Population explosion, especially in a developing country like India, is giving rise to urbanization in most unplanned manner. The cities are sprawling at a very fast pace and urban population is growing in leaps and bounds. At the dawn of independence, Delhi had a population of a few lacs. Today it has 140 lac people living in the progressively growing city. The growth is not following definite pattern and infrastructure built for the needs of the people, soon become inadequate and out dated. The urban growth swallows the agricultural land and vegetation around and the city gets converted to a concrete jungle affecting the environment, landscape and the society.

Delhi, the home to 14 million people, many more join every day, is turning out to be a clumsy and unmanageable city. Unplanned development throws out of gear any planning efforts and hence Delhi had many master plans, failing to master the problems of Delhi. All well known Delhi Master plan prepared with much efforts and care is thrown haywire, the very next day it is proposed. Probably this may go on as well as the efforts to make Delhi a livable city. Problems of traffic and water are at the centre stage and viable solutions for them are to be found out for improving the quality of the life of Delhi citizens.

Urbanization causes changes in the living conditions under which people live and work. Especially in developing countries, this often
leads to adverse living conditions. In the particular setting of urbanizing villages, there are places where chaotic urbanization and industrialization causes hardship, particularly for local residents. This is not the whole story, however, there are also many positive effects of urbanization: improving housing conditions, better amenities and services, and higher living standards. Yet these benefits are often ignored in the literature on urban environmental issues in developing countries.

Transport infrastructure which includes parking also is very inadequate in the city and it may be difficult to cope up with the ever increasing numbers of motorized vehicles added every year. The wide roads are not possible in built up areas and the adequate number of flyovers may minimize the problem soon after their construction. The newly introduced metro may more or less can attract the Delhi motorist from his favorite vehicle.

Water is another problem of Delhi. Delhi has no source of its own except fast depleting groundwater. A large part is obtained through neighbouring states, which may fulfill their commitments in future. It may be possible to store the flood waters of Yamuna below ground. The flood water is free from any interstate agreement and most unwelcome, and a potential flood threat to riparian states.

The availability of civic amenities are so much strained and deteriorated due to ever increasing population pressure that it might further deteriorate health-hygiene and environmental conditions in NCT Delhi. It is generally noted that there is wide variation in the availability of civic amenities and living conditions in NCT.
THE STUDY AREA:

Delhi or the National Capital of India amalgamates Old Delhi, New Delhi and Delhi Cantonment Area. The city presents a stark contrast of the contemporary and the conventional. On one side it presents Old Delhi - an epitome of the Mughal Grandeur with crowded and narrow lanes beneath the Jama Masjid and Red Fort. On the other hand is New Delhi - a master creation of Edwin Lutyen - a leading British architect with wide and well-planned tree-lined avenues. The other part is Delhi Cantt. That houses Head Quarters of the Defence forces of the country.

Often referred to as Delhi NCR, the umbrella includes neighbouring satellite cities of Gurgaon & Faridabad in Haryana and Noida and Ghaziabad in U.P. The city has served as the Capital to several rulers of India from the Muslims to the British. Each era left its signature architectural as well as cultural impact on Delhi. The city has become home to 14 million people from all walks of life.

The comfort and warmth of Delhi City has given shelter to the refugees of the infamous partition of 1947 as well as industrialists, entrepreneurs and migrant labor from all over India. Today New Delhi is cosmopolitan city with an interesting potpourri of culture, language, people and their customs and traditions.

The city of Delhi lies in the fertile Northern Plains of India. The main features of Delhi are the Aravalli hill ranges and the Yamuna River. The Aravalli hill ranges are covered with forest called the Ridges. The
Yamuna is the main source of drinking water for the citizens of Delhi. There is a forest cover of nearly 11.5% of the total area in Delhi. Delhi’s mineral sources are primarily sand and stone which are used for construction activities. The geology of Delhi features pre-Cambrian to Quaternary formations in age. The pre Cambrian formation are represented by the Alwar Quartzites. These are overlain by the Aeolian deposits, which are further overlain by the old and the new alluvial deposits. Delhi has a semi arid climate, with hot summers, average rainfall and moderate winters. Mean monthly temperatures range from 14.3°C in January to 34.5°C in June. However, the temperatures go upto 40-45°C in summers and 4-5°C in winters. The annual precipitation is about 711 mm falling largely during the monsoon months (July-September). Dust storms are frequent during the summer months leading to an immense build-up of particulate matter in the atmosphere. 

