Jurnal Teknik Sipil & Perencanaan 26 (1) (2024) p 88 - 98

JURNAL TEKNIK SIPIL & PERENCANAAN

10.15294/jtsp.v26i1.47397

Assessment of Residential Satisfaction Using Importance-Performance Analysis: A Case Study in Naypyitaw City, Myanmar

Pan Ei Phyu [1, a)] and Nursyirwan Effendi [2, b)], Purnawan [3, c)]

[1,2,3] Department of Housing and Settlement Development, Postgraduate School, Andalas University, Padang, Indonesia.

[a)] Corresponding author: phoenix.pan.91@gmail.com
[b)] nursyirwann@soc.unand.ac.id
[c)] purnawan@eng.unand.ac.id

Abstract. This study delves into the residential satisfaction among civil servants residing in government-provided four-story apartment buildings in Naypyitaw, Myanmar's capital. Through structured questionnaires and data collected from 455 households, the study employs Importance-Performance Analysis (IPA) to pinpoint factors influencing satisfaction and recommend improvements for future housing development. The socio-demographic analysis reveals a predominantly mature, well-educated population with a notable gender disparity in job positions. Results indicate overall resident satisfaction, with varying levels across the housing units' physical, social, and environmental attributes. The study identifies seven dominant factors for enhancing satisfaction: ceiling height, neighborhood relations, apartment layout, room and corridor size, number of rooms, staircase design, and proximity to police stations. Recommendations include optimizing apartment layout, improving corridor size, and enhancing neighborhood relations to foster a more livable environment. The findings underscore the significance of involving residents in housing development processes and highlight the need for continuous improvement to meet evolving needs and preferences.

Keywords: residents, satisfaction, government-provided housing, priority attributes.

INTRODUCTION

Numerous scholars have directed their research focus toward housing conditions, urban housing provisions, and the quality of neighborhood environments. Research in various countries has consistently shown that satisfactory housing ranks among people's most fundamental human needs. (2010) emphasized, “Increasing interest is now shown towards studying how people think of their housing and how it affects their lives. Therefore, measuring the quality of housing has become an important tool. Local governments in both the UK and the USA conduct regular tenant satisfaction surveys to ensure that households are satisfied with the provided housing and its services”. Furthermore, Fakere et al. (2020) shared that “the United Nations Rio Summit of 1992 (Principle 10) stressed the need for people to participate in housing developments. This is because of its potential to enhance residents’ quality of life since such developments are more likely to meet their needs when they are involved in the process. Housing developments affect residents directly, and they should therefore be considered as important to such processes to achieve satisfactory housing”. Given these factors, research on residential satisfaction has gained significant importance. Therefore,

Aigbavboa & Thwala (2016) underscored that “the motivation for the interest and popularity of residential satisfaction is twofold. First, residential satisfaction is recognized as an important component of an individual’s general quality of life, meaning that for most people, housing is the largest consumption item in their lifetime. Second, a home is where one most often finds refuge, rest, and satisfaction. This means that the degree to which an individual’s needs and aspirations are met by their housing condition is a concern for researchers but most importantly for housing developers, planners and specifically for housing policy-makers”. Consequently, Ibem et al. (2013) pointed out that the findings of these studies collectively help us comprehend the significance of housing characteristics, housing support services, the neighborhood environment, housing management, and the socio-economic and demographic attributes of residents in shaping residential satisfaction.

Moreover, Balestra and Sultan, (2013) Reached that residential satisfaction is shaped by housing characteristics and neighborhood features. Individual and household socio-demographic characteristics (e.g., age, gender, education) are secondary once dwelling and neighborhood features are controlled.

Gaining a profound understanding of residential satisfaction holds the promise of enhancing residents' overall quality of life while also providing invaluable insights for housing developers, urban planners, and policymakers in the housing sector. This understanding is of particular significance for Naypyitaw, Myanmar's newly designated administrative capital, which has witnessed the construction of 1,200 four-story apartment blocks for civil servants in residential areas since its establishment in 2005. As part of this transition, many civil servants were relocated to Naypyitaw, where they are granted the privilege of residing in government-provided four-story apartment buildings without rental fees, except for electricity and water taxes, until they reach the age of 60 while fulfilling their government duties. The design of these apartments varies based on the civil servants' rank, leading to differences in social interactions among residents, neighborhood dynamics, and their inclination to participate in communal activities, all of which are influenced by residents' socio-demographic characteristics such as age, average household income, position, family size, education, and more.

