Affordable Housing Solutions: The Underlying Opportunity

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ABSTRACT

Housing is one of the necessities of livelihood. In today's world, housing has become one of the most expensive need. What we perceive as 'good housing' is a dream for billions of people around the globe, even impossible for lower income groups living in cities. Housing has now become the biggest challenge with the ever-rising population, especially in India where approximately 60% of population is young. This decade could be a defining 10 years for transforming the housing eco-system.Daily wage workers, employees of unorganized sector are often the ones who struggle all their lives while living in the poorest housing facilities. Many find renting an independent room very expensive, so they live in groups in a one room housing facilities. The increasing population is putting enormous pressure on the existing natural resources and it's the right time for us, humans to consciously take step to reduce this pressure and move to towards ecologically sustainable way of life, by understanding our actual housing needs and how we prefer to live, defining the first objective of the paper. This paper explorers the housing needs of the immigrant and migrant youth work force living in metro cities and their perception about affordable and sustainable housing. As we shift towards creating a more sustainable, eco-friendly world, our housing structures should also become more eco-friendly, sustainable, and affordable which also defines the second objective of this paper. Though there have been many promising housing models up in the market, none has been implemented on a largescale basis because what people need is often misunderstood. Fortunately, there are communities, organisations and individuals working on building affordable, modern, compact, and eco-friendly houses, mostly designed for bustling big cities with high population density.In a country such as India where people are continuously migrating from rural areas to urban areas (most preferably big cities) in search of a better life and good income, often end up living more than half of their lives in rented, poorly maintained houses or just in a one room apartment. We have explored and analyzed the needs and preferences, of young Indians, who want to live in a modern yet ecologically sustainable house by using factor analysis. Based on the necessity and preference factors, we have selected two sustainable and affordable housing models, which can be adopted in India with little modifications.

Key Words: Housing, Migrants, Urban housing, rural housing, Indian migrants, cities, metro cities, Entrepreneurship, innovative housing models, coop living, small apartments, co-living.

1. Introduction

Need of today's youth who has migrated to cities

1.1 Income of an Indian

A report titles 'State of working India' was published by Azim Premji university in 2018. The report found that 82% of male and 92% of female workers earn less than 10,000 rupees per month. "if you earn more than 50,000 a month, you are in the top 1% of the workforce" said Amit Bhosle, the lead author of the report.

Another survey report published by Statista Research department in 2016, concluded that over 60% of Indian households had average monthly income of 10,000 rupees only. They found out 75% of the rural households and 45% of urban households earned up to 10,000 rupees per month. This is enough evidence to realize that majority of Indians live in or below the lower middle class. The youth from the rural areas migrate to nearby cities or metro cities looking for a better income and lifestyle. But the city lights are not diamond studded towers, the youth from the rural areas is often found stuck at odd jobs with

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marginal earnings.

Good living spaces in metro cities are expensive, forcing the immigrant and migrant workers to live in apartments or houses having poor facilities. Housing which is a necessity is now becoming a dream for many. Housing, one of the most essential part of lifestyle has now become the biggest challenge for people under middle- and low-income groups. The problem is even bigger for the immigrant and migrant workers who spend a huge amount of their income on rentals expenses. International and domestic migration is inevitable and it's time that we also consider affordable housing solutions as an underlying business opportunity without exploiting the natural resources to their limits.

1.2 Housing crisis

Census of 2011 has counted and classified number of houses in India, their condition and use or purpose of the houses were fulfilling. As per the Census, there are only 331 million houses under the census and this included permanent, semi -permanent and temporary houses. A population of more than 1.3 billion is adjusting in 331 million houses only. Majority of the houses are in rural areas which is 221 million (66.7%) and the rest 110 million houses are in urban areas, which is only 33.3% of total houses. Only 306 million houses were occupied, and rest were vacant or locked. Out of the 306 million occupied houses, the census has provided the information about the condition and usage for 304.9 million houses. Among the 304.9 million houses, there are only 52% of permanent houses in rural areas as compare to the urban area, where 85.3% of houses are permanent. The table below, gives the details of permanent, semi-permanent and temporary houses in rural and urban areas.

Table 1: Type of Census Houses

Total/ Rural/ Urban	Total no. of census houses (Residential and institutional)	Permanent	Semi-permanent	Temporary			Unclassifiable
				Total	Serviceable	Non-Serviceable	
Total	304.9	62.7	23.9	12.3	56.2	43.8	1.1
Rural	206.6	52.0	30.1	16.7	56.0	44.0	1.2
Urban	98.3	85.3	10.7	3.0	58.8	41.2	1.0

(Government of India, 2011) Census 2011.

The pressure on the resources due to ever rising population is enormous. Housing, a primary necessity of human beings is being snatched away from the lower income groups and the middle-income groups must use a huge part of their earnings and saving to buy a house, preferably on loan. The false perception that majority of India's population is middle class led to the extensive building activities. Builders build huge societies with 2BHk, 3BHk, 4BHK apartments with the starting price of over 50

lac rupees. Now these costly societies stand empty on the highways, outskirts, or sub urban areas of metro cities and in the heart of these metro cities, lies slums where the major population lives, without sparring an inch. It should not be surprising to know that 60% of Mumbai's population lives in slums.

