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Consumers’ Awareness Toward Green Homes in Jaipur City

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Abstract

India's infrastructure sector is witnessing spectacular growth. The governmental initiatives in this direction are contributing to the growth of this sector. Due to deteriorating environmental conditions, Indians are shifting towards eco-friendly products. The area of green real estate is also showing active concern for the environment and environmental conservation. Rajasthan state is facing serious issues like climate change and water scarcity. Government of Rajasthan is promoting green practices, and the construction sector is also playing a role in minimising the impact on the environment by adopting green practices. The paper attempts to study and review the consumer's awareness regarding benefits and features of green homes in Jaipur.

Keywords; Green Homes, Green Real Estate, Consumer Awareness, Sustainable Construction, Eco-Friendly Housing, Environmental Conservation.

INTRODUCTION

India's infrastructural development is one of the biggest revolutions witnessing today. Infrastructure development is one of the most significant pillars of India's development, apart from contributing to enhanced productivity, trade, and improved living standards. However, this development is having an adverse impact on the environment in terms of increased greenhouse gas emissions, an increase in global warming, soil erosion, depletion of natural resources, water, air and species pollution. Due to this environmental issue, green practices play an important role in controlling the ecological damage. The real estate sector has responded to this issue by developing Green Real Estate for an eco-friendly environment.

This paper tries to analyse that green buildings are doing well by doing good to the environment and society.

What Are Green Homes?

Homes that have a lower impact on the environment and are resource efficient. The practice of Green Homes develops and advances the principles of economy, utility, durability and comfort of building design into new dimensions. Green practices are applied to conserve resources to the maximum level and to make buildings' impact on the environment minimal. Green homes make provisions for saving energy and water and provide good indoor air quality. Some of the green features used in home construction are energy-efficient heating and cooling systems, solar panels, rainwater harvesting and green roofs.

According to the IGBC Green Homes Rating System, “A green building uses less water, optimises energy efficiency, conserves natural resources, generates less waste, and provides healthier spaces for occupants, as compared to a conventional building.” According to the Rajasthan government, “Going Green! The concept aims to promote environmental protection, water conservation, energy efficiency, use of recycled products, and renewable energy.

A Green Building is environmentally responsible, profitable, and a healthy place to live and work in.

Green Buildings ensure that waste is minimised at all stages during the construction and operation of the building, thus reducing costs.

Why Green Homes?

Green Homes are built using green and eco-friendly practices. These practices help in minimising the impact on the environment by conserving energy and using less water than conventional building practices. Though green homes face some technical challenges associated with them due to cost, lack of standardisation, and long gestation periods, the benefits of green homes far outweigh the costs.

(a) Environmental benefits

According to data collected and environmental audits done by experts between 1995 and 2010, India registered one of the fastest progress globally in terms of addressing its environmental problems and improving its overall environmental quality during this period. However, pollution continues to be a serious challenge and opportunity for India.

Environmental issues are one of the major sources of disease, health hazards, and long-term livelihood issues in India. Now India is looking towards adopting green practices to overcome such issues. In addition to reducing pollution and conserving natural resources, it also helps in boosting the health of the ecosystem. Green homes certified by IGBC have the potential to reduce consumption of water 20 – 30 % and energy 40 – 50% as compared to conventional buildings in India. Green Homes support the ecosystem by conserving energy, water and other resources, and by using renewable resources like solar energy. It makes provisions for using non-toxic, ethical and sustainable materials.

r resources. It also uses renewable energy, such as solar energy. The materials that are used are non-toxic, ethical, and sustainable.

(b) Economic Benefits

Green Homes offer good economic benefits to the consumer as it reduces the operating cost of the building. Green Buildings have higher value as compared to their conventional counterparts and attract buyers who are interested in buying sustainable products. Tax rebates, subsidies and incentives are also provided by the government for adopting green practices.

(c) Social Benefits

Green Homes offer social welfare benefits to the consumer by providing better health as a result of an improved indoor environment and reducing the strain on the local utility infrastructure by reducing the amount of waste to the environment.

