

An Assessment and Transformation of Urbanization: A Case Study of Nashik City, Maharashtra, India

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Abstract

Now a day's urban geography is a key concern of the development of the nation because it has different dimensions of the growth indicators such as industrialization, migrated population which having composition of large numbers of young people who are sent percent workers in nature, socio-economic facilities, house hold and civic facilities, strong network of all means of transport etc. leads to the earn extra revenue to the administration and then it has been utilized for the overall development of the society. This paper is attempt to study the one of the leading and growing urbanized city in the Maharashtra, from this research work we are search the answers of growth and transformation of the city from the last few decades also in the environmental point of view we could able to analyze the climatic situation of the city for last some years. Our main focus is on the land utilization of the city or the priorities of the city and dependent development and well being of the peoples of the city. We studied the model of urban transportation network of the city and suggest some remedial measures to the improvement and lastly we focused on study of the population characteristics of the city.

Keywords: Urbanization; transformation; transport network; urbangeography

1. Introduction:

Urbanization is a indicator of the development of the nation because it has different dimensions of the growth such as industrialization, migrated population which having composition of large numbers of young people who are sent percent workers in nature, socio-economic facilities, house hold and civic facilities, strong network of all means of transport etc. leads to the earn extra revenue to the administration and then it has been utilized for the

overall development of the society.

Opposite side of the urbanization has not good sign such as it leads to the pollution, overpopulation, unemployment, low standard of living of the people ,extreme condition of shortage of the residential land ,crowding in the cities, administrasive problems to provide all the civic facilities to the each and every stakeholder, uniform development etc. answer of these negative effect of the urbanization is the planning and implementation of good administrative decision and wise support of the people.

2. Objectives:

1. To study the transformation of Nashik City
2. To analyze the Climatic situation of the city
3. To study the land utilization of the city
4. To study the Urban transportation network
5. To study the population characteristics of the city

3. Study Area:

Nashik city is a part of the Maharashtra state of India; location of the city is 19° 58' 59" North to 20° 04' 30" North Latitude and Longitude Coordinate 73° 41' 30" East to 73° 52' 0" East longitude. It is connected to major cities of Maharashtra by road, railways and airways. In this physical site, the city as expected started rising stuck between the two major rivers, the Godavari river and Nasardi river.

4. Data base and Methodology:

This work is mainly concern with the secondary source of the data which is collected from the various sources such as climatic data is collected from the Hydrological department of Nashik, from the census hand book data generated regarding the population characteristics, land utilization data was obtained from the satellite images and it also compare to the actual field work for the comparison of the land use data obtained from the satellite images and field work. Other data source is the Nashik municipal corporation and some data collected from the web sources.

Statistical and quantitative techniques such as average, median standard deviation, coefficient, transport nodes and network analysis also other statistical measures are used for calculating, composing and analyzing the data for this research purpose also we are used technical tools for computing various results, along with this modern GIS tools and technique for the mapping process we used it and graphing tools also used for graphing

purpose.

