

# Urban Housing Density and Occupancy Rate At

## Kolhapur City in Maharashtra, India

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**Abstract** - The study of urban houses is important in various ways. Urban dwellings can be studied by focusing their distribution, building material, general features, occupancy rate and available facilities and assets in which distribution of urban houses and occupancy rate are fundamental. The number of persons per household is simply called as occupancy rate. Present paper aims to endeavor distribution of urban housing, occupancy rate and factors affecting on them. The Kolhapur city of Maharashtra has selected as an area for the present investigation, based on Census of India's Data. To study the distribution of houses simple density houses per hector and houses per ward has been computed. The number of persons per household has been computed to known the occupancy rate. The density of urban houses is noted high in seven wards, medium in nine wards and low in remaining sixty one wards. It is found that, the occupancy rate is high in highly populated and compacted wards and this occupancy rate in indirectly determined by physical factors.

**Key Words:** Urban housing, Occupancy rate, urban dwellings, Historical and rich cultural

### 1. Introduction

The core of the Settlement Geography is the building, where are they and why they are there? (Stone, 1965). The urban settlements could study at more micro scale and meticulously by focusing on urban dwellings. Houses invariable occupy the place of prime importance in the annals of man, because the house is a minor geographical phenomenon that is closely bounded with our everyday life (Burnhes, 1952). The study of urban houses is important in various ways. The study of urban houses is important for planning purpose also. Urban dwellings can be studied by focusing their distribution, building material, general features, occupancy rate and available facilities and assets. In the words of Kumbhar (1997) house provides the evidence of complex relations between man and his environment.

### 2. Aim and objectives

In this context, present paper aim to endeavor distribution of urban housing, occupancy rate and factors affecting on them. Objectives of the study are to identify the importance of the housing for rapid growing cities and identify the trends of housing density and occupancy rate in Kolhapur city

### 3. Study area

The Kolhapur city of Maharashtra has selected as an area of the present investigation. Kolhapur is the headquarters of the district, it is situated in the extreme southern part of Maharashtra State. It lies between 16°42' north latitude and 74°14' east longitude at an altitude of 650 m above the mean sea level, comprising 77 wards. The total population of Kolhapur city was 5, 49,236. The Scheduled Caste Population is 72,005 (13%) in 2011. The city of Kolhapur is located on the Right bank of river Panchaganga, a tributary of the Krishna, bounded on the north by the Panchaganga river, on the east Shirol Village, Uchagaon village, Sarnobatwadi village and Ujalaiwadi village .In the south it is demarcated by Kalamba and Pachagaon villages and on the west the boundaries of Balinge, Padali kh, Shingnapur, Wadipir, Nagdevwadi villages.

