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Necessity of Comprehensive Planning for Housing in Metro Cities: Case Study of Pune City

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INTRODUCTION

IN ORDER TO understand the growth and development of a city it is necessary to locate it within the national context. In the major cities of India, population has doubled and trebled since the close of the World War II. This has been mainly due to the rapid pace of industrialization after the attainment of Independence. The increase in population has created a demand for additional accommodation, but new housing has not kept pace with the demand created by urbanization. There are several reasons why housing in requisite bulk has not been built. Some of them are: rising cost of building materials and labour, inflated land price, high rates of municipal taxation etc. In addition, old buildings are collapsing every year due to lack of maintenance and are creating a further demand for housing. The upkeep of existing buildings is neglected because the landlords are not in a position to meet the cost of repairs and replacement from the rents they receive, which are more or less at pre-war levels and cannot be increased due to the existence of the Rent Restriction Act. This is the picture of housing to be found in most of the developing cities of India.

HOUSING

In popular imagination, a house is a building with a kitchen, a bathroom, bedrooms, and a lounge. It will be built sturdily enough to withstand natural elements and it will have an address on the post office's registers. Some of the housing in India's largest cities fits this sort of description. But many city dwellers do not live in such places. Some of the poorest are housed on pavements, near to their low-paid work. Others have a roof, walls, and a door, set in a wasteland along river banks, close to railway lines, or any places where there is a patch of land available. These are 'hutments', not usually termed houses.

In our context then, a house can be many things in both appearance and in its meaning and significance to those who live there. It can be a place to sleep on a pavement; it can be a small hutment standing illegally on public or private land, build in ramshackle ways in dirty places; it can be a crowded tenement where rents or installments are paid to owners; or it can be an expression of affluence in leafy suburbs.

PROBLEMS

The major problems of housing in the developing cities mainly catered to the continuous changes in the demography. Problems such as:

- Increased physical and social imbalance in certain areas gives rise to imbalance residential development;
- Mismatch between the demand and supply;
- Availability of the serviced land for the increasing demand;
- Affordable housing for the population living below poverty line;
- Very high density and lack of formal housing supply worsened the housing situation in the core area of the city;
- Boom in the real estate (increase in the land & flat rates); and
- Lack of the cohesive urban form that helped the sustenance of neighbourhood.

RELEVANCE OF PUNE STUDY

Introduction

If Pune is viewed as a microcosm of planet earth, the modern, high-tech layer of the upper and middle class forms the crust, the prevailing Maratha culture the mantle, and the Brahmins descended from the Peshwas form the core. Migrants form a fourth and atmospheric layer that gives the city a kind of buoyancy: they have come here from virtually every corner of India; they have changed Pune's face and vitalized it.

Mumbaikars have always regarded Pune as a satellite town, a refuge for those weary of Mumbai's frantic pace. For the British, Pune served as a retreat from the burdens of the Bombay Presidency. But now, as Mumbai's growth slows down, they're eagerly gravitating, if not flocking in droves, to this satellite, cashing in on the windfall profits made from the sale of golden real estate in that port city, and driving up prices here. Even Pune's gravitational centre of employment has shifted to the twin, newly incorporated municipality of Pimpri-Chinchwad, formerly village suburbs bordering on the vast plots of the Maharashtra Industrial Development Corporation. Because of the natural flow of people from Bombay, the rich ethnic variety of Pune may appear to mimic that of Mumbai. Instead of a master plan for the city, Pune has

independent, and mostly private, planned developments under various rubrics, commercial or residential. Kothrud was reportedly the fastest growing suburb in the world. It used to be a village on the outskirts, as was Bhamburda before it became Shivaji Nagar. Aundh has become an "edge city". To add to this bustle are many other burgeoning colonies and suburbs, some far from the main city which may be characterized by the triptych formed by the Deccan Gymkhana, the Gaothan (the original or old city) and the Cantonment.

The Structure and Growth of Pune

Pune is first mentioned in the 8th Century copper plate inscriptions. It was a settlement situated on a raised plateau on the southern bank of the river Mutha. Although it was the main settlement in the area, its hinterland was neither rich in agriculture nor densely populated, nor was it on any important trade routes. What determined its location was the site of a strategically important ford on the river Mutha. From the late 13th to the early 17th Century it was under the Muslim rule. In the 150 years after 1630, Pune became a centre of a major Maratha Kingdom. During this period it gained prominence as an important political and military centre. The end of the 18th and the beginning of the 19th Century saw the collapse of the Maratha power. In 1817 Pune came to be governed by the British and remained under their control till 1947 when India became independent.

The morphology of Pune shows three distinct elements: the indigenous city, the colonial military station and the suburban planned development. In addition, there are more than 500 unauthorized settlements or slums that have grown in the interstices of the city.

The Pre-Colonial Capital

The indigenous city grew on the south bank of the river Mutha. Under the Muslims, until the early 17th Century, it was a fortified town. After mid 17th Century as it became a major political and military centre of the Maratha Kingdom, Pune saw a turbulent period for a century and a half. The town evolved to suit the defence needs as well as the prevailing technology, cultural institutions and indigenous social and family structure. In the days without motorized transport the city was compact with buildings close to each other along narrow, winding streets and alleys. Several functions such as residence, storage, trade, and craft industry were closely intermingled. Its essential structure derived from the occupation of different areas by distinct social and ethnic groups and not through clearly differentiated land use. This pattern of development segregated the population regarded as socially inferior (untouchables) from the rest. They occupied less salubrious locations away from the main town.

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The Colonial Development

The colonial additions of two Cantonments were characterized by barracks, rifle ranges and parade grounds together with officers' bungalows with deep verandas, set in spacious and colorful gardens along broad roads laid out in a formal grid. Along with the sharp contrast of physical and spatial characteristics to the indigenous city, the Cantonments also represented a different cultural environment. The colonial settlement was built not merely to the specifications of a 'modern' city, but also to the requirements of the colonial elite. 'Whether in relation to the supply of roads, recreational space, water, power lines, sewers, housing, shopping and hotels, the concentration was in the European sector. Socially they are more cosmopolitan in character than the city and because of the special amenities offered there, the rich have taken residence in or near them.

The Urban-Industrial Centre

The period after 1940 marks a new phase in the development of Pune, that of rapid growth of industries in and around the city. A curb on industrial expansion in Bombay in the 1960s gave further boost to industrial growth in Pune that had an advantage of proximity and easy access to Bombay. The availability of skilled workers and developed infrastructure, including electricity, water supply, and transport and communications played an important role in attracting industries. Pune is now one of the important centres of engineering industry in the country. Lately it has also gained importance as information technology (IT) hub. Recent reports claim that 60 new companies have established their base in Pune in the first few months of 2004 and 10,000 new jobs have been created. More than 6000 of these new jobs are in the IT industry.

Formal planning was introduced in Pune after the first Town Planning Act was passed in 1915. It has brought increasingly larger areas under the purview of statutory provisions, but not changed the mode or basis of town planning. The devastating flood of 1961, due to the collapse of two dams on the river Mutha, caused enormous damage to buildings on both banks of the river, especially in the densely built old city. This accelerated the growth of housing in the suburban areas mainly in the western half of the city.