The present study has been undertaken to evaluate and highlight the following objectives:

* To investigate the trend of urban expansion and population growth in NCT Delhi.

* To ascertain the availability of urban civic amenities at spatio-temporal framework.

* To analyse the Socio-Economic condition of the selected urban families alongwith the infrastructural facilities available in the locality where they live.

* To evaluate the level of living conditions by the quality of life
index and the level of Pollution.

* To compare the present day living conditions of metropolitan Delhi with those of metropolitan cities of the developed and developing countries on sample basis.

* To diagnose the problem and submit a planning to minimize the disparities in the availability of civic amenities in those units which are reported below norms. To fulfill the objectives taken into account it is hypothesized that higher the growth and migration of the population, lower the quality of life and the availability of civic amenities also higher the polico-Bureo strength and higher the sustainable development.

The finding of the hypotheses of the study area is shown by the Table 9.1.

**TABLE - 9.1**

**CONCLUSIVE FINDINGS**

<table>
<thead>
<tr>
<th>S.N.</th>
<th>District</th>
<th>Level of Living</th>
<th>Mushrooming JJ Clusters &amp; Unauthorized Development</th>
<th>Increasing Distance from Central Place (Km.)</th>
<th>Decadal Growth of Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>New Delhi</td>
<td>&gt; 80 Very High</td>
<td>No Cluster</td>
<td>0</td>
<td>6.19</td>
</tr>
<tr>
<td>2.</td>
<td>West</td>
<td>21-40 Low</td>
<td>JJ Clusters-201 &amp; Unauthorised colonies</td>
<td>1-18</td>
<td>48.56</td>
</tr>
<tr>
<td>3.</td>
<td>South</td>
<td>61-80 High</td>
<td>JJ Clusters-79 &amp; Unauthorised colonies</td>
<td>1-16</td>
<td>50.95</td>
</tr>
</tbody>
</table>
Table 9.1 shows that the districts having higher the distance from central place i.e. South-West and North-West have very low level of living and the decadal population growth very high. These districts are the centers of very high concentration of JJ Clusters and unauthorized colonies so, the development of these districts is less than others and the civic amenities scenario is less developed. On the other hand, New Delhi has a very high level of living, no any unauthorized colony or JJ Cluster and the decadal population growth is also low. This district is the residence of President of India, Prime Minister of India and many other central govt. ministers and bureaucrats. So, the availability of civic amenities is in a very good condition.

PROSPECTS:

Primary solution to the problems of weaker areas and the socio-
economic inequalities within the borders of the study area, at least in the near future, lies in:

Industrial growth in Delhi should be restricted to high-tech with emphasis on units, which require skill, less manpower and energy and do not create pollution. Water bodies, having a minimum size of surface area of 1 ha., should be preserved by the concerned authorities. Further efforts should be made at the local level to retain smaller water bodies. To improve the sewerage and sanitation, the surface drainage and sewerage systems would have to be developed in an integrated manner.

The filled up landfill sites may be reuse for plantation or as recreational area. To supplement part of the estimated growing power requirement, non-conventional sources i.e. solar energy should be used for the purpose.

Complementary health facilities at par should be developed in the NCR to reduce burden on NCT Delhi.

**SUMMARY**

The present study has been conducted of the problems of living conditions and availability of civic amenities of NCT Delhi with the help of some hypotheses and the related objectives of urban area based on primary and secondary data considering the limitations of availability of data and research work.

Two natural features of the NCT Delhi probably made it a favorite place for various rulers, the Ridge and River Yamuna. The
climatic regime of Delhi, falls under the semi arid type, influenced by
the considerable distance of the city from the sea and prevalence of
continental winds during major portion of the year. Extreme dryness
with hot summers and cold winters are characteristics of the climate.
The greatest part of Delhi lies in the alluvium, but the small hills and
ridges in and around New Delhi consist of Alwar quartzites. A history
which encompasses all the various kings and emperors who fixed their
royal citadels here — Indraprastha, Lal Kot, Quila Rai Pithora, Siri,
Jahanpanah, Gughlakabad, Ferozabad, Dinpanah, Delhi Sher Shahi or
then Shahjahanabad. But, combined and integrated into one, these ‘new
cities’ have always been called Delhi and howsoever many names it
may have acquired, Delhi has always been intrinsically identified with
power and imperial sway. There have been at least eight cities around
modern Delhi, and the old saying that whoever founds a new city at
Delhi will lose it has come true every time — most recently for the
British who founded New Delhi in 1911. Today’s Delhi is completely
different from the city of yesteryears. Ever increasing number of
shopping malls, sky-rise buildings, offices, excessive plying of luxury
vehicles and the newly introduced Metro trains have completely
revolutionized the landscape of Delhi. These changes have made Delhi
one of the fast developing cities in the world.