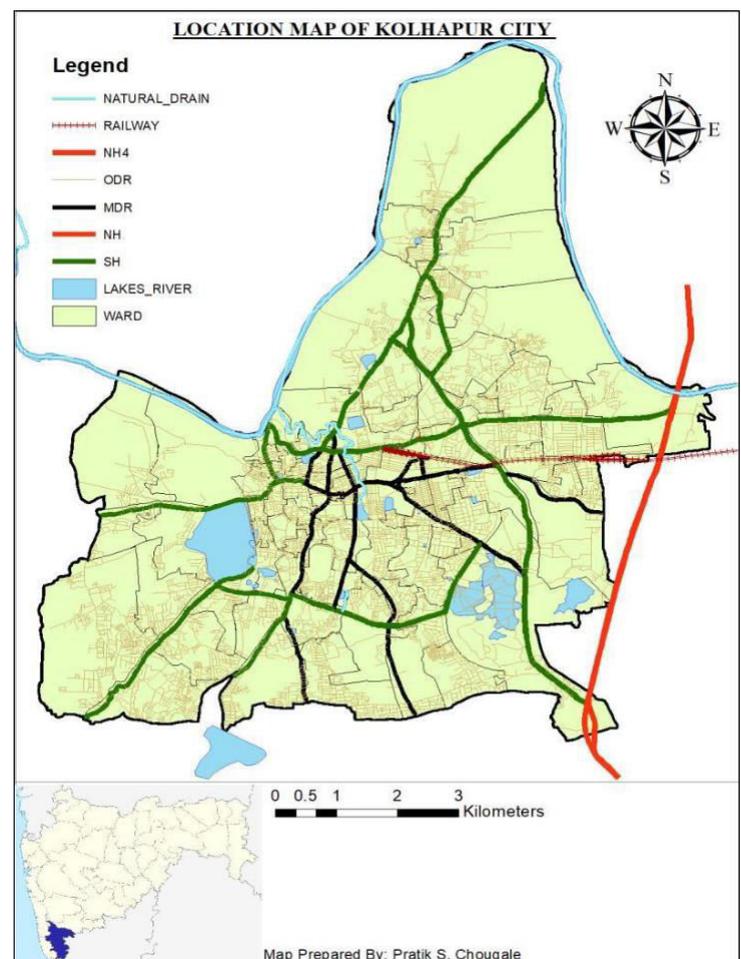


Figure 1: location map

The city has long historical and rich cultural background. So far as the situation of the city is concerned it is said that the city enjoys a central position between the rugged terrain of the Western Ghats to the west and the rolling plain in the east. The plain of the river Panchaganga near Kolhapur is 548 m above the sea level. Vishalgad-Panhala range, a spur of the Sahyadris, is situated to the north of the city forming the water shade between the Panchganga and the Varna basins. This range approaches very near to the city at the great loop of the river Panchganga. The Phonda – Savgaon range, another spur of the Sahyadris, forming the water shade between the Panchganga and the Dudhaganga basins. Thus the Panchganga vally is locked by these three sides. Kolhapur city known as the ‘Gate Way of Konkan’. Kolhapur and Konkan region has connected by Amba Ghat and Phonda Ghat. It covers an area of 66.82 sq. km with length 12 km in the northsouth directions and width is 11 km in the west to east direction.

#### 4. Methodology

To meet the objective of present paper, the data has been compiled from secondary sources like, district census handbook, 2011, Table on houses, household amenities and assets, series 28, Maharashtra Census of India, 2011, socio-economic review and district statistical abstract, 2010. To study the distribution of houses simple density houses hector and houses per ward have been computed. The number of persons per household has been computed to known the occupancy rate. The standard deviation of the same has also been completed.

#### 5. Literature review

Physical density is a numerical measure of the concentration of individuals or physical structures within a given geographical unit. It is an objective, quantitative and neutral spatial indicator. However, in practice, physical density takes on a real meaning only if it is related to a specified scale of reference.

For instance, density expressed as ratio of population to land area can vary significantly with reference to different scales of geographical unit. Take Hong Kong as an example: if the land area of the whole territory is taken into account, the overall population density in Hong Kong is about 6300 persons per square kilometer. However, only about 24 per cent of the total area in Hong Kong is built up. Therefore, if the geographical reference is confined to built-up land, then the population density will be about 25,900 individuals per square kilometer, which is four times the overall density of the territory. Hence, it is important that the scales of geographical references be explicitly defined in density calculation; otherwise comparison of density measures will be difficult. Nevertheless, there is no standard measure of density; there are only measures that are more widely used than others. In town planning, measurement of physical density can be broadly divided into two categories: people density and building density. People density is expressed as the number of people or household per given area, while building density is defined as the ratio of building structures to an area unit. (Vicky Cheng, Understanding density and high density)

#### Current Techniques of Residential Density Control

Controlling net residential population densities on given tracts of land has been posing a Problem for local planning authorities, particularly in developing countries. The techniques they commonly include specified:

- a) Sizes of building plots,
- b) Maximum building area (site coverage by buildings), c) maximum height of buildings,
- d) Minimum and maximum sizes of habitable rooms, and e) Number of habitable rooms.