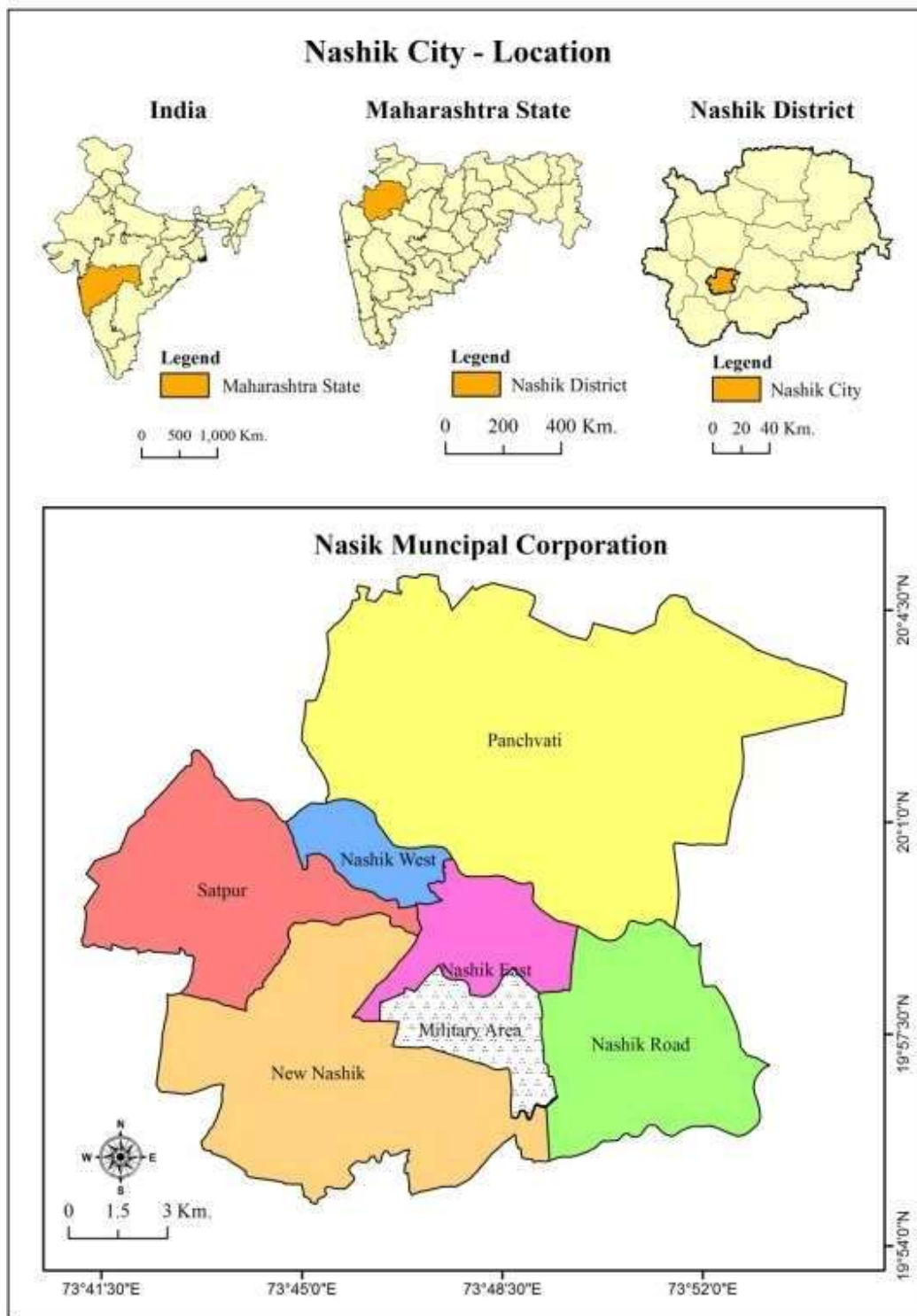


Fig.01: Nashik city location

5. Result and Discussion:

Results and discussion of the present study is divided in the five parts that is transformation of the city, Climatic situation of the city, the land utilization of the city, the urban transportation network and population characteristics of the city discussed as follows.

1. Transformation of Nashik City

Nashik city growing rapidly decade wise concern with the population as well as the expansion of the occupied area the process of transformation still continuing even today with hike in population and industrial as well as residential area.

