

A Study on Housing Growth Pattern in West Zone of Surat City

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Abstract - One of the most common problems faced by the developing countries like India is housing. Housing is one of the most important parameter for quality of life and almost everyone desires good housing. After independence Surat has been growing at rapid pace continuously and hence always nominated on top charts almost all other cities of country. It is its unique nature that subjects the city to variety of interesting problems or situation in housing. .West Zone of Surat city has been selected for the study of housing growth pattern. The selected study area is having a different nature in the housing growth in terms of old and new area after the city limit extension. The study area is based on the objective of analyzing the residential growth through different types of analysis. The methodology adopted is based on the literature reviewed and field survey has been conducted which consist of socio-economic survey of household in the study area. The analytical approach consists of the various building form analysis, land value analysis, floor area- income relationship and work place distance analysis for the housing growth pattern of the study area.

I. INTRODUCTION

Housing which ranks next only to food and clothing amongst basic human needs has always had and continues to have important socio-economic allusions. Particularly in countries like India which are in the throes of rapid development housing has come to assume a crucial role as it contributes significantly to the national economy and nation building. Housing is a process of composition of individual houses with reference to regulation to provide better residential environment. Housing plays an important role in community planning. It's physical quality may facilities or restrict everyday activities. It may affect physical and mental health of an individual. Housing location often determines social and economic opportunities. It does reflect on social and economic achievement also. Housing is an industry that plays an important role in the political, economical and social order. It produces nearly 30% of national wealth and is considered as a measure of employment potential.

Magnitude of housing requirements is linked to pattern of growth, settlement status and overall shelter quality. Cities and towns which are growing at faster rate need to develop and deliver a faster and greater supply of housing. Housing activities are to be planned according to the growth pattern of different settlements/cities. Second area of concern for adequate housing is the up gradation of existing housing including access to minimum services.

Housing growth probable can be defined as capability of a region to attract the house demanding population to satisfy their actual demand in the varying affordable manner. The housing Growth Potential is a complex phenomenon and depends upon various varying parameters. On the basis of various pilot housing studies and correlation findings few major factors were found highly influencing.

II. AIM & OBJECTIVES

Aim: To study current housing development pattern at particular zone and analysis the growth pattern of housing development.

The objectives of this work area as follows:

- To analyze the residential growth through building form analysis
- To identify the relationship between soaring land value and its impact on housing growth.
- To study affordable floor area and income relationship of housing owners
- To understand status of workplace distance choice behavior of residents.

III. STUDY AREA PROFILE

West Zone also known as Rander Zone of the Surat city is enclosed by the River Tapti as shown in Fig.3.1 West Zone of the city is one of the oldest and adjoin to the walled city area.

West Zone found to be low lying area in the City and is very prone to Flood effect. During the Flood in 2006, West Zone is identified as one of the critical area of concern.

Out of total seven zones of the city West zone have a total five wards upto the year 2006 which includes Rander(14-26), Adajan(27) ,Jahangirabad (63), Jahangirpura (64), Pisad (65). Out of these wards the Rander zone area is successfully implemented by many Town Planning Schemes.

Table 3.1: Ward wise Area, Household and Population of West Zone (2011) (Source: SMC, www.census2001.co.in, www.census2011.co.in)

It is clearly observed from table 3.3 that the highest houses identified in ward no.14 to 26 & 27 which is properly developed by implementing different T.P.Schemes in that wards. It is also observed that lowest houses identified in Pisad area which is mostly agricultural region. Presently 76928 residential houses occupied in the older area of West Zone while apprx 18134 houses occupied in the newer area of the Zone. As per the statistics there is 9.74% household is identified in West Zone with respect to the total household of the City.

