

# A Case Study on Impact of Urban Population Areas: Hyderabad City

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**ABSTRACT:** In this paper we will discuss our methodology in reviewing of impact of urban population of Hyderabad, the state capital of TELANGANA. Hyderabad is one of fastest growing the metropolitan cities in India and population wise it is ranked 6<sup>th</sup>. Total population of Hyderabad in 1991 was 30.59lakhs and it has increased slightly up to 68.09lakhs in 2011. Population's increase or decrease in urban area will have an enormous impact on road length, road density, employment, population density, land use & vehicles.

**KEYWORDS:** Land Use Categories, Land Cover, Migration, Road Length, Employment, Types of Pollutions, vehicles.

## I.INTRODUCTION

A small town founded in 1591 has developed to become one of India's fastest growing metropolitan with a population of approximately 7.7 million (Census of India 2011). Agricultural land is being converted into non-Agricultural land because rapid expansion of Hyderabad city which effected on the Hyderabad urban agglomeration. Area has been increased from the year 1687 (32.4 sq. km) - year 2010 (736.1 sq. km).

Table 1: It represents the growth of population in Telangana region

Name	Population(2011) in Lakhs	State	Rank	Total
HMDA	9.7 millions	Telangana	6 <sup>th</sup>	497 City in India
Hyderabad City	6,731,790	Telangana	5 <sup>th</sup>	12 Metropolitan area in India
Hyderabad Area	3,943,323	Telangana	2 <sup>nd</sup>	10 district in Telangana
Hyderabad Municipal Corporation	8,746,490	Telangana	1 <sup>st</sup>	6 Municipal Corporation in Telangana

Note:

- Towns with population of 1lakh and above are called cities.
- The 46 cities with populations of 1 million and above are known as Million Plus UAs or Cities
- The 8 cities with populations of 4 million and above are known as Mega Cities

If the population increases in urban areas issue made in the metropolitan cities:

- Increase of migration
- Increase of employment
- Decrease of land
- Increase of vehicles

- Increase of road length
- Increase of different types of pollutions

I.A Demography of HMA:

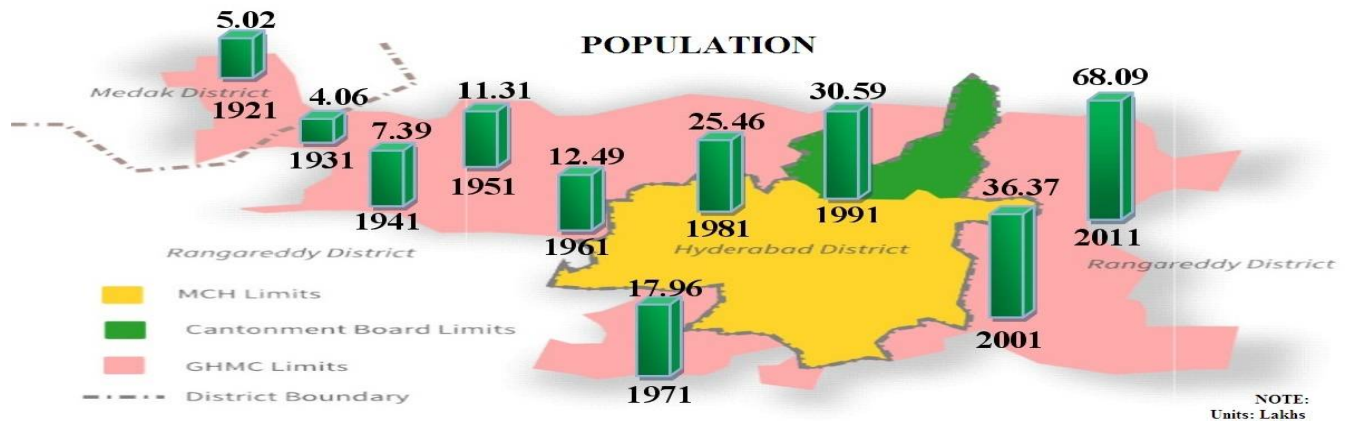


Fig. 1: Demography of Hyderabad Metropolitan Area(HMA)

I.B Objective of the study:

- 1) To establish a hypothetical city for various parameters population range, population density, road length, road density, employment and land use compositions.
- 2) To analyze the population data options for policy decision making based on identified employment.

