

Trend Of Population Growth In Sangli-Miraj-Kupwad Municipal Corporation Of Maharashtra**R. G. Jadhav**

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Abstract:

The urban population of the world has grown rapidly from 751 million in 1950 to 4.2 billion in 2018. Maharashtra is third most urbanised state of India, where SMKC is biggest urban entity of Sangli district. Present research focuses on urbanisation and trend of population growth of Sangli-Miraj-Kupwad municipal corporation. The study correlates the many historical events and changes in population of Sangli and Miraj city. Present research is based on the secondary data and statistical methods were used for the population data and estimate the future growth of city. It is concluded that the SMKC is biggest and fastest-growing city of Sangli district. There are significant changes in population within last 12 decades. Historical events are responsible for the urban growth of SMKC. Before 1930 the Miraj city was biggest city of present Sangli district. Political leadership, shifting of the capital of SangliJahagir and historical events are responsible for the population growth. The polynomial regression shows population of Sangli and Miraj will be combinedly more than 8 lakhs by the year 2050.

1. Introduction

Today, 55% of the world's population lives in urban areas, a proportion that is expected to increase to 68% by 2050. The urban population of the world has grown rapidly from 751 million in 1950 to 4.2 billion in 2018.

Cities are very dynamic and growing at very fast rate. It is just like an organism that never remains static. In 2014, over 54 per cent people in the world resided in urban areas where as India's 46 per cent lives in urban area. Maharashtra is third most urbanised state of India, out of total population of Maharashtra 45.22 per cent people live in urban regions in 2011. As mention in census 2011 population 25.49 percent lives in urban regions of Sangli district. The total 719,357 people live in urban areas out of which 502,697 people lives in single city Sangli-Miraj-Kupwad (SMKC). The concentration of the population is generating rapid urban growth observed in SMKC. Keeping in this mind present research focuses on urbanisation and trend of population growth of Sangli-Miraj-Kupwad municipal corporation.

2. Objectives of Research

The main objectives of the present research work are to analyse the trend of population growth and understand various historical events responsible for urban growth of Sangli-Miraj-Kupwad municipal corporation.

3. Study Area

The study area (Figure 1), the Sangli-Miraj-Kupwad (SMK) city lies between latitudes 16°46'28" N and 16°53'45" N and longitudes between 74°31'08" E and 74°40'51" E and cover an area of 105 sq km. The ground slope rises gradually from the river, with RL 535 metre towards the hill with the highest RL 685 metre (2,247 ft) at the Kupwad Hill.

The city is very fortunate in having perennial river Krishna flowing through it which developed cash crop agriculture around the city. The climate of SMK is typical monsoon. The temperature ranges from 15°C to 35°C. The average rainfall is 45cm with more rain during southwest monsoon period. SMK city is only one metropolis urban centre in Sangli district (census 2011). It has grown quite haphazardly. The present growth is due to various factors such as district headquarters, industrialisation, market, transport and medical facility. The city is well connected to nearby cities like Kolhapur, Satara, Belgaum, Bijapur etc. It is located 50 km off N.H. No 4 (Mumbai-Bengaluru). In 2001 population of SMK city recorded 4,46,303 and 5,02,697 with growth rate 12.63% in 2011.

