CHAPTER – 1

INTRODUCTION

1.1. STATEMENT OF THE PROBLEM
Meerut city is the second largest urban centre in the National Capital Region and it represents the fast growing towns of India. It is the second most important small scale industrial centre of Uttar Pradesh. Emerging as a fast growing educational node of Northern India, Meerut is posing to take off as an important Metropolitan city. Nevertheless, it is experiencing a lot of pressure on the existing infrastructure and its built environment. Population density is very high in the core areas of the city. More than 200 unauthorised and unplanned colonies don’t provide required civic amenities to the inhabitants. City roads are encroached upon by commercial activities leading to chaotic situation. Power supply is erratic, Ground water quality and level are depleting, and quite a large part of city does not have sewer line. There is no sewage treatment plant, every day about 150 tonnes garbage remain uncollected and there is no management for the collected solid waste. Southern part between Hapur Road and Delhi Road is worst affected and is under constant stress, some of major road crossings in city are highly polluted and congested. As a whole all these factors affect the quality of urban environment adversely. It has every potentiality to get further accentuated if corrective measures are not taken.

The current concern with the quality of the urban environment is, to a large extent, a confluence to two sources of public ferment. The first represents a concern with the protection of the quality of the natural environment that is threatened by the size and density of human activities in urban area. Air pollution in the city is both an aesthetic insult and a health hazard. Polluted streams cause a loss of amenity by impairing recreational uses and by posing threats to human health and to other life forms. Solid wastes, the discards of
production and consumption processes in street, field, and stream provide an added urban environmental burden.

The second concern focuses on the quality of the goods and services, such as housing, transportation, and public services, flowing out of the man-made or built urban environment. The way we have organized the provision of services, occupied urban space, and laid out public facilities greatly affects the amenity value of the urban living environment. Frequent complaints of the lengthy journey to work, the inaccessibility to outdoors, and the failure to preserve open space and aesthetic aspects of the cityscape suggest that urban areas fail to achieve either functional efficiency or aesthetic appeal. In an affluent, high consumption society, these defects of the urban environment may be among the most exasperating in their consequences on the quality of urban life.

The widespread concern with environmental quality thus stems from the changing nature of both the natural and built environments and their interrelationships. For instance, the cleanliness of a city's streets depends upon the rate of discard of solid wastes and the thoroughness and frequency of their removal. Solid waste discard is a matter of damage imposed by an individual's consumption on others in the city area and is an issue of externalities. The collection and disposal of garbage is a matter of public service provision—the amount of sanitation funds budgeted and their effectiveness of application. The quality of sanitary services and environmental quality can thus be threatened from both sides: first, by increasing damages from activities that impose external costs, and second, by decreasing effectiveness of public sector activities devoted to improving urban environmental quality. To understand the quality of sanitation and its trends in a city one must consider both these elements. Urban environmental quality depends upon national urban factors.
1.2. OBJECTIVE OF THE STUDY

The objective of the study to analyse and investigate the followings;

I. Complexity of urban process in the reference to Meerut city: Through this study we check the pattern of growth & development of the Meerut city from the early nineteenth century to the Meerut city of today.

II. To study the demographic & socio economic feature of Meerut city.

III. To identify the major issues related to infrastructural development of Meerut City.

IV. To scrutinize the physical environment of Meerut City and also check its feasibility to the Residents of Meerut City.

V. To seek the better solution of Drinking Water Problem in Meerut City, better solution of sanitation problem & better solution of Air/Noise Pollution.

VI. To attempt the evaluation of urbanisation using Modern Geographic Research methods such as Quantitative & Cartographic techniques and use of R.S. and GIS in urban studies.

VII. To suggest the possible measures to cope up and manage problems arising out of urbanisation in Meerut city based on field work.
1.3. REVIEW OF LITERATURE

1.3.1. Urbanisation In Historical Perspective

Beyond the natural growth of the region, man plays vital role in the social-cultural growth of a city as man has been bestowed with the innovative thought and capacity to execute his imaginative creation on the surface in the form of apartments, large commercial and industrial establishment and plans for the future growth of the city. Today the cities are not only the habitation of large number of people but these are the centres of trade, commerce, business, education and places where a lot of administrative economic and business decision are taken. The overall environment and ambience of urban centre and comparatively better availability of infrastructure affects the “pull” factor of an urban centre. The growth of economy and the level of civil satisfaction in any society largely depend on how well its cities are managed. The main focus in todays urban areas in to cope up with tremendous changes occurring within the confines of its cities as well as outside it city limits. The increase in population and enhanced role of urban centres in every walk of life is creating an entirely new scenario. How to cope with it? What should be the agenda of today and tomorrow? Whether present system of urban management is capable of responding to the present day challenges? What needs to be done etc. are some basic issues which interest to every student of urban geography. To analyse and understand these issues of present day it is imperative to look into the process of urban growth in historical perspective.