Over the years, tall buildings, large commercial complexes and modern shopping malls are replacing the low rise and low-density development. With the growth of the population the city has expanded in all directions. As a result, distances from residences to places of work have increased considerably for most people. In the absence of mass transit system and adequate public transport many have bought motorized vehicles to facilitate commuting. The increase in the number of cars has been particularly rapid in the last decade.

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As a result the city is increasingly facing problems of traffic congestion and air and noise pollution. Various proposals have been made to improve the public transport system, but no concrete action has been taken so far.

Unauthorized Settlements

In addition to these distinct developments there has been 'unplanned' and 'uncontrolled' proliferation of slum settlements that dot the whole city. Despite the town planning efforts since the early 20th Century to create an orderly and hygienic development the number of slums and the proportion of the city's population living in degraded conditions have increased rapidly. These settlements exist in complete contravention of the City Development Plan. Nearly 40 per cent of the population is now living in 503 slum settlements.

The low-income settlements that have served as nuclei for subsequent growth are spread around the city. Important ones among them are:

- Inner city areas where low-income and socially underprivileged groups have been traditionally housed;

- Former villages around Pune now engulfed by the urban extension;

- Former settlements of brick-kiln workers after brick-kilns were shifted away from the city;

- Temporary-turned permanent settlements of building construction workers near work sites; and

- Peripheral settlements of nomadic tribes.

CHANGE IN ARCHITECTURAL STYLE

Development Regulations Have Been Promoted Over the Past Decade

Housing is a basic human need. A house is the basic unit of the housing system. Although a relatively simple term, a house is an essential place for an individual and conveys profound socio-cultural and socio-psychological meanings, basically with its physical characteristics.

Housing characteristics depend upon land use zoning and sub – divisions as per density and developmental controls; community facilities and parking norms; urban design and site development; services and physical infrastructure; and architectural design of dwelling units constitutes the next level of the design hierarchy in housing after urban planning and urban design. As is well known, architecture is an art and science in which the abstraction sublimates into the reality of forms. The scientific side of architecture is objective, verifiable, and quantifiable whereas the artistic side is subjective emotional

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and qualitative. The biggest dilemma of architecture leads to the challenge of how to blend these two different worlds into one. Thus, in a way, architecture is conceptually an intuitive experience and the result of the experience is an object – the building / house.

This occurrence is due to three major factors:

- The rapidly expanding urban population;

- The industrialization of housing technology; and

- The generational change in social, consumer, and cultural parameters.

The influence of social changes on housing

The social structure for a given historical time period is based on:

- Personal relations

- Demographic changes

- Economic, technologic,

- Cultural improvements and

- Political structure

There are different architectural designed buildings in Pune city. Design of the building varies in the form of layout as well as in the form of the elevation treatment. Both aspects are depending on the use of the building, local atmospheric condition as well as the architectural trend at that time.

Different housing types have an impact over the city due to their size and density, texture, form and most important is the skyline of the city.

There are various types of the houses like bungalow, semi-detached, row house and apartments—use of the building type depends upon the density and the availability of the land.

In Pune city the old core has the buildings with less height but densely located. New development is having more height and located comparatively at less density. One can see the difference between characters of Pune city in old core and new areas clearly.

Skyline of a city is the result of scale and mass of housing types and form of the buildings. The row-houses located along a single road on its side only form a vista other than if they are located along both of its sides. Sometime when the residential area is a mix of various kinds of buildings, the higher buildings attract the attention quickly. When there is a building with better architectural form among monotonous residential community, that building

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gives a unique character to that area.

The skyline is interesting when it is not very monotonous. Various types of building form when placed in harmony, give interesting skyline to a city.

Change In Urban Housing Form

An account of changes in the housing styles studied with the reference to the political influence, socio-economical impact and architectural style is given. Transaction of the housing style is carried out in the five different eras, these are the:

Pre- Maratha Era (Upto 1604 A.D.)

In this period no such development has taken place in the housing sector. At that time Pune started to take a shape of a town evolving out of a small hamlet.

The housing was meant only as a place for residing and had simple rectangular form with flat or slightly sloping roofs. The dwelling units belonging to administrator had larger areas while common men had smaller individual dwellings.

The material like stone and mud and *kacchha* brick had formed a strong building material together. Buildings were monotonous as far as their form is concerned. Hence the skyline has less variation except community places and temples.

Maratha Era (1604 A.D. To 1713 A.D.)

In this era, town even in its initial stages of growth was a victim of conflicts between the ruling dynasties. In 1637, the city consisted of four wards, *Kasba* - within the old town wall, the *Shaniwar* – along the riverbank. Remaining two are *Raviwar* and *Somwar Peth*.

As far as typology of housing is concerned, 'WADA' type housing had begun to take shape. As far as character of housing type was concerned, real development had taken place after the end of turbulent period during 1680 – 1713. Housing development adorned with varied typology and architecture commenced after 1713 A.D. After 1713 A.D. Pune city began to get changed in terms of its urban character.

Peshwas Era (1713 A.D. To 1818 A.D.)

Period of prosperity began in Pune city after a long time. In 1730, the Peshwa Bajirao-I built a palace Shaniwar Wada for himself. Shaniwar Wada became the place of fashionable elite residence including the palace. Also comfortable houses or wadas with large enclosures belonging to nobility were

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built. The town by now (1735) had grown to a city with six wards – Kasba, Raviwar, Shaniwar, Budhwar, Mangalwar and Somwar. The wadas constructed in second half of 18th Century show composition of two styles – Peswai and **British** character. Wadas of Peshawas era consist of beautiful carvings on supporting columns and decorated bracket. Corbelling in bricks was done at floor-to-floor levels externally. The roofs of this type were flat supported by timber joists and slant or sloping covered with country tiles.
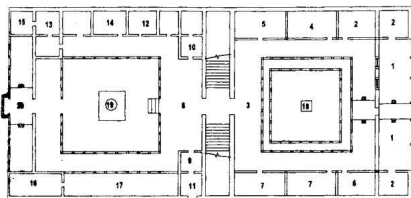
Sardrecha (Formal Verandah)
Kacheri (Office)
BaitKak (Reception)   Khalbatkhana (Negotiation Room)
Majghar (Middle Room)   Dalan (Living Room)
Devghar (Prayer Room)   Balad (Grain Store)
Swayampakghar (Kitchen)   Tijori (Treasury
Kothar (Store)   Gotha (Cow Shed)
Tulsi Vrindavan (Shrine)   Karanja (Fountain)
Pothichi Kholi (Manuscript Room)   Rear Entry
Balantinichi Kholi (Delivery Room)
Nahani/ Sandas (Bath/Toilet)

BASIC FLOOR PLAN OF A TYPICAL WADA

British Era (1818 A.D. To 1947 A.D.)

During British rule, Pune developed rapidly. The design of housing types began to change gradually with the establishment of British rule in India, which influenced the indigenous style by introducing classic and Gothic designs. The British used these styles in Pune irrespective of their suitability to local climate. Most of the buildings in Pune were built in Gothic

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style. The architects evolved an entirely new concept of architecture, which relied more on composition, massing and sweeping lines than on intricate carving and decoration.