Ward No.	Name of Area	Area in Sq.Km	Population			Density (ppha)			Decadal Growth Rate (%)	
			1991	2001	2011	1991	2001	2011	1991-2001	2001-2011
14 to 26	Rander	5.120	59549	86047	114632	116.30	168.06	223.89	44.50	33.22
27	Adajan	6.730	62620	152274	196970	93.04	226.26	292.67	143.18	29.35
63	Jahangirabad	4.160	3329	9288	27813	8.00	22.32	66.86	179	199.55
64	Jahangirpura	2.920	1027	1120	2165	3.51	3.83	7.41	9.11	93.47
65	Pisad	0.696	244	1751	4057	3.50	25.15	58.29	618.57	131.76
67	Pal	6.045	4459	11165	36107	7.37	18.46	59.73	150.47	223.56
68	Palanpor	3.008	1712	11496	23514	5.69	38.21	78.17	571.52	104.57
69	Variayav	22.6	8495	14003	19728	3.75	6.19	8.72	65.06	40.87
TOTAL		51.279	141435	287144	424986					

IV. STUDY PARAMETERS

Various parameters are selected for the analysis of housing growth pattern of the study area. These parameters are enlisted below with its requirement during the study of growth pattern of housing.

Building Form Analysis:

The building form analysis includes wardwise percentage distribution of different building form like Bungalow, Duplex, Rowhouses and Apartment. The distribution of such types of building form explains the growth pattern, Land value and density pattern of the particular region.

Ownership Analysis:

Parameter of ownership explains the existing scenario of Owned and Rented households. The overall percentage of migrant population may be clearly identified based on this analysis.

Floor Area – Income Analysis:

It is important to understand the floor area demand by varied categories of customers. This assessment is very useful in understanding housing market and to think of different building forms. Keeping this objective in view the frequencies and cumulative frequencies of floor area along with the relationship of Floor area and income are required to be analysed.

Land Value Analysis:

There is complex integration between Land value and growth pattern of the housing units. Value of the particular land depends on the facilities and locality available to that area. The classical example is the town planning schemes implemented in the particular area will become more valuable than the other area due to the availability of different types of amenities and utility services. Therefore it is very much essential to study the Land value analysis for the housing growth pattern of the study area.

V. METHODOLOGY

The appropriate Method helps to deal with a study in its totality. A method is an organized and made up of different elements. Organized means that the elements stand in some crystal-clear relationship with one another and it is seen to be more valuable in bringing about meaningful proposal. The data collection can be broadly classified into two heads. First is the primary data collection and other is secondary data collection. As far as primary data collection is concerned the field study carried out in the study area. It includes various factors viz. Building Form, Ownership pattern, workplace – residence distance, floor area, Monthly income, etc.

The secondary data required for the study has been collected from various sources, Government, semi-government and non-government organizations like Census of India, Surat Municipal Corporation, Department of Property tax, Surat Municipal Corporation, Surat Builders Association. The secondary data includes information regarding Population, Land Value, Household, Land use, etc.