India also grants asylum to more than 180,000 refugees every year, from the neighboring countries. China (Tibetans), Sri Lanka, Myanmar and Afghanistan are the major countries of origin with China leading the list. Refugees initially live in temporary settlements but in very poor condition. Government has been providing housing support in form of land and other subsidies, but the efforts are never enough because the refugees keep on coming to seek asylum. The table below gives the figure of number of refugees who had taken asylum in India in the period of last ten years.

Table 2: India Refugee Statistics

India Refugee Statistics - Historical Data

Year	Refugees Granted Asylum	Annual % Change
2018	195,891.00	-0.62%
2017	197,122.00	-0.37%
2016	197,851.00	-1.75%
2015	201,381.00	0.72%
2014	199,937.00	6.13%
2013	188,395.00	1.48%
2012	185,656.00	0.29%
2011	185,118.00	0.16%
2010	184,821.00	-0.27%
2009	185,323.00	0.42%
2008	184,543.00	14.24%

(Macrotrends, 2020)

1.3 The idea of Ideal Home

Housing is a primary need, a vital component to make living more safe, adequate, peaceful, and secure. Good housing, similar to good quality food and clothing is essential to live a good life and also give us mental peace and makes our life more serene. On the other side, poor housing creates mental trouble, lack of comfort, poor hygiene, and pest infestation to name a few. As we grow, our want for privacy increases and lack of affordable options makes us live in compromised space along with other members.

For this research paper, we interviewed 30 youth who had migrated to cities from their hometowns and are under the income bracket of 'less than 6 lakhs annually'. The common thing amongst them was the want to have an independent house and the feeling that they dream about buying house in next 15-20 years. Should buying a house be a dream? Isn't housing a primary need?

For the youth, one thing was clear and that was – the idea of ideal house in budget.

The idea was simple but modern, clean, and complimented with basic amenities. A house in budget could be small but should be clean, durable, with ample storage and easy to maintain. In this paper, we have tried to bring the best two models of affordable housing in a minimalist way.

1.4 The Government's approach

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Amongst the most accepted definitions of housing affordability is taken as a measure of expenditure on housing to income of the household. This is also accepted by the Indian Government, which states "Affordable housing refers to any housing that meets some form of affordability criterion, which could be income level of the family, size of the dwelling unit or affordability in terms of EMI size or ratio of house price to annual income" (High Level Task Force on Affordable Housing for All, December 2008. In 2011, Ministry of Housing and Urban Poverty Alleviation, came up with this matrix to justify affordable housing. .

Table 3: Matrix for Affordable Housing

	Size	EMI or Rent
EWS	Minimum of 300 sq ft super built-up area Minimum of 269 sq ft (25 sq.m) carpet area	Not exceeding 30-40percent of gross monthly income of buyer
LIG	Minimum of 500 sq ft super built up area Maximum of 517 sq ft (48sq.m) carpet area	
MIG	600-1200 sq ft super built-up area Maximum of 861 sqft (80sqm) carpet area	

(MHUPA, 2011).

In 2015, Indian Government launched **"Pradhan Mantri Awas Yojana"**. Pradhan Mantri Awas Yojana (Urban) Mission launched on 25th June 2015 as to provide housing for all in urban areas by year 2022. The Mission provides Central Assistance to the implementing agencies through States/Union Territories (UTs) and Central Nodal Agencies (CNAs) for providing houses to all eligible families/ beneficiaries against the validated demand for houses for about 1.12 cr. As per PMAY(U) guidelines, the size of a house for Economically Weaker Section (EWS) could be upto 30 sq. mt. carpet area, however States/UTs have the flexibility to enhance the size of houses in consultation and approval of the Ministry. Features are given below.

Figure 1 Features of Pradhan Mantri Awas Yojana
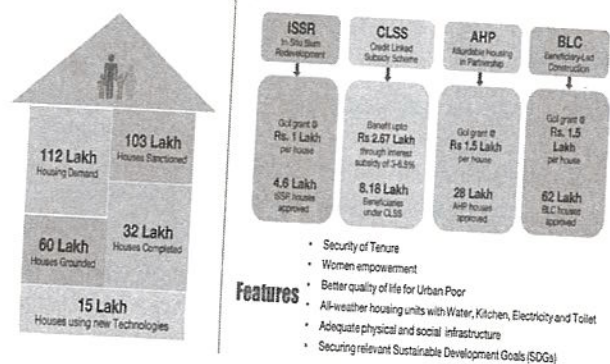
1.5 The Migrant crisis In India amidst Covid19

The covid19 pandemic forced more than 40 crore migrant workers of the low-income groups, to go back to their villages from cities, mainly metro cities. Migrant youth working in organized sector also left jobs and went back to their native town because living in rented spaces with limited facilities made it difficult for them to survive on their own. All this mass migration took place because people were not having proper housing facilities available to stay. Many landlords were not supportive of the tenants who were finding it difficult to pay the rent.