For instance, some planning authorities regulate that the minimum size of the building plots in low density residential areas must be 10,000 square feet (100 x 100 ft.), 7,500 square feet (100 x 75 ft.) in medium density areas, and 5,000 square feet (100 x 50 ft.) in high density areas.

The maximum site coverage (building area) may be 35,55 and 65 percent in the low, medium and high density areas respectively. The maximum number of floors (storey) in residential buildings may be two, three and four in the three density categories respectively while the minimum and maximum sizes of habitable rooms may be 120 and 200 square feet. (Dr. Remi I. Obateru, Residential density control model revisited, 2004)

#### 6. Distribution

Housing provides security and minimum civic facilities and privacy to the human beings for decent living and also has positive impact on the individuals, physical and mental health and happiness enhancing their productivity (Shah and Jaiswal, 2002). Total housing stock of Kolhapur city is 1, 40,138. Out of that 19,873 houses are vacant and 1, 20,265 houses are occupied. According to the census 2011, in Kolhapur 1, 20,265 urban houses in 77 wards of the study area in which about 5, 31,571 people resides. Total household of Kolhapur city is 1, 24,194 it means, there are 3,929 household are houseless. i.e. 17366 people. However, the distribution of urban houses is uneven which can be grouped in the five categories according to their density.

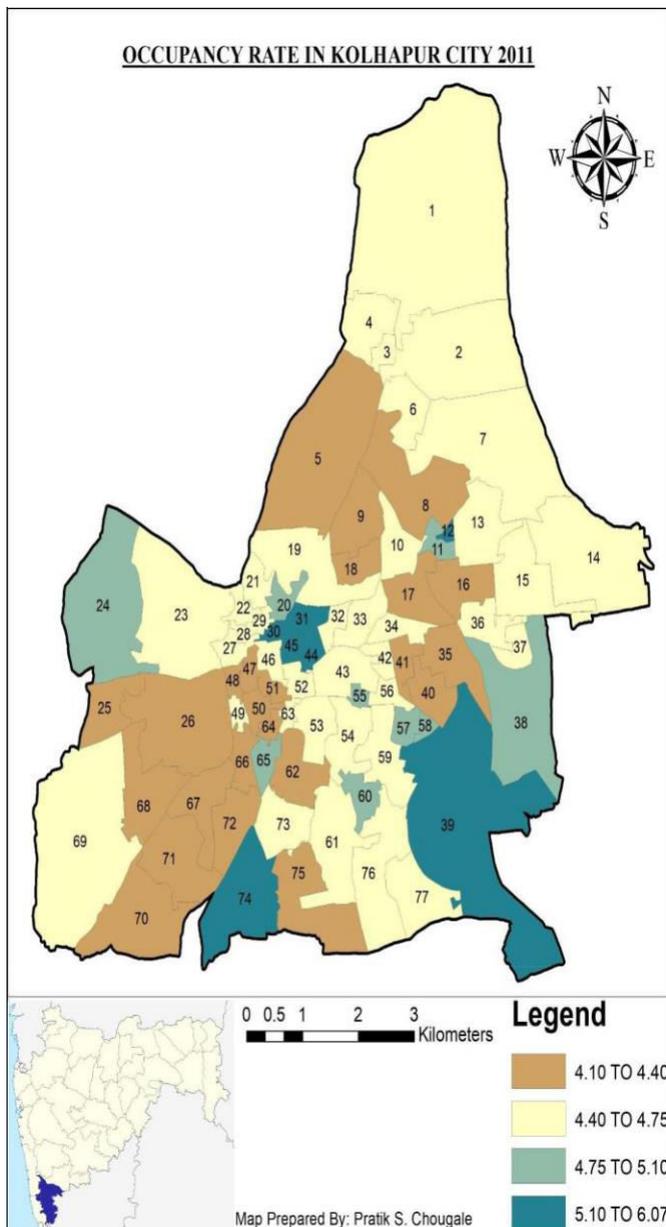
#### 7. Housing Density

There were 31 wards, where the density of housing is below 27 houses per hector. Wards are characterized by river and undulating topography with high Agriculture cover land use, Military land, Mills, Industry, institutional areas and as well as low road density. These factors lead to low density of house and also to low number of houses per village. There were 30 wards, where the density of housing is between 28 to 72 houses per hector. Wards are mostly lies periphery of the core city. Most of settlements are newly planned and some are having heritage values. There were 9 wards, where the density of housing is between 73 to 116 houses per hector. These ward are ward no.56 (Panjarpol), 3(Kasaba Bawada), 22(Panchaganga Talim), 47(Tatakadil Talim), 63(Shahu Bank), 51(Khari Corner), 44(Commerce College), 30(Bazar Gate), 48(Chandreshwar). This ward are the core and old settlement of the city, where we can observe the traditional style housing. There were 4 wards, where the density of housing is between 117 to 160 houses per hector.

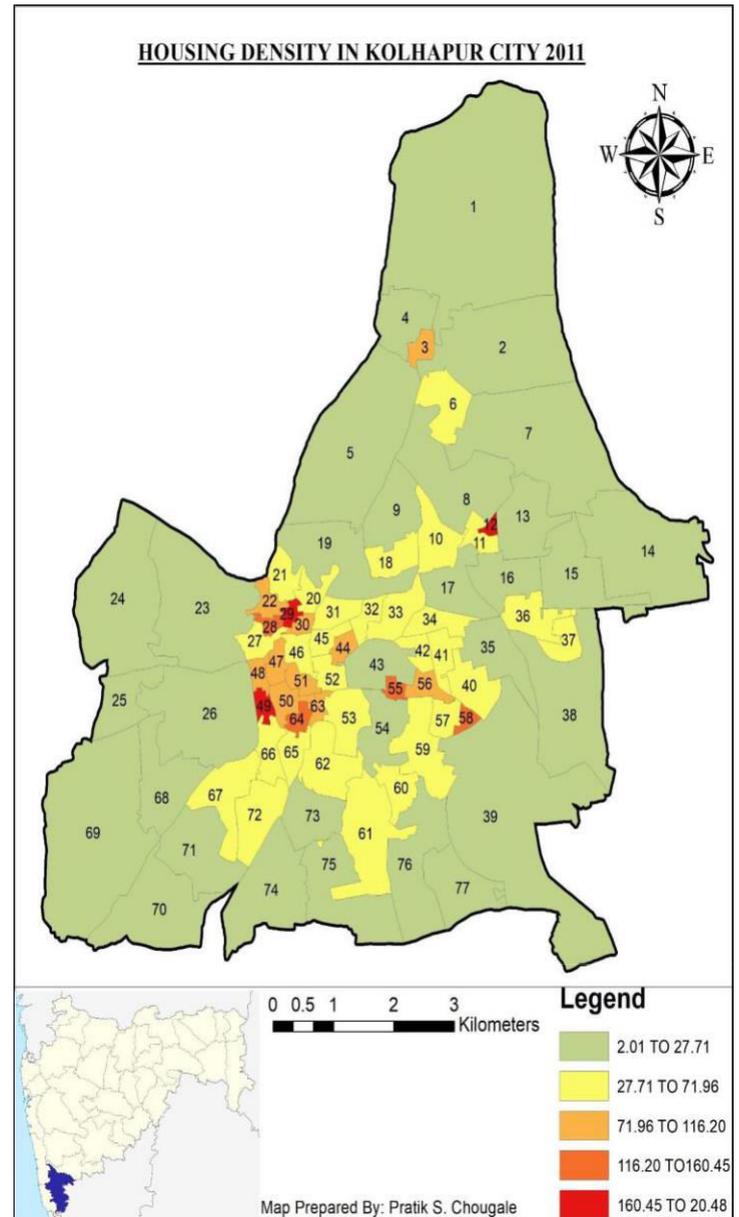
These ward are ward no.64 (Natha Gole Talim), 28(Sukrawar Gate), 55(Yadav Nagar), 58(Daulat Nagar). These wards are the congested ward in city. Most of houses are deteriorating. There were 3 wards, where the density of housing is between 161 to 210 houses per hector. These ward are ward no. 49(Padmaraje Udyan), 29(Kholkhandoba), 12(Vichare Mal).