In the beginning of the 20th Century, with the change in social setup and consequent breaking up of joint families the average family became smaller encouraging the construction of multifamily buildings. These are two or three storied structures rectangular in shape but instead of central Open Square, there is a small open courtyard in the front or rear.

Character of buildings and housing types in its exteriors and facades changed considerably. Use of arches was introduced by British in the façades of housing as well as other buildings. Various types of flat, semi-circular and circular arches were also used extensively by British. Thus use of Gothic elements, stone arches, wooden framework, and varied brick size, intricate carving and decoration are the remarkable features of housing types constructed in British period.

British bungalows were other types of houses with sloping roof made of timber framework and cladded over country tiles and manglore tiles. These bungalows were single or double storied and varied according to the status of specific group of society.

Some of the examples of housing types are: *Nagarkar Wada, Sangam Bungalow, Agakhan Palace, Governers Bungalow, Jer Mahal.*

Post – Independence Period (1947 A.D. To 2000 A.D.)

Industrial development has played vital role in post-independence development of Pune city. Due to advance architecture and technology housing types in Pune underwent various changes in terms of functions and aesthetics also. Most of the housing types with changed character are of the period after 1961.

Some of the buildings constructed in post-independence period are buildings containing self-contained blocks attached to each flat. Such buildings are very common in the new developing areas. They maintain the modern concept of housing. They are well-planned and decent in appearance. These are occupied by middle and higher income group families. Private housing is other kind of housing type constructed in post-independence era; high-income group families occupy these.

The buildings and houses in the city vary considerably from one area to the other in their characteristics. They vary in their height, building material and architectural style.

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Thus in post-independence period, due to its advanced technology, increasing population and commercialization, the housing types in Pune are undergoing many changes very rapidly influencing overall character of city.

Future Trends

With the rapid acceleration in scientific progress and with what amounts virtually to a sociological revolution, it has become increasingly difficult to forecast developments even 10 to 15 years ahead.

It seems clear that the well-designed and conveniently planned high-density urban residential environment will be more likely to provide the emancipated existence, free from domestic chores on which the housewives are increasingly insisting. Alternative forms of housing need to be developed to address the demands of those households whose daily lives are not sufficiently accommodated by conventional housing.

Changes in the Urban Skyline

Change in the urban skyline is due to the combined effect of the increasing housing demand; new construction technology and development regulation has also been changed over the past decade. Besides, skyline of a city is the result of scale and mass of housing type and form of the buildings.

In Pune City we see the change in the skyline, due to the various provisions made in the development control rules by the local body. It differs from city-to-city. In core area skyline is not getting heights but in the extended area it is getting heights. Various facts are responsible for such types of the development:

- It depends upon the density criteria decided for a particular area of the city.

- Core area in old settlement at that time had scatter type of development because at that time there was no scarcity of the land.

- Vertical development in the form of high-rise structures–this is the outcome of growing demand of increased population and scarcity of the land.

- The F.S.I. is fixed by the local authority and is different for different areas and buildings in the city.

- Concept introduced in the development control is T.D.R

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ERA	HEIGHT OF THE BUILDING (METERS)
Pre – Maratha Era (Upto 1604 A.D.)	4.00 to 7.00
Marathas Era (1604 A.D. To 1713 A.D.) **Peshwas Era** (1713 A.D. To 1818 A.D.)	4.00 to 7.00. Special buildings like Shaniwar Wada having 24.00 meters.
British Era (1818 A.D. To 1947 A.D.)	4.00 to 18.00. At that time due to Bell Watch towers giving heights to skyline its range is upto 30.00 to 35.00 meters.
Post Independence Period (1947 A.D. To Today)	7.00 to 100.00. Skyscrapers started to develop in Pune city.

- There are some problems, which are related to the high-rise development, these are:
- *More construction cost*: due to lifts, air-condition facilities, electricgenerator, fire fighting measures, provision to resist the building against the earthquake are the needs in the high-rise buildings and all of these result in *increase in the cost.*
- Problem like lack of proper pressure in the water supply for upper stories.
- Parking problem due to increase in the number of the vehicles.
- High-rise buildings block light and ventilation of neighbouring buildings.

The type of housing demand today

A sample survey was carried out for 500 persons in Pune City. It includes different families having different income groups.

Income Group	Percentage (%)
E.W.S.	45
L.I.G.	31
M.I.G.	19
H.I.G.	5
	100%

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Conclusion of the Survey

Conclusions of the sample survey are as follows:

- HIG group having three and four BHK flats or the bungalows. And this group is living in its own house.
- Those who come under HIG group and living in the three BHK houses today they are demanding bungalows. At the same time they are purchasing new bungalows and some time surplus houses are added to the supply side. This means—new housing demand for the HIG supply of resale flat for the MIG income Group.
- HIG group investing capacity is more than the 25,00,000 lakh.
- This group is mostly demanding house in such location, which is free from the slums and crowded area. They don't bother the distance between the office and the home. They are specific about the locality.
- MIG income group is demanding two BHK flats.
- In this case distance between working space and house matters. They mostly choose such areas which are near to the school, market, and hospital from their house.
- Their investing capacity is about 10 to 20 lakh.
- LIG and EWS these are demanding one BHK and one room kitchen respectively.
- EWS group living in the slum area. Hutments in slum area are mostly rented. So all this income group need is their own houses.
- They need houses in such a location where they get the employment, means within the municipal limit, nearer to the residential area, industrial area etc.
- LIG group also needs houses near their working space.
- Investing capacity of the LIG group is about five to 10 lakh.
- EWS capacity is about one to five lakh.

CONCLUSION

- Today we don't get any mark of the old wada type structure in any part of Pune City. As it used to be the identity of the city history.
- If we see type of the development today carried out in Pune City it doesn't have any resemblance to any particular architectural style. It spoils the traditional atmosphere of the core area.

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- There is a vast variation in the skyline from two-storied old buildings on one side of the road and 33 storied building on the other side of the road, which disturbs the vista. (Upward Mobility)
- The demands have increased, disposable incomes have increased and education has played a major role in helping these changes to occur. Now people expect more out of life, they want lavish and high-end living.
- Change in the living space from multi room Wada to few room bungalow with garden to two- three room flat.
- In early phase there were various different living spaces like Dewadi (Guard Room), Sadrecha sopa (Formal Verandah), Baithak (Reception), Majghar (Middle Room), Devghar (Prayer Room), Tijori (Treasury), Po:hichi Kholi (Manuscript Room) and more. Today these living spaces are the part of the only big bunglows.
- Cultural changes over the centuries.
- Availability of the land Gundawari development.
- Today everywhere we see the tall concrete buildings. Buildings, which have been constructed in last few years having high-tech style.

DEMOGRAPHIC CHANGES

Housing scenario changes quantitatively mainly due to the demographic changes. This puts a strong impression over the development of the housing in a developing city. Demographic changes carried out due to two main aspects that are natural growth and second one is change in the land use, which is directly related to the migration of the rural population to the developing city.

