Assessment of Satisfaction Level of Residents in a Housing Community, A Case of City Paradise, Lalitpur

Nistha Pathak[1*], Ashim Ratna Bajracharya[2]
[1]M. Arch. Student, Institute of Engineering, Pulchowk Campus, Tribhuvan University, Kathmandu, Nepal
[2]Associate Professor, Department of Architecture, Institute of Engineering, Pulchowk Campus, Tribhuvan University, Kathmandu, Nepal
[*]Corresponding Author: 076march011.nistha@pcampus.edu.np

Abstract

As mentioned by Canter and Rees (1982), residential satisfaction (RS) is the degree to which the residential environment helps dwellers achieve their goals, and it evaluates the extent to which the current housing environment is meeting residents' needs, expectations and ambitions. Residential satisfaction in planned housing is a widely researched topic in global context, however, in case of Nepal, not much research has been done on the topic. There are many planned housing communities being developed, but the living experience of the residents are rarely studied, and neither their perception in living in gated communities. This paper aims to contribute to theory and practice concerning residential satisfaction in housing community of Lalitpur known as City Paradise which is one of the major projects of Civil Homes Housing Company. This study is based in a household survey conducted in City Paradise Housing community. Data was collected from 40 households out of total 72 units, through simple random sampling to avoid any kind of biasness during the study. Data was analyzed to study the level of satisfaction, using Likert scale, among the residents with respect to design and planning characteristics of housing units, public facilities and services, and neighborhood. The results of analysis show that the respondents comparatively had higher satisfaction levels in context of neighborhood planning and less satisfied with design and planning features of housing and provision of public facility and convenience. Residents are quite satisfied with the child-friendly environment in their neighborhood, but planning and layout of buildings are not good enough to meet their satisfaction level. This research helps to address current issues related to satisfaction level of the residents of housing community and recommend the possible ways for its betterment.

Keywords: *Residential Satisfaction, Design and planning characteristic, public facilities and services, neighborhood, City Paradise*

Introduction

Urban population in Nepal in recent decades has been increasing rapidly. According to recent data, urban population is reached more than 60% of total national population. It has been increasing annually by around 4% from 2019 to 2021 (Nepal Urban Population 1960-2022, 2022). Timsina (2020) stressed that Kathmandu Metropolitan City is the only urban center in Nepal with population above 1 million which is growing at 4.0% per year. Whereas population of medium cities (100,000– 300,000) is growing at 3.5% per year and small cities (50,000–100,000) at 3.6%. As per Shrestha (2022), Nepal Census 2021 shows the population growth rate of two provinces Madhes and Lumbini as the highest, with increment in population by 722,143 and 624,953 respectively within a decade. Madhes Province has the highest population accommodating about 21% of country's total population. According to the preliminary census report (CBS, 2021), the country's 66 % population lives in municipalities while the rest live in rural municipalities implying that there is a need of well-planned urban centers with proper infrastructure and services.

The Kathmandu Valley is the most populated urban region and one of the fastest-growing urban agglomerations in South Asia (Muzzini & Aparicio, 2013). Kathmandu Valley accounts for 24% of the total urban population, with Kathmandu Metropolitan City alone accounting for 9.7 per cent (MoUD, 2015). Such rapid population growth in Kathmandu Valley, has resulted in haphazard growth of settlements which has resulted in rapid urbanization, growing poverty, high cost of land and construction and dependence on the traditional practice of owner-built houses. These situations have resulted in the rise of need of planned housings. The government's implementation of the site and services program as well as land-pooling projects in the 1970s and 1980s benefitted local landowners, but private-sector developments in the 1990s and 2000s were only accessible to upper-middle and high

income groups (Shrestha, 2010). The city has been expanding rapidly since the 1950s due to rural-urban migration. A number of problems have accompanied this growth, including an infrastructure lag, the expansion of squatter settlements, an acute shortage of housing and a low level of services. The rapid expansion has affected the quality of life in different districts of the city.

The contemporary urban environment of Kathmandu is dominated by individual haphazard housing developments. Unlike the houses of the original Newar towns, these houses are usually different in color, design and scale to each other. Introduction of reinforced concrete in the 1950s was instrumental in changing the traditional brick-walled residential houses into bungalow type structures which would start as a single storeyed residence with subsequent addition of floors as the family grew in size and the needs expanded (Shah, 2010). More recent houses with multiple storeys had different families living in each floor rented out by the owners. With the rise in land price, housing plots became smaller as the residences rose in height disregarding the bye-laws. The new evolving landscape was marked by the reinforcement steel bars protruding from the top slab of buildings, in anticipation of future additions' (Shah, 2010). To overcome such depletion of urban architecture and fulfill the demands of proper residential areas, Government of Nepal started first land pooling in 1975AD inside valley which was practiced since 1990s. After that, the private companies also started to provide plots or ready to move in housing stock.

