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Activating Public Space:

Rethinking and Reforming of Public Spaces in Kuleshwor Site and Services Area

by

Praveen Maharjan

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The under signed certify that they have read, and recommended to the Institute of Engineering for acceptance, a thesis entitled “**Activating Public Space: Rethinking and Reforming of Public Spaces in Kuleshwor Site and Services Area**” submitted by **Mr. Praveen Maharjan** (074/MSUrP/012) in partial fulfillment of academic requirement towards the completion of **Master of Science in Urban Planning**.

Supervisor

Prof. Dr. Jiba Raj Pokharel

M.Sc. Urban Planning

Department of Architecture

Course Coordinator

Dr. Ajay Chandra Lal

M.Sc. Urban Planning

Department of Architecture

External Examiner

Mr. Kumar Prasad Lohani

External Examiner

Mr. Umesh Bahadur Malla

Date: 7th August, 2020

ABSTRACT

Public spaces are platforms in which people can be part of the public sphere. A public space is a place that is generally open and accessible to people. The public place can either be an open one or a covered one. This research generally focuses on the public open spaces. Public open spaces are the prominent aspect of urban space. It is taken for the space for socializing, cultural activities, environmental benefits, and economic activities. Public spaces help in the betterment of the quality of life. Public open spaces also helps in creating mass and void of the place.

Kathmandu valley is experiencing rapid population growth in past few decades. The valley's urban growth over the past few decades exhibits unplanned development. Kathmandu valley has turned into unplanned and uncontrolled urban sprawl from the planned and compact settlement. Contrary with the traditional settlements, the distinctive feature of large contemporary towns is the disappearance of neighborly relation and consequent loneliness of the residents. Many public spaces around the globe have suffered from under appreciation and serious neglect. A properly designed public space would encourage people to leave their houses and participate in different form of activities. This can improve the quality of space in terms of its use and occupancy. This thesis aims to identify and evaluate dysfunctional public spaces and weak connections in contemporary public spaces, and come up with a proposal to reform these spaces and activate public life.

The research explores the availability of open spaces in Kuleshwor site and services area and look after the accessibility, use, activity, community participation and design of open spaces and compare the results with the another site and services at Golfutar and find out the problems in open spaces in Kuleshwor Area. The research will look after the case studies of such spatial solutions and examples of good practices from the past, and come up with the solutions for the problems existing in Kuleshwor site and Services Area.

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CHAPTER 1: INTRODUCTION

1.1 Background:

Public space is an integral part of urban life and plays an essential role in improving the quality of urban life. The public space covers a significant amount of urban fabric and this is where most of the human interactions take place. “Open spaces are places in a city where people can meet, interact, sit, rest, stroll or even be there for no purpose. More than breathing spaces, these are living rooms of a city for they are the centers of urban activity.” (Chitrakar, 2006)

The opening and the firmness of the spaces often makes them the center of city events and social nodes. Public places offer casual meetings throughout daily life that can bring people together and give meaning to life. “Public places offers relief from the stresses of work and provides opportunity for relaxation and social interaction and entertainment” (Webb, 1990)

It is a space in which people can choose to be at, regardless of their ethnicity, age, ideologies and gender. A public space doesn't necessarily only mean a typical square or garden but can also be spaces of everyday use such as streets, sidewalks and subway platforms to spaces such as a public library. (Rupa, 2015)

A public space is a place that is generally open and accessible to people. Public spaces must be well connected with the surrounding environment. The connection with the surrounding neighborhood is important to attract people and activities in space.

The quality in public space design was achieved in the past in the form of great city squares in both eastern and western parts of the globe. The historic squares that developed over the time span of more than two millennia still exist in European and Asian towns to demonstrate this. (Chitrakar, 2006)

This point comes true in case of traditional towns of Kathmandu Valley as well. This includes welcoming the space and if people can access the space in the way they feel comfortable. The historic squares created during the Malla reign in the cities of the Kathmandu valley still functioning well and succeeded in creating a built environment that strongly encourages the public life. Whereas the modern cities developed over the periphery of the core area of Kathmandu valley seems to ignore about traditional planning and features of the cores and result in the unmanaged and poorly designed

public spaces therefore are not properly utilized. In Kathmandu Valley, it is noticed at present that there seems to be a lack of continuity with past features in the process of present day city building as the historic precedents are found totally neglected.

At present, it is noticed that Kathmandu Valley comprises of two forms of urban open space; first, a successful case from the past in the historic city cores and the second, the incompetent open spaces in the newly developing urban areas. (Chitrakar, 2006)

The quality of the public space, its architecture, equipment, design, as well as its level of accessibility and openness to the different needs of residents has a direct impact on the number of its users and on the quality of life in the city. (Kostrzewska, 2017) This feature helps in the resident's activation and use of public spaces.

“Stand in a public space, walk about, sit at its edges. Does the space itself have a presence, a definition, a quality that adds significantly to the architecture and the features that it embraces? And if you decide that yes, it is a square, does it work well? Does it take your breath away as you enter, and lift your spirits as you stroll around? Is it a place in which you want to meet your friends and observe strangers? Is it the first choice for community celebrations? Does it offer a sense of place, a feeling of historical continuity, a vision of what urban life should be? Is it maintained with respect or vandalized; does it serve as an oasis or for parking? Ask another question: “if not, why not?” Actors and décor have changed over the centuries, but the need for a stage has remained a constant.”(Webb, M. 1990: 11-12)

Chitrakar (2006) also explains that Modern cities confronted wide disapproval for having lost the traditional spatial qualities in the creation of ill-defined public spaces, and modern planners and designers were blamed for lack of concern towards the historic precedents.

This study tries to explore “Kuleshwor Site and Services area” and attempts to find problems and solutions for the development of public spaces in emerging cities taking an example of it which is designed for the government officials. This study will also examine historical and contemporary theories about public space and discover the characteristics of successful public spaces.

1.2 Need of Research:

Urbanization is a global phenomenon with widespread consequences on urban form and life across geographical regions. The changing pattern of urban growth has transformed how public spaces are developed and used in the new neighborhoods of modern cities. (Chitrakar, 2015)

The traditional towns, especially the valley's urban growth over the past decades exhibits unplanned development. From a planned and compact settlement of the past, the valley has now been transformed into an unplanned and uncontrolled metropolitan urban sprawl. (World Bank, 2001)

The contemporary physical growth of urban Kathmandu exhibits an urban sprawl, expanding radially in all directions from the historic cores. Reaching beyond the Ringroad, this octopus growth has not only consumed the fertile agriculture land but also presented numerous problems related to the urban living. The serious consequences arise in having lost the continuity with the historic urban fabric and also in its inability to display any "coherent urban character". (Chitrakar, 2006)

Various plans and programs have been formulated to meet housing needs for growing populations, such as the site and services, the grouping of land, the development of land for housing private developers, etc., whereas the need of public spaces are not kept into consideration properly due to which urban public spaces are degrading .

The distinctive feature of large contemporary towns is the disappearance of neighborly relations, the consequent loneliness, and the separation of the residents. Many public spaces around the globe have suffered from under appreciation and serious neglect. One of the serious problems in contemporary open space is its unoccupancy. Empty public space is an indication that something is very wrong with its design or its management or both.

A properly designed urban space would encourage people to leave their houses and participate in different form of physical activities, opportunities for physical activity need to be created close to where people live while also creating cleaner, safer, greener and more activity-friendly local environments. This can improve the quality of space in terms of its use and occupancy.

Access to open; active public space is a critical component of a healthy, livable city. In densely populated urban neighborhoods, such access is often limited. In these communities, every square meter of open space is a valuable opportunity to activate and enliven the public life of the neighborhood and increase the quality of life for its inhabitants.

1.3 Importance of Research:

This research will play a role in tackling the process of urbanization and its effect in open spaces in Kathmandu Valley, which is the main agenda for people living there, for people who owe that place and for the decision makers of planning authorities in Nepal. This research will be useful for the researcher regarding the creation of livable and user friendly open spaces. This research can be important to Local government, Local NGOs, INGOs and other organizations involved in design and planning of new towns understanding the need of architectural characteristics and in understanding the ways by which open spaces can be incorporated during planning process.

1.4 Statement of Problem:

Public spaces are part of cities, open and public in which citizens participate. They are somehow the representation of the identity of collective life. They are the union of behaviors and thoughts and, at the same time, the place where some of the daily needs of citizens are met. Public space is the most important way of designing a good environment for buildings in cities.

“Today, many public spaces seem to be intentionally designed to be looked at but not touched. They are neat, clean, and empty - as if to say, "no people, no problem!" But to us, when a public space is empty, vandalized, or used chiefly by undesirables, this is generally an indication that something is very wrong with its design, or its management, or both.” (PROJECT FOR PUBLIC SPACES, 2009)

The case study of this research is Kuleshwor Site and Services Area which is the representation of most of the contemporary towns. Lack of successful urban public space is one of main problems of new developed areas of Kathmandu valley. Public space is not full developed. There is also lack of accessibility to public space and urban attractions. Most of the public spaces are occupied by outdoor parking.

There is continuous need of identification of the urban spaces, its conditions and usage. Detail assessment of such open spaces should be carried out in terms of basic

infrastructure available around, which is possible in neighborhood level. Detail information on open spaces in neighborhood level is not known and there is no study carried on the role of open spaces in neighborhood level.

1.5 Objectives of Study:

- To identify the initial purpose of open space design in Kuleshwor site and services area and current use of those spaces.

- To locate passive open spaces in the study area, reason for it and provide better solutions to the problems.

1.6 Research Question:

What are the initial purposes of Green plots in Kuleshwor site and services area?

What are the reasons for the minimal use of existing public spaces? How problems can be addressed for the maximum use of Public Spaces?

CHAPTER 2: CONCEPTUAL FRAMEWORK & METHODOLOGY OF RESEARCH

A research paradigm is “the set of common beliefs and agreements shared between scientists about how problems should be understood and addressed” (Kuhn, 1962)

Research paradigms can be characterized by their proponents respond to three basic questions, which can be characterized as the ontological, the epistemological and the methodological: (Guba, 1990),

- Ontological – What is the nature of the "reality"?
- Epistemological – What is the relationship between the knower and the known?
- Methodological – How should the inquirer go about finding out knowledge?

2.1 Selection of Research Paradigm:

The research paradigm adopted for this particular research is interpretative paradigm.

Positivism is defined as a social research approach that emphasizes discovering casual laws, careful empirical observations and value- free research (Neuman, 2011, p.94). Positivist paradigm is a scientific research based on rationalistic philosophy and in this paradigm researcher must put questions to the nature and allow nature to answer. Only experimental researches are appropriate for this paradigm. Therefore positivist paradigm is not appropriate.

Post positivists work from the assumption that any piece of research is influenced by a number of well-developed theories apart from, and as well as, the one which is being tested. (Cook & Campbell, 1979). So, post positivist paradigm usually begins with a theory, but in my research truth is socially constructed therefore post positivist paradigm is not valid in this case.

Interpretivism tries to understand motives, meanings, reasons and other subjective experiences that are time and context bound (Neuman, 2011). The base of interpretivism is an acceptance that there are fundamental differences between the nature of phenomena studied in natural science and social science. Since the research is the interpretation of the different principles and ideas regarding the open spaces.

Here we have multiple realities and the conclusion shall be drawn by socially constructed realities. The participants' view will be studied to understand the situation of public open spaces in the particular location. The nature of knowledge is subjective in our case as we will identify the open spaces in neighborhood level and observe its location, connectivity and accessibility. Research generally focuses on “What” and “How” questions which answer will be the observed in the people’s perception. Therefore the research paradigm adopted in this research will be interpretative paradigm.

2.2 Research Methodology:

Methodology is both the collection of methods or rules by which a particular piece of research is undertaken (Somekh & Lewin, 2005)

The research involves mixed method research. Both qualitative and quantitative research methods will be used in the research process. Qualitative research is a process of naturalistic inquiry that seeks in-depth understanding of social phenomena within their natural setting. It focuses on the "why" rather than the "what" of social phenomena and relies on the direct experiences of human beings as meaning-making agents in their everyday lives rather than by logical and statistical procedures. In a qualitative research strategy there is a holistic approach for systematic ,encompassing, integrated overview, study is done through intense and prolonged fieldwork, knowledge gain is open ended, narrative descriptions of analysis is given and data is collected involving people. The key steps of Qualitative Research are data collection, data reduction, data display, conclusion drawing/ verifying.

Three methodological steps are included in the research:

- Mapping of existing open spaces,
- Observing user behavior and the use of open spaces
- Residents' opinion survey - help assess the quality of open space in the study area.

Quantitative research is carried out for the physical dimensions, distance, area and number of available space, calculating the available resources and capacity.

Primary and secondary data is collected to facilitate the distribution of knowledge about quality indicators in open spaces, the needs and benefits of open spaces, as well as the concepts and theories of planning of open spaces in the neighborhood.

2.3 THE RESEARCH PROCESS

2.3.1 Literature Review

Literature review was meted out during the research to achieve detailed knowledge of the topic. Review on the urban public space, pattern of settlement of Kathmandu and transformation are done. Literature reviews are a basis for research in nearly every academic field. Various published reports, journals, books and articles associated with the topic are studied. Studies associated with provision made in international aspects are studied.

2.3.2 Site Selection

Kuleshwor Site and Services was one of the first planned residential settlements representing the contemporary urban settlement of Kathmandu Valley. It was regarded as the unsuccessful planning by the government. But due to community participation and continuous effort and dedication of “Kuleshwor awas pariwar kalyan sanstha” this area has been doing remarkable progress in present scenario. Even though the community is progressing the public spaces of the settlement doesn't seem to be properly utilized in present context. So Kuleshwor Site and services area is selected for my research.

In Nepal, Two site and services scheme for housing are implemented. One is Kuleshwor site and services area and other one is Golfutar site and services area. In



Figure 1 Kuleshwor Site and service Area

spaces are more utilized compare to Kuleshwor Site and Services area so, a comparative study was also made in both site and services are.

2.3.3 Preparation of questionnaire

The Primary data was collected through questionnaire designed to capture the perception on public open spaces as perceived by the dwellers. The questionnaire was framed in four sections: household information, social condition in neighborhood, open space in neighborhood, and experience. Also questionnaire for focused group discussion was prepared. Semi structured questionnaire was prepared for understanding the perception of residents from different age group and key informants from the area.

2.3.4 Sampling Method

A systematic random sampling was carried out. The survey was carried out to understand the local perception on the urban spaces and its usability. Therefore Maximum Variation Sampling was used, where a wide range of variation on dimensions of interest is selected. The purpose is to discover central themes, core elements, shared dimensions that cut across a diverse sample while at the same time offering the opportunity to document unique or diverse variations.

40 people were interviewed and samples have been collected such that houses from different streets are taken for the survey. The main purpose of the survey was to obtain the perception of the people towards public open spaces living in different areas.

For the comparison of open space in two site and services are 40 people were interviewed in Golfutar site and services area in similar way.

2.3.5 Field observations

Direct field observation will allow us to know the present scenario and verify the results obtained from the maps and other secondary sources. It'll give us real and contextual information. Field observations together with surveys were carried out to know the scenario of every public open space in terms of its wholeness, accessibility, usability, security, liveliness and environment.

2.3.6 Data Handling and analysis

Surveyed houses were plotted in maps for analysis. Data handling tools such as excel and SPSS was used. Results from the survey was analyzed and compared to initial purpose of open space design in the case study area and draw conclusions for better

planning in the future. Information on open spaces was plotted in maps, to understand the accessibility and vicinity of open spaces from the houses. The survey data was analyzed through SPSS. Results from the survey was analyzed and compared to draw conclusions and implemented in planning process of settlements. The analysis will help in developing new planning parameters in open space.

2.3.7 Map Analysis

Maps were obtained from Google Satellite Images and also generated using GIS tools. Data regarding streets, accessibility, frontage, etc. has been prepared from field observation. Availability of Public open space are plotted on the map on the basis of field visit and focused group discussion.

2.3.8 Interviews

Key informant interview with the community representatives were done. The trends and changes within the area were understood in-depth during the key informant survey. Interview with the community leaders will help us understand the local context and verify the results obtained from the individual questionnaire survey. Further focused group discussion was carried out in presence of community leaders form different blocks.

2.3.9 Literature review on case studies of reference cities

Further Literature Review on case studies of various national and international cities were done out to understand how these problem are been addressed in those cities. The literature review will help to analyze our situation with relation to other examples and understand solutions.

CHAPTER 3: LITERATURE REVIEW

3.1 Kathmandu Valley Urbanization and Historical Development

3.1.1 Historical Development of Kathmandu Valley:

Kathmandu Valley with its ancient culture dates back to more than 2000 years to the pre-historic Kirat period mentioned in City Profile of Kathmandu (Shrestha et al., 1986). The Kathmandu Valley already known as “Nepal” centuries before the advent of that name’s modern state is a bowl of 220 sq. miles, 4,000 feet up in the central Himalayan center. The history of Kathmandu Valley begins with a mythological tale found in a Buddhist text called the *Swayambhu Purana* (Hutt, 1994). The history starts with a legend tells how the *Bodhisatva (Buddha-to-be)* Manjushree came down from the north and cleared the valley rim to release the water of a huge lake which was believed to be present in the valley. The valley since then witnessed many dynasties as its rulers. Though considered to have ruled the valley as the very first rulers, however due to the lack of authentic reports, the vague traces of three successive dynasties namely the Gopalas, the Mahisapalas and the Kirats remain the legend from pre-historic times. (Chitrakar, 2006)

With the establishment of a strong centralized state in the valley by a dynasty of kings called the Lichhavi, who ruled the valley from the 2nd to the 8th century, Nepal has entered the era of documented history as well as the era of the art and culture advancement. (Hutt, 1994) After Lichchhavi, the Malla kings ruled the Kathmandu Valley towns for nearly 600 years from 13th to 18th century till the “unification of the nation”. It is throughout the Malla reign that the Kathmandu Valley was divided into 3 kingdoms namely Kathmandu, Patan and Bhaktapur via King Yaksha Malla among his kids in late 15th century. The subdivision of valley into three kingdoms endorsed the humanities to flourish through keen competition with each different as is reflected within the development of royal palaces, essential shrines and temples and public squares (Pruscha, 1975)

The glorious achievements reached during the Malla reign can still be traced in the historical core of the cities of the Kathmandu valley in its buildings, streets and open spaces. During the reign of Malla, the valley was prosperous not only in its rich social fabric and highly developed cultural models, but also in trade and commerce.

The Malla rule comes to end after seizure of the Kingdom of Bhadgaon (Bhaktapur) by the King Prithvi Narayan Shah in 1769 AD. The Shah rulers made no considerable contribution in the improvement of art and culture as compared to the Mallas. After the period of approximately 80 years in 1845 AD, with the rise of Jungabhadur Rana as Prime Minister of Nepal, the country witness Rana regime for subsequent 104 years. After the visit of Europe Rana rulers constructed numerous huge palace buildings in neoclassical styles in different parts of Kathmandu Valley scattered outside and inside of traditional core of Kathmandu and Lalitpur towns.

In the year 1951, Nepal sees a big political change that brings back king to his throne and opens the country to the out of outside world, followed with the aid of fast urbanization and modernization in following decades.

The decade-long civil war in Nepal popularized the notion of federalism by linking it with state restructuring and devolution of power and authority with the declaration 2072 constitution and division of federal provinces. One of the main objectives of the federal system is to develop equally and as per equitable manner to the grassroots level. Nepalese constitution has assumed that all sectors would be developed with the participation of local people at all spheres of the development (Basnet, 2017).

3.1.2 Urbanization

Urbanization refers to the population shift from rural areas to urban areas, the gradual increase in the proportion of people living in urban areas, and the ways in which each society adapts to this change (Wikipedia, 2020). It is predominantly the manner by which towns and cities are formed and become large as more people begin to live and work in central areas. “The United Nations projected that half of the world's population would live in urban areas at the end of 2008. It is predicted that by 2050 about 64% of the developing world and 86% of the developed world will be urbanized.” (Wikipedia, 2020)

Urbanization can describe as particular circumstance at a set time, i.e. the percentage of total population or area in cities or towns, or the term can describe the boom of this share over time. So the time period urbanization can constitute the extent of urban improvement relative to overall population, or it may constitute the price at which the urban proportion is increasing. Urbanization

isn't always merely a modern-day phenomenon; however a fast and historic transformation of human social roots on a global scale, whereby predominantly rural subculture is being unexpectedly replaced by means of predominantly urban lifestyle.

Nepal is one of the ten least urbanized countries in the world. However, it is also one of the top ten fastest urbanizing countries. In 2014, the level of urbanization was 18.2 per cent, with an urban population of 5,130,000, and a rate of urbanization of 3 per cent (UN DESA, 2014). For the period 2014-2050, Nepal will remain amongst the top ten fastest urbanizing countries in the world with a projected annual urbanization rate of 1.9 per cent (ibid).

Urbanization in Nepal is dominated by a few large and medium cities with an excessive population concentration in the Kathmandu Valley. High urban growth is occurring in the Kathmandu Valley, the Pokhara Valley, the Inner Tarai valleys, and in market and border towns located on highway junctures between the east-west highway and the five main north-south corridors. Urban growth centers are also emerging close to the border with India (MoUD, 2015).

The urban population distribution is uneven across the country. 33.5 per cent of the urban population is concentrated in 16 urban centers that each has a population of over 100,000 people (MoUD, 2015). The Central Development Region has the highest proportion of the urban population, followed by the Eastern and Western Development Regions. The distribution of the urban population is relatively low in the Mid-Western and Far Western Development Regions (MoUD, 2015).

The Kathmandu Valley is the most populated urban region and one of the fastest-growing urban agglomerations in South Asia (MoUD, 2015). Kathmandu Valley accounts for 24 per cent of the total urban population and Kathmandu Metropolitan City alone accounts for 9.7 per cent (MoUD, 2015).

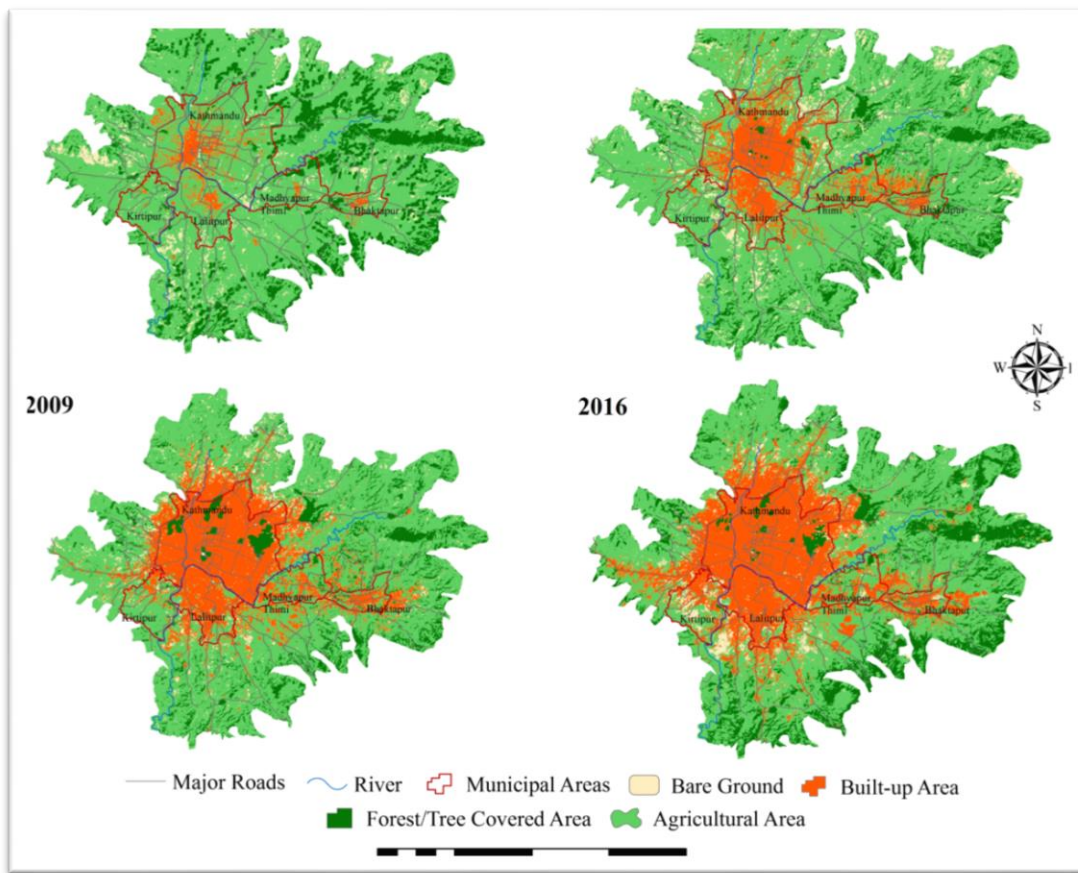


Figure 2 Landuse Change of Kathmandu Valley

Source: (Ishtiaque et al., 2017)

3.1.3 Trends of Urbanization in Kathmandu Valley

3.1.3.1 Urbanization in Rana Period

The most striking feature of urban development efforts made during Rana period in their layout of buildings, streets and spaces is the “marked” discontinuity from traditional urban pattern of Malla towns. (Chitrakar, 2006). During the Rana regime, they have traveled the Western countries and became fascinated by the western ideas of design and town building and practiced a similar. Showing no concern towards distinct character of dense urban fabric of the traditional Malla towns, thus Rana rulers became “responsible” for beginning of the urban sprawl. In the process of urbanization, Rana rulers build palaces in the neoclassical style influenced from European Style. The structures are neither in human scale nor do they produce purposeful urban open spaces. Planning during the Rana reign fully differs from that during Malla reign.

