Still there are a few villages along the other axis where about 80 percent of its workers are engaged in primary occupations.
6. Household activities have declined along Kanpur-Lucknow axis, while it is still persistent on the other.
7. Low female participation rate is common between the two. But, it is lower for Ghanziabad-Meerut axis where more than 85 percent of villages have less than 5 percent females are working.
8. The proportion of non-agricultural workers is high along Ghaziabad-Meerut axis which shows that it has stronger economic base. And, this is supplemented by the agglomeration economies and functional linkages of its industries, which are capable of generating growth impulses in the immediate rural hinterland.

9. Infrastructural facilities are more accessible in villages near the cities and towns.

10. With urbanisation and industrialisation higher concentration of economic activities along the road side has been witnessed. This has also increased the flow of goods, services and passengers on these routes.

11. Due to poor agricultural performance, people have either shifted to road side for economic purposes or have migrated to the towns and cities.

12. Land value has sharply increased, by more than two to three times. Decreasing man-land ratio is the main reason responsible for such a price hike.

13. Ghaziabad-Meerut axis has all the characteristic of corridor cities which have close links and complementary functions. This is not dependent on their physical proximity alone. Rather, economic processes have influenced their development as 'influential urban form' at the regional level.

14. Kanpur-Lucknow axis also has potentials for development. This can only occur either through the impact of government policies or through 'overspill' from Kanpur and Lucknow with their future growth. The need is for a desired pattern of the development so that haphazard growth that exists today does not persist for a longer period.

# Chapter: Six

## CONCLUSIONS

The emergence of development corridors is directly linked to the external economies and socio-economic overheads of the bi-centric urban centres, which are spatially separated but functionally integrated. They are spaces of urban influence in national and regional realms.The present study attempts to understand the process of development of these corridors. On the basis of the analysis of Kanpur-Lucknow and Ghaziabad-Meerut corridors, the following conclusions can be drawn:

1. Development of ribbons is the formative stage in the growth of corridor cities.
2. In India, the dominance of colonial primate cities has limited the growth of corridors to an extent. These cities were surrounded by vast areas of sub-urbanisation or de- urbanisation.
3. Corridor cities are connected with quick transport routes with heavy traffic flow. Kanpur-Lucknow and Ghaziabad –Meerut are two such corridors in the northern part of the country.
4. The density of population and services increases along the axes connecting two cities in close proximity. Ghaziabad-Meerut axis is more densely populated due to its proximity to the metropolis of Delhi. It has experienced higher growth rate of population than Kanpur-Lucknow axis due to migration from the adjoining towns.
5. Demographically Ghaziabad-Meerut axis is more developed as around eight of its villages have merged with urban settlements within a period of twenty years. Only Gangaghat and Nawabganj have developed on the Kanpur-Lucknow axis.
6. The overall percentage of workers engaged in agricultural activities has declined along both the axes. The decline has remained more significant

along Ghaziabad-Meerut axis. Still there are a few villages along the Kanpur-Lucknow axis where about 80 percent of its workers are engaged in primary occupations.

7. Household activities have declined along Kanpur-Lucknow axis, while they are still persistent on the Ghaziabad-Meerut axis.

8. The proportion of non-agricultural workers is high along Ghaziabad-Meerut axis which shows that it has a stronger economic base. This is supplemented by the agglomeration economies and functional linkages of its industries, which are capable of generating growth impulses in the immediate rural hinterland. On the other hand along the Kanpur-Lucknow axis only those villages, which are close to the cities, have higher concentration of non-agricultural workers.

9. Due to poor agricultural productivity on the agricultural land along Ghaziabad-Meerut and Kanpur-Lucknow axes, people started looking for other jobs. In the process some of them shifted to the road side and opened small shops for a livelihood, while, others migrated to large cities in search of employment.

10. Concentration of economic activities along the major roads has been a natural phenomenon due to heavy traffic flow. This gets accelerated with industrialization and commercialization. Ghaziabad-Meerut axis has experienced rapid growth of various types of business including educational and research institutions. Availability of land on a comparatively cheaper rate than Delhi has led to the development of these establishments that need large areas.

11. Along the Kanpur-Lucknow axis economic activities are concentrated only between the cities of Kanpur and Unnao. These activities are found along the link road, which connects these two cities. However, the highway that joins the metropolises of Kanpur and Lucknow is barren between Unnao and Kanpur. It is dotted with a few petrol-pumps and dhabas (line-hotels that are used by lorry drivers). People are afraid that

the ongoing construction of four-lane highway between Unnao and Lucknow will wash out their small businesses.

12. Decreasing land-man ratio and mounting pressure on the available land has resulted in the increase of land values and rents along Ghaziabad-Meerut and Kanpur-Lucknow axes. The values are higher in the places which are situated in the vicinity of towns and cities.

13. The cities of Ghaziabad and Meerut have spatially expanded under the influence of rapid urbanisation and industrialisation experienced by the region. Over concentration of population and industries in Delhi has resulted in the phenomena of peripheral urbanisation. Ghaziabad being on the periphery of Delhi has been a recipient of the affluent population as well as workers. After the verdict of the Supreme Court to shift the polluting industries, the axis has experienced unprecedented growth in economic activities as some of these industries have shifted to it. Kanpur and Lucknow have not been able to overspill their growth.

14. The people were more hopeful about economic gains in terms of jobs, business opportunities, infrastructural facilities along the Ghaziabad-Meerut axis due to the continuous growth and spatial expansion of the cities. On the contrary, the people of the Kanpur-Lucknow axis were afraid that the development of quick transport routes characterised by fast traffic would reduce their businesses.

APPENDIX-I

INDICATORS FOR DEVELOPMENT

| VILLAGE NAME 1971 | AREA (sq. K.M.) | T_POPLN | DENSITY (per sq. K.M.) | SEX-RATIO | % 0f SC. | % LITT | %T_WORKE | % F_WORK. | % AG WOR. | %H.H. WOR. | % N AG.WOR. | PR.SCH | ELECT. | MED. FAC. | MARKET | PUC. RD. | PO | PHONE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gangaghat | 4.91 | 3432 | 699 | 669 | 52.97 | 62.74 | 38.37 | 11.54 | 7.75 | 5.48 | 86.77 | | | | | | | |
| Netuwa | 4.33 | 3515 | 812 | 673 | 31.21 | 36.87 | 30.87 | 1.27 | 16.68 | 5.90 | 77.42 | 1 | 1 | 0 | 1 | 1 | 1 | 0 |
| Fattepur | 1.36 | 376 | 276 | 918 | 36.17 | 15.96 | 29.26 | 2.22 | 50.00 | 3.64 | 50.00 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Sarrya | 1.35 | 566 | 419 | 899 | 14.84 | 15.90 | 27.03 | 1.12 | 78.43 | 0.65 | 20.92 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sahijani | 0.94 | 256 | 272 | 753 | 62.50 | 19.14 | 36.33 | 6.36 | 54.84 | 3.23 | 49.46 | 1 | 0 | 0 | 1 | 1 | 1 | 1 |
| Debara Khurd | 1.73 | 450 | 260 | 815 | 39.33 | 6.44 | 39.56 | 26.73 | 92.70 | 0.00 | 7.30 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Magarwara | 4.74 | 3320 | 701 | 829 | 31.23 | 25.87 | 36.84 | 10.17 | 52.00 | 3.03 | 44.97 | 1 | 0 | 2 | 1 | 1 | 1 | 1 |
| Khowajgipur | 8.03 | 4190 | 522 | 899 | 32.51 | 23.63 | 29.02 | 1.21 | 75.00 | 3.45 | 23.52 | 1 | 0 | 2 | 2 | 0 | 1 | 0 |
| Akrampur | 2.79 | 1791 | 642 | 795 | 18.70 | 19.65 | 35.79 | 9.33 | 43.84 | 0.00 | 67.71 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Bajidpur Urf Rajepur | 2.77 | 660 | 238 | 844 | 61.36 | 12.12 | 30.45 | 2.32 | 66.17 | 2.99 | 30.85 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Tikar Garhi | 7.34 | 1399 | 190 | 841 | 19.44 | 17.23 | 29.95 | 3.60 | 92.36 | 0.95 | 6.68 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| Jhanjhari | 1.52 | 402 | 264 | 803 | 19.15 | 23.13 | 44.03 | 30.73 | 66.10 | 19.21 | 14.69 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| Murtaza Nagar | 8.24 | 1874 | 227 | 867 | 26.95 | 19.69 | 30.68 | 6.09 | 85.91 | 2.96 | 11.13 | 2 | 0 | 0 | 1 | 1 | 0 | 0 |
| Sonik | 1.84 | 499 | 272 | 841 | 36.87 | 33.07 | 26.45 | 0.00 | 59.85 | 9.85 | 30.30 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| Algangarh | 2.10 | 613 | 292 | 898 | 56.77 | 53.02 | 24.80 | 1.38 | 90.13 | 0.66 | 11.84 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| Bichpari | 1.10 | 931 | 846 | 952 | 23.74 | 17.83 | 32.87 | 6.61 | 61.44 | 2.29 | 36.27 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Jagdishpur | 1.30 | 1268 | 972 | 817 | 41.96 | 23.03 | 32.02 | 6.14 | 77.83 | 0.49 | 21.67 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ajgain | 3.24 | 2645 | 816 | 910 | 20.15 | 25.22 | 29.49 | 0.63 | 80.00 | 6.15 | 13.85 | 2 | 0 | 2 | 2 | 1 | 0 | 0 |
| Kasambhi | 9.12 | 2266 | 249 | 838 | 20.56 | 18.31 | 29.35 | 5.32 | 43.01 | 7.52 | 49.47 | 1 | 0 | 0 | 2 | 1 | 1 | 0 |
| Kunjpur | 1.85 | 575 | 310 | 831 | 35.65 | 11.13 | 33.91 | 8.05 | 94.87 | 2.56 | 2.56 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Gaura Katherwa | 5.75 | 1304 | 227 | 890 | 26.38 | 21.32 | 31.13 | 0.49 | 87.44 | 1.23 | 11.33 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Mallaon | 4.32 | 1879 | 435 | 953 | 19.43 | 21.77 | 33.90 | 18.87 | 97.49 | 2.20 | 0.31 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| Baruwa | 1.26 | 380 | 301 | 792 | 46.05 | 22.89 | 29.47 | 1.19 | 83.93 | 7.14 | 8.93 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Khwajgipur | 0.67 | 252 | 377 | 813 | 50.40 | 16.27 | 37.70 | 8.85 | 70.53 | 8.42 | 21.05 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Amretha | 1.40 | 429 | 307 | 890 | 0.00 | 8.16 | 27.27 | 0.00 | 98.29 | 0.00 | 1.71 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Nawabganj | 1.62 | 3955 | 2441 | 891 | 22.72 | 17.88 | 24.56 | 2.04 | 46.13 | 5.64 | 48.23 | | | | | | | |
| Parsandan | 7.12 | 1752 | 246 | 923 | 31.68 | 13.53 | 31.28 | 64.09 | 0.00 | 0.00 | 1.64 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| Makdumpur | 5.15 | 387 | 75 | 916 | 74.68 | 7.49 | 30.75 | 0.00 | 93.28 | 0.00 | 6.72 | 1 | | | 0 | 0 | 0 | 0 |
| Kusheri | 3.33 | 620 | 186 | 914 | 57.42 | 16.29 | 32.58 | 3.04 | 88.61 | 2.48 | 8.91 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| Asa Khera | 5.06 | 2306 | 456 | 922 | 35.91 | 19.21 | 29.18 | 0.99 | 66.12 | 1.93 | 31.95 | 1 | 0 | 2 | 2 | 1 | 1 | 0 |
| Rasulpur | 1.66 | 615 | 370 | 928 | 49.92 | 13.82 | 29.27 | 0.34 | 93.33 | 0.00 | 6.67 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Mirzapur | 1.39 | 408 | 294 | 925 | 31.13 | 12.01 | 30.15 | 2.04 | 93.50 | 5.69 | 0.81 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Lalpur | 0.71 | 373 | 524 | 953 | 52.82 | 17.16 | 38.87 | 0.00 | 100.00 | 0.00 | 0.00 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Mariya Mau | 1.03 | 303 | 294 | 894 | 34.32 | 6.60 | 32.67 | 0.00 | 96.97 | 3.03 | 0.00 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bajehra | 2.34 | 231 | 99 | 1063 | 22.94 | 12.12 | 66.67 | 0.00 | 98.05 | 0.00 | 1.95 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| Bani | 1.81 | 608 | 336 | 882 | 29.28 | 20.23 | 29.44 | 1.40 | 75.98 | 7.82 | 21.79 | 1 | 0 | 2 | 1 | 1 | 0 | 0 |
| Sarai Shahzadi | 2.50 | 1062 | 425 | 752 | 50.28 | 14.97 | 41.71 | 11.40 | 43.12 | 1.35 | 55.53 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| Khandedeo | 5.22 | 1596 | 306 | 856 | 31.70 | 19.74 | 30.01 | 2.85 | 91.44 | 0.21 | 8.35 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| Banthra Sikandpur | 6.96 | 3860 | 555 | 821 | 31.81 | 25.10 | 28.86 | 0.69 | 64.63 | 4.67 | 30.70 | 1 | 1 | 2 | 1 | 1 | 1 | 0 |
| Miranpur Pinwat | 3.01 | 573 | 190 | 879 | 40.49 | 14.66 | 31.24 | 0.75 | 92.74 | 0.56 | 6.70 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Farrukhabad Chilawan | 3.41 | 1876 | 550 | 729 | 41.52 | 14.98 | 30.38 | 1.77 | 61.40 | 2.63 | 35.96 | 1 | 1 | 0 | 1 | 1 | 1 | 0 |
| Gauri | 1.29 | 332 | 258 | 897 | 31.33 | 15.96 | 27.11 | 3.18 | 83.33 | 0.00 | 16.67 | 1 | 0 | 2 | 2 | 1 | 1 | 0 |
| Bahsa | 4.98 | 1197 | 240 | 833 | 31.24 | 24.06 | 49.54 | 38.05 | 79.09 | 1.01 | 19.90 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |

APPENDIX -II

INDICATORS FOR DEVELOPMENT

| VILLAGE NAME | AREA 1991 (sq. K.M.) | T_POPLN | DENSITY (per sq. K.M.) | SEX-RATIO | % Of SC | % LITT | %T_WORKER | % F_WORK. | % AG WOR. | %H.H. WOR. | % N AG.WOR. | PR.SCH | ELECT. | MED. FAC. | MARKET | PUC. RD. | PO | PHONE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Netuwa | 1.27 | 2185 | 1723 | 824 | 38.08 | 20.46 | 46.74 | 3.44 | 67.34 | 0.23 | 31.82 | 1 | 0 | 2 | 2 | 1 | 0 | 0 |
| Fattepur | 0.54 | 218 | 407 | 863 | 50.46 | 41.28 | 51.28 | 1.98 | 95.16 | 0.00 | 4.84 | 0 | 1 | 2 | 0 | 1 | 0 | 0 |
| Saraiya | 0.54 | 713 | 1320 | 748 | 16.13 | 40.25 | 49.02 | 0.66 | 67.33 | 0.00 | 32.67 | 1 | 0 | 2 | 0 | 1 | 0 | 0 |
| Sahejani | 0.33 | 467 | 1407 | 898 | 45.40 | 33.62 | 51.22 | 3.62 | 52.24 | 0.00 | 47.76 | 1 | 0 | 5 | 0 | 1 | 1 | 0 |
| Dewara Khurd | 0.69 | 684 | 994 | 895 | 36.40 | 12.13 | 45.15 | 1.24 | 94.01 | 0.00 | 5.99 | 1 | 1 | 2 | 0 | 0 | 0 | 0 |
| Magarwara | 1.76 | 4931 | 2802 | 798 | 32.89 | 32.20 | 56.42 | 6.35 | 37.60 | 0.18 | 61.86 | 1 | 0 | 4 | 2 | 1 | 1 | 1 |
| Khuwajgipur | 3.21 | 5926 | 1847 | 878 | 36.80 | 35.69 | 49.84 | 2.89 | 67.33 | 0.37 | 31.34 | 1 | 1 | 2 | 2 | 1 | 0 | 0 |
| Akrampur | 1.12 | 138 | 124 | 816 | 13.77 | 53.62 | 47.37 | 0.00 | 50.00 | 0.00 | 50.00 | 1 | 1 | 2 | 2 | 0 | 0 | 0 |
| Bajidpur Urf Rajepur | 1.10 | 293 | 265 | 724 | 51.88 | 9.22 | 48.82 | 2.44 | 72.09 | 0.00 | 27.91 | 1 | 1 | 2 | 0 | 0 | 0 | 0 |
| Tikargarhi | 2.97 | 2214 | 745 | 821 | 16.71 | 22.45 | 56.74 | 4.51 | 73.20 | 0.00 | 26.80 | 1 | 0 | 3 | 0 | 1 | 0 | 0 |
| Jhanjhari | 0.62 | 748 | 1214 | 811 | 20.59 | 49.33 | 60.05 | 3.88 | 56.70 | 0.00 | 43.30 | 1 | 1 | 4 | 2 | 1 | 0 | 0 |
| Murtazanagar | 3.30 | 2586 | 785 | 826 | 31.40 | 26.60 | 52.90 | 0.60 | 74.74 | 0.00 | 25.26 | 1 | 1 | 3 | 0 | 0 | 0 | 0 |
| Sonik | 0.74 | 790 | 1073 | 804 | 31.52 | 40.51 | 59.59 | 0.85 | 87.88 | 0.00 | 12.12 | 1 | 1 | 2 | 2 | 1 | 0 | 0 |
| Algangarh | 0.79 | 976 | 1232 | 914 | 61.27 | 19.06 | 51.37 | 0.00 | 92.75 | 0.00 | 7.25 | 1 | 1 | 2 | 0 | 0 | 0 | 0 |
| Bichpri | 0.44 | 1492 | 3360 | 958 | 21.78 | 30.23 | 50.79 | 6.16 | 71.06 | 1.14 | 25.00 | 1 | 0 | 2 | 0 | 0 | 0 | 0 |
| Jagdeeshpur | 2.04 | 1768 | 868 | 881 | 48.64 | 27.55 | 50.74 | 19.32 | 77.39 | 0.17 | 22.14 | 1 | 0 | 2 | 0 | 0 | 0 | 0 |
| Ajgain | 1.28 | 5103 | 3987 | 873 | 15.15 | 31.61 | 51.76 | 5.13 | 50.07 | 0.06 | 49.74 | 2 | 1 | 4 | 2 | 1 | 0 | 0 |
| Kushumbhi | 3.69 | 3639 | 987 | 919 | 22.18 | 31.11 | 52.32 | 20.42 | 83.09 | 0.27 | 16.17 | 2 | 1 | 3 | 0 | 1 | 1 | 0 |
| Kunjpur | 0.73 | 948 | 1302 | 874 | 34.28 | 24.89 | 46.25 | 1.13 | 69.04 | 0.42 | 29.29 | 1 | 0 | 2 | 0 | 0 | 0 | 0 |
| Gaora Katherua | 2.26 | 1821 | 806 | 933 | 24.93 | 30.59 | 53.82 | 1.48 | 79.04 | 2.31 | 12.88 | 1 | 0 | 2 | 0 | 1 | 0 | 0 |
| Malaon | 1.70 | 2720 | 1604 | 804 | 17.54 | 30.15 | 49.34 | 6.93 | 83.57 | 0.04 | 16.30 | 1 | 1 | 2 | 0 | 0 | 0 | 0 |
| Barwa | 0.50 | 491 | 974 | 760 | 52.14 | 37.27 | 49.10 | 9.43 | 85.35 | 0.00 | 14.65 | 1 | 1 | 2 | 0 | 1 | 0 | 0 |
| Khwajgipur | 0.26 | 435 | 1699 | 859 | 51.03 | 20.00 | 46.58 | 0.00 | 91.74 | 0.00 | 8.26 | 0 | 1 | 2 | 0 | 0 | 0 | 0 |
| Amretha | 0.58 | 742 | 1279 | 922 | 0.00 | 23.99 | 57.51 | 3.09 | 89.27 | 0.00 | 10.73 | 1 | 1 | 2 | 0 | 0 | 0 | 0 |
| Parsandan | 2.68 | 2655 | 989 | 857 | 35.29 | 18.68 | 52.10 | 9.80 | 94.22 | 0.15 | 5.32 | 1 | 1 | 2 | 0 | 0 | 0 | 0 |
| Makhdoompur | 2.11 | 698 | 331 | 856 | 70.34 | 17.77 | 54.52 | 18.01 | 98.10 | 0.00 | 1.90 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Kushehri | 1.76 | 1075 | 609 | 899 | 53.86 | 28.28 | 51.59 | 1.77 | 84.72 | 0.65 | 12.96 | 1 | 0 | 2 | 0 | 0 | 0 | 0 |
| Ashakhera | 2.05 | 3495 | 1707 | 893 | 33.05 | 18.77 | 50.60 | 4.18 | 77.47 | 0.94 | 19.24 | 2 | 0 | 2 | 4 | 1 | 1 | 0 |
| Rasulpur | 0.66 | 571 | 860 | 1011 | 65.32 | 29.77 | 57.04 | 1.05 | 78.79 | 0.00 | 21.21 | 1 | 0 | 2 | 0 | 0 | 0 | 0 |
| Mirjapur | 0.56 | 577 | 1030 | 849 | 29.46 | 18.02 | 55.13 | 41.13 | 96.80 | 0.00 | 3.20 | 1 | 1 | 2 | 0 | 0 | 0 | 0 |
| Lalpur | 0.29 | 540 | 1875 | 942 | 53.15 | 20.56 | 58.27 | 19.08 | 85.38 | 0.74 | 12.74 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Matiyamao | 0.42 | 467 | 1112 | 922 | 23.34 | 18.20 | 52.26 | 1.34 | 66.92 | 0.00 | 33.08 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Bajeharo | 0.92 | 782 | 854 | 884 | 52.30 | 26.85 | 52.05 | 10.63 | 88.63 | 0.00 | 11.37 | 1 | 1 | 2 | 0 | 0 | 0 | 0 |
| Bani | 0.73 | 1016 | 1385 | 924 | 23.92 | 34.65 | 52.08 | 2.25 | 40.91 | 0.89 | 55.94 | 2 | 0 | 4 | 0 | 1 | 0 | 0 |
| Sarai Sahjaidi | 1.01 | 1387 | 1371 | 823 | 46.86 | 32.73 | 58.34 | 8.79 | 69.54 | 0.00 | 30.46 | 1 | 1 | 3 | 0 | 1 | 0 | 0 |
| Khandedev | 2.11 | 2594 | 1229 | 827 | 33.46 | 26.18 | 53.31 | 1.53 | 95.87 | 0.00 | 4.13 | 1 | 1 | 2 | 0 | 0 | 0 | 0 |
| Banthra Sikander Pur | 2.82 | 7468 | 2653 | 828 | 32.06 | 35.44 | 53.29 | 6.74 | 46.65 | 0.27 | 52.52 | 3 | 0 | 8 | 2 | 1 | 0 | 0 |
| Miranpur Pinhat | 1.22 | 3359 | 2756 | 875 | 15.39 | 65.91 | 42.77 | 0.70 | 33.33 | 0.30 | 65.38 | 1 | 1 | 2 | 0 | 0 | 0 | 0 |
| Gauri | 0.52 | 534 | 1024 | 823 | 28.46 | 27.53 | 49.49 | 11.20 | 75.00 | 0.00 | 25.00 | 1 | 0 | 2 | 0 | 0 | 0 | 0 |
| Farrukhabad | 0.46 | 523 | 1142 | 732 | 12.62 | 23.90 | 54.97 | 8.60 | 92.97 | 0.00 | 7.03 | 1 | 1 | 2 | 0 | 0 | 0 | 0 |
| Bahsa | 2.02 | 369 | 183 | 791 | 0.00 | 38.21 | 55.83 | 0.00 | 72.17 | 0.00 | 27.83 | 1 | 1 | 3 | 0 | 1 | 0 | 0 |

APPENDIX-III

INDICATORS FOR DEVELOPMENT

| Villages | AREA (sq. K.M.) | Total Population | Density Per Sq. K.M. | Sex-Ratio M/1000 F | % SC | %T_LITT. | %T_WOR. | %F WOR. | % AG. WOR. | %H.H. WOR. | %N.AG.WOR | ELECT. | MED. FAC | MKT. | PR.SCH | PUC. RD. | PO | PHONE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1971 | | | | | | | | | | | | | | | | | | |
| Makarmatpur Sikroad | 1.09 | 1141 | 1047 | 820 | 18.6 | 32.87 | 26.47 | 0.25 | 47.35 | 2.98 | 49.67 | 0 | 1 | 2 | 1 | 0 | 0 | 0 |
| Morta | 7.53 | 4551 | 604 | 860 | 26.3 | 30.94 | 25.66 | 0.77 | 46.40 | 7.19 | 46.40 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| Basantpur Sainthly | 3.84 | 2293 | 597 | 787 | 20 | 35.28 | 30.79 | 7.22 | 44.19 | 2.27 | 53.54 | 0 | 1 | 2 | 2 | 1 | 0 | 0 |
| Asalatnagar | 2.17 | 595 | 274 | 871 | 32.9 | 27.06 | 21.68 | 0.00 | 44.96 | 6.98 | 48.06 | 0 | 1 | 2 | 1 | 0 | 0 | 0 |
| Mohiuddinpur Hisali | 2.7 | 864 | 320 | 895 | 16.8 | 37.38 | 24.88 | 0.00 | 47.44 | 5.12 | 47.44 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| Mohiuddinpur Dheda | 0.97 | 1695 | 1747 | 794 | 28.4 | 46.55 | 24.90 | 1.66 | 19.19 | 8.77 | 72.04 | 0 | 1 | 2 | 0 | 1 | 0 | 0 |
| Jalalpur | 6.37 | 5528 | 868 | 814 | 20.1 | 22.45 | 26.56 | 1.43 | 50.89 | 8.99 | 40.12 | 1 | 1 | 2 | 2 | 1 | 0 | 0 |
| Abupur | 5.11 | 3722 | 728 | 818 | 22.97 | 27.75 | 27.94 | 5.00 | 41.44 | 10.67 | 47.88 | 0 | 1 | 2 | 1 | 0 | 0 | 0 |
| Yusufpur Munota | 1.6 | 778 | 486 | 772 | 13.11 | 30.85 | 27.51 | 0.00 | 40.19 | 2.80 | 57.01 | 0 | 1 | 2 | 0 | 0 | 0 | 0 |
| Kazampur | 2.01 | 620 | 308 | 818 | 14.03 | 24.68 | 26.29 | 1.84 | 74.85 | 0.00 | 60.74 | 0 | 1 | 2 | 0 | 0 | 0 | 0 |
| Sikri Kalan | 2.98 | 2409 | 808 | 803 | 20.55 | 26.53 | 27.15 | 4.74 | 35.93 | 6.57 | 57.49 | 1 | 1 | 2 | 1 | 1 | 0 | 0 |
| Sikri Khurd | 4.9 | 3262 | 666 | 856 | 30.35 | 21.70 | 27.31 | 8.42 | 38.95 | 5.61 | 55.44 | 1 | 1 | 2 | 1 | 1 | 0 | 0 |
| Qadrabad | 3.86 | 1659 | 430 | 797 | 42.98 | 23.87 | 25.50 | 0.47 | 33.81 | 30.02 | 36.17 | 1 | 1 | 2 | 1 | 1 | 0 | 0 |
| Daulatpur | 4.65 | 1499 | 322 | 768 | 40.49 | 20.95 | 23.58 | 0.24 | 59.77 | 2.30 | 37.93 | 0 | 4 | 2 | 1 | 1 | 1 | 1 |
| Mohiuddinpur | 3.21 | 3311 | 1031 | 658 | 26.00 | 37.60 | 28.58 | 0.72 | 51.58 | 3.15 | 45.27 | 1 | 1 | 2 | 1 | 1 | 0 | 0 |
| Amirnagar urf Bhudbaral | 2.28 | 2575 | 1129 | 843 | 21.01 | 28.66 | 27.06 | 0.39 | 73.75 | 5.41 | 20.85 | 0 | 1 | 3 | 2 | 1 | 0 | 0 |
| Partapur | 3.68 | 1717 | 467 | 846 | 22.48 | 21.43 | 31.94 | 0.00 | 37.37 | 1.01 | 61.62 | 1 | 3 | 2 | 0 | 1 | 0 | 0 |
| Kunda | 1.9 | 675 | 355 | 906 | 23.56 | 24.89 | 29.97 | 5.23 | 31.90 | 23.86 | 44.24 | 1 | 3 | 2 | 1 | 1 | 0 | 0 |

APPENDIX-IV

INDICATORS FOR DEVELOPMENT

| VILLAGE NAME | AREA 1991 (sq. K.M.) | Total Population | Density Per sq.Km | Sex-Ratio F/1000 M | % SC | %T_LITT. | %T_WOR. | %F WOR. | % AG. WOR. | % H.H.WOR. | %N.AG.WOR | ELECT. | MED. FAC | MKT. | PR.SCH. | PUC. RD. | PO | PHONE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Makarmatpur Sikrod | 0.44 | 1974 | 4481 | 833 | 19.0 | 51.27 | 22.8 | 0.4 | 32.5 | 0 | 67.63 | 1 | 1 | 2 | 1 | 1 | 0 | 0 |
| Morta | 3.05 | 6234 | 2045 | 891 | 31.4 | 50.51 | 25.1 | 4.1 | 59.8 | 0.07 | 42.57 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| Basantpur Saithli | 1.33 | 3595 | 2701 | 789 | 20.2 | 49.43 | 27.2 | 2.1 | 32.4 | 2.30 | 66.09 | 1 | 1 | 2 | 1 | 1 | 1 | 0 |
| Asalat Nagar | 0.88 | 846 | 962 | 863 | 30.9 | 48.35 | 24.9 | 5.2 | 32.5 | 6.50 | 63.03 | 1 | 1 | 2 | 1 | 1 | 0 | 0 |
| Mohammadpur Dhedha | 0.54 | 2479 | 4615 | 838 | 24.8 | 59.46 | 24.4 | 4.0 | 15.1 | 1.38 | 84.13 | 1 | 1 | 1 | 1 | 1 | 0 | 0 |
| Muhidinpur Hisali | 1.10 | 1325 | 1204 | 869 | 20.7 | 53.81 | 28.0 | 0.0 | 27.5 | 0.00 | 72.51 | 1 | 1 | 2 | 1 | 1 | 0 | 0 |
| Jalalpur | 0.59 | 947 | 1615 | 828 | 81.9 | 58.61 | 25.0 | 3.0 | 22.6 | 0.00 | 78.06 | 1 | 1 | 2 | 1 | 1 | 0 | 0 |
| Abupur | 2.05 | 4969 | 2419 | 861 | 21.3 | 41.92 | 25 4 | 4.8 | 54.3 | 0.33 | 48.06 | 1 | 1 | 2 | 1 | 1 | 1 | 0 |
| Yusufpur Manota | 0.65 | 1056 | 1624 | 790 | 12.2 | 51.33 | 28.0 | 1.0 | 44.7 | 1.02 | 54.73 | 1 | 1 | 2 | 1 | 1 | 0 | 0 |
| Kajampur | 0.63 | 990 | 1570 | 972 | 16.5 | 59.49 | 28.3 | 0.4 | 77.4 | 1.43 | 21.43 | 1 | 1 | 2 | 1 | 1 | 0 | 0 |
| Sikri Kalan | 1.21 | 3939 | 3268 | 863 | 22.1 | 48.41 | 23.9 | 4.8 | 26.0 | 4.13 | 71.31 | 1 | 1 | 2 | 1 | 1 | 1 | 0 |
| Sikri Khurd | 1.76 | 5360 | 3041 | 848 | 33.1 | 47.13 | 24.4 | 1.5 | 28.0 | 0.39 | 72.06 | 1 | 1 | 2 | 1 | 1 | 1 | 0 |
| Kadarabad | 1.40 | 2926 | 2094 | 814 | 44.7 | 42.31 | 27.6 | 2.8 | 40.5 | 0.89 | 59.78 | 1 | 1 | 2 | 1 | 1 | 0 | 0 |
| Daulatpur | 1.87 | 2468 | 1317 | 815 | 43.2 | 44.81 | 31.4 | 8.1 | 64.5 | 2.95 | 38.06 | 1 | 4 | 2 | 1 | 1 | 0 | 0 |
| Mohiuddinpur | 1.29 | 4270 | 3318 | 770 | 29.9 | 45.11 | 28.3 | 1.1 | 20.1 | 2.35 | 77.80 | 1 | 1 | 2 | 1 | 1 | 1 | 0 |
| Aminagar Urf Bhud Baral | 0.91 | 4022 | 4397 | 886 | 19.5 | 39.18 | 24.8 | 4.6 | 26.6 | 5.15 | 69.71 | 1 | 1 | 3 | 1 | 1 | 1 | 0 |
| Partapur | 0.15 | 3163 | 21123 | 864 | 22.2 | 36.71 | 26.7 | 7.1 | 84.2 | 0.64 | 21.21 | 1 | 3 | 2 | 1 | 1 | 0 | 0 |
| Kunda | 0.68 | 1010 | 1477 | 757 | 6.9 | 36.04 | 31.8 | 0.0 | 93.1 | 0.00 | 6.85 | 1 | 3 | 2 | 1 | 1 | 0 | 0 |