The privately planned residential areas in the city emerged around 2000 AD, with the representation of apartment act and deregulation of housing finance. During 2000, the Indian real estate Ansal Group partnered with Chaudhary Group and introduced the first apartment-based housing project in Nepal 'Kathmandu Residency' at Lalitpur followed by Mount View Residency in Hattiban at Lalitpur. Since then, numerous private companies are registered with Nepal Land and Housing Developers' Association. At the same time, as the majority are one-off developers, more than 10 have built a successful real estate developer's business model (Bhattarai, 2002). The supply of housing estates is mainly geared towards the upper middle class. Private developers in Kathmandu Valley planned modern districts in a grid iron pattern, to mimic classic western suburban neighborhood designs. But contrast to it, one of the first Nepali housing companies to start planned housing colonies is the Civil Homes Pvt. Ltd. It has completed its 10 housing projects in different parts of valley and is currently undertaking phase eleventh of housing development on the outskirts of the Kathmandu Metropolitan City. It was at one time, 'one of the largest planned housing companies undertaking in the country (Civil Homes.com.np, 2010). According to the developers, it is a project undertaken by the Nepalese for the Nepalese people, with conscious efforts made to provide for local conditions, tastes and habits. The exquisitely designed buildings fit in the Nepalese landscape (Homes, 2022). They market their projects as a place with good views, a peaceful and healthy environment, tree lined boulevards leading to a central open space for community uses; full security with boundary walls, gates, and security guards; an onsite private school, clinic and postal services; as well as a reliable water supply and drainage systems (Civil Homes.com.np, 2010). As marketed by the company, Civil homes tries to provide variety of houses within their project to encourage mix community and provide housing that can be afforded by middle class people as well.

Civil Homes has completed its previous projects and most of the housing units are sold in initial phase. The residents of these homes are either home owners themselves or tenants living there. There is a lack of extensive research with regard to the satisfaction of these residents towards housing facilities and environment. In this context, it is very crucial to study the factors that attract people to privately planned housing community specifically to explore the post occupancy situation of housing community. This research is also crucial to explore the shortcomings of these communities which could be important lessons for improvement in housing projects in future. More specifically, it is significant to study the post occupancy residential satisfaction in such communities in order to know the reality of the services and facilities the residents get after the shift into the community. Anderson (2008) and Mohit and Azim (2012) highlighted that the important measures to affect the quality of life and comfort in the housing are design and planning, social, visual, economic, and technological values. These values are considered important in housings that are mass produced. These, being able to affect each other

favorably or adversely, can also determine the quality indicators undertakings in the country; it sets new standards of living, amenities and aesthetics' (Nilufer Tas, 2007).

Residential satisfaction in planned housing is a widely researched topic in the developed countries; however, Nepal lags behind in this field, due to lack of sufficient research in it. Residential satisfaction is the degree to which the residential environment helps dwellers achieve their goals (Canter & Rees., 1982), and it evaluates the extent to which the current housing environment is meeting residents' needs, expectations and ambitions (Ibem & Aduwo, 2013). Hence, multiple studies focus on the factors which determine overall residential satisfaction in housing units (Galster, 1987). Results of these studies indicate the importance of housing characteristics, infrastructures, services and facilities in residential neighborhood and social environment as well as socio-economic attributes of residents. Ibem and Aduwo's (2012) actual-aspirational gap theory, a dominant theory for explaining residential satisfaction, mentions that the rate of residential satisfaction depends on the degree of the gap between the perceived actual environment and the aspired-to environment of inhabitants.

City paradise provides variety in housing plots and dwelling unit size. It aims to provide housing to all economic groups making the community mix settlement zone. It suggests that level of aspired residential environment of this community may be different from other planned or unplanned residential areas as residents of this community belong to different financial, economic and cultural background and the effects of different factors on residential satisfaction may be different for this group of users. Although there exists some empirical studies and literature on the differences in residential satisfaction between dwellers of housing projects that have been erected based on different policies and strategies, especially in the context of developing countries, Nepal lacks empirical research overall and particularly for Gated community. As civil homes was once recognized as the one of the successful real estate company (Shrestha, 2010), various views exist about the outcomes of this project. Despite the fact that residential satisfaction is a critical indicator of life quality, no statistical analysis has been conducted to examine the residential satisfaction of Housing community in Nepal, specifically in the case of City Paradise Housing.

Objectives

This study aims to assess the residential satisfaction with respect to design and planning of Housing Community by taking case of sixth housing project of Civil Homes popularly known as City Paradise by investigating various factors that influence residential satisfaction and the relationship between these factors.

Conceptual Framework

A conceptual framework of the study was developed to explore the research questions and objectives of the study. For design and planning attributes of housing community, built environment is considered. Services, facilities and social environmental factors are determined by the relationship of residents with their neighbors, satisfaction with open spaces, availability and quality of recreational facilities among the neighbors. Within the conceptual research, factors that affect the residential satisfaction were referred from the literature review and then those variables were pre tested by pilot survey.