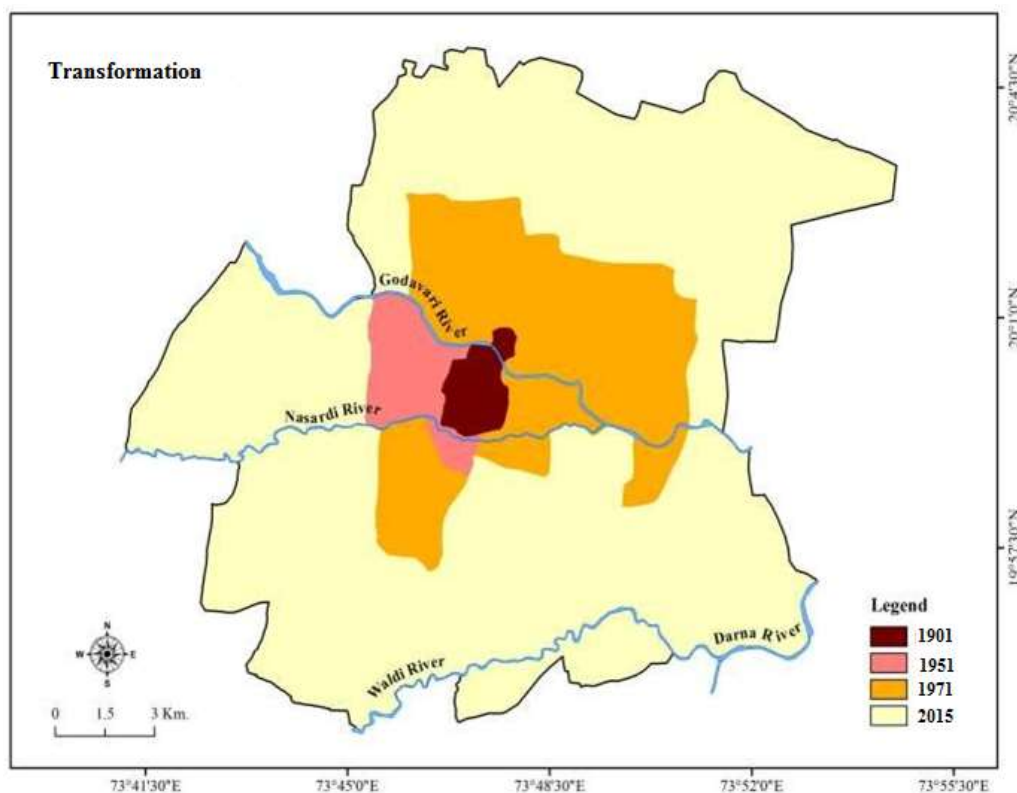


Fig.02: Transformation of Nashik city

In the year 1881 Nashik city was reside in 13 sq.km area. In the year 1901 it has become changed in up to 20 sq. km. In 1951 it was reached up to 47 sq. km area. Year 1971 population amplified rapidly and region expanded up to 259.10 sq. km. 25 villages are

included in Nashik city, Makhaamlabad, Mhaasrul ,Manur, Panchak, Nandur, Dasak, on Pathardi, Dadhegaon, Pimpalgaon Khamb, Gangapur, Pimpalgaon Bahula and Satpur are the some of important villages included in the Nashik city province.

2. Climatic review of the city

Table no 01 shows the assessment of the climatic elements mainly rainfall, temperature and humidity for the year 2018 is shown in the table.

Table 01: Rainfall, Temperature and Humidity Nashik city year 2018

Months	Rain Fall In mm	Temperature ⁰ C		Humidity in Percentage			
		Max.	Min.	Morning		Evening	
				Max.	Min.	Max.	Min.
January	0.0	28.7	5.4	95	58	50	22
February	25	30.5	10.2	90	40	51	19
March	0.0	35.0	11.0	81	22	35	20
April	0.0	41.0	12.5	78	28	60	15
May	0.0	44.0	18.0	85	40	42	17
June	139	39.0	20.0	90	55	98	45
July	210	32.0	20.2	96	73	95	55
August	101	30.0	21.0	97	88	97	70
September	138	29.0	20.0	95	75	93	59
October	20	35.3	18.0	97	73	83	32
November	2	30.5	15.4	99	63	81	37
December	0.0	28.0	3.2	95	67	62	25
Average	52.91	33.58	14.58	91.5	56.83	72.25	34.67

Source: HDUG Nashik (2018)

Mainly rainfall is high in the months of the south west monsoon period that is June, July, August and September and normally temperature in the year 2018 is very high in the months of April 41.0⁰C, May 44.0⁰C and in the month of June is 39.0⁰C. Average humidity in

the morning maximum is 91.5% in the morning minimum is 56.83% and Average humidity in the evening maximum is 72.25% in the evening minimum is 34.67%.The no rainfall is found in the months of January, March ,April ,May and December and extreme rainfall condition prevails in the month of July it is 210mm and very high temperature observed in the month of May it is 44.0⁰C and very low temperature observed in the month of December that is 3.2⁰C .While humidity in the morning very high observed in the month of November that is 99% and very low morning humidity is 22% in the month of March.

