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Assessing The Impact Of High Rise Residential Building On Placemaking Of Neighborhood: A Case Of Westar Residency And Sun- City Apartment

by

Aakriti Mishra

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DECLARATION

I hereby declare that the thesis entitled "Assessing the impact of high rise residential building on placemaking of neighborhood: A case around Westar residency and Sun- city apartment, " which is being submitted to the Department of Architecture, Pulchowk Campus, Institute of engineering, Tribhuvan University in partial fulfillment of the requirements for the degree of Masters in Architecture (M.Arch) is a research work carried out by me, under the supervision of Assoc. Prof. Dr. Ashim Ratna Bajracharya between *Baisakh 2079* to *Bhadra 2079* . I declare that the work is my own and has not been submitted for a degree of another University.

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ABSTRACT

Nepal is a developing country where urbanization is taking place at a rapid pace. The urbanization is mostly concentrated at the major cities of the country mainly on metropolitan, sub-metropolitan and municipalities. Kathmandu, being the capital city of Nepal is the most populated urban region of the country, with an estimated population of 2.54 million, and is growing at 6.5% every year. Kathmandu alone accounts for 1/12 of Nepal's total population i.e. 1,521,057. Such an immense pattern of growing population has put the land and housing situation into huge pressure in Kathmandu Valley. In order to manage such an urban sprawl, it is high time we switch to vertical built environment to live in. However, high rise buildings are often blamed for crimes, anxiety and degeneration of urban morphology as they deform the quality by overloading the density, infrastructures and public realm where the building is standing in. On one hand, high rise are considered responsible for degeneration of urban morphology and on another hand high-rise buildings are today a prime feature of urban living, making up a large proportion of cities, skylines and architecture. The research thereby, explore the contribution of high rise apartments in placemaking of the surrounding neighborhood.

Keywords:
High rise residence, place making, neighborhood

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ACRONYMS AND ABBREVIATIONS

OCHA Office for the Coordination of Humanitarian Affairs

NIUA National Institute of Urban Affairs

CHAPTER 1. INTRODUCTION

1.1 Background

Nepal is a developing country where urbanization is taking place at rapid pace. Although, Nepal is one of the ten least urbanized countries in the world yet it is also one of the rapidly urbanizing countries in South Asia (Devkota, 2018). The data shows that from the year 2010 to 2015, Nepal experienced one of the highest rates of urbanization in the world (Clewett, 2015). According to (Statista, 2021), the population residing in urban area has increased to 20.58% in 2020 as compared to 17.11% in 2011. In this verse of urbanization, most of the development in Nepal is concentrated in large and medium cities i.e. metropolitan, sub-metropolitan and municipalities (Twayana et al., 2021).

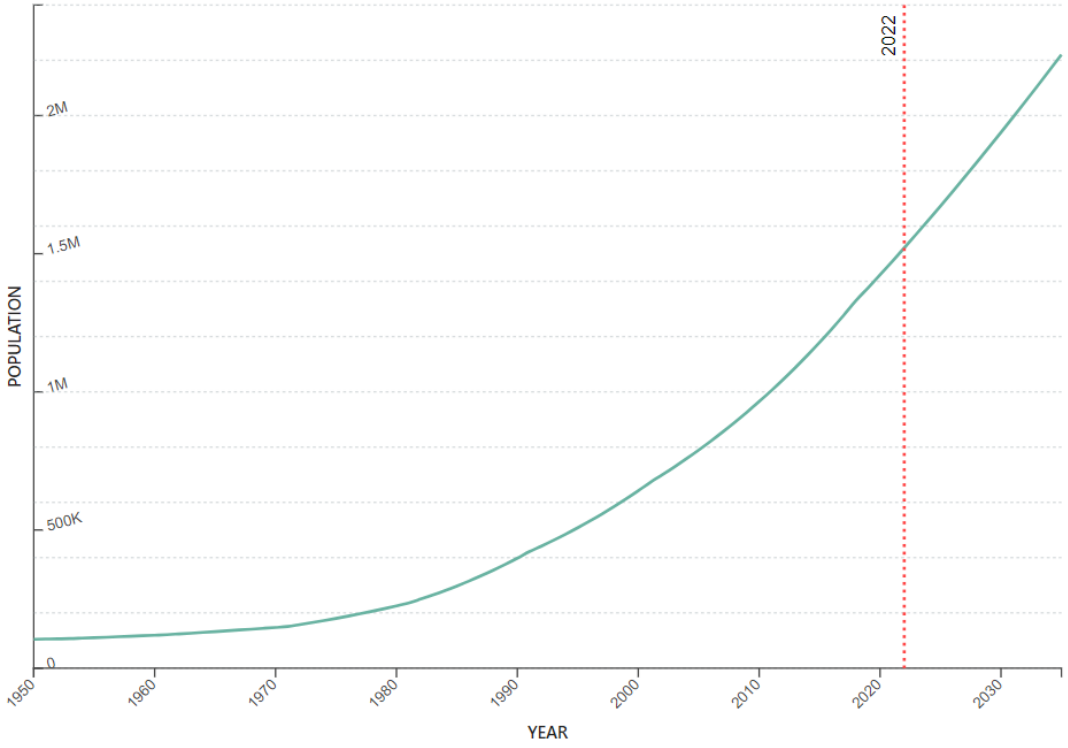

Figure 1-1: Share of population in Kathmandu

Source: (World Population Review, 2022)

Kathmandu, being the capital city of Nepal is the most populated urban region of the country, consisting of 24 percent of total urban population(Shea, 2019). In addition, the

Kathmandu Metropolitan City alone consists of 9.7 percent of total urban population(Shea, 2019). Furthermore, Kathmandu Valley has an estimated population of 2.54 million, and is growing at 6.5% every year (Timsina et al., 2020). According to the recent data of World Population Review (2022), Kathmandu alone abide 1/12 of Nepal's total population i.e. 1,521,057. Such an immense pattern of growing population has put the land and housing situation into huge pressure in Kathmandu Valley. As the population is largely increasing within Kathmandu, majority of population is shifting towards the periphery of Kathmandu. "The towns located at the urban periphery of city centers have always been the foremost target space to cater the increasing urban growth" (Bajracharya R. , 2017). The pressure to accommodate such a large population is resulting into unplanned land use, shrinking open spaces, haphazard construction, and poor services (Timsina et al., 2020). According to (Timalsina, 2020), the growth in urban population and land expansion of city is resulting in the increment on land demand for housing and other infrastructure developments. Land encroachment, high speculation, use change, etc. are the major reasons causing the lack of open spaces (Timalsina, 2020).

In order to manage such an urban sprawl, it is high time we switch to vertical built environment to live in. With an increase in population, the construction of high-rise buildings has become an indispensable solution due to the need for housing widely, and preventing the horizontal development of the city (Zahra brzegar, 2016). However, there are many impacts that are caused by such buildings in urban areas that includes decreasing landscape, excess in the urban infrastructure, increase in population density, traffic density and modification of the local microclimate, and so on (Baiz et al., 2016). Furthermore, "the massive bulk and soaring height, of these buildings often contribute to the problem of placelessness" (Al-Kodmany, 2013). In the past, a sense of place frequently developed from interconnections, shared interests, and casual interaction in public areas. Such insignificant exchanges over time shaped a neighborhood's personality and contributed to a person's sense of place.(Al-Kodmany, 2013). High rises are often responsible to generate new configuration of urban spaces thus creating new human-environment relationship. On one hand we are losing our open spaces over crowded residential spaces and on other hand the good residential neighborhood space of our past are undergoing rapid destruction (Shrestha, 2013).

The project thereby aims to answer to the question in what ways the high rise residential buildings contribute on placemaking on its neighborhood**.** It attempts to identify the

dimensions of placemaking and in what ways these dimensions are being affected around tall residential buildings that are responsible to enhance and create a sense of place. The aim of project is to understand the possible solutions to build a suitable apartment building in the Kathmandu which not only fulfill the need of growing population but also addresses the site it is standing in.

1.2 Statement of the Problem

While looking into the scenario of Kathmandu valley, there is no uniformity and harmony in newly emerging buildings which has brought individual characters incompatible with surrounding buildings and the environment (Dahal & Shrestha, 2017). The lack of proper facilitations or incentives for complying with the rules, is causing people not to follow the rules and disregard the standards and prioritize their personal interests (Dahal & Shrestha, 2017) . This is why the harmony in the community is degrading resulting poor sense of place. Kathmandu is rapidly urbanizing where the land price is rapidly increasing even in faster pace. New settlement is rapidly growing replacing the agricultural land and in absence of proper planning and regulatory policies, the overpricing of land and haphazard construction can have negative implications on urban form of the municipality (Munankarmi & Bajracharya, 2020). However, the high-rise buildings may offer a potential solution to the major problem of increasing human populations in metropolitan centers, which not just the Kathmandu but the entire globe is currently facing (StudyCorgi, 2022).

According to Eichner & Ivanova (2018), a person not only feels discomfort in high rise buildings, but also on the street next to it. “Housing is consistently considered a determinant of health, but little is known about the impact of high-rise buildings on mental health and social well-being (Bird, 2020)”. Livability has always been the matter of debate when it comes to living in high rise apartments (Li et al., 2012). Similarly, the growth of modern high-rise buildings significantly affects the density of development area, the infrastructures and transport networks (Giyasov & Giyasova, 2018). On one hand high rise buildings are often blamed for crimes, anxiety and degeneration of urban morphology as they deform the quality by overloading the density, infrastructures and public realm where the building is standing in (Ibrahim, 2007) and on another hand high-rise structures make up a significant amount of cities, skylines, and architecture today, making them a key aspect of urban life.

(Bird, 2020). This research thereby, aims to explore the contribution of high rise apartments in its surrounding neighborhood focusing mainly on the dimensions of place making.

1.3 Rationale of the Research

1.3.1 Need of Research

In context of Kathmandu, the constraint and high cost of land has brought steady acceptance for , "Vertical Living" (Shrestha, 2019). Over the years, even after the massive earthquake of 2015 followed by the credit crunch of 2017, the continuous growth of high-rise apartment tower sector is being experienced (Abhinav Amatya 2017). By 2017, more than 105 registered projects had received permits to construct buildings which have completed constructions or are in the process of construction (Abhinav Amatya 2017). While looking into the scenario of urban places specially, Kathmandu valley, residential neighborhoods constructed using a variety of methods have not only failed to meet socio-cultural needs and to provide a good urban setting, but they have also performed poorly in terms of community building and building connections to the built environment. As a result, the planned areas lack a sense of place and the residents lack a sense of belonging. (Shrestha B. K., 2013). As stated by Apartments in Kathmandu (2019), the number of housing and apartments is still not sufficient in comparison to the people shifting to Kathmandu valley. Such high rise housing complexes are responsible to generate new composition of open spaces creating a new set of human-environment relations and a new prospect of urban landscapes (Eizenberg et al., 2019). However, little attention has been given to these new spatial configurations and the urban experience they offer (Eizenberg et al., 2019). Also, a study have found that as compared to the private residences, the shared community spaces around high rise buildings are associated with the perceived sense of anti-social behavior, lack of control and security concerns (Bird, 2020). It is therefore, very essential to understand in what ways such high rise residential buildings affect its immediate urban settings to create sense of place so that the factors can be considered for future design of high rise buildings.

1.3.2 Importance of Research

As per a study, high rise buildings can make people experience the sense of claustrophobic by creating a rat-cage mentality (Baiz et al., 2016). The situation is true not just for the

residents living in the apartment but also for those who lives around. According to Eichner & Ivanova (2018), high rise buildings of poor architectural quality can make individuals feel threatened and under strain. This also supports that buildings and public spaces strongly impact the living communities. Hence, housing should also offer the proper spaces for people life to incubate apart from providing spaces for the users to live in (NIUA, 2019). The research thereby, attempts to understand how the high rise residences affect the urban design features and if the apartment building itself could help in place making along with creation of a sense of place. This research helps to understand the physical impact of high rise residential buildings put into the surrounding especially focusing on the tangible and intangible aspects of urban setting and help to find proper design solution in the future if needed. The research helps the policymakers to formulate proper byelaws that can address not only tangible but also intangible impacts of high rise residences in the urban cities like Kathmandu and Lalitpur. It also works as a footprint that can lead all the architects and engineers towards creating better place to live in.

1.4 Research Questions

What is the role of the high-rise residential buildings in the placemaking of neighborhood?

- ✓ How does the high rise residential buildings affect the urban setting of the place?
- ✓ What are the impacts caused by high rise residences on dimensions of placemaking of its immediate neighborhood?

1.5 Validity of Research

Research validity in surveys relates to the extent to which the survey measures the right elements that need to be measured. "Validity refers to how well an instrument has measured what it is intended to measure". There are many researches that has been conducted time to time in the world to understand the psychological impacts of high rise on its residents and environmental impact caused by such buildings. As stated by Giyasov & Giyasova (2018), the growth of modern high-rise buildings significantly affects the existing climatic conditions of the terrain and the environmental balance of the living environment. Similarly, another research analyzed that social isolation in high-rise apartment living is

found to be an important factor that contributes to mental health problems of high-rise dwellers (Giyasov & Giyasova, 2018).

A literature review reveals that research on the role of tall buildings in placemaking is lacking. Placemaking literature often focuses on public spaces and plazas but not on tall buildings. Although there are significant volume of theoretical research on placemaking, little study has been conducted on the impact of high rises on place-making in its immediate surroundings. In context of Kathmandu valley, limited researches has been conducted in the high rises but neighborhood of high rises has not been studied especially from the aspect of place making. Therefore, the research is valid since it fills the research gap and also will be helpful for future reference. The research is done based on a questionnaire survey based on the cluster selection of the respondents. Since the questionnaire to be formulated will basically measure the perception and experience of people, the conclusion drawn out of it will be of probabilistic nature and may not be 100% true to all kind of high rise residences. However, the research will be helpful for the resident as well as architects, designers, and policymakers to adopt the appropriate strategy for designing the high rise buildings in the future.

1.6 Conceptual Framework

The nature of research relates to the experiences of people to understand the influence on their life due to the high rise residential construction nearby. The influence can be both the tangible and intangible. There are several ways of looking at this particular problem. The theme of the research which is accessing impact of high rise residence on place making of neighborhood cannot be just approached through positivist paradigm. Hence, the ontological plane of the research topic falls in pragmatic paradigm which uses mixed method for the research. Pragmatism is a paradigm that includes ideas, methods, approaches, principals, or a mix of these to explain a solution to a research problem (Research Article, 2019). Pragmatic paradigm is different from positivist and constructivist paradigm yet rely on both of them to some extent. The pragmatists believe that there are multiple solution to the problem and seeks knowledge according to the circumstances in which the phenomenon occur. Ontology and the ontological assumptions describe the nature of reality, its existence, and the way they are related (Blaikie & Priest, 2018). The ontological claim of the research is the growing rate of high rise residential buildings in

Kathmandu valley is creating major impact on the place making of neighborhood. The impacts can be addressed through better design approach if possible impacts of such buildings is clearly understood.

Epistemological assumptions are based on the adequacy and legitimacy of different kinds of knowledge that are possible (Blaikie & Priest, 2018). This research intends to produce knowledge about the how life of people has changed after the construction of high rise residential building nearby to achieve the valid source of knowledge. Since the experiences of people along with their change in lifestyle and physical setting are major factors through which the objective of research can be fulfilled, this research also proposes to investigate these areas for a valid source of knowledge.

1.7 Research Methodology

The methodology utilizes observation and analysis of the researched area with the help of structured questions to evaluate the outdoor qualities of the high-rise surroundings. This research use both the mixed-method approach (quantitative and qualitative) to access the impact of high rise residential buildings on its surrounding. This research thereby, falls under pragmatic paradigm where questionnaire were used to evaluate the attitudes, opinions and perceptions of people which further was validated through the interview among neighboring people of selected area. Semi-structured qualitative interviews was conducted with the residents to evaluate how their life has changed after the construction of high rise apartment nearby specially focusing upon the parameters of sense of place that are derived from literature review. The study will mainly focus on the residents of community around three apartments of i.e. Westar residency and Suncity apartment. Furthermore, close ended questionnaire survey was conducted among the neighboring residents where respondent chooses one of the answers according to his/her opinion. Open ended questionnaires was conducted among the experts in order to verify and support the observation of the study area.

The research area is focused on Kathmandu valley that is facing problems due to high migration rate followed by the rapid urbanization. Approximately, all the necessary questions and answers was completed in an hour keeping in mind the precious time of the respondent. The privacy and consent of respondent was respected.

1.8 Research Method

The research method is the strategy used to implement the plan that answers research questions(2019). Considering the definition given by Goundar (2012), this study is located within applied research which solves specific, practical questions, for policy formulation, administration, and understanding of a phenomenon. Since the research strategy uses a questionnaire survey, a structured questionnaire survey is used to measure the people's opinion, and the direct observation method and the interpretation of their housing context are used. The steps to carry out the research are mentioned below:

1	Sensing and realizing problem
2	Literature review
3	Problem identification
4	Research Question
5	Sample Framing and Sampling
6	Questionnaire construction
7	Data Collection
8	Field operationalization
9	Data analysis

Figure 1-2: Method of research

1.8.1 Sample Framing and Sampling

A sample can be defined as a group with a relatively smaller number of people selected from a population for investigation purposes. The members of the sample are called as participants or respondents. A sample is defined as a finite part of population whose characteristics and experiences are studied so as to gain the information about the entire population (Wilumila, n.d.). This process through which a sample is drawn from entire population is known as sampling (Wilumila, n.d.). 30 number of samples were taken from the residents around high rise apartments and interview of 3 experts were taken to evaluate and tabulate the outcomes from quantitative survey. Similarly, 5 residents were interviewed to understand their lived experience with the high rise apartment nearby along with the direct observation of site area.

1.8.2 Questionnaire Construction

A questionnaire was designed to obtain the answers to evaluate the perception and degree of satisfaction of the residents around high rise residences. The major focus was to address the questions that to withdraw the desired objective of the research.

1.8.3 Data collection

Data was collected primarily from the observation, questionnaire and interview among the residents around selected site area which was further processed to derive appropriated output. Primary source of data include information collected and processed directly by the researcher, such as observations, surveys, interviews, and focus groups. Also, the information was gathered from official sources including books, journals, and articles and so on. The information's are/was gathered from the below-listed sources:

- Literature Review
- Direct Observation and GIS satellite
- Questionnaire and Interviews

1.8.4 Field Operationalization

Both the open and closed-ended questions was prepared for field operationalization. The pre-testing was carried out before the field investigation. The structured questionnaires was transferred in the KOBO toolbox to operationalize in the field and later was deployed and collected through KOBO collect which is a free open-source tool for mobile data collection based on the selection of building as per convenience. The detailed information of the sample including the photographs, recordings, GPS location, etc. was located to assure the conformity of data.

1.8.5 Data Analysis

All the raw data was collected in the KOBO TOOLBOX software and NVIVO software instantly after the questionnaire and interview survey is conducted. Further, the statistical analysis was done using the SPSS statistical tool such that direct graphical comparisons can be made with the obtained results. Software Package for Social Science, or SPSS, is used to evaluate survey data using complicated statistical methods and offers a wide range of fundamental statistical operations, such as frequencies, cross-tabulation, and bivariate

statistics.(Wilumila). This technique is used to understand the relationship between dependent and interdependent variables that are stored in a data file and to compare events, groups.