(d) Green Certification

Green Certification projects assure the consumer about the sustainable and eco-friendly features of a particular project. 'IGBC' stands for Indian Green Building Council. The most common green certification is known as IGBC. It certifies the building based on the level of its sustainability and green building practices. There are different levels like Platinum, Gold, Silver and Certified; essentially indicating how green the building is in terms of its design and operations. In India, TERI (The Energy and Resource Institute) has developed an instrument called GRIHA (Green Rating for Integrated Habitat Assessment) that rates buildings in terms of 'greenness'. This system was designed by the National Building Rating System by the Ministry of Non-Renewable Energy.

The threshold criteria for certification/pre-certification levels in IGBC are as under:

Certification Level	Multi-dwelling Residential Unit	Recognition
Certified	50 – 59	Best Practices
Silver	60 – 69	Outstanding Performance
Gold	70 – 79	National Excellence
Platinum	80 – 100	Global Leadership

LITERATURE REVIEW

A study on "Life cycle costing of GRIHA rated green buildings in India" done by Majumdar (2008) concluded that "Green buildings are a boon to investors, yielding high returns yielding high as compared to investments in conventional buildings or other investments, in a shorter duration."

Ms. Aditi Midha, Dr. Shuchi Midha, Ms. Sanjeela Mathur states that the customer awareness and factors affecting buying decisions for "green buildings" are increasing about the benefits of using eco-friendly items have prompted a positive proactive response from the manufacturers as well as marketers all over the globe.

A research work entitled as “Consumer Behavior towards Green Building: A Study in Abu Dhabi” conducted by Emadeldin Abuamer & Mehraz Boolaky (2015) concluded that “this study is among the first ones reporting a common interest between consumers and sponsors on the local level. The findings add substantially to a growing body of literature on providing new marketing models that may have more risks and challenges but offer greater opportunities and better sales margins. The additional risks associated with the nature of green construction demand additional appropriate measures to reduce their implications and service disturbance occurrences; consequently, marketing green construction will be much more practical and efficient.”

Prof. Nandini Desai addresses that most of the respondents thought that green-built buildings were not easy to maintain and that such buildings are built with recycled materials. The respondents do not consider green buildings to be as consistent in water conservation, energy efficiency, and material and building quality.

OBJECTIVE OF THE STUDY

- To know the awareness of prospective buyers about ‘Green Homes’.
- To understand how cost affects consumers' purchase intent toward Green Homes
- To study the influence of demographic factors on customers' purchase intent. (age, income level, educational qualification)

SCOPE

The scope of the present research is 100 consumers in Jaipur City.

DATA COLLECTION

The data is collected through a questionnaire and personal interviews administered to the sample. SPSS and Smart PLS 4 are used to draw inferences.

HYPOTHESIS

- There is a significant impact of awareness amongst prospective buyers about the benefits of green buildings.
- There is a significant variation in the preference for customer purchase intent concerning demographic variables (Age, Income level, and Educational Qualification).

ANALYSIS AND INTERPRETATION

Respondents surveyed in this research were found to have this Demographic profile:

Table 1: Demographic Profile

Parameter	No. of Respondents	Respondents percentage
Age Group (Years)		
25yrs- 35yrs	29	29%
35yrs- 45yrs	43	43%
45yrs- 55yrs	17	17%
55yrs and above	11	11%
Educational Qualification		
10+2	05	05%
Bachelor's Degree	27	27%
Master's Degree	58	58%
Doctorate Degree	02	02%
Others	08	08%
Annual Income Level		
Less than 5 lakh	17	17%
5lakh -10 lakh	16	16%
10lakh – 15 lakh	36	36%
Above 15 lakh	31	31%

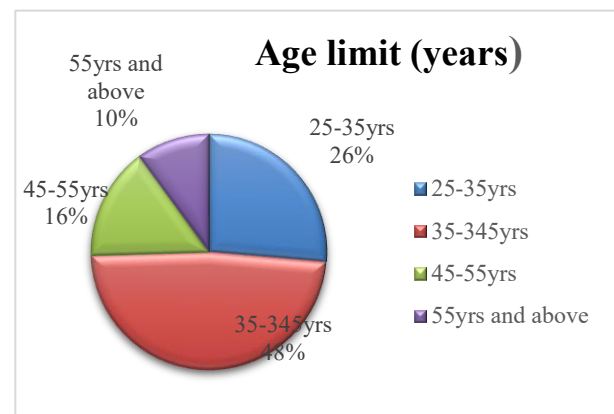


Figure:1

In the above fig:1, 26% of the respondents were in the group of 25-35years of age, 48% of the respondents surveyed were from the group of 35-45 years of age, 16% were from the group of 45-55 years of age are the rest of the 10% of the respondents are of 55years and above of age.