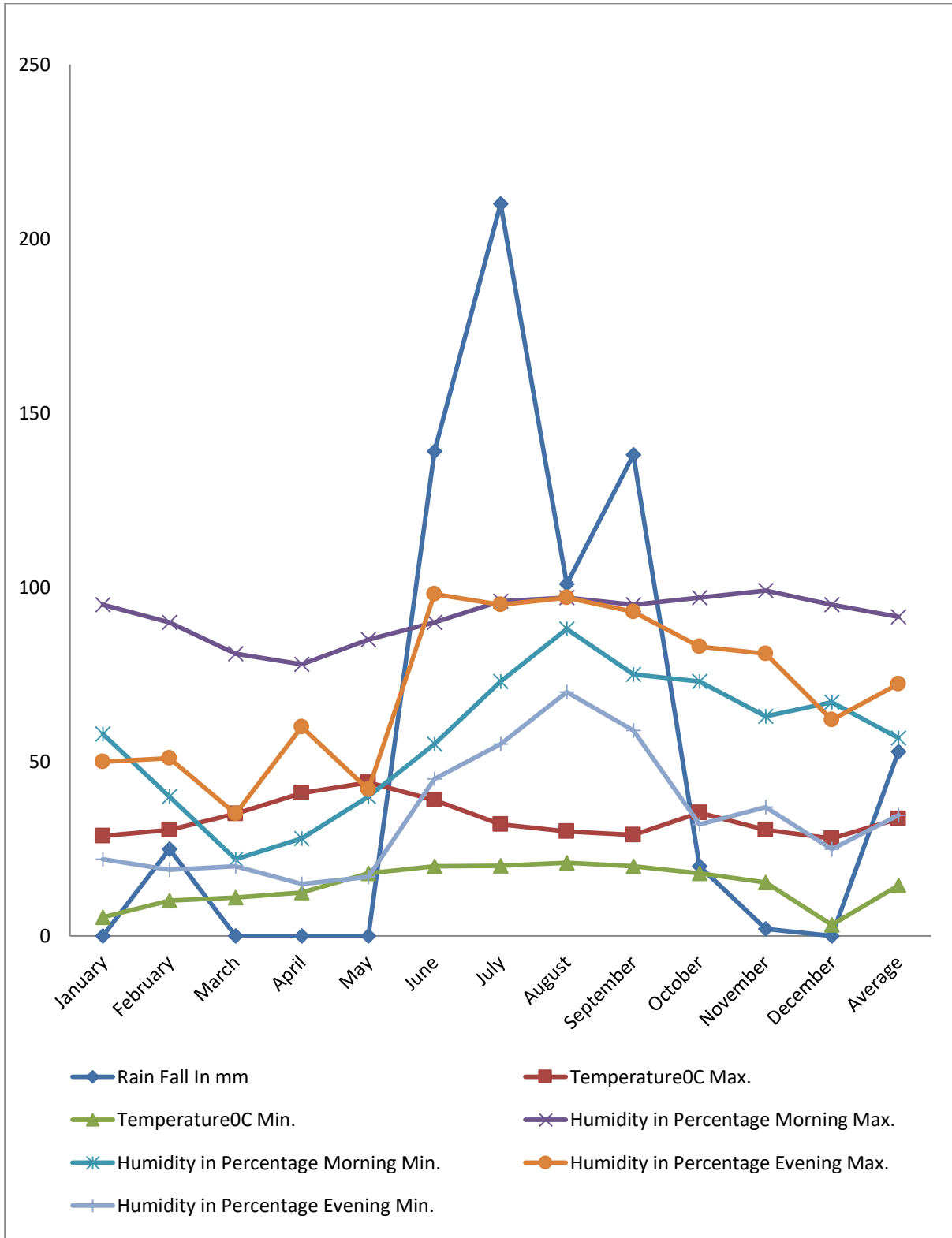


Fig 03: Rainfall, Temperature and Humidity Nashik city year 2018

Humidity in the evening very high recording as a 98% in the June and very low evening humidity recorded in the April that is 15%.

3. Nashik city land utilization

Land utilization of the city is divided in the eleven categories that is Garden/ Recreation, Industrial, Transport and communication, No Development Zone, Residential, Commercial, Public/ semi public, Public utilities, CIDCO, Military, and Water Bodies the proportion of all the categories are shown in the table no 02.

Table 02: Nashik city land use pattern (2018)

SR.NO.	LAND USE	AREA IN HA.	PERCENTAGE
1	Residential	9204.22	37.62%
2	Commercial	752.00	3.00%
3	Industrial	2861.75	11.44%
4	Public/ semi public	508.25	2.03%
5	Transport and communication	1799.30	6.42%
6	Garden/ Recreation	721.25	2.88%
7	Public utilities	412.00	1.64%
8	CIDCO	512.00	2.04%
9	Military	943.70	3.77%
10	Water Bodies	743.00	2.97%
11	No Development Zone	6540.11	26.19%
Total		24997.58	100%

Source: Municipal Corporation, Nashik. (2018)

The eleven categories of the land utilization of Nashik city shown in the fig 04 and 05 among all the categories highest proportion of the land is occupied by the Residential purpose it is about the 37.62% of the total land .followed by the no development zone in the city occupied 26.19% area ,for industrial purpose the 11.44% land was occupied .The transport and communication purpose the 6.42% area was utilized in the city Military cantonment and training centre artillery is situated in the city having 3.77% area of the total land .After that 3.00% area was occupied by the commercial space and Water bodies occupied 2.97% of the total area .Gardens and recreational space in the city having 2.88% area in the city followed

by CIDCO having 2.04% area, Public utilities having 1.64% of total area, Semi public space in the city having the 2.03% area of the total area .Among all the criteria the industrial space having 11.44% it would have be increasing for the development of the city in terms of revenue earning ,employment generating etc.continue expansion in residential area observed .