1.9 Scope and Limitations

The concept of place making is very vast. Placemaking is both a process and a philosophy that uses the principle of urban design (Wikipedia, 2022). Placemaking involves numerous aspects such as sociability, uses, activities, access, connections, comfort, and image that creates bonds between people and the place (Moreira, 2021). Out of these several dimensions, the research has its major focus basically upon urban design aspects, socio-cultural, economical and psychological aspects. All the other dimensions has not been covered in the report due to limitation of time. The researchers further can conduct their researches focusing on the other aspects of good place making.

The study have looked into the urban design features of surrounding neighborhood and have looked into the experiences of people to understand how the high rise have affected their life. Samples were only taken from the neighborhood of the high rise who have directly been affected due to the construction of apartment nearby. The research does not cover the experiences and perception of people living within the high rise due to limitation of time. The researchers further can conduct their researches focusing on the experiences and perception of people living in high rise apartment.

1.10 Research Logic

In research, there are broadly four types of logic, namely inductive, deductive, retroductive, and abductive (Uprety, 2020). The logic determines the strategical procedures that the researchers follow. This research considers the inductive strategy as it answers the ‘what’ and ‘how’ questions. This research aims at gathering data, looking for patterns, and develop a generalized theory from it. A deductive approach was difficult to consider as no initial data was available. Therefore, inductive research logic was considered.

1.11 Research Ethics

Among the consequential and deontological approach to ethics, this research abides by deontological ethics. Deontological ethics carries the virtue of moral actions rather than the consequences generated by those actions (Britannica, n.d.). This research abides by the ethical consideration that the research needs to consider. Therefore, the discriminatory questions according to caste, gender, culture, the community were avoided as far as possible. The participation of the respondents will be voluntary.

CHAPTER 2. LITERATURE REVIEW

High rise building is defined as a structure with small footprint, small roof area and tall façade (Ibrahim, 2007). High rise buildings are also called "tower blocks" in Britain and some European countries (Johnson, 2009). High rises, sometimes also known as tall building is a multi-story structure in which vertical circulation in most of the cases depends upon the elevators and lifts (Johnson, 2009). Apartment buildings are a characteristic feature of housing accommodations in almost all densely populated urban regions around the world because they have technical and economic advantages in areas of high population density. (Wikipedia, 2021). The word apartment came from the French word "appartement". The word was derived from the Italian version of the word, "appartimento" with the root part of the word "appartare" meaning "to separate" (Heatherwood Luxury Rentals, 2020). A self-contained living unit known as an apartment often resides on a single storey and only takes up a portion of a building. It is a private home inside a structure that is divided into multiple different residences. (apartment, n.d.). High rises are a type of building that is commonly used in the regeneration of modern cities in order to enhance density and due to land scarcity, globalization, and urbanization (Kalcheva, Taki, & Hadi, 2016). According to Russian building codes, buildings that rise from 75 meters (public objects from 50) to 120-150 meters, with the number of floors not exceeding 30, are classified as high-rise buildings.

As per Government of Nepal (2015), buildings with more than 25m and below 100m falls under high rise building. High rise includes buildings that are beyond the reach of normal firefighting provision on the ground. In case of emergency the rescue operation shall require the use of fire lifts in the upper floors (Government of Nepal, 2015).

2.1 History of apartments

2.1.1 International

It is believed that the high rise apartment buildings is being constructed in the world since a long time. The historical development of high rise residential buildings are shortly discussed below:

Ancient Rome

The book (Aldrete, 2004), have mentioned that Roman Empire along with several other cities had the multi-storey buildings for living some of which have reached up to ten or more stories. Such buildings are named as the insulae where middle and lower class of people lived during the period (New world encyclopedia, n.d.).

Egypt

During the medieval period, in the Egyptian capital, high rise residential buildings were constructed that were some seven stories tall and could reportedly accommodate hundreds of people (New world encyclopedia, n.d.).

Yemen

In the sixteenth century, Shibam, a city in Yemen, began to develop high-rise apartment structures, earning the nickname "Manhattan of the Desert". All of the homes in Shibam are constructed of mud bricks, but roughly 500 of them are tower homes that have five to eleven levels and one to two flats on each floor. They still stand as the tallest mudbrick apartment buildings in the world because some of them were over 100 feet (30 meters) high (UNESCO, 2021).

Europen apartments

In the Middle Ages, there was a different kind of apartment that consisted of a large house or mansion that was divided into smaller groups of rooms to accommodate an important person's retainers, such as servants and other attendants. Contrary to that, some were just private quarters within grand houses, or the modern-day apartment house. When big apartment buildings for middle-class tenants first started to rise in the 18th century, they did so in Paris and other major European cities (Britannica, 2021).

Parisian apartments

During the 18th century, a more luxurious variation of the apartment initially developed in Paris and other significant European towns. With each additional floor in the typical Parisian apartment building in the 18th century, the size and financial resources of the occupants reduced (Bradley, 2016).

Modern period

In cities and towns across Europe and the United States, a significant number of low-cost apartment buildings were being built by the middle of the 19th century to accommodate an expanding population of industrial laborers (Britannica, 2021). The first major modern apartment complexes with elevators, central heating, and other amenities that tenants could use collectively first appeared in the early 20th century. In the Soviet Union and other nations where housing construction was the duty of the state, apartment-block skyscrapers were also built in great numbers. Due to ongoing urbanization, the need for apartment housing has increased continuously since World War II. (Britannica, 2021).

2.1.2 National

The Kathmandu Valley's traditional cities are organized into a number of residential areas, or tole. The community squares serve as the primary component of the toles, which are social and spatial units. In order to partition the entire town into separate sections based on social categories, the neighborhood units are demarcated. Although it has never been accomplished, the physical separation of neighborhoods is not important in doing so.

Before the Apartment Act went into effect, many apartment concepts had gradually developed. When people in Nepal were skeptical of this type of housing system in 1998, Guna Group proposed an apartment-based housing system. The company's first housing project, Stupa Housing, is situated in Sinamangal, Kathmandu. With 160 units, it was Nepal's first set of arranged apartments to be built before 2000. The following table lists the numerous types of flats that appeared after 2000 but before the apartment act of 2054:

Table 2-1: Apartments built before the apartment act of 2054 B.S (DUDBC, Kathmandu division, 2012)

S.N	Name and Location	Developers	Area (sq.m.)	No. of units	Drawing approval status
1	Sunrise Homes, Balkumari- Phase 1	Shree Oriental construction and development pvt. Ltd. Balkumari, Lalitpur	13518	115	Approved

S.N	Name and Location	Developers	Area (sq.m.)	No. of units	Drawing approval status
2	Kathmandu Residency, Bagdol, Lalitpur	Ansal Chaudhary Developers Pvt. Ltd, Sanepa, Lalitpur	7301	180	Approved
3	Neon Apartment, Kuleshwor, Kathmandu	Oriental Colony Pvt. Ltd., Balkhu, Kathmandu	3418	100	Approved
4	Stupa Housing, Buddhanagar, Kathmandu	Shree Ragendra Shakya, Pulchowk, Lalitpur	961.83	50	Approved
5	Grace Apartment, Naxal, Kathmandu	ACE Development Company, KMC, Kantipath	3310	56	Approved
6	Mount View Residence, Harisidhi, Lalitpur	Ansal Chaudhary Developers Pvt. Ltd, Sanepa, Lalitpur	11911	72	Approved

2.1.3 Present status of High rise apartments of Kathmandu

According to data from the Kathmandu Valley Development Authority, 71 construction permits for new apartments were issued in the valley between 2004 and 2015, with the most permits—23—being awarded during the 2008–2009 fiscal year (Foley, 2018). Until 2017, more than 105 registered enterprises had been granted permission to erect structures that had already been built or were under development (Abhinav Amatya 2017). Even after the massive earthquake of 2015, the fear of people for living in high rise apartments has already subsided to large extent. “In fact, we’re almost back to how people used to regard apartments in the pre-earthquake days,” says Areena Tuladhar, Marketing Manager at Shangrila Housing Pvt. Ltd” (Abhinav Amatya 2017). As stated by (Mishra, Karmacharya, & Aithal, 2021), due to the acceptable compliance with building standards and bylaws, the

high-rise apartment structures in the Kathmandu Valley are sufficiently safe from earthquake, fire, and other natural calamities.. As stated in the news article (Shrestha S. , 2015), many residents of the apartment have chosen to live in their apartments even after the earthquake of 2015 however, few of them shifted from the place. This points out on the fact that the choice of living in a high rise is completely based on personal preferences.

2.2 Neighborhood

A neighborhood is a place where a person has certain inherent personal and property rights, such as sovereignty over his or her home or company and its near vicinity (Gardiner, 1978). A neighborhood is an area where people live and interact with each other and have their own identity (National Geographic Society, n.d.). Neighborhood is composed with many individual families, restaurants, bookstores, parks and many other features. The residents there may have similar types of incomes, and education level. Neighborhoods can include restaurants, bookstores, and parks (National Geographic Society, n.d.). Neighborhood character is incredibly important to overall perception of neighborhood quality. "Neighborhood is a locality with physical boundaries, social networks, concentrated use of area facilities, and special emotional and symbolic connotations for its inhabitants" (Peruzzi, 2014).

As per a research (Lansing & Marans, 1969), around one-third of the inhabitants of sample communities rated neighborhood on the degree of openness, plenitude, and interest. The lack of spatial confinement in front of neighborhood clusters was termed as openness. The relationship between building heights and street width and setbacks, as well as the amount and size of trees on the street, can all have an impact on the quality of neighborhood (Lansing & Marans, 1969). Also, moving components in a neighborhood, especially people and their activities, are just as significant as stationary physical features (Lynch K. , 1990).

2.3 Placemaking

"Place is a where dimension formed by people's relationship with physical settings, individual and group activities, and meanings" (Najafi & Shariff, 2011). "Placemaking is the process of creating quality places that people want to live, work, play and learn in (Wyckoff, 2014). Lynch asserts that 'place' needs to "speak of the individuals and their

complex society, of their aspirations and their historical tradition, of the natural setting and of the complicated functions and movements of the city world," (Lynch, 1960). Placemaking is rooted in immersive, inclusive design and the experience of the humans who use it (Baskervill, 2018). Placemaking is a process that takes shape through continuous community participation with a location at the core, varying in form and size (Vergeront, 2016).

Since the middle of the 1970s, placemaking has been the subject of extensive interdisciplinary and multifaceted research. The idea of placemaking was influenced by important philosophers who were examining people-place relationships prior to the 1970s. People-place relationships generally referred to how the physical and natural surroundings affected site visitors' behavior (Strydom, Puren, & Drewes, 2018).

"Placemaking is the way that each of us, as human beings, transforms the locations where we find ourselves into places where we dwell. Building and demolishing structures, farming the land and growing gardens, cleaning the kitchen and redecorating the office, creating neighborhoods and mowing lawns, occupying structures, and comprehending cities are all part of it. It is a fundamental human action that can be both dramatic and almost unnoticeable at times. Renovation, upkeep, and representation of the places that support us on a daily basis are all part of placemaking (Schneekloth & Shibley, 2000). It is emphasized that the constructive and contingent force of the word "place," despite the fact that it is frequently employed to designate a place for nostalgia or memories and is thus perceived as a fixed idea. Place is a contentious concept and a contentious concept as a distinct space on the globe. Placemaking, the process of establishing and preserving locations, is an active cultural endeavor that Schneekloth and Shibley (2000) argued allows for a variety of viewpoints and transient meanings that either help or impede daily living. When individuals of various ages, abilities, and socioeconomic backgrounds are able to not only access and enjoy a place but also play a significant role in its development, identity, and upkeep, then we are witnessing true placemaking in action. From various studies, it was found that the term placemaking in itself is a vast terminology which has numerous factors such as urban setting, socio-cultural factor, psychological factor, economic factor and so on.

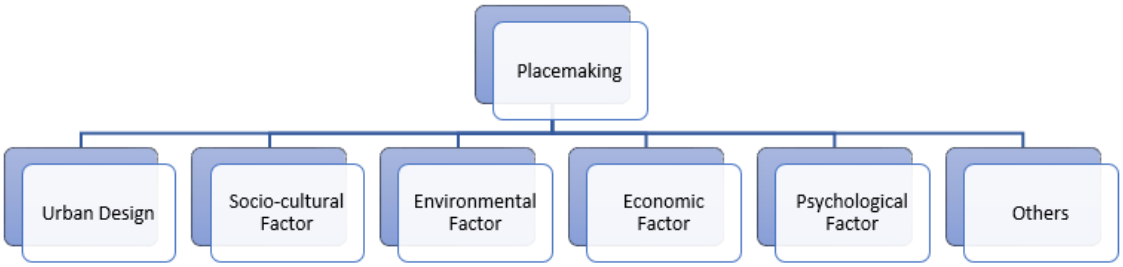

Figure 2-1: Dimensions of place making

2.3.1 Elements of Good Placemaking

2.3.1.1 Access and Linkage

By connecting to its physical and visual surrounds, a site's accessibility can be assessed. A successful location is simple to access and navigate, and it is noticeable from a distance and up close. Additionally crucial are a space's edges: A row of businesses along a street, for instance, is more fascinating and generally safer to pass by than a blank wall or empty lot. Ideally, accessible spaces are close to public transportation and have a high parking turnover rate. (Project for Public Spaces, n.d.).

Figure 2-2: Elements of place making
Source: (Project for Public Spaces, n.d.)

2.3.1.2 Comfort and Image

Safety, cleanliness, and the availability of seating are all considered to be components of comfort. People frequently undervalue the significance of having the freedom to sit wherever they like. (Project for Public Spaces, n.d.).

2.3.1.3 Uses and Activities

The fundamental building elements of beautiful locations are activities. They are the factors that draw people in the first place and keep them coming back. They contribute to a place's uniqueness and specialness. A place will lie vacant and underutilized when there is nothing to do there, which is a strong sign that something needs to change. (Project for Public Spaces, n.d.).

2.3.1.4 Sociability

It is challenging for a location to develop this quality, but once it does, it stands out. People tend to feel a deeper sense of place or commitment to their community and the setting that promotes these types of social activities when they see friends, greet neighbors, and feel at ease talking with strangers. (Project for Public Spaces, n.d.).

2.3.2 Dimensions of Place making

"Placemaking involves the deliberate interventions and actions through which actions, feelings, meanings and fabrics are manipulated and combined to develop a specific identity of place" (Strydom & Puren, 2016) It is a multi-dimensional subject with a spatial, procedural, and psychological dimension. The visual aspect of the place is covered by the spatial dimension. In terms of the physical components of any place, many disciplines contribute to this dimension. The procedural dimension views placemaking as an empowering process that incorporates societal viewpoints, community involvement, and other factors. In a similar vein, psychological dimension is concerned with the mood of those using the space. (Strydom & Puren, 2016). These dimensions of placemaking can further be simplified into other sub- dimensions which are categorized as follows:

2.3.2.1 Urban Design

The term "urban design" is wide and has many different meanings. Utilities, roads, and block arrangement form the overall structure of a city, while urban design is generally seen to deal with physical quality and environmental factors, such as space between buildings and how structures interact with their surroundings.(Kasprisin, 2011). Planning, development, architecture, landscape architecture, engineering, economics, law, and finance are few disciplines involved in urban design (What is Urban Design?, 2015) .

The idea of good urban design encompasses elements like visual

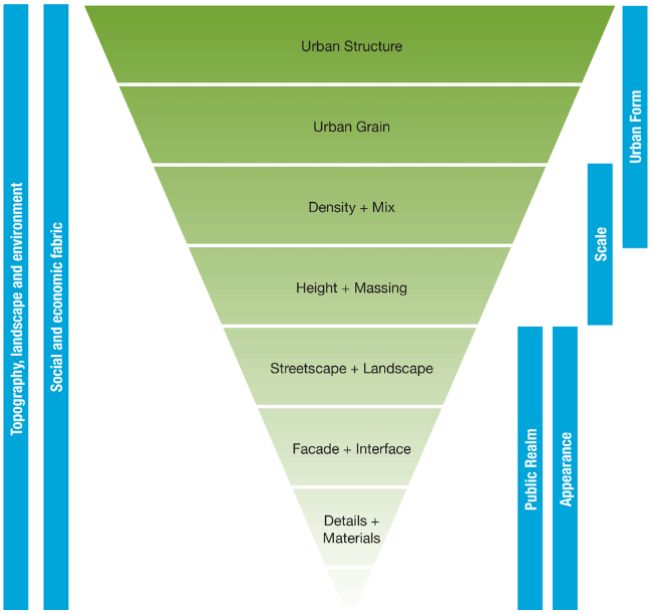

Figure 2-3: Elements of urban design
Source: (What is Urban Design?, 2015)

appeal that enhance quality of life and residents' contentment with a community. Other guidelines for good urban design include designing a high-rise in a way that respects the area's true character, encouraging people to actively use the area, paying attention to people's emotional needs and aspirations, offering users a variety of experiences, inspiring happiness and satisfaction in users, and creating interesting places. (Kodmany, 2013).

2.3.2.1.1 Image of the City

A book written by Kevin Andrew Lynch in 1960 gives the impression of the city. This book, which was written by an American urban planner and author, is one of the most significant ones. This book explores how cities appear, whether it is significant, and whether it can be altered. The book is the product of a five-year investigation on how people use information about a city to create mental maps in Boston, Jersey City, and Los Angeles.

As defined in (Lynch K. A., 1960) an image is "a picture especially in the mind," a sentimental fusion of an objective city image and an individual's subjective ideas. An interaction between the observer and the observed affects how environmental images are produced. The observer chooses, organizes, and, with great adaptation and in the context of his or her own goals, chooses, organizes, and, with great adaptability, gives meaning to what he or she observes. As a result, depending on the viewers' differing points of view, the particular image may be completely different. A two-way process between the observer and the observed affects how environmental images are produced.. The observer chooses, arranges, and equips with remarkable versatility and in consideration of his own goals. According to Lynch, the feasible environmental images needed three characteristics. Identity, structure, and meaning are them.

To set the theoretical groundwork for the entire book, brand-new ideas of legibility and imageability are introduced in the first section. Lynch then used three American cities as examples to illustrate the findings of his field research before drawing analogies between them. The third section summarizes five aspects and their interactions from earlier studies, which serve as the book's main subject matter.

According to Kevin Lynch, a city is built in space, but on a much larger scale, a city is also described with its surrounds and constituent parts. He explains that how a city is perceived by its inhabitants is crucial, and that a viewer's mental image of a city is how that city seems to them. Lynch came to the notion that people create mental maps of their surroundings

using five fundamental components. They consist of streets, neighborhoods, borders, landmarks, and nodes.