According to the Smart City Action Plans (SCAPS) of Naypyitaw (Aung, 2019)One of the main challenges is attracting people to Naypyitaw, and one of the central visions for Naypyitaw City up to 2040 is to be a green and livable city. Consequently, the role of housing and settlement has become an essential part of the development of Naypyidaw City. Kabisch et al., (2020) Argue that “A key component of livable cities is the residential satisfaction of their inhabitants. To achieve, maintain, and improve residential satisfaction, gathering detailed insights regarding opportunities and obstacles at the district, neighborhood, and apartment level is essential. Appropriate study results deliver arguments, recommendations, and proposals that enable municipal and planning institutions and housing providers to make targeted and tailored decisions”. Hence, research needs to examine residential satisfaction with government-provided apartment buildings in Naypyidaw City.

Conversely, despite housing provision for low-income individuals and civil servants ranking among the top priorities of Myanmar's government-led housing plans, empirical data and research on residential satisfaction still need to be available within the country. Likewise, no prior study has assessed residents' satisfaction with government-provided housing in Myanmar. Furthermore, new constructions of four-story apartment buildings for government employees in Naypyitaw are being undertaken in response to identified needs based on data. In light of these considerations, this study centers on residential satisfaction with government-provided four-story apartment buildings in civil servant housing areas of Naypyitaw City. The research objectives include (1) identifying the key factors that can enhance residential satisfaction within government-provided four-story apartment units for civil servants in Naypyitaw City through Importance-Performance Analysis (IPA) and (2) offering recommendations to improve the residential satisfaction level in future buildings within Naypyitaw City.

RESEARCH METHOD

The research is centered in the Residential Zone, specifically in Zabu Thiri Township and Pobba Thiri Township within Naypyitaw City. The target population comprises residents residing in government-provided four-story apartment buildings in various quarters of Zabu Thiri Township and Pobba Thiri Township within Naypyitaw City. Figure 1 shows the locations of nine civil-servant housings in Naypyitaw City.

According to the data provided by the Naypyitaw Development Committee, there are currently 20,624 households residing in the nine civil servant housing complexes in Naypyitaw. A quantitative approach was employed to address this research inquiry, utilizing a cluster sampling method due to the infinite population size. The primary data collection was meticulously organized to tackle the specific research problem. Questionnaires were selected as the

data collection instrument and administered through face-to-face interviews. This approach was chosen because a significant proportion of Myanmar's civil servants are unfamiliar with email or other online survey techniques, as determined during preliminary investigations with residents. Consequently, a door-to-door survey approach was adopted to reach respondents willing to participate.

Given the nine housing complexes under examination, the research determined that a sample size of 384 respondents was required, calculated using Cochran's formula. [9]. Based on several references, including Salisu et al., (2019); Kabisch et al., (2020); Mammadi et al., (2020); Agbola (2017); Mohit and Azim (2012); Lara and Bekker (2012); Somiah et al., (2017); Asiedu et al., (1990); Afacan (2015); Lee et al., (2021); Krūmiņš et al., (2018); Aulia and Ismail (2013); Ibem et al., (2013); Mohammad Abdul Mohit and Raja (2014); Momtaz et al., (2016); Oladosu et al., (2015); Kim (2017); Abidin et al., (2019); Kim et al., (2009); Ibem and Aduwo (2013), several components and variables have been used to study residential satisfaction. Consequently, the literature indicates six parameters influencing residential satisfaction from various professionals' perspectives. These parameters include:

1. Socio-Demographic Characteristics of Respondents,
2. Dwelling unit features,
3. Dwelling unit support services,
4. Social environment,
5. Public facilities, and
6. Neighborhood facilities

The selection of components and attributes for this study was guided by a review of previous research and studies about residential satisfaction. These selections were tailored to meet the specific needs and concerns of residents in the study area. The study's components encompass socio-demographic characteristics, physical and environmental features of housing units, the social environment within the housing area, services provided within the housing complex, and housing locations.