Ranas did not destroy the old historical core, but extended the town with new urban fabrics based on new planning principles. The Singha Durbar palace complex (formerly Rana palaces, but now housing almost all major ministries) was built during this time and it covered an area about half the size of old Kathmandu, the population of which was almost 80,000 whereas the old Hanuman Dhoka palace complex including its courtyards occupied just 1/25th of the town's space (Wolfgang, 1976)

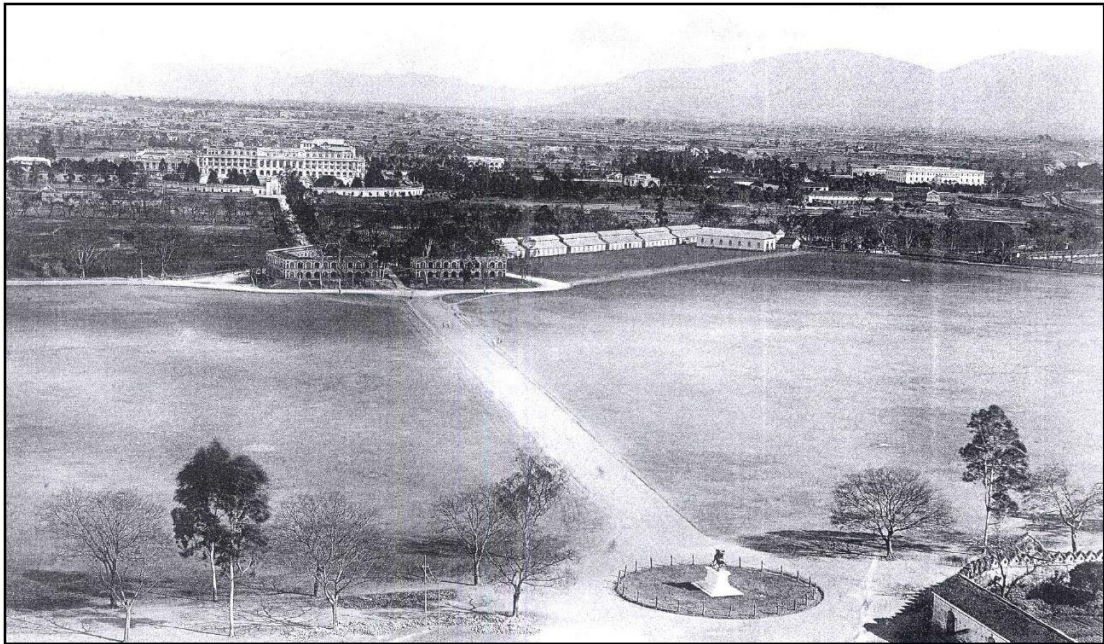


Figure 3 Widely Laid Streets leading to Massive Rana Palace

Source: GTZ and UDLE

The Ranas also attempted to create few open spaces for the general public. They've developed some parks but they didn't seem to succeed due to lack of character. Much of their effort was made to create vast open space in the form of private gardens within the palace complexes within walled enclosure. (Chitrakar, 2006)

3.1.3.2 Urbanization in Post Rana Period

After the end of Rana regime and establishment of democracy the Kathmandu valley undergoes rapid urbanization. To facilitate rapid urbanization different housing and commercial developments were brought upon.

Since the first Seventies, the Kathmandu Valley has become structurally differentiated into 2 distinct urban 'spaces'. The primary 'space' is that the ancient urban core characterized by narrow alleys, impasse streets, and loops serving the

densely populated area. The second ‘space’ surrounds the town core, a less inhabited fringe, with uneven residential densities, starting from dense concentrations to comparatively open developments with rural interstices. (Bhattarai & Conway, 2006)

In 1975, the “Ringroad” encircling the two major cities of valley, Kathmandu and Lalitpur was also constructed to reduce traffic congestion in the city core as well as to provide better linkages with the hinterland. Due to the lack of controlled growth, the urban sprawl, termed also as the “octopus growth” by some scholars, got greatly accelerated which had already been initiated in the Rana period (Chitrakar, 2006).



Figure 4 Rapid Urbanization in Kathmandu Valley

Source: praveenkumaryadav.worldpres.com

The institutional approach to control urban growth began in 1960’s once the government in help with the international organizations and consultants took initiation to draft urban development plans for the Kathmandu Valley. “The Physical Development Plan for Kathmandu Valley “was one of remarkable work published by Department of Housing and Physical Planning in 1969. During 1970s government also started to draft many other legal documents or acts pertaining to the regulation of urban growth. In 1987 that government drafts Town Development Act (TDA) which facilitated much of its works related to the land developments.

Even though the presence of physical designing documents and connected acts, the government lacks proper management mechanism and also the haphazard urban growth became inevitable leading to environmental degradation leading to poor living conditions. The modern physical growth of Kathmandu Valley exhibits a urban sprawl, expanding radially altogether all directions from the historic cores. This octopus growth has not only consumed the fertile agriculture land but also additionally given various issues associated with the urban living, housing and land development.

3.2 Housing and Urban Land Development in Nepal

Food and housing are two basic needs of human beings. Housing term itself can have different meanings. Housing, or more generally living spaces, refers to the development and assigned usage of homes or buildings collectively, for the aim of sheltering. But housing is more than a shelter or a house. It includes different services, physical and social infrastructures associated with the accommodation. Housing is more than a finished product; it is a process through which people provide themselves with the shelter and other necessary services (Joshi, 1999). Furthermore, Joshi states that provision of shelter depends on people's economic resources, family size and need. Whereas, People needs over time are gradually increasing and also changes over time as their resources changes.

People generally need a good location from where they can easily be access to their work place after that they require a piece of land for building shelter after that they look for urban amenities like water, electricity etc. Then they move for improving shelter conditions where security of tenure becomes most. Security makes them invest more in housing. (Joshi 1999; p.29)

Housing is the valuable assets of people as its value increases over time. Housing is not only a finished product but at the same time it is a process and an activity where people mobilize their entire resources including their imagination, skills, initiatives etc. Housing provides the owner with most dependable valuable assets whose value appreciates over time (Thani, 2005). Furthermore, housing generates income through rent and it has exchange value in addition to use value. Housing isn't only a basic need of life but also a symbol of social status in addition it is taken as economic security against hardships for a majority of Nepali people. Therefore, people attach top priority to have a house during their lifetime.

Shrestha (cited in Thani 2005, p.5) There are two distinct facets of human settlements in Nepal: i) rural settlements-characterized by poverty, lack or absence of minimum basic physical facilities and services and ii) urban settlements-characterized by haphazard urbanization, environmental problems, inadequate physical infrastructure facilities and services etc. In addition to this, the settlement pattern of Nepal can also be analyzed against the backdrop of ecological or geographical regions such as the Mountains, Hills and the Terai which depicts typical settlement pattern of its own.

There is a direct co-relationship between the size of the population and the type and level of services and facilities. In other words, the provision of even the minimum level of basic services and facilities like drinking water, primary school, health care services, road and post office etc. requires certain size of population in order to make these services economically viable in a particular settlement. This clearly shows that the country cannot afford the availability of even the fundamental minimum services within the existing isolated, dispersed or scattered settlements of Nepal unless serious efforts are made to create these settlements economically a viable unit.

3.2.1 Current Land Development Strategies

Government in Nepal has initiated housing program by implementing three models of land development strategies such as site and services, land pooling and guided land development schemes, carried out by its regional offices and local authorities to meet the housing needs of the growing population in the country.

3.2.1.1 Sites and Services Schemes:

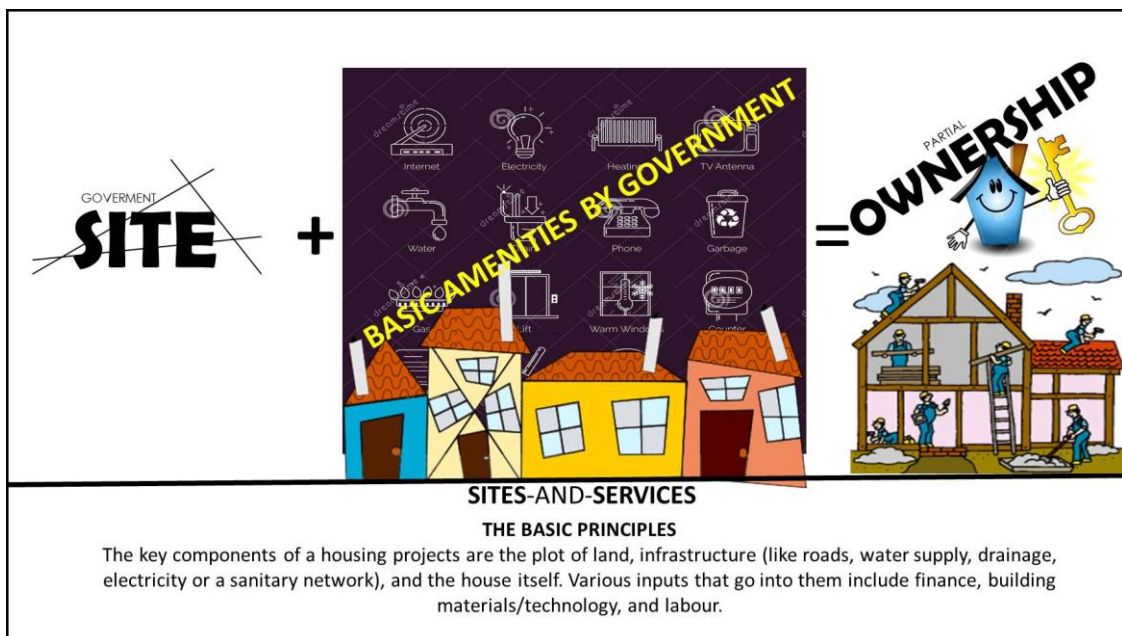


Figure 5 Basic Principle of Site and Services Scheme

Source: M.H.A.D.A, 1986

Site and services is an approach to bringing shelter within the economic reach of the poor people especially for the slum and squatter settlements. Between the early 1970s and 1998 the World Bank invested in 100 sites and service projects across 53 countries with a total investment of \$14.6 billion. In case of Nepal, Government has implemented three Site and services project for the first time in mid 70s in

Kathmandu Metropolitan City i.e.: Kuleshwor Site and Services, Galfutar Site and Services and Dallu Site and services. Later on Dallu site and services is converted to land pooling project. First site and services scheme was kuleshwor, which was developed in 522 ropani of land.

3.2.1.2 Guided Land Development

Guided land development (GLD) is a land management technique for guiding the conversion of privately owned land parcels in the urban boundary from rural to urban uses through the infrastructure systems (Pokhrel, 2016). Guided land development is undertaken in the partnership with land owners, who can be participated by donating their land for the better levies. To facilitate the area with Infrastructure planning, this process is the best way to achieve the necessary targets.

In the case of guided land development, all the owners along its route must agree to provide land for a road. Mattingly (1994) states various difficult problems that may arise during the implementation of Guided land development projects. They are:

- Junctions with existing roads (the entry points to the new roads), where those who have access already provided by the existing road see no advantage in giving land to start a new road, and
- Very small plots, whose owners will be left with too little land to use for themselves if they give land for a road,.

Furthermore, Mattingly explains, for the guided land development to work, it is necessary to have power and resources to

- Pay compensation in difficult cases
- Force participation at the entry points,
- Forcibly acquire land from the few land owners who object to the scheme.

In practice, guided land development has been successful only in widening the rights-of-way for existing roads. Yet, there is little or no money for actual road construction (Mattingly, 1994).

3.2.1.3 Land Pooling:

The land pooling scheme is regarded as one of the best land development techniques for planned provision of urban infrastructure and supply of urban land without external investment. The land pooling process consists of acquiring large number of small land parcels belonging to many land owners; consolidating the parcels into a single large plot; planning and providing all necessary infrastructure (such as road, water supply, drainage, electricity and telephone, open spaces, community service area); re-plotting the parcels; and giving back to the owners as per agreed terms of land contribution. Government and its consultants favor land pooling above the others, mainly because it has the enormous advantage of avoiding the problems of land acquisition and compensation.

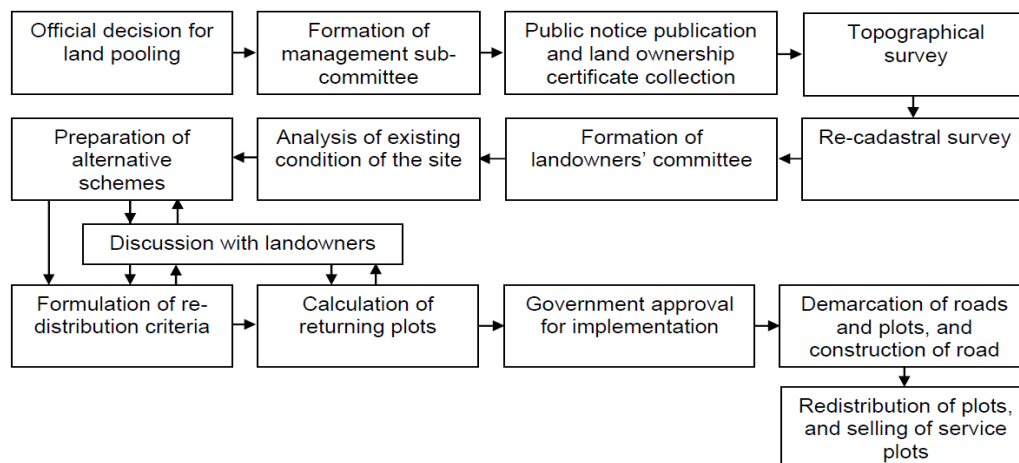


Figure 6 Flow Chart of Land Pooling Procedure (Source: Joshi, 1997)

R-CDTA (2017) points out the following features of land pooling project :

- Self-financing mode
- Fair and transparent procedure
- Participatory approach
- Open space and community space
- Effective use of land parcels
- No displacement of land owners
- Parallel provision of infrastructure

3.3 Site and Services:

Rapid growth of urban areas in most developing countries within the previous few decades has led to shortfall in many sectors, primarily housing. The matter has been two-fold: on one hand, the majority of the people moving to the urban areas have lacked the required asset and financial holdings so as to accumulate a "decent" house. On the other hand, the designated government agencies and bodies haven't provided sufficient housing units which are affordable for the poor majority in urban areas. The proliferation of slums and squatter settlements has been a results of this scenario. But a growing understanding of the dynamics involved within the development and expansion of squatter settlements has led to variety of innovative housing schemes in various developing countries to resolve the "dilemma" of housing. Particularly with the intention of improving the environmental quality of slum and squatter settlements it with the fundamental necessary infrastructure, one such innovative schemes which has received wide acknowledgement has been "sites and services" schemes.

The realization that providing a "complete" serviced house by government isn't possible or just can't be afforded by most low-income families prompted a shift focused from supplying a completely serviced house to it of providing only serviced land. The key characteristic of this approach is the utilization of the beneficiaries' "sweat equity" and other internal resources within the actual construction and development of the homes.

Between the early 1970s and 1998 the World Bank invested in 100 sites and service projects across 53 countries with a total investment of \$14.6 billion. The objective of sites and services programs was delivery of incremental housing for the poor through the provision of small serviced plots, sometimes with a core unit. The approach emerged in the early 1970s as a response to the rapid slum expansion and failure of past government affordable housing programs. However, after mixed implementation experience, the sites and services model was widely discredited, and ultimately abandoned in the mid-1990s by the international development community (Kathryn E. Owens et al., 2016).

3.3.1 Historical Development of Site and Services Concept:

The genesis behind Sites-and-services schemes is not new: low-income people have always been housing themselves, albeit "illegally", in most urban areas of the developing world. The key departure from earlier housing schemes, like low-cost housing or subsidized high-rise housing units, is that it recognized the ability of the low-income households to build their own house, provided an opportunity was given. (Srinivas, 2019)

Particularly in face of the failure of the standard housing approaches, in addition to variety of studies that pointed out the ingenuity and perseverance of squatters to deal with them, providing sites and services only was touted as a answer to the issues of housing the poor in developing cities. Many countries in South America, Asia and Africa took up this idea, and with the World Bank strongly advocating this approach and providing key finance for variety of projects, the thought received widespread approval.

But after its implementation Sites-and-services schemes have also faced considerable opposition and failure in an exceedingly number of projects, primarily due to a series of assumptions and misconceptions on the way within which low income families house themselves.

3.3.2 The Basic Principles of Sites and Services:

The key components of a housing scheme are the plot of land, infrastructure (like roads, water supply, drainage, electricity or a sanitary network), and also the house itself (Srinivas, 2019). Various inputs that get in them include finance, building materials / technology, and labor. Thus, the sites-and-services approach advocated the role of government agencies only within the preparation of land parcels or plots with certain basic infrastructure, which was to be sold or leased to the intended beneficiaries (Srinivas, 2019). Future step of actual house and building was left to the beneficiaries themselves to use their own resources, like informal finance or family labor and various other sorts of community participation modes to make their house. The beneficiaries could also build the house at their own phase, looking on the provision of economic and other resources (Srinivas, 2019). This adopted the basic principle of the development of a squatter settlement but without the "squatting" aspect.

3.3.3 Typologies in Sites and Services Schemes

Following the basic rule of a plot of land (sites) and essential infrastructure (services), the degree of participation and inputs of the implementing agency on one hand, and the beneficiaries on the other, sites and services schemes were activated in a number of differing ways ranging from an empty plot of land and some services (like water, electricity and sanitation connections) to the provision of a "core" house (consisting of a toilet and kitchen only) on the plot of land with attached services (Srinivas, 2019).

As stated by Srinivas (2019) some of the variations attempted in sites-and-services projects include:

a) Utility wall:

A "utility" wall is built on the plot which contains the connections for water, drainage, sewerage and electricity. The beneficiaries had to build the house around this wall, and utilize the connections from it. Some projects provided this utility wall in the form of a sanitary core consisting of a bathroom/toilet, and/or a kitchen. (Srinivas, 2019)

b) Latrine:

Due to its critical waste disposal problem, many projects provide a basic latrine in each plot.

c) Roof frame/ shell house, core house:

“The roof is the costliest component of a house and requires skilled labor to build. Therefore, some projects provide the roof structure on posts, and the beneficiaries have to build the walls according to their requirements. Conversely, a plinth is sometimes built by the implementing agency, which forms a base over which the beneficiaries can build their house. Other variations to this are the shell house (which is an incomplete house consisting of a roof and two side walls, but without front or rear walls) and a core house (consisting of one complete room).” (Srinivas, 2019)

d) Shortcomings of the Sites and Services Approach:

Srinivas (2019) in his article Sites and Services states the shortcomings Sites and Services Approach which are:

e) Location:

With high land costs in urban areas, most sites-and-services schemes are located on the fringe where cost of land is not very high. Therefore, the large distance between the site and existing delivery networks, off-site and on-site provision of infrastructure is high and construction can be delayed. And also the extra distances that the beneficiaries have to travel to the employment centers would discourage many beneficiaries to take advantage of such schemes.

f) Bureaucratic Procedures:

Selection procedures, designed to ascertain that applicants meet eligibility criteria, tend to be clumsy, time-consuming, and provide opportunities for corruption. Besides, for many low-income families, the eligibility criteria are impossible to meet due to informal sector jobs or low/irregular incomes.

g) Delay in provision of Services:

Due to a lack of coordination between the various implementation agencies and a "spread" of responsibility of providing the infrastructure and services, there is considerable delay in the final provision the services, even after the land has been allocated to the beneficiaries.

h) Standards:

High standards of construction and building quality are set by the implementing agencies making such schemes unaffordable to the target beneficiaries.

i) Cost Recovery:

Most sites and services schemes have resulted in poor cost recovery. One reason is the high costs that beneficiaries have to bear shortly after moving into the scheme.

Main reasons for poor recovery has been delay in provision of services, inadequate collection methods, lack of agreements for non-payment and absence of political will to enforce payment. (Srinivas, 2019)

3.3.4 Site and Services Scheme in Case of Nepal:

The government of Nepal has planned some residential neighborhoods through the site-and-service program in the late 1970s and the land-pooling program in the late 1980s. The private sector's involvement was also acknowledged after enactment of the 1997 Joint Apartment Act, which was approved in 2002.

In contrary to the Site and Services concept developed in other nations of the world, The Kuleshwor Site and Services Project (KHP) was developed for civil servants working in the government offices who did not have their own house or land, with an area occupying 26.5 hectares (522 ropani) of land in 1977.

In the Kuleshwor Site and Services, development was limited to combining irregular lots into regular ones and providing vehicle access to each property. The plot configuration, street network layout and provision of infrastructure were project-specific because planning standards and guidelines did not exist. In fact, the plot size was first defined, which dictated the entire layout plan. As a result, the street network in these neighborhoods has become the spaces left over after developing serviced plots. Hence, the intersection network itself lacks a well-defined hierarchy and these intersect poorly, with insufficient space for turning vehicles.

3.4 Public Space

Public space is any space to which the public have access. It is a social space that is open and accessible to all, regardless of gender, race, ethnicity, age or socio-economic level (Wikipedia, 2019).

The public place can either be an open one or a covered one. They can be spaces between buildings, adjacent to, or within buildings. The parks, plazas, squares, etc. are the open public spaces while the libraries, hospitals, campuses, shopping centers, etc. are the covered public spaces.

Carr et al. (1992, cited in Chitrakar 2006, 12) define public space as the “common ground where people carry out the functional and ritual activities that bind a community, whether in the normal routines of daily life or in periodic festivals”.

3.4.1 Public Open Spaces

In 1906, The Open Space Act of Britain provided the first clear definition of open space as follows: “Open space” pertains to “any land, whether enclosed or not, on which there are no buildings or of which not more than one-twentieth part is covered with buildings, and the whole or the remainder of which is laid out as a garden or is used for purposes of recreation, or lies waste and unoccupied” But recently open space can be defined as “managed space, typically green and available and open to all, even if temporally controlled” (Chen et al., 2016).

Public open spaces mainly include community parks, outdoor playgrounds, public-access courtyards, water fronts, and small squares around commercial and public buildings. In my study, open spaces refer to areas left open for public use in urban communities, whether green or not, such as a park, playground, or courtyard. The open spaces located in high-class residential buildings and bungalows are not included in this research because they are not open to the general public.

Public open space is defined as “all open space of public value, including areas of water such as rivers, canals, lakes and reservoirs (not just land) which offer important opportunities for sport and recreation and also act as visual amenity” (Alexander, 1977).

Public Spaces as expressions of human endeavor and artifacts of the social world are the physical and metaphysical heart of the cities, thus providing channels for

movement, nodes of communication and common ground for cultural activities.”
(Whyte 1980)

Public Open Space can be defined as:

Public: open to or shared by the people;

Open: not closed or blocked up, allowing entrance or passage or access to public; and

Space: interval between points or objects, area.

From the above, Public space can be defined as a common area that's not closed or blocked up and provides access for people to share. It's space that's shared with strangers, a representative place for enjoyment, gathering, politics, religion, commerce, sport. Public open space is an important part of a city with quality spaces having a huge impact on a city ranging overall areas including social, economic and environmental benefits. Open space can enhance the character of residential areas, civic buildings, conservation areas, listed buildings and archaeological sites.
(RECPHEC, 2016)

Chitrakar (2006), in his study states that the open space can be lively and vibrant only when it is properly use and different activities takes place there. The public open spaces in their role of supporting human activity serve as:

- Spaces of assembly
- Space of trade
- Movement space
- Place for recreation

Public Open spaces are the outdoor spaces which can either be a man-made place of hard landscaping, traditionally adjoining a great public building i.e.: squares or plazas or can be a green space of soft landscaping, embracing the phenomenon of nature i.e.: parks or the combination of both in a suitable manner. Public open space is an integral part of urban life. The open space covers a significant amount of urban fabric and this is where most of the human interactions take place. Open

The term 'Public Open space' came into practice in 19th century in United Kingdom and United States, with a view of allocating spaces to improve the health and quality

of life of the working class people who lived in squalid and congested living environment (Giles-Corti et al., 2005). Public open spaces are key built environment elements within neighborhoods intended to encourage various physical activities, provide a number of significant benefits, and serve various important functions that improve the quality of life in cities,

In urban and landscape planning studies, the quantity and quality of open spaces in a community have been eliciting increasing attention. Open spaces can promote residents' outdoor activities, which in turn help reduce stress and provide opportunities that promote relaxation (Chen et al., 2016).

3.4.2 History of Open Space in Kathmandu Valley:

Traditional urban spaces are simply the creation of their times. Their forms simply follow nature and respect the culture of their society that they possess high degree of urbanity. Thus, they reflect high quality of civility and architecture (Spreiregen, 1965)

The history of public open spaces in Kathmandu originated from the traditional Newari settlement of Kathmandu Valley which was planned in concentric rings with the outermost ring for the agricultural purpose a sustainable place from the environmental and ecological point of view. The traditional town is characterized by the narrow streets and alleys and the open spaces with distinct neighborhood pattern. Every individual houses are connected with the nani or residential courtyard which is successively connected to the road. The streets are connected to the big open spaces with the landmarks. The historical monumental zones and the temple areas serve open spaces within the traditional settlement. Every traditional pathways junction has been marked with some religious and or cultural elements, like temples, Bahi, well, stone spout, pati etc.

Traditional towns of Kathmandu Valley consist of numerous urban squares –public spaces where a great amount of human interaction takes place till date. (RECPHEC, 2016)

Tiwari (1998), explains the phenomenon of development of urban squares as follows:

The towns had farmlands all around the settlements and across the river causing the growth of radial streets to rivers and farms- two or more of these streets would then join as they reach into the town – such nodal points developed into squares with

increasing social importance as they got closer to the city center. All such streets would ultimately converge in the Durbar Square, the central palace nodal point, where all social activities also converged.

Public open space in Kathmandu has spaces equipped with community amenities (well, public tap, etc.) and religious structures (temple, square platform, rest place, etc.) (Hoksen, 1974).

Public open space in traditional towns of Kathmandu Valley have become the stages for interacting different age groups at different period of time and seasons: worshipping place for old people within the early morning; grain drying and cloths washing venue for housewives within the afternoon; field for kids and watching and conversation place for adults within the evening. Besides, these open spaces have cultural values as various processions are done here. This combined with the significant places like 'chhwasa' (a place protected by a demon) and 'lachhi' (private space in front of the house allocated for public use) has added cultural meaning to the streets and public squares.

Street width to building ratio within range– brick exposed façade, vertical oriented wooden windows and sloped roof with little variation on rooflines –contribute to the formation of 'sense of enclosure' and 'human scale' for pedestrians. Visitors feel mystery, surprise, excitement and anticipation due to sequential spatial event and singular composition (Shrestha, 2010).

There is tradition of keeping large open spaces (called khyo) for public benefit at the peripheral areas in 'newari' towns. Buddhist shrines, 'patis' (public rest place), 'dabali' (square open platform) and an artificial square pond, provide opportunity for socialize. (Joshi, 2017)

3.4.3 Features of Public Open Spaces in Traditional Towns of Kathmandu Valley

3.4.3.1 Palace Square

This was the main public square shaped by the perimeters of the palace complex in conjunction with number of temples, raised performance platforms and sculpture elements like statue pillars. This square confirmed to the viable image of a public open space by the virtue of concentration of an array of activities within the style

of major cultural proceedings like festivals and socio-political gatherings. The palace square actually acted as an open-air theatre, uniquely achieved by the demarcation, hierarchy and flow of spaces within spaces (RECPHEC, 2016)

3.4.3.2 The Market / Civic Squares

These were the main Market nodes for commercial exchange. Moreover, these were the general public places for daily socializing, foyer for squares beyond and collection space during earthquakes, often marked by temples and structures of spiritual and landmark values.