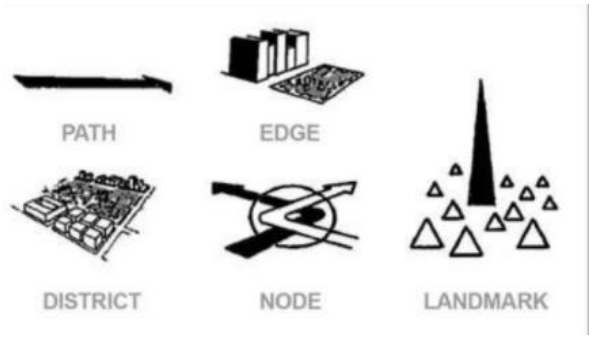

Figure 2-4: Elements of city
Source: (Tanoglu, 2019)

Pathways

Figure 2-5: Pathways
Source: (eyluldenizkarakas,2019)

The channels that the observer frequently, occasionally, or possibly moves along are referred to as paths. While going through the city, people are able to notice how the various environmental components are ordered and connected. (Lynch K. A., 1960). In a real world scenario, no one of the five elements can be isolated in a city. There are many ways in which certain routes can develop into significant features. Major access lines and customary travel will undoubtedly have a significant impact. A path may be given greater significance if it is close to distinctive city landmarks. The overall city image was challenged where important paths lacked distinction or were easily mistaken for one another. Functional necessity is therefore clear. They could be highways, alleyways, railroads, waterways, or transportation routes. They set up the flow of people and objects through space.

Edges

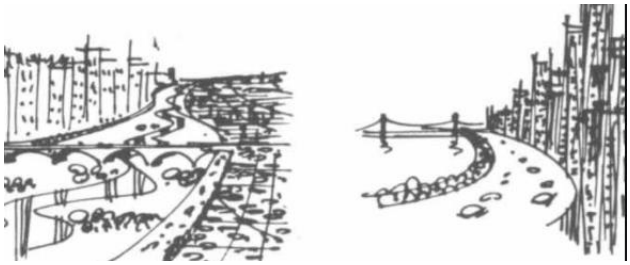

Figure 2-6: Edges
Source: (eyluldenizkarakas,2019)

Edges are the linear components that the observer does not use as paths. They may be perceived or real. Shores, railroad cuts, the margins of development, and walls are examples of the borders and linear breaks in

a community. Rather of being coordinate axes, they are lateral references. Such edges could be more or less permeable barriers that separate one region from another, or they could be seams-lines that connect and connect two separate sections. Although they are not as prevalent as a path, these edge elements are nevertheless for many people ineffective structuring aspects, especially when it comes to keeping together large areas, like the contour of a city by a wall or body of water.

Districts

Districts are the medium-sized to big areas of the city that the observer mentally enters and can identify as having a particular characteristic in common (Lynch K. A., 1960). Districts are substantial urban places that an onlooker can mentally enter. Texture, space, form, detail, symbol, building type, use, activity, population, level of maintenance, geography, and urban fabrics are physical traits that define districts. Districts might have rigid, distinct, and precise boundaries or soft, ambiguous ones that gradually blend into the surroundings. Districts have a propensity to fragment the city in an unorganized way, and edges may increase this tendency. Some districts standalone along their zone, while others are interconnected. In the actual circumstance, none of these components are separate from the others. Districts are comprised of nodes that are connected by edges, pierced by paths, and dotted with landmarks. These components serve as the foundation for the environmental image of a city. To create a pleasing form, they must be patterned together. Such pairs may struggle and demolish one another, or they may strengthen, reverberate, or augment the power of the other (Can, n.d.).

Nodes

Nodes are the focal points of attractions; they are the strategic locations in a city into which an observer may enter and to and from which he is traveling. It gives them multiple viewpoints on the other essential components. The most prosperous node appeared to be both distinctive in some way and to also emphasize some aspect of its surroundings at the same time. The majority of them could be intersections or concentrations. Since junctions are often the point at which

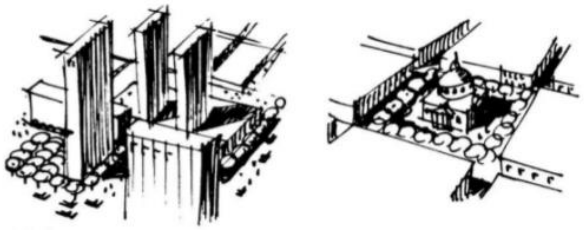

Figure 2-7: Nodes
Source: (eyluldenizkarakas,2019)

pathways converge, or when a journey takes place, the concepts of node and path are related. Since cores are often the intensive focuses of districts, its polarizing center, it is similarly tied to the idea of a district. In any case, nodal points may be seen in practically every image, and in certain instances they might even be the main feature.

Landmarks

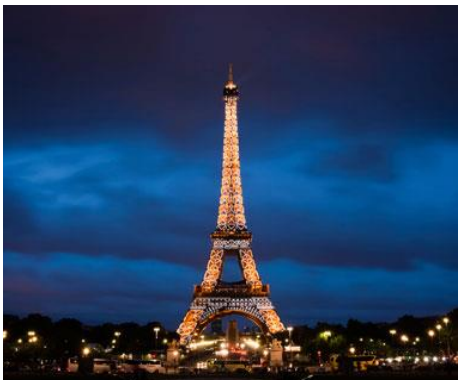

Figure 2-8: Landmark

Another sort of point-reference is a landmark, however in this instance the observer does not penetrate into it; it is external. A landmark is a distinguishable man-made or natural feature that is used for navigation. It stands out from its surroundings and is frequently visible from a great distance. Typically, they are clearly defined physical items like buildings, signs, shops, or mountains. In the context in which they exist, at least one aspect of them is distinctive or memorable.The phrase can also be used to describe more modest buildings or objects that have evolved into regional or societal icons in modern usage. A landscape or urban feature or object that can be clearly seen and identified from a distance, particularly one that helps someone pinpoint their location.

2.3.2.1.2 Concept of imageability

As defined by (Lynch K. A., 1960) the natural or artificial features of environmental elements, what Lynch refers to as imageability determine the built environment's aesthetic quality. A physical thing is more likely to evoke a powerful image in any given viewer because of that feature. It is that shape, color, or arrangement that makes it easier to create clear, strong, well-organized mental pictures of the environment. Cities with high imageability would be well-formed, feature clear routes, and be recognisable. A well-formed city depends heavily on the environment since it helps viewers visualize it. A highly imageable environment would have a good form, a strong identity and would be recognizable to the common dweller. Lynch analyzed the effects of physical and perceptible objects, and from this he was able to isolate distinct features of a city and see what specifically is making it so vibrant and attractive to people. People first construct a

mental map of the city that serves as a mental representation of its contents; this mental image, along with the actual city, comprises a number of distinctive aspects.

2.3.2.1.3 Concept of legibility

As defined by (Lynch K. A., 1960) The ease with which individuals can comprehend a location's layout is considered to be the definition of legibility. People create a mental map of the city's layout to comprehend its layout. This map incorporates individualized mental representations of the city's constraints. It refers to how easily its constituent parts can be identified and arranged into a logical pattern. In the same way that a legible printed page can be visually understood as a related pattern of recognizable symbols, a city would be considered legible if its neighborhoods, landmarks, and pathways are simple to recognize and group into a larger pattern.

According to Lynch, the environment's physical and spatial features, such as color, motion, smell, touch, and sound, all serve as orientation signals that support readability. The identity, structure, and meaning of an environment can all be improved by legibility. Even though the city has a distinct identity and personality, its path structure makes it ambiguous and perplexing.

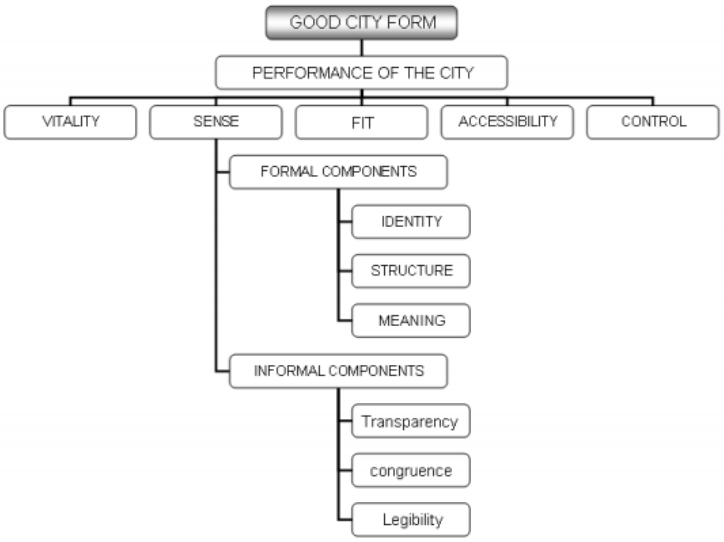

Figure 2-9: Lynch's theory of good city form
Source: (Lynch K. A., 1960)

Lynch's initial focus was on readability, but this soon changed to include the idea of imageability and the ability to recognize city components. The sketch map created by a

local resident is more accurate and readable than the one created by a tourist because familiarity and stereotype conformance improve picture clarity.

As defined by (Lynch K. A., 1960) congruence, transparency, and legibility are informal elements that foster interaction between our surroundings and other aspects of our existence, whilst identity and structure are the formal elements that aid us in seeing and organizing both space and time in them.

2.3.2.1.4 **Mental mapping**

As defined by (Lynch K. A., 1960) the term "mental map" refers to a person's interpretation of the world. The map of one's own known world is referred to as a mental map. By requesting directions to a landmark or other site, you might learn more about people's mental maps. By asking someone to sketch a map of the area or describe it, as well as by asking them to list as many locations as they can in a brief amount of time. The user's mental picture of the city's urban and architectural features, along with their locations, allows him to later direct his movement across the city.

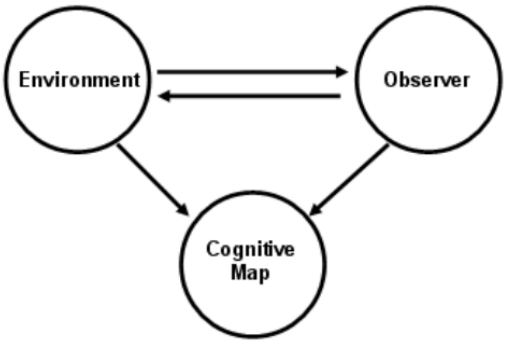

Figure 2-10: The interaction between observer and environment leads to cognitive map

Mental maps can be analyzed in terms of identification, what distinguishes this particular image unique among cities, and structure. How the images are geographically produced, their significance, and any values associated with them that help a person locate themselves. Depending on how they perceive the city, each individual has a unique mental map. An urban setting will often be perceived as:

1. Partial : Not covering the whole city
1. Simplified : omitting a great deal of information
2. Unique : each individual has his/her own
3. Distorted : not necessary has real distance or direction

Public Image

Every person has a distinctive perception of their city, a visual representation that serves as a road map for daily life and maps out meaning. Planners can better characterize the public perception of their city by researching a sample of these photographs.

A "public image" of the city, or how the general public sees the city, is created from images obtained from the public imageability. These are dependent on city aspects, interview photographs, and field research.

The public image of the cities was created in two ways:

- By interviewing several citizens of cities
  - Verbal interview
  - Making a quick sketch map
- By field study on foot by trained observer

2.3.2.1.5 Sense of Place

It's believed that places with a strong sense of place have good place making. The connection between a person and their environment is called sense of place. The concept of "sense" refers to a person's identity and comfort in their surroundings, as well as their cultural beliefs, local knowledge, and social and cultural relationships. (Sattarzadeh & Balilan, 2015). Personal experiences, as well as how people perceive, interpret, and engage with their environment, all help to define a sense of place. (Russ, Peters, Krasny, & Stedman, 2015). The concept has been approached from several angles and defined differently by the fields of phenomenology, anthropology, environmental psychology, architecture, sociology, geography, and urban planning. (Hidalgo & Hernandez, 2001). According to (Shamai, 1991), having a sense of place consists of three phases and seven levels. Belonging to a place is the initial stage, followed by attachment and commitment, which are the final stages. Seven levels includes:-

Table 2-2: showing seven levels of sense of place

Source: (Hashemnezhad, Heidari, & Mohammad , 2013)

1	**Not having any sense of place**	
2	Knowledge of being located in a place	People know that they live in a distinguishable place, can recognize

1	**Not having any sense of place**	
		symbols of the place, do not have any kind of feeling that binds them to this place
3	Belonging to a place	Feeling of belonging to a place
4	Attachment to a place	Emotional attachment to a place at a higher level
5	Identifying with the place goals	Recognize goals of the place, devotion, allegiance, and loyalty towards the place
6	Involvement in the place	Active role in the community because of a commitment to a place
7	Sacrifice for a place	Deepest commitment to a place

The concept of sense of place is both a psychological and physical concept since it encompasses both descriptive and emotive components of environmental encounters (Najafi & Shariff, 2011). It is evident from the literature review that there are two groups of components that contribute to a feeling of place: cognitive and perceptual factors; physical characteristics. (Steele, 1981).

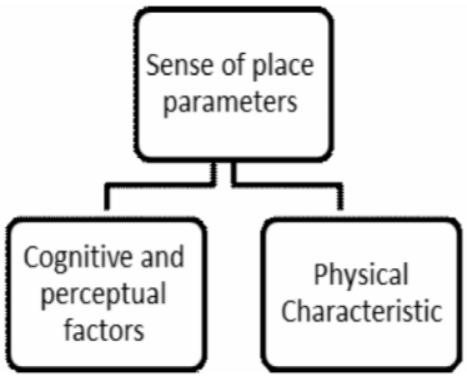

Figure 2-11: Parameters of sense of place

Source: (Hashemnezhad, Heidari, & Mohammad , 2013)

According to cognitive theory, sense of place is an emotional bond between people and their surroundings. Depending on their experiences, motives, intellectual background, and the physical attributes of the surroundings, many persons may develop various senses. (Hashemnezhad, Heidari, & Mohammad , 2013). Cognitive factors include the meanings which people percept from a place (Hashemnezhad, Heidari, & Mohammad , 2013).

Environmental physical qualities have an impact on the meaning that individuals interpret from them. Size, scale, components, diversity, texture, decoration, color, odor, noise, and temperature are some of the physical factors that affect a feeling of place. The way people interact with locations is also influenced by their identity, history, fun, mystery, pleasantness, and wonderfulness, as well as by their security, vitality, and memories. (Hashemnezhad, Heidari, & Mohammad , 2013).

2.3.2.2 Socio-cultural factors

Society and culture have a significant impact on whether tall building construction is accepted or rejected. New tall structures will be welcomed with open arms in civilizations where living in a high rise is the norm. Most people have no problems continuing to live in high-rise structures after being born and reared there. On the other hand, individuals from some traditional communities who have spent their whole lives in low-rise structures could initially find living in high-rises uncomfortable before adjusting to the new way of life. In fact, a high-social rise's community is different from one that is built in a low-rise. (AI-Kodmany & Ali, 2012).

Residential high-rises, in particular, have social consequences. The socio-psychological impacts of living in high-rise flats are a matter of concern for many scholars. While high-rise housing may appeal to singles and couples, it may not appeal to a family with children. Some sociologists believe that tall buildings produce a rat-cage mentality, making people feel claustrophobic. Low-rise living is claimed to bring people closer to nature and promote a more communal social life. As skyscrapers climb higher and higher, tenants lose contact with the city below (AI-Kodmany & Ali, 2012).

2.3.2.3 Environmental factor

The residential environment is an important component of a city's living environment. The complex features of the combined system "man - apartment - building - neighborhood - residential area of the city" characterized in scientific literature as "residential environment". The growth of modern high-rise buildings has a considerable impact on the terrain's climatic conditions and the living environment's environmental balance be it in a positive or a negative manner (Giyasov & Giyasova, 2018).

Tall buildings have a negative impact on the microclimate due to wind funnels and turbulence around them at their base, leading pedestrians to be impacted. Tall structures also create big shadows, obstructing sunlight and harming surrounding properties. When towers' heating, cooling, and ventilation systems fail to integrate energy efficient design solutions, they harm the environment. Tall buildings, on the other hand, may have potential environmental benefits, such as ample access to sunshine and wind for solar panels, photovoltaic cells, and wind turbines. Moreover, tall buildings save energy for a city as the people do not need to traveltoo far for business (AI-Kodmany & Ali, 2012).

2.3.2.4 Economic factor

Apartments have an impact on both the national and local economies long after they are built. The first and most obvious factor is construction spending, and numerous studies have calculated how many jobs development supports. A much more complete picture of economic viability can be obtained by accounting for resident spending as well as ongoing operations' financial contribution. (Popovec, 2013). Tall buildings have a variety of effects on property values. Property values in surrounding neighborhoods may suffer as a result of newly produced traffic and crowding in some areas. The contrary could also be true, since the area's growth shows signals of economic prosperity. Because of the concentration of jobs and services, land may be in more demand, resulting in higher property values. Housing in places accessible to livelihood opportunities and services is becoming increasingly costly for certain sections of the population due to rising property prices in cities (AI-Kodmany & Ali, 2012).

2.3.2.5 Psychological factor

Residents of high-rise apartment complexes have long been connected with poor mental health. Psychological issues and social isolation were mentioned frequently in the literature as areas of difficulties for apartment dwellers, with socioeconomic circumstances and building design playing a role. The social isolation is experienced and expressed consistently across all age groups. Despite the fact that there are various reasons that lead to social isolation in high rise apartment living, social isolation has been proved to be an essential element in high rise inhabitants' mental health concerns. In high rise apartments, it may be more difficult to build a community because it feels as though one is living with a large number of strangers (Larcombe, Van, Logan, Prescott, & Horwitz, 2019).

2.4 Place Making On High Rises

As per (Elena, AH, & Yuri, 2016), the harmony between the design styles and materials are barely found in between the high rises. "Observation reveals that the rapid and haphazard growth of the new urban areas of the valley, including its residential neighborhoods, no longer exhibit urban design qualities of the traditional towns" (Chitrakar, 2020). The buildings has a potential to create an urban landmark and act as a focal point if proper urban design principles are followed and implicated. A literature review reveals that research on the role of tall buildings in placemaking is lacking. Placemaking literature often focuses on public spaces and plazas but not on tall buildings. However, there are significant volume of theoretical research on placemaking. The book by Whyte, "The Social Life of Small Urban Spaces" (1980) have explained the question on placemaking that why some public spaces are successful while others are not. Similarly, another book by Edward Relph, "Place and Placelessness," explains the concept of a place as "directly experienced phenomena of the lived-world and hence is full with meanings, with real objects, and with ongoing activities." Such theories on placemaking however helps to conceptualize the framework of placemaking with tall buildings (Kodmany, 2013). The dimensions of placemaking includes physical and non-physical aspects. Physical dimension in placemaking deals with the visual structure of space. As stated by Lynch (1960) in his book, "The Image of City", the synchronization of five elements path, district, nodes, landmarks and edges create the sound visual order in any place. And non-physical dimension deals with the psychological, social and cultural dimension of the place.

According to (Kodmany, 2013), tall buildings support a sense of place and improve the imageability of cities by producing legible and memorable environments. They can help in the creation of better pedestrains and motorists that can further help in the process of mental mapping. Also, tall buildings that effectively respond to the human scale i.e. tower base, tower articulation, and overall architectural and site planning design can successfully contribute to the place making.