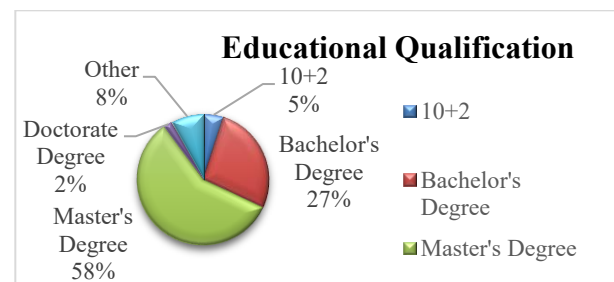
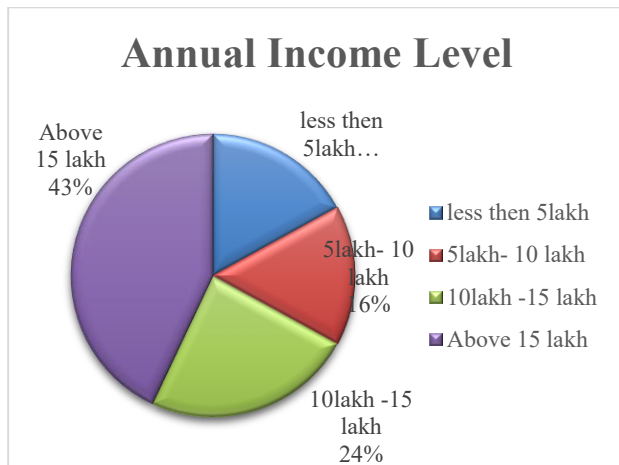


Figure:2

The educational qualification of the respondents surveyed shows 5% of the respondents are educated till 10+2, 27% are educated till Bachelor's Degree, 58% of the respondents have completed Master's Degree, out of 100% respondents 2% of them have Doctorate Degree, rest 8% are categorised as others.



17% of the respondents lie in the category of less than 5lakh of Annual Income Level, 16% of the respondents are from the 5-10lakh of Annual Income Level, 24% of the total are from 10-15 lakh, and the remaining 43% are from the category of above 15lakh of Annual Income Level.

Data Summary

Group	N	$\sum x$	Mean	$\sum x^2$	Std. Dev.
Group 1	100	210	2.1	530	0.9482
Group2	100	281	2.81	867	0.8841
Group3	100	283	2.83	909	1.045
Total	300	774	2.58	2306	

ANOVA Summary

Source	DF	SS	MS	F-Stat.	P-Value
Between Groups	2	34.58	17.29	18.71	0
Within Groups	297	274.5	0.92		
Total	299	309.08			

Here in this analysis, it shows that the F-Value is 18.71 and the P-Value is 00. The p-value is 0.00 indicates the rejection of the null hypothesis, which concludes that 'There is a significant variation in the preference for customer purchase intent concerning demographic variables (Age, Income level, and Educational Qualification)'.

Table 2 Awareness of Green Homes among Consumers

	No. of respondents	Percentage	Cumulative %
Fully Aware	20	20%	20%
Partially Aware	57	57%	77%
Not Aware	23	23%	100%
Total	100	100%	

The survey about consumers' awareness of green homes shows that 20% of the respondents are fully aware of green homes, 57% are partially aware of green homes, and the remaining 23% are not aware of green homes.

Table 3: Consumer's willingness to pay more for Green Homes

	Frequency	Percentage	Cumulative %
Strongly Agree	22	22%	22%
Agree	25	25%	47%
Neutral	19	19%	66%
Disagree	21	21%	87%
Strongly Disagree	13	13%	100%
Total	100	100%	

The survey found that consumers were comfortable paying more for Green Homes. 22% of consumers strongly agreed to pay more for green homes, 25% agreed, 19% showed a neutral reaction to paying more for Green Homes, 21% disagreed, and 13% strongly disagreed with paying more for this.