Appendix-V

COMPOSITE INDEXES ANS SCORE FOR THE VILLAGES ALONG THE KANPUR-LUCKNOW AXIS -1971

| VILLAGE NAME | Density | | Sex-Ratio | | % Of SC | | % Literates | |
|---|---|---|---|---|---|---|---|---|
| | X1 | Y1 | X2 | Y2 | X3 | Y3 | X4 | Y4 |
| Gangaghat | 698.98 | 1.60 | 669.00 | 0.78 | 52.97 | 1.49 | 62.74 | 3.15 |
| Netuwa | 811.78 | 1.86 | 673.01 | 0.78 | 31.21 | 0.88 | 36.87 | 1.85 |
| Fattepur | 275.66 | 0.63 | 918.37 | 1.07 | 36.17 | 1.02 | 15.96 | 0.80 |
| Sarrya | 418.64 | 0.96 | 899.33 | 1.05 | 14.84 | 0.42 | 15.90 | 0.80 |
| Sahijani | 272.34 | 0.62 | 753.42 | 0.88 | 62.50 | 1.76 | 19.14 | 0.96 |
| Debara Khurd | 259.82 | 0.60 | 814.52 | 0.95 | 39.33 | 1.11 | 6.44 | 0.32 |
| Magarwara | 701.01 | 1.61 | 829.20 | 0.96 | 31.23 | 0.88 | 25.87 | 1.30 |
| Khowajipur | 521.92 | 1.20 | 899.37 | 1.05 | 32.51 | 0.92 | 23.63 | 1.19 |
| Akrampur | 642.40 | 1.47 | 794.59 | 0.92 | 18.70 | 0.53 | 19.65 | 0.99 |
| Bajidpur Urf Rajepur | 238.10 | 0.55 | 843.58 | 0.98 | 61.36 | 1.73 | 12.12 | 0.61 |
| Tikar Garhi | 190.50 | 0.44 | 840.79 | 0.98 | 19.44 | 0.55 | 17.23 | 0.87 |
| Jhanjhari | 263.78 | 0.60 | 802.69 | 0.93 | 19.15 | 0.54 | 23.13 | 1.16 |
| Murtaza Nagar | 227.32 | 0.52 | 866.53 | 1.01 | 26.95 | 0.76 | 19.69 | 0.99 |
| Sonik | 271.79 | 0.62 | 841.33 | 0.98 | 36.87 | 1.04 | 33.07 | 1.66 |
| Algangarh | 292.46 | 0.67 | 897.83 | 1.04 | 56.77 | 1.60 | 53.02 | 2.66 |
| Bichpari | 846.36 | 1.94 | 951.78 | 1.11 | 23.74 | 0.67 | 17.83 | 0.90 |
| Jagdishpur | 972.39 | 2.23 | 816.62 | 0.95 | 41.96 | 1.18 | 23.03 | 1.16 |
| Ajgain | 816.36 | 1.87 | 909.75 | 1.06 | 20.15 | 0.57 | 25.22 | 1.27 |
| Kasambhi | 248.57 | 0.57 | 837.79 | 0.97 | 20.56 | 0.58 | 18.31 | 0.92 |
| Kunjpur | 310.48 | 0.71 | 831.21 | 0.97 | 35.65 | 1.00 | 11.13 | 0.56 |
| Gaura Katherwa | 226.70 | 0.52 | 889.86 | 1.03 | 26.38 | 0.74 | 21.32 | 1.07 |
| Mallaon | 435.36 | 1.00 | 953.22 | 1.11 | 19.43 | 0.55 | 21.77 | 1.09 |
| Baruwa | 300.63 | 0.69 | 792.45 | 0.92 | 46.05 | 1.30 | 22.89 | 1.15 |
| Khawajgipur | 377.25 | 0.86 | 812.95 | 0.94 | 50.40 | 1.42 | 16.27 | 0.82 |
| Amretha | 307.31 | 0.70 | 889.87 | 1.03 | 0.00 | 0.00 | 8.16 | 0.41 |
| Nawabganj | 2441.36 | 5.59 | 891.00 | 1.04 | 22.72 | 0.64 | 17.88 | 0.90 |
| Parsandan | 246.07 | 0.56 | 923.16 | 1.07 | 31.68 | 0.89 | 13.53 | 0.68 |
| Makdumpur | 75.12 | 0.17 | 915.84 | 1.06 | 74.68 | 2.10 | 7.49 | 0.38 |
| Kusheri | 186.30 | 0.43 | 913.58 | 1.06 | 57.42 | 1.62 | 16.29 | 0.82 |
| Asa Khera | 456.09 | 1.04 | 921.67 | 1.07 | 35.91 | 1.01 | 19.21 | 0.96 |
| Rasulpur | 369.59 | 0.85 | 927.90 | 1.08 | 49.92 | 1.41 | 13.82 | 0.69 |
| Mirzapur | 293.95 | 0.67 | 924.53 | 1.07 | 31.13 | 0.88 | 12.01 | 0.60 |
| Lalpur | 523.88 | 1.20 | 952.88 | 1.11 | 52.82 | 1.49 | 17.16 | 0.86 |
| Mariya Mau | 293.60 | 0.67 | 893.75 | 1.04 | 34.32 | 0.97 | 6.60 | 0.33 |
| Bajehra | 98.72 | 0.23 | 1062.50 | 1.23 | 22.94 | 0.65 | 12.12 | 0.61 |
| Bani | 335.54 | 0.77 | 882.35 | 1.03 | 29.28 | 0.83 | 20.23 | 1.02 |
| Sarai Sahazadi | 424.80 | 0.97 | 752.48 | 0.87 | 50.28 | 1.42 | 14.97 | 0.75 |
| Khandedeo | 305.98 | 0.70 | 855.81 | 0.99 | 31.70 | 0.89 | 19.74 | 0.99 |
| Banthra Sikanderpur | 554.92 | 1.27 | 820.75 | 0.95 | 31.81 | 0.90 | 25.10 | 1.26 |
| Miranpur Pinwat | 190.24 | 0.44 | 878.69 | 1.02 | 40.49 | 1.14 | 14.66 | 0.74 |
| Farrukhabad Chilawan | 549.82 | 1.26 | 729.03 | 0.85 | 41.52 | 1.17 | 14.98 | 0.75 |
| Gauri | 257.76 | 0.59 | 897.14 | 1.04 | 31.33 | 0.88 | 15.96 | 0.80 |
| Bahsa | 240.17 | 0.55 | 833.08 | 0.97 | 31.24 | 0.88 | 24.06 | 1.21 |
| MEAN | 436.55 | | 860.59 | | 35.48 | | 19.91 | |
| S.D | 377.02 | | 75.78 | | 14.93 | | 10.59 | |

| C.I_D | %Total Workers X5 | Y5 | %Female Workers X6 | Y6 | %Agricultural Workers. X7 | Y7 | %Household. Workers X8 | Y8 | % Non-agricultur Workers X9 |
|---|---|---|---|---|---|---|---|---|---|
| 7.02 | 38.37 | 1.16 | 11.54 | 1.64 | 7.75 | 0.11 | 5.48 | 1.72 | 86.77 |
| 5.37 | 30.87 | 0.93 | 1.27 | 0.18 | 16.68 | 0.23 | 5.90 | 1.85 | 77.42 |
| 3.52 | 29.26 | 0.89 | 2.22 | 0.32 | 50.00 | 0.69 | 3.64 | 1.14 | 50.00 |
| 3.22 | 27.03 | 0.82 | 1.12 | 0.16 | 78.43 | 1.09 | 0.65 | 0.21 | 20.92 |
| 4.22 | 36.33 | 1.10 | 6.36 | 0.90 | 54.84 | 0.76 | 3.23 | 1.01 | 49.46 |
| 2.97 | 39.56 | 1.20 | 26.73 | 3.80 | 92.70 | 1.29 | 0.00 | 0.00 | 7.30 |
| 4.75 | 36.84 | 1.11 | 10.17 | 1.44 | 52.00 | 0.72 | 3.03 | 0.95 | 44.97 |
| 4.34 | 29.02 | 0.88 | 1.21 | 0.17 | 75.00 | 1.04 | 3.45 | 1.08 | 23.52 |
| 3.91 | 35.79 | 1.08 | 9.33 | 1.32 | 43.84 | 0.61 | 0.00 | 0.00 | 67.71 |
| 3.86 | 30.45 | 0.92 | 2.32 | 0.33 | 66.17 | 0.92 | 2.99 | 0.94 | 30.85 |
| 2.83 | 29.95 | 0.91 | 3.60 | 0.51 | 92.36 | 1.28 | 0.95 | 0.30 | 6.68 |
| 3.24 | 44.03 | 1.33 | 30.73 | 4.36 | 66.10 | 0.92 | 19.21 | 6.03 | 14.69 |
| 3.28 | 30.68 | 0.93 | 6.09 | 0.86 | 85.91 | 1.19 | 2.96 | 0.93 | 11.13 |
| 4.30 | 26.45 | 0.80 | 0.00 | 0.00 | 59.85 | 0.83 | 9.85 | 3.09 | 30.30 |
| 5.98 | 24.80 | 0.75 | 1.38 | 0.20 | 90.13 | 1.25 | 0.66 | 0.21 | 11.84 |
| 4.61 | 32.87 | 0.99 | 6.61 | 0.94 | 61.44 | 0.85 | 2.29 | 0.72 | 36.27 |
| 5.52 | 32.02 | 0.97 | 6.14 | 0.87 | 77.83 | 1.08 | 0.49 | 0.15 | 21.67 |
| 4.76 | 29.49 | 0.89 | 0.63 | 0.09 | 80.00 | 1.11 | 6.15 | 1.93 | 13.85 |
| 3.04 | 29.35 | 0.89 | 5.32 | 0.76 | 43.01 | 0.60 | 7.52 | 2.36 | 49.47 |
| 3.24 | 33.91 | 1.03 | 8.05 | 1.14 | 94.87 | 1.32 | 2.56 | 0.80 | 2.56 |
| 3.37 | 31.13 | 0.94 | 0.49 | 0.07 | 87.44 | 1.22 | 1.23 | 0.39 | 11.33 |
| 3.75 | 33.90 | 1.03 | 18.87 | 2.68 | 97.49 | 1.35 | 2.20 | 0.69 | 0.31 |
| 4.06 | 29.47 | 0.89 | 1.19 | 0.17 | 83.93 | 1.17 | 7.14 | 2.24 | 8.93 |
| 4.05 | 37.70 | 1.14 | 8.85 | 1.26 | 70.53 | 0.98 | 8.42 | 2.64 | 21.05 |
| 2.15 | 27.27 | 0.83 | 0.00 | 0.00 | 98.29 | 1.37 | 0.00 | 0.00 | 1.71 |
| 8.17 | 24.56 | 0.74 | 2.04 | 0.29 | 46.13 | 0.64 | 5.64 | 1.77 | 48.23 |
| 3.21 | 31.28 | 0.95 | 64.09 | 9.10 | 0.00 | 0.00 | 0.00 | 0.00 | 1.64 |
| 3.72 | 30.75 | 0.93 | 0.00 | 0.00 | 93.28 | 1.30 | 0.00 | 0.00 | 6.72 |
| 3.92 | 32.58 | 0.99 | 3.04 | 0.43 | 88.61 | 1.23 | 2.48 | 0.78 | 8.91 |
| 4.09 | 29.18 | 0.88 | 0.99 | 0.14 | 66.12 | 0.92 | 1.93 | 0.61 | 31.95 |
| 4.03 | 29.27 | 0.89 | 0.34 | 0.05 | 93.33 | 1.30 | 0.00 | 0.00 | 6.67 |
| 3.23 | 30.15 | 0.91 | 2.04 | 0.29 | 93.50 | 1.30 | 5.69 | 1.79 | 0.81 |
| 4.66 | 38.87 | 1.18 | 0.00 | 0.00 | 100.00 | 1.39 | 0.00 | 0.00 | 0.00 |
| 3.01 | 32.67 | 0.99 | 0.00 | 0.00 | 96.97 | 1.35 | 3.03 | 0.95 | 0.00 |
| 2.72 | 66.67 | 2.02 | 0.00 | 0.00 | 98.05 | 1.36 | 0.00 | 0.00 | 1.95 |
| 3.64 | 29.44 | 0.89 | 1.40 | 0.20 | 75.98 | 1.06 | 7.82 | 2.45 | 21.79 |
| 4.02 | 41.71 | 1.26 | 11.40 | 1.62 | 43.12 | 0.60 | 1.35 | 0.43 | 55.53 |
| 3.58 | 30.01 | 0.91 | 2.85 | 0.41 | 91.44 | 1.27 | 0.21 | 0.07 | 8.35 |
| 4.38 | 28.86 | 0.87 | 0.69 | 0.10 | 64.63 | 0.90 | 4.67 | 1.46 | 30.70 |
| 3.33 | 31.24 | 0.95 | 0.75 | 0.11 | 92.74 | 1.29 | 0.56 | 0.18 | 6.70 |
| 4.03 | 30.38 | 0.92 | 1.77 | 0.25 | 61.40 | 0.85 | 2.63 | 0.83 | 35.96 |
| 3.32 | 27.11 | 0.82 | 3.18 | 0.45 | 83.33 | 1.16 | 0.00 | 0.00 | 16.67 |
| 3.61 | 49.54 | 1.50 | 38.05 | 5.40 | 79.09 | 1.10 | 1.01 | 0.32 | 19.90 |
|  | 33.04 |  | 7.04 |  | 71.96 |  | 3.19 |  | 23.33 |
|  | 7.31 |  | 12.24 |  | 24.74 |  | 3.68 |  | 21.99 |