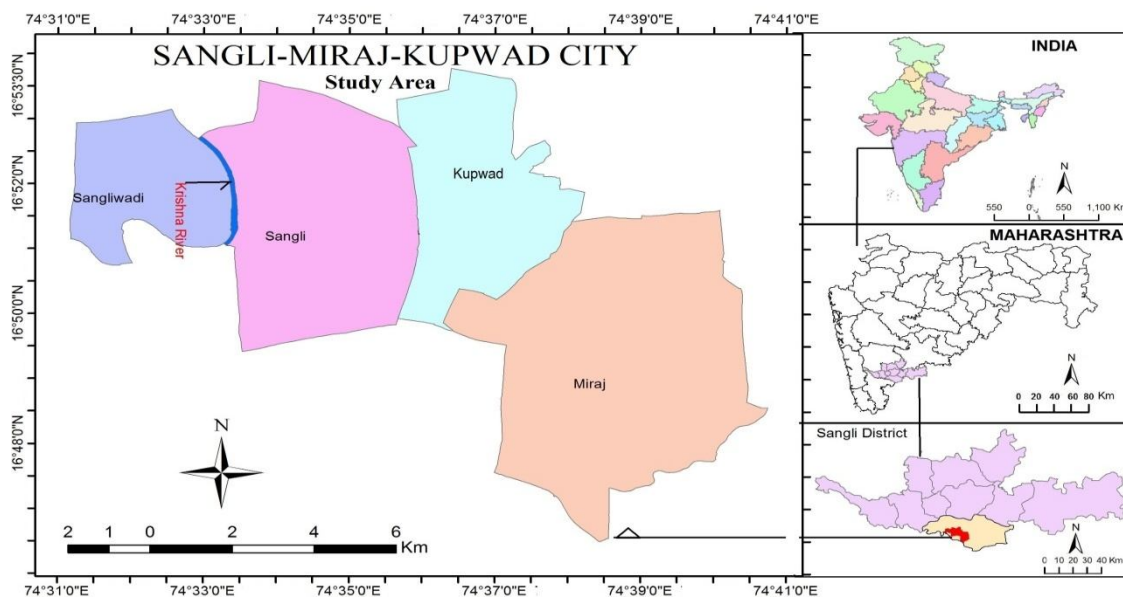


Figure 1 Study Area

4. Methodology

Present research work based on secondary data. The Survey of India toposheet number 47/L/9 is used for the base map. The municipal ward boundaries were digitised from SMK city map. The population data were received from the district census handbooks of Sangli district 1951, 1971, 2001 and 2011. The growth of population were calculated decade wise and regression analysis method used for estimate the future growth of SMK city. The historical events were collected from the different books and gazetteers and try to correlate the events and changes in size of the population of SMK city. Thus, the present study used the empirical study approach for the research work.

5. Results and conclusions

A) Changes in administrative Setting and Population Changes

Miraj tahsil is the most urbanized tahsil of Sangli district because its major portion is occupied by SMK city. SMK city local governing body was established in year 1998 under the Bombay Provincial Municipalities act, 1949. Sangli-Miraj-Kupwad city is bounded by the Karnal, Madhavnagar, Kawalapur, Bamnoli, Savali villages, Malgoan to the north and Takali, Vaddi villages to the east. On the southern side, it is bordered by Ankali, InamDhamani, Bamni, Nilaji, and Sandoli, Kasabe-Digraj, Haripur to the west. The

Southern part of Sangalwadi and Miraj is confined by natural river boundaries fallow as administrative boundaries.

The present study area as new city pattern came into exists during 1999. There were three individual municipalities (i.e. Sangli, Miraj and Kupwad) functioning in close proximity, which clubbed together and formed Municipal Corporation. There are total four prabhags (sectors) in SMKMC (Fig.2.1). Prabhag are the administrative divisions formed by clubbing many wards together. During initial phase in 1951 the city comprised of 9 wards out of them 4 wards from Sangli and 5 wards from Miraj. In 2001, there were 69 wards in SMKMC, wherein Sangli city contains 38 wards, in Miraj includes 24 wards and Kupwad has 7 wards.

Sr. No	Name of Area	No. of Wards	Area in sq. km.	Population
1951	Sangli	04	11.0	50,287
	Miraj	05	16.4	40,224
	Kupwad	-	-	-
Total		09	27.4	
2001	Sangli	38	41.30	2,32,106
	Miraj	24	40.00	1,45,367
	Kupwad	7	20.7	59,308
Total		69		4,36,781
2011	Sangli	39	41.30	2,60,776
	Miraj	25	40.00	1,62,884
	Kupwad	10	23.28	79,133
Total		74	104.58	5,02,793

(Sources: District Census Handbook 1951, 1971, 1991, 2011)

b)Population Structure

According to 2011 census Sangli-Miraj-Kupwad had 5,02,793 population. Sangli city has largest share of population whereas the lowest share covers the Kupwad. Add four sentences Sex ratio indirectly depicts the social status of the females.