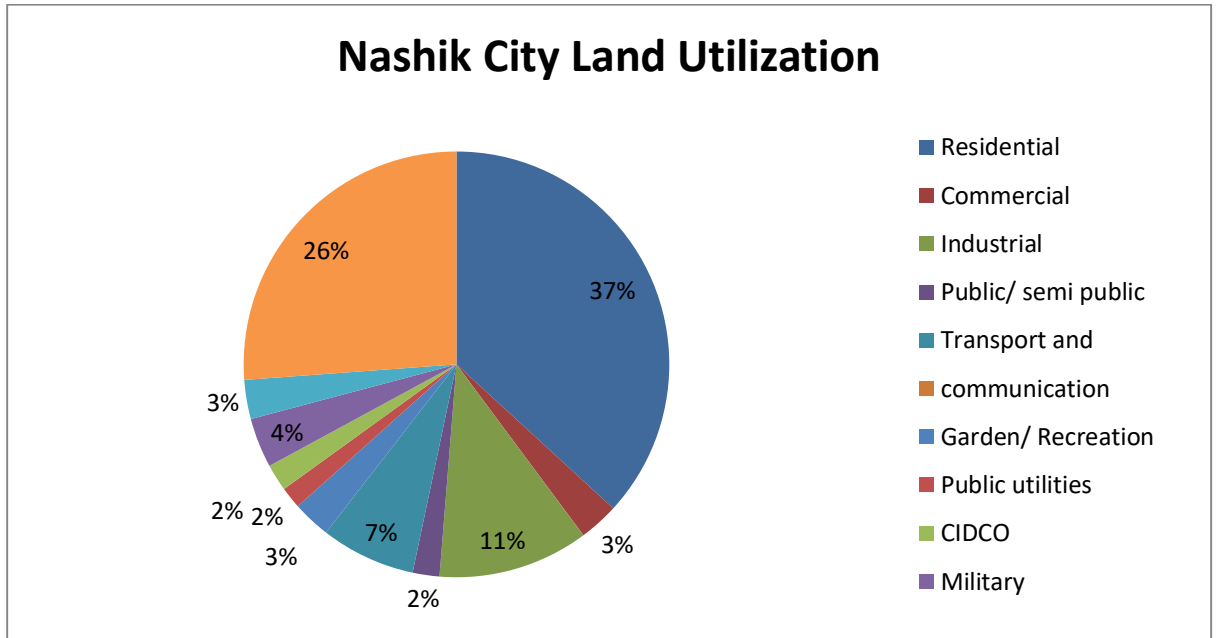


Fig 04: Pie diagram Nashik city land utilization

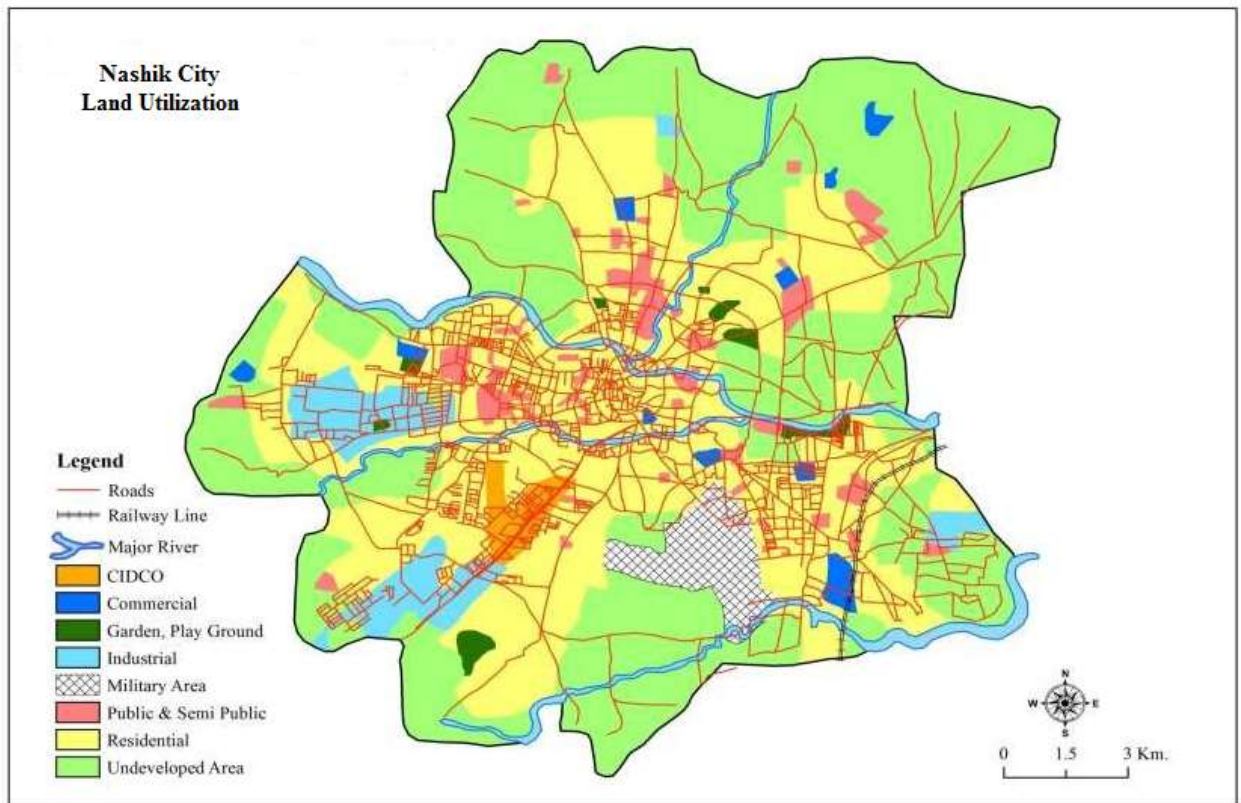


Fig.05: Nashik city land utilization

4. Urban transportation network

Nashik city having strong transport network; internal as well as it has been connected to the other states and districts very well Nashik is a central headquarter of the administration divisional zone it is also the center of the trade and transport. Road network is very strong National Highway number 03 is connected to Mumbai –Agra from the Nashik city and National Highway number 50 connects Nashik to Pune as well as state highway number 11 connected Nashik to Wani,SH 12 connected Nashik to Peth ,State highway number 66 connected to Aurangabad .