The trend of urbanization in Delhi reflected in the fact that urban
area has increased from 326.54 sq. km. in 1961 to 446.26 sq. km. in
1971, 591.90 sq. km. in 1981, 685.34 sq. km. in 1991 and 924.68 sq.
km. in 2001. This urban area was 22% in 1961, 30% in 1971, 40% in
1981, 47% in 1991 and 62% in 2001 of the total area.

The urban population of Delhi which was 6.96 lakh in 1941 increased to 14.37 lac (106%) in 1951, 23.60 lakh in 1961, 36.47 lakh in 1971, 57.68 lakh in 1981, 84.72 lakh in 1991 and 129.06 lakh in 2001. The overall population growth from 1941 to 2001 has been calculated 1754%.

There has been a sharp increase in the number of in-migrants into Delhi during the decade of the 1990s. According to the Census of India 2001, 2.22 million (35.3%) in-migrants entered Delhi between 1991-2001 substantially higher than the 1.64 million who had come in between 1981-1991. Migration into Delhi remains high even to this day. Increasing prospects of finding a job has attracted a large number of migrants into the city, with a majority of such workers finding employment in the unorganized service sector.

Delhi faces an acute water crisis in every summer when water demand for different purposes increases dramatically. The overall water treatment and supply capacity was increased only 10.5 times during five year plans right from 1951 to 2002 in fifty two years whereas it is about 60 times growth in population in 2.3 million in 1951 and 137.83 millions in 2001, learning about six time gap between men and amenities.

The drainage system of Delhi is a complex situation, owing to the combination of a number of natural and man-made drainage systems. The length of natural drain in the city is 350 km. carrying discharge of 1000 m$^3$ and the total length of man-made drainage is 1700 kms. The
BOD level in four of the ten drains is in the range of 100-200, in two of the drains in the range of 200-300 and in three out of ten drains above 300 mg/litre. Thus in 90% of these drains the discharge is comparable to a range of weak to strong domestic sewage.

Delhi’s energy requirement is growing at about 7-8% per annum. From a peak demand of only 27 MW in 1951, Delhi’s power demand crossed 2879 MW in 2001-02, and touched 4030 MW on 2007.

Being considered as a lifeline of a city, the well developed and planned transportation network play a vital role in the development of socio-economic activities to accelerate the economic growth. In the context of NCT Delhi, the present situation lacks to infrastructure and planning to fulfill the growing needs of present and future. Delhi had recorded 5.40 kms. of road length per 1000 of vehicles and 1.88 kms. per road length for the population of 1000 during 2006-07. The govt. has been conscious to increase the mobility and conducted many studies for transport planning in Delhi. As the results are concerned, the govt. has developed multi-level, multi-functional and multi-mode transportation system in NCT Delhi as well as NCR. Road and rail network have been developed in three dimension level. Road network belongs to National highways, Circular or Ring roads and other inner roads in the one hand and Metro Rail, circular or Mono-Rail and regular rail network on the other have been developed in the city. The road network is being developed and maintained by NHAI, PWD, MCD, NDMC, DCB and DDA. Six National highways are passing through Delhi. Two Ring roads, having the length of 48 kms., have been constructed in Delhi.
overall about 30923 kms. roads are serving to the growing population of Delhi. Railway network is also working in three levels i.e. Metro Rail, Mono Rail and Regular Rail networks. Delhi Metro Rail Network has been the best provided mobility system in Delhi. To meet the long term and short term measures of mobility Govt. will have to provide a best infrastructure in NCT Delhi and that can be the elevated road network system.

Education in its broadest sense of development is the most critical input for empowering people with skills and knowledge. Education strongly influences improvement in health, hygiene, demographic profile, productivity and practically all that is connected with the quality of life. It plays a major role in improving economic opportunities for people and enhancing their quality of life by building capabilities, enhancing skill levels and providing more productive employment. Over the year Delhi has established an extensive network of educational institutions offering among the finest education within India. In 2005-06, 95806 teachers were teaching around 3.43 million children enrolled in 5063 schools, which include 2668, Pre-primary and Primary schools, 845 Middle schools and 1750 Secondary/ senior secondary schools.