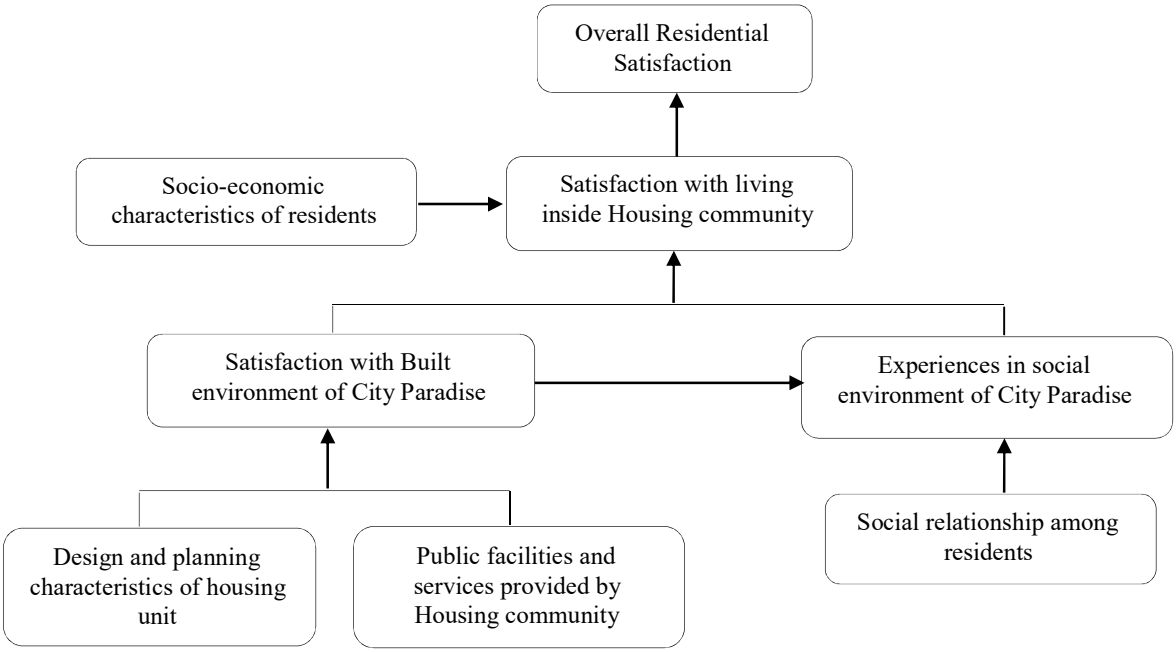

Figure 1: Conceptual Framework of the Study (Source: Authors)

Research Methods

A sample of 40 households (n=40) was selected from a total of 72 housing units (N=72). Simple random sampling technique was used for data collection. The sample was taken with 90% confidence level and 7% margin of error. The primary source of data for this study was collected through self-administered questionnaire which contained 34 questions in total with 4 sections – section 1: resident's social and demographic background; section 2: information about resident's present and past housing information; section 3: respondents satisfaction with neighborhood, Design and planning features of the building, and satisfaction on facility and convenience and finally overall satisfaction with the housing unit and section 4: decision to stay/move from existing housing unit. The field survey was carried out for a period of 3 weeks commencing from 19th July 2022 to 11th August 2022. In order to confirm maximum responses to the questionnaires, respondents were informed concerning the purpose of the survey and reassured that the information provided will be kept confidential and will be used for research purposes only. The questionnaires to analyze satisfaction level were formed in a 5-point Likert Scale. The scale was prepared in scores from 1 to 5 interpreted as, 1 = Extremely Dissatisfied, 2 = Dissatisfied, 3: Average, 4: Satisfied, 5: Extremely Satisfied. The overall satisfaction for each feature of residential satisfaction was analyzed based on a mean score. The data collected was analyzed using Statistical Package for Social Sciences (SPSS version 25.0), for frequency distribution of the variables under study, including mean, standard deviation and percentage scores of satisfactions.

Description of study area

The study area is located near Satdobato in Lalitpur, an urban center with increasing population and high number of immigrants from outside the valley. This research is conducted at City Paradise, a private housing developed by Civil Homes, one of the oldest and well-known housing companies in Nepal. The Civil homes phase VI, the City Paradise, is located at a distance of 2 Kms from Satdobato Chowk. It has 72 housing units including 20 row houses and 54 individual houses with the plot area ranges from 3 anaas (1 anaa = 31.79 sqm) to 8 anaas (254.37 Sqm). The project was started in June 2013 AD and completed and handed over in December 2015 AD. This housing is spread over 29 ropanies (1 ropani = 508.74 sq.m) of land. The housing is bounded by a secondary road (8m wide) on the north side. The site slopes down towards this secondary road with fair amount of flat land next to

the main access road. The housing community is located nearby the main ring road and facilities such as hospitals, sports, schools, colleges are easily accessible with short period of time. These houses are painted in Civil Homes' signature color combination of crimson and white, all units in this colony take architectural influences from Newari traditional house. The developers claim that their houses reflect the philosophy of Comfortable, Affordable and Manageable.

Figure 2: Location plan of study area in Nepal

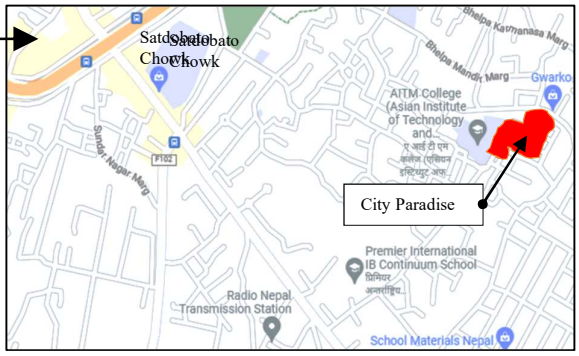

Figure 3: Location of study area at Satdobato, Lalitpur

Result and Discussion

Socio- Economic and Demographic Profile

From Table 1, it shows that 52.5% of respondents were aged between 18 years to 40 years, 47.5% were aged above 40 years. Regarding ethnicity, 45% were from Brahmin community, 22.5% from Chhetri and Newar community each and 10% belong to other ethnic groups. Most of the families are from Hindu religion. The common household size is between 3 and 4. Families having monthly income ranging between 50 thousand to 1 lakh are 37.5%, and those between 1 lakh to 1.5 lakh are 35%. 12.5% belong to high income group with earnings more than 1.5 lakh monthly income and 7.5% are low-income group who earn less than 50 thousand per month. All the families have earning members except for 2 cases. Regarding ownership of 4-wheel vehicle, 55% of households have one, 10% had two and 35% had no four wheelers owned.