II. LITERATURE REVIEW

Lowry Model (Lowry, 1964): Incorporated within its structure both generation and allocation of activities. The activities which the model defines are population, service employment and these activities correspond to residential, service and industrial land uses. Some of the salient features of Lowry model are. a) Population is allocated in proportion to the population potential of each zone and service employment in proportion to market potential of each zone. b) The model ensures that a population located in any zones does not violate a maximum density or holding capacity constraint is placed on each category of service employment. c) Lowry model relates population and employment at one particular time horizon.

Garin: Expressed the fundamental Lowry algorithm in matrix format (Garin, 1966). Using this notation, the iterative process used by Lowry to generation population, serving employment was replaced by elementary matrix operation to obtain an exact rather than an approximate solution.

Projective Land Use Model :(Goldner, 1968) as another family of Lowry derivative models. Projective Land Use Model (PLUM) is designed to yield projections of the zonal level distribution of the population, employment and land use within an area based upon the distributions of these characteristics in base year, coupled with a series of simple and institutively appealing allocation algorithm.

III. METHODOLOGY

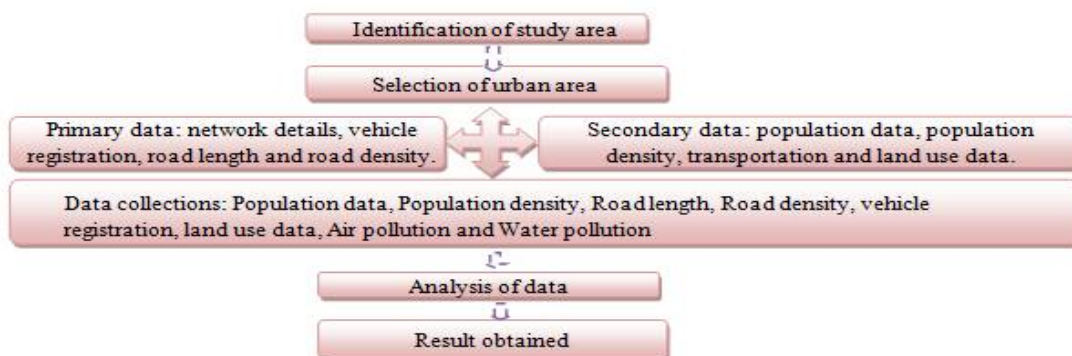


Fig 2: Proposed Structure of Study Methodology

IV. CASE STUDY AREA



Fig. 3: Satellite Images of India, Telangana and Hyderabad

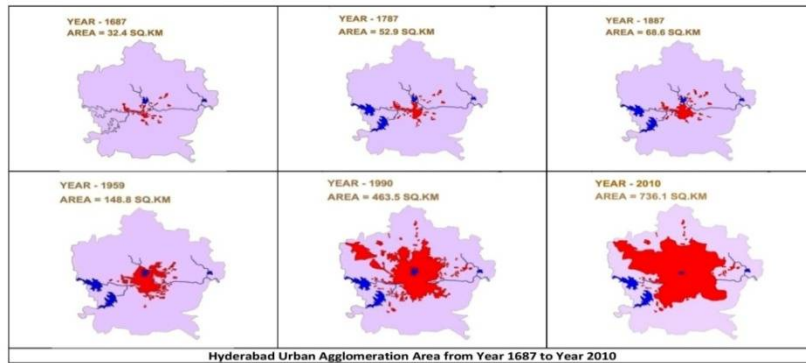


Fig.4:Hyderabad Urban Agglomeration Area from year 1687 to year 2010

IV.ADIFFERENCE BETWEEN LAND USE/LAND COVER RANGA REDDY AND HYDERABAD

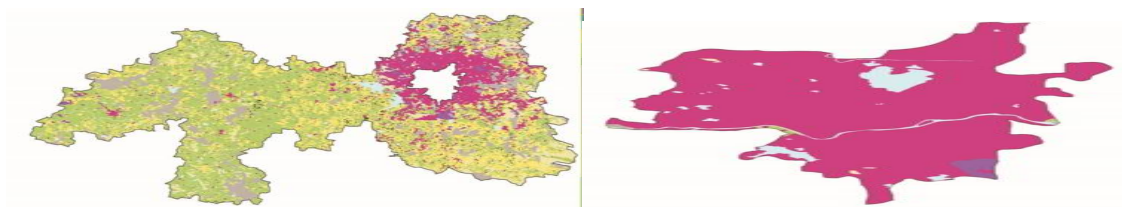


Fig. 5: Land Use/Land Cover Ranga Reddy andHyderabad(Source: Andhra Pradesh state Remote Sensing Application Center (2011-2012))

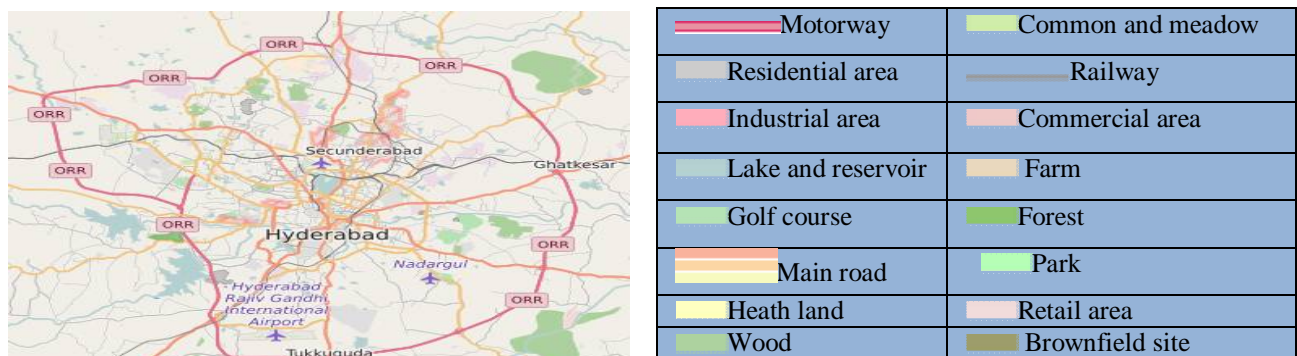


Fig. 6: Hyderabad Maps (Source: Open Streetscape)

IV.B Increase of migration

During the period 1991 huge changes incurred in IT sector. The government has dived to increase IT sector in Huda region. The investment in IT sector by local and foreign suddenly increased resulting in migration of people from many

other state, village and country. It affected Hyderabad city in terms of the population and employment mainly during 1991 -2011.Huda region has converted into HMDA in 2008. Hyderabad is one of the metropolitan cities in India and population wise it is 6<sup>th</sup> rank. Every year 15 lakhs people are migrating from many other states.

Factors affecting changes in population are:

- a) Increase due to births
- b) Decrease due to deaths
- c) Increase/ decrease due to migration
- d) Increase due to annexation

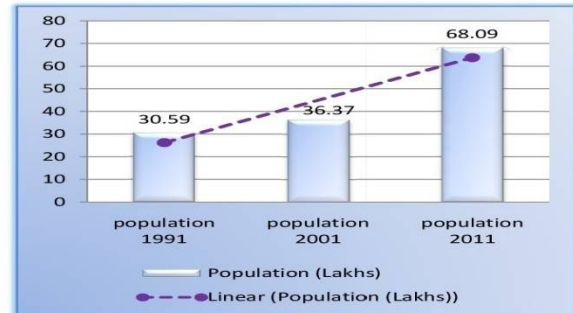
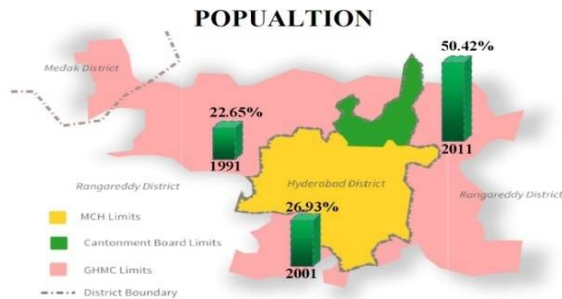