City →	Sangli	Miraj	Kupwad
Total Population	260776	162884	79133
Male Population	131423	81826	40391
Female Population	129353	81058	38742
Sex Ratio	984	990	959
Male 0-6 Population	10.73 %	11.63 %	11.58 %
Female 0-6 Population	9.97 %	10.449 %	10.63 %
Male literacy	52.49 %	52.55 %	52.99 %
Female literacy	47.50808	47.45 %	47.0 %
SC Population	35218	24286	13528

St Population	1760	1130	606
Working Population	35.00 %	33.77 %	34.04 %

(Reference: Census of Maharashtra 2011)

Miraj city have 990 sex ratio recorded which express good status in the social life. In Kupwad due to migration decline sex ratio is 959. Female literacy average rate is 47.44% stated the scope to increase the literacy. Child sex ratio (0-6 age) of female recorded lower than male child indicates that there is need to improve social acceptance of girl child.

C) Population growth

The population growth is a key factor of urban sprawl. The first and foremost reason of urban growth is increase in urban population. Sangli-Miraj city has rapid growth which is the result of natural increase in population and migration to urban areas. Natural population growth results from excess of births over deaths.

Table 3 Population Growth (Year 1901 to 2011)

Year	Sangli population	Decadal Growth (%)	House holds	Miraj Population	Decadal Growth (%)	House holds	Kupwad population	Decadal Growth (%)	House holds
1901	16829		-	18425	--	-	-	-	-
1911	16141	- 4.09	-	21168	14.89	-	-	-	-
1921	20366	26.18	-	21424	1.21	-	-	-	-
1931	27373	34.41	-	26465	23.53	-	-	-	-
1941	34781	27.06	-	32455	22.63	-	-	-	-
1951	50287	44.58	-	40224	23.94	-	-	-	-
1961	73838	46.83	14742	53345	32.62	9752	-	-	-
1971	115138	55.93	21790	77606	45.48	13552	-	-	-
1981	152389	32.35	28617	105455	35.89	18259	-	-	-
1991	226510	48.64	37726	125407	18.92	24294	-	-	-
2001	232106	2.47	47632	14536	15.92	2771	59308	-	12767

				7		6			
2011	260776	12.35	57874	16288 4	12.05	3450 8	79133	24.5 1	17680
(Source: District Census handbook of India 1971to 2011)									

Many people died because the area suffered from Malaria and Plague in 1908 (Sharma, 2005). The decade 1911-21 is marked with shrink in the population of the country. During this decade, however, population of Sangli increased at the rate of 26.18 per cent and the size of population became 20,366 in 1921 whereas population of Miraj increased at only rate of 1.21 per cent and the size of population became 21,424 in 1921. In this decade Sangli-Miraj population was near about same.

In the last century (1901 to 2011) Sangli and Miraj both cities had recorded continuous growth of population. It is depicted in Table number 3.1. Sangli and Miraj had 16,829 and 18,425 population in 1901. As per 2001 census, Sangli had 2,32,106 population while Miraj had 1,45,367 population, Kupwad had only 67,136 population. Kupwad village merged in SMKC in 1998 and it became urban entity so that in 2001Kupwad population is considered as urban population. Urban population of SMK city was 4,44,609 (2001) and 5,02,697 (2011) which shows 12.63 per cent growth rate in 2011.