| Y9 | C.I_W | Primary School X10 | Y10 | Electricity X11 | Y11 | Medical Facilities X12 | Y12 | Market X13 | Y13 |
|---|---|---|---|---|---|---|---|---|---|
| 3.72 | 8.35 | | 0 | | 0 | | 0 | | 0 |
| 3.32 | 6.52 | 1 | 0.91 | 1 | 13.33 | 0 | 0 | 1 | 1.37 |
| 2.14 | 5.18 | 1 | 0.91 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| 0.90 | 3.17 | 1 | 0.91 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| 2.12 | 5.90 | 1 | 0.91 | 0 | 0 | 0 | 0 | 1 | 1.37 |
| 0.31 | 6.59 | 1 | 0.91 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| 1.93 | 6.16 | 1 | 0.91 | 0 | 0 | 2 | 5.71 | 1 | 1.37 |
| 1.01 | 4.18 | 1 | 0.91 | 0 | 0 | 2 | 5.71 | 2 | 2.73 |
| 2.90 | 5.92 | 1 | 0.91 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 1.32 | 4.43 | 1 | 0.91 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 0.29 | 3.29 | 1 | 0.91 | 0 | 0 | 0 | 0.00 | 1 | 1.37 |
| 0.63 | 13.27 | 1 | 0.91 | 0 | 0 | 0 | 0.00 | 1 | 1.37 |
| 0.48 | 4.39 | 2 | 1.82 | 0 | 0 | 0 | 0.00 | 1 | 1.37 |
| 1.30 | 6.02 | 1 | 0.91 | 0 | 0 | 0 | 0.00 | 1 | 1.37 |
| 0.51 | 2.91 | 1 | 0.91 | 0 | 0 | 0 | 0.00 | 1 | 1.37 |
| 1.55 | 5.06 | 1 | 0.91 | 0 | 0 | 0 | 0.00 | 1 | 1.37 |
| 0.93 | 4.01 | 1 | 0.91 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 0.59 | 4.62 | 2 | 1.82 | 0 | 0 | 2 | 5.71 | 2 | 2.73 |
| 2.12 | 6.72 | 1 | 0.91 | 0 | 0 | 0 | 0 | 2 | 2.73 |
| 0.11 | 4.40 | 2 | 1.82 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| 0.49 | 3.10 | 1 | 0.91 | 0 | 0 | 0 | 0 | 1 | 1.37 |
| 0.01 | 5.76 | 1 | 0.91 | 0 | 0 | 0 | 0 | 1 | 1.37 |
| 0.38 | 4.85 | 1 | 0.91 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| 0.90 | 6.92 | 1 | 0.91 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| 0.07 | 2.26 | 1 | 0.91 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| 2.07 | 5.51 | | 0.00 | | 0 | | 0 | | 0.00 |
| 0.07 | 10.12 | 1 | 0.91 | 0 | 0 | 0 | 0 | 1 | 1.37 |
| 0.29 | 2.51 | 1 | 0.91 | | 0 | | 0 | 0 | 0.00 |
| 0.38 | 3.81 | 1 | 0.91 | 0 | 0 | 0 | 0 | 1 | 1.37 |
| 1.37 | 3.92 | 1 | 0.91 | 0 | 0 | 2 | 5.71 | 2 | 2.73 |
| 0.29 | 2.52 | 1 | 0.91 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 0.03 | 4.32 | 1 | 0.91 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 0.00 | 2.57 | 1 | 0.91 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 0.00 | 3.29 | 2 | 1.82 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 0.08 | 3.46 | 1 | 0.91 | 0 | 0 | 0 | 0.00 | 1 | 1.37 |
| 0.93 | 5.53 | 1 | 0.91 | 0 | 0 | 2 | 5.71 | 1 | 1.37 |
| 2.38 | 6.29 | 1 | 0.91 | 0 | 0 | 0 | 0.00 | 1 | 1.37 |
| 0.36 | 3.01 | 1 | 0.91 | 0 | 0 | 0 | 0.00 | 1 | 1.37 |
| 1.32 | 4.65 | 1 | 0.91 | 1 | 13.33 | 2 | 5.71 | 1 | 1.37 |
| 0.29 | 2.80 | 1 | 0.91 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| 1.54 | 4.39 | 1 | 0.91 | 1 | 13.33 | 0 | 0.00 | 1 | 1.37 |
| 0.71 | 3.14 | 1 | 0.91 | 0 | 0 | 2 | 5.71 | 2 | 2.73 |
| 0.85 | 9.17 | 1 | 0.91 | 0 | 0 | 0 | 0 | 1 | 1.37 |
| | | 1.10 | | 0.075 | | 0.35 | | 0.73 | |
| | | 0.30 | | 0.27 | | 0.77 | | 0.67 | |

| Pucca Road | | Post Office | | Phone | | | | |
|---|---|---|---|---|---|---|---|---|
| X14 | Y14 | X15 | Y15 | X16 | Y16 | C.I_I | C.I | |
| | 0 | | 0 | | 0 | 0 | 15.37 | Gangaghat |
| 1 | 1.32 | 1 | 4.56 | 0 | 0 | 21.49 | 33.38 | Netuwa |
| 1 | 1.32 | 0 | 0.00 | 0 | 0 | 2.23 | 10.93 | Fattepur |
| 0 | 0.00 | 0 | 0.00 | 0 | 0 | 0.91 | 7.30 | Sarrya |
| 1 | 1.32 | 1 | 4.56 | 1 | 20.5 | 28.66 | 38.78 | Sahijani |
| 0 | 0.00 | 0 | 0.00 | 0 | 0 | 0.91 | 10.48 | Debara Khurd |
| 1 | 1.32 | 1 | 4.56 | 1 | 20.5 | 34.37 | 45.28 | Magarwara |
| 0 | 0.00 | 1 | 4.56 | 0 | 0 | 13.91 | 22.44 | Khowajipur |
| 1 | 1.32 | 0 | 0.00 | 0 | 0 | 2.23 | 12.06 | Akrampur |
| 1 | 1.32 | 0 | 0.00 | 0 | 0 | 2.23 | 10.53 | Bajidpur Urf Rajepur |
| 1 | 1.32 | 0 | 0.00 | 0 | 0 | 3.60 | 9.71 | Tikar Garhi |
| 1 | 1.32 | 0 | 0.00 | 0 | 0 | 3.60 | 20.11 | Jhanjhari |
| 1 | 1.32 | 0 | 0.00 | 0 | 0 | 4.51 | 12.18 | Murtaza Nagar |
| 1 | 1.32 | 0 | 0.00 | 0 | 0 | 3.60 | 13.92 | Sonik |
| 1 | 1.32 | 0 | 0.00 | 0 | 0 | 3.60 | 12.49 | Algangarh |
| 0 | 0.00 | 0 | 0.00 | 0 | 0 | 2.28 | 11.95 | Bichpari |
| 0 | 0.00 | 0 | 0.00 | 0 | 0 | 0.91 | 10.43 | Jagdishpur |
| 1 | 1.32 | 0 | 0.00 | 0 | 0 | 11.59 | 20.97 | Ajgain |
| 1 | 1.32 | 1 | 4.56 | 0 | 0 | 9.52 | 19.29 | Kasambhi |
| 0 | 0.00 | 0 | 0 | 0 | 0 | 1.82 | 9.46 | Kunjpur |
| 0 | 0.00 | 0 | 0 | 0 | 0 | 2.28 | 8.74 | Gaura Katherwa |
| 1 | 1.32 | 0 | 0 | 0 | 0 | 3.60 | 13.11 | Mallaon |
| 1 | 1.32 | 0 | 0 | 0 | 0 | 2.23 | 11.14 | Baruwa |
| 1 | 1.32 | 0 | 0 | 0 | 0 | 2.23 | 13.20 | Khawajgipur |
| 1 | 1.32 | 0 | 0 | 0 | 0 | 2.23 | 6.65 | Amretha |
| | 0.00 | | 0 | | 0 | 0.00 | 13.68 | Nawabganj |
| 1 | 1.32 | 0 | 0 | 0 | 0 | 3.60 | 16.93 | Parsandan |
| 0 | 0.00 | 0 | 0 | 0 | 0 | 0.91 | 7.14 | Makdumpur |
| 1 | 1.32 | 0 | 0 | 0 | 0 | 3.60 | 11.33 | Kusheri |
| 1 | 1.32 | 1 | 4.56 | 0 | 0 | 15.24 | 23.25 | Asa Khera |
| 1 | 1.32 | 0 | 0 | 0 | 0 | 2.23 | 8.78 | Rasulpur |
| 1 | 1.32 | 0 | 0 | 0 | 0 | 2.23 | 9.78 | Mirzapur |
| 1 | 1.32 | 0 | 0 | 0 | 0 | 2.23 | 9.46 | Lalpur |
| 0 | 0.00 | 0 | 0 | 0 | 0 | 1.82 | 8.12 | Mariya Mau |
| 1 | 1.32 | 0 | 0 | 0 | 0 | 3.60 | 9.78 | Bajehra |
| 1 | 1.32 | 0 | 0 | 0 | 0 | 9.31 | 18.48 | Bani |
| 1 | 1.32 | 0 | 0 | 0 | 0 | 3.60 | 13.90 | Sarai Sahazadi |
| 1 | 1.32 | 0 | 0 | 0 | 0 | 3.60 | 10.19 | Khandedeo |
| 1 | 1.32 | 1 | 4.56 | 0 | 0 | 27.20 | 36.24 | Banthra Sikanderpur |
| 1 | 1.32 | 0 | 0.00 | 0 | 0 | 2.23 | 8.37 | Miranpur Pinwat |
| 1 | 1.32 | 1 | 4.56 | 0 | 0 | 21.49 | 29.91 | Farrukhabad Chilawa |
| 1 | 1.32 | 1 | 4.56 | 0 | 0 | 15.24 | 21.70 | Gauri |
| 0 | 0 | 0 | 0 | 0 | 0 | 2.28 | 15.06 | Bahsa |
| 0.76 | | 0.22 | | 0.05 | | | | MEAN |
| 0.43 | | 0.42 | | 0.22 | | | | S.D |

C.I_D – Composite Index for the demographic variables
C.I_W – Composite Index for the workforce participation
C.I_I – Composite Index for the infrastructural facilities
C.I. - Composite Score for the above mentioned composite indexes

Appendix –VI

COMPOSITE INDICES AND SCORE FOR THE VILLAGES ALONG KANPUR-LUCKNOW AXIS - 1991

| VILLAGE NAME | Density | | Sex Ratio | | % SC | | %Literates | |
|---|---|---|---|---|---|---|---|---|
| | X1 | Y1 | X2 | Y2 | X3 | Y3 | X4 | Y4 |
| Netuwa | 1723.19 | 1.31 | 823.87 | 0.96 | 38.08 | 1.13 | 20.46 | 0.70 |
| Fattepur | 406.72 | 0.31 | 863.25 | 1.01 | 50.46 | 1.50 | 41.28 | 1.40 |
| Sarrya | 1320.37 | 1.00 | 747.55 | 0.87 | 16.13 | 0.48 | 40.25 | 1.37 |
| Sahijani | 1406.63 | 1.07 | 898.37 | 1.05 | 45.40 | 1.35 | 33.62 | 1.14 |
| Debara Khurd | 994.19 | 0.76 | 894.74 | 1.04 | 36.40 | 1.08 | 12.13 | 0.41 |
| Magarwara | 2801.70 | 2.13 | 798.32 | 0.93 | 32.89 | 0.98 | 32.20 | 1.10 |
| Khowajipur | 1847.26 | 1.40 | 877.69 | 1.02 | 36.80 | 1.09 | 35.69 | 1.21 |
| Akrampur | 123.66 | 0.09 | 815.79 | 0.95 | 13.77 | 0.41 | 53.62 | 1.82 |
| Bajidpur Urf Rajepur | 265.40 | 0.20 | 723.53 | 0.84 | 51.88 | 1.54 | 9.22 | 0.31 |
| Tikar Garhi | 744.95 | 0.57 | 820.72 | 0.96 | 16.71 | 0.50 | 22.45 | 0.76 |
| Jhanjhari | 1214.29 | 0.92 | 811.14 | 0.95 | 20.59 | 0.61 | 49.33 | 1.68 |
| Murtaza Nagar | 784.59 | 0.60 | 826.27 | 0.96 | 31.40 | 0.93 | 26.60 | 0.91 |
| Sonik | 1073.37 | 0.82 | 803.65 | 0.94 | 31.52 | 0.94 | 40.51 | 1.38 |
| Algangarh | 1232.32 | 0.94 | 913.73 | 1.07 | 61.27 | 1.82 | 19.06 | 0.65 |
| Bichpari | 3360.36 | 2.56 | 958.01 | 1.12 | 21.78 | 0.65 | 30.23 | 1.03 |
| Jagdishpur | 868.37 | 0.66 | 880.85 | 1.03 | 48.64 | 1.45 | 27.55 | 0.94 |
| Ajgain | 3986.72 | 3.03 | 873.35 | 1.02 | 15.15 | 0.45 | 31.61 | 1.08 |
| Kasambhi | 986.71 | 0.75 | 919.30 | 1.07 | 22.18 | 0.66 | 31.11 | 1.06 |
| Kunjpur | 1302.20 | 0.99 | 873.52 | 1.02 | 34.28 | 1.02 | 24.89 | 0.85 |
| Gaura Katherwa | 805.75 | 0.61 | 933.12 | 1.09 | 24.93 | 0.74 | 30.59 | 1.04 |
| Mallaon | 1603.77 | 1.22 | 803.71 | 0.94 | 17.54 | 0.52 | 30.15 | 1.03 |
| Baruwa | 974.21 | 0.74 | 759.86 | 0.89 | 52.14 | 1.55 | 37.27 | 1.27 |
| Khawajgipur | 1699.22 | 1.29 | 858.97 | 1.00 | 51.03 | 1.52 | 20.00 | 0.68 |
| Amretha | 1279.31 | 0.97 | 922.28 | 1.08 | 0.00 | 0.00 | 23.99 | 0.82 |
| Parsandan | 989.20 | 0.75 | 856.64 | 1.00 | 35.29 | 1.05 | 18.68 | 0.64 |
| Makdumpur | 331.12 | 0.25 | 856.38 | 1.00 | 70.34 | 2.09 | 17.77 | 0.60 |
| Kusheri | 609.41 | 0.46 | 899.29 | 1.05 | 53.86 | 1.60 | 28.28 | 0.96 |
| Asa Khera | 1706.54 | 1.30 | 893.28 | 1.04 | 33.05 | 0.98 | 18.77 | 0.64 |
| Rasulpur | 859.94 | 0.65 | 1010.56 | 1.18 | 65.32 | 1.94 | 29.77 | 1.01 |
| Mirzapur | 1030.36 | 0.78 | 849.36 | 0.99 | 29.46 | 0.88 | 18.02 | 0.61 |
| Lalpur | 1875.00 | 1.43 | 942.45 | 1.10 | 53.15 | 1.58 | 20.56 | 0.70 |
| Mariya Mau | 1111.90 | 0.85 | 921.81 | 1.08 | 23.34 | 0.69 | 18.20 | 0.62 |
| Bajehra | 853.71 | 0.65 | 884.34 | 1.03 | 52.30 | 1.55 | 26.85 | 0.91 |
| Bani | 1385.48 | 1.05 | 924.24 | 1.08 | 23.92 | 0.71 | 34.65 | 1.18 |
| Sarai Sahazadi | 1370.88 | 1.04 | 822.60 | 0.96 | 46.86 | 1.39 | 32.73 | 1.11 |
| Khandedeo | 1228.85 | 0.93 | 826.76 | 0.96 | 33.46 | 0.99 | 26.18 | 0.89 |
| Banthra Sikanderpur | 2652.86 | 2.02 | 828.15 | 0.97 | 32.06 | 0.95 | 35.44 | 1.21 |
| Miranpur Pinwat | 2755.63 | 2.10 | 875.49 | 1.02 | 15.39 | 0.46 | 65.91 | 2.24 |
| Gauri | 1024.48 | 0.78 | 822.53 | 0.96 | 28.46 | 0.85 | 27.53 | 0.94 |
| Farrukhabad | 1141.62 | 0.87 | 731.79 | 0.85 | 12.62 | 0.37 | 23.90 | 0.81 |
| Bahsa | 182.94 | 0.14 | 791.26 | 0.92 | 0.00 | 0.00 | 38.21 | 1.30 |
| MEAN | 1315.00 | | 857.04 | | 33.66 | | 29.40 | |
| S.D | 819.97 | | 62.36 | | 16.95 | | 10.99 | |