If there were possibilities of arranging instant housing solutions, the fast spread of covid19 through migrants could have been contained and controlled. Although we can understand that in situations as delicate as this pandemic crisis, it is hard for the governments all around the world, to be proactive. This is exactly where easy and affordable housing solutions could have been implemented in a short period of time.

As per our observation, we know that maximum number of migrant youths were residing in in sub urban, poorly maintained downtown areas of the cities. For example, a single room is usually shared between 2 to 4 people. In such conditions, hygiene is often compromised, which

leads to spread of diseases. Unfortunately, covid19 is a deadly contagious disease, which created a global panic in late March 2020. Countries around the world declared nationwide lockdown, and so did India. Business other than that of essential items were badly hit. Local business such as construction, restaurants, beauty salons, apparel stores were shut. The workers in the unorganized sector were worst hit by the lockdowns. They barely had the money to survive a week so many of them started their journey home on foot.

This only added to the existing misery of these people. If any alternate housing solution could have been built for these people, the impact could have been different. Only if these people had a home of their own, they would have not hit the road in panic.

2. Literature Review

In the past, the needs assessment on this topic was barely seen. The research papers, we searched were based on the idea of affordability and the present models being implemented by construction companies. There are scarce literature sources available on the needs of people and what they perceive as an affordable housing model. Though there is adequate amount of information available on the online media sources, dissatisfied with the housing ecosystem. The crisis of over population and their impact of the essential resources such as land, water. The income disparity further puts enormous pressure on the division of resources and news articles are amongst the ones to record it but in the research backdrop, innovations and techniques with policy recommendations, everything about affordable housing has been covered. We have identified this gap and developed this research paper to provide insight into the world of youth and their idea of affordable housing.

Objective

- To identify the need of youth (earning 6 lakhs or less per annum)and understand the idea of affordable housing from their point of view.

- To identify most relevant housing models which can be implemented in India

3. Research methodology

The research is based on primary research and related secondary research. After the inception of the idea, literature review was done as to identify the gaps and objectives were formulated. A group of 30 individuals was identified based on convenience sampling. A survey form containing 15 statements was developed, each stating a factor is directly applicable on defining the affordable housing. We have interviewed 30 migrated youth working in cities. All the people selected are earning less than 6 lakhs annually and are under the age of 30. We have

conducted personal interviews through video call, to identify the need of the people. The respondents were given an online survey form of statements, based on the parameters of Likert scale technique.

After collecting the data, data tabulation was done and processed for descriptive statistics and factor analysis. The result of factor analysis will provide us with the major factors that we should consider while selecting an appropriate housing model that could be adopted in India.

4. Survey

We conducted video call interviews and personal interviews with our sample of 30 individuals. We asked them a set of structured statements to know what they think of a good housing model to buy or rent within the budget. The Likert scale technique is used.

Using Likert scale, we have incorporated the 7 parameters.

"1" for Strongly disagree

"2" for Slightly disagree

"3" for Neither agree nor disagree

"4" for Slightly agree

"5" for Strongly Agree

STATEMENTS-

1 – I AM HAPPY WITH MY LIVING STANDARD WITH RESPECT TO MY RENTALS, HOUSE, AND AMENITIES.

2- I CANNOT COMPROMISE IN CLEANLINESS, LOCALITY, AND SURROUNDINGS.

3 – I CAN COMPROMISE IN LIVING SPACE BUT NOT MY PRIVACY.

4 - I CAN LIVE IN CO-EDS, OR SHARED ROOMS BUT I NEED LIVING SPACE MORE THAN 500SQ. FT.

5 - MY PREFERENCE IN LIVING SPACE/HOME IS LARGELY DEPENDED ON THE PRICE TAG.

6 – I RATHER LIVE IN RENTAL APARTMENTS THAN TO BUY A SMALL HOUSE.

7 – I RATHER BUY A BUDGET FRIENDLY SMALL PRIVATE APARTMENT THAN TO LIVE ON RENTALS.

8 – I WOULD BUY A SMALL HOUSE IN A COMMUNITY SETTING, IF THE PRICE IS LOW (BELOW 15 LACS).

9- I WOULD ONLY BUY A HOUSE WHICH HAS ENOUGH SPACE (MORE THAN 700 SQ. FT.), EVEN IF IT TAKES YEARS TO DO SO.

10 – I WOULD ONLY INVEST MY MONEY ON HOUSES WHICH HAVE ALL BASIC AMENITIES AND

ELECTRONICS INSTALLED, EVEN IF THE SPACE IS SMALL.

11 – I WOULD WANT TO LIVE IN COMMUNITY SHARED SPACES BUT ONLY ON RENT.

12 – I THINK IT IS SAFE IN COMMUNITY SHARED SPACES, AND COMPARATIVELY CHEAPER TO BUY A HOUSING UNIT IN SUCH DESIGNED SETTING.

13 – I THINK APARTMENT LIVING BUDGET FRIENDLY.

14 – I CAN SHARE MY APARTMENT WITH OTHER PEOPLE.

15 – I CAN REDUCE MY NEEDS AND BECOME A MINIMALIST FOR THE ENVIRONMENT.