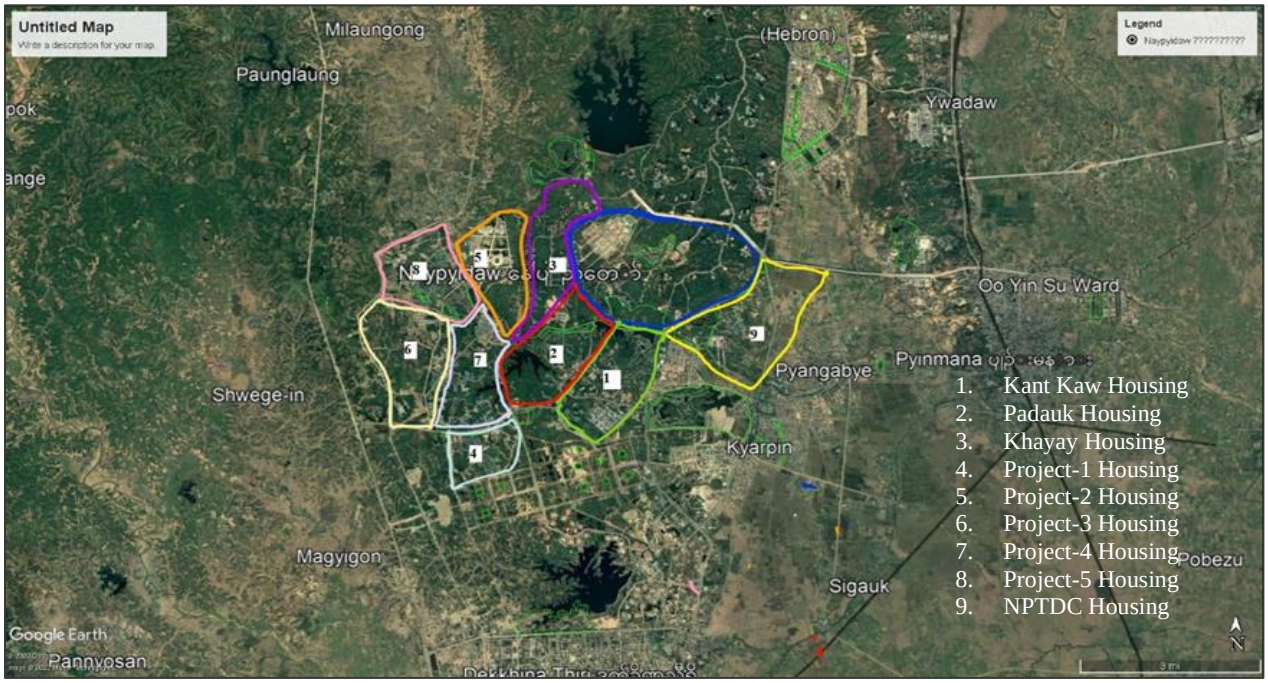

FIGURE 1. Locations of Nine Civil-Servant Housings in Naypyitaw City. Source: Google Earth (2022)

To evaluate residential satisfaction, respondents were presented with a list of attributes and asked to indicate both the "level of importance" (representing their expected performance) and the "level of satisfaction" (representing the actual performance) for each attribute. This assessment was conducted using a five-point Likert Scale. (Likert, 1932) Where one indicated "very important" to 5, indicating "not important" for the level of importance, and one indicated "Strongly Satisfied" to 5, indicating "Strongly Dissatisfied" for the level of satisfaction. This data was then analyzed using the Importance-Performance Analysis (IPA) method.

In Importance-Performance Analysis (IPA), all service quality variables are mapped into four quadrants. The horizontal axis (X) represents the score for the level of implementation or performance, while the vertical axis (Y) reflects the importance level score. The formula simplifies the factors affecting service satisfaction as follows:

$$\bar{X} = \frac{\sum Xi}{n} \quad and \quad \bar{Y} = \frac{\sum Yi}{n} \tag{1}$$

Descriptions:
$\bar{X}$ = Average score for the performance assessment
$\bar{Y}$ = Average score for the importance assessment
Xi = Value on the Likert scale representing performance assessment
Yi = Value on the Likert scale representing importance assessment
n = Total number of frequencies

Conceptual Framework

In this study, residential satisfaction among civil servants is the dependent variable. The factors outlined on the left side of Fig 2 are regarded as independent variables since the research aims to determine if residential satisfaction is influenced by any of these variables. The determinants of residential satisfaction could differ depending on the housing type. The conceptual framework of this study is shown in Fig 2.