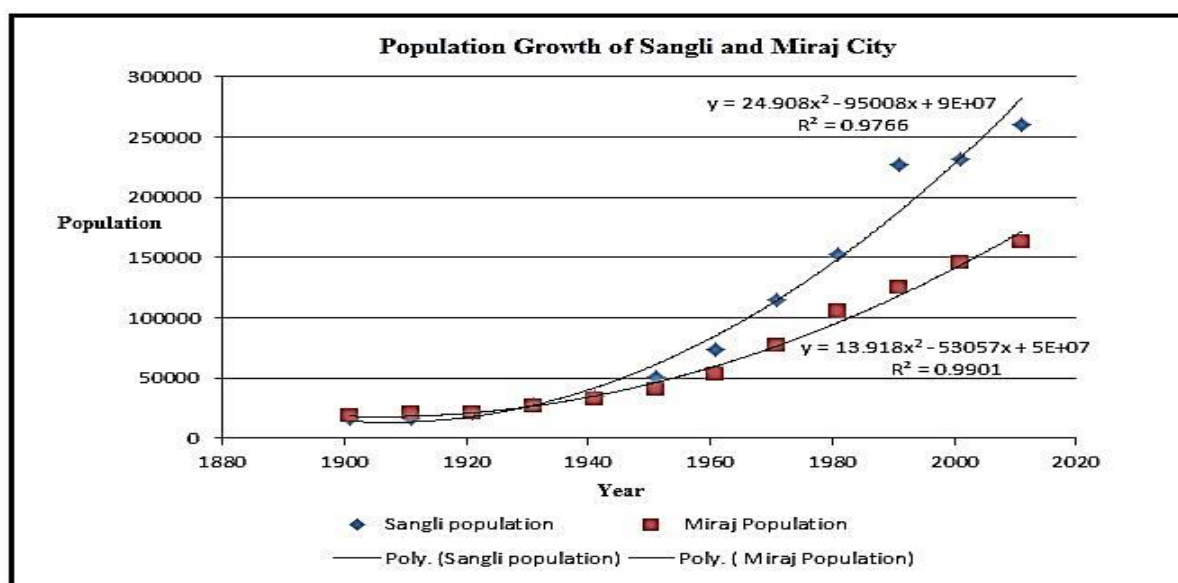


Figure 2 Population Growth of Sangli and Miraj City Source: District Census Handbook Sangli 1971 to 2011

Sangli contributes more than thirteen times population growth while Miraj deserve only more than 8 times in the last century. It is clear from the table no. 3.1 that the urban sprawl in various directions with respect to different causes and consequences. In Sangli city the highest growth rate (55.93 per cent) of population was recorded in the decade 1961 to 1971 while the lowest growth rate reported negative (- 4.09) in 1901 to 1911. Sangli city population growth trend line is steep. There was fast growth rate during 1940 to 1990 and

decadal growth rate 2.47 during 1990 to 2001 shows near stagnant stage. In the next decade again there was pickup in the population growth.

Population growth in the last 120 years of Sangli-Miraj city experiences fit into polynomial regression model. Sangli estimate population will be 5,28,561 on the year 2051 calculate by $y = 24.908x^2 - 95008x + 9E+07$. The $R^2 = 0.9766$ shows that 97.66 per cent model answer will correct. Miraj city’s population will 3,10,453 on year 2051.

In case of Miraj highest growth rate was observed in the decade 1961 to 1971 that was 45.48 per cent whereas in 1911 to 1921 decade smallest growth rate only 1.21 per cent was experienced. There was continuous fast growth in population from 1931 to 1981 decades. Recently the movement of people from rural to urban areas within the country (internal migration) is most significant. As per 2001 census of India, rural to urban area migration in Sangli district was 25 per cent. It shows that there is small share of population growth due to the natural growth.

Table 1 Population estimation of Sangli city			
Year	Sangli population	Polynomial regression estimated population $y = 24.908x^2 - 95008x + 9E+07$	Difference From actual
1901	16829	0	0
1911	16141	13536	2605
1921	20366	17924	2442
1931	27373	27296	77
1941	34781	416523	-6872
1951	50287	60994	-10707
1961	73838	85320	-11482
1971	115138	114631	507
1981	152389	148926	3463
1991	226510	188206	38304
2001	232106	232470	-364
2011	260776	281719	-20943
2021		335953	
2031		395171	
2041		459374	
2051		528561	

Source: Census of India 2011

Migration leads to long-term relocation of an individual, household or group to a new location outside of the core city. This migration from the other states is also observed but more than 80 per cent migration is from the Karnataka State. Besides states like Gujrat, Bihar, Madhya Pradesh, Uttar Pradesh etc. contribute the migration towards SMK. SMK’s internal migration is the result of pull factors which perceived better opportunities of higher salaries, services and better lifestyles. It attracts poor people migration from rural to urban.