Different nations have formulated their guidelines that can be a base map for the designers, planners and architects to design the high rise residential buildings. As proposed by the Government of Ottawa, there should be sufficient size to establish a gradual height transition on site by generally following an angular plane, typically 45° (Ottawa, n.d.).

Similarly, the town of Milton (2018) have suggested to divide the high rise buildings into three components i.e. podium, tower and building top. Many other nations around the world have proposed their guideline that would help to create a beautiful and livable environment around high rise residences. Below are few things that needs to be taken care off while design a high rise residences.

2.4.1.1 Scale

For users to feel comfortable and for the built environment to evoke a feeling of place, human scale must be taken into consideration throughout design. Tall buildings automatically contradict human size since they are built on a grand scale. (Beedle et al., 2007). Creating a feeling of location in large cities with high rise structures is difficult. They are likely to display "giantism," as described by Jacobs and Appleyard. (Jacobs and Appleyard, 2007). Massive tall building developments make people feel insignificant, tiny, and out of place. However, there are ways to lessen the oppressive vertical scale by using the right perceptual cues, such as the design of the tower base, shaft, landscaping, atriums, plazas, and sculptures.

2.4.1.1.1 The tower base

Tall building bases architectural plan, decoration, and design must consider human scale (Alexander et al., 1987). For this, architects have offered a variety of design strategies. Paul Rudolph proposed that the first 30 m (98 ft) of every tall building should react to human scale and have intricate architectural treatments that may be understood by onlookers at street level (Alba, 2003). Ludwig Mies van der Rohe advised using transparency as a more straightforward visual treatment that enables the visitor to peer through the base. The ground floors' outside walls can be set back and the ground level can be fronted with floor to ceiling windows to accomplish this.

2.4.1.1.2 Tower articulation

Articulation is a technique for designing the joints in the formal architectural design elements in both art and architecture (Wikipedia, 2021). The distinct elements of the building are highlighted by the articulated design. The different components of a building's visual aspect are enhanced by articulation. Most of the time, the articulation expresses a

balance between the two, however occasionally the effect entirely obscures the feeling of the whole by dissecting it into too many bits (Wikipedia, 2021). A tower's design articulation may help to decrease its influence on human scale.

2.4.1.2 Building Height to street proportion

The term "proportion" refers to the relationship between the vertical scale created by tall buildings and the horizontal plane, such as nearby land, a road, or a body of water. Imageability necessitates a specific ratio, such as the building's height to width ratio. When this ratio is too low, the street appears overly broad and loses some of its attractiveness. If the ratio is too high, the road would appear extremely small and the path will feel cramped and canyon-like (Kodmany, 2013).

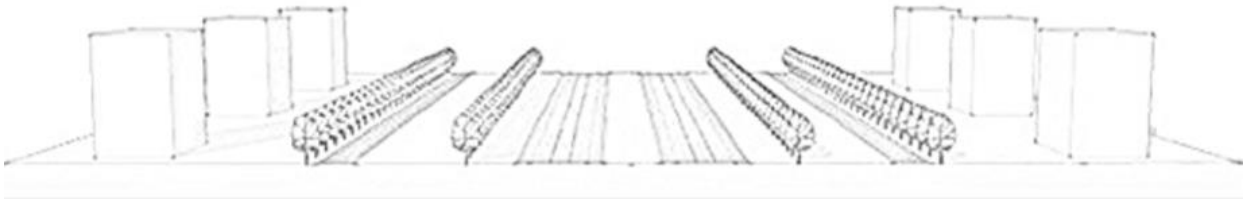

Figure 2-12: small building height to street ratio with no sense of enclosure

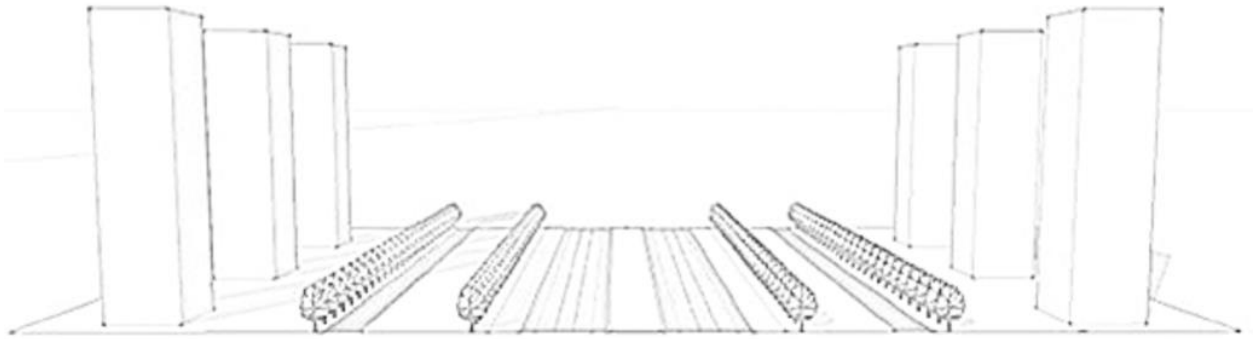

Figure 2-13: Appropriate building height to street ratio with sense of enclosure

Source: (Kodmany, 2013)

2.4.1.3 Spacing

The construction of tall structures should follow a course and be planned and balanced. The imageability will most likely be hampered and disorder and instability will be represented by a dispersed row of tall buildings along a path.

A minimum distance between tall buildings should be maintained to enable appropriate light, air, access, and view for upper-floor residential units. A minimum distance of 25 meters (80 feet) is required by several city design laws. However, when heights rise, the needed distance should increase. Round and curved tall buildings, as well as diagonal configurations, may help to reduce the problem of closeness in dense arrangements (Al-Kodmany, 2012). The inappropriate spacing between the buildings creates the visual chaos along with the safety issues for the residents of neighborhood. The well-spaced buildings creates the visual harmony and helps to create a good sense of place.

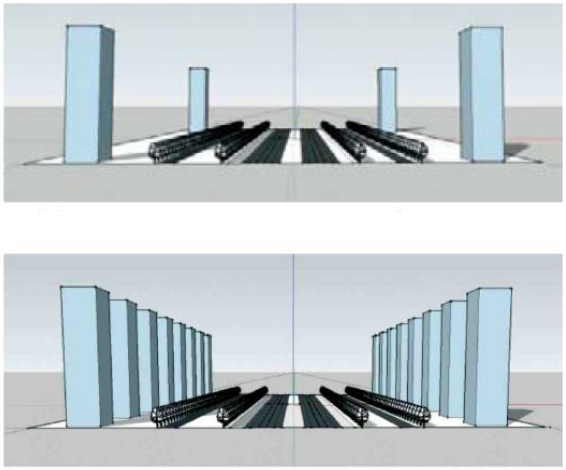

Figure 2-14: Inappropriate and appropriate building spacing respectively

Source: (Kodmany, 2013)

2.4.1.4 Coherence

As described by N. Salingaros, geometrical coherence is an observable characteristic that unites the city via shape and is a necessary condition for the vitality of urban fabric in his book "Principles of urban structures." He believed that cohesive cities have a lot of vitality. (Salingaros, 2005).

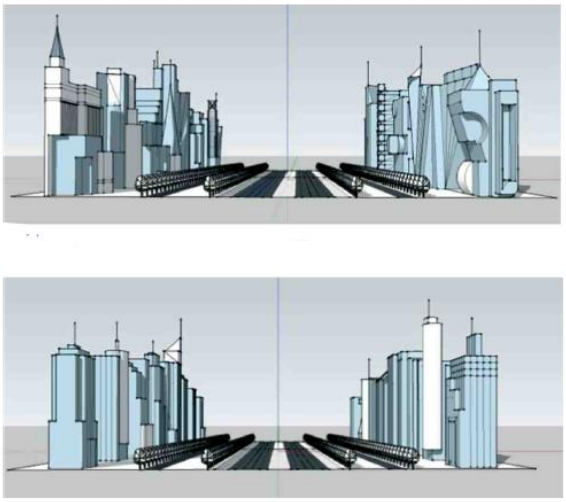

Figure 2-15: Coherence in buildings

Source: (Kodmany, 2013)

To provide a seamless integration, the architectural style, design, and facade treatment should all be taken into account. Although design diversity is encouraged, the path's overall imageries should convey a consistent, distinct, and lasting impression. Adjacent structures in a group should merge into one another to strengthen visual uniformity and continuity. This also holds true when new buildings are constructed in a district or neighborhood next to older ones.

2.4.1.5 Alignment

Recessing buildings in a haphazard manner will impair from a path's imageability. To preserve visual continuity of the path, the relationship between visual exposure and street enclosure should be balanced and aligned.

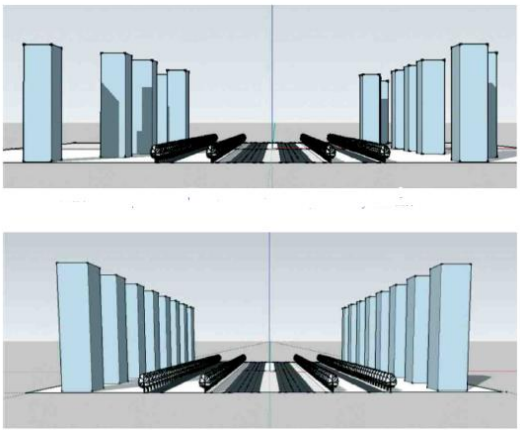

Figure 2-16: Alignment in buildings

Source: (Kodmany, 2013)

2.4.1.6 Rhythm

Architecture's repeating forms, components, and spaces are arranged according to a particular rhythm. When elements are repeated, the spaces between them produce a sense of rhythm. Patterns, elements, or motifs at irregular or regular intervals are what give architecture its rhythm. Our body may move through a series of places as we travel through them with our bodies, or our eyes may move as we follow parts in a composition. Architecture's repetition of shapes, components, and space is organized into a rhythm.

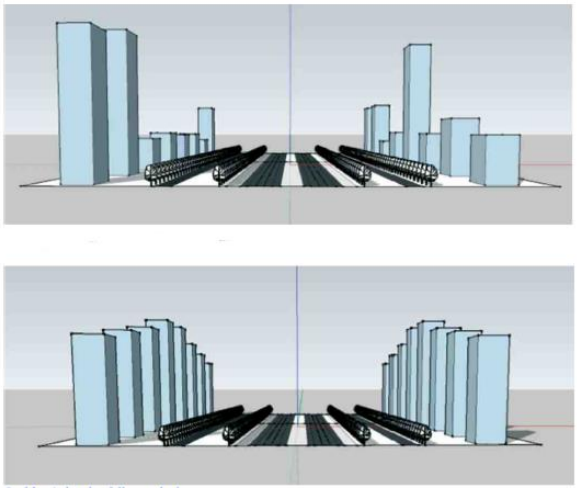

Figure 2-17: Iappropriate and appropriate rhythm of buildings respectively

Source: (Kodmany, 2013)

The rhythm of the buildings should be taken into account in the context of high rise dwellings. Building height variations along a walkway need to be carefully considered. While abrupt height changes can give the impression of being out of sync, gradual changes are more likely to preserve consistency.

2.4.1.7 Streetscape

Tall structures should be put in a planned and balanced way along a path. A dispersed grouping of towering buildings along a path will likely reduce visual appeal and could depict chaos and disorder (Kodmany, 2013). The streets are one of the most significant components of the public realm. They house a sizable amount of the lives of the residents and make up around 80% of the public open space in metropolitan regions.

2.4.1.8 Overall architecture and site planning

The design of building and the site it is standing in is important factor to be considered. The factors like scale, proportion, ratio of mass to void etc. should be carefully examined for the design of any building. The architectural elevation should be harmonious with certain degree of unity. Unity makes the different elements and components of the elevation seem to be one, a whole instead of parts. Unity can be achieved through repetition of an element throughout the elevation or by continuity of a line literally or visually, or maybe the continuity of a pattern, forming a sort of a grid and so on.

2.5 Study Area

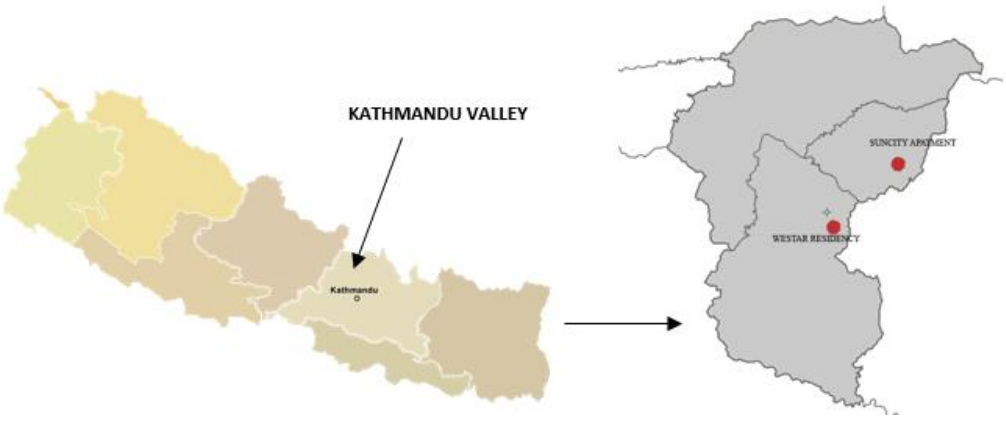

Figure 2-18: Location map of site

Balkumari and Pepsicola are experiencing rapid growth in population density each year as more and more houses are being constructed. With the increase in population density, Kathmandu valley is slowly experiencing change in its urban form resulting more of a town planning areas and apartments. Westar residency is located at Balkumari, Lalitpur which is 1.5 km away from energetic city of Patan. i.e. Patan Durbar Square. The residency consists of more than 70% of the entire property dedicated to open skies, lush landscaping, water bodies, a playground, a jogging track, an open-air theater, and top-notch amenities.

Pepsicola on other hand is closely connected to Sano Thimi and Bhaktapur which are historical and culturally rich cities. It also lies in the junction of three major districts of valley namely Kathmandu, Bhaktapur and Lalitpur (Shrestha & Uprety, 2019). This newly built settlement is close to the old Newari settlements like Thimi and Bode "Replacing the agricultural land of these traditional settlements, now this place is valued for its serene environment as well as a preferred neighborhood" (Shrestha & Uprety, 2019). Sun City is an apartment township located at Pepsicola that is the first and the largest of its kind in the country with around 500 apartments in 5 towers. The research aims to look into the immediate neighborhood of these apartment so as to understand in what ways these high rise residences contribute in the sense of place of neighborhood.

Figure 2-19: Area of study (Westar residency (left), Sun-city apartment (right))

2.6 Case Studies

The construction of a building in any site causes the site to change in different ways. The construction of any building not just affects the visual dimension of the place but rather on numerous other aspects. A good design should be able to address all these aspects into its design. Below are few study of cases that have been an outstanding example for addressing placemaking through its design approaches.

2.6.1 Linked Hybrid, Beijing

Figure 2-20: Linked Hybrid, Beijing

Source: (AI-Kodmany & Ali, 2012)

The Linked Hybrid is a solution to housing shortage for Beijing, China, through the compact housing alternative. Near Beijing's historic city wall lies the 220,000 m^2 pedestrian friendly Linked Hybrid development. It is a complex made up of eight 60 m (197 ft) tall asymmetrical buildings and a 35 m (115 ft) tall hotel that are connected at their top levels by a network of bridges and was designed by Steven Holl Architects and opened in 2009. It has numerous apartments, businesses, a hotel, a movie theater, a kindergarten, and unde rground parking. The goal of the Linked Hybrid design was to actively promote a social life that was "sustainable" and a sense of community. This is a benefit because high-rise living is frequently criticized for encouraging a sense of loneliness. This social life is encouraged by the complex's spatial structure, which creates strong connections between its component components and attracts inhabitants of nearby areas to take advantage of its advantages. Towers are arranged in a circle around a central courtyard and connected by enclosed skybridges or "streets in the air." In his Unite d'habitation earlier, Le Corbusier suggested "streets in the air" (but did not link the buildings together until his Algiers mega-structure project). Of fact, the latter schemes failed because the designers and planners did not adequately take into account the demands and way of life of the locals (Ali & Kodmany, 2012).

The Linked Hybrid facilitates interactions and encounters in public areas that include places for commerce, residence, education, and entertainment. The courtyard's beautiful landscaping enhances civic and communal life. The complex is also distinguished by a porous layout, in which the courtyard inside is fluidly connected to the outside world through spaces between buildings. Numerous open corridors on the bottom level encourage people to stroll through the courtyard. On the upper levels of the lower buildings are public roof gardens that are open to the public. Private gardens that are connected to the penthouses are located at the top of the towers. The many areas of the complex are connected by the multi-layered circulation design on the ground and on the upper floors (AI-Kodmany & Ali, 2012).

Figure 2-21: Public space in Linked Hybrid

Source: (ArchDaily, 2009)

The Linked Hybrid is intended to be an "open city within a city" as a result of the design. This "city within a city" promises integrated areas that support the daily lives of over 2,500

residents, in contrast to Beijing's present development style of "object buildings" and freestanding towers. By using three-dimensional urban design, or urban design in the sky, it has pushed the envelope. Le Corbusier had previously proposed the idea of "streets in the air," and it had been used in a number of residential buildings, such as the less unit's project. However, in that plan, vertical streets were concealed and primarily intended to divide traffic between vehicles and pedestrians. Steven Holl, on the other hand, exposed the upper-floor streets and transformed them into sculptural, exterior bridges that clearly link the buildings from end to end. In addition to serving as a safety factor during an emergency evacuation, skybridges produce a distinctive aesthetic and a novel pattern of tall skyscraper clustering (AI-Kodmany & Ali, 2012).

2.6.2 Lippo Centre, Hongkong

Figure 2-22: Lippo Centre

Source: (Wikiarquitectura, n.d.)

Paul Rudolph, an American architect who at the time served as a design consultant for Wong & Ouyang, created the octagonal buildings, which are covered in a dark blue refractive glass curtain wall (Wikipedia, 2022). Working often in Hong Kong allowed Rudolph to "make decisive comments on the effects and affects of architecture and urbanism, created on a scale. Despite the fact that the majority of his plans were never realized, his designs from this time period show his "lifelong quest of scale in high-rise buildings (Salzano, 2018).

The twin tower skyscraper complex named Lippo Centre, formerly known as the Bond Centre, was finished in 1988 and is located at Hong Kong Island. Tower I of Lippo centre is 172 meters (564.3 feet) tall and has 44 storeys. Tower II is 186 meters (610.2 feet) tall and has 48 storeys (Wikipedia, 2022). Through aesthetic diversity and richness, the twin tower's base is designed to respect human scale. A complex network of bridges and mezzanines make up the building's base, which connects to the city by elevated walkways. Rudolph made a comparison between the exposed columns of that base, which were raised to various heights, and the hydraulic pumps used to lift the structure (Wikiarquitectura, n.d.). The Lippo Centre, has a building that opens directly into the street, allowing passersby or drivers to see right into the center of the building. The podium can be viewed as a type of urban exchange where traffic from streets, bridges, subway stations, and towers crosses and realigns vertically and horizontally. The towers are covered in dark blue and bright reflective glass, which is an obvious sign that Rudolph was willing to integrate his buildings within the local context. Rudolph typically avoids using bright colors or other details that would obscure the structural elements of buildings, such as gridlines and plants, in his works (Wikiarquitectura, n.d.).