Table 1: Frequency distribution of demographic attributes

Socio- Economic and Demographic Information			
		No. of Samples	Percentage
Age of Respondent	less than 18 years old	0	0.0
	18 years - 40 years old	21	52.5
	more than 40 years old	19	47.5
	Total	40	100.0
Ethnicity	Brahmin	18	45.0
	Chhetri	9	22.5
	Newar	9	22.5
	Other	4	10.0
	Total	40	100.0
	Hindu	38	95.0
	Buddhist	2	5.0

Religion	Muslim	0	0.0
	Other	0	0.0
	Total	40	100.0
Size of family	less than 2 people	3	7.5
	3 to 4 person	23	57.5
	5 to 7 person	11	27.5
	more than 7 person	3	7.5
	Total	40	100.0
Income of family per month	less than 50 thousand	6	15.0
	50 thousand to 1 lakh	15	37.5
	1 lakh to 1.5 lakh	14	35.0
	more than 1.5 lakh	5	12.5
	Total	40	100.0
Earning members in family	0	2	5.9
	1	17	50.0
	2	15	44.1
	more than 2	0	0.0
	Total	34	100.0
Number of 4 wheelers owned	0	14	35.0
	1	22	55.0
	2	4	10.0
	Total	40	100.0

Residential Satisfaction Determinants

Satisfaction with Design and Planning Aspects of Housing

To determine satisfaction level on Design and Planning features, a total of 11 related determinants were studied with respect to housing environment as shown in Table 2. Analyzing mean satisfaction score (M), it was found that planning of building has the highest mean score (M = 4.53), façade of building has M = 4.50, whereas distance between has the lowest mean score M = 2.25. Based on observation and discussion with locals people, the reason for extreme satisfaction of respondents towards planning of building is the appropriate planning and design of the housing infrastructure.. There are no dead ends in road network and proper grid iron pattern was followed in the planning whereby distance of every building from entrance gate seems convenient for residents to walk. The planning was done in a way that every group of 4 houses was surrounded by access roads.

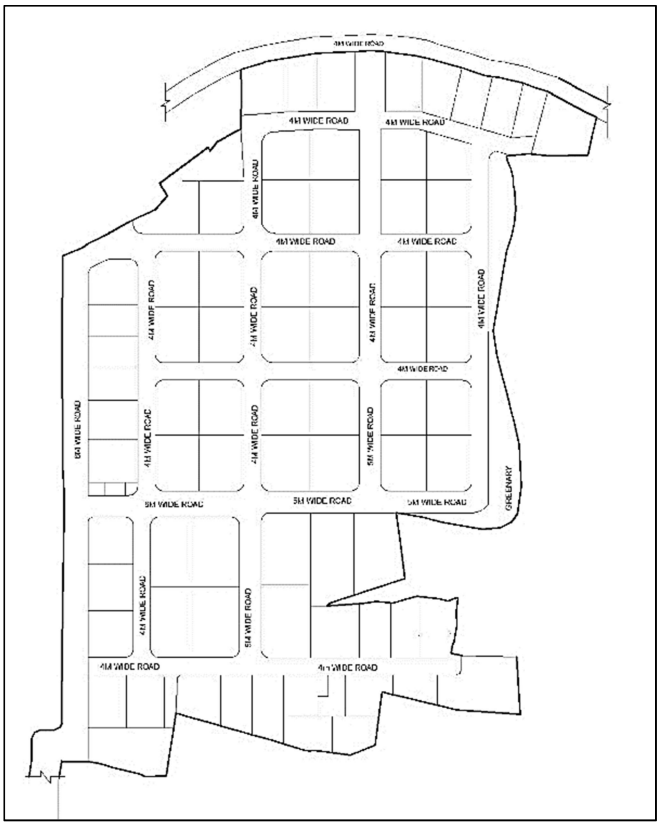

Figure 4: Masterplan of Housing community

The façade of the buildings, as mentioned by the developers, shows an inspiration from traditional Newari architecture. Like traditional dwellings of Newari settlements, dwelling units in this housing have sloped roofs and colors giving traditional look in exterior facade.

Figure 5: Use of crimson and off white paint in exterior for traditional look

Figure 6: Use of slope roof for facade treatment

The orientation of the building has comparatively a low mean satisfaction score of 2.63, meaning residents were dissatisfied with it. Though every building faced street or road, the reason for low mean score was because of the respondents' complaints about inadequacy of day lighting and sunlight inside their houses whose orientation is on north side. Due to this, the residents have to rely on mechanical and electrical means to maintain thermal comfort inside the building. The buildings facing south also have excessive heat gain during summer that makes it difficult to have thermal comfort during summer season.

Figure 7: Sun path diagram

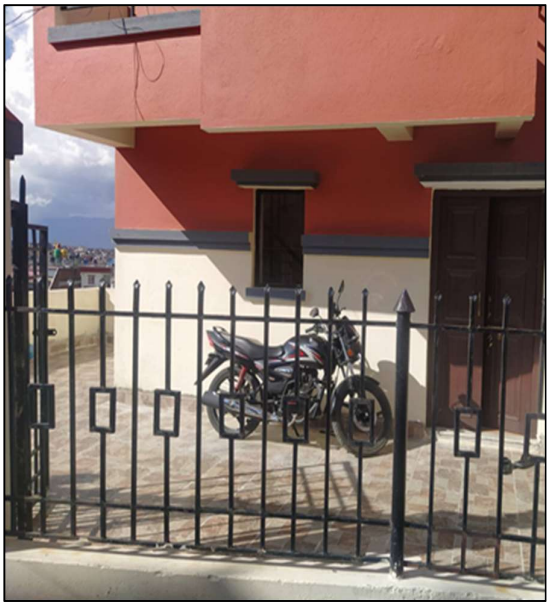

Figure 8: Day light in a typical south-west faced house at late afternoon (3:19 pm)