Table: 4 Understanding of Benefits of Green Homes

	Frequency	Percentage	Cumulative %
Strongly Agree	47	47%	47%
Agree	38	38%	85%
Neutral	5	5%	90%
Disagree	6	6%	96%
Strongly Disagree	4	4%	100%
Total	100	100%	

In response to the query, 'I have an understanding of the benefits of Green Homes' 47% of consumers strongly agreed with the knowledge of green homes, 38% agreed, 5% showed a neutral reaction to the understanding of the benefits of Green Homes, 6% disagreed, and 4% strongly disagree.

Table: 5 Investing in Green Homes

	Frequency	Percentage	Cumulative %
Strongly Agree	32	32%	32%
Agree	36	36%	68%
Neutral	21	21%	89%
Disagree	7	7%	96%
Strongly Disagree	4	4%	100%
Total	100	100%	

In response to the query, 'I would invest in Green Homes', 32% of consumers strongly agreed to invest, 36% agreed to invest, 21% had a neutral reaction, 7% disagreed to invest, and 4% of consumers strongly disagreed to invest in Green Homes.

Table:6 Awareness of LEED and GRIHA ratings

	Frequency	Percentage	Cumulative %
Fully Aware	41	41%	41%
Partial Aware	37	37%	78%
Not Aware	22	22%	100%
Total	100	100%	

The result says the Awareness of LEED and GRIHA ratings is that 41% of consumers are Fully Aware, 37% are partially Aware, and the remaining 22% are not aware of LEED and GRIHA ratings.

Table 7: Awareness of features of Green Homes

	Sustainable Sites	Energy Efficiency	Water Efficiency	Eco-Material	Air Quality
Strongly agree	49	42	37	21	30
Agree	32	30	29	26	28
Neutral	16	19	20	25	31
Disagree	03	07	10	19	05
Strongly Disagree	00	02	04	09	06
Total	100	100	100	100	100

Data Summary

Group	N	Σx	Mean	Σx^2	Std. Dev.
Group 1	100	173	1.73	369	0.8391
Group2	100	197	1.97	495	1.0392
Group3	100	215	2.15	601	1.1839
Group4	100	269	2.69	879	1.2528
Group 5	100	229	2.29	651	1.1308
Total	500	1083	2.166	2995	

ANOVA Summary

Source	DF	SS	MS	F-Stat.	P-Value
Between Groups	4	51.87	12.97	10.74	0
Within Groups	495	597.35	1.21		
Total	499	649.22			

Table 7 shows the consumers' awareness towards the attributes of green homes.

Overall regression: right-tailed, $F = 10.74$, $p\text{-value} = 0.0$. Since $p\text{-value} < \alpha (0.05)$, we reject the H_0 and accept H_1 .

H_1 : There is a significant impact of awareness amongst prospective buyers about the benefits of green buildings.

DISCUSSION

It's high time to educate consumers about the use of eco-friendly products, which will help in conserving the ecosystem. There is a need to educate consumers about the benefits of green products to stop a disaster on Mother Earth. Consumers should be made aware of the cost-benefit of green buildings so that they can accept and learn to use alternatives like protecting biodiversity and ecosystems, reducing waste streams, improving air and water quality, and conserving natural resources. As per the Indian Green Building Council (IGBC), the following are a few benefits of green buildings:-

- Enhanced indoor air quality
- Energy saving to the extent of 30 - 40 % right from day one
- Higher productivity of occupants
- Enhanced daylight & Ventilation
- Potable water saving to the extent of 20% - 30%

The consumer should be aware that the initial investment in Green Homes is negligible compared to the returns one gets over the home's lifetime.

All sectors must acknowledge the benefits of green practices. Green homes are gaining popularity across the globe as well as in India. For example, IIT Kanpur has become the first GRIHA-rated building in the country, and it has received 5 stars.

CONCLUSION

This study observes that many consumers are willing to pay high prices for Green Homes to enjoy the benefits of Green practices used in constructing Green

Homes/Buildings. However, it is essential to educate consumers about the benefits of green practices associated with energy efficiency for a greener future, which has a long-term effect on both economic and environmental performance.

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