Enjoying good health is an essential constituent of human development. An improvement in the health status of the population is a crucial component in raising the standard of living and developing human resources. Delhi has one of the best health infrastructure in India both qualitatively and quantitatively. Delhi offers among the most so-
phisticated medical care with the latest state of the art technology for treatment and the best qualified doctors in the country. Delhi has total no. of 4598 medical institutions, and the bed population was 2.04 in the year 2006.

Delhi, the capital of India, is home to about 3 million people living in slums and it is estimated that 45% of its population lives in unauthorized colonies, jhuggi jhopri and urban villages. In 2001 the total no. of JJ clusters are 728 which have spread in an area of 650.2 ha. The physical characteristics of slum life include shelter but lack a permanent residence. Many slums have only single water pump which is used by 1000 people on average. These low hygiene and sanitation facilities lead to unhealthy living conditions in the slums.

Disposing waste products is also a major global problem since last many decades. The problem of solid waste management in Delhi is assuming serious proportions due to increasing population, urbanization, changing lifestyles and consumption patterns. There are three types of solid waste in NCT i.e. Bio-degradable, Silt, Recyclable, and average garbage generation upto 5543 tons/day. There are 20 existing landfill sites and 04 are newly operated, in which 14 landfill sites have been filled up. Keeping in view the fact that finding new sanitary landfill sites in Delhi is becoming extremely difficult there is no option, but to resort to alternative and decentralized methods of waste treatment, reduction, recycle and use, which include vermiculture, fossilization and composting.

There have been find out the five levels of living i.e. very high,
high, moderate, low and very low. The various parameters have been used for the assessment of quality of life in present study. The result of quality of life have been explored with the help of given score to the parameters and sub parameters and categorized the urban area on the total score. In this regard the New Delhi district find out very high level of living scoring more than 80. It is markable that the New Delhi is a seat of central government and most of the politicians are residing in this district. So that, the imprints of politico bureau strength, is seeing in every corner of this district. South West and North West districts have very low level of living with the score of below 20, because of the low development of these areas, basic amenities are not in good position and most of the jhughi jhopri clusters are relocated in these areas.

The level of pollution has been based on primary and secondary data. Primary data has been computed on the basis of respondents’ perception and to rate the quality of air. New Delhi district has been rated very high with 61.37% of their residents and North East district has been rated very low, it is considerable that the North East district has very high population density and low in level of living so that, the pollution level is very high in this area.

A comparative study has been done in reference to London and Beijing. The trio city is capital of their country and belongs to developed and developing world. In comparison to London, Beijing is highly developed city of the world. Beijing has only 38% urbanized of its total municipal area, however, NCT Delhi has 62% urbanized to total municipal area. The total population of London belong to the urbanized
city in comparison to the Beijing has 84% and Delhi 93%. The population density of NCT Delhi is more than double to the London and more than eight times to the Beijing that is 9340 per sq. km.

Beijing has 59 regular colleges and universities and sufficient location of multi type institutions in comparison to London, where 43 well known world class universities and NCT Delhi, where the seven major universities and nine deemed universities are located. In this context the NCT Delhi has less sufficient location in comparison to Beijing and London.

The employment rate of students graduated from universities in Beijing has been reached 89.7% in comparison to London, where the employment rate is 67.5% and NCT Delhi with 53%. These statistics shows that the less rate of higher education and less rate of employment in NCT Delhi, in comparison to Beijing and London.

There are some recommendations proposed on the basis of the past experience and the future requirements. There should be optimum use of land for urbanization with time bound action plan, minimum high-tech industrialization, decentralized the trade areas and taking into account the environmental concern. Co-operation and co-ordination to the neighbour state for drinking water. Ecological linked sewage and drainage system. To reuse the solid waste fill areas for recreation centers. There should be maximum use of non-conventional energy sources. Complementary health facilities should be developed in NCR areas to reduce the burden of NCT Delhi. To reduce the pollution, it is
suggested that the industrial areas, industrial units and residential-cum-commercial areas should be transferred to nearby states.

There are some conclusive manners of the study have been taken into account to reduce the problems and some have been proposed for further planning in brief.

Although it is not possible to suggest the planning for fastly growing metropolitan city of the NCT Delhi, capital city of the largest democracy in the developing world, in a limited and short forms of the study. However, the above suggestions given in this study may reduce the disparities of the available resources to enhance the quality of life in the study area. The suggestions are least but not the last for the development of the human life of the NCT Delhi.

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