Fig. 7: Population of Hyderabad (1991-2011)

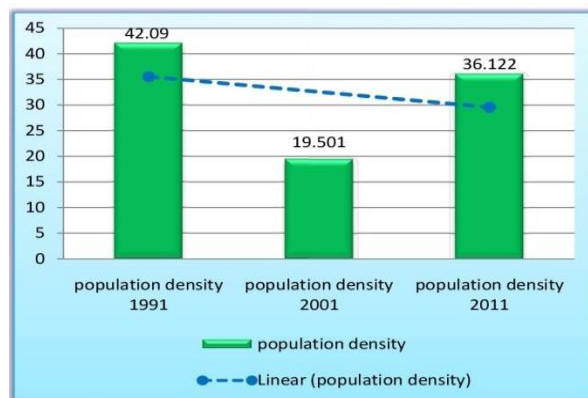
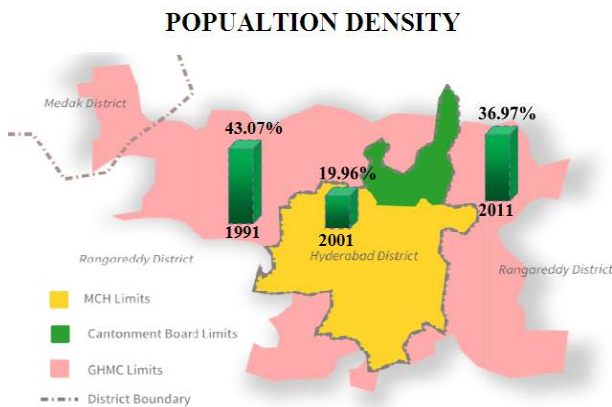


Fig. 8: Population density of Hyderabad (1991-2011)

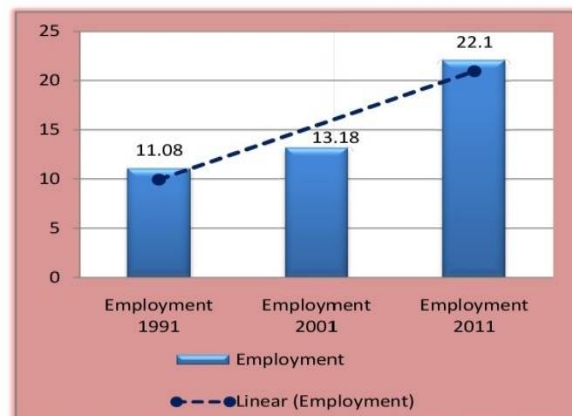
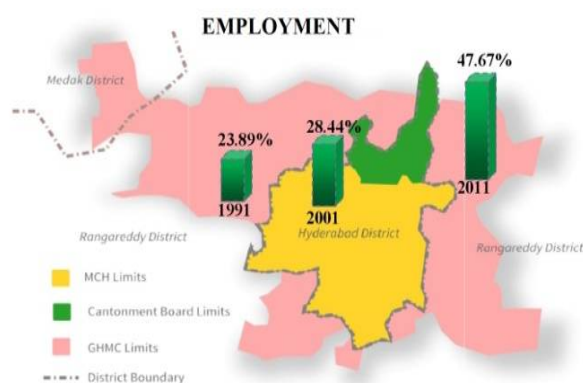


Fig. 9: Employment of Hyderabad (1991-2011)

**IV.C Decrease of Land**

In every metropolitan city Population is the major scours, when it increases the major demand effects on land. The general land use pattern given by Todd Littman 2004 is presented in Table 2.