Demographic Changes – 1951 to 2001

The period after 1940 marks a new phase in the development of Pune, that of rapid growth of industries in and around the city. The diversification of economic activities was accompanied by related demographic changes. The rate of growth of population during the decade 1941-51 was nearly 70 per cent. This growth was brought about by in-migration in response to increased job opportunities in armament production during World War II in factories that had been set up by the British.

Census data show that the growth of population in Pune since 1951 has been steady and moderate. From a city with half a million people it is now a metropolis with nearly three million population. The growth of large-scale manufacturing was particularly rapid during the 1960s and was accompanied by much higher rate of growth of population than that in the previous decade. In-migration caused by the severe drought in 1972 and 1973 brought about a significant increase in population during the decade

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of the 1970s in the eastern part of the State of Maharashtra. Destitute families from perennially drought prone districts came to Pune to eke out an existence and took shelter in slum settlements in the city. The decade 1991- 2001 registered a significant growth of population owing to the extension of the city boundary to include several fringe villages or peri-urban settlements within the jurisdiction of Pune Municipal Corporation. The growth of population substantially increased the average density of people per square kilometer and is now more than three times that in 1951.

Year	Population	Household Size	% of increase In Population Natural	% of increase In Population Migrated
1951	4,80,942		.	
1961	5,97,562	5.24	59	41
1971	8,56,105	5.23	58	42
1981	12,03,351	5.21	58	42
1991	16,91,430	4.80	56	44
2001	25,40,069	4.47	49	51
2011	38,92,000	4.10	41	59
2021	60,83,527	3.73	32	68

The population of the city of Pune listed as per the 2001 census is 25,40,069, of this the male population amounts to13, 25,694 and female population to 12,14,395. The female population per 1000 of the male population is 923, this figure for Maharashtra is 922 and for district it is 917.

Net Density of Population

Estimated population for 2005 is 30,06,036 and approximate built up area is 86.00 sq.km. The average net density of the city at present is 13203 persons per sq.km.

Year	Census Population	Decadal Addition	Percentage Increase
1961	5,97,562		
1971	8,56,105	2,58,543	43.27
1981	12,03,351	3,47,246	40.56
1991	16,91,430	4,88,079	40.56
2000	25,40,069	8,48,639	50.17
2011	38,92,000	13,51,931	53.22
2021	60,83,527	21,91,527	56.30

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Change in the Land Use

Pune earlier famous as Poona is one of the most important cities of Western India aptly called the 'Queen of Deccan' after its elevated position atop the Deccan Plateau; its salubrious climate and surrounding hills. The city is nicknamed variously such as 'Pensioner's Paradise', the 'Oxford of East', 'Detroit of India', the Cultural Capital of Maharashtra', once the 'Cycle city 'and now the 'Scooter city' of S. India and upcoming `IT-BT' capital of India.

Year/Century	Change in the Land Use Over the Centuries
8th	A tiny agricultural settlement
11th & 18th	Administrative unit of various dynasties (Moghals, Marathas, Peshwas, British)
1856	Opening of railway connectivity between Bombay-Pune
1941-51	Installation of defense industry extension of municipal area
1950	National defense academy, National chemical laboratory, Pune University – accelerated the growth and expansions of city. Industrial development in the Pimpri - Chinchwad
1961	Monsoon Capital, Home of pensioners and students having concentration of educational institutions.

Reasons behind the migration are:

- In search of the employment
- In search of the better employment
- To take up employment / better employment
- Proximity to place of work
- Study purpose

Migration due to the employment opportunities is about 60.2 per cent and due to study purpose is about 24.6 per cent.

CONCLUSION

- Demographic changes are one of the most important reasons to change the qualitative housing scenario in the developing city.

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- Major factor that influences the demographic change is 'change in the land use', i.e. pull and push factor.
- Yearly net migration is about nearly two per cent. That means annually 50,000 people migrate to Pune. Pune Municipal Corporation has to provide services and infrastructure to this population.
- 49 per cent natural growth and 51 per cent migrated growth are responsible for the demographic changes.
- Over the century the household size gets changed; on the other hand number of households increased. Responsible factors are cultural change, educational factor and medical improvement.
- About 40 per cent population lived in the slums during 2001. Migration in the slum area is more as compared to the non-slum area.
- Maximum population comes under the age group of 15 – 60 that is under the working class.
- There is a vast difference in growth rate of two decades; it is almost twice. It is mainly due to change in the land use over the century.
- Result of all this changes in the demography:
- Housing demand increases
- New slum area development
- Density increase in the core area of the city

IMPACT OF THE DEMOGRAPHIC CHANGES OVER THE HOUSING SCENARIO

Due to the demographic changes certain problems related to the increasing housing demand come out like density increase and slum development. Due to the factors like non-availability of the affordable housing, non-availability of serviced land and immediate housing demand problems like increase in density and slum development take place.

Density Increase

Housing density is a measure of the intensity of occupation of land. Density indices must dissociate from any direct connection with the quality of living condition. It is essential at the outset to recognize the importance of this distinction, for there is a mistaken tendency to believe that 'high density' is inherently evil and that 'low density' is inherently good.

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Value of Density Indices in Planning

They establish, however, a distinct relationship between people and the amount of land they need to attain certain standards of living in the context of a particular and unique set of local circumstances.

Three purposes can be ascribed, therefore, to the use of density indices in planning. The first is to provide an instrument for the assessment, or control of living standards within the housing areas. The second purpose is to provide measures of the rate of land use that can be used to estimate total land needs for all purposes of the community or, conversely, to control the intensity of occupation of housing areas in order to avoid the over-burdening of existing community facilities and services. The third purpose is also connected with the estimation of land needs; but it is especially concerned with the broader need to reconcile the rate of land use for housing and other urban residential purposes with the total demand on land use affecting the general economy and well-being of the town or country as a whole.

Density Criteria

In order to determine the most appropriate housing density for a particular area, it is necessary to examine, assess and reconcile a wide range of different local factors.

A) Health factors

- Water supply
- Sanitation and waste disposal
- Light, sunshine and air
- Living space within dwellings

B) Social factors

- Private open space
- Privacy
- Protection
- Community facilities

C) Technical factors

- Fire risk
- Shortage of building land

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- Access
- Ground condition

D) Economic factors

- Land cost
- Distance from home to work and transportation costs
- Availability and cost of essential services
- Availability and cost of building skills, materials and equipment

Slum Development

In the last three decades the population of the city grew from 8.56 lakh to over 30 lakh. The city population grew at 62 per cent in the last decade. The housing needs of the city also grew proportionately. Not all the housing needs could be satisfied by formal housing market. Rapid urbanization due to 'pull factors' of the employment opportunity created in the city and 'push factor' due to lack of the same in the rural Maharashtra and from other parts of the country. Most of the immigrated families who could not create 'demand' for formal housing market satisfied their 'need' by occupying available vacant lands and solved their housing problem by creating slums.

Slums are defined as illegal housing with unsanitary and unhygienic conditions. Almost 40 per cent population of the city stays in over 500 slum pockets. In the Pune city 90 per cent slums are on private lands and 10 per cent are on Government lands.