The mean satisfaction value for the plot size was found to be 3.2. It shows that residents were fairly satisfied with plot sizes inside the housing community. Residents living in row housing were mostly unsatisfied as the size of plots was so small that it did not have any space for outdoor activities besides parking. Similarly, satisfaction score for natural ventilation inside building, day lighting inside building and distance between the buildings have mean score of 2.51, 3.35 and 2.25 respectively. Moreover, mean scores for ventilation and distance between buildings were comparatively low which indicates that residents were dissatisfied with these factors. As the planning of this housing was done in a sloped land, it was found that although distance between two buildings was maintained according to the bye-laws, due to slope land and construction done in slope terrain there was no proper flow of air resulting inadequate ventilation. Also, residents expressed that the problem of day lighting and improper natural ventilation was due to less distance between the buildings. The residents whose units are not facing directions towards the south also complained about not having enough natural light, during the day. Satisfaction with size of bedroom has also less mean score (M=2.85) while satisfaction with size of kitchen has mean score of 3.78. It indicates that residents were dissatisfied with the bedroom size, but somewhat satisfied with the kitchen. The residents mentioned that bedroom size was very small for them as compared to other areas and it does not allow other furnitures to fit in except double sized bed and a wardrobe.

Average size of rooms in this housing was 9’-0” x 10’-0” which is acceptable for any habitable room according to the municipal bye-laws, wheras the American standards recommended the size for master bedroom and standard bedroom as 14’-0” x 16’-0” and 12’-0” x 14’-0”respectively (Leslie, 2021). The typical kitchen cum dining area size was 17’-0” x 9’-0” which is more than the standard size as set by Nepal Standard. Again, about lighting in these rooms, the window wall ratio was 0.29 which is relatively less than the recommended window wall ratio. It indicates that rooms may not have adequate daylight and might require the use of electrical lights. Generally, preferred percentage of window wall ratio is between 30% and 45%.

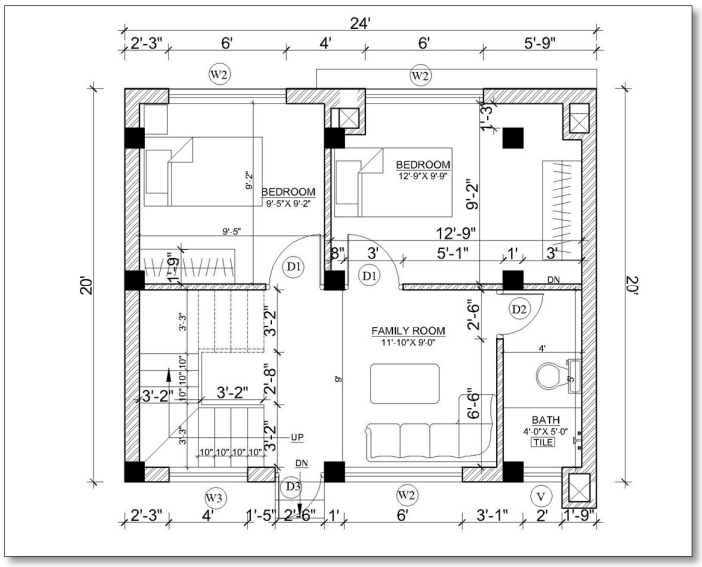

Figure 9: typical floor plan of dwelling unit

Further, the satisfaction level in quality of construction and type of materials used inside the building has average mean score of 1.2 that showed residents were not quite satisfied with it. According to residents, the quality of construction was compromised and builders were more focused on economical aspect rather than providing quality housing units to the clients. Respondents said they face problems like seepage, lack of provision of potable drinking water, problem with materials used for openings, flooring tiles, colour and others. Many residents have changed their building materials after they were handed their homes.

Figure 10: Seepage inside rooms due to poor construction quality

Figure 11: Flooring material changed from tiles to parquet

Figure 12: Concrete block parking tiles changes into vitrified parking tiles

Finally overall satisfaction was derived to explore the resident's satisfaction in aggregate. in terms of design and planning. In this context, from Table 2, mean value (M) is found to be 3.3, revealing a moderate satisfaction level.

Table 2: Mean and Standard Deviation of Satisfaction levels of determinants of design and planning features

Determinants of design and planning features of housing	**Very Dissatisfied**	**Dissatisfied**	**Slightly Satisfied**	**Satisfied**	**Very Satisfied**	**Mean**	**Std. Deviation**
Site features							
How satisfied are you with plotting sizes?	7.5	15.0	40.0	25.0	12.5	3.2	1.1
How satisfied are you with Distance between building	7.5	17.5	35.0	12.5	27.5	2.2	1.2
How convenient is the planning of your Building	2.5	15.0	37.5	35.0	7.5	4.5	0.7
Overall Satisfaction in site features						3.3	0.9
Building Features							
How satisfied are you with Sizes of Bed room	35.0	32.5	12.5	12.5	7.5	2.8	1.0
How satisfied are you with Day lighting inside building	0.0	5.0	2.5	27.5	65.0	3.3	1.2
How satisfied are you with Ventilation	0.0	5.0	2.5	30.0	62.5	2.5	1.3
How satisfied are you with Orientation of your building	2.5	7.5	27.5	35.0	27.5	2.6	1.2
How satisfied are you with Kitchen area of the Building	7.5	30.0	37.5	20.0	5.0	3.7	1.0
How satisfied are you with facade of the building	10.0	5.0	30.0	30.0	25.0	4.5	0.7
How satisfied are you with type of building material	25.0	25.0	17.5	27.5	5.0	3.3	0.9

Satisfaction with quality of construction of your building	30.0	22.5	17.5	20.0	7.5	3.5	1.2
Overall Satisfaction in Building Features						3.3	0.7
Overall satisfaction in Design and planning of Community						**3.3**	**0.8**

Satisfaction with Provision of Public Facility and Convenience

Residents of City Paradise were quite satisfied with pedestrian safety, crime prevention, privacy and access to building from main gate with average mean satisfaction score of 4 or above in all of them. Satisfaction with proximity to public transport was low because the nearest public transport (bus stop) is not in close proximity and thus they do not use public transport frequently, instead they rely on their own private vehicle or through ride sharing app when needed. The red line in Figure 14 shows the distance of housing from Ring Road bus stop which is about 900 meters and blue line shows distance of bus stop from Satodato-Godawari road to housing community which is about 500 meters from main gate.