Table 2: Major Land Use Categories

Built Environment	Open Space
<ul style="list-style-type: none"> <li>Residential (single and multiple family housing)</li> <li>Commercial(stores and offices)</li> <li>Institutional( schools, public offices, etc) and Industrial</li> <li>Brownfield's (old unused and underused facilities)</li> <li>Transportation facilities(roads, paths, parking lots, etc</li> </ul>	<ul style="list-style-type: none"> <li>Parkland</li> <li>Agriculture</li> <li>Forests, chaparral, grasslands</li> <li>Wild lands(undeveloped lands)</li> <li>Shore line</li> </ul>

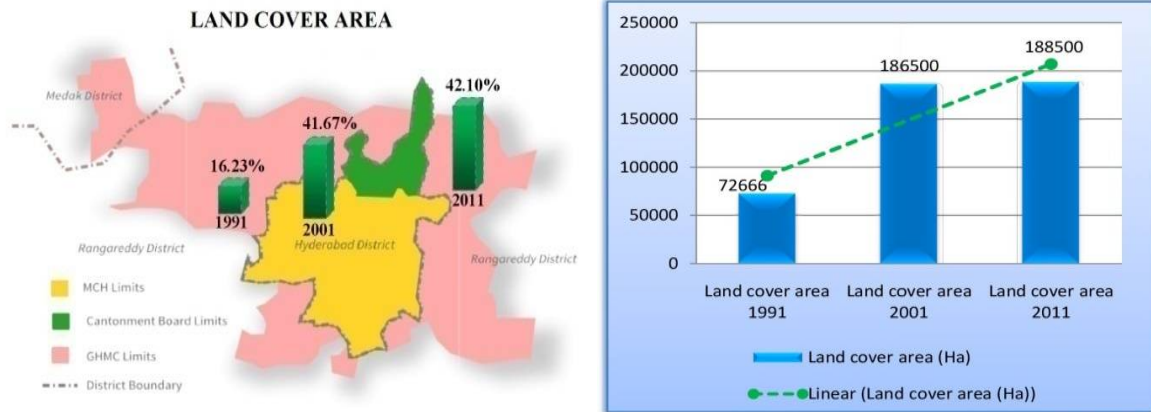


Fig. 10: Land Cover Area of Hyderabad (1991-2011)

IV.D Increase of Vehicle

Rapid expansion of population may also effect on increase of vehicles. Detrimental effects on increase of vehicles in urban areas are:

- Traffic problems
- Time delays
- Air pollution
- Noise
- Road accident
- Parking problems (off street and on street)
- Vibration
- Visual intrusion , degrading the aesthetics and severance

Table 3 :Class of Vehicles

Car	Carriage	Others
Maxi cab	Contract Carriage	Other , Tractor & Trailer
Motor cab	Goods Carriages	Educational institute bus
Motor car	State carriages	Private service vehicles

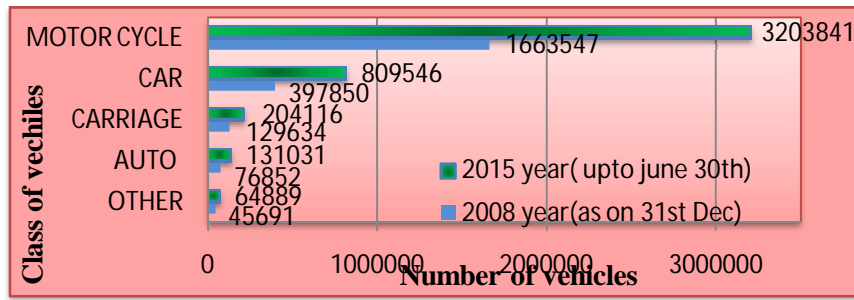


Fig. 11: Vehicle Registration Data of Hyderabad



Fig. 12: Road Length of Hyderabad (1991-2011)