Figure 2-23: Base of Lippo centre

Source: (Salzano, 2018)

As stated by Rudolph (1988), "The aesthetic intent is to give the building 'presence' when seen at a great distance, from the middle distance, and from close distance, and from close hand. At the same time, it is intended that the building inhabit the sky, and become dematerialized by reflecting the ever changing light." The statement can be clearly seen accomplished through his design of Lippo centre.

CHAPTER 3. RESEARCH METHODOLOGY

The research comes under the probabilistic sampling where the population was divided into multiple groups (clusters) for research. The sample taken was based on the cluster sampling where samples with maximum influence of building was taken for the survey. The sampling basically focused on the immediate neighborhood of the apartment where the sample distance can vary from 0-200 m from the nearest building of the apartment. The residents living at the immediate neighborhood of the apartment building were taken as the sample for the questionnaire survey. However, for interview, sample population using the place for significant number of years was taken along with the experts on the related field.

Sample size calculation

Maximum margin of error (€) = 10%

Confidence level= 90%

So,

z= 1.645

The number of residences around the selected apartments are roughly 65 numbers.

So,

$$n = \frac{Nz^2P(1-P)}{(N-1)*e^2 + z^2*P(1-P)}$$

Therefore,

n= 32

30 samples were taken for the questionnaire survey i.e. 14 from neighborhood of Westar residency and 16 from neighborhood of Sun-City apartment and 5 residents of surrounding neighborhood of apartment were taken for the interview. Also interview among three architects was taken so as to verify the analysis based on the observation of the site area. Design approaches for creating better living environment were also discussed among them.

First of all, a literature review was done to find out the variables for the questionnaire which comprises research questions. Secondly, detail information regarding the targeted apartment i.e. its demographic data, history, design approaches and its settlement study was

done. The analysis was based on the various grounds of information regarding demographics, urban infrastructures, social structure and activities, and their interaction within the community. The demographics question included respondents' age, gender, location, ethnicity, religion, employment, family type, household size, and household income. The questionnaire regarding the urban setting of the place including access to the open spaces in the building, overall visual satisfaction and so on were also asked. Both the open and close ended questionnaire survey was conducted so as to understand how their life is being affected by the high rise. The research questions basically focused upon the satisfaction towards the high rise and the impact caused by it.

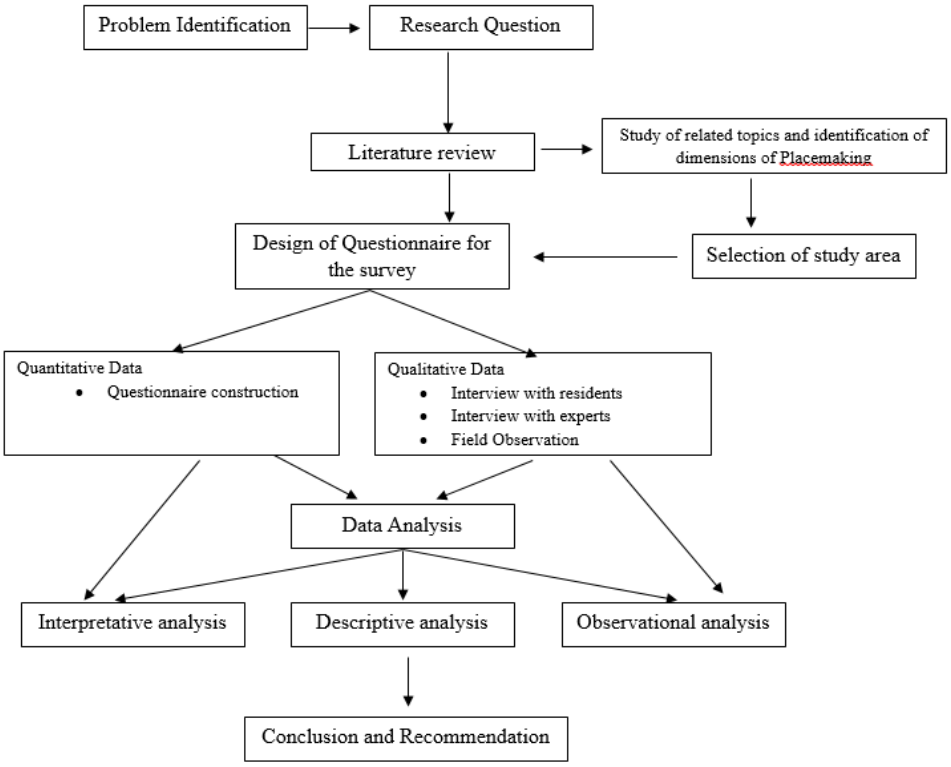

Figure 3-1: Research Methodology

The analysis of the obtained data was done based on the ground of the research questionnaire. Similarly, Descriptive analysis was done for the unstructured text, audio, video, and image data from the interview. The relationship between various variables and codes defining the impact on neighborhood was recognized which further was helpful to withdraw the proper conclusion. Below are the data collected from the survey of the site area:

Social, Economic and Demographic character of respondents

The larger group of people involved in the responses were under the age group of 20-40 i.e. 56.67% and smallest being the age group of above 60 i.e. 3.34%. 17 male and 13 females were involved in the survey.

The respondents who were involved in the survey had different occupational background. 24% of people were involved in services. 50% of them were either retired or housewife and students. Only 3% of respondents were involved in government sectors.

Only 20% of people have tendency to visit the apartment only after permission of the residents of the apartment while others do not visit the apartment site unless there is some special purpose. 67% of surveyed people are not satisfied with the available setback and rest 33% are satisfied. The satisfaction of people towards setback highly depended upon which side of the apartment they are living in. The buildings on southern side of apartments do not have much problem with the setback however, the houses that has been highly affected by the tall building standing nearby complaint about the lack of proper setback.

When surveyed, it was found that all of the surveyed buildings has been designed by either engineer or architects yet the major design consideration was found to be just the strength and function of building rather than aesthetic and consideration towards surrounding.

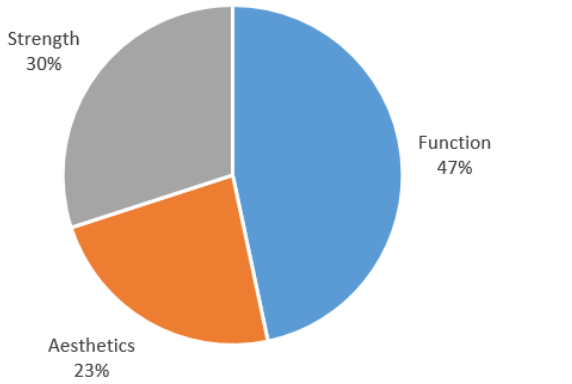

Figure 3-2: showing design consideration (right)

When people were asked if they would prefer the shared communal spaces with residents of high rise, 80% of people responded that they would prefer it.

CHAPTER 4. ANALYSIS AND DISCUSSION

4.1 Urban Setting

4.1.1 Site and Infrastructure

Figure 4-1: Site plan

The design of building and the site it is standing in is important factor to be considered. The overall layout of both the apartment buildings were analyzed so as to confirm if these buildings are in compliance with the national bye-laws. Furthermore, the satisfaction of residents living around each of these apartments was measured through the questionnaire survey.

Westar Residency

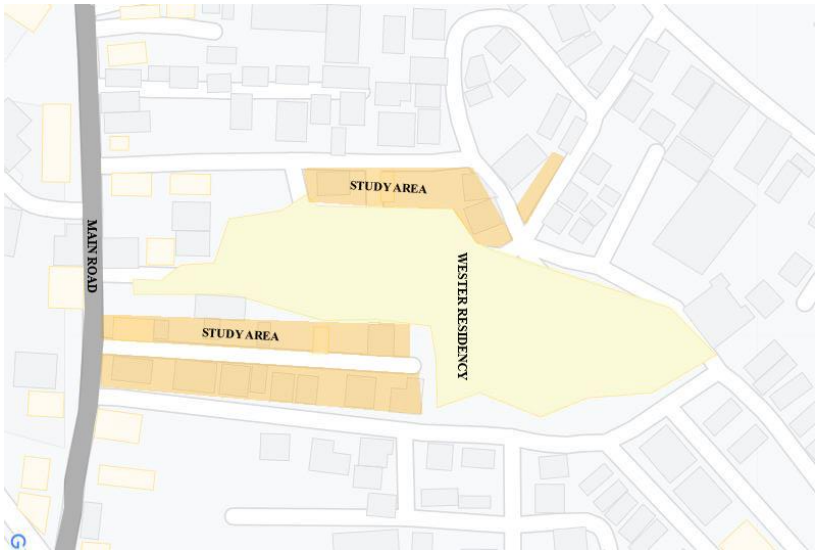

Figure 4-2: Site plan of Westar residency

An open ended question was formulated to understand what changes occurred as a result of the construction of high-rise apartments. One of the major complaints made by the residents were the drying up of underground water sources. As stated by Nirmala Poudel, aged 65,

"I have been living in this place ever since the high rise was not constructed. Before the construction, the site area was used as an agricultural land the part of which I used to grow the vegetables and grains. Before the construction of apartment, we used to use the underground water for our livelihood, but once the apartment was built, they also dug the boring hole for their usage and the result of which our sources dried up. We are these days buying water for our livelihood."

Another respondent YP Pandey however mentioned,

"We were facilitated by the water from boring by the apartment until few years back. But ever since they started having lack in sufficient water, they cut off the privilege for us."

As per the national building bye law 2064, there should be minimum setback of 6m on front side of high rise and 4m on the side and rear side of the building inside the ring road area. The Westar residency has set the setback of 4 m on side and 6 m on frontal part of the site. While looking closely into the building coverage it was found that buildings have occupied approx. 30% of the site area. Out of the rest site area, 20% of the space is covered by hard landscape that are used for parking purpose and 50% of site has been provided with mixed hard and soft landscape. The bye laws of our nation allows 50% of the site to be covered with built up. The apartment seem to have followed the designated bye-laws of the nation however, when residents of the neighborhood were asked if they are satisfied with the setback provided majority were not satisfied with the available setback. The respondents who reported that they are moderately satisfied with the available setbacks were the ones who do not like to have interaction with their neighbor by any means. The result shows that there ought to be some modification on existing bye-laws that would not just cater the people living in apartment but also the people living next to it.

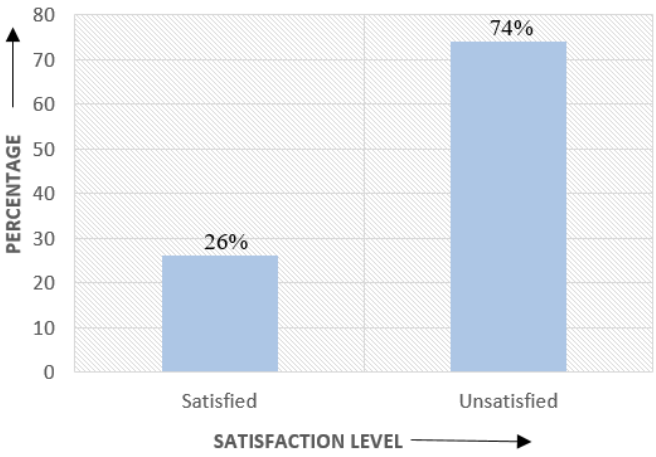

Figure 4-3: Satisfaction towards setback of Westar residency

Sun-City Apartment

The site was used as an agricultural land before the construction of the apartment. The site consists of 5 tower blocks with total ground coverage of approx. 20%. Out of rest of the spaces 16% of land has been provided for the parking space and rest of the site area has been provided with a soft and hard landscape.

Figure 4-4: Master plan of Sun-city apartment

In contrast to Westar residency, when people were asked if they are satisfied with the available setback, most of them replied that they are somehow satisfied with the setback. The reason behind their satisfaction is analyzed to be associated with the layout of buildings and the way they are placed within the site. The buildings has been placed in such a way that it carves out maximum open space within the site area.

Figure 4-5: Satisfaction towards setback of Sun-City apartment

4.1.2 Enclosure

The research looked into the periphery of the high rise apartments. Enclosure in the research basically pointed towards the enclosure of the site area which was mainly found to be the low rise residences and streets.

Westar Residency

Figure 4-6: Enclosure of Westar residency

All four sides of the apartment has been provided with set back where patches of greenery has been provided. The residency have set its enclosure through the boundary walls on all the sides. As per the survey, people from the neighborhood are not allowed to go inside the confined area except for the special cases. As compared to traditional residential planning layout where communal space is directly connected with the street and shared private spaces, the apartment itself along with the neighborhood buildings are seem to have confirmed its periphery with boundary walls. They do not share any common spaces as the result of which people lack the communal spaces. The apartment buildings has been enclosed by the low rise buildings of its surrounding. The transition of vertical height from these low rise residential buildings to Westar residency are very high. The site is around 70 m inside the main road as a result of which there is no perceived sense of claustrophobia in the main road of the selected apartment. However, on the supporting streets, there is perceived sense of claustrophobia due to the large vertical scale transition of building. As per the survey, around 70% of people living around Westar residency have the sense of claustrophobia living around the high rise. When observing the apartment from all the four sides, it was analyzed that although the set back of the apartment is provided in compliance to our national bye-laws, the low rise residences on its periphery is getting affected due to its scale such as formation of very narrow streets and impacts such as lack of proper sunlight, blockage of vision and so on. The interview suggested that the guidelines shall be set for the design of high rise that not just priorities the high rise residences itself but rather the buildings next to it. As stated by Ar. Subik Shrestha,

"We need to look into the impacts of high rise residences into its immediate neighborhood and adopt proper design strategies for its reduction. Having said this it is our responsibility

to not just over look to one individual problem but rather create a solution that can serve all the parties involved in high rise residences be it the residents, the neighbors or the investors".

Sun-City Apartment

Sun-city apartment is closed to its own boundary similar to that of Westar residency. However, in contrast to Westar residency where all three sides of the apartment was surrounded by the low rise residences, the Sun-City is surrounded by few institutional buildings leaving low rise residences on only side of the apartment. This is why 8 residents responded that they do not have sense of claustrophobia while living near the high rise. However, rest 8 responded that they feel uneasy due to the presence of the apartment. The setback of 8 m and 10 m has been provided on the periphery of the apartment which is more than that of Westar residency and bye-laws itself. However, leaving setback more seem to have affected the psychology of people in a positive way.

Figure 4-7: Enclosure of apartment

Figure 4-8: Perceived sense of claustrophobia

4.1.3 Coherence

Coherence holds things together. It resists separation. The selected site areas have been evaluated to understand how well the surrounding buildings merge with the high rise residences standing nearby. The evaluation have been made in terms of building design, materials and approaches of design.

Westar Residency

"It is essential that all elevations and their façade treatments are considered and designed as an integral part of the overall apartment building". The overall design of high rise i.e. Westar residency is simple where voids are created through the use of windows, louvers and other architectural design. The apartment and its neighborhood although lies approximately 1.5 km away from the heritage site i.e. Patan Durbar Square yet do not resemble the traditional architectural style of the area. The apartment itself is 50 m high with window to wall ratio of approx. 0.4 which is considered fair enough as per the study done by (Alkhresheh, 2012). Few design elements has been integrated that also act as a sun shading device. While looking into the architecture feature of the buildings in its surrounding, most of the buildings have a regular geometric shape and are mostly 2 to 3 storey high. The ratio of opening to wall in the surrounding buildings is approximately 0.4. These openings seem to be placed entirely for functional purpose rather than any aesthetical purpose. Both the apartment and the surrounding buildings resembles similar kind of opening ratio and typology. The integrity of materials used can be seen in between the apartment building and its surrounding buildings. The materials used for construction are basically cement, bricks and RCC. Similarly, the surrounding buildings does not seem too use any one definite architectural style but rather the building plans and façade are purely guided by the functional purpose. The design of these buildings does not seem to be influenced by the design of apartment itself. The survey showed that all 100% of buildings has been planned by engineers or architects however, when people were asked regarding their major consideration while designing their house; their major focus was function and strength of building rather than its surrounding. The design of each individual is completely guided by the need of people rather than need of the urban space. The size of openings in high rise are intermediate due to which they are complementing the surrounding buildings. The maximum built up has been achieved through the continuous stack of the floor. The building neither seem to have created the landmark nor have addressed its background to form a better skyline.

Sun-City apartment

After the field visit and observation of apartment, it won't be much difficult to state that the proportion of human has not been much taken into consideration especially in the design

of base of apartment. Although the set back from the street is in compliance with the bye-laws i.e. 8 m, the building feels to be too bulky and dominating the street next to the main entrance of apartment. Imageability requires a ratio, such as the height to breadth ratio of a skyscraper. When this ratio is too low, the street will feel excessively broad and lose its capacity to create an image. If the ratio is too high, the path will feel cramped and canyon-like and the street will appear to be too narrow.

As the proportion of the building to street was found high, the sense of narrowness could be sensed in the streets nearby. The scale of apartment therefore was dominating the scale of low-rises next to it. Horizontal bands of balconies has been provided so as to minimize the sense of height. Similar to the Westar residency, it is found that no attention has been provided to the surrounding while designing the low rise residences although the design has been done by the architects and engineers. The materials used for construction is RCC. The size of openings are intermediate however, the quantity of openings are more due to which the entire façade looks monotonous.

Figure 4-9: Apartment with respect to its neighboring buildings

4.1.4 Alignment and Rhythm

There is the sudden shift of height in both the selected survey area from low rise to high rise due to which the residents living in the surrounding find the building scale huge. The design of apartment does not incorporate the strategies such as formation of tower base or use of horizontal bands to minimize the effect of vertical scale of building. As stated by a respondent Ram Krishna Basnet,

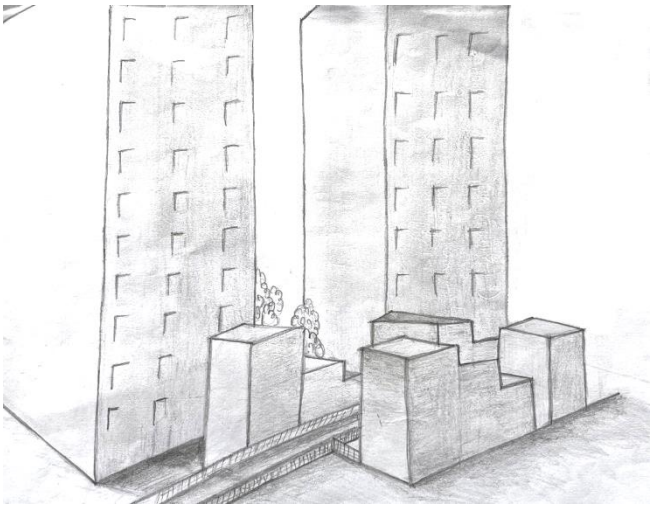

Figure 4-10: Rhythm of buildings

"The building is too close to ours. We therefore feel too small as compared to the building. Also we fear of building falling into us during the earthquake".