VI. DATA COLLECTION AND ANALYSIS

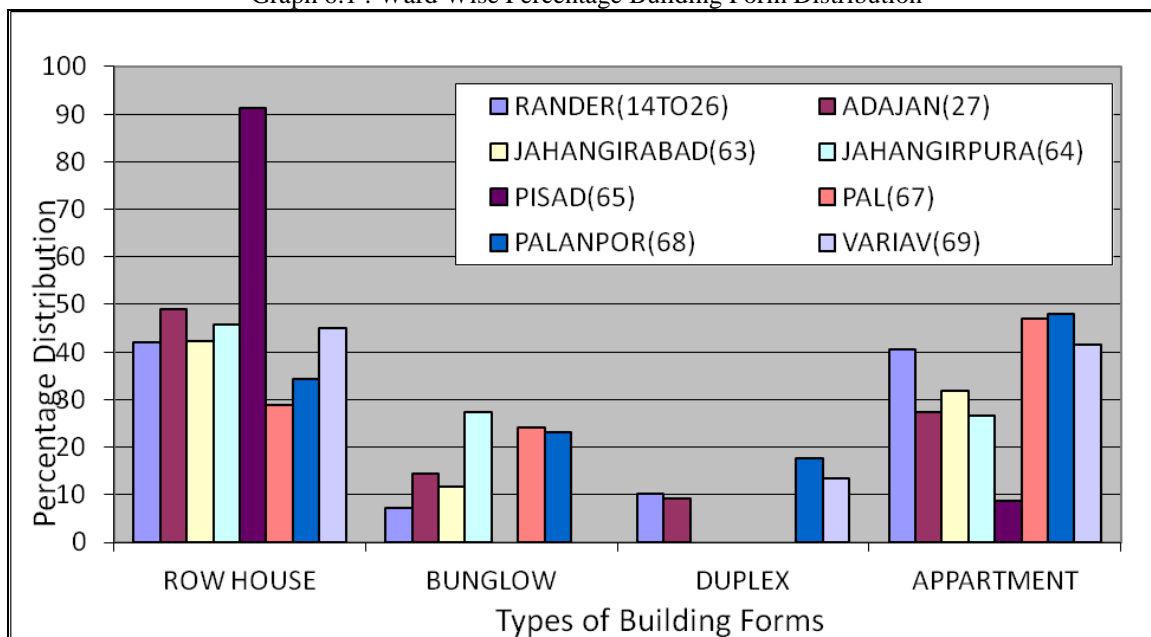
Building Form Analysis

The wardwise percentage distribution of different building forms is shown in table 6.1. It is observed from graph 6.1 that Majority type of building form is of Row House type. Then after apartment, Bungalow and Duplex observed in West Zone of the City. The maximum percentage of Row House is observed in newly Pisad region followed by the Adajan while highest rate of Apartment is identified at Pal & Palanpor. The Bungalow and duplex is evenly distributed and observed in Rander area. Other areas of West Zone have miscellaneous types of Building Form.

Table 6.1: Ward wise Percentage building Form distribution

Wards	Building Form Distribution (%)			
	ROW HOUSE	BUNGLOW	DUPLEX	APPARTMENT
RANDER(14TO26)	42.03	7.25	10.14	40.58
ADAJAN(27)	48.99	14.55	9.09	27.37
JAHANGIRABAD(63)	42.30	11.60	0	31.86
JAHANGIRPURA(64)	45.88	27.45	0	26.67
PISAD(65)	91.18	0	0	8.82
PAL(67)	28.88	24.07	0	47.04
PALANPOR(68)	34.40	23.08	17.61	47.99
VARIIV(69)	45.00	0	13.34	41.66

Graph 6.1 : Ward Wise Percentage Building Form Distribution

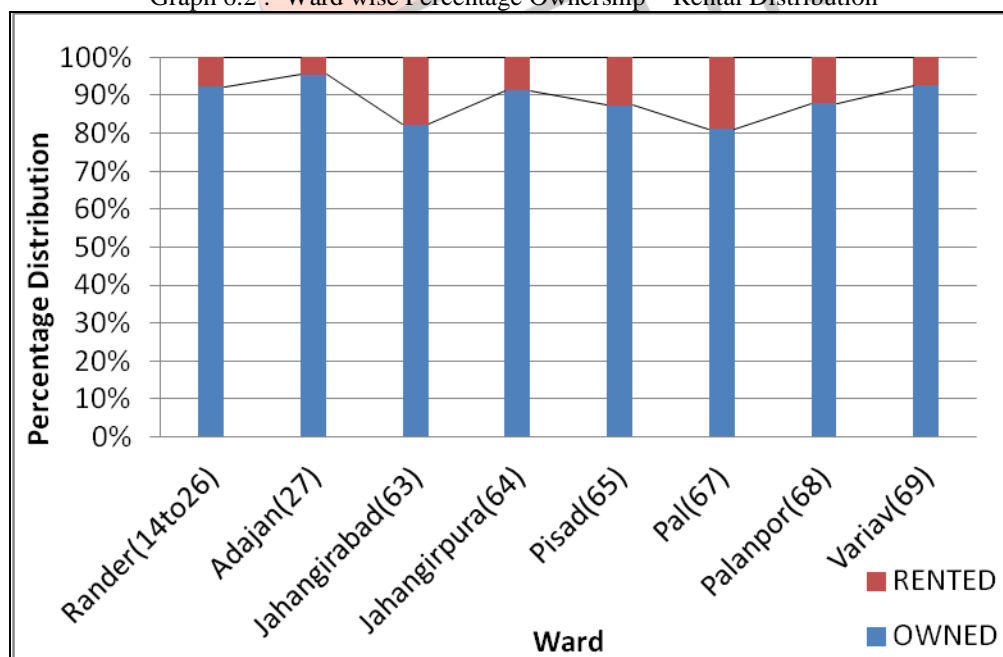
**Ownership Analysis**

The percentage distribution of ownership in different wards of West Zone as per the Survey analysis is given in table 6.2