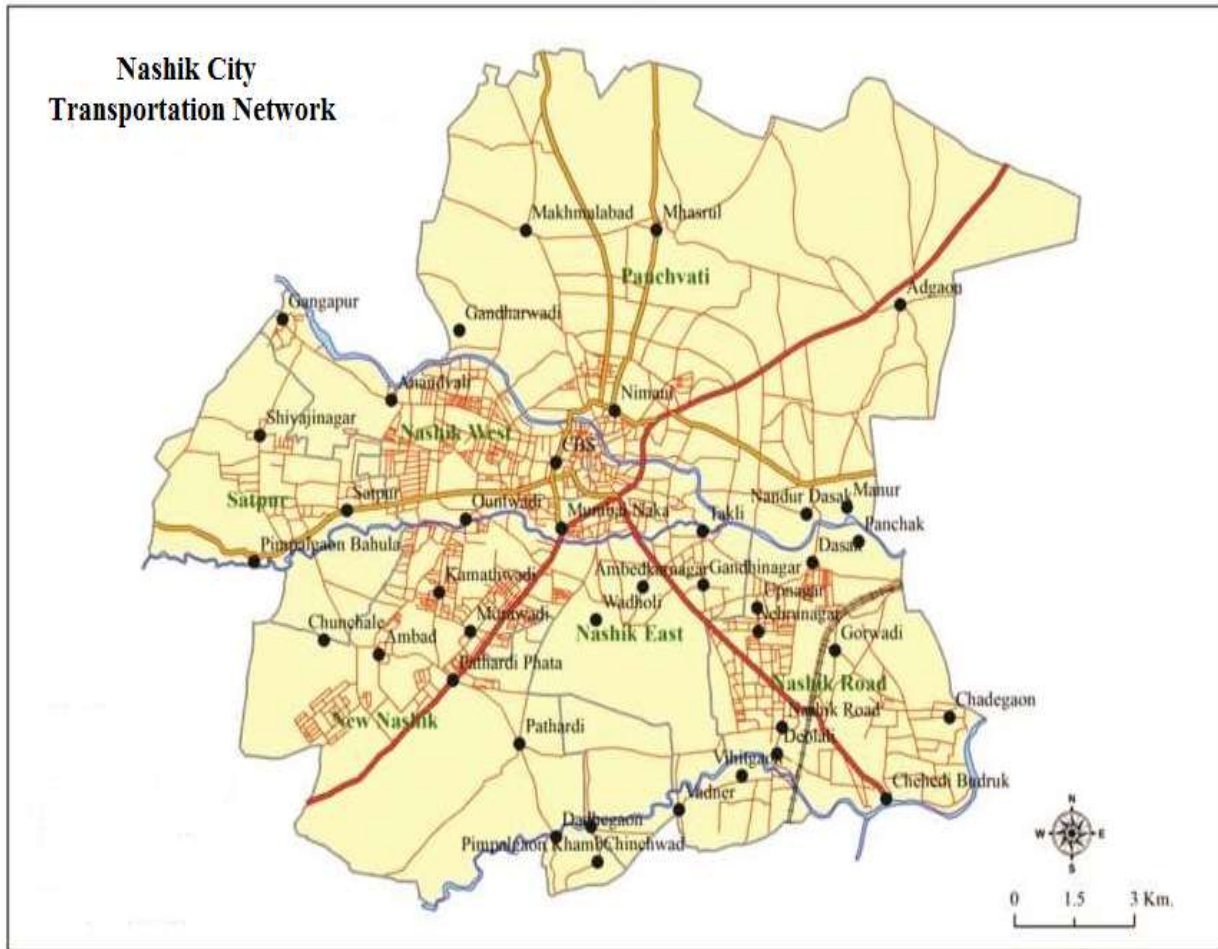


Fig.06: Nashik city transportation network

Nashik city also having well railway connectivity to the Manmad, Bhusaval junction and Mumbai .Ozar airport is also situated in the Nashik city and it has been connected to Delhi, Pune, Mumbai, Agra and Tirupati etc.Internal transportation network of the city is also well in the way of means and modes of transportations it is well connected with all the suburban areas of the city and all the villages near by the city and public transportation is very well maintained in the city.

5. Population growth and Sex ratio :

Population characteristics of the Nashik city mainly population decadal growth is studied in this research as well as focused on the decadal sex ratio of the city.

Table no.03: Nashik city Population growth

Sr.No.	Year	Total population	Decade Wise Growth	Growth in Percentage