Year	Miraj population	Polynomial regression estimated population $y = 13.934x^2 - 142.16x + 18262$	Difference From actual
1901	18425	18134	291
1911	21168	18239	2934
1921	21424	20992	432
1931	26465	26538	-73
1941	32455	34870	-2415
1951	40224	45989	-5765
1961	53345	59895	-6550
1971	77606	76587	1019
1981	105455	96067	9388
1991	125407	118333	7074
2001	145367	143386	1981
2011	162884	171226	-8342
2021		201852	
2031		235266	
2041		271466	
2051		310453	

Source: Census of India 2011

Kupwad have population 79,133 in the year 2011 and 59308 in the year 2001. Kupwad city is experiencing 24.52 per cent population growth in decade 2001 to 2011. In the case Kupwad this growth is not natural but due to migration for the jobs in the industrial area. This migration of the workers is from the district level to intra national level. Thus, the growth in population in the form settlement is responsible for the sprawl in and around the SMKC. That is why we need to go through the household growth.

Historical Events Responsible for Sprawl

Before the Industrial Revolution, of the late eighteenth and nineteenth centuries, people mainly lived in rural areas or small villages. Even though cities had existed for thousands of years, and had been planned to some extent right throughout this period, before the Industrial Revolution only a tiny fraction of the world’s population lived in urban areas (Elkin et. al., 1991). Present status of the SMK city is result of the historical events. The historical events are discuss following with respect to Sangli-Miraj-Kupwad city.

Year	Sangli population	Decadal Growth (%)	House hold	House hold %	Miraj Population	Decadal Growth (%)	House hold	House hold %
1961	73838	46.83	14742	-	53345	32.62	9752	-
1971	115138	55.93	21790	47.81	77606	45.48	13552	38.97

a) Sangli

On 10th June 1764 Saranjam territory, yielding Rs. 25,41,900 annually, conferred by Peshwa Madhavrao-I upon Govind Hari Patwardhan, for maintenance of 8000 horsemen (Limaye, 1955). Govind Hari established the capital of his Jahagir at Miraj and resided there till his death. Thus as a capital of the state attract the peoples towards the Miraj town. In the year 1799 clashes between Chintamanrao Appasaheb and his uncle Gangadharrao resulted Chintamanrao decided to left from the Miraj mahal and settled at Ganpati Mala the river bank of Krishna. In the year 1801 Chintamanrao made Sangli (farmsteads of Ganpati Mala) his capital and shifted his residence. That time farmstead have 6 lain of houses which are situated on small hillock on the bank of Krishna river.

Due to administrative work the farmstead became a town. The town has only 2.4 sq. km. area in the year 1807. The Ganesh Durg (Fort) and four ghats construction was completed in 1808. Labours engaged in construction of fort were settled around the fort. Thus Khan Bhag new residential area was emerged. Industrial job opportunity gradually encourage farmer migrate toward the urban area. The adoption of new pilgrimage centre, technology and industry behave as pull factors. In the year 1831 first printing press set up at Sangli. Shri Ganpati’s idol was installed in the new temple in Sangli on 28th March 1848. New settlements were established in front of the temple having gridiron pattern. This new settlement became as market place of Jewelry, Clothing, and Retail market.

On 6 to 8 July 1853 highest recorded flood was recorded of the Krishna river at Sangli. The settlement of Sangli shifted towards the Ganesh durg fort. First dispensary for dispensing English median in the year 1855 from the required the medical facilities. In the year 1864 English and Marathi mediun schools were started. Sanskrit school was started one year later.