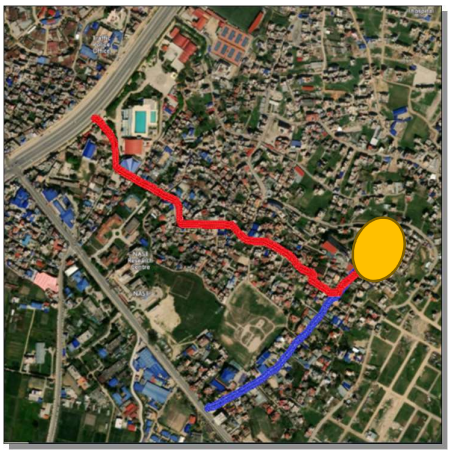

Figure 13: Distance of Housing community from public bus stop

Figure 14: Open space in North West corner of housing community

Another determinant of satisfaction on Public facility and convenience is the Provision of Open space and Recreational Facilities for the housing community, which has mean score of 2.4, each implying the residents were not satisfied with the availability of these facilities. There isn't any provision of sports or recreational facilities provided to the community and it was the reason of the dissatisfaction. There is one open space located in North West corner of the site for outdoor open space activities. It seems that there is no dedicated place for children to play, and the park is also located in secluded area and which is rarely used by the residents. Residents, however, were very satisfied with the pedestrian safety with the mean satisfaction score of 4.1. It is observed that due to lack of dedicated play area for children, the road in front of their houses are being used for playing by the kids which raises the safety concerns from vehicles moving along the road.

Figure 15: Location of green space in master plan

The overall satisfaction level of each category of Facilities and Convenience that includes Safety, Accessibility and Facilities was derived. Among these three categories, satisfaction in Safety is the highest with mean score of 4.1 and satisfaction in Facilities is the least with mean score 2.4, meaning that residents were highly satisfied with safety provision inside the housing community and dissatisfied with facilities provided to them. The respondents were also asked about their satisfaction level regarding the open area or park inside the community and provision of facilities like swimming pool, gymnasium, and play area. The mean score for each response was 2.4 implying that residents were dissatisfied with both aspects equally. Respondents expressed their dissatisfaction because both the facilities were not available inside it. There exists small open space but due to its location and presence of terrain land, residents rarely used it. Also, the total area of open space did not fulfill the requirements of bye-laws for building Housing community. Due to this reason, many of the residents were still facing legal issues to get their building permits.

Table 3: Mean and Standard Deviation of Satisfaction levels of determinants of Facilities and Convenience in the community

Determinants of Facilities and Convenience features of housing	**Very Dissatisfied**	**Dissatisfied**	**Slightly Satisfied**	**Satisfied**	**Very Satisfied**	**Mean**	**Std. Deviation**
Safety							
How satisfied are you with Pedestrian safety	0.0	7.5	7.5	55.0	30.0	4.1	0.8
How satisfied are you with Crime prevention and safety inside housing community	0.0	5.0	15.0	42.5	37.5	4.1	0.9

How satisfied are you with Privacy	0.0	5.0	12.5	45.0	37.5	4.2	0.8
Overall Satisfaction in Safety						4.1	0.6
Accessibility							
How satisfied are you with Access to your building from main gate	0.0	10.0	15.0	42.5	32.5	4.0	0.9
How satisfied are you with Proximity to shops and public services	5.0	7.5	32.5	47.5	7.5	3.5	0.9
How satisfied are you with Transport in the neighborhood that allows to get to the city	15.0	25.0	30.0	17.5	12.5	2.9	1.2
How satisfied are you with Distance to work	40.0	12.5	22.5	15.0	10.0	3.5	1.2
How satisfied are you with Ease of getting health facilities in case of emergency	10.0	7.5	12.5	52.5	17.5	3.6	1.2
Overall Satisfaction in Accessibility						3.5	0.69
Facility							
How satisfied are you with park/ open spaces	40.0	17.5	17.5	15.0	10.0	2.4	1.4
How satisfied are you with Sports or recreational facilities provided in the neighborhood	7.5	12.5	20.0	40.0	20.0	2.4	1.4
Overall Satisfaction in Facility provided by Community						2.4	1.2
Overall Satisfaction in facility and convenience provided by community						**3.4**	**0.6**

Satisfaction with Neighborhood

Further, satisfaction level of residents with neighborhood in which they live, was analyzed for 5 determinants (Table 4). Among these determinants, satisfaction to raise children in the neighborhood was the highest with mean score of 4.1 implying that residents were most satisfied with it. The surrounding neighbors belong to similar financial background and most of the children go to same school, and they have same company at home as well as in school. The least satisfaction was for Sense of community inside housing with mean score 3.3, implying that resident were satisfied with it to some extent only. One of the respondents said, his neighbors did not belong to same ethnic group as his, and it was difficult for him to cope with them especially during festive season. He added that his neighbours hardly consider there are other people living inside the community who does not have same religious beliefs as them. Mean score of satisfaction level in density of houses was also comparatively low (M=3.5) implying that residents did not like closely-spaced houses. Although housing community has abundant road network allowing easy accessibility and avoiding any long corridor of roads, some of the residents believed that lack of open space and recreational facility are the major problem. When they roam around the community, people get to see houses everywhere with no or limited outdoor open spaces making them feel congested and compact neighborhood.