Recorded history of human civilizations is a history of rise and fall of human settlements, which functioned as nucleus and focal paints of human activities in all ancient and modern civilizations? Cities are the centres where fabric of human destiny is woven and where all revolutionary, scientific and technological innovations and achievements are predominantly reflected. They
become the sign of continuous flow of life. Throughout its evolution and development, man had made plans, inventions and discoveries by putting different talents together. These plans and discoveries become more subtle and penetrating as he learns to combine his talents in more complex and intimate ways to make the best possible use of his technology and his institutions for the creation of an idealistic living environment. One can observe these complexities even in the ruins of prehistoric civil monuments. The variant forms of cities and towns in different civilizations are the most striking manifestations of the cultural differences which is in the nature of things, for they are the parts of the Earth’s surface where the products of human activities provide an especially heavy overlay and where the transformations of the original landscape is notable.

India has been a birth place of the earliest urban civilizations and ancient culture. Many foreign and Indian scholars have written about the city forms and structure of the Indus Valley Civilization. All Harappan Cities have striking similarities, though they were constructed in the different times and in varied geographical conditions. It is observed that most of the urban settlements were developed on the basis of a common ideal layout pattern, Natural and geographical forces were the main determination factors for the layout plans.

**Ancient Indian Cities**

Urban forms and agricultural production areas were interrelated in ancient India. Geographical forces responsible for agricultural development directed the location and distribution of urban settlements. Ayodhya, Taxila, Nalanda, Shravasti, Kanchipuram, Patliputra, Hastinapur, Indraprashtha, Vaishali, Ujjain etc. were many cities developed during this period. These towns were centres of Political activity, trade, architecture and education.
Medieval Indian Cities

After the downfall of the Gupta Empire the Gangetic basin experienced a downfall in all spheres of human activities. Cultural centres were shifted to the southern areas where many big cities and states flourished in the valleys of Krishna, Kaveri and Godavary and basins along the sea coats of east and west. We find many temple towns in South India. Most of the temple towns and administrative centres followed the shastras strictly in deciding their layout and development pattern. Many towns and capital cities developed on the trade routes. The dynasties of Pandavas and Chalukeyas encouraged the construction of temple cities. Prastishtapuram, Madurai, Kanchi, Karuvur, Nellur, Triuchnapalli and Vijaynagar were the main cities.

North India experienced different kind of political situation during Medieval times. Invaders from the West Asia and Central Asia kept invading the Northern plains. Many of them plundered and ran away and some of them settled down developing their own style of city construction. The Sultans and the Mughals were influenced by their origin, their culture and traditions of central and west Asia. Nevertheless they assimilated in Indian ethos, resulting in to the new kind of urban development. Strategic considerations become the prime factor in the determination of location and development of a new urban centre. Forts and palaces were constructed. Many capital and walled cities were developed during this period, Narrow and congested streets of these walled cities are very difficult for the vehicular traffic of changing modern times. These were basically Bazar Streets and still they function alike. The British followed the Philosophy of segregation and separation of people and their works. They developed new port towns, cantonments, railway colonies, civil lines etc. which were always distinct from the common Indian lay out of the cities. During the 19th and early 20th centuries, the spread of urban areas had taken place in the form of Industrial
tracks where large scale industrial and trade and transport activities dominated the urban scene.

Independence opened the new vistas for development of the national economy, ascent of culture and potentials of urban growth. Regional and economic structure of the country started changing with the introduction of planned mixed economy. It coupled with the new compulsion of India’s partition changed the pace and content of Urbanisation. Spread of the built up areas as a result of population explosion and rapid urbanisation has made a far greater complex contribution than has the physical reorganisation of urban space. The acceleration of the process of urbanisation has seen the emergence of many palaces above the threshold of town hood, but it has also brought about great extension of the established larger cities.

It has been observed that in the last two decades the urban population of India has doubled. The pace of urbanisation and consequential changes occurring in urban areas are causing tremendous pressure on Urban Infrastructure and basic services. As per census figure urban population in India increased as under;

<table>
<thead>
<tr>
<th>YEAR</th>
<th>URBAN POPULATION (Million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971</td>
<td>109.11</td>
</tr>
<tr>
<td>1981</td>
<td>159.47</td>
</tr>
<tr>
<td>1991</td>
<td>217.18</td>
</tr>
<tr>
<td>2001</td>
<td>285.00</td>
</tr>
</tbody>
</table>

The above figure shows that the urban population is increasing at very fast rate, according to the United Nation estimates, India’s urban population by 2020 will be slightly less than 50% of its total population which means about 648 million persons will be residing in Indian cities and towns. The share of urban
population to total population is likely to go up from 27.890 in year 2007 to 47.30% in 2020.