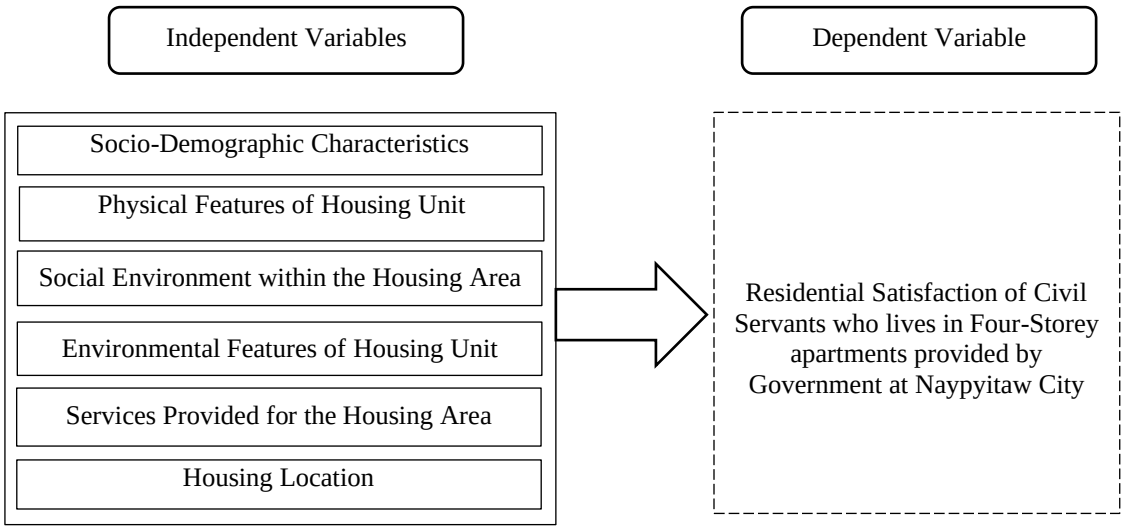

FIGURE 2. Conceptual Framework

RESULT AND DISCUSSION

A qualitative descriptive approach was employed to analyze the data in this study. Importance-Performance Analysis was conducted using Microsoft Excel to address the research questions. Five hundred questionnaires were distributed, with 445 eligible for inclusion in the final analysis, resulting in an 89% response rate. The socio-demographic characteristics of the 445 respondents are presented in Table 1. Importance-Performance Analysis was conducted by calculating the average values for each attribute. This analysis involves three main steps. Firstly, the suitability of respondents was determined using the formula (Tk = (x/y) × 100%). In the second step, the positioning of each criterion was mapped by calculating the averages for positions X and Y using the equations ($X=\frac{\Sigma xi}{n}$) and ($Y\frac{yi}{n}$),

which enabled the formation of four IPA quadrants. The level of user satisfaction and the IPA coordinate can be seen in Table 2.

TABLE 1. Percentage of the Collected Data from 445 numbers of Respondents for Socio-Demographic Characteristics

No.	Category	Classification	Numbers of Respondents	Percentage of Respondents' Numbers
1	Housing Names	Kant Kaw Housing	47	10.6 %
		Padauk Housing	59	13.3 %
		Khayay Housing	49	11.0 %
		NPTDC Housing	58	13.0%

TABLE 2. Percentage of the Collected Data from 445 numbers of Respondents for Socio-Demographic Characteristics

No.	Category	Classification	Numbers of Respondents	Percentage of Respondents' Numbers
2		Project-1 Housing	45	10.1 %
		Project-2 Housing	45	10.1 %
		Project-3 Housing	46	10.3 %
		Project-4 Housing	44	9.9 %
		Project-5 Housing	52	11.7 %
3	Types of Buildings	4 Unit-4 Storey including three bedrooms	142	32%
		4 Unit-4 Storey including two bedrooms	100	22%
		6 Unit-4 Storey including three bedrooms	87	20%
		6 Unit-4 Storey including two bedrooms	116	26%
4	Sex of respondents	Male	146	33%
		Female	299	67%
5	Age Groups in Years	Below 30 years	82	18%
		30 years and above	363	82%
6	Numbers of Children	No Children	179	40%
		1-2 people	241	54%
		3-4 people and more	25	6%
7	Marital Status	Single	140	31%
		Married	305	69%
8	Educational Qualification	Less than high school	21	5%
		Graduated high school or equivalent	22	5%
		Diplomas/ Professional qualifications/ Certificates	18	4%
		Bachelor's Degree	309	69%
		Master's Degree/ Doctorate Degree	75	17%
9	Position	Lower than the position of Officer	214	48%
		Officer and higher than the position of Officer ≥	231	52%

No.	Category	Classification	Numbers of Respondents	Percentage of Respondents' Numbers
10	Average Monthly Income (Myanmar) (1$=2000 MMK)	< 200.000 MMK	19	19%
		200.000-300.000 MMK	56	56%
		300000 MMK ≥	24	24%
11	Household Size	1-2 people	168	38%
		3-4 people	201	45%
		5-8 people	76	17%
12	Length of Stay in the Residence	Less than one year	19	19%
		1 year-3 years	26	26%
		More than three years	55	55%
13	Place of residence	Ground floor	132	30%
		First floor	115	26%
		Second floor	97	22%
		Third floor	101	23%

Based on Table 1, the study found that 18% of respondents fell below 30 years age group, and all 82% were above age 30, signifying that the respondents are aged and mature. They were female-dominated (67%). 69% of residents were married with a moderate family size, indicating a family size of 45%, and 38% had a 1-2 family size. It can be pointed out that respondents were well educated because 69 % of respondents have bachelor's degrees, and 17% have postgraduate degrees. Moreover, 52% of respondents are officers and higher than the officer position, and 48% are lower than the officer level. The average monthly income of 56% of residents is between 200000 and 300000 MMK, 24% earn more than 300000MMK, and 19% earn less than 200000MMK. 55% of residents have lived in their current apartments for over three years, and 26% have lived for more than one year.