3.4.3.3 The Neighborhood Squares

People lived in communities, both socially and culturally. From the streets, the alleyways, often through the buildings, result in the inner neighborhood courtyards. These were either the community courtyards of certain occupation groups or the Bahas and Bahis of Buddhist Monastery. These courtyards functioned for multiple activities just like the feasts, drying of grains, and play area for youngsters, specific religious and communal proceedings, and space during hazards and even for laundry clothes, bathing and mere gossiping. Most suitably, community well, water tank, orchestra pavilion, Buddhist stupas and shrines marked these spaces.

More often, a range of more private family courtyards called the nani, chuka and paukya in local language were located deeper inter-connected with the neighborhood squares. Also, some private courtyards with arcane shrine were also there. (RECPHEC, 2016)

3.4.3.4 The Transitional Spaces

Beside the public and community spaces, there were also transitional semi private/public spaces, called the lacchi. These spaces were formed by setting back of buildings along the street at certain strategic points. These spaces were for making offerings to the chariot during the festivals. Sometimes some public rest house, water spouts or wells were placed at these spaces.

3.4.3.5 Religious Open Spaces

These are the open space near city or within city, which highlight daily religious activities. It also makes a special visit day for cultural and festival events. It creates the worth of temples and structures of spiritual and is landmark of the country. (RECPHEC, 2016) It helps to develop good connection and linkage with neighborhoods. Religious open spaces also consists of rest house and stone water spout to facilities the visitors.

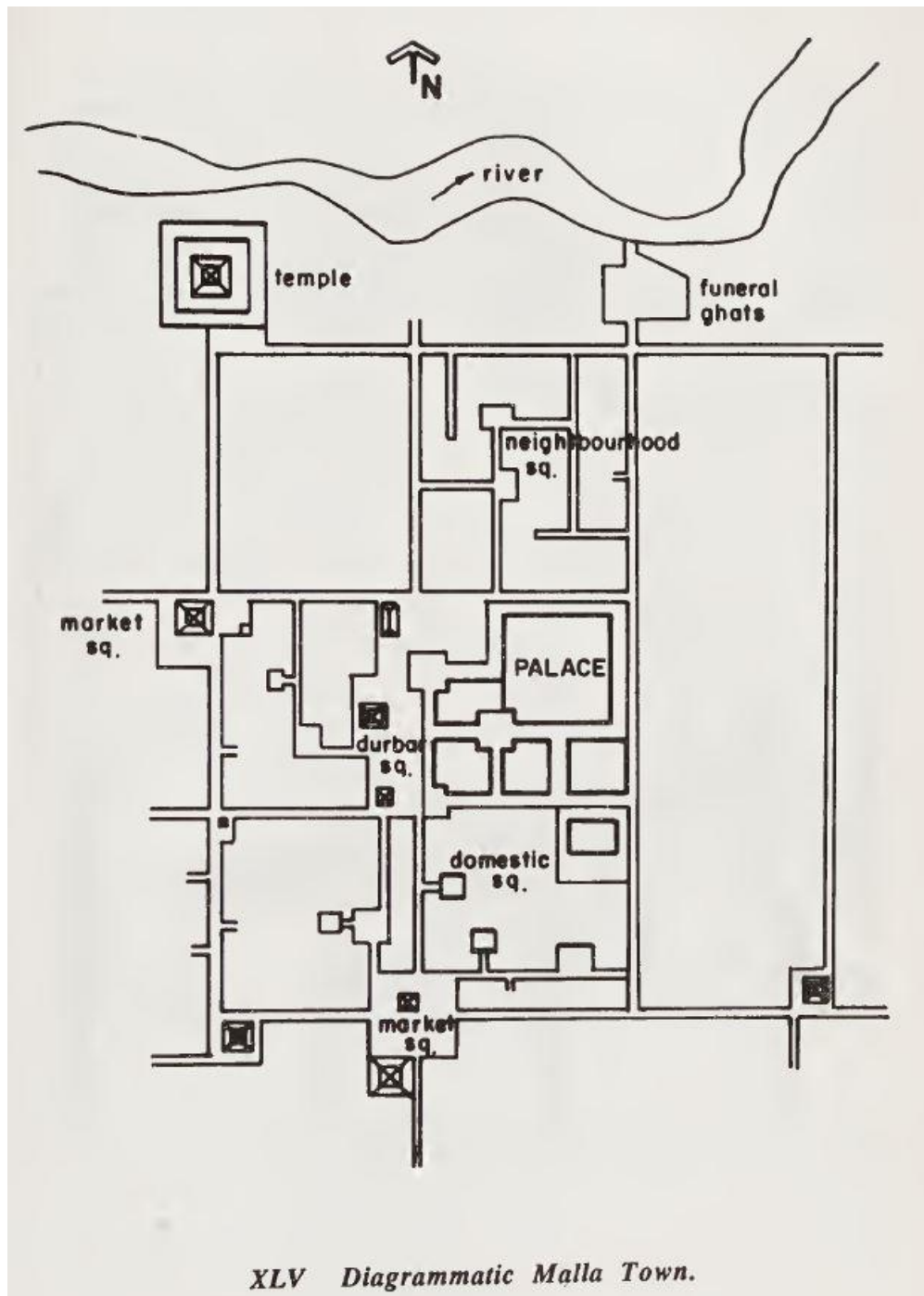


Figure 7 Diagrammatic Malla Town

(Source: (Tiwari, 1989))

3.4.4 Contemporary Public Open Space in Kathmandu Valley:

Urbanization pattern of Kathmandu valley is rapid and haphazard. Kathmandu Valley, has witnessed a rapid and significant growth of its towns over the past decades. Due to political change of 1951, it opened to migration from other parts of the country and exposure to globalization also with the development of physical and other infrastructures helped in increasing population of Kathmandu. With recent effects of urbanization, most of the open spaces in Kathmandu Valley are being replaced by urban structures.

The emerging contemporary neighborhood couldn't follow the essential system of neighborhood and public urban space. Community living culture is diminishing and pondering own boundary arise in modern time. Failure in public dimension of planning and design has created new set of problems - discontinuity in traditional architectural, destruction of community spaces and intensification of earthquake vulnerability. (RECPHEC, 2016)The earlier use of public open spaces by different people at different period of time for multiple activities has been illegally encroached upon by incompatible commercial activities.

The urban open space design in contemporary urban development of Kathmandu Valley demonstrates numerous problems starting from lack of open spaces itself to their poor design, improper or lack of use and lack of maintenance (Chitrakar, 2006).

The lack of conducive public open space in contemporary residential neighborhood decreases the interaction among residents. Isolation, feeling of low confidence and fear are unpleasant effects of leading less socializing and participation. (RECPHEC, 2016) With rapid urbanization- agriculture area, river bank, cultural/heritage areas are encroached. Therefore, the demand of open spaces is increasing and on the other side due to different development constructions, there is rapid decrease in open spaces.

Chitrakar (2006), mentioned in article describes following problems with open space design in Kathmandu Valley:

a. Hapazard urban growth

Due to rapid population growth, the physical growth of urban areas in Kathmandu Valley is taking place without any vision. There are some planned neighborhoods but

lack the concern towards better open space formation and lack the design principles resulting in unsatisfactory open space.

b. Lack of open space

The new settlement areas of Kathmandu Valley lack the amount of open spaces. In some of the cases there are no open spaces in any form except the street space.

c. Lack of sense of enclosure in open space

The open spaces in new settlement areas lack proper enclosure to define a space. This is evident in multiple factors such as the layout of surrounding buildings lacking continuous façade formation, different set back provisions, the scale and proportion of space and the surrounding buildings, and varying building height profiles (Shrestha, 2005).

d. Disappearance of urban elements in open space

Almost all the newly formed urban open spaces of the valley demonstrate lack of urban elements such as temples and others in them to make the spatial setting functionally efficient as well as visually exciting. Even if the elements are present, the presence is not conducive to better open space design.



Figure 8 Public Space with no urban elements

e. Loss of Identity

Open spaces are one of the most important features in traditional towns of Kathmandu valley whereas due to rapid urban growth haphazard development takes place in new settlements. Open spaces there lack visual coherence and no longer demonstrate any identity.

f. Changing Social values and Lifestyles

The social fabric has changed drastically due to rapid population growth due to migration and other many reasons including economic and technological development. Also western influences have also brought changes in people's life. These changes impact on the way people used open spaces. This results in decrease of social relation between the neighbors and people participation and use of public spaces also decreases.

3.4.5 Management of Contemporary Public Open Space

“Great public spaces are not simply made once. Even beyond the more tangible arts of public space design and programming, public spaces are made and remade again and again in the everyday management decisions made around maintenance, public safety, social services, programming, furnishings, and so much more (PPS, 2019).”

Magalhães and Carmona (2008, cited in Chitrakar 2006, 32) defines “public space management is the set of processes and practices that attempt to ensure that public space can fulfill all its legitimate roles, whilst managing the interactions between, and impacts of, those multiple functions in a way that is acceptable to its users”. They have conceptualized public space management as being made up of four interlinked processes that apply whether its activities are undertaken by public sector agencies, by or community based organizations, or by private sector companies

a. The regulation of uses and conflicts between uses

The use of public spaces and the conflicts between uses have always been regulated. Regulation sets out how public spaces should be used, sets a framework for solving conflicts between uses, determines rules of access and established acceptable and unacceptable behavior (Chitrakar, 2006).

b. The maintenance routines

Public spaces and also the infrastructure, equipment and facilities assigned in them must be maintained so as to perform the functions that validate their existence. These concerns anything from ensuring those public spaces are usable, uncluttered, clean and safe, maintaining the surfaces of roads, street furniture, lighting, vegetation and facilities of all types; to removing anything that may ruin or offend the imagery invested in civic spaces.

c. The new investments into and ongoing resourcing of public space

Regulating uses and physically maintaining public spaces requires resources – financial and material. The degree to which regulatory instruments and maintenance routines may be effective is linked to the number of resources dedicated to those activities.

d. The coordination of interventions in public space

Regulation, maintenance and resourcing are likely to involve a wide range of individuals and organizations, directly or indirectly, there's a necessity to coordinate mechanisms to confirm that the agents responsible of these activities pull within the same direction.

3.4.6 What makes Successful Public Space?

Project for Public Spaces(2018), states that “Great public spaces are where celebrations are held, social and economic exchanges take place, friends run into each other, and cultures mix. They are the “front porches” of our public institutions – libraries, field houses, neighborhood schools – where we interact with each other and government. When the spaces work well, they serve as a stage for our public lives”

Jóna(2018), in his study mentioned that within the framework of the Project for Public Spaces worldwide more than 1000 public space were studied which results in turned out that the success of the public spaces basically depends on four things:

- Access and Linkage
- Use and activity
- Sociability
- Comfort and Image

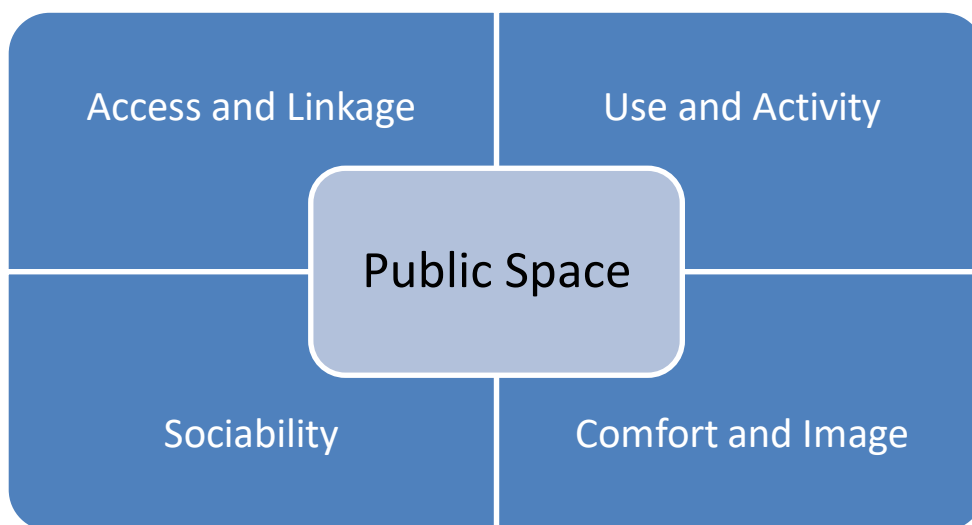


Figure 9 Key qualities of successful public spaces

Source: PPS, 2019

“Access and Linkage” aims at describing the accessibility relationship between the public open space and the surrounding environment to define its approach. Easy to access is really important for making the successful public space. Accessibility of a place can be judge by its connection to the surroundings, both physical and visual (Project for Public Spaces, 2009). Successful public place is easy to get in and get out and can be easily visible through distance and nearby. The successful squares form

eastern and western globe are not just well walked around and usable but there leading roads are also safe and interesting to the pedestrians (Jóna, 2018). Public space should be accessible to and used by all. The edges of a space are important as well: For instance, a row of shops along a street is more interesting and generally safer to walk by than a blank wall or empty lot (Project for Public Spaces, 2009). Pedestrian activities, traffic data, mode of transport and parking availability are important factors for defining access and linkage.

Use and activities depends on how often do people of both genders and all ages tend to participate in activities within public open space, either individually or in groups. The use and activity is also equally important for the better public space. What kind of use and what activities do occur define the public spaces. Having something to do in public space, give people reason to come to that place and return. When there is



nothing to do, a space will be empty and that generally means that something is wrong (Project for Public Spaces, 2009).

Figure 10 Use and activity in public place

Sociability refers to the social life of people, who belong to different categories in terms of age, gender, and class, to instill a strong sense of place and attachment among them towards their community (Gawad et al., 2019). Community spirit is one of the basic needs for the successful public space. Social life is basic



Figure 11 People sitting on Suitcase in absence of sitting space (Source: Project for Public Space)

element for the every successful public space. The important point in developing a concept for any public space is to identify the talents and assets within the community (PPS, 2019). Besides of the Project for Public Spaces, many other researches has proved that for the people interaction is one of the most important activity on a public space besides the meeting with friends or family members to meet strangers (Jóna, 2018). When people see friends, meet and greet their neighbors, and feel comfortable interacting with strangers, they tend to feel a stronger sense of place or attachment to their community – and to the place that fosters these types of social activities (Project for Public Spaces, 2009).

The criterion of Comfort & Image concerns with the sense of comfort in terms of safety, cleanliness, the availability of seats within, and surroundings of the public places. The importance of giving people the choice to sit where they want is generally underestimated (Project for Public Spaces, 2009). Public spaces have to provide the opportunity that anytime, anywhere people would be able to sit down or use them in any way. Many public spaces don't even provide a place to sit. So, in their prolonged quest just to be comfortable, people are often forced to adapt to the situation in their own way. Sometimes they simply give up or have to adapt in the existing condition (Project for Public Spaces, 2009). Lack of good places to sit is equally important issue. Environmental quality (i.e: air quality, noise level, solidwaste management, drainage system) alsodepends on success and failure of open space. Good environmental quality helps in providing the comfort to the user using public open spaces. Other than this safety of people using the public space is also another important factor to be considered for creating successful public space.

3.4.7 Policy, Acts and Regulations for Public Open Spaces in Nepal

3.4.7.1 Building Byelaws 2064:

In order to control the rapid urbanization in Kathmandu Valley, Metropolitan councils and municipalities in valley has adopted byelaws for the area. These bye laws are prepared for different zones which are divided as:

- i. Cultural Heritage Conservation Zone
- ii. Residential Zone
- iii. Institutional Zone
- iv. Industrial Zone

- v. Preserved Zone
- vi. Urban Expansion Zone
- vii. Surface Vehicle Zone
- viii. Airport Zone
- ix. Sport Zone

i. Cultural heritage and conservation zone:

It is further subdivided into three sub categories.

- a. Preserved Monument Sub-zone
- b. Preserved Cultural Heritage Sub-zone (Conservation Sub zone)
- c. Mixed old residential sub-zone

a. Preserved Monument Sub-zone :

In this Preserved Monument Sub-Zone there are different places carrying archeological as well as historical importance such as Bahals, Bahils (courtyards), temples as well as palaces. Therefore, permissions from the related authorities is given considering the various impacts on the historical, cultural as well as architectural surroundings and without the misuse of the ancient architecture.

1. The maximum floor to floor height is 8 ft. for each floor. And maximum floor height is 35 ft. (10.7m). But if the constructed building with maximum floor height obstructs the historical, architectural value of the nearby building, permission won't be granted and the construction would only be allowed if the height is to be less than 35 ft. and it does not cause any disturbance to the monument nearby.
2. Construction of the building with the visual appearance of the RCC and steel frame will not be allowed. It would be allowed if it is covered with decorative Nepalese style bricks and wooden struts.
3. Provision of balcony or slope roof of maximum 3ft. width is permitted at the 3rd floor level.
4. Doors and windows should be made of timber material and their length and breadth should be that of the traditional Nepalese style and architecture.

5. Apart from the temples, ordinary house's roofs should be of two sided roof. The tiles to be used are Jhingati tiles or other tiles made of mud placed 250 to 350 slope.
6. Balcony can be constructed but without facing the Hanuman Dhoka Palace compound. In special cases, the area of the balcony can be added or reduced accordingly.
7. In common case, construction of the wooden balcony is allowed in the 3rd floor within the site area.
8. The plot shown in the plan of the current courtyard should be maintained.
9. All the waste must be disposed off on the location recommended by the municipality bye-laws.
10. Any construction works are to be done with the permission of the local community, regional office and the historical department office.
11. Any kinds of advertisement posters are not allowed to be placed in this subzone.
12. For demolition of any structures in this sub-zone permission from the Archeological department is necessary.

b. Preserved Cultural Heritage Sub-zone (Conservation Sub zone)

Preserved Cultural Heritage Sub-zone includes area developed during historical development which reflects ancient urban character, including streets, courtyards, monuments, houses with traditional architecture and temples.

1. The minimum ground coverage for construction of a new building in an open space is 80% and FAR is 3.75.
2. The maximum no. of floors must be 5 and the maximum height of a building including the stair cover must be 45 ft. i.e. of each floor to floor height is 8ft.
3. Height of the building must be maintained so that it does not affect the traditional streetscape of the city core area.
4. Provision of basement or semi-basement is permitted if it doesn't interface other buildings, surrounding monument source of dhungadhara.
5. Approval of municipality is needed for the demolition of old buildings.
6. The construction of temporary sheds, walls is prohibited in the traditional chowks.

7. Projecting any kinds of cantilever, verandah or rooms are also not allowed in such chowks.

c. Mixed old residential sub-zone

Mixed old residential sub zone includes the area in traditional core settlement area which is not included in Preserved Monument subzone and Preserved Cultural Heritage Sub-zone.

1. The maximum ground coverage is 80%, for 1 Anna cent percent and for the old structures which are to be built after the demolition is same as their previous area.
2. The maximum no. of floors is 5, and the maximum height is 45 ft. (13.7m). FAR is 4 in new building in open land and 4.5 in reconstruction of old building.
3. The maximum ground coverage of the cinema hall, theatre, super market and the commercial complex must be 50% and FAR is 2.5
4. The rainwater is to be collected through the pipeline in the roof and brought to the ground floor
5. Construction of the balcony, room or staircase above the public road as well as courtyard is not allowed.
6. Structures carrying the architectural importance which are addressed by the ward offices for conservation is not allowed to be demolished divided or sell.

ii. Residential zone:

Residential zone is further sub divided into four categories.

a. Commercial Sub-zone

Commercial Sub zone has commercial activities and road access of 14m with access to footpath, highways, special roads and ring road. Area

b. Dense Mixed Residential Sub-Zone

This sub-zone includes commercial zone not included in commercial subzone.

c. Other Residential Sub-Zone

This subzone includes remaining areas in residential zone. Provisions for the

Other Residential Sub-Zone is:

S.N.	Building Type	Plot Area	Gross Ground Coverage (GCR)	Floor Area Ratio (FAR)	Maximum permissible area for construction
1	Residential	2 anna 2 paisa up to 8 anna	80%	1.75%	Area x 1.75
2	Residential	More than 8 anna	60%	1.75%	Area x 1.75
3	School	More than 8 anna	40%	1.5%	Area x 1.5
4	Government Offices	More than 8 anna	40%	1.5%	Area x 1.5
5	Hotels	More than 8 anna	40%	3%	Area x 3
6	Cinema Hall	More than 8 anna	40%	2%	Area x 2
7	Cottage Industries	More than 8 anna	40%	1.5%	Area x 1.5
8	Supermarket	More than 8 anna	50%	2%	Area x 2

Table 1 Provisions for Other Residential Sub Zone

Source: Building Bye Laws 2064

d. Planned Residential Sub-Zone

1.	Road Width	Criteria
a.	Access to main road	Minimum 7m
b.	Way to each block	Minimum 5m
c.	Way to each plot	Minimum 4m
d.	Cul de Sac	Not greater than 60 m
2.	Plot Size	
a.	Plot Width	Minimum 6m
b.	Plot Area	Minimum 2 anna 2 paisa
3.	Plot Depth	

a.	2 anna 2 paisa to 4 anna	1.5 x width
b.	4 anna to 8 anna	1.75 x width
c.	8 anna to 12 anna	2 x width
4.	Public Open Space (Existing Roads)	
a.	5 Ropani to 10 Ropani	5% of total land
b.	10 Ropani to 25 Ropani	4% of total land
c.	25 Ropani to 100 Ropani	3.5% of total land
d.	100 Ropani above	2.5% of total land

Table 2 Provision for Planned Residential Subzone

Source : Building Bye Laws 2064

3.4.7.2 Building Byelaws 2075

The Gorkha Earthquake on Baisakh 12, 2072 brought huge loss of human lives and property in Nepal. Buildings and infrastructure for education, health, business, government offices, and water supply were destroyed by the earthquake. Therefore, Government of Nepal, Ministry of Federal affairs and Local development with the coordination and technical support from Ministry of Urban Development revised the existing byelaws.

i. Provision of Open spaces:

Municipalities are responsible for the maintenance and conservation of the open spaces. Public lands available in the municipality shall be declared as open spaces and developed as green space and garden. No public land shall be allowed to use by any agencies without the cabinet decision.

ii. For planning permit

For planning a new settlement area, open spaces should be allocated as defined by the local government. Such spaces should be used for public use and in public ownership.

iii. For Basement :

For cultural heritage and conservation Zone only one level basement is allowed and for other zone double basement is allowed with minimum setback of 3 m.

iv. Setback for Residential Building:

Minimum setback for all type of Residential Building is as follows:

- a. Minimum 1.5 m setback for any types of opening and for verandah
- b. For Planned Residential Zone allowed FAR is 3.5
- c. Car porch and atrium in residential building are not included in FAR

v. Right of Way:

- a. Except point no. “b” below, all road minimum setback must be 1.5 m
 - b. For more than 50 m road, ROW for road must be 4 m plus 1.5m extra setback
 - c. For old residential zone, existing 1.5 m alley must be left for the alley during new construction
- vi. For building height exceeding 17 m, minimum setback for building must be 5 m.

3.4.7.3 The Land Use Policy 2072

Land use Policy is the revised version of land use policy 2069 after April 25 2015 with a vision of minimizing risk and providing safe settlement. As stated by RECPHEC(2016), Land use policy 2072 has identified that internal migration, haphazard settlement and urbanization has resulted in the surge of agricultural land and increment in encroachment of government, public and forest lands. It also mentions the lack of open spaces in the urban areas. According to line no. 10 of strategy 3 mentioned in policy 2, minimum green areas, open spaces gardens, sports grounds and recreation areas will be developed in the residential areas of urban and rural areas. Similarly, according to line no. 11 of strategy 3 mentioned in policy 2, open spaces and green belts will be constructed along the both sides of river, road, ponds and canals. In strategy 4 of policy 6, it is mentioned that the residential areas of urban and rural areas will have minimum byelaws for the greeneries and open spaces.

3.4.7.4 Urban Environment Management Guideline 2067

As mentioned in paragraph 6, to manage the open and green areas to make the urban environment clean and pollution free following task will be carried out:

- a. Identify and prepare estimation of the probable open spaces, river banks and other green areas of urban areas and implementation of plans in those areas with involvement of local communities.
- b. As per public area management plan, respective authority will establish a separate section for the management of open and green spaces in the urban area and provide necessary physical, economic, human and other resources.
- c. While preparing plan for urban areas priority should be given to the open and green spaces and 2.5 percentage of land will be allocated at tole level for the development of managed open and green areas. It will be implemented at policy and implementation level.
- d. Endemic plants will be planted along the roads, rivers, garden, park areas etc. and proper management will be done for their take caring. Public private partnership will be developed for this purpose.

3.4.7.5 Planning Norms and Standards, 2013

Planning Norms and Standards, 2013 has mentioned that the minimum area of designated open space will be 2.5% of the Sub-metro city area with a provision of Neighborhood Park (with play equipment), Local Park Community Park, Zoo park and Specialized Park and 5% of the Metro-city area with a provision of Neighborhood Park (with play equipment), Local Park, Community Park, District/ Regional Parks etc. [1 @ 800 population (0.4 ha per site), 1 @ 10000 population (1 ha per site), 1 @ 20000 population (2 ha per site)] in Sub-metropolitan and Metropolitan cities respectively.

3.4.7.6 National Urban Development Strategy 2015

KMC only 0.48% of the area is categorized as open space which is insignificant to serve the city as in neighboring India; Delhi has 20 % of its area as open space. Planned city of Chandigarh has 35%, and even congested Mumbai has 2.5 % (Express, 2011). WHO and FAO recommend a minimum availability of 9 meter² per person of green open space for the city dweller (RECPHEC, 2016).