Table 6.2 : Ward wise Ownership Distribution

Sr. No.	WARD	OWNED	RENTED
1	Rander(14to26)	92.3	7.7
2	Adajan(27)	95.5	4.5
3	Jahangirabad(63)	82.35	17.65
4	Jahangirpura(64)	91.17	8.83
5	Pisad(65)	87.32	12.68
6	Pal(67)	81.1	18.9
7	Palanpor(68)	87.88	12.12
8	Variav(69)	92.65	7.35

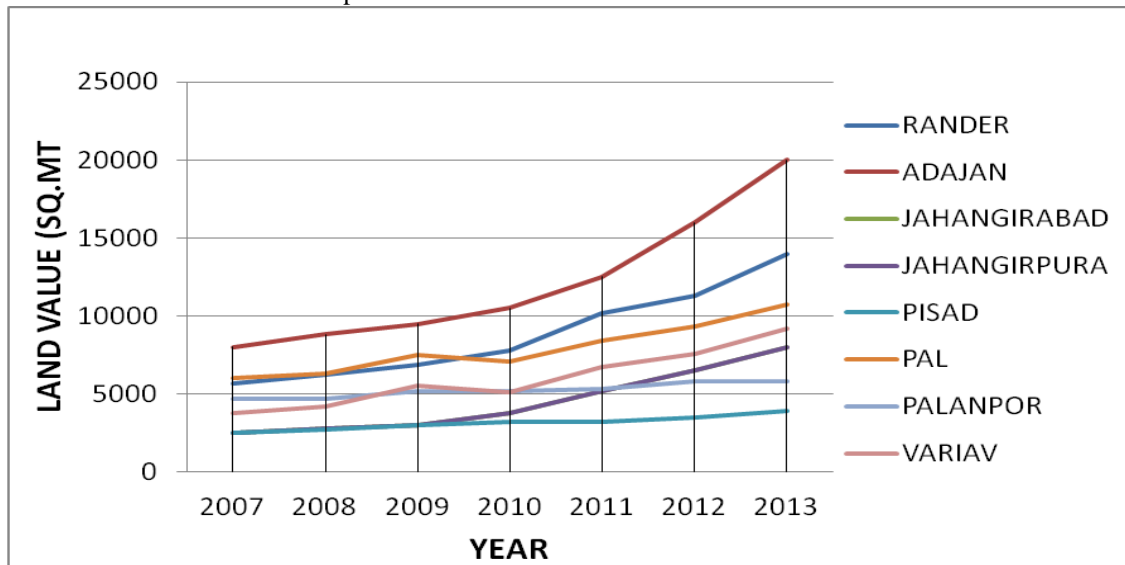
Graph 6.2 : Ward wise Percentage Ownership – Rental Distribution



It is observed from the graph that maximum rental ownership is identified in Pal area where nearly connected Ichhapore industrial area. The migrant population rate is maximum in Pal area. Apart from Pal other area like Jahangirabad, Palanpor where rental ownership observed to larger extent.