**8. Occupancy rate**

The urban houses form one of the essential facts of unproductive occupation of the urban landscape (Brunches, 1952). The number of persons per household is simply called as occupancy rate. The general level of housing condition and amount of congestion in house can be understood by occupancy rate. According to Census of India 2011, about 1, 20,897 urban houses of the study area has been occupied by 5, 49,236 people. It means the occupancy rate of the study area is 4.54. Low occupancy rate records in ward no. 40 (Rajarampuri) High occupancy rate records in ward no 31(Treasury Office) (5.46) and 39 (Shivaji Vidyapeeth) (6.07), where in an average per house above 4 peoples reside.



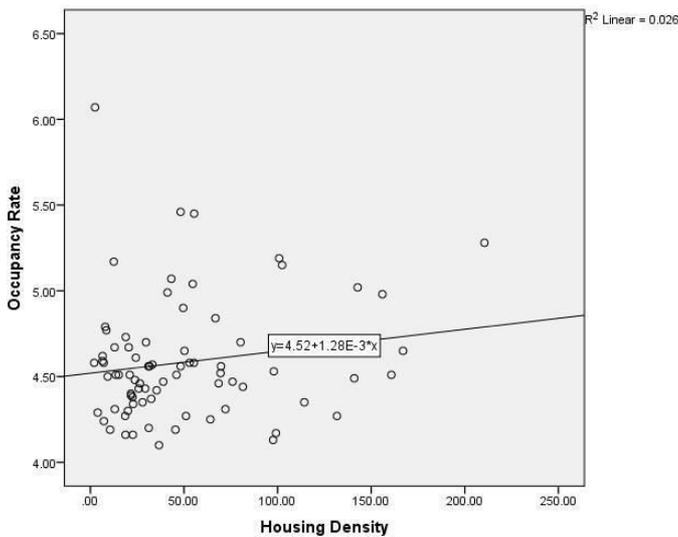
Map 1: Occupancy Rate Map of Kolhapur City



Map 2: Urban Housing density Map of Kolhapur City 2011

**9. Correlation between Housing Density and Occupancy Rate**

In general the geographical factors not affect on the occupancy rate of the study are but in particular the occupancy rate is affected by the type of urban settlement. The occupancy rate is positively correlated ( $r = 0.59$ ) with the percentage of compact urban settlements and negatively correlated ( $r = -0.41$ ) with percentage of dispersed urban settlements. This correlation analysis reveals that, the occupancy rate is high where the urban dwellings are concentrated. Contrary to this in dispersed urban settlements where the urban dwellings are deconcentrated over the space, the people living per house is also low. As discussed in chapter5 the concentration and dispersion of urban settlements of the study area are depend on the physical and cultural advantages and disadvantages. So, the occupancy rate in the study area has been indirectly determined by the physical and cultural conditions.



Graph 1: Scatter Chart of Housing Density Vs Occupancy Rate

**BIOGRAPHIES (Optional not mandatory)**



**Master in urban and regional planning**  
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**10. CONCLUSIONS**

The density of urban houses is urban houses is noted high in seven wards, medium in nine wards and low in remaining sixty one wards. It is found that, the occupancy rate is high in highly populated and compacted wards and this occupancy rate in indirectly determined by physical factors. It also be depend on other factors like affordability, choice, location, infrastructures etc. The People may argue that we cannot force the number of persons resident in a building, Agreed. However, there is a limit to the number of persons a building of a given size can physically or comfortably accommodate. When bylaws specify the size of a building via the number and size of the habitable rooms in it, DCR by and large control the number of persons capable of living in it. Precise control is impossible as human behavior is entirely unpredictable.

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