1	1901	21,490	-	-
2	1911	30,098	8,608	+40.06
3	1921	38,230	8,132	+27.02
4	1931	45,744	7,514	+19.65
5	1941	52,386	16,642	+14.52
6	1951	97,042	44,656	+85.24
7	1961	1,31,103	34,061	+35.10
8	1971	1,76,091	44,988	+34.32
9	1981	2,62,428	86,337	+49.03
10	1991	6,56,925	3,94,497	+50.33
11	2001	10,77,236	4,20,311	+63.98
12	2011	14,86,053	4,08,817	+37.95

Source: Census of India, District census Handbook, Nashik

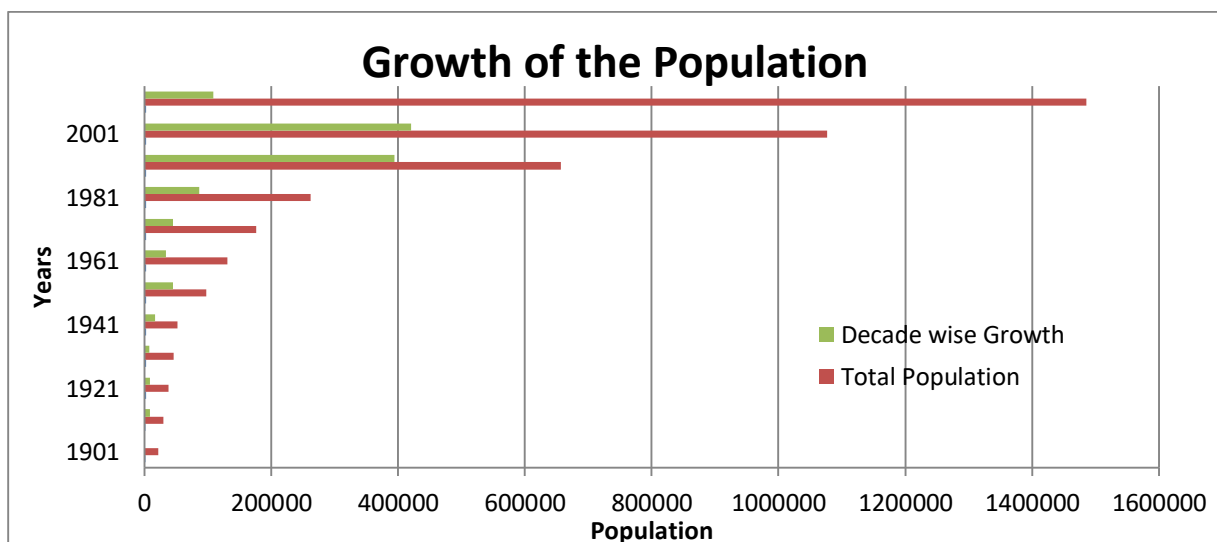


Fig.07: Nashik city Population growth

Population is the main resource of the development of the any region in the Nashik city population was rapidly increased highest growth rate of the population has been seen in

the year 1951 that is 85.24% followed by year 2001, 63.98% and in the year 1991, 50.33% of growth in the population has been seen .Very low population growth seen in the year 1941 that is 14.52%.