In the table given below, the recorded responses of the statements by youth (respondents) are given below. Statement is labeled as "stat" and the number codes from 1-7 represent the level of disagreement and agreement as mentioned above.

Table 4: Responses

S.no	stat 1	stat 2	stat 3	stat 4	stat 5	stat 6	stat 7	stat 8	stat 9	stat 10	stat 11	stat 12	stat 13	stat 14	stat 15
1	2	7	7	2	7	2	7	4	3	7	3	4	6	1	5
2	4	7	3	6	7	2	6	7	4	5	4	5	4	3	4
3	3	6	5	3	6	4	6	2	6	3	4	4	5	3	6
4	5	6	4	4	5	4	6	3	6	2	5	5	4	3	6
5	4	6	4	6	7	3	6	6	4	5	5	5	3	4	5
6	3	5	6	5	6	4	5	7	3	6	3	5	3	3	3
7	6	6	5	4	6	6	6	7	4	5	3	5	3	4	3
8	5	6	6	5	6	5	4	7	4	5	2	3	4	3	4
9	4	5	5	4	5	3	6	7	4	5	5	6	5	2	5
10	5	6	4	5	4	2	6	5	4	5	6	5	4	3	3
11	3	6	6	6	5	5	5	4	3	5	6	7	5	3	5
12	3	6	3	6	6	6	7	3	5	6	4	7	3	3	6
13	4	6	4	6	7	3	4	1	7	3	4	6	5	4	4
14	6	6	5	7	4	2	3	5	3	6	4	5	4	5	5
15	7	6	5	4	5	4	6	6	3	6	6	7	5	5	3
16	2	7	7	7	6	6	5	7	4	7	5	6	4	4	4
17	3	7	6	6	7	6	7	1	7	2	3	6	5	5	7
18	7	6	5	5	5	2	3	6	4	7	5	5	5	5	5
19	3	6	7	5	5	3	5	5	3	6	4	6	5	3	7
20	3	5	7	6	6	2	4	6	3	5	4	5	6	2	7
21	5	7	5	5	7	5	5	4	5	3	5	4	5	5	7
22	4	5	5	5	7	6	5	6	2	5	4	4	5	4	6
23	6	6	6	4	6	2	5	5	2	5	5	6	5	4	3
24	5	6	5	5	7	5	6	5	4	3	3	3	5	4	4
25	3	7	7	6	5	2	7	6	4	4	4	4	6	5	7
26	5	6	6	3	5	3	6	6	4	4	5	4	6	5	5
27	6	6	6	5	6	1	6	5	3	5	4	5	6	5	7
28	4	6	4	4	6	4	5	4	3	5	5	3	5	5	6
29	2	6	5	5	6	2	7	3	6	2	3	2	5	4	7
30	4	5	5	5	6	3	6	3	6	2	4	3	5	3	7

The data was tabulated and was analyzed using SPSS. The prime tools were descriptive statistics and factor analysis.

5. Data Analysis

The descriptive analysis shows the average agreement or disagreement of the youth, while they decide the primary factors affecting the affordable housing ecosystem. The factors such as 'good locality cleanliness of surrounding', 'buying a budget friendly apartment than to live on rentals', 'dependency on price tag' and becoming a 'minimalist for environment' were highly agreed upon. I rather live in rental apartments than to buy a small house and 'I can share my apartment with other people' were the factors, people disagreed with. With majority of other factors, the opinion of people remained neutral in general, which shows their ability and want for adjustments when it comes to housing.

Table 5: Descriptive Statistics

Table 5: Descriptive Statistics			
	Mean	Std. Deviation	Analysis N
happy with my living standard with respect to rentals	4.20	1.424	30
I cannot compromise in cleanliness, locality, and surroundings.	6.03	.615	30
I can compromise in living space but not my privacy	5.27	1.143	30
I can live in co-eds, or shared rooms but I need living space more than 500sq. ft.	4.97	1.159	30
My preference in living space/home is largely depended on the price tag.	5.87	.900	30
I rather live in rental apartments than to buy a small house.	3.57	1.547	30
I rather buy a budget friendly small private apartment than to live on rentals.	5.50	1.106	30
I would buy a small house in a community setting, if the price is low (below 15 lacs).	4.87	1.776	30
I would only buy a house which has enough space (more than 700 sq. ft.), even if it takes years to do so.	4.10	1.348	30
I would only invest my money on houses which have all basic amenities and electronics installed, even if the space is small.	4.63	1.520	30

Test for significance of data and factor analysis

Table 6: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.368
Bartlett's Test of Sphericity	Approx. Chi-Square	170.984
	df	105
	Sig.	.000

Here, the significance level is less than .05, which means factor analysis is useful for our data.

From the table of total variance, the factors which have 'Eigen value' more than one, those factors are the most impactful one and the major factors to be considered. Here we have reduced the 15 factors to six factors. Now we can concentrate in these selected factors and find the best suited housing model.