Many Indian cities are likely to acquire the status of Metropolitan city in near future. Number of Metropolitan cities has increased from in 1971 to 35 in 2001 and there share is increasing at unprecedented rate. It has been observed that fast growth of urbanisation and concentration of large population in metropolitan and mega cities lead to the emergence of slums, lack of services, ecological imbalance, urban hazards and law level of satisfaction in urban inhabitants. It changes the morphology and the profile of urban areas.

Comparing the pattern of urbanisation in India with developed European countries during last century, one observes that during the period of rapid urbanisation in Europe the growth rate of National population was about 0.05% per annum. In contrast, the annual population growth rate in developing countries in the 20th century has been between 2.5 to 3% and in certain areas even more than 3% per annum. Such a high rate of growth has resulted in rapid rural migration to the cities. Better standard of living, education and other services in urban areas are the greatest “pull” factors and large family size, less per capita agriculture land, law productivity, lower wages, seasonal employment, lack of services etc. are working as “push” factors.

It becomes essential to study the urban attributes such as urban population density, growth, urban functions, employment, transportation, education, health, commercial activities and other physical environment factors such air pollution, water pollution, soil pollution etc.

The topic, ‘Urbanisation & Quality of Environment – A Case Study of Meerut City’ is within the parameters of Urban Geography. Several works already have been done in this specific field. Geographers from other counties are R.E.Dickenson, Harris, E.L. Ulman, FHW Grean, AE Smail, EW Gilbert, P. Senior, M.S. Nelson, D.J. Bogee, etc. Among the Indian Urban Geographers,
there are certain imperical contributions to the Urban Geography, Dr. R.C. Singh, Dr. Ujager Singh, Dr. A.B. Mukherjee, Dr. A.K. Dutta, Dr. V.L.S. Prakasha Ray, Manzoor Alam, Dr. S. Nagia, N. Ram Chandra are few such geographers.

This research work is an attempt to study the present situation of Urbanisation & the Environment of Meerut city.
1.4. SIGNIFICANCE OF THE STUDY

The study “Urbanisation & Quality of Environment: A case study of Meerut city” has great significances in the reference to the new developments and growth of Meerut city in near future. Meerut city is the emerging area in India, and it has been put in the list the top 5 growing regions in Indian economy. When we study about the urbanisation in Meerut city, we keep in brain that Meerut has the presence not only in the NCR region but also on the map of India and International in the various fields like Agro based Food production, sports goods production & scissors productions. The world famous names of sports like Sachin Tendulkar, Ricky Ponting, Peet Samprash, Sania Mirza and William Sisters play their game with the sport goods made from meerut city. Also there is the unique quality of urbanisation of Meerut city that is totally different to the other region/area/city urbanisation that is; here the city crowd is not increasing due to the industrialisation but due to the prosperity of the near agricultural region. There may be a lot of significances of the study; some of them are the followings;

I. The study is enlightening the present scenario of the growth of metropolitan cities. We can check the administrative planning & strategies for a long term urbanisation growth as well as the short term objectives to lay down a proper pattern of living. We can check the current status of residents of the city such as the provided amenities/facilities, sewerage system, drinking water, solid waste collection, transportation. We can check the current policies and expect the result of the current policies. And also we can assume the suggestion over the current policies to get the better or expected results.

II. Growing urban situation is causing several problems such as slums, traffic, sewerage, sanitation, employment, poverty etc. We can take help to find out the solution of such problems that were developed due to increasing urban region.
III. National Capital Region in India has been becoming unmanageable due to the fastest industrial growth, also fastest growth in infrastructure development such as highways development, power generation, and big educational institutions. The most of the cities in NCR is overcrowded. And the latest trends are to be decentralisation of population and others towards the outskirts of NCR like Meerut city. This study would be very much helpful to manage and develop the future strategy of such kind of NCR cities. To resolve the problems of Delhi & NCR, administration have to give the proper passage to the people to divert their way of living from Delhi or overcrowded areas to the outskirts towns. Government can get the better insight about the basic problems and current situation to develop the strategies and future plans.

IV. Quality of Urban life is being miserable day by day because of several issues. The present study in the light of two compatible systems that are placing in Meerut, growth of Meerut city and growth of Meerut Cantt. As such, Meerut is likely to such a training system as media those for planning as to be serviced for a long term capacity.
1.5. METHODOLOGY

A research methodology is the theme of any research work, it define the way how to reach on conclusion of the problem. Generally it includes the very first step to the end result.

The simple research methodology has been adopted by the using primary & secondary data. Uttar Pradesh includes IRS-IC-LISS III + PAN and Landsat T.M. & MSS geocoded FCC images and Survey of India (SOI) topographical maps of scale 1:50,000 No 53(H/9) Metrological data (Internet), Demographic data MDA (Meerut Development Authority) and the literature available for the study area on various themes were also utilized.