Land Value Analysis

Graph 6.3 : Scenario of Land Value of West Zone

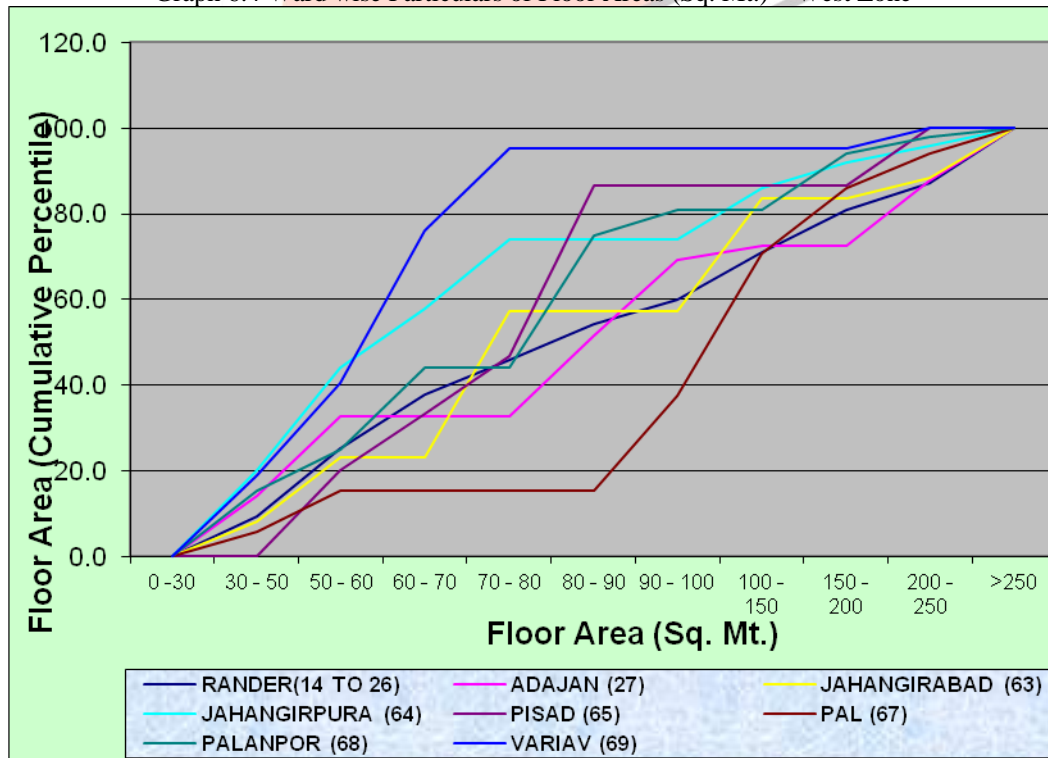


Rapid growth in Land Value since last two to three years is observed in almost all area of Surat City. As far as West Zone is concerned there is rapid growth in Land Value is observed in Newly added area like Pal, Palanpor, Variav. One new bridge adjoining to the older city area is under construction. All this aspects are increasing the land value of those particular areas.

Adajan area which is successfully implemented under the different T.P. Schemes and is also closed to CBD area. Rapidly growing Pal area followed by the Adajan area in Land value due to its locational aspect. One weir-cum-causeway joining the Singapore area with Rander gives the rise in the land value of this area. Third region in the land value is for Adajan & Rander area which has a highest density in the study area. The lowest value of land is observed in PISAD area which is far away.

Floor Area – Income Relationship

Graph 6.4 Ward wise Particulars of Floor Areas (Sq. Mt.) – West Zone



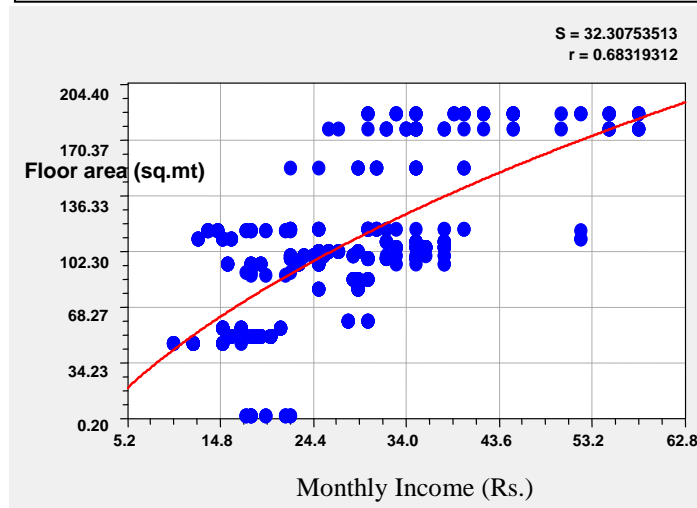
The monthly income data of houses was collected through field survey to understand the income and floor area relationship. The main observation in this regard is the higher Floor Area acceptance with increase in monthly income, because affordability is strongly associated with higher income.