Based on the Periodic Plan of the municipalities, in Kathmandu the availability is 0.25 meter² per person. It has further pointed out the major issues for open spaces which are listed below:

- a. At the national level, there is no clear and unambiguous policy regarding urban open spaces and parks. The existing provisions are fragmented and embedded within other policies and regulations.
- b. There is no inventory and monitoring of open space. Encroachment of open spaces is a major issue. Decline in open spaces in Kathmandu valley and other major cities owes largely to unmonitored encroachment, a reflection of poor governance.
- c. The types and hierarchies of open spaces within cities and time distance with respect to residential areas are other critical factors that should also be defined and designed to facilitate the planning process

Further the UDS 2015 suggests that 2.5% of land should be allocated as public open green space at ward level (maintained, monitored) in existing urban area which can be supported by inventory of govt. land and open space in urban areas, and 5% of land should be allocated as public open green space at ward level (maintained, monitored) in new urban area which can be achieved by calculating the percentage of open space at ward level. (RECPHEC, 2016)

The Atlas of Open Spaces, KVDA 2015 explains that the policies and programs 2071/72 issued by Government of Nepal mentions that gardens and play grounds will be constructed in various places of Kathmandu (line no. 43). The line no 78 of same document mentions that there will be provision of one play ground for each election area. Further line no. 132 mentions that public lands of Kathmandu valley will be preserved and necessary land will be purchased to allocate open spaces in at least ten places in Kathmandu valley. (RECPHEC, 2016)

CHAPTER 4: CASE STUDY

4.1 Kuleshwor Site and Services Area (Kuleshwor Aawas):

4.1.1 Background

The government of Nepal has planned some residential neighborhoods through the site-and-service program in the late 1970s with the assistance of World Bank. Kuleshwor site and service is first site and service program among them located in Kuleshwor height in present ward number 14 of Kathmandu Metropolitan City at the confluence of Bagmati and Bishnumati rivers. It is believed that in historical time a devotee of lord Krishna named “Godiye Paishnav Ne Muni (गोडिय पैषणव ने मुनी)” meditated in this religious Kuleshwor, made rules and regulations and made Gopal Kings implement them. The name, “Nepal” also comes from this devotee “Ne Muni”. Since temple of lord shiva “Kuleshwor Mahadev” is located here so the name Kuleshwor area also comes from the name of “Kuleshwor Mahadev” (Shrestha, 2070).



Figure 12 Kuleshwor Site and Services Area

Source : Kathmandu valley base maps 1999

4.1.1.1 History of Kuleshwor Site and Services Area:

Lower level employees and small businessmen all around the country were living in small rented rooms to sustain their life. To solve those problems, planned residence became basic need at that time. As stated by Shrestha (2070), In 2031 B.S., providing planned residence for government employees became topic after king coronation ceremony. In 2033 B.S., Kathmandu Valley Town Development Committee was established after that for the implementation of site and services program, searching for the lands and land acquisition task were started. In 2036 B.S., Falgun 18, a notice was published in national newspaper “Gorkhapatra” to buy plot of land for government employees in Kuleshwor Awas and businessmen in Dallu Awas respectively. An employee is only eligible to buy plot of land if he has continued his service for at least 8years and with stake he/she should not have any land all over the nation in their name or their spouse name. A 35 days’ notice was published notifying land buyers to acquire a Rs.10 form and submit it to “Rastriya Shabha Grihaya, Bhrikuti Mandap” after filling the form. No one had experience and practical knowledge on this. So,most of the people returned without buying form and higher level employee didn’t apply by their own identity. Some of them applied in the name of their lower level staff. Much confusion arose when “Employees Provident Fund” made decision not to provide loan to the development committee. Name list of appliers was published in “Gorkhapatra: in 2038 B.S. Ashwin 18. After acquisition of 522 ropani of land by government with compensation rate of R.S. 1,25,000. After that the cost of 517 plot of land increases from R.S. 50,000 to Rs. 95,000 per ropani. The value of the land was determined according to the area of the plot. The rate of plot is listed below:

S.N.	Plot	Value of land per ropani
1	127.18 m ² (4 aana)	50 thousand
2	190.78 m ² (6 aana)	50 thousand
3	254.37 m ² (8 aana)	75 thousand
4	413.35 m ² (13 aana)	85 thousand
5	476.94 m ² (15 aana)	95 thousand

Table 3 Value of land per ropani in Kuleshwor aawas (Source: Shrestha,2067)

After 1st notice, among the government employees only 30% have paid the first installment to acquire the land after signing the “lease counterpart” (kabuliyat nama). There was clash between subordinates (lower level employees) and boss (higher level employees). Agreement couldn’t be made when decision was made to provide compensation at the rate of Rs. 85,000 in Dallu Awas Area. From 2033 B.S. to 2046 B.S., 396 ropani lands remained mislaid. After 2046 B.S., 686 plots of land were distributed by providing 60% to the land owner and 40% for the project implementation committee. (Shrestha, 2070)

From 2040 B.S., government employees from all around Nepal started migrating to Kuleshwor Awas with their families. Although government assured proper management of water, road, sewage, electricity, school, health centers and other facilities, it couldn’t be implemented. How can one survive without water? Shortage of water supply caused death of elderly women in Kuleshwor Awas. Not to mention regular small quarrels in the neighborhood for water, people used to make a scene whenever water tank arrives once a week (Shrestha, 2070) . As described in interview by Madan Shrestha (Treasurer of “Kuleshwor Awas pariwar Kalyan Sastha”), After the death of elderly women government managed to provide water supply form “Godar Gaun” area once a week which was not sufficient enough for the daily requirement of people living in Kuleshwor Awas. After a long period of time with the initiative of Kuleshwor Awas Pariwar kalyan Sanstha, Kathmandu Upatyaka Khanepani Limited (KUKL) installed boring system and Water tank in block A of Kuleshwor Aawas to supply water.

Government started to sell market area and public playgrounds of Kuleshwor Awas. Furthermore, government tried to sell 9 ropani of land. After knowing this all the government employee living in Kuleshwor Aawas attends meeting and decide to open the community school in that 9 ropani of land (Dahal, 2067).

After failure of Dallu Awas project, Planning was done to combine Kuleshwor Awas project with Golfutar Awas project and to sell 500 plots of land in Rs. 18,500 after the acquisition of 213 ropanees of land in Galfutar Awas. Due to bad smell from “Basbari Leather Shoes” factory, those lands were not suitable for human shelter. As the budget of Kuleshwor Awas project was being spent elsewhere, some people protested against it but their voices were not heard (Shrestha, 2070).

Therefore, for the uplifting the standard of people living in Kuleshwor Awas area, an organization was formed known as Kuleshwor Awas Pariwar kalyan Sanstha.

4.1.1.2 Kuleshwor Awas Pariwar Kalyan Sanstha

As stated by Shrestha (2070), At the time when associating with an organization meant welcoming danger is one's life, application was submitted in 2045 B.S. Mangsir 7 to register the institution after developing legislation by group of 11 members. District office Kathmandu offered 11 members to bring recommendation letter of ministry from their respective office. Finally, recommendation letter was submitted. After knowing about the institution registration, secret investigations were made by police, CDO, Ministry of Home and Internal Affairs and even the Royal palace. Finally, the organization was officially registered in 2046 B.S., jetha 18. It was probably the first organization in the whole country which was established by government employees.

The initial committee of 5 members was formed including Bhesh Narayan Dahal, Ganga Dhoj Shrestha, Madan Shrestha, Shukhamaya Bhattacharya, Bishwalal Shrestha. After that again 6 members (Medina Kafle, Devi B. Thapa, Mohammad Abbas, Basu Pasa, Devnath Lal Das, Bishnuman Malaku) were added again by the organizer and a committee of 11 members was formed.

The main objective of formation of organization was:

- a. Physical development of Kuleshwor area sync with different organization including Kathmandu Valley Town Development Committee.
- b. To run financial and social development program in Kuleshwor site and services area.
- c. To improve relation between the community members.
- d. To develop the community school and community health service.
- e. To protect the Public open spaces of Kuleshwor Awas and promote the new public open space development.

4.1.2 Social Background:

Kuleshwor area is planned residential area for government employee all around Nepal, government employee from various places buy plot and migrated to this area therefore the social composition is mixed type. Most of the residents have built their own house and migrated to this area. The building type is mostly residential, with 3-4 storey in average, with maximum houses with tenants. Newly constructed buildings around main road are used for commercial purpose.

4.1.3 Physical Background

Geographical location: Kathmandu Metropolitan City , Ward 14

Total Area = 522 Ropani (16597.55 m².)

Initial No. of Plots = 817 Plots

Green Plot No. = 26 Plots

Green Plot Area = 22 ropani 13 aana (11605.56 m².)

Market Area = 8 ropani 8 aana (4324.27 m²)

Community School Area = 9 Ropani (4578.63 m²)

Road Length = 8401m
7m Road = 1700 m

5m Road = 3050 m

3m Road = 291 m

2m Road = 3360 m

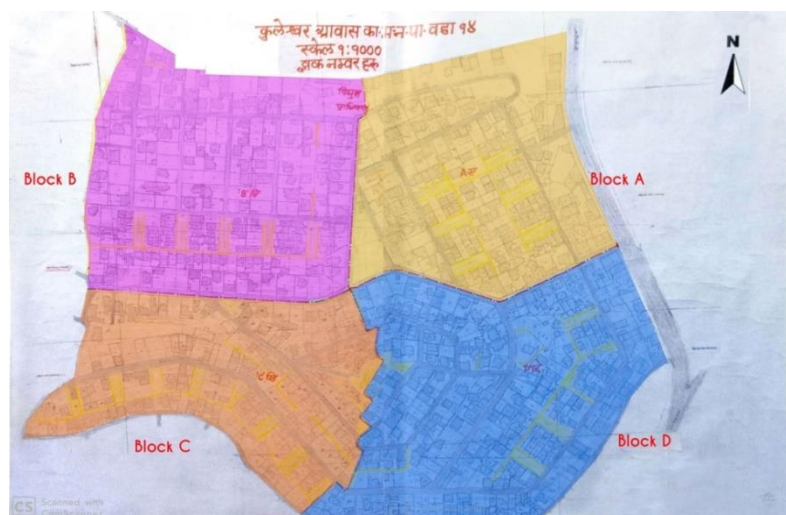


Figure 13 Block Wise Division of Kuleshwor Site and Service

(Source: Kuleshwor Awas Pariwar Kalyan Sanstha, Suchana Pustika)

4.1.4 Planning Concept and Public Spaces in Kuleshwor Site and Service Area in the past:

In 2031 B.S., providing planned residence for government employees became topic after king coronation ceremony. In 2033 B.S., Kathmandu Valley Town Development Committee was established. Kuleshwor Site and Services is first planned settlement in Kathmandu Valley. Kuleshwor area was mostly agricultural land before 2040 B.S. Earlier, at that time there was no facilities of drinking water, drainage, telephone, electricity or any facilities. From 2040 B.S., government employees from all around Nepal started migrating to Kuleshwor Awas with their families.

During an interview conducted on 14 February 2020, Planner Kriti Krishna Nuchee Pradhan stated that initially the land of kuleshwor site and services was used for agricultural purpose. Since the area consists of high contour land. The topography of site area seems to be key factor in determining the planning of Kuleshwor site and services area, since it is located in slope area.



Figure 14 Conceptual Map of Kuleshwor Site and Service Area

Site consists of high contour land and plain land. Contour land and plain land is separated through the 7m wide road and inner area is connected through 5 m and 2m road. The concept of design is based on minimizing the road area and providing

maximum residential plot area. Market area is defined at the highest point of the contour. Market area (8 Ropani 8 aana of land) is located at the center of 7 m road.

Open space is provided at the center of the Market area which is surrounded by building plots containing the shutter area for shops facing towards open space. Also community school area (9 Ropani) is provided on the high contour land. Plot of 4 aana , 6 aana, 8 aana, 13 aana and 15 aana is defined for the residential plots. The plot configuration, public space distribution, street network layout and provision of infrastructure were project specific because planning standards and guidelines didn't exist at that time. In fact, the plot size was first defined, which dictated the complete layout plan.

Parks and open spaces shows less hierarchy but all the open spaces was matched to plot sizes except Tinkuney area which was formed at the cross section of 3 roads. Initially, tinkuney area is demarcated for community services (Feast and festival, community meetings etc).

Open spaces are provided for the 4 aana and 6 aana land. As stated by planner Kriti Krishna Nuchee Pradhan 8 aana, 13 aana and 15 aana residential plot consists of its private open space within the residential plots whereas the plots of 4 aana and 6 aana lacks its private open space so public open space are provided for those plots of land. The general layout of open space provided is illustrated in the figure below. The total allocation of land to open space was 4% in Kuleshwor awas. Open Space is designed in such a way that it is surrounded by houses in three sides and separated by 5 -7 m road.



Figure 15 General Layout of Open Space in Kuleshwor Awas Before

Some plots do not contain open spaces immediately adjacent to their plots; instead they would have access to open space or a park a block or two away, but within the neighborhood.

During an interview conducted on 1 February 2020, Treasurer of Kuleshwor Awas Pariwar Kalyan Sastha, Madan Shrestha and interview conducted on 14 February 2020, Planner Kriti Krishna Nuchee Pradhan stated that open space was initially designed for following purpose:

- a. Creating a suitable place for children to play
- b. It is also designed for the community gathering to improve social relation.

4.1.5 Existing Scenario of Public Spaces in Kuleshwor Site and Service Area:



The total of 27 plots of different shapes and sizes represent the public open spaces in

Figure 16 Existing Public Space of Kuleshwor Site and Service Area

Kuleshwor Awas Area. Total area of public open space is 1.29 ha in Kuleshwor Awas.

The public open space in Kuleshwor Awas area can be categorized into 4 types:

- Fenced public open space
- Poorly managed open space
- Playground
- Temple Area

a) Fenced public open space:

Out of total public open space, 37% of open space is fences and is not accessible in present situation. , 16 of the green plots were fenced with no access to public. During an interview conducted on 1 February 2020, Treasurer of Kuleshwor Awasiyari Kalyan Sanstha, Madan Shrestha states that the fenced open space will be opened for public after the newly planted plants were fully grown. The fenced open space is managed by the neighborhood committee (Upabhokta Samiti) with the help of



Figure 17 Fenced open space

Kuleshwor Awasiyari Kalyan Sanstha. 2 open spaces are converted into park by Ban Karyalaya with the initiative of Kuleshwor Awasiyari Kalyan Sanstha. These two parks are also fenced and soon be open to public.

Market area of Kuleshwor Awasiyari is not used in the present context and part of this market area is converted into fenced open space and doesn't have access to local people. Also rest of the spaces is converted into parking space. Ganesh Temple is present in market area where people can have access in any time.

b) Poorly managed public open space:

14 open spaces in Kuleshwor Awasiyari are not properly maintained and are not properly



Figure 18 Poorly managed public open space

used. Most of them are used for Private parking purpose. 1 of the green plot is converted into parking lot with paved surface of interlocking blocks

c) Playground:



Figure 19 Playground (Tinkuney Volleyball Ground and Badminton Court)

In kuleshwor site and services area there are two playgrounds. One is Tinkune volleyball ground in block A and badminton court in Block C. Badminton court in Block C is not properly used and now used as private parking area whereas, Tinkuney volleyball ground in block A is been intensively used as playground and other educational, social and cultural events. It is only public space which is easy to access by public and is intensively used. This ground is managed by Kuleshwor Awas Pariwar Kalyan Sanstha.

d) Temple area



Figure 20 Temple (Kuleshwor Bhagwati Temple, Radha Krishna Temple, Gaurisankar Temple)

There are altogether 14 temples in Kuleshwor Awas among them 3 Kumari temples are pre-existing temples before the design of Kuleshwor site and services whereas other 11 temples are built by local community.

Sarveshwar Temple of Block A, Kuleshwor Bhagwati Temple, Radha Krishna Mandir of Block B, Ganesh Temple, Raj Devi Temple, Gaurishankar Temple of Block C and Ganesh Mandir (3) of Block D were fenced and open for public in morning and evening. These temples are built encroaching the open spaces.

Whereas, Shree Kuleshwor Binayak Temple, Pachali Bahairb Temple, CharDham temple of Block C and Ganesh Temple (1 & 2) of Block D is open for public in any time. It remains as a part of Public open Space.

During focus group discussion in Kuleshwor Awas Pariwar Kalyan Sanstha conducted on 1 February 2020, Shakti Binayak Temple of Block A was built there because people started using that space as solid waste disposal area and can't control the behavior of people. Shakti binayak temple is open in morning and evening. All the temples of Kuleshwor Awas, are managed by local community. Also 3 open spaces which are not properly managed are in the process of conversion into park with the help of Ward office in the initiative of Kuleshwor Awas Pariwar kalyan Sanstha.

Table 4 Block Wise Public Space Distribution in KA

	Block A	Block B	Block C	Block D
Fenced public open space	3 plots	3 Plots	4 plots	2 plots
Poorly Managed Public open space	4 plots	2 Plots	6 plots	3 plots
Play Ground	1 no.	0	1 no.	0
Temples	2 no.	3 no.	5 no.	3 no.

4.1.5.1 Public Spaces in Block A and Block B



1. Plot 1
Block B (Open)



2. Shakti Binayak Area
Block B (Fenced)



3. Kuleshwor Bhagwati
Block B (Fenced)



4. Radha Krishna Area
Block B (Fenced)



5. Plot 2
Block B (Open)



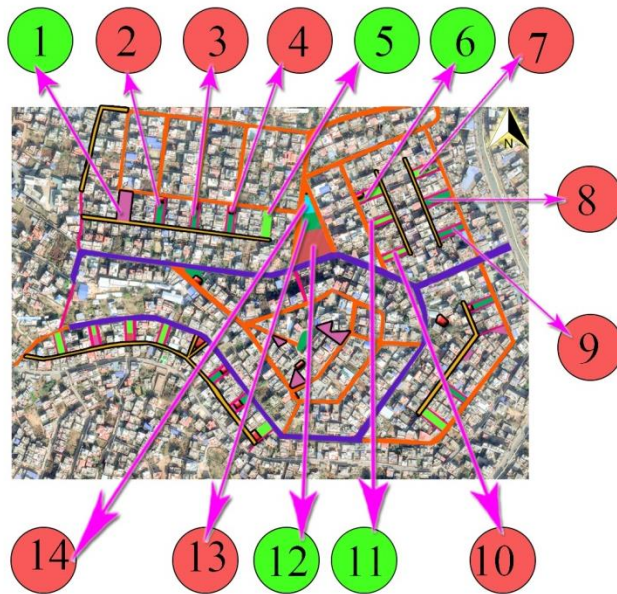
6. Sarveshwar Mahadev
Block A (Open)



7. Police Bit Area
Block A (Fenced)



8. Plot 3
Block A (Fenced)



9. Plot 4
Block A (Fenced)



10. Plot 5
Block A (Fenced)



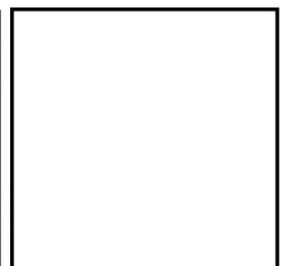
11. Plot 6
Block A (Open)



12. Tinkuney ground
Block A (open)



13. Tinkuney park
Block A (Fenced)



14. Tinkuney Boring Area
Block A (Fenced)

Figure 21 Public Open Spaces in Block A and Block B

4.1.5.2 Public Spaces in Block C and Block D



Figure 22 Public Open Spaces in Block C and Block D

4.1.5.3 Temples in Kuleshwor Awas



1. Kuleshwor Binayak
Block C



2. Kuleshwor Bhagwati
Block C



3. Radha Krishna Temple
Block C



4. Shakti Binayak Temple
Block A



5. Sarveshwar Mahadev
Block A



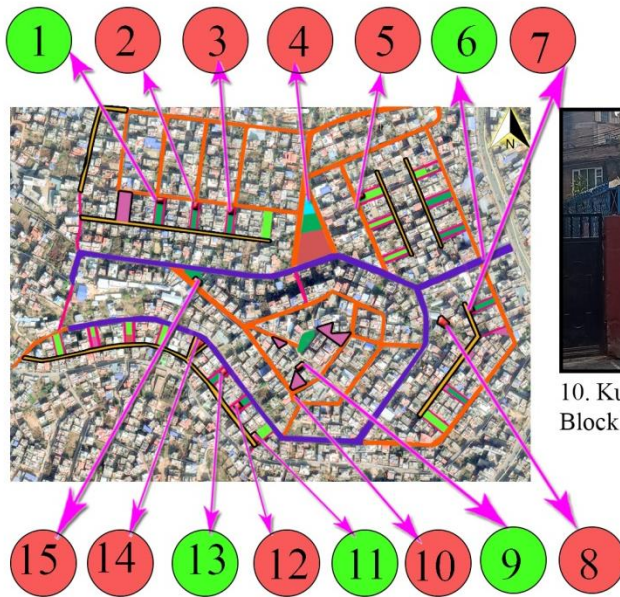
6. Ganesh Mandir 2
Block D



7. Ganesh Mandir 3
Block D



8. Kumari Mandir 2
Block D



10. Kumari Mandir 1
Block D



9. Ganesh Mandir 1
Block D



11. Char Dham Temple
Block C



12. Raj Devi Mandir
Block C



13. Panchali Bhairab
Block C



14. Gaurishankar Temple
Block C



15. Ganesh Mandir
Block C

Figure 23 Temples in Kuleshwor Awas

4.1.6 Qualities of public open space of Golfutar Awaz

4.1.6.1 Access and Linkage:

Access and Linkage aims at describing the accessibility relation between public open spaces and the surrounding environment. Except Tinkuney volleyball ground all the other public open spaces are linked by 5 m wide road with 3 m and 2 m road linking to the residence plots. The residential plots surrounding open space opens up to the open space whereas, there

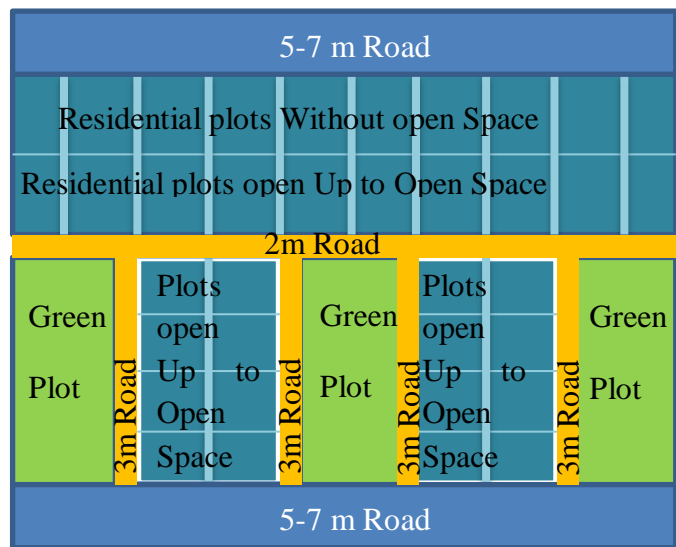


Figure 24 Typical layout of public open space

is least visual connection from the residential plots to the open space due to the compound wall of the residential plots. Most of the residential plots have blank wall facing towards the open space and only entrance door link the open space with residential plots visually. Also the open spaces are not visible from the distance. The streets lack the footpath but due to less traffic it doesn't seem problem till the present scenario. People can have access to public space either by cars or motor cycle whereas large vehicle and trucks are rarely seen.

The open spaces are usually two types. One is fenced and not really open to public and the second one are not fenced and are poorly managed. The fenced open space are fenced by metal railing so, they have visual linkage where as physical linkage to the open space are not seen. During the interview to the residents they claim that only some people have access to the fenced open space in the present scenario. The second type of open space is not fenced open space and those spaces are poorly managed.



Figure 25 Public Spaces (Fenced open space, poorly managed open space and temple encroaching open space)

Any one has access to the open space but due to lack of maintenance only some people use that space. Most of the open space was occupied for private parking purpose. Both types of open spaces were managed by neighborhood community.

Some temples were built by encroaching public open spaces. Those temples were blocking the visual access to the public open space and also the fenced compound is decreasing the area of public open spaces. Temples were built by local neighborhood themselves so, the temples differ in its style and size.

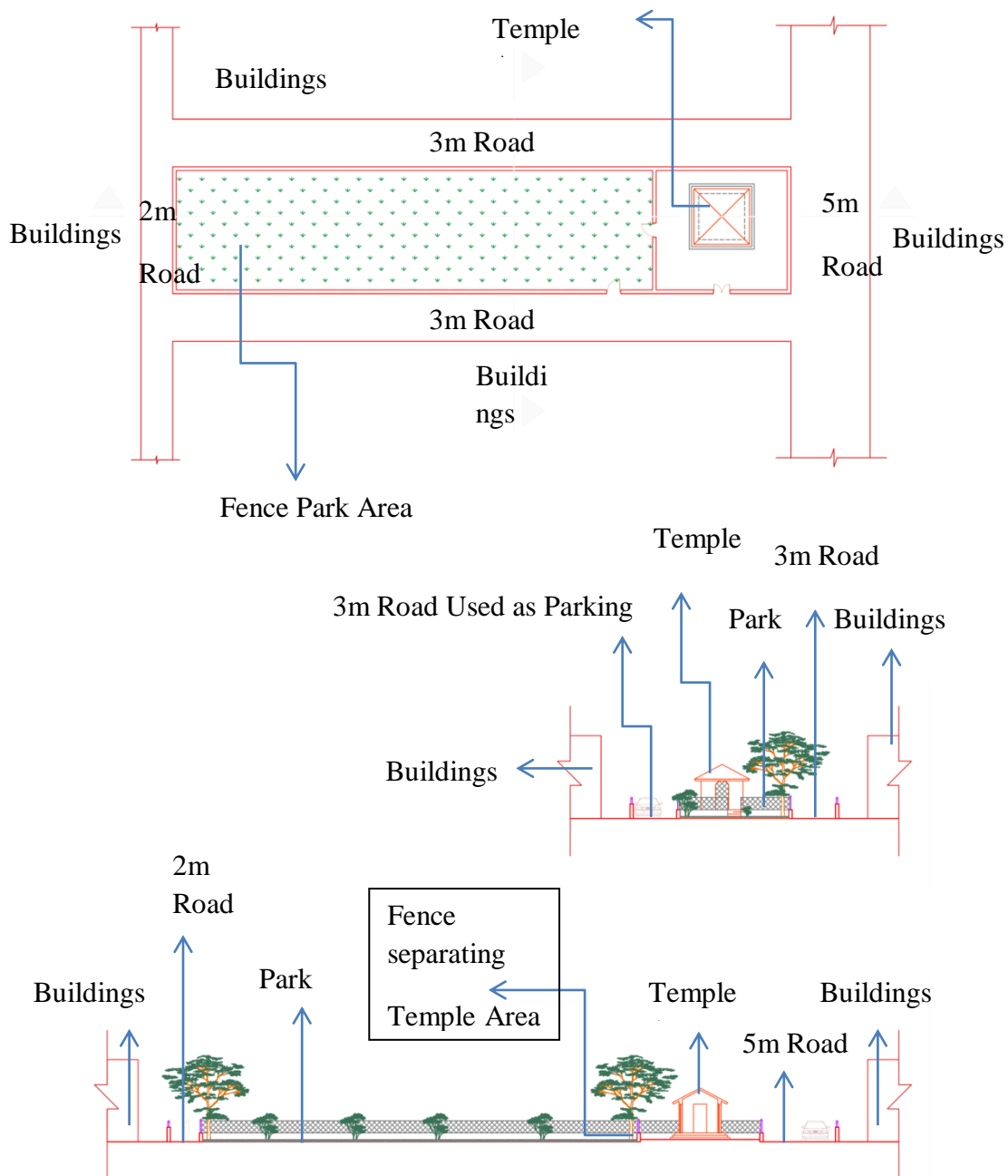


Figure 26 Plan and Section of Fenced public space



Figure 28 Temple with fence separated from public open space

Tinkuney volleyball ground is mostly used open space and surrounded by streets in all three sides (Kuleshwor Awas Sadak on south and tinkuney marg on east and west).