The flow of rural migrants was moving into slums, which came up on the peripheries of the middle class localities, along railway tracks, along the riverbanks and in the middle of developed areas. They continued to grow, creeping up the hill slopes and in any vacant area that was available.

The Pune Slum Census may not change attitudes radically but it puts down hard facts about slums. It raises questions, it creates transparencies. It helps to break myths such as:

(i)   Slum dwellers do not work. Our statistics show that work done by slum people contributes to all the construction and service industries. In Kothrud, 39 per cent of earning men work in the construction industry at different levels and 23 per cent work in service industries. (The total population of the Kothrud slum dwellers is 52740.)

(ii)   They are nomadic and not permanent citizens. They are not a transient population living between the city and villages, trying to get the best

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of both worlds free. In Kothrud the average number of years that a household has lived in Pune is 30 years or more .

Year	Total Population	Slum Population	% Slum Population Growth	No.
1961	5,97,562	92,101	15	54
1971	8,56,105	2,39,701	28	
1981	12,03,351	3,77,000	31	64
1991	16,91,430	5,69,000	34	159
2001	25,40,069	10,25,000	40	503
2011	38,92,000	18,44,800	47	
2021	60,83,527	33,19,400	54	

(iii)   They can easily go back to their villages. Many slum dwellers have lived here for two generations or more, and cannot return to their native land for work as is popularly believed; in fact a large number of them came from drought-prone areas in Maharashtra. In Kothrud, 42 per cent of households who originate in areas of Maharashtra outside Pune are from drought-prone districts.

(iv)   Forty per cent of slum dwellers live on land, which is defined as marginal or 'unbuildable', that is land along hill slopes, riversides, depressions, along railway tracks etc. That challenges the idea that slum dwellers take up valuable land for their housing. These are statistics, which are continuously being quoted by the Pune Municipal Corporation.

(v)   Five per cent of the cities' 'buildable' land is used by the remaining 60 per cent of the slum dwellers. If we now say that there are more than a million slum dwellers in Pune, then we can estimate that half the city's population lives on just 10 per cent of the city's land, and therefore, only five per cent of the city's "buildable land" is occupied by them.

(vi)   Slum family sizes are much larger than normal families in Pune. When we studied a sample of over 211 settlements spread across the city of Pune the results indicated an average family size of 4.45.

(vii)   Slum people like living in squalor. In Yerawada, where there are 109308 slum dwellers living in 63 slums (some of them being the largest and dense in the city), the average toilet to person ratio is still 1:71. Also,

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with an average of five common taps per settlement, the toilets may not have sufficient water for cleaning.

Slum Development

- Housing is not provided by the formal housing market

- Un-developed land pockets in the city

- Population increases, demand increases, supply is less; prices of the flat increase. Affordability of the lower income groups is low due to less income.

HOUSING DEMAND NEED

Availability of the Serviced Land

Availability of the serviced land means availability of the infrastructure for the development of the housing. Infrastructure includes developed land, water supply, drainage line and access roads. Availability of usable land at affordable rates is the most critical input for housing. The Policy makes room for Public agencies to undertake land acquisition proceedings for housing and urban services.

INTRODUCTION

Rapid growth of urban areas in most developing countries in the last few decades has led to shortfall in many sectors, primarily housing. The problem has been two-fold: on one hand, the majority of the people moving to the urban areas have lacked the necessary asset and financial holdings in order to acquire a "decent" house. On the other hand, the designated government agencies and bodies have not provided sufficient housing units, which are affordable for the poor majority in urban areas. The proliferation of slums and squatter settlements has been a result of this scenario. The realization that providing a "complete" serviced house by government agencies is not possible or simply cannot be afforded by most low-income families. This prompted a shift in focus from supplying a fully serviced house to that of providing only serviced land. The key characteristic of the approach is the use of the beneficiaries' "sweat equity" and other internal resources (community, financial and so on) in the actual construction and development of the houses.

Historical Development of the Concept

The genesis behind sites-and-services scheme is not new: low-income people have always been housing themselves, albeit "illegally", in most urban

areas of the developing world. The key departure from earlier housing schemes, like low-cost housing or subsidized high-rise housing units, is that it recognized the ability of the low-income households to build their own house, provided an opportunity was given.

Particularly in face of the failure of the conventional housing approaches, coupled with a number of studies that pointed out the ingenuity and perseverance of squatters to house themselves, providing sites and services only was touted as an answer to the problem of housing the poor in developing cities. Sites-and-services schemes have also faced considerable opposition and failure in a number of projects, primarily due to a series of assumptions and misconceptions on the way in which low-income families house themselves.

Sites-And-Services: The Basic Principles

The key components of a housing scheme are the plot of land, infrastructure (like roads, water supply, drainage, electricity or a sanitary network), and the house itself. Various inputs that go into them include finance, building materials/technology, and labour. Thus, the sites-and-services approach advocated the role of government agencies only in the preparation of land parcels or plots with certain basic infrastructure, which was to be sold or leased to the intended beneficiaries. The beneficiaries could also build the house at their own pace phases, depending on the availability of financial and other resources. This adopted the basic principle of the development of a squatter settlement but without the "squatting" aspect.

Typologies in Sites-And-Services Schemes

Depending on the investment made, resources available, the implementing agency or degree of organization of the beneficiaries, sites-and-services were activated in a number of different ways. This variation was a result of the attempt to strike a balance between minimum "acceptable" housing conditions and affordability of the beneficiaries.

Some of the variations attempted in sites-and-services projects include:

- *Utility wall:* A "utility" wall is built on the plot, which contains the connections for water, drainage, sewerage and electricity. The beneficiaries had to build the house around this wall, and utilize the connections from it.

- *Latrine:* Due to its critical waste disposal problem, many projects provide a basic latrine in each plot.

- *Roof frame/ shell house, core house:* The roof is the costliest component

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of a house and requires skilled labour to build. Therefore, some projects provide the roof structure on posts, and the beneficiaries have to build the walls according to their requirements. Conversely, a plinth is sometimes built by the implementing agency, which forms a base over which the beneficiaries can build their house. Other variations to this are the shell house (which is an incomplete house consisting of a roof and two side walls, but without front or rear walls) and a core house (consisting of one complete room).

Shortcomings of the Sites-And Services Approach

With several assumptions and misconceptions regarding low-income families, sites-and-services projects have been subject to many shortcomings in their conception, identification of beneficiaries, implementation and cost recovery. Thus sites-and-services schemes have often been rendered unaffordable or inaccessible for the lowest-income groups by bureaucratic procedures, institutional requirements and political problems. Some of the constraints have been:

Location: With high land costs in urban areas, most sites-and-services schemes are location on the fringe where such costs are not very high. This however causes two problems: one, the large distance between the site and existing delivery networks, off-site and on-site provision of infrastructure is high and construction can be delayed. Two, the extra distances that the beneficiaries have to travel to the employment centres would discourage many beneficiaries to take advantage of such schemes.

Bureaucratic Procedures: Selection procedures, designed to ascertain that applicants meet eligibility criteria, tend to be cumbersome, time-consuming and full of bureaucratic pitfalls and provide opportunities for corruption. Besides, for many low-income families, the eligibility criteria are impossible to meet due to informal sector jobs or low/irregular incomes.