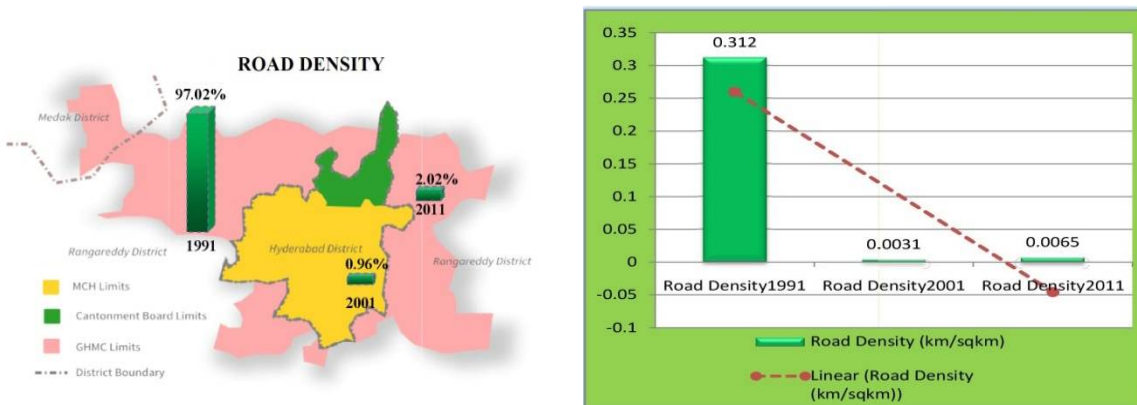


Fig. 13: Road density of Hyderabad (1991-2011)

IV.E Increase of different types of pollutions

- Air pollution
- Noise pollution
- Waste materials
- Water pollution

IV.F Air pollution

Air pollution in Hyderabad is a serious issue with the major sources of vehicle emission, Industries, Fire, cooking which cause harm to humans or other living organisms, damages the natural environment into the atmosphere. Increase of vehicles in urban streets may affect vehicles emission of gas. The major components of the exhaust gas from

automobiles are H<sub>2</sub>O, CO<sub>2</sub>, CO, Organic compounds produced from the petrol, Unburnt petrol, Oxide of nitrogen, Unburnt petrol, Lead compounds and Carbon particles(smoke)

Gas existed formindustries excess of coal &other fossil fuels, the waste gases from which contain sulphur and nitrogen oxides which combine with atmospheric water to form acids .This are most harmful rains will affectonhuman, animals, soil, building& transport.



Fig. 14: Different types of pollution existed form outlet

**IV.G Noise pollution:**


Generally noise pollution is denoted as decibel (db).Noise pollution in Hyderabad id huge. Some of reasons to increase noise pollution are construction work, Vehicle horn, Music, Loud speaker and Political meeting Increase of noise pollution may effects various parts of the body & leads to deafness.

**IV.H Waste materials:**

330 Million People Depending on Plastic Bags in India. India ranks III in the world in the consumption of plastics. Packing in India increases three fold Rigid Packing-Modified into flexible packing. Most of people use plastic carries bags with the thickness of 10mm in GHMC.

Table 4: Different types of plastic material

Commercial plastic material	Image	Nature of plastics	Thickness
Cup		Polyethylene	150
Carry Bag		Polyethylene	10
Chocolate covers		Polyester+ polyethylene + Metalized polyester	20
Parcel cover		Polyethylene	50
Supari cover		Polyester +polyethylene	50
Milk pouch		LDPE	60
Biscuit covers		Polyester +polyethylene	40
Decoration papers		BOPP	100
Film		Polyethylene	50
Foam		Polyethylene	NA
Water bottle		PET	210

Cool drinks bottle		PET	210
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**IV.I Generally use of plastic in urban area is in:**

Super Market, Water Pocket, Chemical Packing, Ware House, Departmental Store and Films: Mono, three layers, five layers, seven layers

**IV.J Effects of burning plastics**

Burning of Wastes plastics is dangerous to your health, environment and their release high toxic gas, chemical gas.