TABLE 3. User Satisfaction Level and the IPA Coordinates

Categories	No	Attributes	Satisfaction	Importance	Satisfaction Level (%)	Quadrant
Physical features of the Housing unit	1	Layout plan of the apartment	2.57	2.38	108.14	Quadrant II
	2	Size of rooms and corridor	2.73	2.45	111.38	Quadrant II
	3	Numbers of rooms	2.70	2.41	112.23	Quadrant II
	4	Ceiling height	2.53	2.42	104.36	Quadrant II
	5	Orientation of Doors and Windows in the housing unit	3.23	2.16	149.48	Quadrant II
	6	Toilet and bathroom facilities	3.22	2.02	158.93	Quadrant IV
	7	Staircase design	2.99	2.52	118.75	Quadrant II
	8	Building quality	3.34	2.02	165.89	Quadrant IV
Environmental features of Housing unit	9	Water Supply and sanitary services of the housing unit	3.08	1.83	168.43	Quadrant III
	10	Natural lighting of the housing unit	2.66	2.02	131.70	Quadrant III
	11	Ventilation in the housing unit	2.68	1.93	139.04	Quadrant III
	12	Condition of noise pollution of housing unit	3.56	2.24	158.78	Quadrant I

Categories	No	Attributes	Satisfaction	Importance	Satisfaction Level (%)	Quadrant
	13	Fire Protection Facilities	3.52	1.85	190.75	Quadrant IV
Social environment within the housing area	14	Satisfaction with neighborhood relations	2.49	2.31	107.89	Quadrant II
	15	Level of privacy	2.72	1.93	140.77	Quadrant III
	16	Security	3.41	1.70	200.66	Quadrant IV
	17	Environmental noise pollution in residential areas	3.43	2.28	150.39	Quadrant I
Services provided for the housing area	18	Parking (Car/Cycle)	3.76	2.08	180.67	Quadrant IV
	19	Building maintenance	3.84	1.90	201.53	Quadrant IV
	20	Quality of public water	2.86	1.79	159.85	Quadrant III
	21	Recreational areas	3.50	2.61	133.88	Quadrant I
	22	Availability of public transportation	3.55	2.14	166.25	On axis
	23	Function-ability of street light	3.57	1.77	201.14	Quadrant IV
Housing location	24	Proximity to school for children	2.91	2.19	133.03	Quadrant II

TABLE 4. User Satisfaction Level and the IPA Coordinates

Categories	No	Attributes	Satisfaction	Importance	Satisfaction Level (%)	Quadrant
	25	The proximity of the house to the market/ Grocery store/shopping locations	3.07	2.33	131.67	Quadrant II
	26	Proximity of house to workplace	3.14	2.25	139.70	Quadrant I
	27	Proximity to places of worship such as Masjid, temples, Churches etc.,	2.86	2.34	121.86	Quadrant II
	28	Proximity of house to police station	2.85	2.38	119.72	Quadrant II
	29	Proximity of house to hospital/health clinics /health facilities	3.06	1.95	156.62	Quadrant III
	30	Proximity of house to fire station	3.04	2.14	142.08	On axis
Average			3.10	2.14	146.85	

Upon examining the calculations presented in Table 2, it becomes evident that all satisfaction levels surpass initial expectations. The results indicate that attribute (19), "Building Maintenance," garnered the highest scores, achieving a remarkable 201.53%. This is closely followed by attributes (23) "Functionality of Street Lights" at 201.14% and (16) "Security" with an impressive score of 200.66%. In contrast, attributes (1) "Layout Plan of Apartment" at 108.14%, (4) "Ceiling Height" at 104.36%, and "Satisfaction with Neighborhood Relations" (16) at 107.89% registered the lowest scores among all attributes, suggesting comparatively lower levels of satisfaction in these areas. Furthermore, the average score for respondents' suitability stands at 146.85%, indicating a generally high level of satisfaction with the government-provided four-story apartments.

The next stage involves plotting these coordinates on an Importance Performance Analysis (IPA) quadrant graph, a visual representation of which is presented in Fig 3. This graph serves as a tool to assess respondents' perceptions and prioritize areas for enhancing service or product quality.