Delay in provision of Services: Due to a lack of coordination between the various implementing agencies and a "spread" of responsibility of providing the infrastructure and services, there is considerable delay in the final provision of the services, even after the land has been allocated to the beneficiaries.

Standards: A high standard of construction and building quality is set by implementing agencies making such schemes unaffordable to the target beneficiaries.

Cost Recovery: Most sites-and-services schemes are plagued by poor cost recovery. One reason is the high costs that beneficiaries have to bear shortly after moving into the scheme. They have to pay for the plot as well as construction of the house, while they might be facing loss of income for

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having moved to the new scheme. Transport, water and electricity costs add to the burden, which they might not have had before. But some of the main reasons for poor recovery have been delay in provision of services, inadequate collection methods, lack of sanctions for non-payment and absence of political will to enforce payment.

Future Prospects for Sites-And-Services Schemes

The positive aspect of sites-and-services schemes that deserves support is its recognition of the ability of people to house themselves, with a little backing from the government agencies.

While sites-and-services schemes are not a blanket solution for all ills of low-income housing, it does provide potential for future housing, making best use of existing resources, both governmental and household. A number of local conditions and circumstances determine the type and scale of the scheme to be used.

In Pune city available land for the development of the housing is about 101.24sq.kms. (42%) out of the 243.84 sq.kms. that is total land under the Pune Municipal Corporation. This land is divided into 14 different wards.

Water Supply in Pune City

Pune is blessed with ample water supply. Owing to its undulating topography, however, the present system of distribution of water is not able to supply water equitably to all parts of the city. Where water is supplied by gravity, those at the tail end receive less water due to consumption at the front end. Where water is pumped, areas at higher altitude receive water at extremely low pressure. At present the inner area of the city gets abundant water while the surrounding areas receive less than adequate supply (MASHAL, 2001).

Although recent official data claim that residents of Pune get on an average 200 litres of water per day per person, these aggregate statistics conceal the reality of acute inequality in the distribution of water. Slum settlements are worse affected in this respect. A series of interviews conducted during 2002 and 2003 in a range of slum settlements in Pune give some insights into the daily difficulties and hardships faced by slum dwellers, especially women. A disproportionate share of the labour and burden of ill-health related to inadequacies in provision of water and sanitation falls on women. It is typically women who collect water from public standposts, often queuing for long periods and having to get up very early or go late at night to get the water.

There is unequal distribution of per capita water in the city because of weak water distribution network.

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Sewage Collection Network

The first underground sewerage system was installed in Pune in 1928. The treated sewage was used for irrigation. The old system is still in operation and covers almost 40 per cent of the present area of Pune. Over the years it has been extended to developing areas of the city. However, adequate capacity for conveyance, treatment and recycling or disposal of treated sewage does not exist at present. This necessitates the use of septic tanks in several areas.

At present the city does not have adequate capacity for treating the volume of sewage that is generated. Much of it is released into the river and streams untreated. This causes not only the problem of silting but is also a health hazard. The ground water has become polluted as a result of a huge volume of sewage percolating through the soil and contaminating the water table (Pune Municipal Corporation, Environmental Status Report, 2002-2003).

The data on the provision of toilets show that the proportion of families that had independent facilities increased gradually till 1979. A majority of the families, however, had access to shared toilets and a significant proportion did not have access to toilets at all. Not having access to toilets, or having to wait in long queues to use filthy public toilets, carries health risks and is also a source of anxiety. In the city 31 per cent households did not have any latrine facilities and 7.4 per cent population used Service latrines.

Housing Providers

In early period of settlements there is no particular one provider for houses. Each and every household carried out there housing development in its own manner, there is no particular method to develop a house. In later period masons and architects came who built the houses as per the needs / requirements of the persons concerned. At that time King or priests developed the houses for the their workers.

In 50's-60's builder concept came and in 80's developer concept came in the urban city.

After Independence the various incentives offered by the Government for industrial expansion attracted migrants from all over the country. This resulted in housing shortage, which was not given any immediate consideration. The supply of housing to the general population was inadequate. The private developers not many in number, supplied houses to the upper income group only, that too at very slow rate. With the result government established housing development authorities for the development of the houses for low-income, middle-income group and to control the housing activity.

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Agencies contributing to public housing

The following agencies contribute directly to public housing stock in the Pune Metropolitan Region by undertaking construction of houses:

- The State and the Central Government including Railways.
- The Maharashtra Housing and Area Development Authority
- The Maharashtra State Electricity Board
- The Maharashtra State Corporation and other Local Bodies
- The Life Insurance Corporation of India
- Pune Housing and Area Development Board

The Maharashtra Housing and Area Development Authority (MAHAD)

Pune Housing and Area Development Board is a divisional cell. It performs a number of functions, which include:

(*i*)   Housing development

(*ii*)   Slum rehabilitation programmes are carried out.

(*iii*)   Repair and reconstruction of the dilapidated, dangerous buildings

(*iv*)   Development of slums and

(*v*)   Rehabilitation programme for earthquake affected villages.

Board operates following housing schemes in the Pune Metropolitan Region:

Subsidized Industrial Housing

This scheme is meant for workers falling under the Factories Act, 1948 and the Mines Act, 1952.

Economically Weaker Section (E.W.S.)

For this group at the end of the year 2006; 2,762 units were developed by the board.

Low Income Group Housing (L.I.G.)

In early period a scheme was carried out in Lockmanyanagar, about 777 quarters have been constructed and in various parts of the Pune city almost 14,878 at the end of the year 2006.

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Middle Income Group Housing (M.I.G.)

In early period total tenements constructed were 134. Out of 134, 112 are located near Pune Railway Station in Agarkarnagar and 22 are constructed on Satara Road opposite Municipal Octroi Naka. 5,156 units developed in the year 2006.

Co-Operative Housing

Upto 1961, the co-operative housing was not a significant sector contributing to housing stock in the region. Till that time there were only about 54 housing co-operative societies in the region. Panshet tragedy gave a fillip to the co-operative housing movement. At present there are over 450 co-operative housing societies in the region with a total membership of about 9800. Co-operative Housing societies contribute in increasing housing stock.

Difficulties of Government and Private Providers

Various problems are faced at the time of developing any housing scheme, which are as follows:

Securing land and providing utility services

It is difficult to secure land at reasonable price. The lands are generally purchased through the brokers who take advantage of selling land at higher prices. A large portion of investment in developing a housing project is locked in purchase of land or construction of houses and the provision of amenities like the electricity and water, levelling of land, construction of roads lag behind.

Availability of the building material, labour, wages for the construction of the houses within the region at the reasonable price is also a cumbersome job.

Area	Land Rate (per sq.ft)
Aundh	3000 - 4000
Karve Road	2500 - 4000
Modal Colony	4200 - 5500
Warje-	1800- 2500,
Karvenagar	1500 – 3000
Katraj	200 - 1800
Kalyani Nagar	2500 - 4000

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Hadapsar	800 – 2500
Kondhva	1000 - 3000
Banner	2000 - 2800
Dankawadi	1200 - 2000
Kasba Peth	1600 - 2200
Bibwewadi	2000 - 3500
Sahkarnagar	2500 - 4500
Vadgao	**1400 - 2000**

Impact of this Development

Impact of all this development directly affects the housing scenario in both ways, i.e. qualitative and quantitative manner;

- Non-availability of the affordable houses for the E.W.S. and L.I.G.