In the Scree plot graph, we can see, the line is gradually steep before becoming flatten. This gradual decrease shows that some more factors were close enough to the eigen value of one, then the line starts to flatten, stating the

Table 7: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.408	22.719	22.719	3.408	22.719	22.719	2.871	19.141	19.141
2	2.162	14.415	37.135	2.162	14.415	37.135	2.091	13.941	33.081
3	1.869	12.460	49.595	1.869	12.460	49.595	1.895	12.632	45.713
4	1.469	9.796	59.391	1.469	9.796	59.391	1.751	11.674	57.388
5	1.355	9.034	68.425	1.355	9.034	68.425	1.441	9.605	66.993
6	1.217	8.113	76.537	1.217	8.113	76.537	1.432	9.544	76.537
7	.810	5.401	81.938						
8	.684	4.563	86.501						
9	.619	4.129	90.630						
10	.419	2.794	93.424						
11	.380	2.533	95.957						
12	.243	1.622	97.579						
13	.164	1.093	98.672						
14	.136	.909	99.582						
15	.063	.418	100.000						

Extraction Method: Principal Component Analysis.

eigen value of less than or around 0.5. The factors here account for smaller variances than compared to the factors plotted above the eigen value of 1. The steep line shows larger variances amongst the factors.
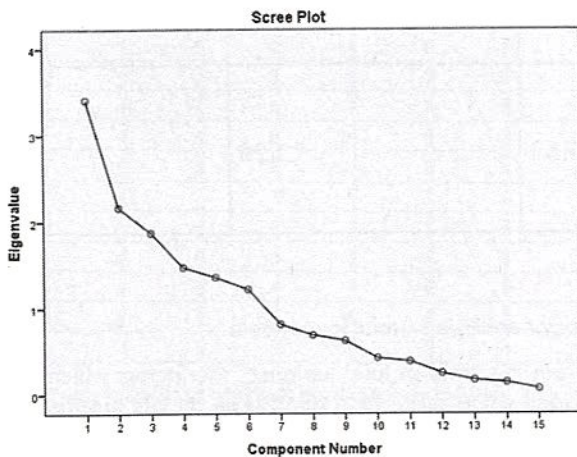

Figure 2: Scree Plot

THE FACTOR REDUCTION HAS BEEN PERFORMED AND THE RESULTS ARE – (The histograms represent the frequencies of responses recorded for each contributing factor against the selected parameter.)

1 – I AM HAPPY WITH MY LIVING STANDARD WITH RESPECT TO MY RENTALS, HOUSE, AND AMENITIES – THE AVERAGE UNDERSTANDING WAS – THEY ARE AND THEY ARE NOT AS PEOPLE NEITHER AGREED NOR DISAGREED TO THIS. THIS GIVES US AN SCOPE TO CONVERT THIS STATE OF DENIAL INTO A POSITIVE STATE OF HAPPINESS. PEOPLE SHOULD BE HAPPY WITH THE PLACE THAT THEY LIVE IN.
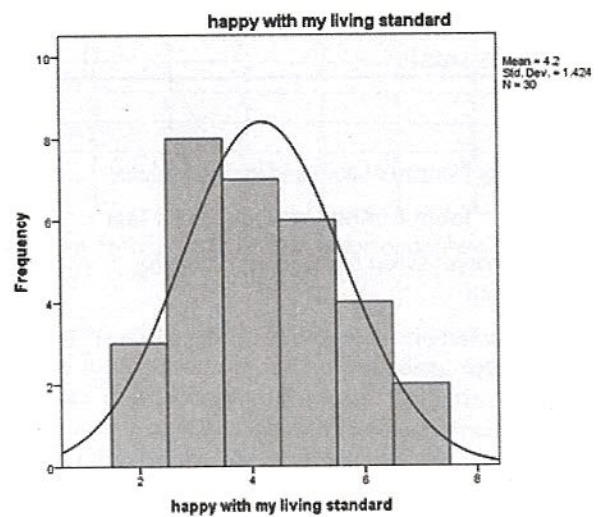
2- I CANNOT COMPROMISE IN CLEANLINESS, LOCALITY, AND SURROUNDINGS. -MOST OF THE PEOPLE AGREED TO THIS IDEA AND FIRMLY BELIEVE SO.

I cannot compromise in cleanliness, locality, and surroundings.
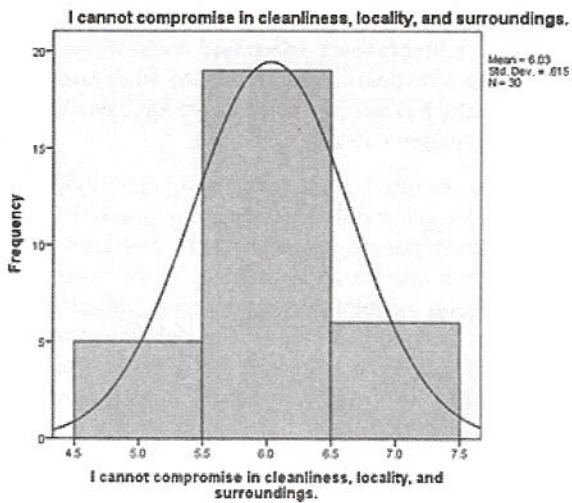
3 – I CAN COMPROMISE IN LIVING SPACE BUT NOT MY PRIVACY –YES, PEOPLE WHO PARTICIPATED, AGREE THAT THEIR PRIVACY IS MORE IMPORTANT AND THEY CAN COMPROMISE ON A BIT OF SPACE FOR PRIVACY.