There is both visual and physical linkage to the Tinkuney volleyball ground.



Figure 27 Tinkuney Volleyball Ground (Children playing , Google earth image and Exterior Fence of ground)

4.1.6.2 Use and activities:

Activities are the basic building blocks of great places: They are the reasons why people visit in the first place, and why they continue to return (Project for Public Spaces,2009). The public spaces in Kuleshwor Awas generate only few public activities. The only extensively used public open space is tinkuney volleyball ground. The ground is initially used for training of volleyball but now it is used for varieties of sports. Other than sports, this play ground is also used for social, religious, educational activities. Tis ground is also used by nearby school for playground purpose. People of any age group and any ethnic group of people can use this playground. Tinkuney volleyball ground is managed by Kuleshwor Awas pariwar Kalyan Sastha. Before any events, the organization conducting the events should take permission form the Kuleshwor Awas Pariwar Kalyan Sastha. People or organization has to pay certain amount to KAPKS. This ground is also intensively used during the earthquake.



Figure 29 Tinkuney Volleyball Ground (Use during Earthquake , Holi Program and Paramount School Students Playing)

[Source: Google maps (1 and 2) , Author (3)]

All the other open spaces are managed by Neighborhood community. Each open space is managed by separate neighborhood. These open spaces are usually fenced and unfenced. Fenced open space doesn't gather any activities. It is well maintained but is empty. During the interview conducted on 1 February 2020, treasurer of KAPKS Madan Shrestha state that fenced open spaces are only used for some special events like in holi, teej etc. These open spaces were only accessible to members of neighborhoods who were involved in the management of these spaces.

Unfenced open spaces were poorly maintained. People have access to open space but are not properly used. These spaces are usually empty. Some were seen using those spaces for sunbathing during day time. Only some children were seen playing on this space. These open spaces were mostly used for private parking purpose.

The existing public spaces such as the temple areas generate a very small amount of daily activities as the residents do not visit them on a regular basis. Such activities are observed only in a few parts of the neighborhood.

Street and street shops (café, restaurant, stationary) also gather most of public activities due to the lack of access to public open space and poorly managed open space. A large portion resident used to go for a walk around the neighborhood streets mostly in the morning. Such walking also works as a catalyst to generate other public activities such as meeting and greeting among neighbors but those activities were reduced due to poor road condition in present scenario. Poor road condition is due to installation of Melamchi drinking water pipeline.

Other street activities include children and teenagers playing in inner streets. Other daily activities include people gathering near the shop fronts along the streets. The outdoor spaces of local café,



Figure 30 Streets (Installation of Melamchi water pipeline, Truck stuck on road, Children playing in Inner Street)

Restaurant and stationary have a provision for people gathering for social interaction. These activities are generally seen in evening time. Also the streets are used by local vendors to sell fruits and vegetables. These activities are mostly seen during evening time (5 pm to 8 pm).

4.1.6.3 Sociability:

“This is a difficult quality for a place to achieve, but once attained it becomes an unmistakable feature. When people see friends, meet and greet their neighbors, and feel comfortable interacting with strangers, they tend to feel a stronger sense of place or attachment to their community - and to the place that fosters these types of social activities.” (Project for Public Spaces, 2009).

Kuleshwor area is planned residential area for government employee all around Nepal, government employee from various places buy plot and migrated to this area therefore the social composition is mixed type.

The public spaces in Kuleshwor Awas are less sociable. Fences open spaces do not have access to it so people are not seen in this space. People have not access to the open space in present condition, only certain events like events in holi , teej and other festivals people use the fence space. These open spaces failed to bring people closer, whether in groups or individually, because of the fences that hinder establishing physical connection between the people and the open space. By observation, it was found that the dominant gender around the perimeter of the open space is mostly males.

Unfenced open spaces are not managed properly and hence not much activities take place. Only few activities take place here. People from local community were seen using open space for sun bath. Most of the open spaces were only used for parking purpose. By observation, it was found that the dominant gender around the open space is mostly females and children.

Temples also generate very few activities, people only visits temple on special occasion like maha shivaratri, holi, swarsati puja, teej. Some social activities are seen there like meeting and greeting people.

As for the surrounding environment, the typology of the prevailing activity, i.e: commercial activity that is represented by street vendors, café and restaurant, small



Figure 31 Street Vendors in Kuleshwor Awas

tea shops and stationary could give people the opportunity to interact together and introduce themselves to others.

4.1.6.4 Comfort and Image:

Comfort includes perceptions about safety, cleanliness, and the availability of places to sit – the importance of giving people the choice to sit where they want is generally underestimated (Project for Public Spaces, 2009).

Firstly, the unfenced space i.e: leftover space suffers from lack of cleanliness and maintenance. Generally, people don't have sense of comfort because of certain reasons: lack of cleanliness, lack seats, random and unmanaged green plants (grass).



Some of the open spaces were left unused and people use them for waste disposal.

Figure 33 Poorly managed open spaces of Kuleshwor Awas

The fenced open spaces are well maintained and clean whereas people cannot access there. It looks good from outside but really empty. Public open spaces are not really



Figure 32 Fence public open spaces of Kuleshwor Awas

open to public. Also the fenced open space lack seating spaces except some open space (Open space near Radha Krishna temple in Block B).

Eventhough people claim that streets and open spaces were safe but during direct observation the open space in Kuleshwor Awas were not quite safe enough. This is due to high compound wall residential buildings and lack of streets lights. Police visits open spaces during night time which is positive sign but they visits there in bike and police van with police siren which helps robbers to escape soon when they visits there.

Parking is one of the major problems of open spaces in Kathmandu Valley and this problem is also seen in Kuleshwor Awas Area. Open space and streets were also degraded by the parking of private cars in streets and also in unfenced open space.



Figure 34 Public Open Space and Playground being used for Private Parking

Parking can simply occupy large amounts of public space and also on street parking can degrade the public space.

4.1.7 Changes seen from planning to existing state

The major changes seen in public open space is its transformation of usage. Tinkuney open space present in the intersection of three tinkuney marg was initially designed for community activities purpose. In the interview conducted on 14 February 2020, planner Kirti Kishan Nuchee Pradhan stated that, during the time of planning there were not any party palace and other event conducting spaces nearby the planned area so, the open space is provided to conduct such events and festivals. But today the whole use of space is changed. Tinkuney community space is converted for three different uses by dividing space into three parts. 1st one is the playground itself and it is one of the most used spaces in present scenario. 2nd part is the park made by Department of Forests and Soil Conservation with the initiative of Kuleshwor Awas Pariwar Kalyan Sanstha. This park is currently fenced and will be open soon to public. Before it was designed into park, it was used for parking space. 3rd part is the community boring area. Since,

Government can't provide enough drinking water for people residing in Kuleshwor Awas, boring is done with the initiative of Kuleshwor Awas Pariwar Kalyan Sanstha.

Another changes seen is the expansion of 2m road into 3m road encroaching the public open space. This is one of the major problems seen in Kuleshwor Area. The expanded road is now used by some local people for parking of car.

Also the construction of temples in open spaces is another change seen there. Temple is one of the most used public spaces in different parts of country but in Kuleshwor Awas except some of the temples; it is not usually used by peoples.

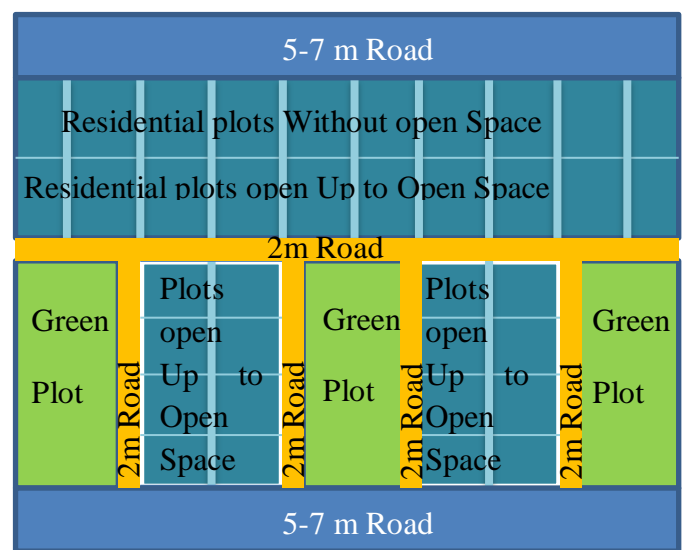


Figure 35 Typical Open Space Layout of Kuleshwor Awas



Figure 36 Fenced Temples encroaching open space and parking on expanded road

Initially open spaces are not designed for fencing but 37% of open space is fenced and not accessible to public in present context.

Also the market area initially designed for commercial purpose is now used for parking and also contains fenced open space which is not accessible to public.



Figure 37 Existing Condition of Market Area (fenced Park and Parking Spaces)

Open Spaces plots are increased in present context that the initially planned settlement, it is one of the positive changes seen in Kuleshwor site and services area. The open space is created by Department of Forestry and Soil Conservation with the initiative of Kuleshwor Awas Pariwar Kalyan Sanstha.



Figure 38 New Open Spaces by Department of Forestry and Soil Conservation

4.1.7.1 Comparison of Past and Present Open Spaces in terms of Area and Use

Kuleshwor Awas Area

Block A				
S.N.	Public Open Space	Area Initial (Sq. ft.)	Area Existing (Sq. ft.)	Existing Use
1	Tinkuney Playground	22050.048	28206.96	Playground Initially designed for community services
2	Green Plot 1	6118.936	7648.67	Green Space not properly Used
3	Green Plot 2	5222.056	6527.57	Fenced Green Space
4	Green Plot 3	5361.76	3519	Fenced Green Space
5	Green Plot 4	5543.064	4173.38	Fenced Green Space
6	Green Plot 5	5976.432	4372.44	Green Space not properly Managed
7	Green Plot 6	5540.712	2828.32	Fenced Green Space
8	Green Plot 7	Same Area of Tinkune	7350.016	Park (Ban Karyalaya with the initiative of Kuleshwor Awas Pariwar Kalyan Sanstha)
		55813.008	57276.34	
Block B				
S.N.	Public Open Space	Area Initial(Sq. ft.)	Area Existing (Sq. ft.)	Existing Use
1	Green Plot 1	4872.216	6090.27	Green Space not properly Managed space mostly used for private parking and sometimes used by school children for sports

2	Green Plot 2	5595.584	3262.76	Fenced Green Space
3	Green plot 3	5646.4	3071.72	Fenced Green Space
4	Green Plot 4	4835.8	3784.58	Fenced Green Space
5	Green Plot 5	5636.784	7045.98	Stone paved on overall green space mostly used for private parking
		26586.784	23255.31	
Block C				
S.N.	Public Open Space	Area Initial(Sq. ft.)	Area Existing (Sq. ft.)	Existing Use
1	Green Plot 10	Not Present	3028.07	Park (Ban Karyalaya with the initiative of Kuleshwor Awas Pariwar Kalyan Sanstha)
2	Green Plot 9	Market Area	13102.56	Fenced Green Space
3	Green Plot 1	4180.272	3039.44	Green Space not properly Managed space mostly used for private parking
4	Green Plot 2	4228.104	2978.36	Green Space and badminton playground not properly Used space mostly used for parking
S.N.	Public Open Space	Area Initial(Sq. ft.)	Area Existing (Sq. ft.)	Existing Use
5	Green Plot 3	3841.864	2777.29	Fenced Open Space
6	Green Plot 4	4303.296	3185.15	Open Space not properly Managed
7	Green Plot 5	2473.144	3091.43	Space used by Gaurishankar

				temple. Opens Usually in Morning and Evening time.
8	Green Plot 6	3868.016	2551.21	Fenced Open Space half portion of it consists of Pachali Bhairab Temple
9	Green Plot 7	4147.648	3769.18	One third portion is Fenced Open Space one third portion of it consists of Raj Devi Mandir opens in morning and one third portion is use for parking space
10	Green Plot 8	3041.472	3801.84	Open Space not properly Managed and used for parking, one fourth portion of it consist of CharDham Mandir
		30083.816	41324.53	
Block D				
S.N.	Public Open Space	Area Initial(Sq. ft.)	Area Existing (Sq. ft.)	Existing Use
1	Ganesh Mandir Area	Market Area	4004.35	Space consists of Ganesh temple. It is not fenced.
2	Green plot 1	5074.968	6343.71	Green spaces are arranged in the way that it look likes the property of Residential Plot. Other Portion is covered with Interlocking Blocks.
3	Green plot 2	4752.784	2319.04	Fenced Green Space
4	Open Space	2709.4	3386.75	Paved open surface used for parking

5	Green Plot 3	823.408	1029.26	Half Open Space not managed properly and Half of it consist of ganesh Temple opens in the morning
		13360.56	17083.11	
	Total	125844.168	138939.29	

Table 5 Comparasion of past and Present Scenario of Open Space in terms of Area and Use

4.1.8 User's perspective on available Public Space of Kuleshwor Awas

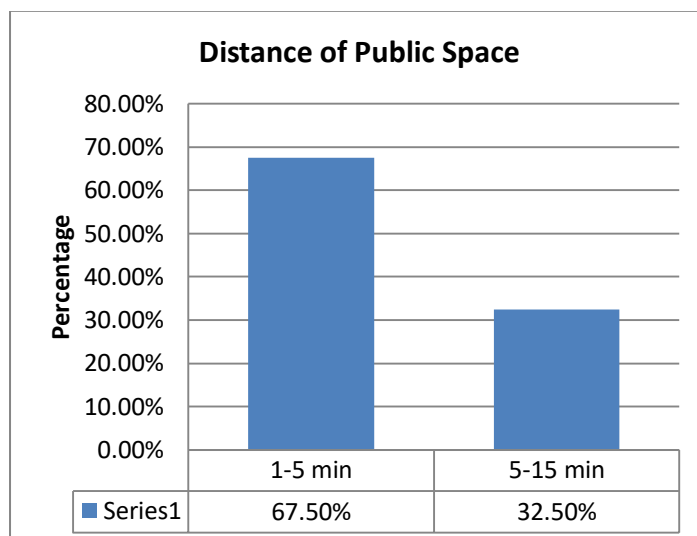
The data were coded into SPSS software for descriptive statistical analysis. The main focus of this analysis is to understand the user perception towards public open spaces area. However, additional attributes such as users' gender, race, age group, and home distance to open spaces were also considered to give additional information about the relationship. The result is categorized into 4 attributes.

4.1.8.1 Access and Linkage

a) Proximity:

Open Spaces at Kuleshwor Awas area are neighbourhood open spaces, therefore most of the residence have open space within 1-5 minutes. 67.5 percent of the household have open space within 1-5 minute. Houses facing towards main road don't have direct access to public open space therefor 32.5 percent of the household have open space within 5-15 minutes distance. Even though open spaces are near to the residence plots but most of the residents don't have access to open space. , 37 % of open space is fenced and is not accessible in present situation. 27% public space is not managed properly and is poorly used. It is mostly used for parking purpose. 14% of total area is occupied by temples and 22% of total area is occupied by Playground. Larger open space near to this area is Kuleshwor Mahadev Temple and Bhuvaneshwari Temple. Even though the respondent has close proximity to these spaces only few people visit there.

Chart 1 Distance of Public Open Space



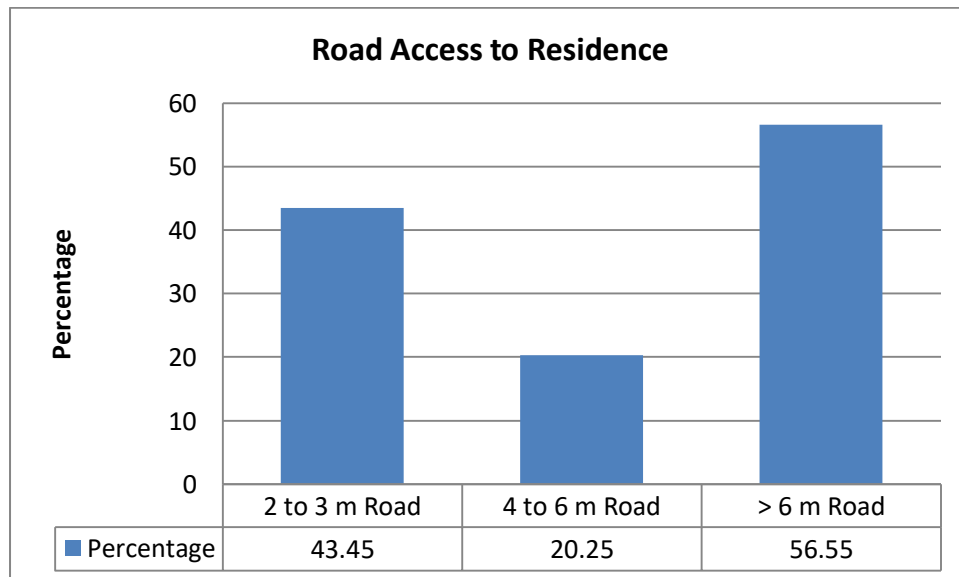
b) Settlement Layout

Kuleshwor Awas area is planned development. Whereas, the planning is done before design principles and guidelines been made so, planning solely depends on planner themselves. Also it is site and services scheme therefore houses are built individually, most of the houses are detached houses, with compounds. Approximately 78.97% of settlement is detached house and 21.03 % is row housing. Even though row housing is present the design, style and vertical height of the buildings differ from one another. Even though separate bylaws is prepared for kuleshwor Awas area it is not been properly implemented.

c. Road access to Residence

The road access to the houses at Kuleshwor Awas area is mostly 2m-4m, 43.45 % have road access of 2 to 4 m, 36.30 % have road access 4m-6m and 20.25 % have road access greater than 6m Therefore, in every house there is accessibility of motorbikes. In 56.55 % of houses four wheeler vehicles can enter whereas due to public space encroachment the percentage may changes.

Chart 2 Road access to Residence



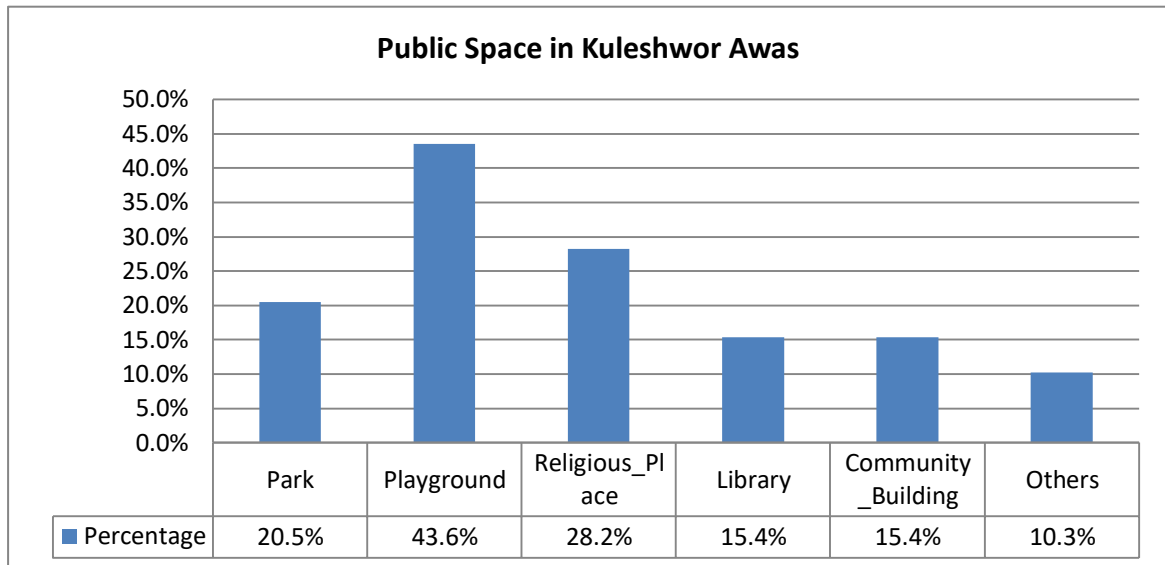
4.1.8.2 Use and Activity

a) Public Space people use in KA

In Kuleshwor Awas, only 20.5% of respondent use Park. People usually wish to visit park during their free time but due to fenced green space most of the respondent

doesn't have access to those spaces and unfenced open spaces are poorly maintained so most of the respondent doesn't visit park in Kuleshwor Awas. 43.6 % people uses public playground. 28.2 % of respondent uses religious place. 15.4 % respondent uses library, 15.4 % use community building and 10.3 % of respondent visits other public spaces.

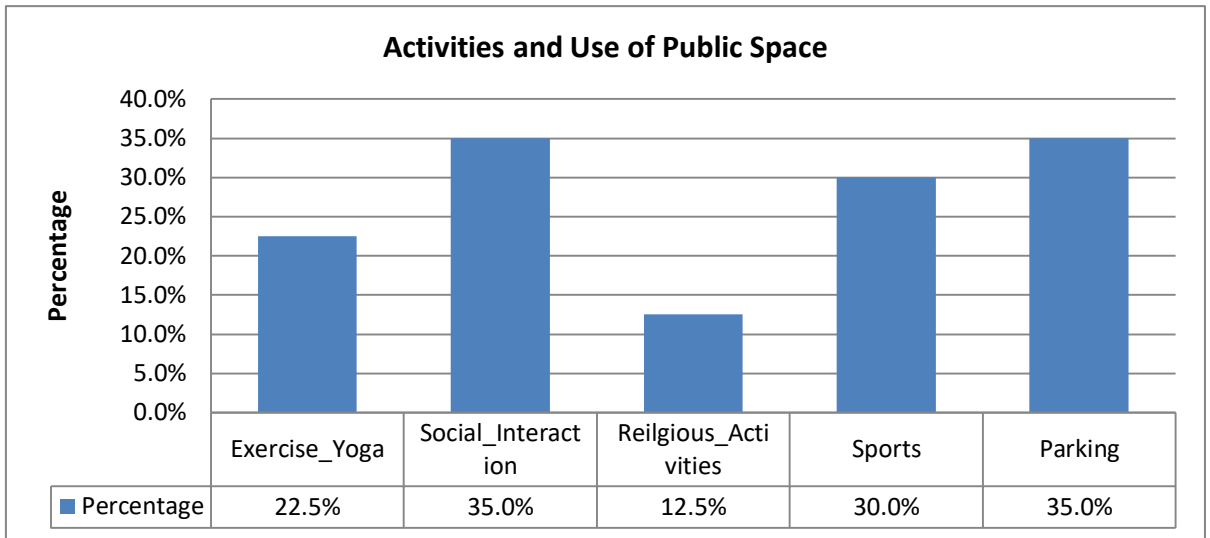
Chart 3 Public Space people use in KA



b) Activities and Use of Open Space

People use open spaces usually for social interaction, sports, exercise and yoga, religious activities and parking. 22.5 % of people use open space for Yoga and exercise, 35.0% of people uses open space for social interaction, 12.5 % of respondent use open space for Religious activities, 30 % respondent use open space for sports. Since tinkuney volleyball ground is most used open space in Kuleshwor Awas so, most of the respondent uses tinkuney volleyball ground. In this ground not only sports activities but other social, cultural and educational activities also takes place (like program during holi, teej, cultural dances, school educational programs etc.). 35 % respondent uses open space for parking purpose. As per the interview of the respondent, they use open space as parking because open spaces are not properly managed and also they don't have space for parking of car inside home. Also dedicated parking is not provided in this area during the time of design since design was done 6 decade ago.

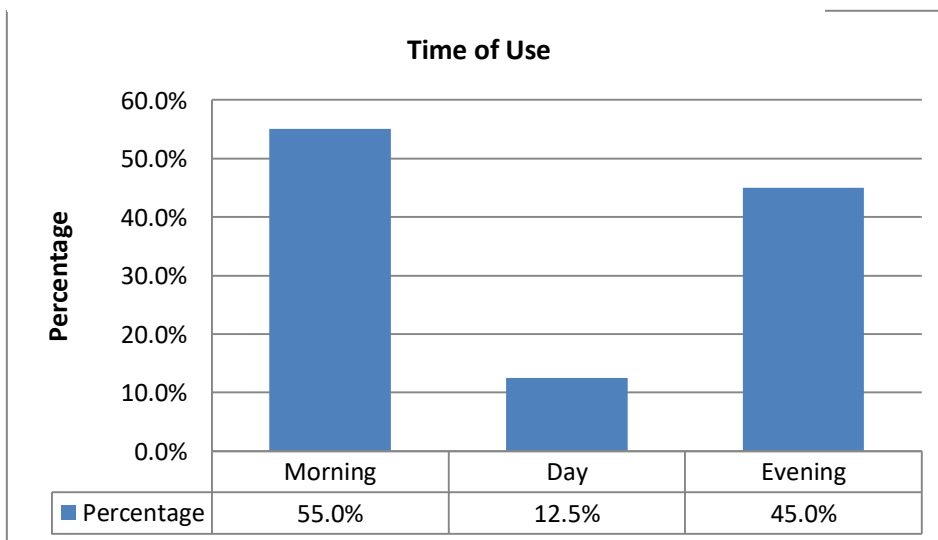
Chart 4 Activities and Use of Public Space



c) Time of Use

48.9 % of people use the open spaces in the morning, 11.1 % people use open space in afternoon and 40 % of people use open spaces in the evening. People used to use open space and streets for morning walk but due to Melamchi drinking water project and not good road condition, use of open spaces in morning has been reduced.