- Increase in the slum and Gunthewari.

- The rapid growth of slum and squatter settlements has largely contributed to the social, economic and environmental problems in urban areas.

- Today the way development is carried out doesn't have the social equality. They are   away from the basic concept of the 'neighbourhood'.

- Standard of the living spaces are only maintained for the M.I.G. & H.I.G. group.

- Due to non-availability of land and increase in land rate; supply is less as compared to the demand.

- Density increases in the certain areas, with concentration of the population in particular area.

- Increase in the density creates traffic problems.

- Private sector provides houses for M.I.G. and H.I.G. sector that is only for 25 per cent population.

- Floor area available is very low, that is why slum crowding is a major problem; and

- Annually the residential zone increases by 0.4sq.km. , as the housing delivery mechanism is not available. It results in heavy urban sprawl. There is a need of controlled development.

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FUTURE HOUSING SCENARIO

Before forecasting future housing scenario we first go through the present housing scenario in the Pune City. As per data collected by national sample survey organization:

- The average number of household members was 4.47 in urban areas.

- Average number of family nuclei per household is one.

- Almost all households had some kind of dwelling unit for living. The proportion of households, which did not have a dwelling unit for living, was 0.09 per cent. Out of every 100 households in urban areas, 77 lived in *pucca* structures, 20 in semi-*pucca* structures and only three in *katcha* structures.

- In urban slums, 67 per cent of the dwelling units were *pucca*.

- On an average an urban household occupied 37sq.m.

Future Housing Demand

(i) Existing Need

This information is usually obtained by means of a survey of the existing housing stock. Such a survey has to indicate:

- the total number of existing housing units

- The number of proportion of the existing stock that is 'unsuitable' by definition.

By subtracting the number of unsuitable dwellings from the total housing units, the existing 'suitable' housing stock can be obtained. If this is compared with the existing number of households, the existing housing need can be established.

(ii) Replacement Need

If the form of construction of the existing housing stock is known, the life span of the units can be ascertained. On the assumption that the present units have been erected at a steady rate over the preceding years, it can be assumed that the oldest houses would need replacing this year, while those built this year will need replacing at the end of their life. Thus if the average life span was say, 25 years, this would mean that the total housing stock would have to be replaced over 25 years or at a rate of four per cent of the existing stock per year. If more information is available about the age and type of construction, a more accurate rate could be determined. This is

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necessary where the form of construction is not uniform over the city, or where the city has been built in two or more peaks of activity rather than steadily over the preceding years.

(iii) Future Housing Need

Essentially this consists of estimating the number of additional households which will be in the city at a given date in there future. More sophisticated methods are employed by demographers in their projections. As with all projections there is a danger of being off the mark, particularly if the base data is unreliable or inadequate, or if the projections are being made too far ahead in time. Yet the degree of accuracy required in forecasting housing needs is not very high. An indication of the order of magnitude will suffice in most cases.

(iv) Housing Target

The estimates of future housing needs can be qualified to obtain more specific targets for production.

With the availability of more information, it becomes possible to refine the target figures by anticipating the production trends in the private sector and therefore ascertain the necessary public sector response.

(v) Concept of Household Formation

A household may be simply defined as being that group of people, related or not who live and eat together. In most urban areas it is assumed that the household is formed around the 'household manager' that is, the person responsible for the preparation of meals. In most instances, this person would be a female. The earliest age at which a female may begin to perform this role in her own right is usually the age of marriage (20-25) when she sets up her own home. She continues to perform this function until she 'retires' (50-55) after which she is usually incorporated into the household of a son or daughter. Therefore, the total number of households could be said to be equal to roughly the number of female between the ages of 20 and 55. The advantage of using the 'household manager' as an indicator of household numbers is that the age of marriage is fairly narrowly defined for women by social mores, whereas there is a greater spread in the corresponding age for males, since it is more often dependent on economic and educational considerations. Furthermore it also overcomes the problem of the dual household that is often maintained in developing countries; one rural and another urban.

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(vi) Statically Data For the Future Housing Need Projection :

Year	Population	Decadal Addition	Household Size	Women
1981	12,03,351	4,88,079	5.21	4,81,340
1991	16,91,430	8,48,639	4.48	7,78,829
2001	25,40,069	13,51,931	4.47	12,14,395
2011	38,92,000	21,91,527	4.10	21,85,911

Year	Owned	Rented
1961	20.29%	79.71%
1981	32.17%	67.83%
2001	60.00%	40.00%

	Total	No Exclusive Room	One Room	Two Room
Owned	3,51,569	26,672	1,10,869	84,880
Rented	1,51,414	15,133	78,295	36,652
Any Other	21,336	2,829	13,680	3,033
Total	5,24,319	44,634	2,02,844	1,24,565

	Three Room	Four Room	Five Room	Six Room
Owned	73,008	36,524	9,975	9,641
Rented	15,120	4,483	883	848
Any Other	1,021	390	228	155
Total	89,149	41,397	11,286	10,644
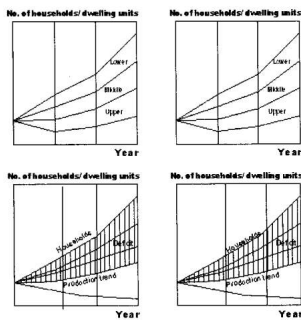
(vii) Distribution of Resources

The urban agglomerations of the market and mixed economy countries of the Third World is not only characterized by an unprecedented rate of growth but also by wide disparity in the wealth of their citizens.

(viii) Ability To Pay For Housing

Income Group	Affordable Area (Sq.mt.)	Ability to Pay For New Housing (Lack)	Rent Paying Capacity (Rs.)
E.W.S. (45%)	25 - 40	60,000	750
L.I.G. (31%)	80 – 120	1,80,000	2,250
M.I.G. (19%)	120 – 180	3,00,000	3,750
H.I.G. (5%)	**180 – 200**	**Above 3,00,000**	**Above 3,750**

(ix) Housing Standards

The official standards are impossible to achieve with the available public resources and to this extent seem arbitrary and unrealistic.

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Cost of the construction of dwelling units according to its size

Income Group	Affordable Area (sq.mts.)	Cost of the construction (Rs.)
E.W.S (45%)	25	42,925
L.I.G. (31%)	80	1,37,360
M.I.G. (19%)	120	2,06,040
H.I.G. (5%)	**More than 120**	**More than 3,43,400**

(ix) Housing Demand of the Pune City

Total number of Houses at the end of the year 2001 in the Pune city is	5,24,319
Total residential cum commercial units in the Pune city are	9,257
Total families in the Pune city at the end of the year 2001 are	5,69,367

Existing need of the Year 2001

Total number of the hutments and overcrowded in the Pune city are	98,519
Total number of dilapidated structures is	3,684
Backlog of the year 1991 – 2001 is	35,791
Two per cent of the total houses need to Replacement are	10,486
Total Housing Existing Demand is	**1,48,480**

If we see the existing need parameter, it mostly comes from the E.W.S., L.I.G and M.I.G. income group.