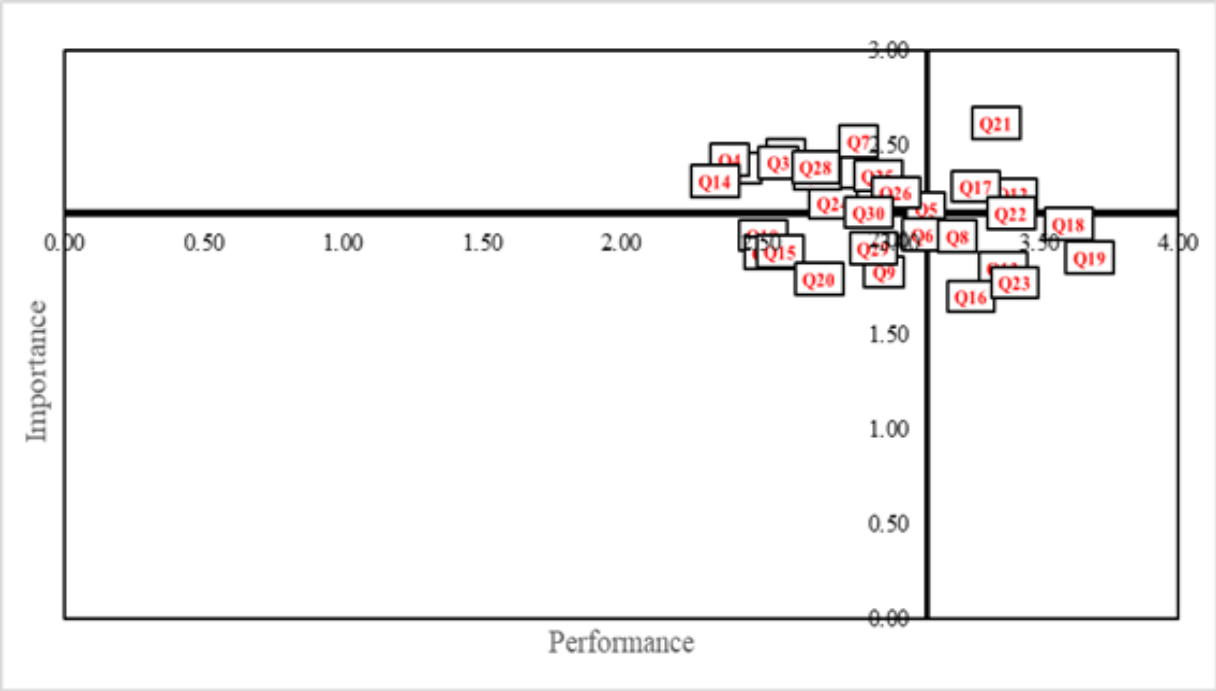

FIGURE 3. Quadrant Graph of IPA

In Fig 3, the results of the Importance Performance Analysis quadrant lead to the following discussions:

First Quadrant

Five attributes, namely (5) "Orientation of Doors and Windows in Housing Unit," (12) "Condition of Noise Pollution in Housing Unit," (17) "Environmental Noise Pollution in Residential Areas," (21) "Recreational Areas," and (26) "Proximity of House to Workplace," have been placed in the "keep up the good work" quadrant. Attributes in this quadrant demonstrate both high importance and high performance. This signifies that respondents are satisfied with how these attributes contribute to service delivery. Therefore, it is crucial to maintain and harness these attributes to maximize their potential as a competitive advantage.

Second Quadrant

The "Second Quadrant" contains attributes that hold high importance but exhibit low performance. These include ten attributes: (1) "Layout Plan of Apartment," (2) "Size of Rooms and Corridor," (3) "Number of Rooms," (4) "Ceiling Height," (7) "Staircase Design," (14) "Satisfaction with Neighborhood Relations," (25) "Proximity of House to Market/Grocery Store/Shopping Locations," (27) "Proximity to Place of Worship," and (28) "Proximity of House to Police Station." Attributes placed here represent the top priority for improvement, and continuous enhancements are necessary.

Third Quadrant

Attributes within the "Third Quadrant" are characterized by low importance and low performance. This quadrant includes six attributes: (9) "Water Supply and Sanitary Services of Housing Unit," (10) "Natural Lighting of Housing

Unit," (11) "Ventilation in Housing Unit," (15) "Level of Privacy," (20) "Quality of Public Water," and (29) "Proximity of House to Hospital/Health Clinics/Health Facilities." Attributes in this quadrant have low satisfaction levels and are considered less important by consumers. Hence, management need not prioritize these factors.

Fourth Quadrant

The "Fourth Quadrant" encompasses low-importance and high-performance attributes. Seven attributes, including (6) "Toilet and Bathroom Facilities," (8) "Building Quality," (13) "Fire Protection Facilities," (16) "Security," (18) "Parking (Car/Cycle)," (19) "Building Maintenance," and (23) "Functionality of Street Lights," are situated here. These attributes are considered less critical, allowing management to reallocate resources to other pressing factors.

Two attributes are situated on the x-axis. "Availability of Public Transportation" (22) has coordinates (3.55, 2.14) and is positioned on the x-axis between Quadrants I and IV. This attribute can be viewed as either a need for maintenance or an excessive performance attribute. "Proximity of House to Fire Station" (30) holds coordinates (3.04, 2.14) and is located on the x-axis between Quadrants II and III. This attribute is considered either a high priority for improvement or a low priority, indicating its lower importance.