I can compromise in living space but not my privacy
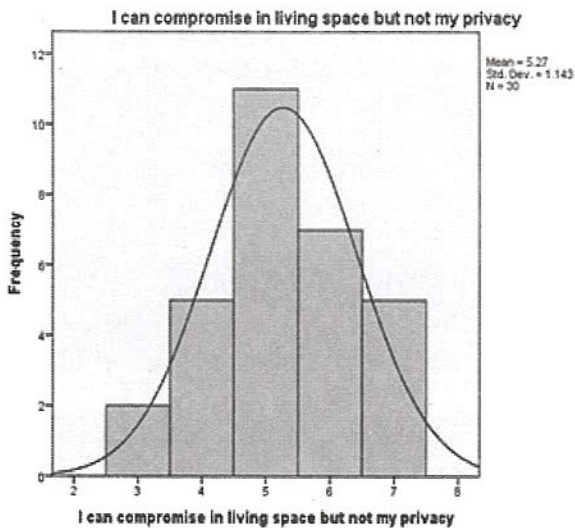
4 - I CAN LIVE IN CO-EDS, OR SHARED ROOMS BUT I NEED LIVING SPACE MORE THAN 500SQ. FT.- WITH THE MEAN VALUE OF 4.97, THIS FACTOR LIES VERY CLOSE TO SLIGHT AGREEMENT ON THE STATEMENT. THERE IS A POSSIBILITY OF PEOPLE LIVING IN SHARED SPACES WHERE THEIR PRIVACY IS NOT COMPROMISED AND THEY HAVE ENOUGH SPACE.

I can live in co-eds, or shared rooms but I need living space more than 500sq. ft.
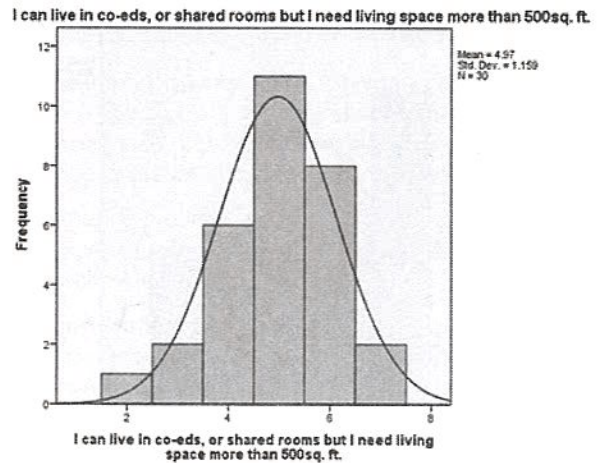
5 - MY PREFERENCE IN LIVING SPACE/HOME IS LARGELY DEPENDED ON THE PRICE TAG. - THIS IS WHERE MOST PEOPLE AGREED TO ACCEPT THAT MONEY PLAYS A GREAT ROLE IN DECIDING WHERE WE ARE LIVING.

My preference in living space/home is largely depended on the price tag.
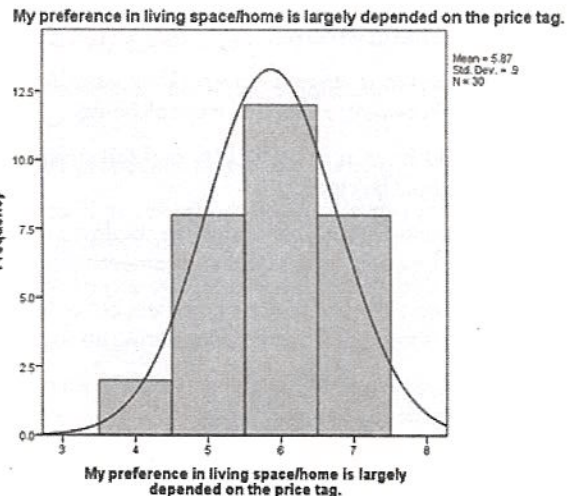
6 – I RATHER LIVE IN RENTAL APARTMENTS THAN TO BUY A SMALL HOUSE.-WITH A LOW MEAN SCORE OF 3.57, HERE THE MAJORITY GLADLY ACCEPTED THE SLIGHT DISAGREEMENT WHICH SIGNIFIES THE WANT TO OWN A SPACE AND BUY A HOUSE AND GET A PERMANENT ABODE THAN TO KEEP SHIFTING AND LOOKING FOR BETTER RENTALS.

I rather live in rental apartments than to buy a small house.