To satisfy this need on same locations it does not require much additional land

* Total land required for the existing housing demand is **4.42** sq.kms.

* Ten per cent more land added in this for road so total land required is 5.00 sq.km.

Future Need Year 2011

Total additional increase in population in a year is	21,91,527
Total future housing need is	5,34,518
Household size	**4.1**

- Total land required for the future need is 19.5 sq.kms.

- As this development is carried out on nearly 30 per cent excess land reserved for the other amenities related to the housing development like open space and services.

- Land required for the future need is 26.00 sq.kms.

- Available land for residential development in extended area is 50.66 sq.kms

SUGGESTIONS AND RECOMMENDATIONS

If adequate attention is not paid to the housing problem there are bound to be very serious tragic and physical implications, resulting unattended places of human habitation are not only a special means but are the breeding places of depravity and crime. The government and the local bodies in the region must, therefore, seriously attend to the problem of housing of limited income population as humanly and as decently as possible and that too as early as possible.

Findings of this study are:

- Solutions to develop a qualitative housing in the slum area

- Need to decrease the mismatch between the type of the demand and supply.

- Making available new houses to the households, which are adding continuously in developing city.

- There is a need to control the density in the residential areas.

- Make available affordable housing for the E.W.S. and L.I.G. groups.

- A balance housing development in the developing city.

- Availability of affordable infrastructure (serviced land at reasonable rates) for the development of the housing.

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To Make Available Land for the Housing Development

(i) Land Bank

To cope up with the rising costs of land for residential development, the municipality would acquire land, while it was still available at low prices. Peripheral land is acquired for the next 15 years to develop it and redistribute it on leasehold at rates high enough to be profitable but much lower than current urban market prices.

(ii) Ceiling on Urban Land Holding

This aims at limiting the purchase of land for own use and discouraging hoarding for speculative purposes. In setting up the limits for various uses and the agencies (viz. individuals for own-use, for selling out, co-operative society, or other registered public or private limited concerns) have to be considered.

- Control on the plot size would be useful for ensuring intensive use of land within the density stipulations. If plots of smaller size are permitted, the intensity of use will automatically increase; hence encouragement to group housing is called for.

- Efficient use of land through higher **Floor Space Index (FSI)** for Low Income Group (LIG) housing.

- Property value index based Transfer of Development Rights for Low Income Group (LIG)/Middle Income Group (MIG) in identified zones in the Metropolitan Region.

- Liberalizing Development Controls, Promoting efficient use of the land through higher Floor Space Index (FSI) for LIG housing, wherever feasible. Improve building designs to prevent amalgamation of LIG houses by HIG

(iii) Providing Serviced Land to The Urban Poor Through Land Sharing Mechanisms

The land sharing mechanism for development and distribution of land helps to maintain a balance of different income groups in that scheme. Access to housing by the urban poor can be done by demarcating part of the land for public purpose to low-income housing. Once the land is made available, housing construction for the urban poor can also be worked out under public private partnership or involvement of only private sector.

The land supply network for low-income housing should have the

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framework as indicated in table below:

Corporation	MHADA	Private Developers	Authorities	Financial Institutions
Provide land availability through reservations Provide infrastructure facilities at cheaper rates	Should focus on lower income housing construction in the city	Should be allowed to develop the land on the basics that they will have to construct houses for the LIG at subsidized rates	Accommodating residential growth and should work along with MHADA for development of existing slum areas and the city core	Provide housing loans at cheaper rates to increase the investment in the housing sector and increase housing accessibility to the urban poor

Availability of the Serviced Land

- Local Bodies to develop infrastructure like roads, water supply, sanitation and other amenities near the housing sites through development planning process, using Housing and Infrastructure Fund and accessing Government funding support.

- In order to ensure high speed of supply, more emphasis on sites and services schemes should be laid as for the EWS population.

Site and Services Projects for the Urban Poor: Provision of housing through sites and services for the population living below poverty line would be cost-effective and affordable as the poor people can participate and build their houses on such serviced sites themselves. Sites for this project should be located within corporation area, which can provide employment opportunities to locals. Location of the sites in the peripheral areas having very less potential for employment generation for the poor should be avoided as lack of employment in these areas will lead to residential movement of the people back to the core areas and in such situation the solution would not work as it will lead to further formation of slums in and around the core areas.

Decreasing the Mismatch between Demand and Supply

A severe mismatch between demand and supply is observed with respect to housing type and location. Any upward change in demand is reflected in increased land price. Compared to the other areas, the cost of land as a proportion to the total cost of the house in certain areas comes out to be disproportionately high. Realizing that there exists such a wide gap between the demand and supply, policies have to be framed in such a way that there would be an increase in land supply in the urban areas.

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Reduction of Imbalances

Reduction of imbalance in residential development and generating pattern of city's development can be achieved by adding the land supply at the desired locations. This would reduce scattered nature of residential development seen at present. The proposal aims at balancing the overall development of the city through compact urban form. The idea lies in creating an urban service boundary for the area where all the infrastructure and amenities will be provided. Thus the resources that are presently spent on providing services in areas where the demand is low can be avoided and these can be utilized in areas with higher demand.

Affordable Housing for LIG & EWS

In the present scenario, speed, quality and economy of construction are the core issues of housing. Therefore, construction of houses by standard designs, making use of prefabricated materials in a big way, providing developed sites and prefabricated materials to group of persons to let them construct their houses on self-help principle.

Use of the local material for the construction of the buildings:-

- Technology development to reduce cost of housing and promote durable housing.

- Encourage the use of precast and prefabricated building material for speedy and cost effective construction of mass housing.

Slum Areas

The location of slums across the city means that it is more efficient to include slums into planning networks than to avoid them. For example, where a sewage or water line is intended to supply a 'regular' neighbourhood, it can also supply slum settlements located along the route. Integrating slum settlement development into Pune's city development is then the most logical way of city planning and of prioritizing investments to ensure efficient municipal expenditure.

- **Slum Networking**

Slum networking is a holistic approach to urban improvement in which slums are seen as an integral part of the city. The approach does not aim to find solutions exclusively for the slum areas but to integrate them with the rest of the city, resulting in better infrastructure and quality of life for both.

Thus, as a by-product of slum networking, Indore city has obtained a primary sewage network, which serves not only the slums but the entire city.

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By providing good roads within and on the perimeter of slum areas, it becomes possible to complete linkages within the city's road network.

Legal and Regulatory Reforms.

- Repeal of Urban Land (Ceiling & Regulation) Act, 1976

- Amendment to Rent Control Act to promote rental housing, ensuring economic returns and provide fast track adjudication system.

- Strengthening the foreclosure laws for rental housing finance.

- Incentivizing LIG rental housing higher Floor Space Index (FSI) and fiscal incentives in property tax, cess and duties.

- Public- private partnership to develop and maintain transit shelters through grant of Government land at concessional rates, higher Floor Space Index (FSI) and supporting infrastructure.

- Streamlining building approval procedures including self approvals through accredited architects.

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