| C.I_D | %Total Workers X5 | Y5 | %Female Workers X6 | Y6 | %Agricultural Workers X7 | Y7 | %Household Workers X8 | Y8 | %Nonagricul Workers X9 |
|---|---|---|---|---|---|---|---|---|---|
| 4.10 | 46.74 | 0.90 | 3.44 | 0.56 | 67.34 | 0.90 | 0.23 | 1.03 | 31.82 |
| 4.22 | 51.28 | 0.98 | 1.98 | 0.32 | 95.16 | 1.27 | 0.00 | 0.00 | 4.84 |
| 3.72 | 49.02 | 0.94 | 0.66 | 0.11 | 67.33 | 0.90 | 0.00 | 0.00 | 32.67 |
| 4.61 | 51.22 | 0.98 | 3.62 | 0.59 | 52.24 | 0.70 | 0.00 | 0.00 | 47.76 |
| 3.29 | 45.15 | 0.87 | 1.24 | 0.20 | 94.01 | 1.26 | 0.00 | 0.00 | 5.99 |
| 5.13 | 56.42 | 1.08 | 6.35 | 1.03 | 37.60 | 0.50 | 0.18 | 0.82 | 61.86 |
| 4.74 | 49.84 | 0.96 | 2.89 | 0.47 | 67.33 | 0.90 | 0.37 | 1.67 | 31.34 |
| 3.28 | 47.37 | 0.91 | 0.00 | 0.00 | 50.00 | 0.67 | 0.00 | 0.00 | 50.00 |
| 2.90 | 48.82 | 0.94 | 2.44 | 0.40 | 72.09 | 0.96 | 0.00 | 0.00 | 27.91 |
| 2.78 | 56.74 | 1.09 | 4.51 | 0.73 | 73.20 | 0.98 | 0.00 | 0.00 | 26.80 |
| 4.16 | 60.05 | 1.15 | 3.88 | 0.63 | 56.70 | 0.76 | 0.00 | 0.00 | 43.30 |
| 3.40 | 52.90 | 1.01 | 0.60 | 0.10 | 74.74 | 1.00 | 0.00 | 0.00 | 25.26 |
| 4.07 | 59.59 | 1.14 | 0.85 | 0.14 | 87.88 | 1.18 | 0.00 | 0.00 | 12.12 |
| 4.47 | 51.37 | 0.98 | 0.00 | 0.00 | 92.75 | 1.24 | 0.00 | 0.00 | 7.25 |
| 5.35 | 50.79 | 0.97 | 6.16 | 1.00 | 71.06 | 0.95 | 1.14 | 5.12 | 25.00 |
| 4.07 | 50.74 | 0.97 | 19.32 | 3.14 | 77.39 | 1.04 | 0.17 | 0.76 | 22.14 |
| 5.58 | 51.76 | 0.99 | 5.13 | 0.83 | 50.07 | 0.67 | 0.06 | 0.26 | 49.74 |
| 3.54 | 52.32 | 1.00 | 20.42 | 3.32 | 83.09 | 1.11 | 0.27 | 1.23 | 16.17 |
| 3.87 | 46.25 | 0.89 | 1.13 | 0.18 | 69.04 | 0.92 | 0.42 | 1.90 | 29.29 |
| 3.48 | 53.82 | 1.03 | 1.48 | 0.24 | 79.04 | 1.06 | 2.31 | 10.36 | 12.88 |
| 3.70 | 49.34 | 0.95 | 6.93 | 1.13 | 83.57 | 1.12 | 0.04 | 0.17 | 16.30 |
| 4.44 | 49.10 | 0.94 | 9.43 | 1.53 | 85.35 | 1.14 | 0.00 | 0.00 | 14.65 |
| 4.49 | 46.58 | 0.89 | 0.00 | 0.00 | 91.74 | 1.23 | 0.00 | 0.00 | 8.26 |
| 2.87 | 57.51 | 1.10 | 3.09 | 0.50 | 89.27 | 1.19 | 0.00 | 0.00 | 10.73 |
| 3.44 | 52.10 | 1.00 | 9.80 | 1.59 | 94.22 | 1.26 | 0.15 | 0.68 | 5.32 |
| 3.95 | 54.52 | 1.05 | 18.01 | 2.93 | 98.10 | 1.31 | 0.00 | 0.00 | 1.90 |
| 4.08 | 51.59 | 0.99 | 1.77 | 0.29 | 84.72 | 1.13 | 0.65 | 2.92 | 12.96 |
| 3.96 | 50.60 | 0.97 | 4.18 | 0.68 | 77.47 | 1.04 | 0.94 | 4.24 | 19.24 |
| 4.79 | 57.04 | 1.09 | 1.05 | 0.17 | 78.79 | 1.05 | 0.00 | 0.00 | 21.21 |
| 3.26 | 55.13 | 1.06 | 41.13 | 6.68 | 96.80 | 1.29 | 0.00 | 0.00 | 3.20 |
| 4.80 | 58.27 | 1.12 | 19.08 | 3.10 | 85.38 | 1.14 | 0.74 | 3.33 | 12.74 |
| 3.23 | 52.26 | 1.00 | 1.34 | 0.22 | 66.92 | 0.90 | 0.00 | 0.00 | 33.08 |
| 4.15 | 52.05 | 1.00 | 10.63 | 1.73 | 88.63 | 1.19 | 0.00 | 0.00 | 11.37 |
| 4.02 | 52.08 | 1.00 | 2.25 | 0.37 | 40.91 | 0.55 | 0.89 | 3.98 | 55.94 |
| 4.51 | 58.34 | 1.12 | 8.79 | 1.43 | 69.54 | 0.93 | 0.00 | 0.00 | 30.46 |
| 3.78 | 53.31 | 1.02 | 1.53 | 0.25 | 95.87 | 1.28 | 0.00 | 0.00 | 4.13 |
| 5.14 | 53.29 | 1.02 | 6.74 | 1.09 | 46.65 | 0.62 | 0.27 | 1.20 | 52.52 |
| 5.82 | 42.77 | 0.82 | 0.70 | 0.11 | 33.33 | 0.45 | 0.30 | 1.34 | 65.38 |
| 3.52 | 49.49 | 0.95 | 11.20 | 1.82 | 75.00 | 1.00 | 0.00 | 0.00 | 25.00 |
| 2.91 | 54.97 | 1.05 | 8.60 | 1.40 | 92.97 | 1.24 | 0.00 | 0.00 | 7.03 |
| 2.36 | 55.83 | 1.07 | 0.00 | 0.00 | 72.17 | 0.97 | 0.00 | 0.00 | 27.83 |
| | 52.16 | | 6.16 | | 74.77 | | 0.22 | | 24.47 |
| | 4.01 | | 7.93 | | 17.38 | | 0.45 | | 17.24 |

| Y9 | C.I_W | Primary School X10 | Y10 | Electricity X11 | Y11 | Medical Facilities X12 | Y12 | Market X13 | Y13 |
|---|---|---|---|---|---|---|---|---|---|
| 1.30 | 4.68 | 1.00 | 0.98 | 0.00 | 0.00 | 2.00 | 0.79 | 2.00 | 4.10 |
| 0.20 | 2.78 | 0.00 | 0.00 | 1.00 | 1.78 | 2.00 | 0.79 | 0.00 | 0.00 |
| 1.34 | 3.28 | 1.00 | 0.98 | 0.00 | 0.00 | 2.00 | 0.79 | 0.00 | 0.00 |
| 1.95 | 4.22 | 1.00 | 0.98 | 0.00 | 0.00 | 5.00 | 1.97 | 0.00 | 0.00 |
| 0.24 | 2.57 | 1.00 | 0.98 | 1.00 | 1.78 | 2.00 | 0.79 | 0.00 | 0.00 |
| 2.53 | 5.96 | 1.00 | 0.98 | 0.00 | 0.00 | 4.00 | 1.58 | 2.00 | 4.10 |
| 1.28 | 5.27 | 1.00 | 0.98 | 1.00 | 1.78 | 2.00 | 0.79 | 2.00 | 4.10 |
| 2.04 | 3.62 | 1.00 | 0.98 | 1.00 | 1.78 | 2.00 | 0.79 | 2.00 | 4.10 |
| 1.14 | 3.44 | 1.00 | 0.98 | 1.00 | 1.78 | 2.00 | 0.79 | 0.00 | 0.00 |
| 1.10 | 3.89 | 1.00 | 0.98 | 0.00 | 0.00 | 3.00 | 1.18 | 0.00 | 0.00 |
| 1.77 | 4.31 | 1.00 | 0.98 | 1.00 | 1.78 | 4.00 | 1.58 | 2.00 | 4.10 |
| 1.03 | 3.14 | 1.00 | 0.98 | 1.00 | 1.78 | 3.00 | 1.18 | 0.00 | 0.00 |
| 0.50 | 2.95 | 1.00 | 0.98 | 1.00 | 1.78 | 2.00 | 0.79 | 2.00 | 4.10 |
| 0.30 | 2.52 | 1.00 | 0.98 | 1.00 | 1.78 | 2.00 | 0.79 | 0.00 | 0.00 |
| 1.02 | 9.06 | 1.00 | 0.98 | 0.00 | 0.00 | 2.00 | 0.79 | 0.00 | 0.00 |
| 0.90 | 6.81 | 1.00 | 0.98 | 0.00 | 0.00 | 2.00 | 0.79 | 0.00 | 0.00 |
| 2.03 | 4.79 | 2.00 | 1.95 | 1.00 | 1.78 | 4.00 | 1.58 | 2.00 | 4.10 |
| 0.66 | 7.33 | 2.00 | 1.95 | 1.00 | 1.78 | 3.00 | 1.18 | 0.00 | 0.00 |
| 1.20 | 5.09 | 1.00 | 0.98 | 0.00 | 0.00 | 2.00 | 0.79 | 0.00 | 0.00 |
| 0.53 | 13.21 | 1.00 | 0.98 | 0.00 | 0.00 | 2.00 | 0.79 | 0.00 | 0.00 |
| 0.67 | 4.02 | 1.00 | 0.98 | 1.00 | 1.78 | 2.00 | 0.79 | 0.00 | 0.00 |
| 0.60 | 4.21 | 1.00 | 0.98 | 1.00 | 1.78 | 2.00 | 0.79 | 0.00 | 0.00 |
| 0.34 | 2.46 | 0.00 | 0.00 | 1.00 | 1.78 | 2.00 | 0.79 | 0.00 | 0.00 |
| 0.44 | 3.24 | 1.00 | 0.98 | 1.00 | 1.78 | 2.00 | 0.79 | 0.00 | 0.00 |
| 0.22 | 4.74 | 1.00 | 0.98 | 1.00 | 1.78 | 2.00 | 0.79 | 0.00 | 0.00 |
| 0.08 | 5.36 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.79 | 0.00 | 0.00 |
| 0.53 | 5.86 | 1.00 | 0.98 | 0.00 | 0.00 | 2.00 | 0.79 | 0.00 | 0.00 |
| 0.79 | 7.71 | 2.00 | 1.95 | 0.00 | 0.00 | 2.00 | 0.79 | 4.00 | 8.20 |
| 0.87 | 3.18 | 1.00 | 0.98 | 0.00 | 0.00 | 2.00 | 0.79 | 0.00 | 0.00 |
| 0.13 | 9.16 | 1.00 | 0.98 | 1.00 | 1.78 | 2.00 | 0.79 | 0.00 | 0.00 |
| 0.52 | 9.21 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.79 | 0.00 | 0.00 |
| 1.35 | 3.47 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.79 | 0.00 | 0.00 |
| 0.46 | 4.37 | 1.00 | 0.98 | 1.00 | 1.78 | 2.00 | 0.79 | 0.00 | 0.00 |
| 2.29 | 8.18 | 2.00 | 1.95 | 0.00 | 0.00 | 4.00 | 1.58 | 0.00 | 0.00 |
| 1.24 | 4.72 | 1.00 | 0.98 | 1.00 | 1.78 | 3.00 | 1.18 | 0.00 | 0.00 |
| 0.17 | 2.72 | 1.00 | 0.98 | 1.00 | 1.78 | 2.00 | 0.79 | 0.00 | 0.00 |
| 2.15 | 6.09 | 3.00 | 2.93 | 0.00 | 0.00 | 8.00 | 3.15 | 2.00 | 4.10 |
| 2.67 | 5.39 | 1.00 | 0.98 | 1.00 | 1.78 | 2.00 | 0.79 | 0.00 | 0.00 |
| 1.02 | 4.79 | 1.00 | 0.98 | 0.00 | 0.00 | 2.00 | 0.79 | 0.00 | 0.00 |
| 0.29 | 3.98 | 1.00 | 0.98 | 1.00 | 1.78 | 2.00 | 0.79 | 0.00 | 0.00 |
| 1.14 | 3.17 | 1.00 | 0.98 | 1.00 | 1.78 | 3.00 | 1.18 | 0.00 | 0.00 |
| | | 1.02 | | 0.56 | | 2.54 | | 0.49 | |
| | | 0.57 | | 0.50 | | 1.16 | | 0.98 | |

| Pucca Road | | Post Office | | Phone | | | | VILLAGE NAME |
|---|---|---|---|---|---|---|---|---|
| X14 | Y14 | X15 | Y15 | X16 | Y16 | C.I_I | C.I | |
| 1.00 | 2.28 | 0.00 | 0.00 | 0.00 | 0.00 | 8.14 | 16.93 | Netuwa |
| 1.00 | 2.28 | 0.00 | 0.00 | 0.00 | 0.00 | 4.85 | 11.84 | Fattepur |
| 1.00 | 2.28 | 0.00 | 0.00 | 0.00 | 0.00 | 4.04 | 11.05 | Sarrya |
| 1.00 | 2.28 | 1.00 | 10.25 | 0.00 | 0.00 | 15.48 | 24.31 | Sahijani |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.55 | 9.41 | Debara Khurd |
| 1.00 | 2.28 | 1.00 | 10.25 | 1.00 | 41.00 | 60.18 | 71.28 | Magarwara |
| 1.00 | 2.28 | 0.00 | 0.00 | 0.00 | 0.00 | 9.93 | 19.93 | Khowajipur |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7.65 | 14.55 | Akrampur |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.55 | 9.89 | Bajidpur Urf Rajepur |
| 1.00 | 2.28 | 0.00 | 0.00 | 0.00 | 0.00 | 4.44 | 11.12 | Tikar Garhi |
| 1.00 | 2.28 | 0.00 | 0.00 | 0.00 | 0.00 | 10.71 | 19.18 | Jhanjhari |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.94 | 10.48 | Murtaza Nagar |
| 1.00 | 2.28 | 0.00 | 0.00 | 0.00 | 0.00 | 9.93 | 16.95 | Sonik |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.55 | 10.54 | Algangarh |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.76 | 16.18 | Bichpari |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.76 | 12.65 | Jagdishpur |
| 1.00 | 2.28 | 0.00 | 0.00 | 0.00 | 0.00 | 11.69 | 22.06 | Ajgain |
| 1.00 | 2.28 | 1.00 | 10.25 | 0.00 | 0.00 | 17.45 | 28.31 | Kasambhi |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.76 | 10.73 | Kunjpur |
| 1.00 | 2.28 | 0.00 | 0.00 | 0.00 | 0.00 | 4.04 | 20.74 | Gaura Katherwa |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.55 | 11.27 | Mallaon |
| 1.00 | 2.28 | 0.00 | 0.00 | 0.00 | 0.00 | 5.83 | 14.48 | Baruwa |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.57 | 9.52 | Khawajgipur |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.55 | 9.65 | Amretha |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.55 | 11.73 | Parsandan |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.79 | 10.10 | Makdumpur |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.76 | 11.70 | Kusheri |
| 1.00 | 2.28 | 1.00 | 10.25 | 0.00 | 0.00 | 23.47 | 35.14 | Asa Khera |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.76 | 9.74 | Rasulpur |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.55 | 15.98 | Mirzapur |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.79 | 14.80 | Lalpur |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.79 | 7.49 | Mariya Mau |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.55 | 12.07 | Bajehra |
| 1.00 | 2.28 | 0.00 | 0.00 | 0.00 | 0.00 | 5.81 | 18.00 | Bani |
| 1.00 | 2.28 | 0.00 | 0.00 | 0.00 | 0.00 | 6.22 | 15.45 | Sarai Sahazadi |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.55 | 10.05 | Khandedeo |
| 1.00 | 2.28 | 0.00 | 0.00 | 0.00 | 0.00 | 12.46 | 23.69 | Banthra Sikanderpur |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.55 | 14.75 | Miranpur Pinwat |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.76 | 10.08 | Gauri |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.55 | 10.44 | Farrukhabad |
| 1.00 | 2.28 | 0.00 | 0.00 | 0.00 | 0.00 | 6.22 | 11.75 | Bahsa |
| 0.44 | | 0.10 | | 0.02 | | | | MEAN |
| 0.50 | | 0.30 | | 0.16 | | | | S.D |