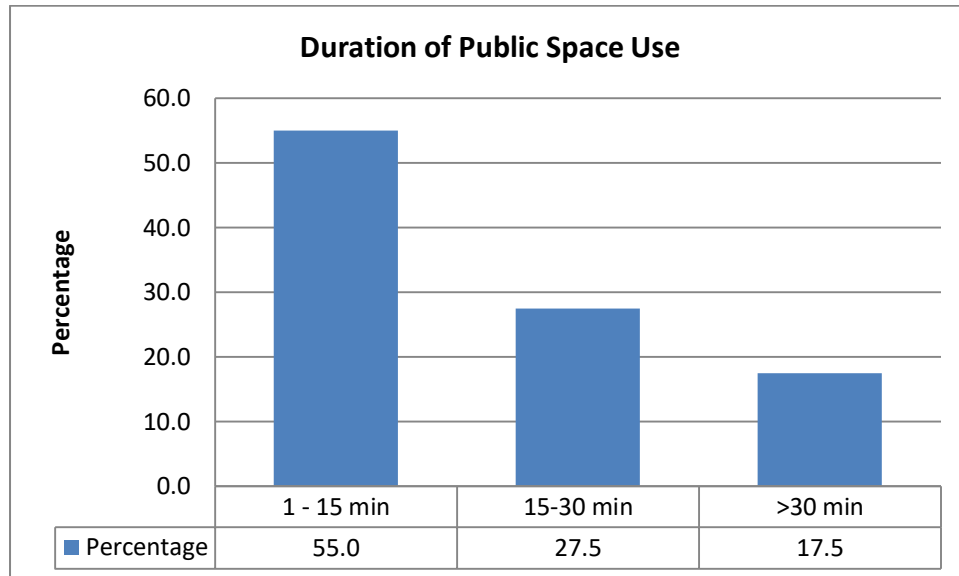
Chart 5 Time of Use



d) Duration of Use

As the open spaces are not managed properly, 55 % of the respondent visits the open space for 1 to 15 minutes. 27.5 % of respondent visits the open space for 15- 30 minutes and 17.5 % of respondent visits the open space for more than 30 minutes.

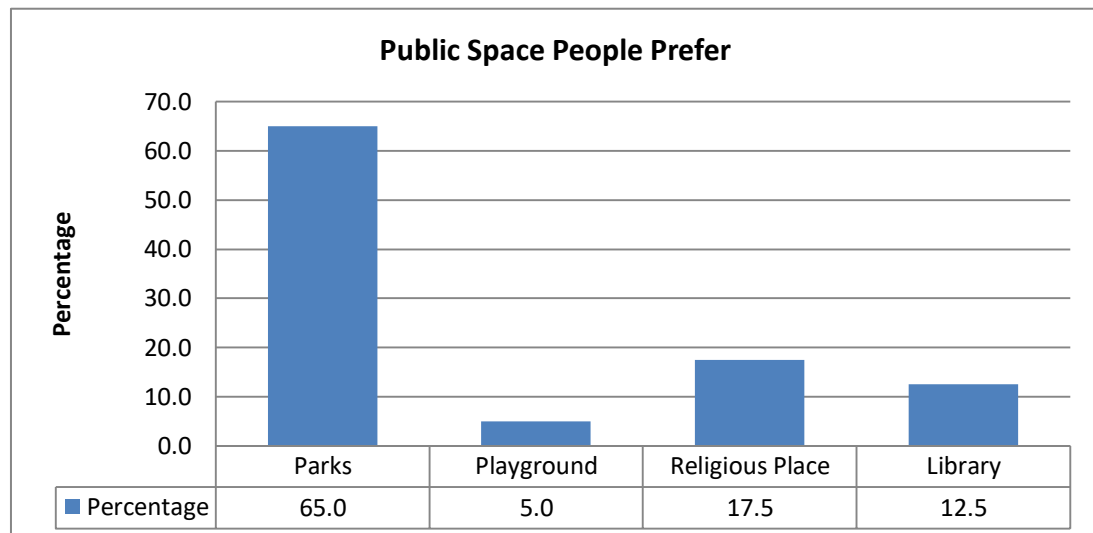
Chart 6 Duration of Use



e) Public Spaces people prefer

Most of the respondent prefers accessible park among the other public spaces. 65 % of respondent prefer to have parks, 5 % respondent prefer playgrounds, 17.5 % prefer to have Religious buildings and 12.5 % prefer to have library and community buildings.

Chart 7 Public Space people prefer

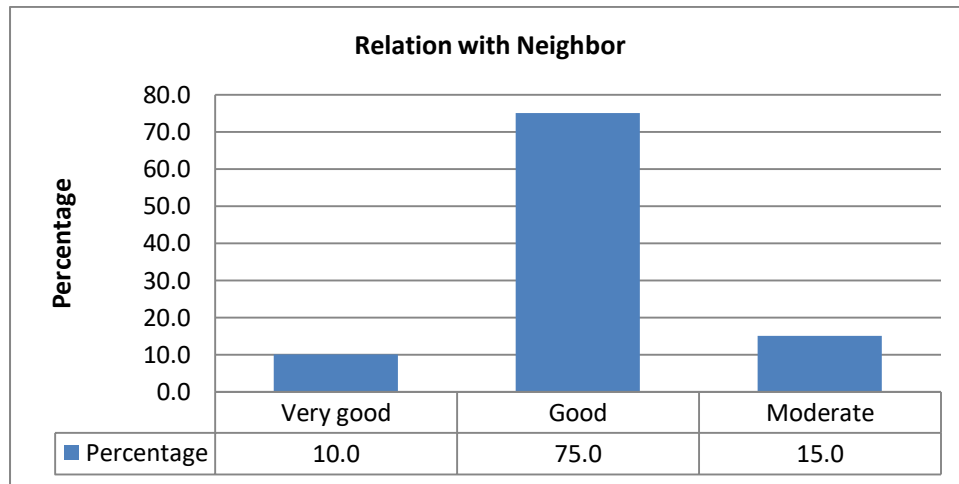


4.1.8.3 Sociability

a) Relation with Neighbours

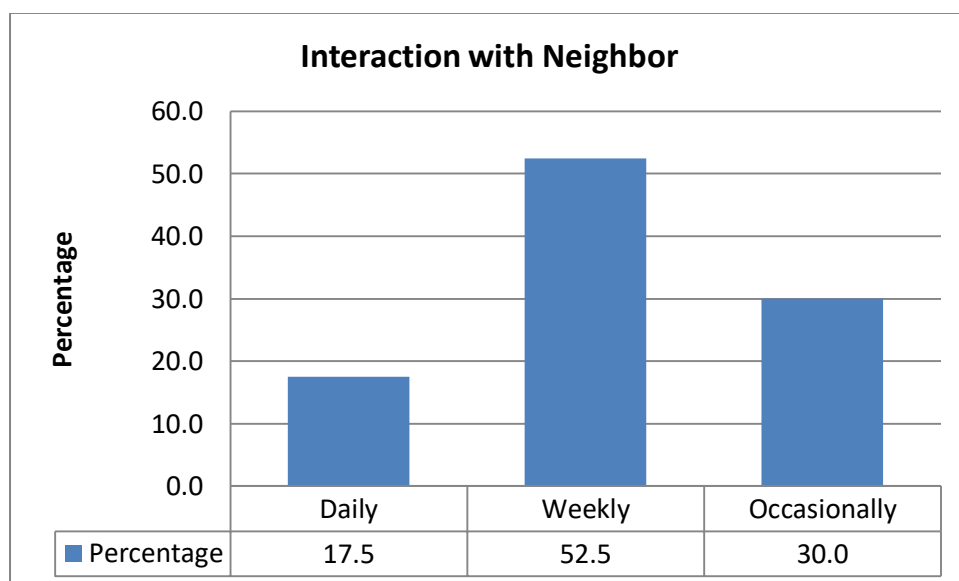
Respondents claim their relation with their neighbours is good, 10 % said they have very good relation with their neighbours, 75 % said they have good relation and 15 % said they have moderate relation.

Chart 8 Relation with Neighbor



b) Interaction with Neighbour

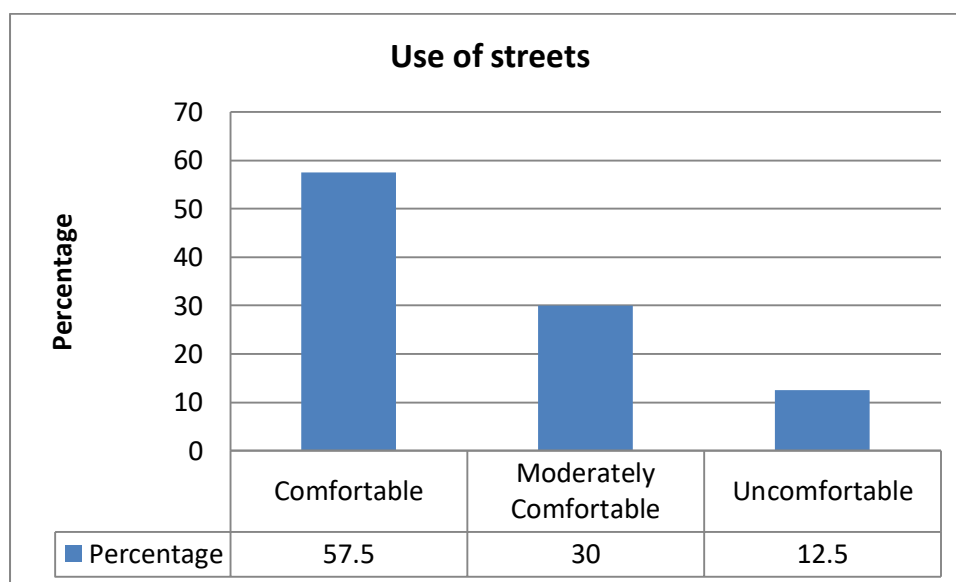
Among the respondent, 17.5% of respondent claim that they interact with their neighbour daily, 52.5 % of respondent claim that they interact with their neighbour weekly and 30% of respondent claim that they interact with their neighbour occasionally.



c) Streets

Streets in Kuleshwor Awas was less crowded therefore most of the people feel comfortable walking in the roads even though there is no footpath. Out of total respondent 57.5 % of total respondent feel comfortable walking on the streets and 30% felt it was moderately comfortable and only 12.5% of total respondent feel discomfort while walking on the streets. Discomfort while walking in the streets was felt more by the elderly people. During the direct observation, streets were also used by children for playing. Since open spaces were mostly occupied by private parking and also some of them are fenced so, children's prefer to play on the streets.

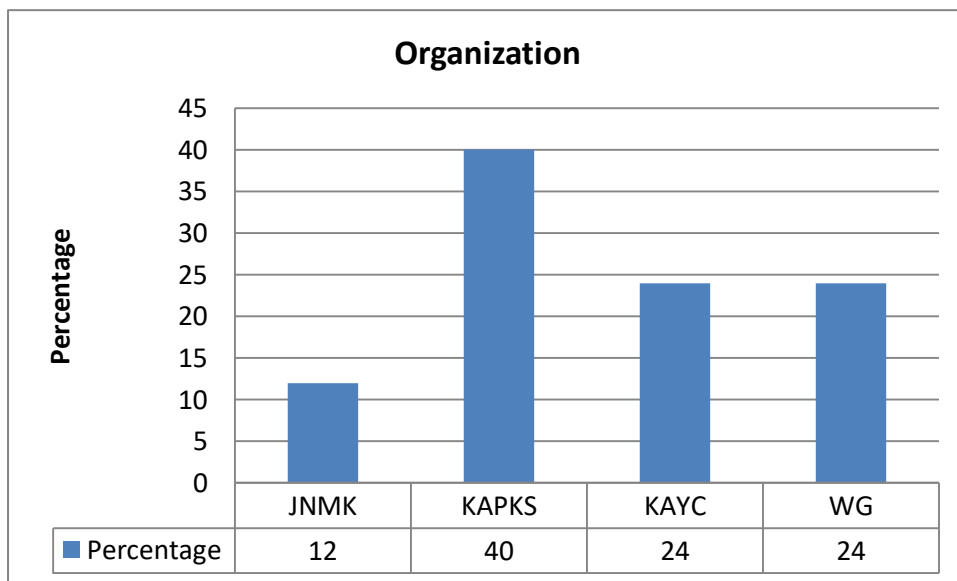
Chart 9 Use of Streets



d) Involvement in Organization

Among the total respondent, 62.5 % respondent were involved in organization and 37.5 % respondent were not involved in organization. Out of 62.5% respondent, 40 % respondents were involved in Kuleshwor Awas Pariwar Kalyan Sanstha (KAPKS), 3 % were involved in Jestha Nagarik Milan Kendra (JNMK), 24% were involved in Kuleshwor Awas Youth Council (KAYC) and 24 % were involved in Women's Group (WG). JNMK, KAYC, WG are sub-organization of KAPKS.

Chart 10 Involvements in Organization

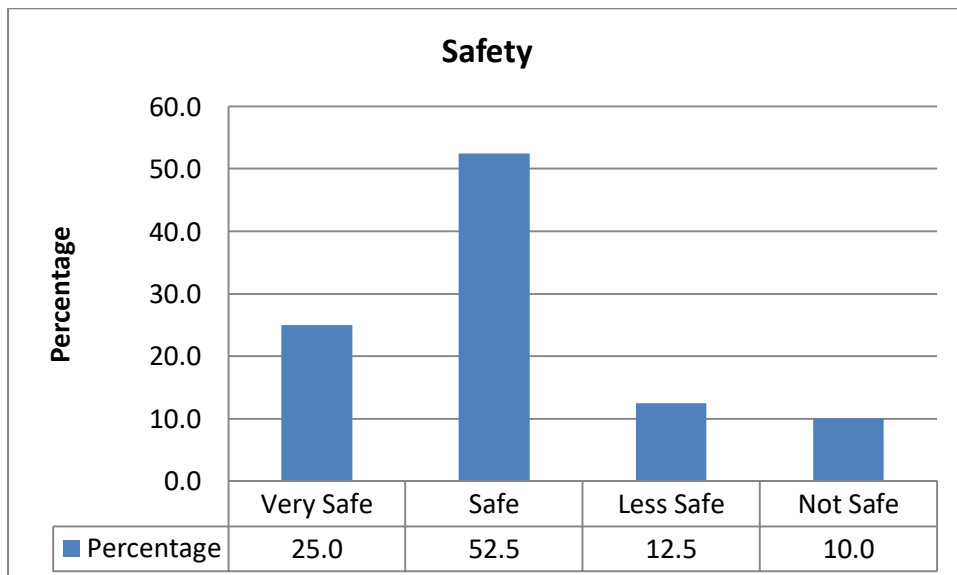


4.1.8.4 Comfort and Image

a) Safety of Public Open Space

Among respondent, 25 % feels very safe during public space use, 52.5 % feels safe to use public space. 12.5 % respondent feels less safe while using public space and 10% of respondent doesn't feel safe using public space.

Chart 11 Ssafety of Public Open Space



b) Solid waste

12.5 % respondents said solid waste management is very good, 60% of the respondents said solid waste management in their locality is good and 27.5% said solid waste management is moderate.

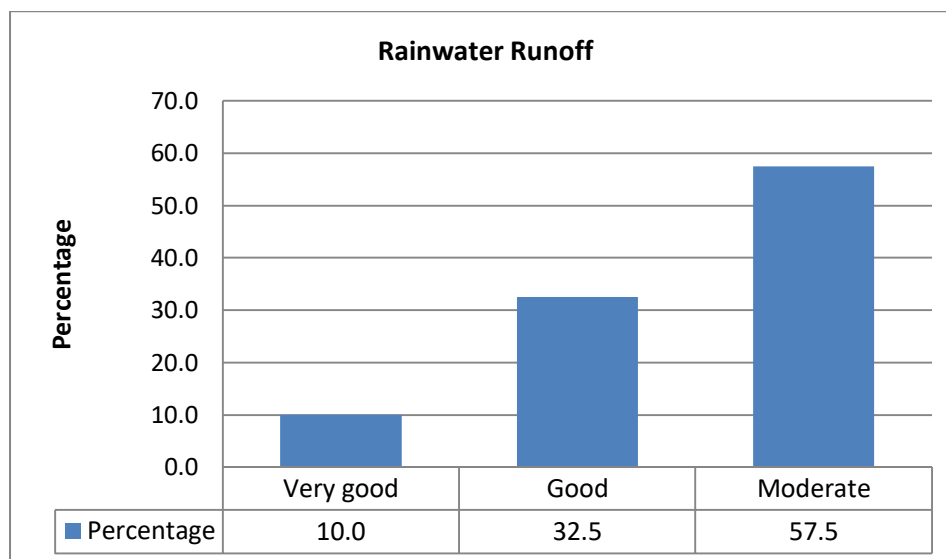
Chart 12 Solid Waste Management



c) Rainwater Runoff

17.5% said it is very good, 52.5 % said its good and 30 % said moderate.

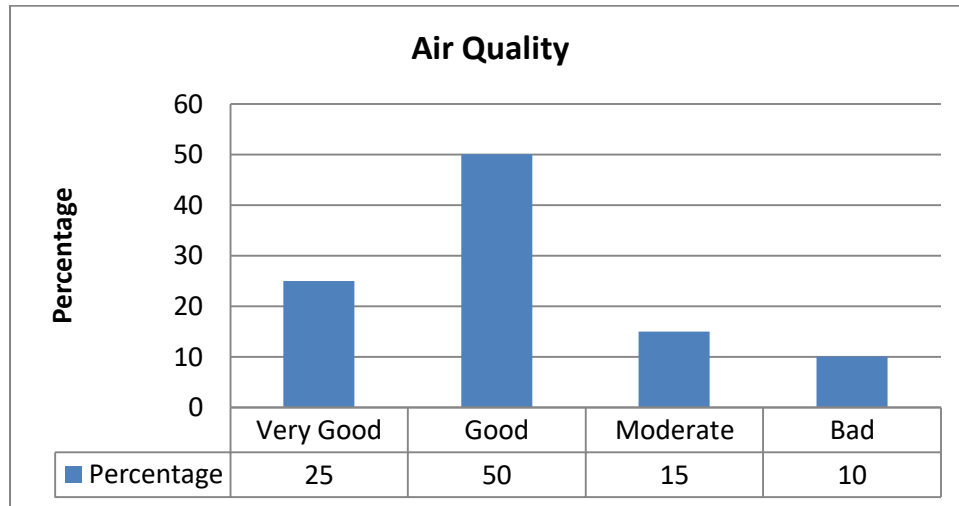
Chart 13 Runwater Runoff



d) Air Quality

The 25% of the respondents consider air quality in their locality very good, 50% of the respondents consider air quality in their locality is good, 15% consider it to be moderate and 10% said it is bad.

Chart 14 Air Quality of Kuleshwor Awas



e) Sunlight

Among the respondents 50% said they receive very good sunlight, 40% said good and 10% said it is moderate.

Chart 15 Sunlight

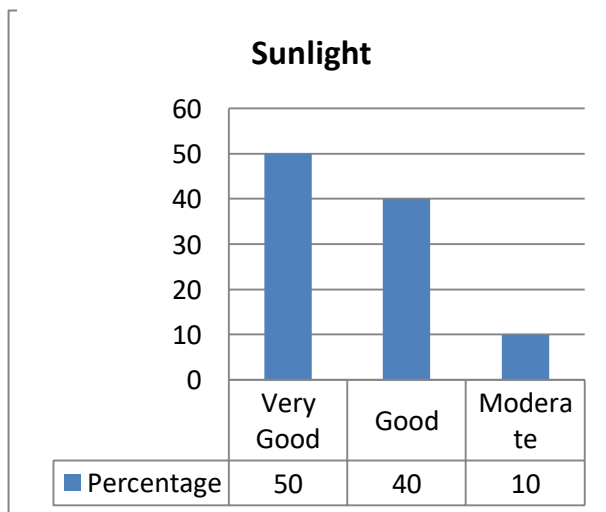
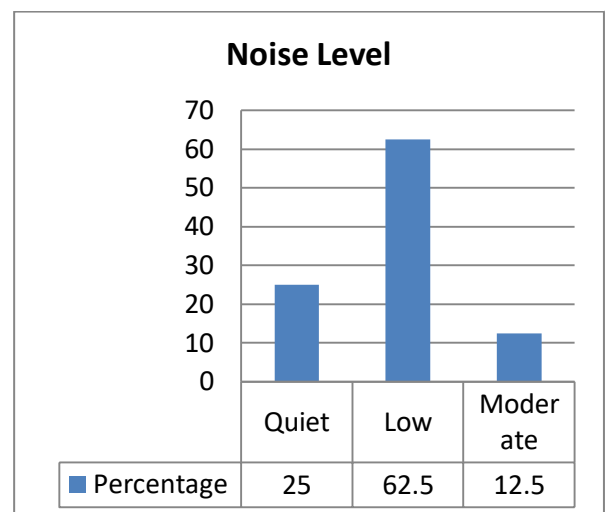


Chart 16 Noise Level



f) Noise

Among the respondents 25% said their locality is quiet, 62.5% said it is low, 12.5% said moderate.

4.1.8.5 Management and improvement

The neighborhood public open spaces are maintained by the nearby residents with the help of Kuleshwor Awas Pariwar Kalyan Sashta. Tinkune volley ball ground is maintained by organization itself.

4.1.8.6 Benefits from the public open space

When asked how they are benefitted with the open space around them most of them answered it has been used during the time of earthquake. Some of them answered it has been used for some events and gatherings Most of the open spaces have been used for parking motorbikes and private cars. They answered open space provide space for social interaction, people can gather and spend time. The temples also provide space for religious and cultural activities. Some are also using the open space for the storage of construction material. Though there were some of the respondents who regarded there is no much benefit from the open space as they usually do not use them.



Figure 39 Kuleshwor Tinkuney Ground during Post Earthquake

4.1.8.7 User's Experience

Lemberg 2010 cited in (Ezennia et al., 2017,p.263) experience could be described as how individuals conceptually process, sense and react to information gathered within the environment surrounding them. Furthermore, perception is an intellectual process that possesses both socio-cultural and biological aspects. The socio-cultural dimension aspect relates on how individuals derive meaning on information that they receive from their senses. The biological aspect deals on how human receptors such as eyes, skin, ears, etc.; accept incoming stimuli and react towards them.

There have been drastic changes in the open spaces in the kuleshwor Awas area, new taller houses has been built in the surrounding. This has changed the skyline and gives the feeling of narrow enclosure. The area wise encroachment of the open space has also been seen and the encroached spaces and also the open spaces and the streets itself have been used up by parking motorbikes, private cars and construction materials. Mr. Kul Prasad Bhattari of Block C, agrees that the degradation of open spaces are mainly due to the people behavior towards the open spaces and also lake of community participation. In residential neighbourhoods, a sense of belonging and safety is developed by an individual that is connected to society through the use of local services and through socializing (Bele & Wasade, 2017). In the case of Kuleshwor Awas public open spaces are managed by the neighborhood community and even though the open spaces are managed by community, sense of community is missing which is the main reason for degrading the overall look and use of open spaces. Mr. Kul Prasad Bhattari (member of community, looking after the open space and Radha Krishna Temple in Block B) also agrees that the sense of community and user behavior towards the open space degrading the open space of Kuleshwor Awas Area. He also states that, during the time of earthquake, most people use the open space nearby but doesn't show any interest in conserving onwards which leads to the degradation of open spaces.

During the focus group discussion in Kuleshwor Awas Pariwar Kalyan Sastha conducted on 1 February 2020, outcome shows that the open spaces are managed by local people (ie: neighborhood community of 10-15 households) and those neighbourhood who shows interest in conserving the open spaces are been conserved even though there is lack of access to local people and the community who doesn't show interest on conservation of open spaces, the open spaces there are not managed.

And the open spaces are mostly used for parking purpose. Also respondent also claim that open space management is also not so good except some of the open spaces.

Respondents are more likely satisfied by open spaces created by Department of Forestry and Soil Conservation, whereas they would be happier if they would have access to that open spaces.

4.2 Golfutar Site and Services Area (Golfutar Aawas):

4.2.1 Background

The government of Nepal has planned some residential neighborhoods through the site-and-service program in the late 1970s with the assistance of World Bank. Golfutar site and service is third site and service program among them, located in Golfutar in present ward number 8 of Budanilkantha Municipality. Eastern part of it is Mahankal, western part is Bansbari, Northern part is Mahankal and southern part is Barphedi. Golfutar site and services area covers 213 ropani (10.84 hectares) of land. Western part of it has Sahid Gangalal hospital and southern part have Hams Hospital.

After failure of Dallu Awas project, Planning was done to combine Kuleshwor Awas with Golfutar Awas project and sell 500 plot of land. Kathmandu Valley town Development Committee under HMG has acquired 213 ropani of land at Golfutar Area on 2033B.S. to run site and services scheme for housing development. But, due to Basbari Leather Shoes factory those land were not suitable for shelter at that time.

4.2.2 Social Background:

Golfutar area is planned residential area people from any background, people from various places buy plot and migrated to this area therefore the social composition is mixed type. Most of the residents have built their own house and migrated to this area. The building type is mostly residential, with 3-4 storey in average, with maximum houses with tenants. Houses constructed buildings around main road



Figure 40 Golfutar Site and Services Area

are used for commercial purpose.

4.2.3 Physical Background

Geographical location: Budanilkantha Municipality – 8

Total Area = 213 Ropani (1166388 sq. ft.)

Initial No. of Plots = 450 Plots

Green Plot No. = 4 Plots

Green Plot Area = 13-12- 2-3.03 (75531 sq. ft..)

Market Area = 9 aana (3082 sq.ft.)

Community School Area = 3-2- 2-1.47 (17315 sq. ft.)

Road Length = 3486 m

8m Road =1123 m

5m Road = 1945 m

3m Road = 420 m

4.2.4 Planning Concept and Public Spaces in Golfutar Site and Service Area in the past:

In 2031 B.S., providing planned residence for government employees became topic after king coronation ceremony. In 2033 B.S., Kathmandu Valley Town Development Committee was established. Kuleshwor Site and Services is first planned settlement in Kathmandu Valley. After failure of Dallu site and services area planning was done in Golfutar. Golfutar site and services was planned for people all around the Nepal and anyone can buy piece of land there contradictory of Kuleshwor Awas and Dallu Awas, which were prepared for government officials and businessman respectively.

Looking at the plan of Golfutar Area, Three road passes through the Golfutar Area i.e: Golfutar Residential road (8m), Buddha marg (5m) and Golfutar west road (5m). 8m wide road passes through the mid of the Site Area and inner area is connected through 5 m and 3m road respectively. Market area is defined at center of the site connected through 5 m road.

Three open spaces are aligned along the 8m road. Parks and open spaces show less hierarchy but all the three open spaces were provided along the 8m road. Open spaces are provided at equal interval. So people can have easy access to open spaces.