Mean = 3.57
Std. Dev. = 1.547
N = 30

I rather live in rental apartments than to buy a small house.
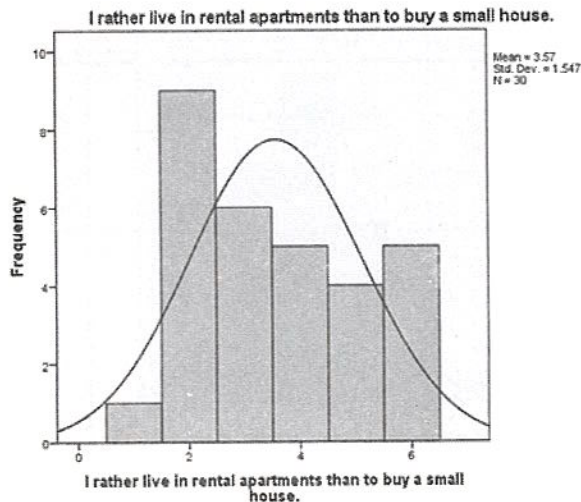
On analyzing the survey results, we can evidently state that the youth, under the age of 30 is ready to experience more subtle yet modern lifestyle which moves towards sustainability and affordability.

Majority of people will buy a house under 20 lacs if it meets the criteria which is:

- Youth wants to own a house. They want to invest money in owning a property they call home.

- It should be in a good locality and the surrounding area should be clean.

- The house should be under the budget, and for privacy one gets, space could be compromised.

- People can live and space with others but only if their privacy is respected and the space is big enough.

- The house should be simple, minimalistic yet modern, meeting the sustainability

- The Youth don't like or prefer living on rentals. If given the opportunity to buy a small house under budget, the people would choose to buy the small house, they can call home.

These are the points where we can say, young people can compromise the space dimension. The survey has provided us with the true face of expression or the reality we don't want to believe in, which is – we don't want to live in rented places for long period of time. Another reality check that we get from the finding of the survey is that- the housing infrastructure in India is not able to provide for all and extensively expensive as per the pockets of majority of Indians. It is the right time for entrepreneurs to strike the housing ecosystem and change it for the better future ahead. It is amazing to see the way people responded to budget constraints and how they would love to buy a house, if the prices could be balanced with the money they have saved, and what they earn.

The innovate housing models as the future of enterprising

As the cities are becoming more congested, the suburban area around them are expanding. This is the best time for innovative entrepreneurs to spread their wings in the direction to provide affordable housing while keeping in mind that land has become a scarce resource and we must find sustainable solutions.

With the survey result, it was evident that majority of youth would prefer affordable housing solutions rather than living on rent or compromised spaces for cheap prices. We have selected two housing models to fit the need of this income group or other lower income groups. These models are designed for people who shift from one city to the other. Though there have been a few innovations in India like 'Co-living' start-up, but it is not a permanent housing solution.

We have categorized the need into 2 ways

The ones who want to live separately and can afford a small apartment- Small/Tiny Apartments.

People who don't want to spend much on housing, but still can have their private space in a communal living space – Coop Housing facility and enjoy all the benefits of a big house. Society nowadays provide communal spaces such as gyms, gazebos, swimming pools etc but this is a very limited application of coop living. Coop living is born out of community living and engagement, which also strengthens the bond of people who learn to work together and live together.

Builders and Government could come together to transform existing vacant building into one room apartments, tiny homes, or 'Coop' homes.

What are Tiny Homes/Apartments?

These are the apartments where the space is very intelligently used with the blend of creativity to bring out the best in a minimum space for example plywood walls to create closet and a separation between two rooms. These are usually one-bedroom apartment/house, could be developed into 2 two-bedroom apartment/house. The model is explained with the help pf an example below. Small apartments can be 70sq.mt. large, which is 750 sq. ft. of space.

Hong Kong has started to promote tiny apartments and co-living to make housing more affordable and sustainable without building new building. They have started to renovate the existing infrastructure available to meet the housing needs. Here is a blueprint of a tiny home rebuild in a vacant existing building in Hong Kong. Developed and designed by PMDL architecture, this apartment is just

25sqm.(PMDL, 2020).
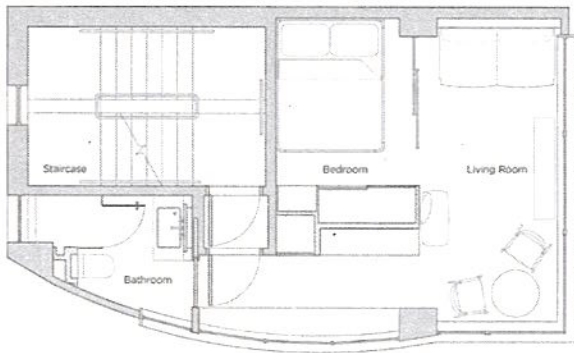
Design of a small apartment (24sq.mt)

Before and After the renovation of the building, in which the apartments were built in


After renovation

Before renovation

Coop living model by the Carpaneto Architekten , Fatkoehl Architekten , BARarchitekten

Another housing enterprising that can work well for Indian Youth is the Coop living model, implemented in Berlin, Germany in 2013. Similar models have already been in practice for the senior citizens in senior living homes.

The housing model- Coop Housing at River Spreefeld /By Carpaneto Architekten, Fatkoehl Architekten, BARarchitekten

Mission: to harness its location's unique potential to create a socially just, economically stable, and environmentally responsible urban building block.