Table 4: Mean and Standard Deviation of Satisfaction levels of determinants of Neighborhood satisfaction

Determinants of Neighborhood satisfaction features of housing	Very Dissatisfied	Dissatisfied	Slightly Satisfied	Satisfied	Very Satisfied	Mean	Std. Deviation
How satisfied are you with Condition of neighborhood to raise children	0.0	5.0	10.0	52.5	32.5	4.1	0.8
How satisfied are you with Neighborhood Relationship	0.0	12.5	20.0	47.5	20.0	3.7	0.9
How satisfied are you with Sense of community inside housing community	5.1	12.8	35.9	33.3	12.8	3.3	1.0
How satisfied are you with Density of houses	2.6	5.1	43.6	30.8	17.9	3.5	0.9
How satisfied are you with surrounding environment	0.0	17.5	25.0	30.0	27.5	3.6	1.0
Overall Satisfaction with Neighborhood						**3.7**	**0.7**

Overall residential satisfaction

Finally, the mean overall satisfaction score, which is the satisfaction level in average of all determinants, was obtained. According to Table 5, overall, residents were moderately satisfied with the score of 3.5. In categorical order, neighborhood satisfaction has the highest mean score of 3.7 and satisfaction with design and planning features has the least mean score of 3.3. This implies that the residents were satisfied with their neighborhood and least satisfied with the design and planning features of housing community.

Table 5: Mean of Overall Satisfaction

	Design and planning characteristics	Public facility convenience	Neighborhood	Overall satisfaction
Mean	3.3	3.4	3.7	3.5
Std. Deviation	0.7	0.6	0.7	0.53

Conclusion

In Nepal, private housing communities have emerged as a solution to high density housing strategy with properly planned infrastructures, public spaces and recreational areas. The challenges faced by the designers and developers of these projects lie in recognizing the needs and expectations of the users as they are often unidentified during the design stage. The study was set out to evaluate the residential satisfaction of the users of these private gated communities in Lalitpur, Nepal, with reference to the case of City Paradise. The determinants of satisfaction were identified for both housing environment and its neighborhood. For housing environment, it was divided into two categories: satisfaction with design and planning features of housing, and satisfaction with public facilities and convenience of housing environment.The satisfaction level is comparatively higher for neighborhood planning mainly for raising the children. The residents were not much satisfied with the planning of building, interior ventilation and size of bedrooms. These aspects need to be more emphasized during the planning and designing of the housing communities. Only when the expectations of the end users are met, there will

be more attraction of the housing colonies in the market and people will start to prefer it over self-built houses. Designer and developers, apart from focusing on the private dwelling units, also have to focus on the public space and create an environment that is more compatible with the residents' needs. It is necessary to figure out the root causes of dissatisfaction and identify the development strategy. Dissatisfaction is observed mainly when the socio-cultural and psychological demands of the residents are not met.. The expectations of the users within these domains must be realized, as residential satisfaction cannot be guaranteed by only enabling the physical fulfillment of the users' needs. In order to make housing communities more desirable, post occupancy evaluation of present cases should be considered and the problems that are identified from present scenario should be addressed as much as possible in up-coming housing projects.

Acknowledgement

Authors would also like to thank the residents of City Paradise who helped in this research with their valuable responses. Author would also like to acknowledge the committee and management of City Paradise to grant the permission to conduct survey inside the community. Finally, author would like to thank all the helping hands that helped during the period of research specially data collection.

Conflict of Interests

The author hereby declares that there is no conflict of interest.

References

Aigbavboa, C., & and Thwala, W. (2018). Residential Satisfaction Theories. *Residential Satisfaction and Housing Policy Evolution*, 151-189.

Amerigo, M. &. (1997). Atheorotical and methodological approach to the study of residential satisfaction. *Journal of Environmental Psychology*, 47-57.

Andersen, H. S. (2008). Why Do Residents Want to Leave Deprived Neighbourhoods? The Importance of Residents' Subjective Evaluations of Their Neighbourhood and Its Reputation. *Journal of Housing and the Built Environment*, 79-101.

Awotunde, J. B., Ameen, A. O., Oladipo, I. D., Tomori, A. R., & Abdulraheem, M. (2016). Evaluation of four encryption algorithms for viability, reliability and performance estimation. *Nigerian Journal of Technological Development*, 74-82.

Azim, M. (2017). Security Assessment Model for A Cloud based e-Governance System based on Fuzzy Comprehensive Evaluation Method. *International Journal of Computer Science and Information Security (IJCSIS), 15*(4).

Campbell, A., Converse, P., & Rodgers., a. W. (1977). The Quality of American Life: Perceptions Evaluations, and Satisfactions. *Contemporary Sociology*.

Canter, D., & Rees., K. (1982). A Multivariate Model of Housing Satisfaction. *Applied Psychology*, 185-207.

CBS (2021). National Census, Preliminary Report, Government of Nepal, National Planning Commission Secretariat (NPCS), Central Bureau of Statistics

Davis, E. E., & Fine-Davis, M. (1981). Predictors of Satisfaction with Housing and Neighbourhood: A Nationwide Study in the Republic of Ireland. *Social Indicators Research*, 477-494.

Firoiu, M. (2015). General considerations on risk management and information system security assessment according to ISO/IEC 27005: 2011 and ISO 31000: 2009 standards. *16*(249), 93.

Francescato, G. (1997). *Residential Satisfaction.* CA, Monterey: Encyclopedia of Housing.