The sudden shift of scale of building is affecting its surrounding neighborhood in different ways primarily being blockage of sun and vision.

The blocks of Westar residency has been properly arranged on the linear alignment that is guided by the shape of the site. As the site is oriented towards north to south direction, the façade of all 4 towers are too elongated towards N-S direction. The orientation of buildings is purely guided by the shape of the site area. However, the towers of Sun-City has been placed so as to carve the landscape out of its form of layout. Few people were found to be affected from fear of structures collapsing during earthquake especially after the horrible experience of earthquake 2015. Some people even mentioned that they would be very happy if the building could be reduced to smaller height.

Figure 4-11: Alignment of buildings

4.1.5 Mass and Void

Mass is a matter of presence, and void is absence of it. Mass to void ratio can vary based on the location of the site area. It is generally specified by the government bodies through the FAR and ground area coverage. The integral and overall organization of the mass or void is the definition of form in architecture. The arrangement of voids creates space. Voids are obtained during the formalization of the space by additions to the form or subtraction from the form (Samlioglu & Kuloglu, n.d.).

Westar Residency

The ratio of space to mass in site plan of apartment is 0.3 i.e. 30% of the area is covered by the building footprints. The ratio seems to be in compliance with the national bye-laws. As per the research by Alkhresheh (2012), the most preferred range of void-to-mass ratio in

residential façade is 0.4-0.5. The elevation seem to have fair ratio of void to mass. The ratio of void to mass in the apartments is approx. 0.4 which is considered to be fair enough for the design of façade. The voids has been achieved through the use of windows, louvers and the planning layout of the building itself. The balconies are projected out of surface and the buildings are freely standing producing the unconfined voids. The shape of the plan of apartment is achieved in such a way that the voids formed can guide proper lighting within the units of apartment.

Sun-City Apartment

The ratio of space to mass in site plan of apartment is approx. 0.2 resulting in the ground coverage of 20%. The mass and void therefore, on the site of Sun-city apartment is balanced as the apartments are built in compliance to the bye laws of the country. The buildings layout seem to have been done in such a way that it would carve a proper open spaces where the flow of people can be properly managed. As a continuous flow bridging internal and exterior spaces, the open spaces appear to be carved out of the building mass. The entrance foyer space creates the crucial transition from shared space to semi-public area.

Figure 4-12: Mass and void in elevation

As per the research by Alkhresheh (2012), the most preferred range of void-to-mass ratio in residential façade is 0.4-0.5. The ratio of mass to void in building façade is approx. 0.4.The balconies are projected out of surface and the buildings are freely standing producing the unconfined voids.

4.2 Socio-cultural Factor

When people were asked how often they interact with their neighbors and where, most of their replied,' "wherever we meet be it in street, shop or through the balconies of our houses". Also some of them responded that they meet their neighbors on their workplace rather than their society.

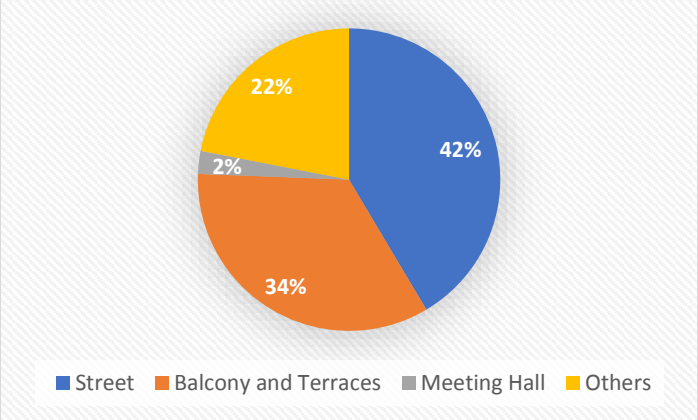

Figure 4-13: Places for social activities

Through the survey, it was clearly evident that there is very minimum interaction of the people living in the low rise neighborhood with those who live on high rise. One of the prime reason for having minimal interaction was found to be the lack of proper spaces for interaction. It was found that the neighbors have interaction among each other from balconies and terrace of their houses or from the street due to lack of place.

Figure 4-14: Interaction through balconies

Social activities such as walking, jogging, etc. are performed within the street and rather than this there are no such interaction among neighbors. Similarly, when people were asked do they interact with the neighbors from apartment, majority answered as NO. When asked what are the causes of not having interaction among those living in high rise, majority pointed out on the difference on class of people living in high rise apartments and not having the common spaces to interact. A question was thrown to them if they would prefer having shared communal space within the apartment site area, majority of which were found to have positive attitude on it. Mr. Girish Giri, a resident of neighborhood of Westar residency stated,

"We are facing major issues due to the construction of high rise at such a close proximity including ground settlement, blockage of sun and wind and many others. It was the sole duty of the committee of apartment to provide us some facilities and open spaces to use as a compensation. But we are completely forbidden to enter to the premises of apartment by any means."

Security surveillance by the randomly dispersed small business or vendors, and the fact of residents peering out their windows forming "eyes on the street", are significant social consideration of the entry in Sun-City apartment.

4.3 Environmental Factor

Low rise residents were asked in what way their life and building has been affected by the high rise buildings the reply of which was majority pointing towards the environmental impact primarily blockage of sun followed by the complaints such as diverted wind direction and lack of vision.

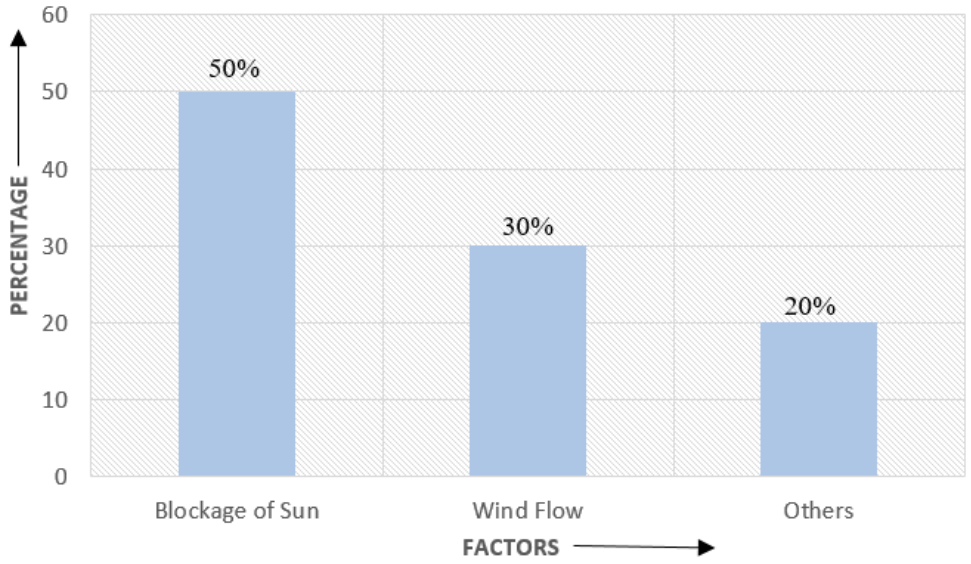

Figure 4-15: Environmental impact

4.4 Economic Factor

Westar Residency

So as to evaluate if the high rise residences have contributed to the economy of the neighborhood, the neighbors from low rise were asked "if the construction of low rise have uplifted their economy anyhow?" YP Pandey, a long term resident of the place stated that, *"I have been living in this place ever since the high rise was being constructed. I am a job holder and need to go to office for my day to day living. The shops around are bit expensive as compared to the ones bit away from the apartment. I believe the prime cause of it to be the acceptance on the price hike by the residents of high rise. This is what is creating some problems in maintaining our economy".*

Apart from this, most residents responded that their economy has not been impacted by the construction of high rise nearby.

Sun-City Apartment

The respondant, "Dayaram Bhattarai", was found to be very happy with having the apartment nearby as it increased their scope of business. According to him, *"I have targeted the residents of apartment to open my own jewelry shop. I am quite happy with the apartment. It not just supports my business but I can also have interaction with many people".*

Similarly, another respondent "Sangita Giri" mentioned, *"My neighbor of the apartment has a child similar to my child's age. They talk to each other quite often from the terrace of my home and balcony of apartment. I too talk to my neighbors from my terrace. We have good relation with eachother".* Such statements also shows that the construction of high rises is contributing on place making and formation of livable community.

4.5 Psychological Factor

Westar Residency

When people were asked how safe do they feel living around the high rise, majority of people in a way or other feel unsafe. So as to determine what are the factors that make people feel unsafe, other questions were formulated. Regarding the street safety, all of the respondents replied that they feel safe walking in the main road. The cause of it was mentioned to be the sufficient street width. Also, they have no fear regarding the invasion of outsiders as they mentioned that people living in high rise do not spend much time in their units and if they do, they do not have much to do with their low rise neighbors. Almost all of the respondents mentioned their fear towards the earthquake and the possibility of high rise building falling over them. The survey indicated towards the fact that most residents have adapted to their surroundings. As they have been living at close proximity to high rise since long period of time, they do not have major psychological issues with the high rise. However, the dominating structure of high rise is contributing to the perceived sense of claustrophobia among the people. As per the survey, around 70% of people have the sense of claustrophobia living around the high rise. While looking closely on the type

of people who do not have perceived sense of claustrophobia, it was found that either the building is not directly affected by the apartment or else the people living in the building do not have tendency to interact to his/her surrounding neighbors. 17% of the surveyed people responded that they do not have much interaction with their neighbors.

Sun-City Apartment

While asking the people regarding how safe they feel to travel during night time, all of the respondents were found to feel safe. While doing further enquiry on the reason, the availability of security option within apartment was found to be one of the reasons. Santosh Dangal, one of my respondents mentioned,

"The apartment is available with CCTV as well as security guards due to this I feel completely safe while travelling during night too".

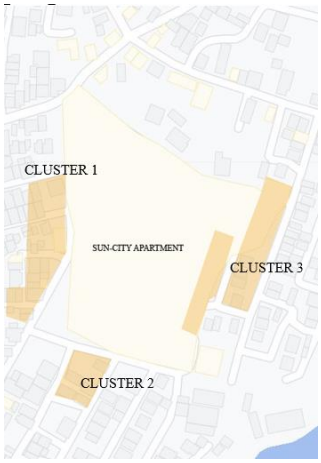

Figure 4-16: Cluster of sample

The perception of people regarding the streetscape and the street safety was found different as per the location of sampling. Cluster 1 that basically resides on the proximity of main entrance to apartment found the street to be small and unsafe. The survey on cluster 1 has pointed out that there is the need of larger street for the efficient movement of people and vehicles.

According to, "Narayan Nepal", one of our respondents,

"The footpath is only on one side and the flow of vehicle is large due to the accommodation of larger group of people in apartment. The footpath not just are used as a walking space but rather different activities takes places including the parking, vegetable display and so on. Due to this I feel the street congested and there is need to increase it."

Similarly, the survey on the cluster 2 have expressed their satisfaction towards the available streetscape as the location for sampling was purely residential neighborhood. In contrast to Westar residency, most people do not have perceived sense of claustrophobia. The major reason for this was observed to be the proximity and direction of low rise with respect to high rise.

CHAPTER 5. CONCLUSIONS

From the survey, it was clearly evident that the life and living style of people has been affected by the high rise. The objective of the research was fulfilled after the survey among the residents around selected high rise apartments.

Question 1: How does the high rise residential buildings affect the urban setting of the place?

Most of the life has been affected by the scale of building as they develop the sense of fear due to high rise nearby. The lack of proper guidelines that could direct the urban setting of the place towards better place to live in is causing chaos in the physical environment. Although the apartments have followed the bye-laws of the country, the harmony among its surrounding neighborhood buildings was found lacking due to lack of proper concern. The factors such as sudden shift of height, random spacing between the apartments are causing the neighborhood suffer from numerous aspects major being lack of proper sun light and wind.

Question 2: What are the impacts caused by high rise residences on dimensions of placemaking of its immediate neighborhood?

Although, the setback of the apartments are as per the bye-law of nation, yet 67% of residents are not satisfied with it and wished for larger setback. People seem to have no problem regarding the rise in density as they are not directly affected by the high density but rather it is contributing to their economy. They feel safe travelling in the main streets and do not fear from the outsiders. Similarly, the design of apartment is also contributing to the sense of place making. Few people also mentioned that they are having some issues regarding the difference in class among the people. Due to the difference of class among the people, they mentioned that they are facing the hike in price of day to day basic materials in the shops nearby. Very few people mentioned that the increase in traffic due to high rise is causing the problem to walk on the street. Similarly, the design of apartment is also contributing to the sense of place making.

The high rise residences contribute to the place making through many different ways. The construction of high rises nearby changes the perception of people regarding the space. The research pointed out that the scale of building not just has the physical contribution to the space but rather also contribute to the other aspects such as social aspects, psychological aspect and so on. The research may work as a foundation for future research that aims at exploring regulations and codes for placemaking with high rise residential buildings.

CHAPTER 6. RECOMMENDATION

After the research, it was clearly evident that high rises not just affect the tangible aspects but also the intangible aspects in its surrounding neighborhood. However, so as to mitigate or minimize its negative impacts appropriated measures should be adopted. From the literature, it was found that there are various guidelines in different nations that are formulated to maintain the harmony between the buildings. There are also specific guidelines that has to be taken care off while designing the high rise buildings in different nation. However, there are no such guidelines formulated in our context which should be the major matter of issue for the concerned authority. Through the literature review, it is analyzed that the high rises shall respect the scale of the adjacent properties and provide a transition while designing. The approach such as of stepping the floor backward can be helpful for minimizing possible problems for its neighboring buildings.

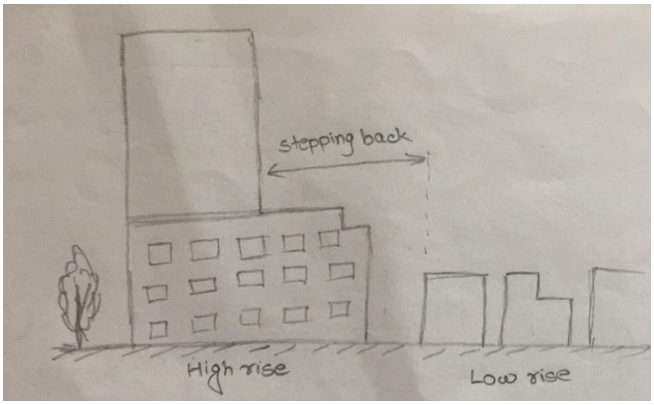

Figure 6-1: stepping back of tower

High rises are landmark of any place so it should respect both its site as well as the background where it is standing in. Similarly, it was found that majority of people responded positively regarding the shared communal spaces with the residents of high rise apartment. Therefore, provision of shared communal spaces can be made by the authorities of apartments as an incentive for building high rise nearby for residents of its neighborhood. It would not just provide compensation to the neighbors but also increase social interaction among the

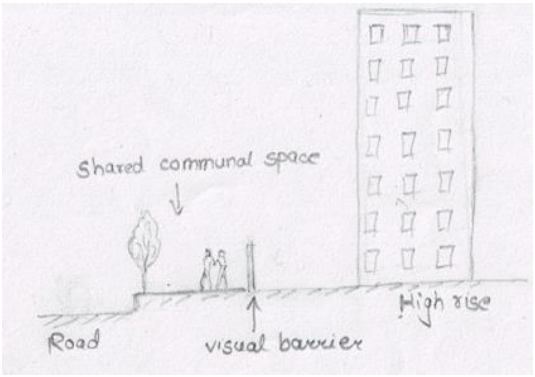

Figure 6-2: Shared communal space

people living in high rise and its surrounding creating a livelier place to live in. As mentioned by some respondents regarding the difference in class among those living in high rise and those living in its surrounding can be minimized through these approach.

Paul Rudolph proposed that the architectural design and perceptual qualities of the first 30 m (98 ft) of any tall structure should adapt to the human scale and include sophisticated architectural treatments that may be appreciated by onlookers at street level. Also, while surveying the study area, most of the people talked about their negative experiences with the scale of building while living around the apartment. It is therefore very essential to look into human scale while designing the high rise residences. First few floors of the buildings should be designed in such a way that it respects the human scale and proportion. This can be done by stepping back the tower of building. This not just gives solution to human scale but also to other impacts caused by high rise.

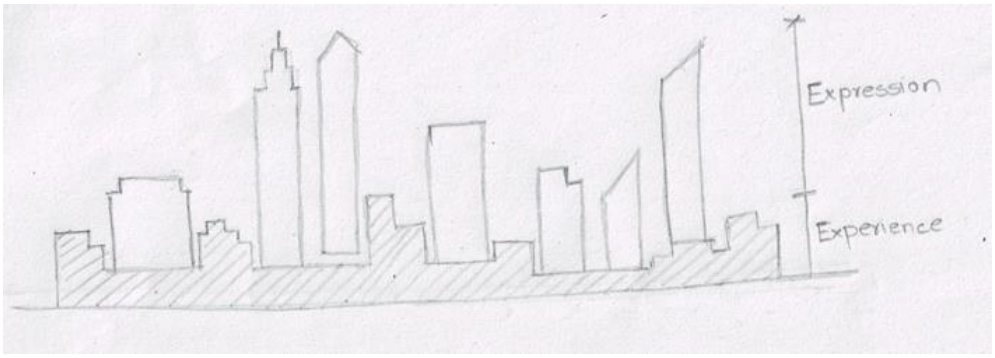

Figure 6-3: Proposed elevation for high rise

While the respondents were asked regarding the satisfaction towards the available setback, people living in Westar were largely unsatisfied as compared to those on Sun-city apartment. Hence, setback of minimum 8 m shall be provided during the construction of such high rise residences.

CHAPTER 7. FUTURE RESEARCH

The research looked into the numerous tangible and intangible aspects that the high rise residences have impact upon. The future researchers can look into these impacts and further research upon the possible ways to mitigate these issues. The research have looked into "what" aspect and furthermore the upcoming researchers can look into "how" aspect.

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ANNEX

Annex 1: Questionnaire

Demographic Information

What is your name?

तपाईको नाम के हो?

_____

What is your age?

उमेर

- ◯ 0-20
- ◯ 20-40
- ◯ 40-60
- ◯ 60+

Gender

- ◯ Male
- ◯ Female
- ◯ Others

Occupation

- ◯ Business
- ◯ Government sector
- ◯ Private sector
- ◯ Service
- ◯ Other

What is your family size?

- ◯ 0-4
- ◯ 4-8
- ◯ 8+

Record your current location

latitude (x.y °)

longitude (x.y °)

altitude (m)

accuracy (m)

Socio-cultural factors

Since how long your are staying in this place?

यो ठाउँमा बस्नभएको कति भयो?

- ◯ less than 1 year
- ◯ 1-5 years
- ◯ 5-10 years
- ◯ +10 years

For what purpose the land was used before the construction of high rise?

Where do you perform the social activities?