- Airpollution (Dust,co,co2 &ash)
- Loss of solid waste & Dercrease of O<sub>2</sub>
- Toxic gas
- Global warming

**IV.KWater pollution**

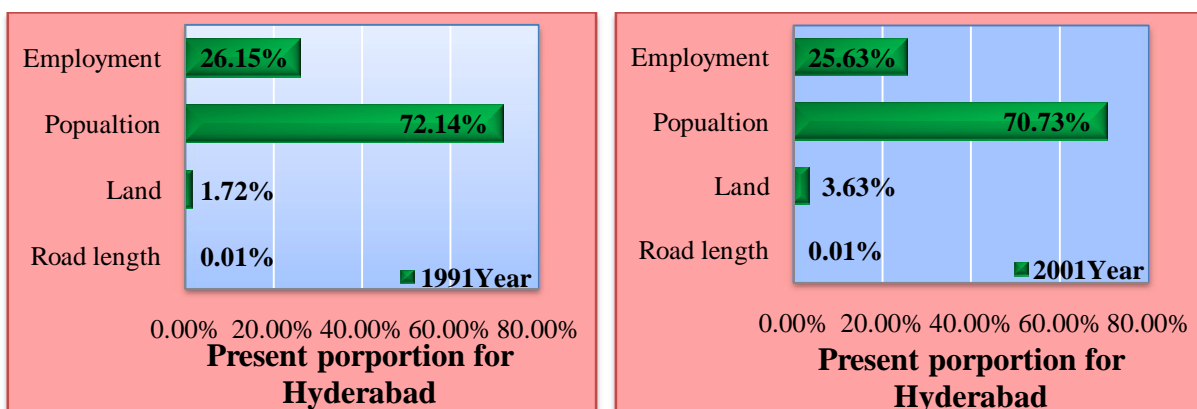
Water is totally populated in urban, metropolitan area due increase of household waste, discharge of industrial waste, sewage, oil pollution& agriculture waste. Water bodies are linked with lakes, pond, river, oceans and sea.

Best example of water contaminated in Hyderabad is Hussain Sagar. Hussain Sagar Lake was built in 1562 and The Lake joins the cities of Hyderabad and Secunderabad. Lake water was utilized for irrigation and drinking water needs from 1884 until 1930. The total catchment area of the lake is 240 square kilometers (93 sq. mi).Urbanization and rapid industrialization developed Hyderabad into a metropolis. Since 1930, the lake has gradually started receiving sewage, industrial waste, municipal sewage & domestic sewage for Picket Nalla, KukatpallyNalla, BanjaraNalla and BalkapurNalla.



Fig.15: Sewage water of HussainSagar in Hyderabad

**IV.L Final output proportion for Hyderabad of Total Land:**





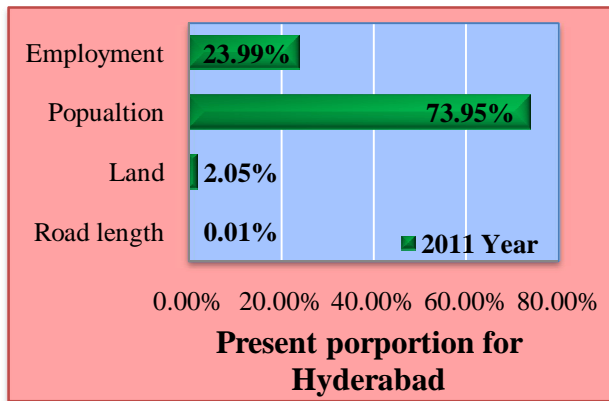


Fig.16: Final output proportion for Hyderabad land form 1991-2011



Fig.17: Latest image of Ultra Model civilizations of Hyderabad

## V. CONCLUSIONS

Developing IT sector in every state will result in decrease of migration from other states to metropolitan city. Instead of using petrol and diesel in vehicles we can use electrical & LPG cars. Electrical cars are eco-friendly to nature & do not emit polluted gases. Vehicle growth rate has increase from 2008 to 2011 in GHMC. Motor cycle is highest vehicles registered in 2008 is 16lakhs, 2015 is 32lakhs and other vehicle is lowest vehicles registered in 2008 is 45 thousand, in 2015 is 64 thousand. According to 1991 total employment is 11.08lakhs it has increased upto 22lakhs in 2011. Rapid expansion of population in Hyderabad city and also commercial area has been increased in the central part of the city, that too along the main roads. These areas are in very high land residential area away to the outer part of city. ORR & HMR will give information about total transportation problems. Instead of burning waste plastic we can use in road layering, it will increase the life span of road up to 15 year.

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