C.I_D – Composite Index for the demographic variables
C.I_W – Composite Index for the workforce participation
C.I_I – Composite Index for the infrastructural facilities
C.I. - Composite Score for the above mentioned composite indexes

Appendix-VII

COMPOSITE INDEXES AND SCORE FOR THE VILLAGES ALONG THE GHAZIABAD-MEERUT AXIS - 1971

| Villages(1971) | Density | | Sex_Ratio | | T_LITT | | SC | | | | T_WOR | | F_WOR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | X1 | Y1 | X2 | Y2 | X3 | Y3 | X4 | Y4 | C.I_D | | X5 | Y5 | X6 |
| Amirnagar urf Bhudbaral | 1129.39 | 1.87 | 842.74 | 1.11 | 28.66 | 0.94 | 28.66 | 0.94 | 4.87 | 25.44 | 0.80 | 0.39 | |
| Asalatnagar | 274.19 | 0.45 | 871.07 | 1.15 | 27.06 | 0.89 | 27.06 | 0.89 | 3.38 | 21.68 | 0.69 | 0.00 | |
| Baral Partapur | 466.58 | 0.77 | 846.24 | 1.12 | 21.43 | 0.71 | 21.43 | 0.71 | 3.30 | 27.08 | 0.86 | 0.86 | |
| Basantpur Sainthly | 597.14 | 0.99 | 787.22 | 1.04 | 35.28 | 1.16 | 35.28 | 1.16 | 4.35 | 30.79 | 0.97 | 7.22 | |
| Daulatpur F.K.G | 322.37 | 0.53 | 767.69 | 1.01 | 20.95 | 0.69 | 20.95 | 0.69 | 2.93 | 26.68 | 0.84 | 1.25 | |
| Dhargal | 79.84 | 0.13 | 95.74 | 0.13 | 65.05 | 2.14 | 65.05 | 2.14 | 4.54 | 90.29 | 2.86 | 0.00 | |
| Hafizabad Moda | 256.20 | 0.42 | 666.67 | 0.88 | 42.58 | 1.40 | 42.58 | 1.40 | 4.11 | 31.94 | 1.01 | 0.00 | |
| Industrial Estate Paratpur | 652.94 | 1.08 | 144.33 | 0.19 | 57.66 | 1.90 | 57.66 | 1.90 | 5.07 | 78.38 | 2.48 | 0.00 | |
| Jalalpur | 867.82 | 1.44 | 814.24 | 1.07 | 22.45 | 0.74 | 22.45 | 0.74 | 3.99 | 26.56 | 0.84 | 1.43 | |
| Kazampur | 308.46 | 0.51 | 818.18 | 1.08 | 24.68 | 0.81 | 24.68 | 0.81 | 3.22 | 26.29 | 0.83 | 1.84 | |
| Kunda | 355.26 | 0.59 | 906.43 | 1.19 | 24.89 | 0.82 | 24.89 | 0.82 | 3.42 | 25.63 | 0.81 | 0.00 | |
| Makarmatpur Sikhroad | 1046.79 | 1.74 | 819.78 | 1.08 | 32.87 | 1.08 | 32.87 | 1.08 | 4.98 | 26.47 | 0.84 | 0.00 | |
| Meerut Abadi Janglat | 840.02 | 1.39 | 814.89 | 1.07 | 23.70 | 0.78 | 23.70 | 0.78 | 4.03 | 29.97 | 0.95 | 5.23 | |
| Mohiuddinpur | 241.18 | 0.40 | 835.82 | 1.10 | 33.06 | 1.09 | 33.06 | 1.09 | 3.68 | 23.58 | 0.75 | 3.45 | |
| Mohiuddinpur | 1031.46 | 1.71 | 657.99 | 0.87 | 37.60 | 1.24 | 37.60 | 1.24 | 5.05 | 32.04 | 1.01 | 0.72 | |
| Mohiuddinpur Dheda | 1747.42 | 2.90 | 793.65 | 1.05 | 46.55 | 1.53 | 46.55 | 1.53 | 7.01 | 24.90 | 0.79 | 1.66 | |
| Mohiuddinpur Hisali | 320.00 | 0.53 | 894.74 | 1.18 | 37.38 | 1.23 | 37.38 | 1.23 | 4.17 | 24.88 | 0.79 | 0.00 | |
| Mokkampur | 460.10 | 0.76 | 826.34 | 1.09 | 18.29 | 0.60 | 18.29 | 0.60 | 3.06 | 27.06 | 0.86 | 0.39 | |
| Morta | 604.38 | 1.00 | 859.83 | 1.13 | 30.94 | 1.02 | 30.94 | 1.02 | 4.17 | 25.66 | 0.81 | 0.77 | |
| Qadrabad | 429.79 | 0.71 | 797.40 | 1.05 | 23.87 | 0.79 | 23.87 | 0.79 | 3.34 | 25.50 | 0.81 | 0.47 | |
| Rithani | 416.72 | 0.69 | 791.64 | 1.04 | 24.04 | 0.79 | 24.04 | 0.79 | 3.32 | 28.58 | 0.90 | 0.43 | |
| Sadabad Jakhewa | 263.50 | 0.44 | 774.41 | 1.02 | 1.52 | 0.05 | 1.52 | 0.05 | 1.56 | 33.02 | 1.04 | 0.57 | |
| Sikri Kalan | 808.39 | 1.34 | 803.14 | 1.06 | 26.53 | 0.87 | 26.53 | 0.87 | 4.15 | 27.15 | 0.86 | 4.74 | |
| Sikri Khurd | 665.71 | 1.10 | 855.52 | 1.13 | 21.70 | 0.71 | 21.70 | 0.71 | 3.66 | 27.31 | 0.86 | 8.42 | |
| Ukhlarsi | 878.43 | 1.46 | 811.93 | 1.07 | 32.53 | 1.07 | 32.53 | 1.07 | 4.67 | 31.14 | 0.99 | 5.38 | |
| Yusufpur Munota | 486.25 | 0.81 | 772.21 | 1.02 | 30.85 | 1.02 | 30.85 | 1.02 | 3.86 | 27.51 | 0.87 | 0.00 | |
| MEAN | 602.92 | | 758.82 | | 30.37 | | 30.37 | | | 31.61 | | 1.86 | |
| S.D | 361.96 | | 192.19 | | 12.42 | | 12.42 | | | 15.52 | | 2.46 | |

| | AG_WOR | | HH_WOR | | Nag_wor | | | ELECT. | | MED. FAC | | MKT. | | PR.SCH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Y6 | X7 | Y7 | X8 | Y8 | X9 | Y9 | C.I_W | X10 | Y10 | X11 | Y11 | X12 | Y12 | X13 |
| 0.21 | 35.57 | 0.91 | 5.95 | 0.97 | 58.47 | 1.06 | 3.97 | 0 | 0.00 | 1 | 0.72 | 3 | 1.54 | 2 |
| 0.00 | 44.96 | 1.15 | 6.98 | 1.14 | 48.06 | 0.88 | 3.86 | 0 | 0.00 | 1 | 0.72 | 2 | 1.03 | 1 |
| 0.46 | 33.33 | 0.86 | 6.88 | 1.13 | 59.78 | 1.09 | 4.39 | 1 | 2.25 | 3 | 2.16 | 2 | 1.03 | 0 |
| 3.88 | 44.19 | 1.13 | 2.27 | 0.37 | 53.54 | 0.97 | 7.34 | 0 | 0.00 | 1 | 0.72 | 2 | 1.03 | 2 |
| 0.67 | 80.25 | 2.06 | 2.50 | 0.41 | 17.25 | 0.31 | 4.30 | 0 | 0.00 | 4 | 2.88 | 2 | 1.03 | 1 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 1.82 | 4.68 | 1 | 0.00 | 1 | 0.00 | 1 | 0.00 | 2 |
| 0.00 | 37.37 | 0.96 | 1.01 | 0.17 | 61.62 | 1.12 | 3.26 | 1 | 0.00 | 1 | 0.00 | 2 | 0.00 | 1 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 1.82 | 4.30 | 1 | 0.00 | 1 | 0.00 | 2 | 0.00 | 0 |
| 0.77 | 50.89 | 1.31 | 8.99 | 1.47 | 40.12 | 0.73 | 5.12 | 1 | 2.25 | 1 | 0.72 | 2 | 1.03 | 2 |
| 0.99 | 74.85 | 1.92 | 0.00 | 0.00 | 25.15 | 0.46 | 4.20 | 0 | 0.00 | 1 | 0.72 | 2 | 1.03 | 0 |
| 0.00 | 55.49 | 1.42 | 1.73 | 0.28 | 42.77 | 0.78 | 3.30 | 1 | 2.25 | 3 | 2.16 | 2 | 1.03 | 1 |
| 0.00 | 47.35 | 1.22 | 2.98 | 0.49 | 49.67 | 0.90 | 3.44 | 0 | 0.00 | 1 | 0.72 | 2 | 1.03 | 1 |
| 2.81 | 31.90 | 0.82 | 23.86 | 3.91 | 44.24 | 0.81 | 9.29 | 1 | 0.00 | 2 | 0.00 | 2 | 0.00 | 0 |
| 1.85 | 59.77 | 1.53 | 2.30 | 0.38 | 37.93 | 0.69 | 5.20 | 1 | 0.00 | 1 | 0.00 | 3 | 0.00 | 2 |
| 0.39 | 14.23 | 0.37 | 5.75 | 0.94 | 80.02 | 1.46 | 4.16 | 1 | 2.25 | 1 | 0.72 | 2 | 1.03 | 1 |
| 0.89 | 19.19 | 0.49 | 8.77 | 1.43 | 72.04 | 1.31 | 4.92 | 0 | 0.00 | 1 | 0.72 | 2 | 1.03 | 0 |
| 0.00 | 47.44 | 1.22 | 5.12 | 0.84 | 47.44 | 0.86 | 3.71 | 0 | 0.00 | 1 | 0.72 | 1 | 0.51 | 1 |
| 0.21 | 73.75 | 1.89 | 5.41 | 0.88 | 20.85 | 0.38 | 4.22 | 1 | 0.00 | 1 | 0.00 | 2 | 0.00 | 1 |
| 0.41 | 46.40 | 1.19 | 7.19 | 1.18 | 46.40 | 0.84 | 4.44 | 1 | 2.25 | 1 | 0.72 | 1 | 0.51 | 1 |
| 0.25 | 33.81 | 0.87 | 30.02 | 4.91 | 36.17 | 0.66 | 7.50 | 1 | 2.25 | 1 | 0.72 | 2 | 1.03 | 1 |
| 0.23 | 51.58 | 1.32 | 3.15 | 0.52 | 45.27 | 0.82 | 3.80 | 1 | 0.00 | 2 | 0.00 | 2 | 0.00 | 2 |
| 0.31 | 0.00 | 0.00 | 0.57 | 0.09 | 99.43 | 1.81 | 3.26 | 1 | 0.00 | 0 | 0.00 | 1 | 0.00 | 1 |
| 2.55 | 35.93 | 0.92 | 6.57 | 1.08 | 57.49 | 1.05 | 6.45 | 1 | 2.25 | 1 | 0.72 | 2 | 1.03 | 1 |
| 4.53 | 38.95 | 1.00 | 5.61 | 0.92 | 55.44 | 1.01 | 8.32 | 1 | 2.25 | 1 | 0.72 | 2 | 1.03 | 1 |
| 2.89 | 13.26 | 0.34 | 7.89 | 1.29 | 78.85 | 1.44 | 6.94 | 1 | 0.00 | 0 | 0.00 | 1 | 0.00 | 1 |
| 0.00 | 40.19 | 1.03 | 2.80 | 0.46 | 57.01 | 1.04 | 3.40 | 0 | 0.00 | 1 | 0.72 | 2 | 1.03 | 0 |
| | 38.97 | | 6.11 | | 54.92 | | | 0.44 | | 1.39 | | 1.94 | | 0.94 |
| | 21.33 | | 6.77 | | 21.99 | | | 0.51 | | 0.92 | | 0.42 | | 0.64 |

| Y13 | PUC. RD. X14 | Y14 | PO X15 | Y15 | PHONE X16 | Y16 | C.I_I | C.I |
|---|---|---|---|---|---|---|---|---|
| 2.12 | 1 | 1.50 | 0 | 0 | 0 | 0 | 5.67 | 14.51 |
| 1.06 | 0 | 0.00 | 0 | 0 | 0 | 0 | 2.85 | 10.09 |
| 0.00 | 1 | 1.50 | 0 | 0 | 0 | 0 | 6.32 | 14.01 |
| 2.12 | 1 | 1.50 | 0 | 0 | 0 | 0 | 5.14 | 16.83 |
| 1.06 | 1 | 1.50 | 1 | 9 | 1 | 18 | 15.52 | 22.75 |
| 0.00 | 1 | 0.00 | 0 | 0 | 0 | 0 | 6.20 | 15.42 |
| 0 | 1 | 0.00 | 0 | 0 | 0 | 0 | 5.73 | 13.09 |
| 0.00 | 1 | 0.00 | 1 | 0 | 1 | 0 | 13.73 | 23.10 |
| 2.12 | 1 | 1.50 | 0 | 0 | 0 | 0 | 6.73 | 15.84 |
| 0.00 | 0 | 0.00 | 0 | 0 | 0 | 0 | 1.85 | 9.27 |
| 1.06 | 1 | 1.50 | 0 | 0 | 0 | 0 | 7.32 | 14.04 |
| 1.06 | 0 | 0.00 | 0 | 0 | 0 | 0 | 2.85 | 11.28 |
| 0 | 1 | 0.00 | 0 | 0 | 1 | 0 | 10.02 | 23.34 |
| 0.00 | 1 | 0.00 | 1 | 0 | 1 | 0 | 16.26 | 25.14 |
| 1.06 | 1 | 1.50 | 0 | 0 | 0 | 0 | 5.73 | 14.95 |
| 0.00 | 1 | 1.50 | 0 | 0 | 0 | 0 | 3.14 | 15.07 |
| 1.06 | 0 | 0.00 | 0 | 0 | 0 | 0 | 2.32 | 10.20 |
| 0 | 1 | 0.00 | 1 | 0 | 1 | 0 | 14.73 | 22.00 |
| 1.06 | 1 | 1.50 | 1 | 9 | 0 | 0 | 9.70 | 18.31 |
| 1.06 | 1 | 1.50 | 0 | 0 | 0 | 0 | 5.73 | 16.56 |
| 0 | 1 | 0.00 | 1 | 0 | 1 | 0 | 16.52 | 23.64 |
| 0.00 | 1 | 0.00 | 0 | 0 | 0 | 0 | 4.40 | 9.22 |
| 1.06 | 1 | 1.50 | 0 | 0 | 0 | 0 | 5.73 | 16.33 |
| 1.06 | 1 | 1.50 | 0 | 0 | 0 | 0 | 5.73 | 17.71 |
| 0.00 | 1 | 0.00 | 0 | 0 | 0 | 0 | 4.40 | 16.02 |
| 0.00 | 0 | 0.00 | 0 | 0 | 0 | 0 | 1.85 | 9.11 |
|  | 0.67 |  | 0.11 |  | 0.06 |  |  |  |
|  | 0.49 |  | 0.32 |  | 0.24 |  |  |  |