- ☐ Open space
- ☐ Meeting Hall
- ☐ Street
- ☐ Own house
- ☐ Other

If other, specify

Do you interact with the neighbors from apartment?

- ◯ Yes
- ◯ No

Where do you mostly interact from with neighbors of apartment?

- ◯ Balcony and Terrace
- ◯ Street
- ◯ Shop
- ◯ Others
- ◯ None

Is the street used as some cultural routes?

- ◯ Yes
- ◯ No

Environmental factor

How is your building affected due to high rise?

- ◯ Blockage of sun
- ◯ Heavy wind flow
- ◯ Vision
- ◯ Others

Are you bothered with the noise from apartment?

- ◯ Highly
- ◯ Intermediate
- ◯ Low
- ◯ Never

Has apartment contributed on pollution of your locality?

- ◯ Yes
- ◯ No

If yes, how?

_____

How safe do you feel in the main street of apartment?

- ◯ Very safe
- ◯ Pretty safe
- ◯ Little unsafe
- ◯ Very unsafe

How safe do you feel living around the high rise?

- ◯ Very safe
- ◯ Pretty safe
- ◯ Little unsafe
- ◯ Very unsafe

Why?

_____

Physical and economic factor

Have apartment helped you uplifted your economic status?

- ◯ Yes
- ◯ No

If yes how?

_____

How satisfied are you with the available infrastructure?

- ◯ Very Satisfied
- ◯ Moderately Satisfied
- ◯ Little satisfied
- ◯ Unsatisfied

Is there notable increment in infrastructures after construction of apartment?

- ◯ Yes
- ◯ No

If yes, what?

_____

What are the things that you like or dislike about living near high rise apartment?

_____

Do you prefer living in high rise? Why?

_____

What was the space used for before construction of apartment?

_____

Annex 2: Questionnaire for interview with experts

- Do you think the apartments selected for survey justify the place it is standing in?
- How should a high rise building be designed according to you especially in context of Kathmandu?
- Do you believe high rise as a solution to rapid increase in population of Kathmandu?
- Kathmandu is a city of low rise traditional residences. Do you think high rise are responsible to lose its identity? How can design help to sustain character of the city in high rise residences?
- What can be the possible design approach to minimize the impact of high rise on its surrounding buildings?
- During survey, it was found that almost all the residents of neighborhood around high rise have fear of high rise falling during earthquake. What are the possible measures that can be adopted to minimize this fear?
- Do you think RCC have justified itself when it comes to the high rise building construction in Kathmandu?
- What do you think regarding our bye-laws for high rise residences? Shall the bye laws modified?
- What is your perception regarding the shared communal space within the site of apartment itself?
- Our traditional settlement has a wonderful feature of having a shared communal spaces and large social interaction among people. However apartments are often taken as a place for people with stronger economic background. During the survey, it was found that there is very few interaction among the people of apartment and

people from surrounding neighborhood. Do you think design approach can help increase interaction among these people?

- 99% of the people responded that they would like to live in low rise rather that high rise. The major reason for this was found to be the detachment of people from ground and lack of immediate open spaces in high rise. I believe design approaches can help minimize these issues yet why do you think high rise residences are not so popular these days?

- Do you have any suggestions that can possibly enhance the design approaches of upcoming architects for high rise residences?

Annex 3: Bye Laws For Apartment

Lift: In all high rise buildings minimum of two lifts shall be provided. At least one of the lift shall be fire lift that can be used by fire fighter for rescue and access in case of emergency(2013).

Staircase: All High Rise buildings shall have the provision of secondary or emergency staircase 12 regardless of occupancy type which shall have at least one side open to exterior. All High Rise buildings above 50m shall have at least one staircase which should be pressurized and fire proof as dictated by fire safety code(2013).

External staircases for high-rise buildings are not recommended because of vertigo effect on people. The external staircases shall not be used on the buildings above 50m(*Articulation (architecture)*, 2021).

Refuge Area:

Refuge area of at least $10m^2$ or area equivalent to $0.2m^2$ per occupant shall be provided on the 10th storey or the storey at 25m level whichever comes first. The same shall be provided after every 4 stories or 15m interval whichever comes first. The no of occupant shall be calculated considering the occupant load of 2 storeys above and below the refuse area(*High-rise building*, 2021).

As far as possible the refuge area shall be in central area adjoining the main fire lift or fire staircase and shall have at least one wall as external face of the building.

Annex 4: Photographs

Annex 5: Article Submitted

Analysis on Placemaking Around High Rise Apartments: A Case on Westar Residency and Sun-City Apartment

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Abstract
Nepal is a developing country where urbanization is taking place at a rapid pace. The urbanization is mostly concentrated at the major cities of the country mainly on metropolitan, sub-metropolitan and municipalities. Kathmandu, being the capital city of Nepal is the most populated urban region of the country, with an estimated population of 2.54 million, and is growing at 6.5% every year. The pressure to accommodate such a large population is resulting into unplanned land use, shrinking open spaces, and haphazard construction. In order to manage such an urban sprawl, it is high time we switch to vertical built environment to live in. However, high rise buildings are often blamed for crimes, anxiety and degeneration of urban morphology as they deform the quality by overloading the density, infrastructures and public realm where the building is standing in. On one hand, high rise are considered responsible for degeneration of urban morphology and on another hand high-rise buildings are today a prime feature of urban living, making up a large proportion of cities, skylines and architecture The research thereby, explore the contribution of high rise apartments in placemaking of the surrounding neighborhood focusing mainly on the urban setting, socio-cultural and psychological aspects.

Keywords
High rise residences, place-making, neighborhood

1 Introduction

Nepal is a developing country where urbanization is taking place at a rapid pace. Although, Nepal is one of the ten least urbanized countries in the world yet it is also one of the rapidly urbanizing countries in South Asia [1]. The population residing in an urban areas has increased to 20.58% in 2020 as compared to 17.11% in 2011 [2]. In this verse of urbanization, most of the development in Nepal is concentrated in large and medium cities i.e. metropolitan, sub-metropolitan, and municipalities [3]. Kathmandu, being the capital city of Nepal is the most populated urban region of the country, consisting of 24 percent of total urban population[4]. Kathmandu Valley has an estimated population of 2.5 million, and is growing at 6.5% every year [5]. Such an immense pattern of growing population has put the land and housing situation under huge pressure in Kathmandu Valley. The pressure to accommodate such a large population is resulting into unplanned land use, shrinking open spaces, haphazard construction, and poor services [5]. According to Timalsina [6], the growth in urban population and land expansion of the city is resulting in the increment on land demand for housing and other infrastructure developments.

In order to manage such an urban sprawl, it is high time we switch to vertical built environment to live in. With an increase in population, the construction of high-rise buildings has become an indispensable solution due to the need for housing widely, and preventing the horizontal development of the city [7]. However, high rise residences are often blamed for crimes, anxiety and degeneration of urban morphology as they deform the quality by overloading the density, infrastructures and public realm where the building is standing in [8]. On one hand, high rise are considered responsible for degeneration of urban morphology and on another hand high-rise buildings are today a prime feature of urban living, making up a large proportion of cities, skylines and architecture [9]. The research therefore aims to identify the role of such apartments in placemaking of surrounding neighborhood.

First, the literature review was carried out to understand different units related to placemaking and established literature in placemaking indicators. Based upon the literature review, main indexes and indicators to measure placemaking was established. The indicators were then empirically tested using surveys to establish the validity of indicators in our context. The indicators were then analyzed by both the statistical method, and interpretative method on the case area. The result is then finally illustrated.

2 Research Question

The research have looked into how high rise residences have been affecting to its surrounding neighborhood in various aspects. The main research question of the research is:

- What is the role of the high-rise residential buildings in the placemaking of neighborhood?
  - ✓ How does the high rise residential buildings affect the urban setting of the place?
  - ✓ What are the socio-cultural and psychological impacts caused by high rise residences on its surrounding neighborhood?

3 Scope and Limitations

The concept of place making is very vast. Placemaking is both a process and a philosophy that uses the principle of urban design [10]. Placemaking involves numerous aspects such as sociability, uses, activities, access, connections, comfort, and image that creates bonds between people and the place. The research basically focus upon the impact of high rise residences on tangible i.e. urban setting and intangible aspects i.e. socio-cultural and psychological aspect of neighborhood. The study have looked into the urban design features of surrounding neighborhood and have looked into the experiences of people to understand how the high rise have affected their life. For the survey, residents living around the apartment have been taken who have directly been affected due to the construction of apartment nearby. All the other possible sample type and factors has not been covered in the report due to limitation of time. The researchers further can conduct their researches focusing on the other aspects of good place making.

4 Literature Review

High rise building is defined as a structure with small footprint, small roof area and tall façade[8]. The word apartment came from the French word “appartement”. The word was derived from the Italian version of the word, “appartimento” with the root part of the word “appartare” meaning “to separate”[10]. As per Government of Nepal[11], buildings with more than 25m and below 100m falls under high rise building. High rise includes buildings that are beyond the reach of normal firefighting provision on the ground. In case of emergency the rescue operation shall require the use of fire lifts in the upper floors[11].

A neighborhood is a place where a person has certain inherent personal and property rights, such as sovereignty over his or her home or company and its near vicinity[12]. As per a research by Lansing & Marans [13], around one-third of the inhabitants of sample communities rated neighborhood on the degree of openness, plenitude, and interest. The relationship between building heights and street width and setbacks, as well as the amount and size of trees on the street, can all impact the neighborhood quality[13].

4.1 Place making

“Place is where dimension formed by people's relationship with physical settings, individual and group activities, and meanings”[14]. “Placemaking is the process of creating quality places that

people want to live, work, play and learn in[15]. Placemaking is rooted in immersive, inclusive design and the experience of the humans who use it [16]

The dimensions of placemaking includes physical and non-physical aspects. Physical dimension in placemaking deals with the visual structure of space. As stated by Lynch [17] in his book, "The Image of City", the synchronization of five elements path, district, nodes, landmarks and edges create the sound visual order in any place. And non-physical dimension deals with the psychological, social and cultural dimension of the place. According to Kodmany [18], tall buildings support a sense of place and improve the imageability of cities by producing legible and memorable environments. They can help in the creation of better pedestrains and motorists that can further help in the process of mental mapping. Also, tall buildings that effectively respond to the human scale i.e. tower base, tower articulation, and overall architectural and site planning design can successfully contribute to the place making. For this, architects have provided several design approaches. Paul Rudolph suggested that the architectural design and perceptual characteristics of the first 30 m (98 ft) of any high rise building should respond to the human scale and contain intricate architectural treatments that can be appreciated by viewers at the street level[18]. Ludwig Mies van der Rohe suggested employing a simpler visual treatment by providing transparency, which invites the viewer to look through the base. This can be achieved by recessing the exterior walls of the ground floors and fronting the ground level with floor to ceiling windows. Also, the proportion of high rise to street shall be maintained to achieve the imageability of the place. Imageability requires a certain proportion, such as the height-to-width ratio of the building. When this ratio is too low, the street feels excessively broad, and the street's imageability suffers. The roadway will appear excessively narrow and the path will feel claustrophobic and canyon-like if the ratio is too high[18].

The architectural design, style, and facade treatment should all be considered so that they blend in harmoniously. While design variety is encouraged, the path's cumulative imageries should transmit a coherent, clear, and memorable image. To reinforce visual conformity and continuity, adjacent structures in a group should blend in with one another. This is also true when new buildings are erected in close proximity to existing structures in a district or neighborhood.

A minimum distance between high rise buildings should be maintained to enable appropriate light, air, access, and view for upper-floor residential units. A minimum distance of 25 meters (80 feet) is required by several city design laws[19]. Tall buildings along a path should be arranged in a structured and balanced manner. A dispersed arrangement of tall buildings along a path will likely weaken imageability and may convey chaos and disorder[18]. One of the most important elements of the public realm are the streets. They account for about 80 per cent of public open space in urban areas and accommodate a large portion of the citizens' lives.

5 Research Methodology

The methodology utilizes observation and analysis of the study area with the help of structured questions to evaluate the outdoor qualities of the high-rise surroundings. This research uses the mixed-method approach (quantitative and qualitative) to access the impact of high-rise residential buildings on its surroundings. This research thereby, falls under pragmatic paradigm where questionnaire are used to evaluate the attitudes, opinions and perceptions of people which further will be validated through the interview among neighboring people of selected area. Semi-structured qualitative interviews were conducted with the residents to evaluate how their life have changed after the construction of high rise apartments, especially focusing on the parameters of place making that are derived from literature review. The study mainly focuses on the residents of community around the apartment i.e. Westar residency and Sun-City apartment. Furthermore,

close ended questionnaire survey was conducted among the neighboring residents where respondent choose one of the answers according to his/her opinion. Open ended questionnaires was conducted among the experts in order to verify and support the observation of the study area. The research comes under the probabilistic sampling where the population was divided into multiple groups (clusters) for research.

The sample taken was based on the cluster sampling where samples with maximum influence of building was taken for the survey. The sampling basically focuses on the immediate neighborhood of the apartment where the sample distance can vary from 0-200 m from the nearest building of the apartment. The residents living at the immediate neighborhood of the apartment building were taken as the sample for the questionnaire survey. However, for an interview, the sample population using the place for a significant number of years were taken along with the experts in the related field. 30 samples were taken for the questionnaire survey i.e. 14 from neighborhood of Westar residency and 16 from neighborhood of Sun-City apartment and 5 residents of surrounding neighborhood of apartment were taken for the interview. Also interview among three architects was taken so as to verify the analysis based on the observation of the site area. Design approaches for creating better living environment were also discussed among them.

6 Study Area

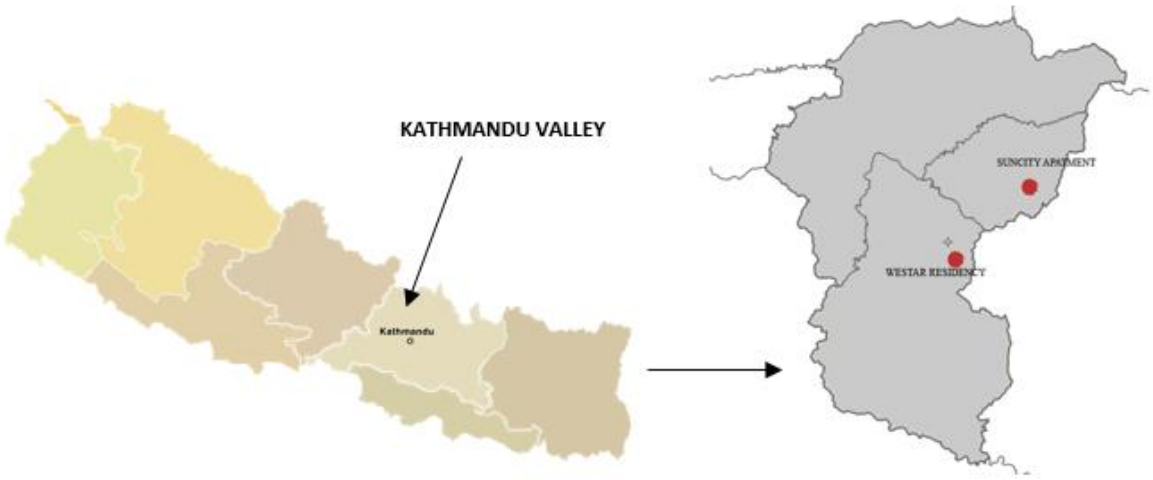

Figure 6-1: location map of site

Balkumari and Pepsicola are experiencing rapid growth in population density each year as more and more houses are being constructed. With the increase in population density, Kathmandu valley is slowly experiencing change in its urban form resulting more of a town planning areas and apartments. Westar residency is located at Balkumari, Lalitpur which is 1.5 km away from energetic city of Patan. i.e. Patan Durbar Square. The residency consists of more than 70% of the entire property dedicated to open skies, lush landscaping, water bodies, a playground, a jogging track, an open-air theater, and top-notch amenities.

Pepsicola on other hand is closely connected to Sano Thimi and Bhaktapur which are historical and culturally rich cities. It also lies in the junction of three major districts of valley namely Kathmandu, Bhaktapur and Lalitpur[20]. This newly built settlement is close to the old Newari

settlements like Thimi and Bode. “Replacing the agricultural land of these traditional settlements, now this place is valued for its serene environment as well as a preferred neighborhood”[21]. Sun City is an apartment township located at Pepsicola that is the first and the largest of its kind in the country with around 500 apartments in 5 towers. The research aims to look into the immediate neighborhood of these apartment so as to understand in what ways these high rise residences contribute in the sense of place of neighborhood.

Figure 6-2: area of study (Westar residency (left), Sun-city apartment (right))

7 Social, Economic and Demographic character of respondents

The larger group of people involved in the responses were under the age group of 20-40 i.e. 56.67% and smallest being the age group of above 60 i.e. 3.34%. 17 male and 13 females were involved in the survey.

The respondents who were involved in the survey had different occupational background. 24% of people were involved in services. 50% of them were either retired or housewife and students. Only 3% of respondents were involved in government sectors.

Only 20% of people have tendency to visit the apartment only after permission of the residents of the apartment while others do not visit the apartment site unless there is some special purpose.

67% of surveyed people are not satisfied with the available setback and rest 33% are satisfied. The satisfaction of people towards setback highly depended upon which side of the apartment they are living in. The buildings on southern side of apartments do not have much problem with the setback however, the houses that has been highly affected by the tall building standing nearby complaint about the lack of proper setback.

When surveyed, it was found that all of the surveyed buildings has been designed by either engineer or architects yet the major design consideration was found to be just the strength and function of building rather than aesthetic and consideration towards surrounding.

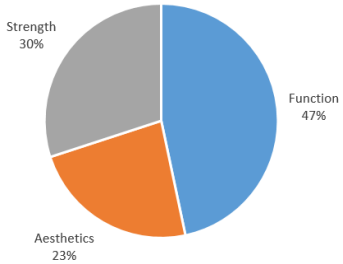

Figure 7-1: showing design consideration (right)

When people were asked if they would prefer the shared communal spaces with residents of high rise, 80% of people responded that they would prefer it.

8 Analysis and Discussion

8.1 Urban Design

- **SITE**

The design of building and the site it is standing in is important factor to be considered. The overall layout of both the apartment buildings were analyzed so as to confirm if these buildings are in compliance with the national bye-laws. Furthermore, the satisfaction of residents living around each of these apartments was measured through the questionnaire survey.