CONCLUSION

The research findings shed light on the satisfaction levels of residents inhabiting government-provided four-story apartment buildings in Naypyitaw City. A notable proportion expresses contentment with their living conditions, especially concerning the attributes under scrutiny in this study. Through our investigation, several priority factors have emerged as pivotal for augmenting residential satisfaction within these units.

Among these factors are the layout plan of apartments, the size of rooms and corridors, the number of rooms available, the ceiling height, the design of staircases, satisfaction with neighborhood relations, and the proximity to essential amenities such as schools, markets, and places of worship, police stations, and fire stations. In the context of the Importance-Performance Analysis, these attributes stand out as critical for enhancing residential satisfaction. A series of targeted improvements are recommended to address these priorities and bolster overall satisfaction levels.

Firstly, thoroughly reviewing apartment layouts is advised to align them with resident preferences and standard design guidelines. Secondly, while the room sizes meet regulatory standards, creative strategies can be employed to enhance their dimensions without compromising functionality. Additionally, increasing the number of rooms could increase resident satisfaction and attract more occupants. Furthermore, attention should be paid to the ceiling height, particularly in light of concerns regarding heat transfer in Naypyidaw's warm climate. Implementing higher ceilings or incorporating insulation during the early design phase could mitigate this issue effectively. Staircase design is another crucial aspect, with adherence to building codes and resident needs paramount for ensuring safe and comfortable access. Moreover, fostering neighborhood relations and addressing safety concerns is essential for promoting community and overall satisfaction. Lastly, enhancing proximity to crucial amenities is pivotal for transforming Naypyitaw into a liveable city. This necessitates directing substantial improvements towards housing locations near schools, markets, places of worship, police stations, and fire stations. The study also underscores the significance of policy implications, advocating for the involvement of both current residents and prospective homebuyers in the development process. Future projects can significantly elevate satisfaction levels by adopting housing delivery strategies aligned with resident needs and preferences.

In conclusion, implementing these recommendations can enhance the overall well-being and satisfaction of residents in Naypyitaw over the long term, making it imperative for policymakers and housing developers to heed these insights.

ACKNOWLEDGMENTS

I am sending my sincere appreciation to Prof. Dr. rer. soz. Nursyirwan Effendi, Ir. Purnawan, MT, Ph. D., and the esteemed faculty members of the Postgraduate School at Andalas University for their invaluable support, meticulous guidance, and unwavering assistance throughout my academic journey. My heartfelt gratitude also goes to Andalas University and the Naypyitaw Development Committee for allowing me to undertake this research endeavor. Additionally, I extend my special thanks to the Indonesian Embassy in Yangon for their steadfast support and invaluable assistance during my research.

REFERENCES

[1]. Abidin, N. Z., Abdullah, M. I., Basrah, N., & Alias, M. N. (2019). Residential Satisfaction: Literature Review and A Conceptual Framework. *IOP Conference Series: Earth and Environmental Science*, *385*(1). https://doi.org/10.1088/1755-1315/385/1/012040

[2]. Afacan, Y. (2015). Resident satisfaction for sustainable urban regeneration. *Proceedings of the Institution of Civil Engineers: Municipal Engineer*, *168*(4), 220–234. https://doi.org/10.1680/muen.14.00046

[3]. Agbola, B. S. (2017). *Residential Satisfaction and the Organised Private Sector Housing in Nigeria*. *33*(1995), 32–41.

[4]. Aigbavboa, C., & Thwala, W. (2016). A notional appraisal of the bases of housing satisfaction. *International Journal for Housing Science and Its Applications*, *40*(2), 133–145.

[5]. Asiedu, A. B., Ohta, M., & Yamamura, E. (1990). A Study on the Sources of Residential Satisfaction Among Households in Kumasi City in Ghana. *Studies in Regional Science*, *21*(1), 67–85. https://doi.org/10.2457/srs.21.67

[6]. Aulia, D. N., & Ismail, A. M. (2013). Residential Satisfaction of Middle Income Population: Medan City. *Procedia - Social and Behavioral Sciences*, *105*, 674–683. https://doi.org/10.1016/j.sbspro.2013.11.070

[7]. Aung, M. (2019). *Smart City Action Plans (SCAPs) for Nay Pyi Taw*. https://www.ur-net.go.jp/overseas/AseanSmartCityNetwork/lrmhph00000162t5-att/Nay_Pyi_Taw.pdf

[8]. Balestra, C., & Sultan, J. (2013). Home Sweet Home: The Determinants of Residential Satisfaction and Its Relation with Well-Being. Working Paper. *OECD Statistics Working Paper Series*, *STD/DOC (2013)5*, 42. http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=STD/DOC(2013)5&docLanguage=En

[9]. Cochran, W. G. (1977). *Sampling Technique's third edition*.