Community services and utilities are provided at the entry point so people can have easy access to the services. Community space was provided in top point of the site to avoid disturbance. Boring and water tank is provided for the water supply to the site. Also community school area (17315 sq.ft.) is provided on the north east corner of the site. Plot of 4 aana is defined for the residential plots. The plot configuration, public space distribution, street network layout and provision of infrastructure were project specific because planning standards and guidelines didn't exist at that time.

Mahankal temple is the oldest temple of the Golfutar Awas. The name of the ward also defined through the name of the temple.

Open space was initially designed for following purpose:

- a. Creating a suitable place for children to play
- b. It is also designed for the community gathering to improve social relation.

Existing Scenario of Public Spaces in Golfutar Site and Service Area:



The existing open spaces in Golfutar Site and Services area are mainly parks and playground. The total four plots of different shapes and sizes represent the public open spaces in Golfutar Awas Area. Total area of public open space is 0.73 ha in Golfutar Awas. Out of total public open spaces, 52.83% of open space is recreational park (i.e: Golfutar Park and Golfutar childrens Park). 47.16 % of total area is occupied by Playground (Golfutar Basketball ground and Golfutar Football ground).

4.2.4.1 Physical Features of the open spaces

a) Golfutar Park

This park is located at northern entrance of the site and services area opposite to Budanilkantha Municipality office. The total area of park is 21319 sq.ft., the park is fenced but is accessible to public. It opens from 5am to 8pm every day. The park consists of two temples, Tumleshwor Mahadev and Saraswati Mandir. Tumleshwor Mahadev was established in 2055 B.S. The park also consists of water tap established



Tumleshwor



Saraswati Temple



Water Tap



Figure 41 Golfutar Park and its Surroundings

b) Golfutar Basketball Court

Golfutar Basketball court is located opposite to the market area with total area of 11593 sq. ft. area. Court is managed by Budanilkantha Municipality Basketball Club. Court opens from 6 am to 11am (7 days a week). It is one of the managed open spaces of Golfutar. People have to pay Rs. 30 to enter to the basketball court if they don't have club membership card. Small children must have parents with them while they are inside court premises.



Figure 42 Golfutar Basketball and Football Ground (Source: Umesh Kirant)

c) Golfutar Football Ground

Golfutar football ground is located adjacent to basketball court. The total area of football ground is 24032 sq.ft. Ground is managed by neighborhood club and is accessible to all people.

d) Golfu Binayak Mandir

Golfu Binayak Temple is located adjacent to the Children's Recreational Park. It is established in 2056 B.S.

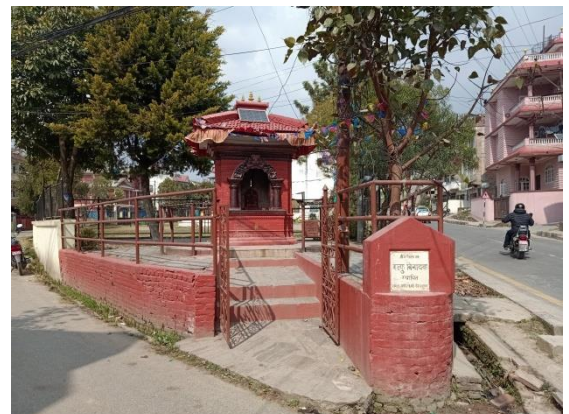


Figure 43 Golfu Binayak Mandir

e) Golfutar Children's Recreational Park

The total area of park is 17,590 sq.ft., the park is fenced but is accessible to public. The park consists of children playground and badminton court. It opens from 5am to 8pm every day. Children below 12 years of age are only allowed to play in the park. Park consists of seating spaces at the periphery. Park is managed by neighborhood committee (Upabhokta Samiti).



Figure 44 Golfutar Childrens Recreational Park

f) Mahankal Mandir

Mahankal Mandir is oldest temple of Golfutar Area. The ward is named after the temple Mahankal.



Figure 46 Mahankal Mandir



Figure 45 Kumari Temple

g) Kumari Temple

Kumari Mandir is also old temple of Golfutar Area. Kumari temple is located at southern entry point of Golfutar. Kumari mandir and Mahankal mandir is pre-existing temple of Golfutar before the design of site and services.

4.2.5 Qualities of public open space of Golfutar Awas

4.2.5.1 Access and Linkage:

The form of Golfutar Awas is represented by three streets: main street “ Golfutar Residential Road” 8m in width, secondary streets “Buddha marg and Golfutar west road ” 5m in width. Golfutar Residential road passes through the mid-section and divides the Goflutar area into two parts. Also the secondary road connects to the Golfutar residential road through 5m road. The public open spaces in Golfutar Awas are line on the main street (8m width). Golfutar recreational park and Golfutar children park lies on the west side of the main street and Playground i.e.: Golfutar basketballcourt and Golfutar football ground lies on the eastern part of the Golfutar residential road. The traffic volume of Golfutar residential road is high whereas the

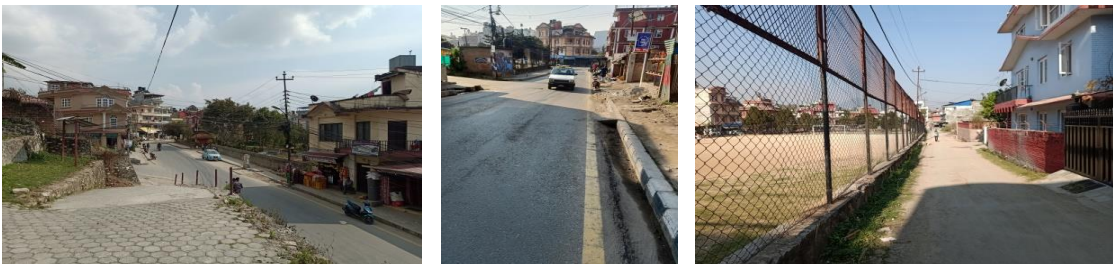


Figure 47 Golfutar residential street (1,2) and Buddha Marg (3)

traffic volume of the secondary streets are low compare to the main street. The pedestrian sidewalk / pavements are present in main street of Golfutar so the pedestrian movement of main road is not difficult whereas the secondary streets lacks the pedestrian side walk but due to low traffic it doesn't seem to be problem till the present situation.



Figure 48 Entrance to park (1.Golfutar recreational park, 2. Golfutar children park) and playground

There is no vehicular access to Golfutar recreational park, Golfutar football ground and Golfutar basketball court and only accessed through walk whereas there is vehicular access to the Golfutar children park.

Both recreational parks and playground have visual access from residential plots and from main street since, the park were bounded by low height compound wall with iron grill above and both playground were fenced by iron net.



Figure 49 Compound wall of park (1.Golfutar children’s park, 2. Golfutar recreational park) and playground

Some temples were built by at the road side. Two temples were built on Golfutar recreational park as the element of the park whereas Golfu Binayak temple was built on the Golfutar children’s park area. This temple was built as a separate element. All the temples were built by local neighborhood community and are accessible by all.

4.2.5.2 Use and activities:

Golfutar recreational park and Golfutar children’s park generate large amount of public activities. Golfutar children’s park is built with small children and adults in mind, with an emphasis on playgrounds for the children and benches for the adults watching them. Children’s park is divided into two portions.



Figure 50 Children's Park (1 Portion A, 2 Central passage connecting Aand B and 3 Portion B)

Portion A and portion B of children’s park generate different activities. Portion B of park is equipped with playing equipment and therefore mostly used by children’s under age 12 years of age. Whereas, portion A of park is not equipped with any playing instrument so can be used by children’s as well as adult. Seating spaces are provided at the periphery of the park where people can seat and enjoy the games by

watching and also guide their children's. This park generates various sorts of activities like recreational activities, exercise and yoga, social activities etc. For parents with young children, 'the presence of children's park and facilities was acknowledged.



Figure 51 Children's Playing (1, 2), Adults playing Badminton (3)

Golfutar recreational park also generate large amount of public activities. Golfutar recreational park consists of 2 temples and seating spaces around the periphery of the park. Temple and park space is separated by difference in level connected through staircase.



Figure 52 Tumleshwar Mahadev Temple (1,2), Pathway connecting two temple (3), Saraswati Temple (4)

This park generates various sorts of activities like recreational activities, exercise and yoga, social activities and religious activities.

Time period of the day also define the activity that takes place on the park. In morning parks are usually occupied by adults and oldage people. Morning activities generally include exercise and yoga, walking, running, visiting temples. In the day time parks seems to be empty and only few peoples were seen roaming around the parks. Student's form "Upendra Devkota Memorial National Institute of Neurological And Allied Sciences" were seen using park on day.

In the evening time usually teenage and adults were seen using the parks. The objective of using park is for social interaction during evening. Some people visit park for walk. Also the day of a week also determine the use and occupancy of parks.

Saturday and other public holidays parks are usually occupied in day time by children's.



Figure 53 People seating (1) , Religious Activities on Park (2,3) , Shooting of Music Video (4)

Source : Usha Bista (2,3)

Playground also generates some public activities. Basketball court is usually occupied by players in morning time. Basketball court only opens in the morning in present scenario so, it is occupied by players in morning whereas football ground is open whole day and it is usually occupied in morning and evening time. Basketball court is also used as market area on Saturday.



Figure 54 Basketball court (1,2) , Football court (3)

Source: Himalayan Times (2)

The existing public spaces such as the temple areas generate a very small amount of daily activities as the residents do not visit them on a regular basis. Such activities are observed only in a few parts of the neighborhood. Street and street shops (café, restaurant) also gather most of public activities.

4.2.5.3 Sociability:

Golfutar area is planned residential area for people all around Nepal, people from various places buy plot and migrated to this area therefore the social composition is mixed type. People have access to all public spaces. All the public spaces are fenced but accessible. Fenced open spaces also have visual linkage from the outside so

spaces succeed in bringing people closer. People participate in public spaces in groups as well as individually. During direct observation, it has been observed that it was difficult for old age people to use open spaces since the entrance of Golfutar recreational park is staircase leading to park area.

As for the surrounding environment, the typology of the prevailing activity, i.e: commercial activity that is represented by café and restaurant and small tea shops that give people opportunity to interact together and introduce themselves to others. Open



Figure 55 Open street market in Golfutar Awas

street markets were also important social hubs. Open street market generally operates on Saturday.

Temples also generate very few activities, people only visits temple on special occasion.

4.2.5.4 Comfort and Image:

Open spaces (including park, children’s park and playground) are managed by neighborhood committee. Management of public space is good. Open spaces are well maintained and clean. Iron desk are arranged at the periphery of the parks and basketball court whereas there is no seating space in football ground. Since there is visual linkage between neighborhood and public open space they are safe. Also the open spaces are open from 5am to 8 pm so antisocial activities are not seen there as



Figure 56 Seating spaces in park and children’s park of Golfutar

stated by local residents using open space. Except basketball court, other public space lack proper light and security camera. Public toilets are not present in public space which is major problems seen there. During interview conducted on 24 February 2020, local resident of Golfutar Mr. Ram Prasad Adhakari stated that some of the antisocial activities (stealing of iron fence, damaging the built structures and play equipments) did happen in the public space but management committee have taken strong action to them.

Parking is one of the major problems of open spaces in Kathmandu Valley and this problem is also seen in Kuleshwor Awas Area. There are no parking spaces provided for public open space. People used to park their vehicle on the streets while using the public space.

4.2.6 Changes seen in Public Spaces of Golfutar Site and Service Area:

The major changes seen in public open space is its transformation of usage. Golfutar park present in northern entry of the golfutar was initially designed for community activities purpose. During the time of planning there were not any party palace and other event conducting spaces nearby the planned area so, the open space is provided to conduct such events and festivals. Another open space near the market area is converted into basketball court and football playground. Also the market space of Goflutar is converted into police bit and only small portion of it is used for market space nowadays. During the interview conducted on 21 March 2020, Mrs. Anjana



Figure 57 Market Area Converted into Polic Bit and New Market Area

Gautam state that market area is used for the police bit. Therefore they used to keep market at basketball court but now part of police bit is used for market area. Open air market (haat bazar) is only conducted during saturday 7 to 10 am. Krishak samuha of

Budanilkantha Municipality organize market during Saturday. Only organic foods and vegetables are sold there.

4.2.7 User’s prespective on available Public Space of Golfutar Awas

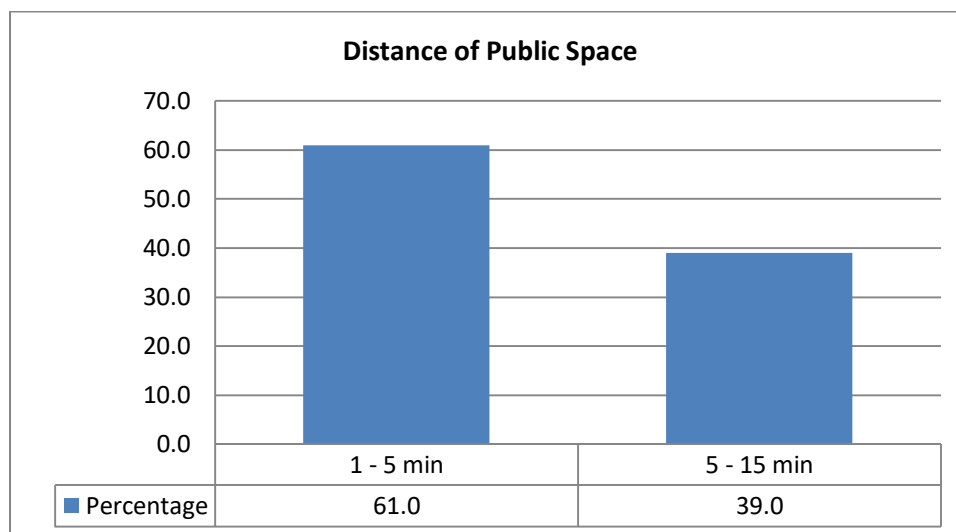
The data were coded into SPSS software for descriptive statistical analysis. The main focus of this analysis is to understand the user perception towards public open spaces area.

4.2.7.1 Access and Linkage

a) Proximity

Open Spaces at Golfutar Awas area are public parks and playground. Public open space was designed in equal interval to each other therefore most of the residence has open space within 1-5 minutes. 61 percent of the household have open space within 1-5 minute. 39 percent of the household have open space within 5-15 minutes distance

Chart 17 Distance of public space



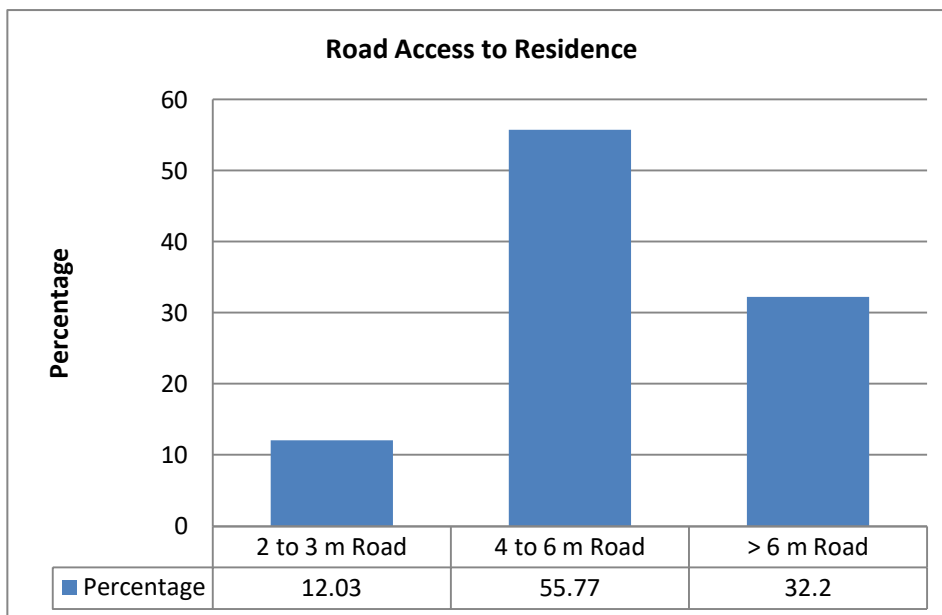
b) Settlemnt Layout

Golfutar Awas area is planned development. Whereas, the planning is done before design principles and guidelines been made so, planning solely depends on planner themselves. Also it is site and services scheme therefore houses are built individually, most of the houses are detached houses. The design, style and elevation of the buildings differ from one another. Even though separate bylaws is prepared for Golfutar Awas area it is not been properly implemented.

c) Road access to residence

The road access to the houses at Golfutar Awas area is mostly 5m, 12.03 % have road access of 2 to 4 m, 55.77 % have road access 4m-6m and 32.2 % have road access greater than 6m. Therefore, in every house there is accessibility of motorbikes. In almost all houses four wheeler vehicles can enter. Pedestrian walk / pavements are only present in 8m wide road.

Chart 18 Road access to residence

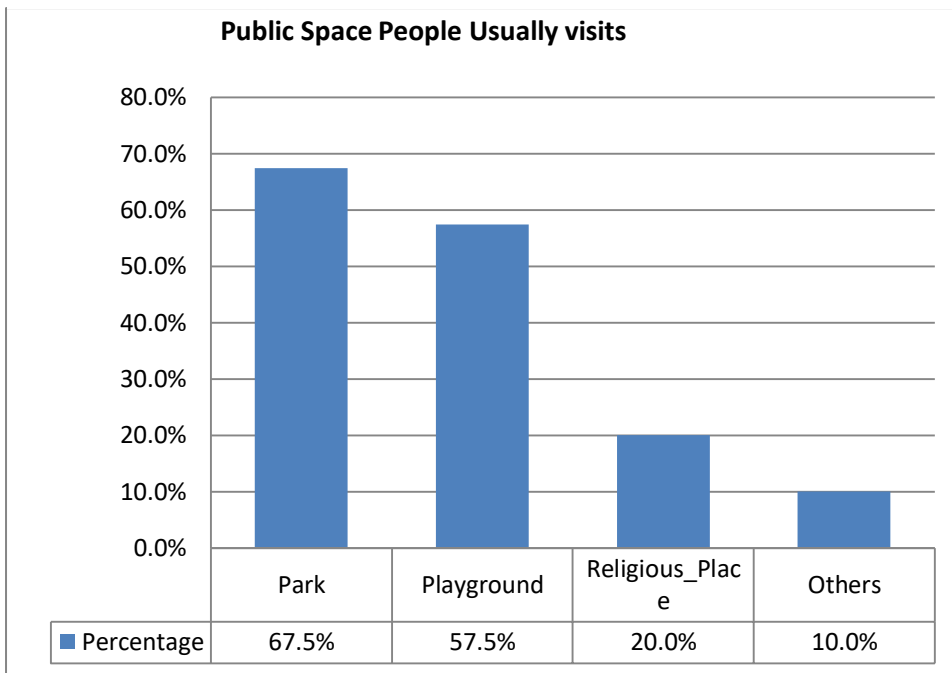


4.2.7.2 Use and Activity

a) Public space people use in Golfutar Awas

In Golfutar Awas, 67.5% people Visits Park. People usually wish to visit park during their free time as there is well managed green space and also children's recreational park most of the respondent visits to those spaces. People usually visit there for recreational purpose and social interaction purpose. In Golfutar Awas. 57.5 % people uses public playground. 20 % of respondent uses religious place. 10 % of respondent visits other public spaces rather than park, playground and religious places.

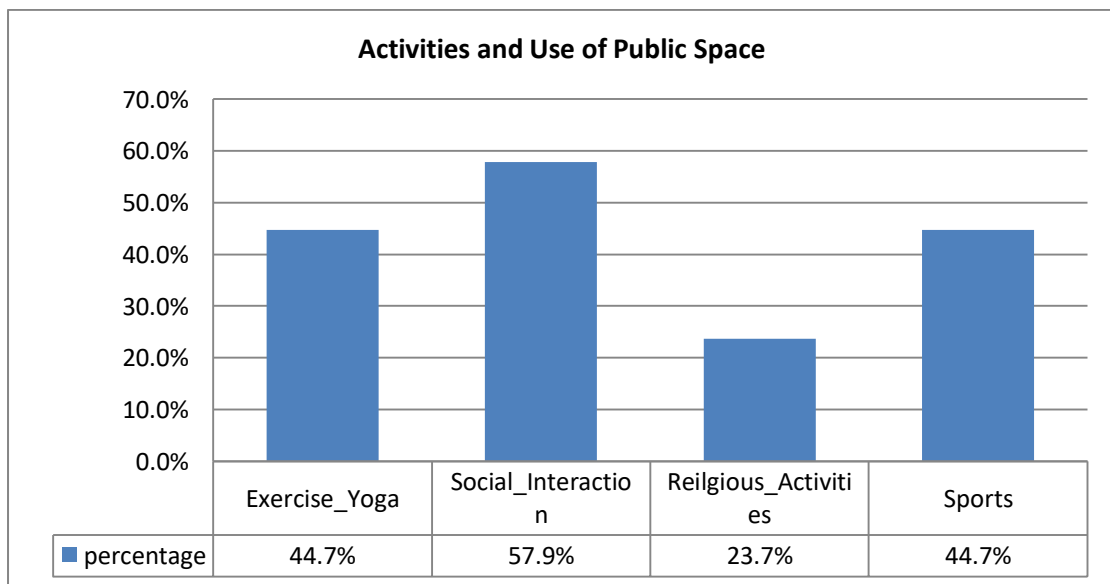
Chart 19 Public space people usually visit on Golfutar Awas



b) Activities and use of open space

People use open spaces usually for social interaction, sports, exercise and yoga, religious activities and parking. 44.7% of people use open space for Yoga and exercise, 57.9 % of people uses open space for social interaction, 23.7 % of respondent use open space for Religious activities, 44.7 % respondent use open space for sports.

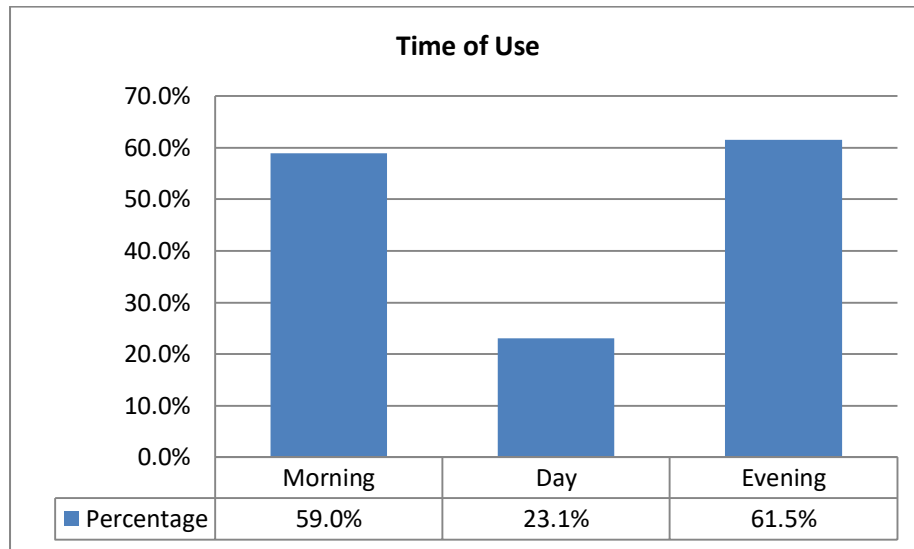
Chart 20 Activities and use of open space



c) Time of Use

59 % of people use the open spaces in the morning, 23.1 % people use open space in afternoon and 61.5 % of people use open spaces in the evening. During morning people uses open space for walk, exercise and yoga, recreation and sports. Basketball ground of Golfutar opens only in morning so, people uses it for games in the morning.

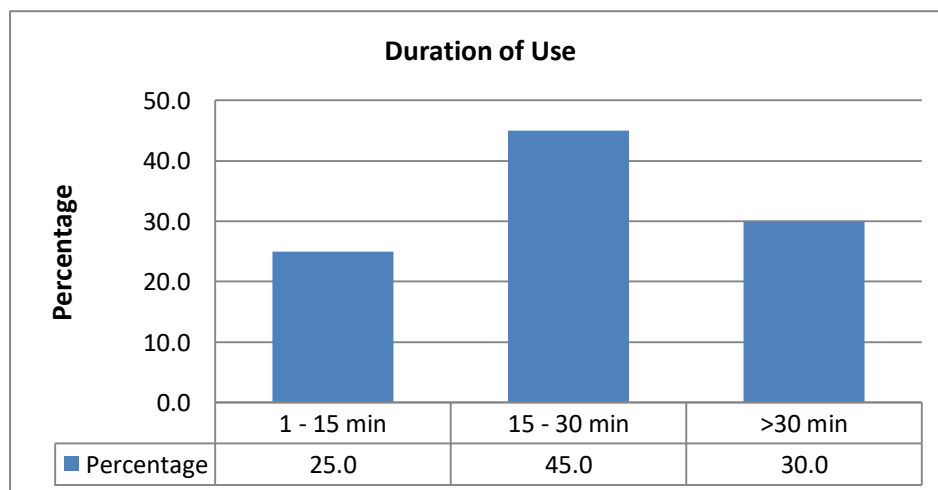
Chart 21 Time of use of public space



d) Duration of use

As the open spaces are managed properly, 25 % of the respondent visits the open space for 1 to 15 minutes. 45 % of respondent visits the open space for 15- 30 minutes and 30 % of respondent visits the open space for more than 30 minutes.

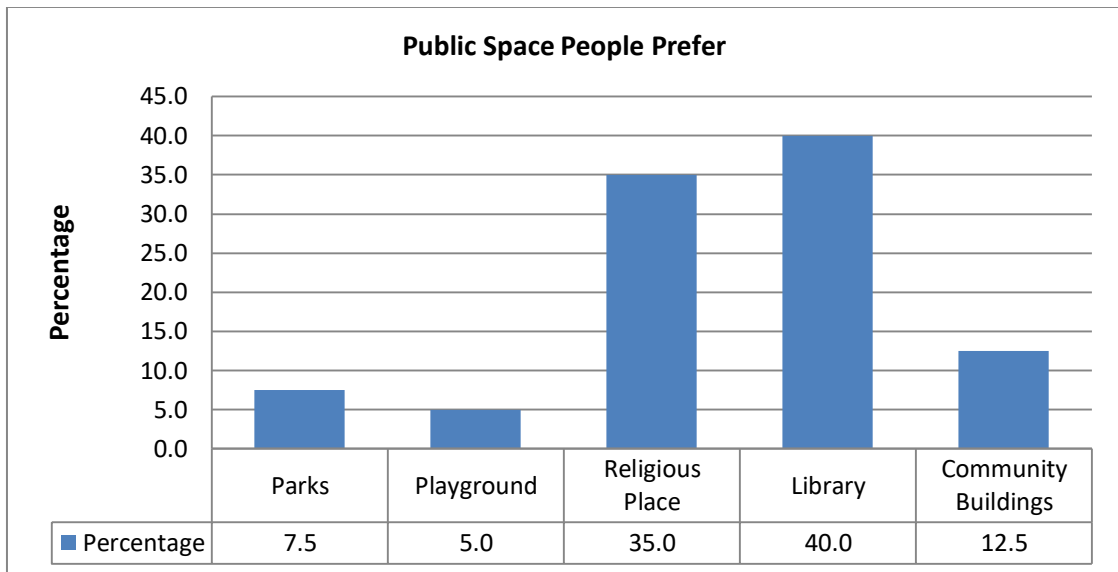
Chart 22 Duration of use of public space



e) Public space people prefer

Most of the respondent prefers library. In case of open public space people prefer religious place. Since there are two existing parks in golfutar so, only 7.5 % of respondent prefer to have parks, 5 % respondent prefer playgrounds, 35 % prefer to have Religious buildings and 40% prefer to have library and 12.5 % of respondent prefer to have community buildings.