1.5.1. Database

We use two types of data, primary & secondary data.

Primary Data:

A field survey of about 500 households, discussions with various organisations and Government Departments will also be carried out to understand the nature, content and possible way outs for the improvement of quality of Urban Environment.

A personal observation of city environs has been done by the candidate, such as observation of road & transport, public facilities provided by Govt. Agencies, Building Structures, Layout Patterns of the streets, sanitation facilities in the slum areas, drinking water etc.

Secondary Data:

Candidate has used the various sources for secondary data such as Meerut Development Authority, Meerut Nagar Nigam, Meerut Jal Nigam, Uttar Pradesh Awas Vikas Parishad, Uttar Pradesh State Industrial Development Corporation, District Industrial Corporation, Town & Country Planning Deptt, Medical College, Janhit Foundation (An NGO), Local News Papers, Journals, Other
Industrial Association, Sales Tax Deptt, Income Tax Deptt., Survey Of India, Meerut Statistics Deptt., Internet, Websites etc.

1.5.2. Universe
The study “Urbanisation & Quality of Environment: A Case Study of Meerut City” is a urban study of Meerut City – Uttar Pradesh. Candidate has taken the Meerut city & Meerut Cantonment as the study area. The universe of the research study is Meerut city & Meerut Cantonment. Meerut city is itself a metropolitan city, it come into the range of NCR. It is second big city of NRC. The study can be used for finding out the environmental quality problems of other metropolitan cities. In the universe, there is all possible issues such as Urban Population, Semi urban population, slum areas, water problems, sanitation problem, unplanned growth of city in the early stages, air pollution, water pollution, industrial growth but various unseen facts etc.

1.5.3. Variables
In the study, there has been used the various variables to reach on the end result and to satisfy the all concerned ingredients. There are some common variables for the different aspects and some are very particular towards their purpose. Such as Population is the common variable, it is being used at the various situations or to find out the various results like, to find out the burden on sanitation system and to find out the burden on medical facilities. On the other hand, there is a variable pollutant into air; it is used only for finding out the level of air pollution. We have put the some variables name in the given methodology chart.
1.6. SCOPE AND PLAN OF THE STUDY

Meerut city is situated in between the two world famous river and the near about region of the Meerut city is very much fertile. The prosperity & growth of the city can be seen as it comes in the list of top ten taxpaying city in India. Meerut city is an educational hub, in the same time it is having very good medical facilities in the city. In some cases, it is having the best curing services, it is medical centre for UP and Uttaranchal.

The growth of Meerut city is mainly depended on their residents who migrated from near about region. This migration is not for in search for employment or better earning, they are rich families and having great properties inside the villages, but they need better facilities such education, health and other better amenities of an urban region. They can easily take care their agricultural fields from their residence in the out skirts of Meerut city as there is very good road and transportation facilities. This is very unique quality of urbanisation.

On the other hand, there are very fast growth in the industrialisation due to this there is also very fast growth in the population/urbanisation in the Meerut city, but it is due to the migration of poor people from the eastern UP & Uttaranchal. This is cause for increasing slums.

Our study is considering all the facts of slums, water pollution, air pollution, unmanaged traffic & transportation and other urban amenities. The result & conclusion of study can be apply to other urban areas with facing same problems, newly developed metro cities of India.

The thesis work is dealt with in six chapters, the first chapter is started with the the Statement of the Problem and definition of the basic objectives of the study. There is also the discussion on the previous work on the same subject, methodology of research work to get the end result & conclusion and scope & the plan of thesis.
In second chapter; we deal the historical & geographical perspectives of Urban growth. We discuss the development of the Meerut city from the beginning. Also in the chapter, it is discussed the land use analysis, spatial zoning and area wise spread analysis. It has been categorised the Meerut city on the basis of population density & sex ratio.

In the next chapter, we study the infrastructure related problems, we discuss the traffic & transportation and other basic facilities such as Education, Medical Facilities and industrial development of the city region and the trade activities in Meerut city. We characterise the weakest points in the growth of the city.

Forth chapter includes the study of water problem and probable sources in Meerut city; it will also deal the new concept and technology of Rain Water Harvesting. Also in this part, we discuss regional traffic survey of different roads/streets of Meerut city and comparative study of growth and decline the traffic in 1992 to 2005. Here it is also proposed the new traffic and transport junction in Meerut city. There is a comparative study of SPM, RSPM, SO2 and NO2 at different locations in Meerut city and the present scenario of sanitation and waste disposal in Meerut city.

In the fifth chapter, we discuss the quality of life in the reference to Meerut city, it has been characterised that the income and employment play the main role in the life of human being similarly it play the basic role for the health of city/country. We also study how it is correlated with the nutrition taken by the people and how are their health conditions.

The last chapter contains the conclusion of the work & suggestions.