In the year 1875 Municipal council was founded. During this period Sangli has developed in respect to several facilities. It has increased area to 12.8 sq. km. having a population of

14,798. Sangli state Bank opened by Sangli Government in 1893. The facility of bank for traders leads to increases in trade. Within the hundred year from establishment as town it extend upto *Ganesh Durg, Ganpati Mandir and Peth Bhag*. Growth of town is restricted to north due to natural drainage “Sheri Nala”.

1st April 1907 State Railway from Sangli to Miraj was opened. Trains generated sub-centres, with the train station at the heart of a number of pedestrian pockets with similar characteristics to that of the walking city. The technological development of passenger trains in the latter part of the nineteenth century enabled cities to form a new style of development, characterised by an increasing push outwards. Sangli city growth toward the eastern direction and it developed new settlement area like Shivaji Nagar, Timber market etc. On July 1908 free and compulsory primary education started in Sangli state. Sangli Water-works completed in January 1913 and surety of water available throughout year attracted the peoples for settlement. In 1914 Gajanan Weaving Mills set up at Sangli. Industrial job opportunity gradually encourage farmer migrate toward the urban area.

On 4 to 6 August 1914 Sangli town was under high flood. It result that in 1914 the committee appointed to formulate and carry out the scheme of Sangli town extension. The survey for the planning completed in 1916. Thus town extension began with proper planning.

Sangli experienced severe famine condition in 1918. Cheap Grain shop was opened in August 1918 to overcome the condition. Many people migrate from the rural area for the food security. On 22 June 1918 Willingdn college opened and facility of higher education available for south Maharashtra and north Karnataka. The Migration from the rural area starts for the higher education. Many villages situated at right side of river Krishna were connected to Sangli city by opening of the “Irwin Bridge” on 18th November 1929. Migration barrier of river was little bit reduced by construction of “Irwin Bridge”. In 1931 City Improvement Board for Sangli set up to regulate the future expansion and promote Town Extension Schemes.

In September 1933 high school (Rani Sarswatidevi Kanya high school) was opened at Sangli town. Today's Walchand college of Engineering started in the year of 1932 and technical education facility added in 1947. Electric power made available in Feb 1937 at Sangli. Jubilee electric work was control over the supply. On 4th August 1944 the agreement for large-scale industrial and agricultural development concluded by State with Mr. Vaman Shridhar Apte of Bombay. In the year 1947 Master plan for the future extension of Sangli city prepared. Today's industrial area and timber area were started between years 1935 to 1945. From above historical events of starting facilities such as Water, Banking, Education facility for the woman, Higher education, industrial job opportunity, Electrical facility, road and railway network, medical facility, market and cheap food grain shops were attracted the people of rural area in Sangli city before independence which marked present condition of the city. Sangli city expansion was clearly noted in eastern and north-eastern direction.

After 1950 trend of urbanization and expansion of Sangli city was differently witnessed. Five year plan focused on the economic development through industrialization, and irrigation facilities in agriculture. These reflected on urbanization of Sangli city. Agriculture product market yard was established in eastern part of *Kali khan* and successfully trading started by Agricultural product committee. It gives rise to expansion of city in east direction. Co-operative sugar industry was set up in Sangli city in the year 1958 and it became

turning point of development. Farmers lived in about 30 Km. radius were connected to city due to sugar industry and market yard.

New Sangli Co-operative Industrial Hosing Society established in the north of Sugar Factory. Establishment funds and tax concession gave by Sangli Municipal Corporation was worship for the hosing society. Shanti Niketan educational institute was open in west of Sugar factory in the year 1963 and industrial training institute was open at Sangli Co-operative Industrial Hosing Society. The society received was education facility within area of residence which attracts the rural area.