Appendix-VIII

COMPOSITE INDEXES AND SCORE FOR THE VILLAGES

ALONG THE GHAZIABAD-MEERUT AXIS - 1991

| VILLAGE NAME(1991) | DENSITY | | SEX_RATIO | | SC | | LITT | | | T_WORKER | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | X1 | Y1 | X2 | Y2 | X3 | Y3 | X4 | Y4 | C.I_D | X5 | Y5 |
| Makarmatpur Sikrod | 4481 | 1.27 | 833 | 0.99 | 19.0 | 0.69 | 51.27 | 1.07 | 4.02 | 22.8 | 0.86 |
| Morta | 2045 | 0.58 | 891 | 1.06 | 31.4 | 1.13 | 50.51 | 1.05 | 3.82 | 25.1 | 0.95 |
| Basantpur Saithli | 2701 | 0.77 | 789 | 0.94 | 20.2 | 0.73 | 49.43 | 1.03 | 3.46 | 27.2 | 1.03 |
| Asalat Nagar | 962 | 0.27 | 863 | 1.03 | 30.9 | 1.11 | 48.35 | 1.01 | 3.42 | 24.9 | 0.94 |
| Mohammadpur Dhedha | 4615 | 1.31 | 838 | 1.00 | 24.8 | 0.89 | 59.46 | 1.24 | 4.44 | 24.4 | 0.92 |
| Muhidinpur Hisali | 1204 | 0.34 | 869 | 1.03 | 20.7 | 0.74 | 53.81 | 1.12 | 3.24 | 28.0 | 1.05 |
| Jalalpur | 1615 | 0.46 | 828 | 0.98 | 81.9 | 2.95 | 58.61 | 1.22 | 5.61 | 25.0 | 0.94 |
| Abupur | 2419 | 0.69 | 861 | 1.02 | 21.3 | 0.76 | 41.92 | 0.87 | 3.35 | 25.4 | 0.96 |
| Yusufpur Manota | 1624 | 0.46 | 790 | 0.94 | 12.2 | 0.44 | 51.33 | 1.07 | 2.91 | 28.0 | 1.06 |
| Kajampur | 1570 | 0.45 | 972 | 1.16 | 16.5 | 0.59 | 59.49 | 1.24 | 3.43 | 28.3 | 1.06 |
| Sikri Kalan | 3268 | 0.93 | 863 | 1.03 | 22.1 | 0.80 | 48.41 | 1.01 | 3.76 | 23.9 | 0.90 |
| Sikri Khurd | 3041 | 0.87 | 848 | 1.01 | 33.1 | 1.19 | 47.13 | 0.98 | 4.04 | 24.4 | 0.92 |
| Kadarabad | 2094 | 0.60 | 814 | 0.97 | 44.7 | 1.61 | 42.31 | 0.88 | 4.05 | 27.6 | 1.04 |
| Daulatpur Fakhrabad Urf Kayast | 1317 | 0.37 | 815 | 0.97 | 43.2 | 1.55 | 44.81 | 0.93 | 3.83 | 31.4 | 1.18 |
| Mohiuddinpur | 3318 | 0.94 | 770 | 0.91 | 29.9 | 1.08 | 45.11 | 0.94 | 3.87 | 28.3 | 1.06 |
| Aminagar Urf Bhud Baral | 4397 | 1.25 | 886 | 1.05 | 19.5 | 0.70 | 39.18 | 0.82 | 3.82 | 24.8 | 0.93 |
| Partapur | 21123 | 6.01 | 864 | 1.03 | 22.2 | 0.80 | 36.71 | 0.76 | 8.60 | 26.7 | 1.00 |
| Kunda | 1477 | 0.42 | 757 | 0.90 | 6.9 | 0.25 | 36.04 | 0.75 | 2.32 | 31.8 | 1.20 |
| MEAN | 3515.14 | | 841.59 | | 27.80 | | 47.99 | | | 26.56 | |
| S.D | 4544.91 | | 50.68 | | 16.60 | | 7.18 | | | 2.47 | |

| F_WORK | | AGWOR | | HHWOR | | NAGWOR | | | ELECT | | MED_FAC | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X6 | Y6 | X7 | Y7 | X8 | Y8 | X9 | Y9 | C.I_W | X10 | Y10 | X11 | Y11 |
| 0.4 | 0.14 | 32.5 | 0.75 | 0 | 0.00 | 67.63 | 1.20 | 2.95 | 1 | 1.00 | 1 | 0.72 |
| 4.1 | 1.33 | 59.8 | 1.38 | 0.07 | 0.04 | 42.57 | 0.75 | 4.45 | 1 | 1.00 | 1 | 0.72 |
| 2.1 | 0.70 | 32.4 | 0.75 | 2.30 | 1.40 | 66.09 | 1.17 | 5.04 | 1 | 1.00 | 1 | 0.72 |
| 5.2 | 1.70 | 32.5 | 0.75 | 6.50 | 3.96 | 63.03 | 1.12 | 8.47 | 1 | 1.00 | 1 | 0.72 |
| 4.0 | 1.30 | 15.1 | 0.35 | 1.38 | 0.84 | 84.13 | 1.49 | 4.89 | 1 | 1.00 | 1 | 0.72 |
| 0.0 | 0.00 | 27.5 | 0.63 | 0.00 | 0.00 | 72.51 | 1.29 | 2.97 | 1 | 1.00 | 1 | 0.72 |
| 3.0 | 0.96 | 22.6 | 0.52 | 0.00 | 0.00 | 78.06 | 1.38 | 3.81 | 1 | 1.00 | 1 | 0.72 |
| 4.8 | 1.58 | 54.3 | 1.25 | 0.33 | 0.20 | 48.06 | 0.85 | 4.84 | 1 | 1.00 | 1 | 0.72 |
| 1.0 | 0.33 | 44.7 | 1.03 | 1.02 | 0.62 | 54.73 | 0.97 | 4.01 | 1 | 1.00 | 1 | 0.72 |
| 0.4 | 0.12 | 77.4 | 1.78 | 1.43 | 0.87 | 21.43 | 0.38 | 4.22 | 1 | 1.00 | 1 | 0.72 |
| 4.8 | 1.56 | 26.0 | 0.60 | 4.13 | 2.52 | 71.31 | 1.26 | 6.84 | 1 | 1.00 | 1 | 0.72 |
| 1.5 | 0.50 | 28.0 | 0.64 | 0.39 | 0.24 | 72.06 | 1.28 | 3.58 | 1 | 1.00 | 1 | 0.72 |
| 2.8 | 0.93 | 40.5 | 0.93 | 0.89 | 0.54 | 59.78 | 1.06 | 4.51 | 1 | 1.00 | 1 | 0.72 |
| 8.1 | 2.66 | 64.5 | 1.48 | 2.95 | 1.80 | 38.06 | 0.68 | 7.80 | 1 | 1.00 | 4 | 2.88 |
| 1.1 | 0.35 | 20.1 | 0.46 | 2.35 | 1.43 | 77.80 | 1.38 | 4.69 | 1 | 1.00 | 1 | 0.72 |
| 4.6 | 1.51 | 26.6 | 0.61 | 5.15 | 3.14 | 69.71 | 1.24 | 7.43 | 1 | 1.00 | 1 | 0.72 |
| 7.1 | 2.32 | 84.2 | 1.94 | 0.64 | 0.39 | 21.21 | 0.38 | 6.03 | 1 | 1.00 | 3 | 2.16 |
| 0.0 | 0.00 | 93.1 | 2.14 | 0.00 | 0.00 | 6.85 | 0.12 | 3.46 | 1 | 1.00 | 3 | 2.16 |
| 3.06 | | 43.43 | | 1.64 | | 56.39 | | | 1.00 | | 1.39 | |
| 2.44 | | 23.44 | | 1.93 | | 22.22 | | | 0.00 | | 0.92 | |

| MKT | | P_SCH | | PUC_RD | | PO | | PHONE | | | | VILLAGE NAME(1991) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X12 | Y12 | X13 | Y13 | X14 | Y14 | X15 | Y15 | X16 | Y16 | C.I_I | C.I | |
| 2 | 1.03 | 1 | 1.00 | 1 | 1.00 | 0 | 0.00 | 2 | 1.06 | 5.81 | 12.78 | Makarmatpur Sikrod |
| 1 | 0.51 | 1 | 1.00 | 1 | 1.00 | 1 | 2.57 | 2 | 1.06 | 7.86 | 16.14 | Morta |
| 2 | 1.03 | 1 | 1.00 | 1 | 1.00 | 1 | 2.57 | 2 | 1.06 | 8.38 | 16.88 | Basantpur Saithli |
| 2 | 1.03 | 1 | 1.00 | 1 | 1.00 | 0 | 0.00 | 2 | 1.06 | 5.81 | 17.69 | Asalat Nagar |
| 1 | 0.51 | 1 | 1.00 | 1 | 1.00 | 0 | 0.00 | 2 | 1.06 | 5.29 | 14.63 | Mohammadpur Dhedha |
| 2 | 1.03 | 1 | 1.00 | 1 | 1.00 | 0 | 0.00 | 2 | 1.06 | 5.81 | 12.02 | Muhidinpur Hisali |
| 2 | 1.03 | 1 | 1.00 | 1 | 1.00 | 0 | 0.00 | 2 | 1.06 | 5.81 | 15.23 | Jalalpur |
| 2 | 1.03 | 1 | 1.00 | 1 | 1.00 | 1 | 2.57 | 2 | 1.06 | 8.38 | 16.57 | Abupur |
| 2 | 1.03 | 1 | 1.00 | 1 | 1.00 | 0 | 0.00 | 2 | 1.06 | 5.81 | 12.73 | Yusufpur Manota |
| 2 | 1.03 | 1 | 1.00 | 1 | 1.00 | 0 | 0.00 | 2 | 1.06 | 5.81 | 13.46 | Kajampur |
| 2 | 1.03 | 1 | 1.00 | 1 | 1.00 | 1 | 2.57 | 2 | 1.06 | 8.38 | 18.98 | Sikri Kalan |
| 2 | 1.03 | 1 | 1.00 | 1 | 1.00 | 1 | 2.57 | 2 | 1.06 | 8.38 | 16.00 | Sikri Khurd |
| 2 | 1.03 | 1 | 1.00 | 1 | 1.00 | 0 | 0.00 | 2 | 1.06 | 5.81 | 14.37 | Kadarabad |
| 2 | 1.03 | 1 | 1.00 | 1 | 1.00 | 0 | 0.00 | 2 | 1.06 | 7.97 | 19.59 | Daulatpur Fakhrabad Urf Kayast |
| 2 | 1.03 | 1 | 1.00 | 1 | 1.00 | 1 | 2.57 | 1 | 0.53 | 7.85 | 16.41 | Mohiuddinpur |
| 3 | 1.54 | 1 | 1.00 | 1 | 1.00 | 1 | 2.57 | 1 | 0.53 | 8.36 | 19.62 | Aminagar Urf Bhud Baral |
| 2 | 1.03 | 1 | 1.00 | 1 | 1.00 | 0 | 0.00 | 2 | 1.06 | 7.25 | 21.88 | Partapur |
| 2 | 1.03 | 1 | 1.00 | 1 | 1.00 | 0 | 0.00 | 2 | 1.06 | 7.25 | 13.03 | Kunda |
| 1.94 | | 1.00 | | 1.00 | | 0.39 | | 1.89 | | | | MEAN |
| 0.42 | | 0.00 | | 0.00 | | 0.50 | | 0.32 | | | | S.D |

## QUESTIONAIRE FOR VILLAGERS

**DATE OF SURVEY** _____ **SURVEYED BY** _____.

1.Name of the respondent:

1.(a) . Village:
1.(b) .Tehsil / District:

2. Sex: (M-1; F-2)

2. (a) Marital Status:
2. (b) Caste:

3. Age:

4. Level of education

| Illiterate | Primary | Matric | Intermediate | Graduate | Others |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |

5. Family's size (if adult):

(a). Family Background:

| S.no. | R ship | M/F | Lof edu | occupation | Income | Place of Residence |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

6 No. Of dependent(s):

7.Whether local resident or migrant :

If migrant

(a) Year of migration

(b) State/District from which migrated:

(c). Reason(s) of migration:

(d). Year of purchase of land:

(e). Price per sq.km:

8. Present occupation:

9. Previous occupation (if any):

(a). Year of leaving the previous occupation:

(b). Reasons for leaving previous occupation:

10. Whether this is your full time or part time activity:

If part time , what is your other activity:

A. Agriculture

(i) Size of the holding:

(ii) Types of the crops grown: kharif / rabi

(iii) Intensity of crops: single / two crops /more than two crops

(iv) Production for: home consumption / local sale / sale in urban areas

B. Dairy / Rearing / Poultry farm

(i) Scale of operation:

(ii) Income per month:

(iii) Market place:

C. Handicrafts - Leather products / Chikan work / Cane work

(i) Scale of operation:

(ii) Income per month:

(iii) Market place

11. Establishment is rented or owned:

If rented, rent per month:

Why this place:

12.Land value: Today:

20 years before:

13. Monthly Income:

14. Job satisfaction:

# BIBLIOGRAPHY

***ARTICLES AND BOOKS***


- Acharya, S. (1996) 'Access and Returns to Education: Analysis for Maharashtra', *Journal of Educational Planning and Administration,* Vol. 10, No. 4, October 1996, pp. 383-396.
- Alonso, V. O. (2001) 'Large Metropolis in the Third World: An Explanation', *Urban Studies*, Vol. 38, No. 8, pp. 1359-1371.
- Badcock, B. (1997) 'Restructuring and Spatial Polarization in Cities', *Progress in Human Geography,* Vol. 21, No. 2, pp. 251-262.
- Berry, B. J. L. (1967) *'Geography of Urban Centres and Retail Distribution: The Urban Case'*, Englewood Cliffs, New York, pp.42-58.
- ..... (1976) 'The Counter-Urbanisation Process: Urban America since 1970', *Urban Affairs Annual Review*, Vol. 11, pp. 17-30.
- Bingham, R. D. and Zhang, Z. (1997) 'Poverty and Economic Morphology of Ohio Central-City Neighbourhoods', *Urban Affairs Review*, Vol. 32, No. 6, pp. 766-796.
- Braun, E., Vandenberg, L. and Van Winden, W. (2001) 'Growth Clusters in European Cities: An Integral Approach', *Urban Studies*, Vol. 38, No. 1, pp. 185-205.
- Butola, B. S. (1995) 'Urbanization and Under-development in the North-Eastern India', in Ganguly, J. B. (ed.) *Urbanization and Development in North-East India: Trends and Policy Implications*, Deep and Deep Publications, pp. 39-47.
- Carter, H. (1972) *'The Study of Urban Geography'*, Edward Arnold Publishers Ltd., London.
- Castells, M. (1977) *'The Urban Question: A Marxist Approach'*, Edward Arnold Publishers Ltd., Paris.
- Clark, D. (1996) *'Urban World / Global City'*, Routledge, London.
- Davis, K. (1962) 'Urbanisation in India – Past and Future', in Roy, T. (ed.) *India's Urban Future*, Oxford University Press, Bombay.
- Doxiadis, C. A. and Papaioannou, J. G. (1974) *'Ecumenopolis: The Inevitable City of the Future'*, W. W. Norton and Company Inc., New York.
- Dreze, J. and Gazdar, H. (1996) 'Uttar Pradesh: The Burden of Inertia', in Sen, A. and et al. (eds.) *Indian Development*, Popular Publishers, Bombay.