Table no. 04 Sex Ratio Nashik city

Sr.No.	Year	Sex Ratio
1	1971	898
2	1981	911
3	1991	891
4	2001	871
5	2011	899

Source: District census Handbook Nashik

Nashik city sex ratio having the drastic changes from the year 1971 to the 2011 it has been increased in first decade then rapidly decreased for continues two decades and after that in the year 2011 it has been observed the increasing trend in the sex ratio of the city.

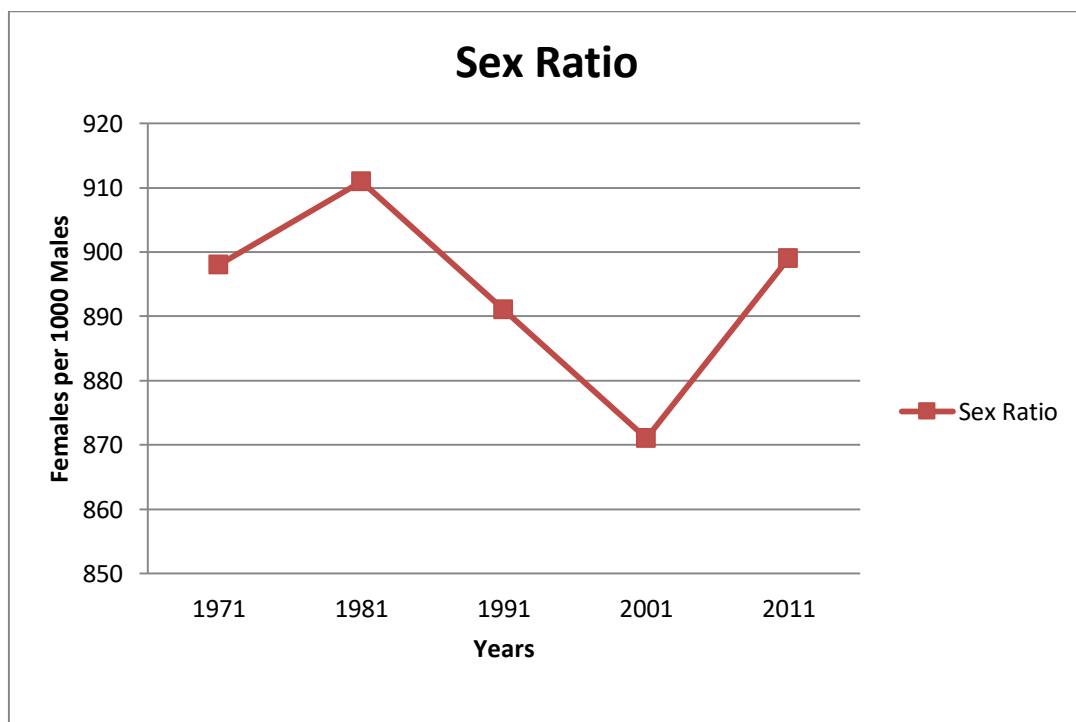


Fig.08: Nashik city Sex-ratio

6. Summary and Conclusion:

In the year 1881 Nashik city was reside in 13 sq.km area. In the year 1901 it has become changed in up to 20 sq. km. In 1951 it was reached up to 47 sq. km area. Year 1971 population amplified rapidly and region expanded up to 259.10 sq. km. 25 villages are included in Nashik city, Makhaamlabad, Mhaasrul ,Manur, Panchak, Nandur, Dasak, on Pathardi, Dadhegaon, Pimpalgaon Khamb, Gangapur, Pimpalgaon Bahula and Satpur are the some of important villages included in the Nashik city province. Mainly rainfall is high in the months of the south west monsoon period that is June, July, August and September. Humidity in the evening very high recording as a 98% in the June and very low evening humidity recorded in the April that is 15%. Temperature in the year 2018 is very high in the months of April and May. Highest proportion of the land is occupied by the Residential purpose it is about the 37.62% of the total land the industrial space having 11.44%. Nashik city having strong transport network; internal as well as it has been connected to the other states and districts very well. Population is the main resource of the development of the any region in the Nashik city population was rapidly increased highest growth rate of the population has been seen in the year 1951 that is 85.24% followed by year 2001,63.98%.

Nashik city is one of the rapidly growing urban spaces in the western Maharashtra and having extreme potential in terms of Industrial development and development of transportaional networks mainly for the trade purpose. Skill Education, recreational development also has to take place in the city and it becomes hub for the Indian cultural evolution we have to cooperate with the NGO's and the administration with active participation of the citizens.

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Acknowledgement:

I would like to thank all the government agencies for supplying the required data for this study. I also express my sincere gratitude to my research guide for his valuable guidance to carry out the present work. I also thankful to the anonymous reviewers for their comments and suggestions which helped in improving this project. I also thankful to S. P. P. University, Pune Maharashtra, India.