Graph 6.5 Area Income Relationship for Old Area of West Zone
OLD Area

$$\text{MMF Model: } y = (a * b + c * x^d) / (b + x^d)$$

$$\text{Coefficient Data: } a = -17.4663 \quad b = 849.021$$

$$c = 87.9532 \quad d = 78.7433$$

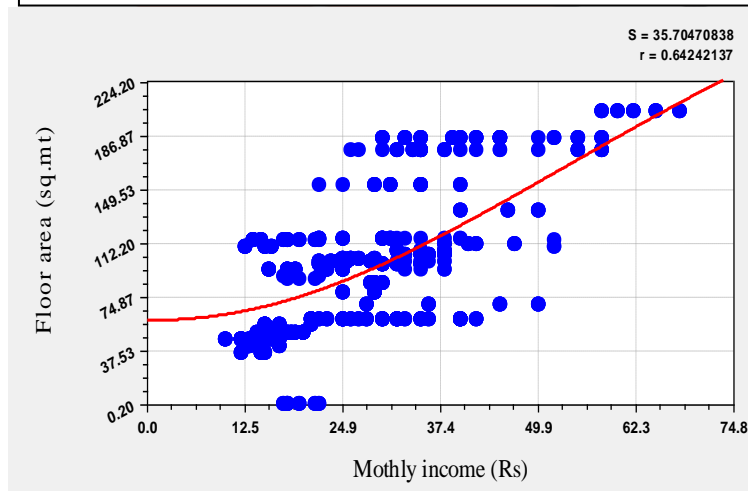


New Area

$$\text{MMF Model: } y = (a * b + c * x^d) / (b + x^d)$$

$$\text{Coefficient Data: } a = 59.9091 \quad b = 12.4912 \text{ e}+003$$

$$c = 457.5323 \quad d = 2.1179$$



The total West zone is divided into the wards before extension and newly added wards after extension with complete zone as illustrated in graph 5.13, 5.14 for the analysis of Floor area with respect to the Monthly income. From all two graphs shown above the major category fall in the income group ranging from 15000 to 30000 Rs. This income group has a Floor area from 60 to 90 Sq.mt. the group having monthly income from 35000 to 60000 preferred an increased floor area up to 260 Sq.mt.

VII. CONCLUSION

Building Form Analysis:

- Highest growth in residential units is observed in Pal and Palanpor area. Existing weir-cum-causeway connecting Singapore with Rander play a very vital role for the growth of the Rander area. While the lowest growth rate is observed in Pisad, Variav ward which have a maximum density in the study area.
- In newly added area Pal, Palanpor are most of the high-rise building under construction.

Ownership Analysis:

- Self ownership observed in major area of West Zone. The maximum rental ownership observed in Pal area which is 18.90 % as per the survey carried out in this zone.

Land Value – Housing Growth analysis:

- Home interviews have provided data base to understand the choice Behaviour of the Residential Location. Residential choice has been made with reference to amenities and building cost of the respective areas.
- Highest Land value is observed in Adjan area which is nearby the CBD area of the city and implemented by TP Scheme. Lowest value found in newly added Pisad and Variav area.

Floor Area – Income Relationship:

- Percentile Floor Area curves of the present study provides the base of acceptability of Floor area and is useful in assessment of Floor area.
- 60 to 90 Sq.mt. of floor area is pragmatic in terms of row houses in different wards of the study area in LIG group public while 100 to 250 sq.mt. of floor area favored by the HMIG and HIG society in terms of Duplex and Bunglow in the study area.
- Insignificant inclination has been given for Floor area ranges from 50 to 80 sq.mt. in the study area.

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