- Fazal, S. (2001) 'Land Re-organisation in Relation to Roads in an Indian City', *Landuse Policy*, Vol. 18, No. 2, pp. 191-199.
- Friedmann, J. (1966) '*Regional Development Policy: A case Study of Venezuela*', Cambridge.
- Friedmann, J. (2000) 'The Good City: In Defense of Utopian Thinking', *International Journal of Urban and Regional Research*, Vol. 24, No. 2, pp. 460-472.
- Geddes, P. (1915) *'Cities in Evolution'*, Oxford University Press, New York.
- Geyer, H. S. (1993) 'A Theoretical Foundation for the Concept of Differential Urbanisation', in Geyer, H. S. and et al. (eds.) *'Differential Urbanisation: Integrating Spatial Models'*, Arnold, New York, pp.290-308.
- Gilbert, A. (1993) 'Third World Cities: The Changing National Settlement System', *Urban Studies*, Vol. 30, No. 4/5, pp.721-740.
- Gilbert, A. and Gugler, J. (1982) '*Cities, Poverty and Development: Urbanization in the Third World*', Oxford University Press, New York.
- Hall, P. (1966) *'The World Cities'*, London University Press, London.
- Hall, T. and Hubbard, P. (1996) 'The Entrepreneurial City: New Urban Politics, New Urban Geographies', *Progress in Human Geography*, Vol. 20, No. 2, pp.153-174.
- Harvey, D. (1988) 'Urban Places in the 'Global Village': Reflections on the Urban Condition in Late Twentieth Century Capitalism,' in Mazza, L. (ed.) In *World cities and the Future of the Metropolis*, Milano, New York, pp. 21-33 .
- Hill, E. W. and Wolman, H .L. (1997) 'City-suburban Income Disparities and Metropolitan Area Employment: Can Tightening Labour Market Reduce the Gaps', *Urban Affairs Review*, Vol. 32, No. 4, pp. 558-582.
- Hiller, B., Greene, M. and Desyllas, J. (2000) Self Generated Neighbourhoods : The Role of Urban Form in the Consolidation of Informal Settlements', *Urban Design International,* Vol. 5., No. 2, pp. 61-96.
- Ishimizu, T. and Ishihara, H. (1980) 'The Distribution and Movement of the Population in Japan's Three Major Metropolitan Areas' in The Association of Japanese Geographers (eds.) *Geography of Japan*, Teikoku – Shoin Co. Ltd., Tokyo.
- Jain, A. K. (1990) '*The Making of a Metropolis: Planning and Growth of Delhi'*, National Book Organisation, New Delhi.

- Jakobson, L. and Prakash, V. (1971) 'Urbanisation and Urban Development: Proposals for an Integrated Policy Base' in Jakobson, L. and et al., (eds.) *'Urbanisation and National Development'*, Sage Publications, Beverly Hills, pp.15-38.
- Jimenez, E. (1995) Human and Physical Infrastructure: Public Investment and Pricing Policy in Developing Countries" in *Handbook of Development Economics*, Vol. 3, Elsevier Science, PP. 2774.
- Kundu. A. (1996) '*Measurement of Urban Processes'*, Oxford University Press, Delhi.
- Lampard, E. E. (1965) 'Historical Aspects of Urbanisation', in Hauser, P. M. and et al., (eds.) *'The Study of Urbanisation'*, Wiley Publications, London, pp. 519-554.
- Mandal, R. B. (1982) 'The Development of Conurbations in India: A Conceptual Framework', in Mandal, R.B. and et al., (eds.) *Urbanisation and Regional Development*, Concept Publishing House, New Delhi, pp. 257-272.
- Mazumdar, D.N. (1960) '*Social Contours of an Industrial City'*, Asia Publishing House, Bombay.
- Mingione, E. (1981) '*Social Conflict and the City*', Basil Blackwell, Oxford.
- Mishra, H. N. (1998) 'Lucknow: A City of Physical Growth and Cultural Decay' in Mishra, R. P. and et al., (eds.) *Million Cities of India – Growth Dynamics, Internal Structure, Quality of Life and Planning Perspectives*, Sustainable Development Foundation, New Delhi, pp. 501-515.
- Mori, H. (1998) 'Land Conversion at the Urban Fringe: a Comparative Study of Japan, Britain and Netherlands', *Urban Studies*, Vol. 35, No. 9, pp. 1541-1558.
- Mumford, L. (1946) *'The Highway and the City'*, Book print Limited, Surrey.
- Noh, T. and Gordon, D. H. (1974) '*Modern Japan: Land and Man*', Teikoku – Shoin Co Ltd., Tokyo.
- Oberai, A. S., Prasad, P. H. and Sardhana, M. G. (1989) '*Determinants and Consequences of Internal Migration in India: Studies in Bihar, Kerala and Uttar Pradesh'*, Oxford University Press, New Delhi.
- Prasad, L. (1985) '*The Growth of a Small Town: A Sociological Study of Ballia (Uttar Pradesh)*', Concept Publishing Company, New Delhi.
- Pacione, M. (2001) *'Urban Geography: A Global Perspective'*, Routledge, London.

- Peters, G. L. (1982) 'Third World Urbanisation: Toward the Year 2000' in Mandal, R.B. and et.al., (eds.) *'Urbanisation and Regional Development'*, Concept Publishing House, New Delhi, pp. 21-40.
- Prakash Rao, V. L. S. (1973) *'The Process of Urbanisation'*, Fulbright Newsletter, March 1973, pp. 10-14.
- Preston, V. and Lo, L. (2000) 'Asian Theme Malls in Suburban Toronto: Landuse Conflict in Richmond Hill', *Canadian Geographer*, Vol. 44, No. 2, pp. 182-190.
- Reissman L. (1964) *'The Urban Process'*, The Free Press of Glencoe, New York.
- Retherford, R. D. and Choe, M. K. (1993) *'Statistical Models for Causal Analysis'*, Wiley Inter Science, New York.
- Richardson, H. W. (1980) 'Polarisation Reversal in Developing Countries', in Geyer, H. S. and et. al., (eds.) *'Differential Urbanisation: Integrating Spatial Models'*, Arnold, New York, pp. 143-160.
- Robson, C. (1993) *'Real World Research: A Resource for Social Scientists and Practioners -- Researchers'*, Blackwell Publishers, Oxford.
- Roy, B. K. (1993) 'Urban Corridors in India : A Note on Thematic Mapping Approach', in Mohanty, B. (eds.) *Urbanisation in Developing Countries – Basic Services and Community Participation,* Institute of Social Science and Concept Publishing Co. Ltd., New Delhi, pp. 125-135.
- ..... (2000) 'About a Synthetic Model: In Indian Urbanisation (The Urban Corridors)', *Annals of the National Association of Geographers, India*, pp.96-101.
- Schwanen, T., Dieleman, F. M. and Dijst, M. (2001): Travel Behaviour in Dutch Mono-centric and Poli-centric Urban Systems, *Journal of Transport Geography,* Vol. 9, pp. 173-186.
- Singh, B. N. (1998) 'Kanpur: Growth Without Development', in Mishra, R. P. and et al., (eds.) *Million Cities of India – Growth Dynamics, Internal Structure, Quality of Life and Planning Perspectives*, Sustainable Development Foundation, New Delhi, pp. 456-474.
- Singh, K. P. (1998) 'Lucknow: Historical Roots of Medieval Culture' in Mishra, R. P. and et al., (eds.) *Million Cities of India – Growth Dynamics, Internal Structure, Quality of Life and Planning Perspectives*, Sustainable Development Foundation, New Delhi, pp. 492-500.
- Singh, S. N. (1982) 'Impact of Industrialisation on Urban Society: A Case Study of Kanpur.' in Mandal, R.B. and et al. (eds.) *'Urbanisation and Regional Development'*, Concept Publishing House, New Delhi, pp .413-426.

- ..... (1982) 'Measurement and Special Dispersion of Small Scale Industries at Metropolitan City Kanpur', in Mandal, R. B. and et al. (eds.) *'Urbanisation and Regional Development'*, Concept Publishing House, New Delhi, pp. 427-436.
- Sinha, B. L. (1982) 'Central Places as Growth Centres in the Mithila Plain: Part of the Middle Ganga Plain in North Bihar' in Mandal, R.B. and et al. (eds.) *'Urbanisation and Regional Development'*, Concept Publishing House, New Delhi, pp. 129-154.
- Soja, E. W. (2000) *'Postmetropolis: Critical Studies of Cities and Regions'*, Blackwell Publishers, London.
- Steinacker, A. (1998) 'Economic Restructuring of Cities, Suburbs and Non-metropolitan Areas, 1977-1992', *Urban Affairs Review*, Vol. 34, No. 2, pp. 212-240.
- Sudharshan, R. M. (1998) 'Where are We At?', *Seminar*, Vol. 464, April, pp.18-26.
- Tammaru, T. (2001) 'Suburban Growth and Suburbanization under Central Planning: The Case Study of Estonia', *Urban Studies*, Vol. 38, No. 8, pp. 1341-1357.
- Tewari, P. S. and Cummings, F. H. (1998) 'Kanpur: A Classic Case of Industrial Decay', in Mishra, R. P. and et al., (eds.) *Million Cities of India – Growth Dynamics, Internal Structure, Quality of Life and Planning Perspectives*, Sustainable Development Foundation, New Delhi, pp. 438-455.
- Tripathi, R. M. (1999) 'Urbanisation and Urban Hierarchy of Uttar Pradesh', *Geographical Review of India*, Vol. 6, No. 3, pp. 242-253.
- Verma, R. V. (1998) 'Kanpur: The Spatial Structure of an Industrial Metropolis', in Mishra, R. P. and et. al. (eds.) *Million Cities of India – Growth Dynamics, Internal Structure, Quality of Life and Planning Perspectives*, Sustainable Development Foundation, New Delhi, pp. 426-437.
- Wellisz, S.H. (1971) 'Economic Development and Urbanisation' in Jakobson, L. and et al., (eds.) *'Urbanisation and National Development'*, Sage Publications, Beverly Hills, pp.39-55.


***UNPUBLISHED PAPERS AND DOCUMENTS***


- Agarwala, A. N. (1967) *'A Design for the Integration of Hinterland with Metropolis in Kanpur Region'*, Prepared for the International Seminar on Urban and Industrial Growth of the Kanpur Region, IIT, Kanpur.

- Alam, M. (1967) *'Metropolitan Growth Trends and Regional Relationship'*, Prepared for the International Seminar on Urban and Industrial Growth of the Kanpur Region, IIT, Kanpur.
- Berry, B. J. L. (1967) *'Policy Implications of an Urban Location Model for the Kanpur Region'*, Prepared for the International Seminar on Urban and Industrial Growth of the Kanpur Region, IIT, Kanpur.
- Bose, A. (1967) *'Industrial and Urban Growth of Kanpur Region, Problems, Prospects and Policies'*, Prepared for the International Seminar on Urban and Industrial Growth of the Kanpur Region, IIT, Kanpur.
- Dosanjh, S. K. R. (1994) *'Study of the Industrial Development Along the Jalandhar – Ludhiana Corridor'*, Submitted to School if Planning and Architecture, New Delhi.
- Jain, T. (2000) *'Development Impact of the Proposed Ghaziabad – Meerut Expressway in NCR India'*, Submitted to School if Planning and Architecture, New Delhi.
- Kidwai, (nee Aziz) A. (1968) *'Study of the Functional Linkages between Lucknow and Kanpur'*, Submitted to Indian Institute of Technology, Kharagpur.
- Kidwai, A. H. (1993) *'Conceptualizing Mega-cities: Theoretical, Perspectives on Primate, Capital and Gateway Cities'*, Submitted to Indian Council of Social Science Research, New Delhi.
- ..... (1997) *'Theoretical Essays in Urban Research'*, Indian Council for Social Science Research, New Delhi.
- Prasad, K. (1967) *'Industrial Prospects of Kanpur Region'*, Prepared for the International Seminar on Urban and Industrial Growth of the Kanpur Region, IIT, Kanpur.
- Roy, R. (1967) *'Some Administrative Factors in Industrial Development in Uttar Pradesh'*, Prepared for the International Seminar on Urban and Industrial Growth of the Kanpur Region, IIT, Kanpur.
- Sharma, A. (1993) *'Impact of Corridor Development on Regional Settlement Pattern: a Case Study – Lucknow-Kanpur'*, Submitted to School of Planning and Architecture, New Delhi
- Sharma, Y. (1995) *'Impact of an Emerging Industrial Corridor on Adjoining Districts – Ambala-Yamunanagar-Saharanpur Corridor'*, Submitted to School if Planning and Architecture, New Delhi.

***CENSUS PUBLICATIONS (Registrar General, Government of India)***


- Census of India (1971) Series 2, Uttar Pradesh, Part X-A, District Census Handbook of Meerut - Primary Census Abstract.
- Census of India (1971) Series 2, Uttar Pradesh, Part X-A, District Census Handbook of Meerut - Town and Village Directory.
- Census of India (1971) Series 2, Uttar Pradesh, Part X-A, District Census Handbook of Lucknow- Primary Census Abstract.
- Census of India (1971) Series 2, Uttar Pradesh, Part X-A, District Census Handbook of Lucknow– Town and Village Directory.
- Census of India (1971) Series 2, Uttar Pradesh, Part X-A, District Census Handbook of Kanpur- Primary Census Abstract.
- Census of India (1971) Series 2, Uttar Pradesh, Part X-A, District Census Handbook of Kanpur -Town and Village Directory.
- Census of India (1971) Series 2, Uttar Pradesh, Part X-A, District Census Handbook of Unnao- Primary Census Abstract.
- Census of India (1971) Series 2, Uttar Pradesh, Part X-A, District Census Handbook of Unnao-Town and Village Directory.
- Census of India (1971) All India Town Directory
- Census of India (1981) All India Town Directory
- Census of India (1991) All India Town Directory
- Census of India (1991) Uttar Pradesh Town Directory
- Census of India (1991) Series 2, Uttar Pradesh, Part X-A, District Census Handbook of Meerut - Primary Census Abstract
- Census of India (1991) Series 2, Uttar Pradesh, Part X-A, District Census Handbook of Meerut - Town and Village Directory.
- Census of India (1991) Series 2, Uttar Pradesh, Part X-A, District Census Handbook of Ghaziabad - Primary Census Abstract
- Census of India (1991) Series 2, Uttar Pradesh, Part X-A, District Census Handbook of Ghaziabad - Town and Village Directory.

- Census of India (1991) Series 2, Uttar Pradesh, Part X-A, District Census Handbook of Lucknow - Primary Census Abstract
- Census of India (1991) Series 2, Uttar Pradesh, Part X-A, District Census Handbook of Lucknow - Town and Village Directory.
- Census of India (1991) Series 2, Uttar Pradesh, Part X-A, District Census Handbook of Unnao- Primary Census Abstract
- Census of India (1991) Series 2, Uttar Pradesh, Part X-A, District Census Handbook of Unnao-Town and Village Directory.
- Census of India (1991) Series 2, Uttar Pradesh, Part X-A, District Census Handbook of Kanpur - Primary Census Abstract
- Census of India (1991) Series 2, Uttar Pradesh, Part X-A, District Census Handbook of Kanpur - Town and Village Directory.
- Census of India (2001) Provisional Population Tables, India.


***OTHER GOVERNMENT PUBLICATIONS***


- Third Five Year Plan (1961-66).
- Report of the National Commission on Urbanisation, 1985.
- Meerut Gazetteer, Government of Uttar Pradesh, 1965.
- Kanpur Gazetteer, Government of Uttar Pradesh, 1965.
- Lucknow Gazetteer, Government of Uttar Pradesh, 1965.