- Open to the neighborhood and city
- Differentiation between private, communal, public spaces (people can own their own condo)
- Options for contemporary forms of living
- Resource-saving, low-cost building
- Modular building design and construction
- Uniform fittings, sparingly used in the apartments
- Self-help construction
- Use-neutral building organization for living and working
- Self-production of renewable energy
- Economy of space: few elevators; shared and communal spaces
- Joint ownership for long-term affordable rents

WORKING AREA

OPTION SPACE

COMMUNAL SPACE

STUDIOS, WORKSHOPS
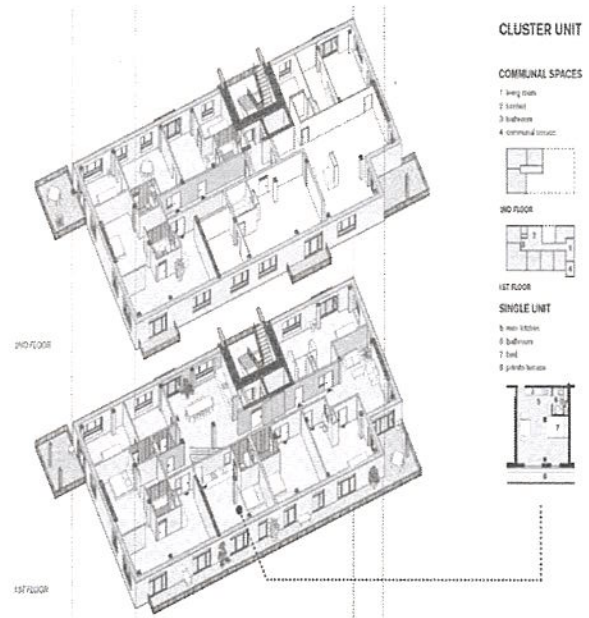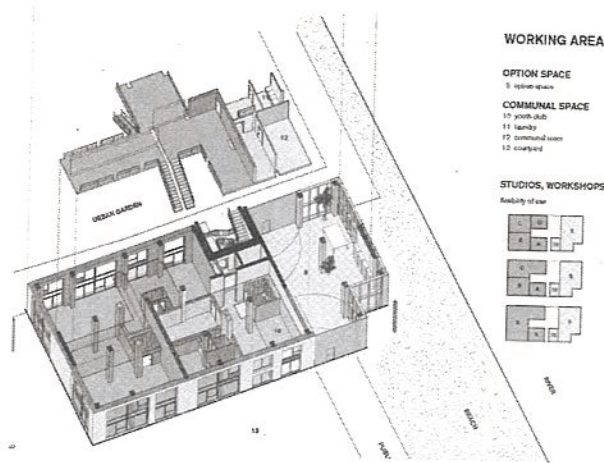
Floor Plans of the project (highlighted area is the communal area which is on the right side)
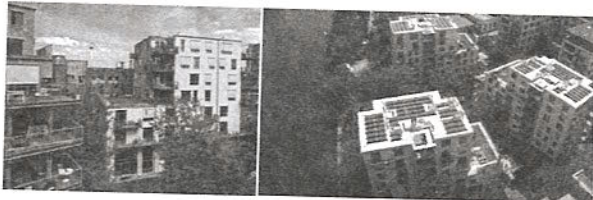
Outside view (private condo with balcony)

use of solar energy to reduce cost

Interiors- Private space

Communal public space workshop

This is a cheap option where a person can live with a community of different people yet have a private space. This model can be used widely in India.

6. Conclusion

The youth wants to live as independent as they can be. They are becoming wiser with the money they are putting on rents. They clearly don't want to work to pay rents. They respect the need of privacy and would like to invest if the right option is available in the market.

These two models are best suited for Indian societies, making housing easier for low income groups. Youth is interested in buying the best suited option. They don't want to put their life's saving in building a primary need. The market dynamics need to change and adapt to the current requirement. Builders should focus on providing efficient and multi-purpose small houses at budget prices. With the increasing population, these two models can be widely implemented in India as they can be easily adopted and implemented even in the rural communities along with being workable in urban setting.

Small Apartments –

Small apartments are the best option for low income families. These apartments/houses can be modified into 2-bedroom apartment/houses and are affordable and sustainable for not only individuals but also small families. Clever design ideas can be incorporated into building these. The old and dying infrastructure can be renewed and made into sustainable housing model with small apartments in cities where there is less land. Small efficient apartments can change our idea of space and utility.

Coop-living

The hassle of finding rental rooms and then trying to adjust with the landlord can be put to a good end. If this model is adopted in India, a lot of young professionals will have easy and affordable access to private, safe spaces and a society at the same time. Coop living spaces have public creativity and office rooms which can provide great exposure and increase the trust and loyalty between people of different communities. This is an affordable rental option being implemented in Europe.

7. Limitations

➢ The time during the covid19 pandemic restricted the movement to do more detailed and diverse research.

➢ The larger sample may produce a result varying a little from our finding.

➢ The models are implemented and designed for low income groups, youths but India's low-income groups is not very experimental when it comes to practically utilizing and embracing new models due to the large size families.

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