Westar Residency

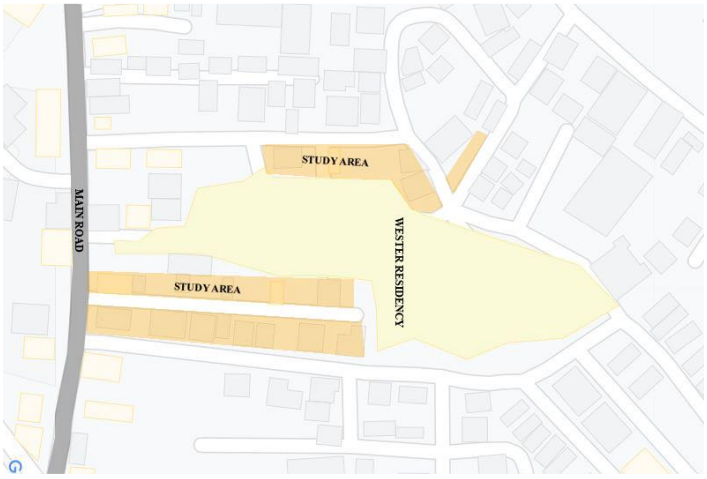

Figure 8-1: showing site plan

As per the national building bye law 2064, there should be minimum setback of 6m on front side of high rise and 4m on the side and rear side of the building inside the ring road area. The Westar residency has set the setback of 4 m on side and 6 m on frontal part of the site. The bye laws of our nation allows 50% of the site to be covered with built up. The apartment seem to have followed the designated bye-laws of the nation however, when residents of the neighborhood were asked if they are satisfied with the setback provided majority were not satisfied with the available setback. The respondents who reported that they are moderately satisfied with the available setbacks were the ones who do not like to have interaction with their neighbor by any means. The result shows that there ought to be some modification on existing bye-laws that would not just cater the people

living in apartment but also the people living next to it.

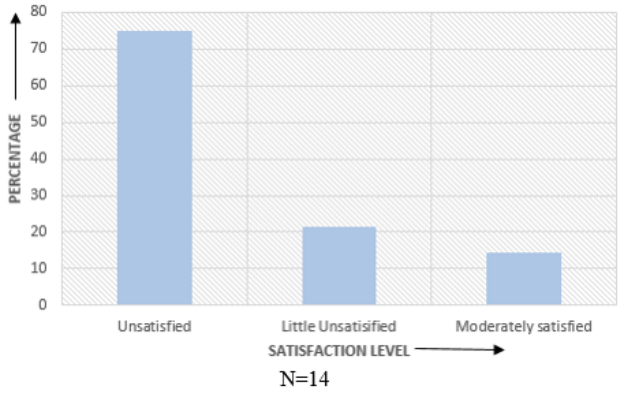

Figure 8-2: showing satisfaction towards setback of Westar residency

Sun-City Apartment

Figure 8-3: Site plan of Sun-city apartment

The site was used as an agricultural land before the construction of the apartment. The site consists of 5 tower blocks with total ground coverage of 20%. Out of rest of the spaces 16% of land has been provided for the parking space and rest of the site area has been provided with a soft and hard landscape. In contrast to Westar residency, when people were asked if they are satisfied with the available setback, most of them replied that they are moderately satisfied with the setback. The reason behind their satisfaction is analyzed to be associated with the layout of buildings and the way they are placed within the site. The buildings has been placed in such a way that it carves out maximum open space within the site area.

Figure 8-4: showing satisfaction towards setback of Sun-City apartment

- **ENCLOSURE**

The research looked into the periphery of the high rise apartments. Enclosure in the research basically pointed towards the enclosure of the site area which was mainly found to be the low rise residences and streets.

Westar Residency

All four sides of the apartment has been provided with set back where patches of greenery has been provided. The residency have set its enclosure through the boundary walls on all the sides. As per the survey, people from the neighborhood are not allowed to go inside the confined area except for the special cases. As compared to traditional residential planning layout where communal space is directly connected with the street and shared private spaces, the apartment itself along with the neighborhood buildings are seem to have confirmed its periphery with boundary walls. They do not share any common spaces as the result of which people lack the communal spaces.

Figure 8-5: showing enclosure of Westar residency

The apartment buildings has been enclosed by the low rise buildings of its surrounding. The transition of vertical height from these low rise residential buildings to Westar residency are very high. The site is around 70 m inside the main road as a result of which there is no perceived sense of claustrophobia in the main road of the selected apartment. However, on the supporting streets, there is perceived sense of claustrophobia due to the large vertical scale transition of building. As per the survey, around 70% of people living around Westar residency have the sense of claustrophobia living around the high rise. When observing the apartment from all the four sides, it was analyzed that although the set back of the apartment is provided in compliance to our national bye-laws, the low rise residences on its periphery is getting affected due to its scale such as formation of very narrow streets and impacts such as lack of proper sunlight, blockage of vision and so on. The interview suggested that the guidelines shall be set for the design of high rise that not just priorities the high rise residences itself but rather the buildings next to it. As stated by Ar. Subik Shrestha, "We need to look into the impacts of high rise residences into its immediate neighborhood and adopt proper design strategies for its reduction. Having said this it is our responsibility to not just over look to one individual problem

but rather create a solution that can serve all the parties involved in high rise residences be it the residents, the neighbors or the investors".

Figure 8-6: showing enclosure of Sun-city apartment

Sun-City Apartment

Sun-city apartment is closed to its own boundary similar to that of Westar residency. However, in contrast to Westar residency where all three sides of the apartment was surrounded by the low rise residences, the Sun-City is surrounded by few institutional buildings leaving low rise residences on only side of the apartment. This is why 8 residents responded that they do not have sense of claustrophobia while living near the high rise. However, rest 8 responded that they feel uneasy due to the presence of the apartment. The setback of 8 m and 10 m has been provided on the periphery of the apartment which is more than that of Westar residency and bye-laws itself. However, leaving setback more seem to have affected the psychology of people in a positive way.

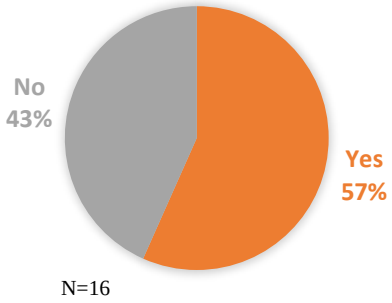

Figure 8-7: showing perceived sense of claustrophobia

- **COHERENCE**

Coherence holds things together. It resists separation. The selected site areas have been evaluated to understand how well the surrounding buildings merge with the high rise residences standing nearby. The evaluation have been made in terms of building design, materials and approaches of design.

Westar Residency

"It is essential that all elevations and their façade treatments are considered and designed as an integral part of the overall apartment building". The overall design of high rise i.e. Westar residency is simple where voids are created through the use of windows, louvers and other architectural design. The apartment and its neighborhood although lies approximately 1.5 km away from the heritage site i.e. Patan Durbar Square yet do not resemble the traditional architectural style of the area. The apartment itself is 50 m high with window to wall ratio of approx. 0.4 which is considered fair enough as per the study done by[21]. Few design elements has been integrated that also act as a sun shading device. While looking into the architecture feature of the buildings in its surrounding, most of the buildings have a regular geometric shape and are mostly 2 to 3 storey high. The ratio of opening to wall in the surrounding buildings is approximately 0.4. These openings seem to be placed entirely for functional purpose rather than any aesthetical purpose.

Both the apartment and the surrounding buildings resembles similar kind of opening ratio and typology. The integrity of materials used can be seen in between the apartment building and its surrounding buildings. The materials used for construction are basically cement, bricks and RCC. Similarly, the surrounding buildings does not seem too use any one definite architectural style but rather the building plans and façade are purely guided by the functional purpose. The design of these buildings does not seem to be influenced by the design of apartment itself. The survey showed that all 100% of buildings has been planned by engineers or architects however, when people were asked regarding their major consideration while designing their house; their major focus was function and strength of building rather than its surrounding. The design of each individual is completely guided by the need of people rather than need of the urban space. The size of openings in high rise are intermediate due to which they are complementing the surrounding buildings. The maximum built up has been achieved through the continuous stack of the floor. The building neither seem to have created the landmark nor have addressed its background to form a better skyline.

Sun-City apartment

After the field visit and observation of apartment, it won't be much difficult to state that the proportion of human has not been much taken into consideration especially in the design of base of apartment. Although the set back from the street is in compliance with the bye-laws i.e. 8 m, the building feels to be too bulky and dominating the street next to the main entrance of apartment. A proportion, such as the ratio of the building's height to street width, is needed for imageability. When this ratio is too low, the street will feel too wide and imageability of the street is lost. If the ratio is too high, the street will be perceived as too narrow and the path is going to feel claustrophobic and canyon-like. As the proportion of the building to street was found high, the sense of narrowness could be sensed in the streets nearby. The scale of apartment therefore was dominating the scale of low-rises next to it. Horizontal bands of balconies has been provided so as to minimize the sense of height. Similar to the Westar residency, it is found that no attention has been provided to the surrounding while designing the low rise residences although the design has been done by the architects and engineers. The materials used for construction is RCC. The size of openings are intermediate however, the quantity of openings are more due to which the entire façade looks monotonous.

Figure 8-8: showing the façade treatment of the apartment

- **ALIGNMENT AND RHYTHM**

There is the sudden shift of height in both the selected survey area from low rise to high rise due to which the residents living in the surrounding find the building scale huge. The design of apartment does not incorporate the strategies such as formation of tower base or use of horizontal bands to minimize the effect of vertical scale of building. As stated by a respondent Ram Krishna Basnet, "The building is too close to ours. We therefore feel too small as compared to the building. Also we fear of building falling into us during the earthquake". The sudden shift of scale of

building is affecting its surrounding neighborhood in different ways primarily being blockage of sun and vision.

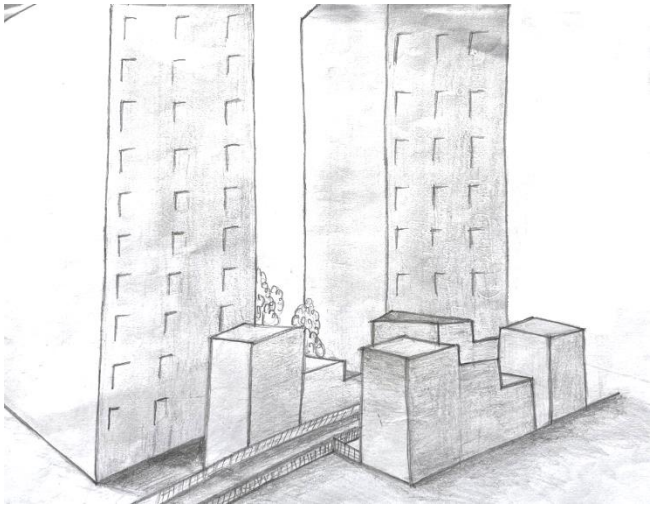

Figure 8-9: showing rhythm of building

The blocks of Westar residency has been properly arranged on the linear alignment that is guided by the shape of the site. As the site is oriented towards north to south direction, the façade of all 4 towers are too elongated towards N-S direction. The orientation of buildings is purely guided by the shape of the site area. However, the towers of Sun-City has been placed so as to carve the landscape out of its form of layout. Few people were found to be affected from fear of structures collapsing during earthquake especially after the horrible experience of earthquake 2015. Some people even mentioned that they would be very happy if the building could be reduced to smaller height.

Figure 8-10: showing alignment of buildings in site

- **MASS AND VOID**

Mass is a matter of presence, and void is absence of it. Mass to void ratio can vary based on the location of the site area. It is generally specified by the government bodies through the FAR and ground area coverage.

Westar Residency

The ratio of space to mass in site plan of apartment is approx. 0.3 i.e. 30% of the area is covered

by the building footprints. The ratio seems to be in compliance with the national bye-laws. As per the research by Alkhresheh [22], the most preferred range of void-to-mass ratio in residential façade is 0.4-0.5. The elevation seem to have fair ratio of void to mass. The ratio of void to mass in the apartments is approx. 0.4 which is considered to be fair enough for the design of façade. The voids has been achieved through the use of windows, louvers and the planning layout of the building itself. The balconies are projected out of surface and the buildings are freely standing producing the unconfined voids. The shape of the plan of apartment is achieved in such a way that the voids formed can guide proper lighting within the units of apartment.

Sun-City Apartment

The ratio of space to mass in site plan of apartment is approx. 0.2 resulting in the ground coverage of 20%. The mass and void therefore, on the site of Sun-city apartment is balanced as the apartments are built in compliance to the bye laws of the country. The buildings layout seem to have been done in such a way that it would carve a proper open spaces where the flow of people can be properly managed. The open spaces seem to be carved out of the building mass as a continuous flow linking interior and exterior spaces. The entry foyer space establishes the important transition from common territory to semi-public domain.

As per the research by Alkhresheh [22], the most preferred range of void-to-mass ratio in residential façade is 0.4-0.5. The ratio of mass to void in building façade is approx. 0.4.The balconies are projected out of surface and the buildings are freely standing producing the unconfined voids.

Figure 8-11: Showing mass and void in elevation

8.2 Socio-cultural Factor

The construction of apartment in a place causes rise in population density of the place as a result of which there will be certain impact caused by such high rise apartments in socio-cultural dimension of place making. So as to evaluate the impact few open and close ended questionnaire were made among the residents around the selected site area.

When people were asked how often they interact with their neighbors and where, most of their replied,' "wherever we meet be it in street, shop or through the balconies of our houses". Also some of them responded that they meet their neighbors on their workplace rather than their society. Through the survey, it was clearly evident that there is very minimum interaction of the people living in the low rise neighborhood with those who live on high rise. One of the prime reason for having minimal interaction was found to be the lack of proper spaces for interaction. It was found that the neighbors have interaction among each other from balconies and terrace of their houses or from the street due to lack of place. Social activities such as walking, jogging, etc. are performed within the street and rather than this there are no such interaction among neighbors.

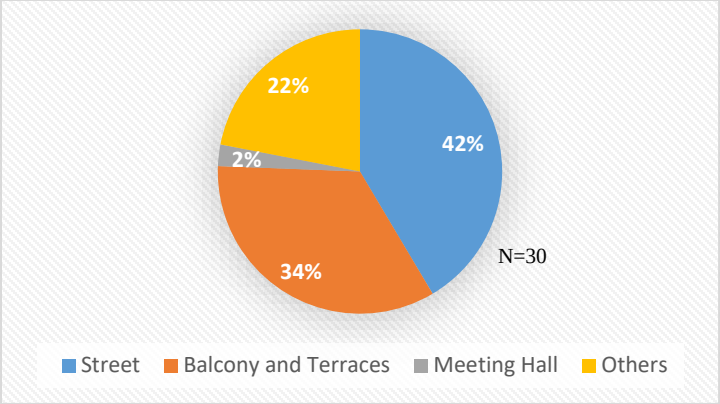

Figure 8-12: showing places for social activities

Similarly, when people were asked do they interact with the neighbors from apartment, majority answered as NO. When asked what are the causes of not having interaction among those living in high rise, majority pointed out on the difference on class of people living in high rise apartments and not having the common spaces to interact. A question was thrown to them if they would prefer having shared communal space within the apartment site area, majority of which were found to have positive attitude on it. Mr. Girish Giri, a resident of neighborhood of Westar residency stated, "*We are facing major issues due to the construction of high rise at such a close proximity including ground settlement, blockage of sun and wind and many others. It was the sole duty of the committee of apartment to provide us some facilities and open spaces to use as a compensation.* But we are completely forbidden to enter to the premises of apartment by any means." Security surveillance by the randomly dispersed small business or vendors, and the fact of residents peering out their windows forming "eyes on the street", are significant social consideration of the entry in Sun-City apartment.

8.3 Psychological Factor

As stated in literature by Baiz et.al. [23], high rise buildings can make people experience the sense of claustrophobic by creating a rat-cage mentality. So as to understand if the statement is true to our case or not few questions were asked that would highlight the experiences and perception of people with respect to their psychology.

Westar Residency

When people were asked how safe do they feel living around the high rise, majority of people in a way or other feel unsafe. So as to determine what are the factors that make people feel unsafe, other questions were formulated. Regarding the street safety, all of the respondents replied that they feel safe walking in the main road. The cause of it was mentioned to be the sufficient street width. Also, they have no fear regarding the invasion of outsiders as they mentioned that people living in high rise do not spend much time in their units and if they do, they do not have much to do with their low rise neighbors. Almost all of the respondents mentioned their fear towards the earthquake and the possibility of high rise building falling over them. The survey indicated towards the fact that most residents have adapted to their surroundings. As they have been living at close proximity to high rise since long period of time, they do not have major psychological issues with the high rise. However, the dominating structure of high rise is contributing to the perceived sense of claustrophobia among the people. As per the survey, around 70% of people have the sense of claustrophobia living around the high rise. While looking closely on the type of people who do not

have perceived sense of claustrophobia, it was found that either the building is not directly affected by the apartment or else the people living in the building do not have tendency to interact to his/her surrounding neighbors. 17% of the surveyed people responded that they do not have much interaction with their neighbors.

Sun-City Apartment

While asking the people regarding how safe they feel to travel during night time, all of the respondents were found to feel safe. While doing further enquiry on the reason, the availability of security option within apartment was found to be one of the reasons. Santosh Dangal, one of my respondents mentioned, "The apartment is available with CCTV as well as security guards due to this I feel completely safe while travelling during night too". The perception of people regarding the streetscape and the street safety was found different as per the location of sampling. Cluster 1 that basically resides on the proximity of main entrance to apartment found the street to be small and unsafe. The survey on cluster 1 has pointed out that there is the need of larger street for the efficient movement of people and vehicles.

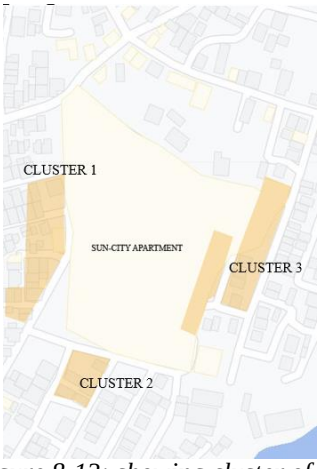

Figure 8-13: showing cluster of sample

According to, "Narayan Nepal", one of our respondents, "The footpath is only on one side and the flow of vehicle is large due to the accommodation of larger group of people in apartment. The footpath not just are used as a walking space but rather different activities takes places including the parking, vegetable display and so on. Due to this I feel the street congested and there is need to increase it." Similarly, the survey on the cluster 2 and 3 have expressed their satisfaction towards the available streetscape as the location for sampling was purely residential neighborhood. In contrast to Westar residency, most people do not have perceived sense of claustrophobia. The major reason for this was observed to be the proximity and direction of low rise with respect to high rise.

9 Conclusion

From the survey, it was clearly evident that the life and living style of people has been affected by the high rise. Most of the life has been affected by the scale of building as they develop the sense of fear due to high rise nearby. Although, the setback of the apartments are as per the bye-law of nation, yet 67% of residents are not satisfied with it and wished for larger setback. People seem to have no problem regarding the rise in density as they are not directly affected by the high density. They feel safe travelling in the main streets and do not fear from the outsiders. Similarly, the design of apartment is also contributing to the sense of place making.

Annex 6: Acceptance letter

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Date: September 15, 2022

To Whom It May Concern

This is to confirm that the paper titled "*Analysis on Placemaking Around High Rise Apartments: A Case on Westar Residency and Sun-City Apartment*" submitted by **Aakriti Mishra** with Conference ID **12127** has been accepted for presentation at the 12th IOE Graduate Conference being held in October 19 – 22, 2022 at Thapathali Campus, Kathmandu.

Khem Gyanwali, PhD
Convener,
12th IOE Graduate Conference