[10]. Fakere, A. A., Folorunso, C. O., Arayela, O., & Omole, F. K. (2020). Strategic framework for resident's participation in housing provision in Akure, Southwest Nigeria. *Zeitschrift Für Immobilienökonomie*, *6*(2), 137–160. https://doi.org/10.1365/s41056-020-00047-z

[11]. Ibem, E. O., & Aduwo, E. B. (2013). Assessment of residential satisfaction in public housing in Ogun State, Nigeria. *Habitat International*, *40*, 163–175. https://doi.org/10.1016/j.habitatint.2013.04.001

[12]. Ibem, E. O., Opoko, A. P., Adeboye, A. B., & Amole, D. (2013). Performance evaluation of residential buildings in public housing estates in Ogun State, Nigeria: Users' satisfaction perspective. *Frontiers of Architectural Research*, *2*(2), 178–190. https://doi.org/10.1016/j.foar.2013.02.001

[13]. Kabisch, S., Poessneck, J., Soeding, M., & Schlink, U. (2020). Measuring residential satisfaction over time: results from a unique long-term study of a large housing estate. *Housing Studies*, *0*(0), 1–19. https://doi.org/10.1080/02673037.2020.1867083

[14]. Kim, I., Park, K., & Lee, Y. (2009). An analysis of residential satisfaction for low-income senior citizens. *Journal of Asian Architecture and Building Engineering*, *8*(2), 393–399. https://doi.org/10.3130/jaabe.8.393

[15]. Kim, J. (2017). *Residential Satisfaction of Long-Term Public Rental Residential Satisfaction of Long-Term Public Rental*.

[16]. Krūmiņš, J., Sechi, G., & Bērziņš, M. (2018). Residential satisfaction and mobility behavior among the young: Insights from the post-Soviet city of Riga. *Belgeo*, *3*, 1–14. https://doi.org/10.4000/belgeo.28347

[17]. Lara, T., & Bekker, M. (2012). RESIDENT SATISFACTION AS A PROJECT QUALITY MEASURE: THE CASE OF NOVA VIDA HOUSING PROJECT, ANGOLA. In *Journal of Contemporary Management DoE* (Vol. 9).

[18]. Lee, S. J., Parrott, K. R., Lee, M., Robinson, S. R., & Owusu, R. N. (2021). Residential Satisfaction of Rural Older Adults Aging in Place. *Gerontology and Geriatric Medicine*, *7*. https://doi.org/10.1177/2333721421997190

[19]. Likert, R. (1932). A technique for the measurement of attitudes. *Archives of Psychology*, *140*, 44–53.

[20]. Mammadi, A., Baba, H. M., Tukur, S., Muhammad, A. A. A., & Abdullahi, U. (2020). Measuring Residents Satisfaction Levels of Public Housing in Maiduguri Metropolis of Borno State, Nigeria. *Path of Science*, *6*(3), 3001–3020. https://doi.org/10.22178/pos.56-3

[21]. Mohit, M. A., & Azim, M. (2012). Assessment of Residential Satisfaction with Public Housing in Hulhumale', Maldives. *Procedia - Social and Behavioral Sciences*, *50*(July), 756–770. https://doi.org/10.1016/j.sbspro.2012.08.078

[22]. Mohit, M. A., Ibrahim, M., & Rashid, Y. R. (2010). Assessment of residential satisfaction in newly designed public low-cost housing in Kuala Lumpur, Malaysia. *Habitat International*, *34*(1), 18–27. https://doi.org/10.1016/j.habitatint.2009.04.002

[23]. Mohit, M. A., & Raja, A. M. M. A. K. (2014). Residential satisfaction-Concept, theories, and empirical studies. *Planning Malaysia*, *12*(July 2014), 47–66. https://doi.org/10.21837/pmjournal.v12.i3.131

[24]. Momtaz, S. A., Rafieian, M., & Aghasafari, A. (2016). Residential satisfaction of Low-income housing projects (Case study : housing Mehregan settlements). *International Journal of Humanities and Cultural Studies*, 1491–1503.

[25]. Oladosu, R. O., Gana, B. A., & Bwala, H. B. (2015). Residents' Satisfaction with Public Facilities and Neighbourhood Environment in Slum Residential Areas of Jos, Plateau State, Nigeria. *Journal of Environment and Earth Science*, *5*(14), 26–33. https://www.iiste.org/Journals/index.php/JEES/article/view/24251

[26]. Salisu, U. O., Odulaja, A. O., Ogunseye, N. O., Fasina, S. O., & Okunubi, S. A. (2019). Residents' Satisfaction with Public Housing in Lagos, Nigeria. *Ghana Journal of Geography*, *11*(1), 180–200.

[27]. Somiah, M. K., Aidoo, I., & Braimah, A. (2017). An Empirical Enquiry into the Attributes of Residential Satisfaction that Predict Students' Satisfaction in Public Halls of Residence in Technical Universities in Ghana. *International Journal of African and Asian Studies*.