Francescato, G. S. (1974). *Evaluating residents' satisfaction in housing for low and moderate income families: A multi-method approach, in: D. H. Carson.* Washington: Man-Environment interactions: Evaluation and Applications.

Galster, G. C. (1981). Residential satisfaction: residential and compositional correlates. *Environment and Behavior*, 735-758.

Galster, G. C. (1987). Identifying the Correlates of Dwelling Satisfaction: An Empirical Critique. *Environment and Behavior*, 539-568.

Ha, S. k. (2008). Social Housing Estates and Sustainable Community Development in South Korea. *Habitat International*, 349-363.

Hababeh, I., Gharaibeh, A., Nofal, S., & Khalil, I. (2018). An Integrated Methodology for Big Data Classification and Security for Improving Cloud Systems Data Mobility. *IEEE Access, 7*, 9153-9163.

Hada, P. S., Singh, R., & Goyal, D. (2012). Security Engineering in G-Cloud: A Trend towards Secure e-Governance. *international Journal of Computer Applications, 46*(13), 33-38.

Homes, C. (2022). *civil homes*. Retrieved from https://civilhomes.com.np/

Homes, C. (undated). *Civil Homes*. Retrieved from https://civilhomes.com.np/

Ibem, E. O., & Amole, D. (2012). Residential Satisfaction in Public Core Housing in Abeokuta, Ogun State, Nigeria. *Social Research Indicators*, 563-581.

Ibem, E., & Aduwo, E. (2013). Assessment of Residential Satisfaction in Public Housing in Ogun State Nigeria. *Habitat International*, 163-175.

Jansen, S. J. (2014). The Impact of the Have–Want Discrepancy on Residential Satisfaction. *Journal of Environmental Psychology*, 26-38.

Kaur, K., & Zandu, V. (2016). A secure data classification model in cloud computing using machine learning approach. *International Journal of Grid and Distributed Computing, 9*(8), 13-22.

Klymash, M., Demydov, I., & Baydoun, N. A. (2019). The "Data Embassies" Concept as a Secure Communication Core for e-Gov Implementing in Emerging States. *In 2019 IEEE 20th International Conference on Computational Problems of Electrical Engineering (CPEE)* (pp. 1-4). IEEE.

Larose, D., & Larose, C. (2014). *Discovering Knowledge in Data: An Introduction to Data mining* (Vol. 4). John Wiley & Sons.

Leslie, E. (2021, June 14). *Design Build*. Retrieved from CRD Design Build: https://www.crddesignbuild.com/blog/average-bedroom-size#:~:text=The%20average%20size%20of%20an,feet%20(224%20square%20feet).

Liu, A. M. (1999). Residential Satisfaction in Housing Estates: A Hong Kong Perspective. *Automation in construction*, 511-524.

Mahajan, P., & Sachdeva, A. (2013). A study of encryption algorithms AES, DES and RSA for security. *Global Journal of Computer Science and Technology.*

Marans, R. W. (1981). *Evaluating Built Environment: A Behavioral Approach.* Ann Arbor: University of Michigan.

Maslow, A. H. (1943). A Theory of Human Motivation. *Psychological Review*.

Mohit, M. A., & Azim, M. (2012). Assessment of Residential Satisfaction with Public Housing in Hulhumale', Maldives. *Conference on Environment Behavior Studies* (p. 16e18). Bankok: Paper Presented at the ASEAN .

MoUD. (2015). *National Urban Development Strategy 2015.* Kathmandu: Ministry of Urban Development, Government of Nepal.

Muzzini, E., & Aparicio, G. (2013). *Urban Growth and Spatial Transition in Nepal.* Washington D.C: World Bank.

Nilufer Tas, e. a. (2007). A qualitative evaluation of the after earthquake permanent housings in Turkey in terms of user satisfaction—Kocaeli, Gundogdu Permanent Housing model. *Building and Environment*, 3418-3431.

Pokharel, M., & Park, J. S. (2009). Issues of Interoperability in E-Govemance System and its impact in the Developing Countries: A Nepalese Case Study. *In 2009 11th International Conference on Advanced Communication Technology. 3*, pp. 2160-2164. IEEE.

Shah, B. (2010). A Brief Overview of Incremental Housing Construction in Kathmandu Valley, Nepal. *Global Consortium for Incremental Housing*. Retrieved from http://web.mit.edu/incrementalhousing/articlesPhotographs/nepalKarthmanduValley.html

Sharma, S. (2017). ENHANCE DATA SECURITY IN CLOUD COMPUTING USING MACHINE LEARNING AND HYBRID CRYPTOGRAPHY TECHNIQUES. *nternational journal of advanced research in computer science, 8*(9).

Shrestha, B. K. (2010). Housing provision in the Kathmandu Valley:: Public agency and private sector initiation. *JSTOR*.

Shrestha, P. M. (2022, january 27). *The Kathmandu Post*. Retrieved from https://kathmandupost.com/national/2022/01/27/nepal-s-population-is-29-192-480

Sirgy, M. J., & Cornwell., T. (2002). How Neighborhood Features Affect Quality of Life. *Social Indicator Research*, 79-114.

Speare, A. (1974). Residential satisfaction as an intervening variable in residential mobility Demography. 173-188.

Timsina, N. P. (2020). *Trend of urban growth in Nepal with a focus in Kathmandu Valley: A review of processes and drivers of change.* Tomorrow's CITIES, Urban Risk Transition.

Wheeler, E. (2011). *Security risk management: Building an information security risk management program from the Ground Up.* Elsevier.

Zardari, M. A., Jung, L. T., & Zakaria, M. N. (2014). Data Classification Based on Confidentiality in Virtual Cloud Environment. *Research Journal of Applied Sciences, Engineering and Technology, 8*(13), 1498-1509.