After establishment of the Chintamanrao College of Commerce, Sangli at Vishrambag in 1962, the area became educational centre where people get technical, commerce, arts and science education. Including this new settlement Sangli city's area recorded 11.42 sq. km in the 1961 which increases upto 20.65sq. Km. in May 1962. Maharashtra State Electricity distribution Board office set up at Vishrambag in 1963 and district government medical hospital established with 100 bed capacity at Sangli. Police Commissioner Office (Head Quarter) was started at Vishrambag in 1965 and agriculture income market committee's Guest House and Sangli district Zillha Parishad office constructed at Sangli-Miraj road. In 1967 Kolhapur to Vishrambag bypass road constructed which lead to expansion of Vishrambag as a part of Sangli city. Bharat Cotton Mill established at Kupwad in the year 1973. Sangli city connected with broad gauge railway line which added the connectivity.

b) Miraj

As mentioned in Sangli Gazetteer, Miraj is old military encampment of different dynasties from 10th to 18th century, situated at the bank of Krishna River. In 1024 AD, Miraj was ruled by Narsimha of the Silahar dynasty. From 1216 to 1316, the Yadavas of Devgiri ruled the town. In 1395, the Bahamanis conquered Miraj. Between 1391 and 1403, Miraj was affected by the Durgadevi famine. From 1423, Malik Imad Ul Mulk ruled Miraj. 1494 was the year of Bahadur Khan Gilani's rebellion. For two months of 1660, Shivaji Maharaj and Adilshah battled for control of Miraj. In 1680, Santaji Ghorpade became Deshmukhi of Miraj and six years later, the town was captured by Aurangzeb. In 1730, Chatrapati Shahu of Satara instructed Pant Pratinidhi to attack the town. Shahu gains power in Miraj on 3 October 1739 and brings Maratha rule. In 1761, Harbhat Patwardhan's son, Gopalrao, took the Miraj Jagir from Peshwa Madhavrao. In 1801, the Miraj was divided into two parts, Miraj and Chintamanrao with Sangli. In 1819, British rule is established and in 1948, the Princedom of Miraj becomes part of the Republic of India.

According to Kulkarni K. G. (1988) the growth of the city is limited due to warfare. It is around the Mirasaheb Dargah and Miraj Fort, old mosque and old village. The growth of the city was originally started after 1861. The dam was constructed over the nala drain from Malgoan to Miraj and backwater used for drinking purpose. Miraj Municipal Committee was established in 1875. Miraj city became junction place after starting the railway. In December 1887 Miraj –Belgoan meter gauge, in 1890 Miraj-Pune broad gauge, in 1891 Miraj-Kolhapur, in 1907 Miraj-Sangli, in 1927 Miraj-Latur narrow gauge railway were started.

During 1875 to 1881 Kalyan Market, *Muttan* (meat) Market, Post Office, Town Hall and many schools are established. Mission Hospital was started in 1891. Main building of this hospital set up at the north of Miraj City which gave 50 beds admits facility, nursing training

centre and medical school. This medical centre became main reason of expansion of city in the north.

At the central place of Miraj *Gavthan* Laxmi Market constructed in 1932. Municipal Corporation office started at the first floor of Laxmi Market. Industrial growth of the city started after the The Indian Hume Pipe Company, Miraj Factory started in 1934, Marathe Textile Mill in 1943 and Miraj Milk Collection and processing Centre in 1961. On the western side of the Miraj city set up the Agriculture Product Market Committee established in 1954. Shivaji University considered demand of doctors and opened the Miraj Medical College (Government), DBS Miraj College Miraj at Miraj- Pandharpur road. Miraj industrial area set up at north-west of Mission hospital. The expanding urban sprawls result of “rural push” and “urban pull”. People migrate from surrounding rural area to Miraj urban area in order to find better opportunities. Because of the economic stagnation, and poverty in the rural areas due to rainshadow zone, people have been forced to move to urban areas in order to improve their living conditions. Miraj city have been became as places attracting people because junction, medical and educational facilities, infrastructures, and services are provided. It is the centre of business, economic, education, commercial, industry, and a huge source of income.

Conclusions:

SMKC is biggest and fastest-growing city of Sangli district. There are significant changes in population within last 12 decades. Historical events are responsible for the urban growth of SMKC. Before 1930 the Miraj city was biggest city of present Sangli district. Political leadership, shifting of the capital of Sangli Jahagir and historical events are responsible for the population growth. The polynomial regression shows population of Sangli and Miraj will be combinedly more than 8 lakhs by the year 2050.

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