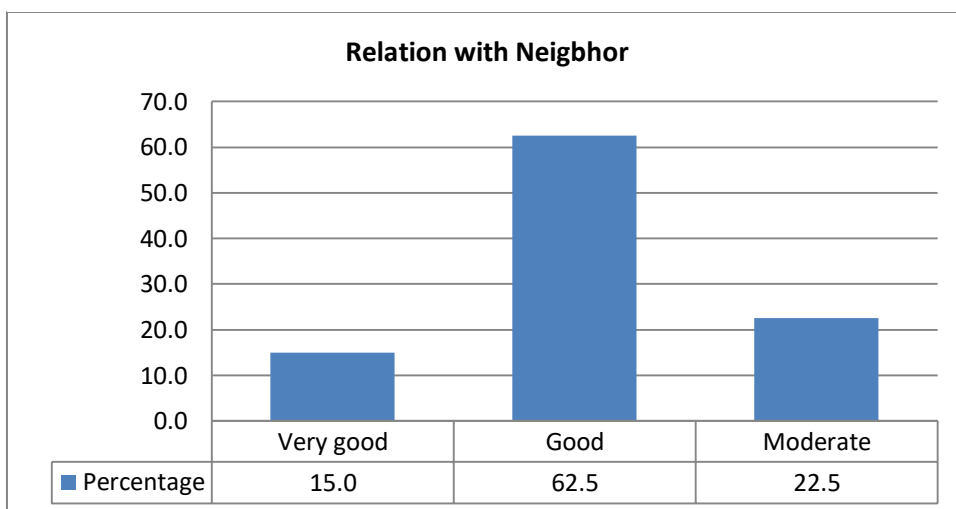
Chart 23 Public space people prefer to have in Golfutar Awas



4.2.7.3 Sociability

a) Relation with neighbours

Chart 24 Relation with neighbour

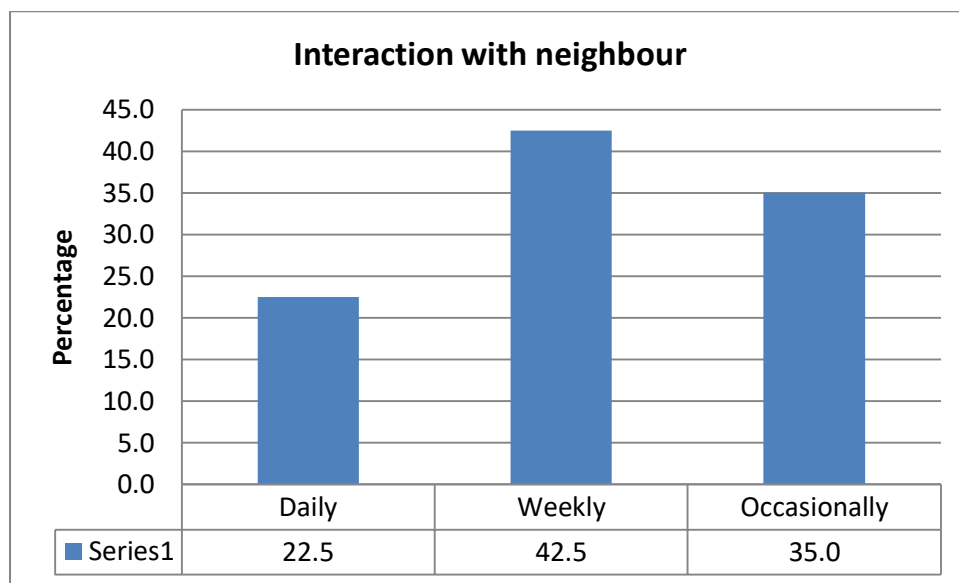


Respondents claim their relation with their neighbors is good, 15 % said they have very good relation with their neighbors, 62.5 % said they have good relation and 22.5 % said they have moderate relation.

b) Interaction with Neighbour

Among the respondent, 22.5%of respondent claim that they interact with their neighbor daily, 42.5 % of respondent claim that they interact with their neighbor weekly and 35% of respondent claim that they interact with their neighbor occasionally.

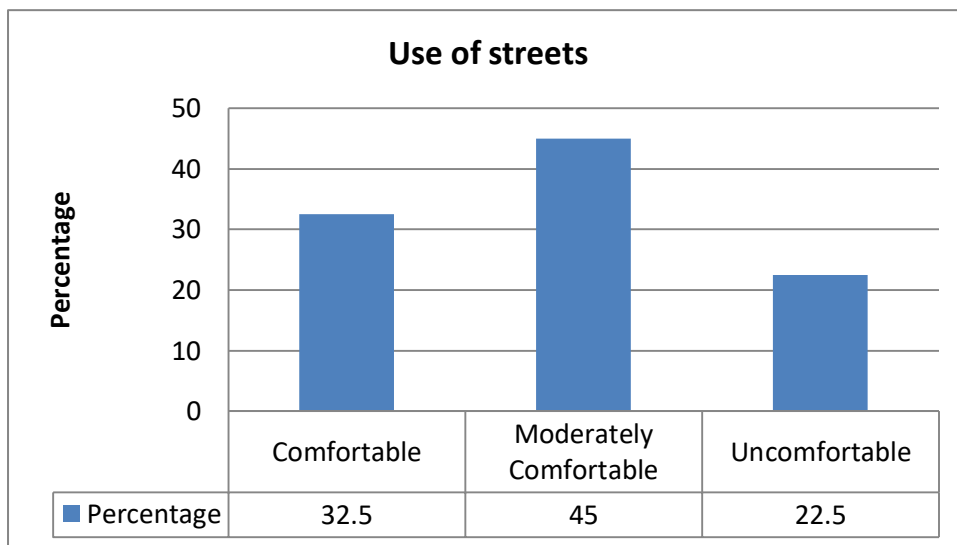
Chart 25 Interaction with neighbour



c) Streets

Secondary streets in Golfutar Awas were less crowded while main street (8 m wide) is more crowded compare to secondary streets (5 m and 4 m) width. Golfutar residential street (8m wide) connects Golfutar street to ring road so, this street also carries heavy vehicles. Even though the main street is busy, people feel comfortable while walking on the streets due to presence of pedestrian walkways. The secondary streets lack footpath but due to less traffic flow people feel safe while using the streets. Due to major road passing through the Golfutar Awas area children’s feel less comfortable using the public parks and playground.

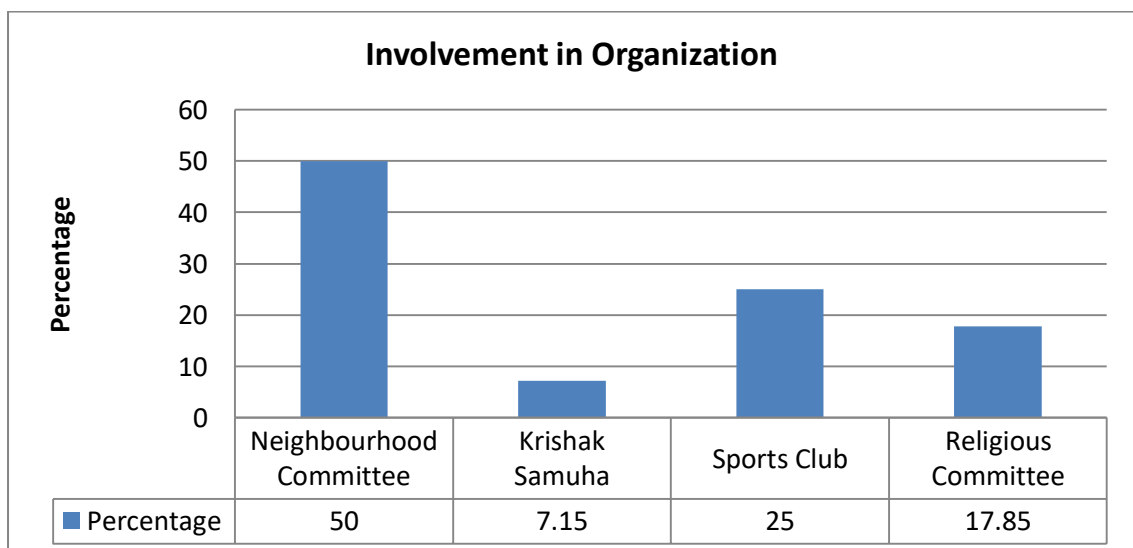
Chart 26 Use of Streets



d) Involvement in Organization

Among the total respondent, 70 % respondent were involved in organization and 30 % respondent were not involved in organization. Out of 70% respondent, 50 % respondents were involved in neighbourhood committee, 7.15 % were involved in krishak samuha, 25% were involved in sports club and 17.85 % were involved in religious committee.

Chart 27 involvement in Organization

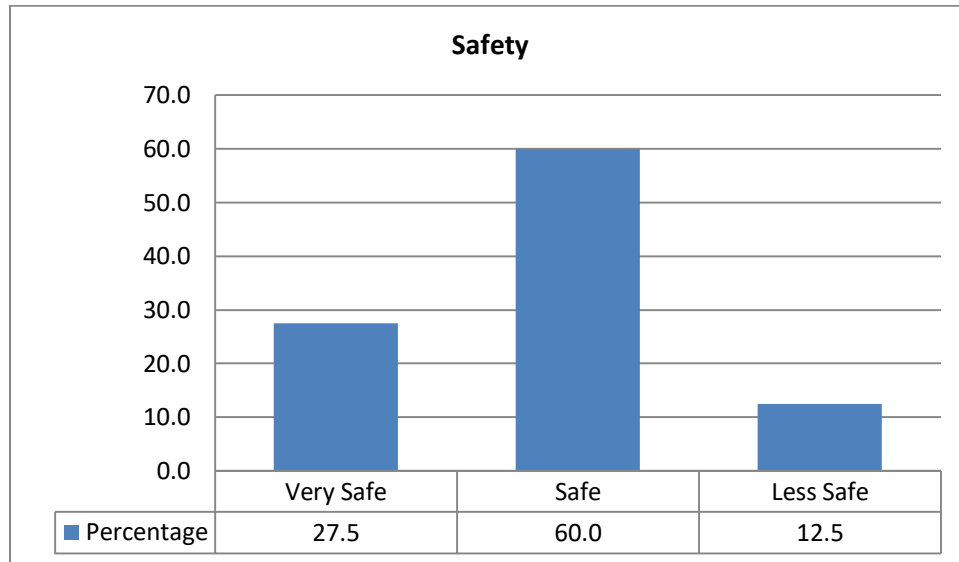


4.2.7.4 Comfort and Image

a) Safety of Public Open Space

Among respondent, 27.5 % feels very safe during public space use, 60 % feels safe to use public space. 12.5 % respondent feels less safe while using public space.

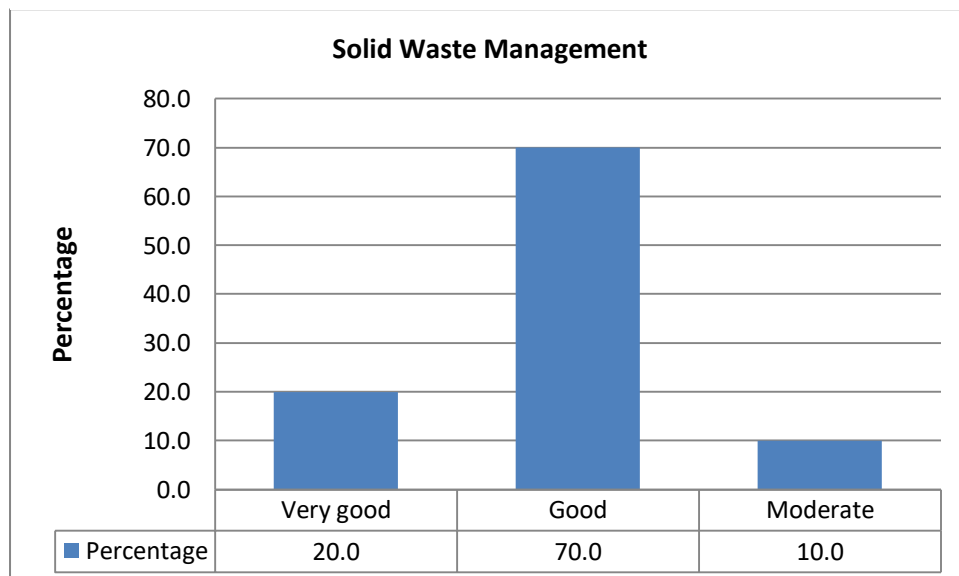
Chart 28 Safety of public open space use



b) Solid waste Management

20 % respondents said solid waste management is very good, 70 % of the respondents said solid waste management in their locality is good and 10 % said solid waste management is moderate.

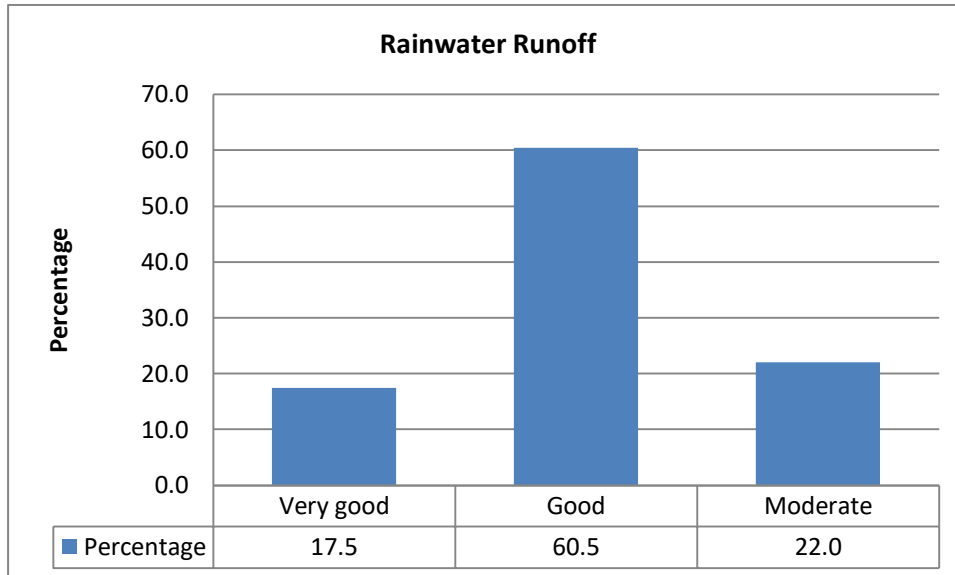
Chart 29 Solid waste management in Golfutar Awas



c) Rainwater Runoff

17.5% said it is very good, 60.5 % said its good and 22 % said moderate.

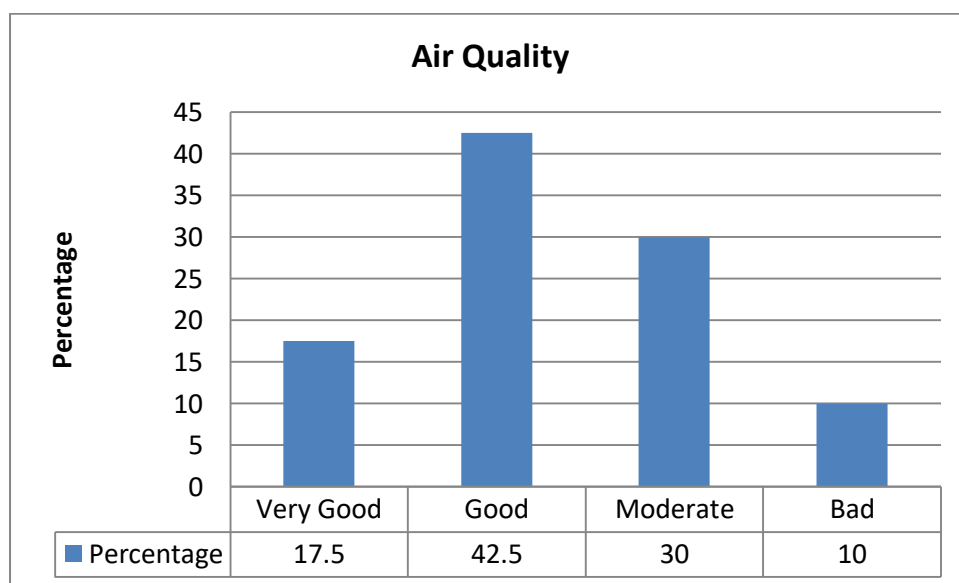
Chart 30 Rainwater runoff in Golfutar Awas



d) Air Quality

The 17.5% of the respondents consider air quality in their locality very good, 42.5% of the respondents consider air quality in their locality is good, 30% consider it to be moderate and 10% said it is bad.

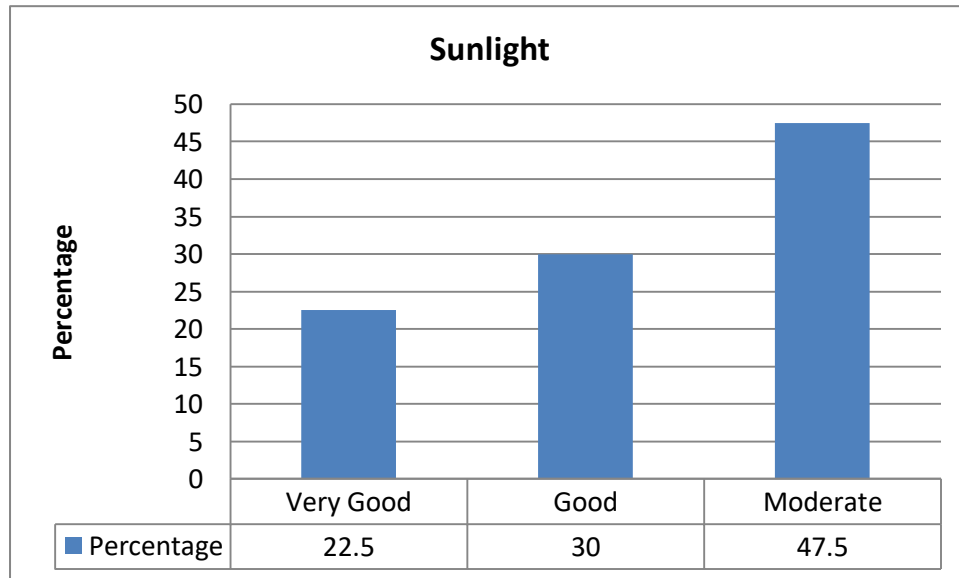
Chart 31 Air Quality



e) Sunlight

Among the respondents 22.5 % said they receive very good sunlight, 30 % said good and 47.5 % said it is moderate.

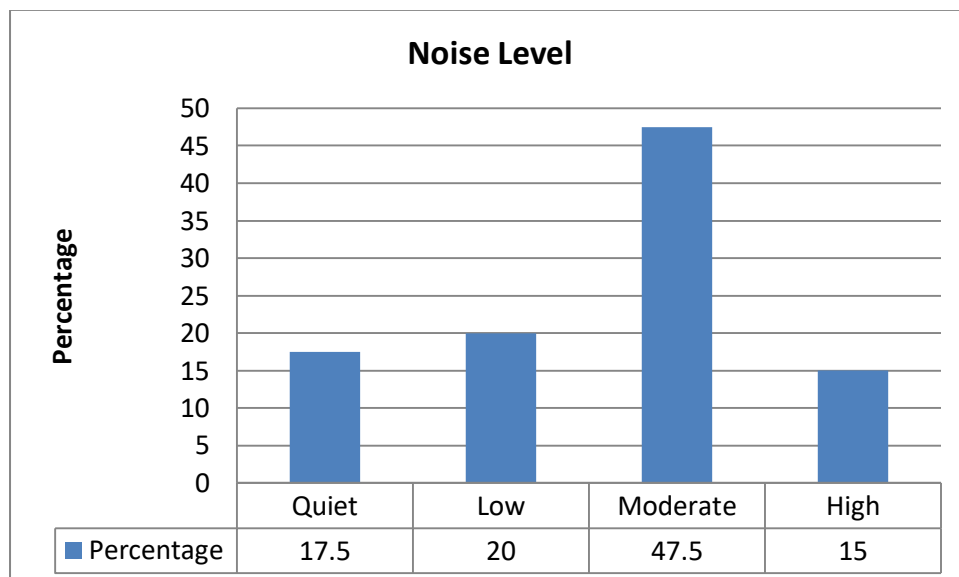
Chart 32 Sunlight in residence



f) Noise

Among the respondents 25% said their locality is quiet, 62.5% said it is low, 12.5% said moderate.

Chart 33 Noise level of surrounding



4.2.7.5 Management and improvement

The public open spaces (i.e: parks and playground) are maintained by the nearby residents (Upobhokta Samiti) and Basketball court is maintained by Budanilkantha Municipality Basketball Club.

4.2.7.6 Benefits from the public open space

Most of the respondents said the open space available had been useful during the earthquake. Some of them answered it has been used for some events and gatherings. Open spaces have been used for recreational purpose. They answered open space provide space for social interaction, people can gather and spend time. Open space provide space for playing and exercise therefore they get health benefits, these spaces can also be relaxing area as properly maintained parks give mental and spiritual relaxation. Parks also provide fresh air. The temples also provide space for religious and cultural

activities. Golfutar recreational park also serve as the space for, religious, social, educational and recreational space. Children's are also benefited by the children's park. Children's park serve as space for the recreation of children's below the age of 12 park is equipped with playing instruments.



Figure 58 Equipments in children's park (1), Golfutar recreational park (2), Religious program in Golfutar recreational park (3)

Source: Gunjan Bista (2) ,Usha Basnet (3)

4.2.7.7 User's Experience

There haven't been drastic changes in the open spaces in the Golfutar Awas area. The area wise encroachment of the open space hasn't been seen only the function of open spaces has been changed. As the development have taken high pace, separate place

like event halls started therefore community activities and events takes place there. So, open space first designed for community activities is now converted into Golfutar Park. As Kuleshwor Awas, in Golfutar Awas also public open spaces are managed by the neighborhood community. The open spaces are managed properly so has been properly utilized. Most of the respondent claim that, even though open spaces are properly managed, due to people behavior towards the open space it was difficult to maintain the open space. Respondents are more likely satisfied by open spaces. Some of the respondent also accepts that the entry fee should be taken for the management of open space.

Interview with Ram Prasad Adhakari

During the interview conducted on 24 February 2020, Mr. Ram Prasad Adhakari states that the Golfutar housing area becomes more crowded after the earthquake. Most of the people migrated to Golfutar area after the earthquake. He has been living in Golfutar area since 2012 A.D. He was most satisfied with the present condition of open space. He also explains that the people behavior towards the open spaces is somehow degrading the open spaces. Some people enters the open space and used to damage the property of the open space, he also explains that punishment were given to the people who have such behavior. Even though open spaces were managed properly, the people behavior towards the open space should be improved. He also accepts that the entry fee should be taken while entering the open space. The open space has been properly managed in present scenario where as he claims that the open space has been left without fencing some years before. Equipment's for children playground is recently been installed. It has been only a year. The findings from his interview and finding from the questionnaire survey match with the results. He explains that the open space has been used more during 7am to 10 am in the morning, after that 10am to 1 pm the open spaces is not properly used and after 2 pm onwards the open spaces are being extensively used. In the morning time open space is used for exercise, Yoga and Sports. In evening open space is used for social interaction, games and sports. Not only has the time of the day but days of the week also depends on the use of open space. Saturday and other public holidays the open spaces are been intensively used. He also assures that the solid waste management and rainwater runoff of golfutar is good.

4.3 Public Space in Copenhagen, Denmark

Copenhagen is the capital of Denmark, is located on the eastern part of the country. It is situated on eastern shore of Zealand and faces the strait that separate the eastern Denmark from the southeast Sweden. The urban core area of Copenhagen is generally a flat ground with a land area of 86.2 km². The population and the population density of the city area are 569,557 and 6,607 people per km² respectively (Statistics Denmark, 2014).

Creating sustainable cities is currently one of the key goals in Denmark. Copenhagen has aimed to become the first carbon neutral capital in the world by 2025 (Ministry of Foreign Affairs of Denmark, 2014). Copenhagen is often praised for its commitment to cycling and infrastructure. With 41% of all trips citywide done by cycling it is the Golden Standard Cycling City that many municipalities aspire to (Proulx, 2015). In Denmark, cycling is not only a way of transportation; it has become a famous culture instead. According to the Cycle Policy and Account Document, (City of Copenhagen, 2012) 36% of the Copenhagen citizen has cycled to work and school by bicycle.

4.3.1 Public Spaces in Copenhagen

The most interesting feature of public space in Copenhagen is that the small informal public spaces are also well used. This stands in contrast to public space in North America, where public space design often emphasizes very large and formal spaces. These spaces often look pretty, but fail to attract people to actually occupy them, especially because they are so large (Proulx, 2015). A large amount of hedges have



Figure 59 Public Space in Copenhagen

Source: <http://archdaily.com>

been used as walls to separate spaces. No chain link fences are used. Benches are closely placed along these hedges or flowerbeds to ensure a large open area for children's play. On the other hand, no canopy or shelter is found.

4.3.2 What Make public open spaces successful in Copenhagen?

Within the framework of article “Lessons from Copenhagen: Key ingredients for a successful public space” Proulx(2015), mentioned that few observations were made which makes public places in Copenhagen so successful. The key distinction are categorised in four key attributes:

4.3.2.1 Access and Linkage:

a) *Public Spaces are Inviting and Engage People:*

Proulx(2015), states that the predominant factor that produces these spaces so people friendly is that they’re comfortable and quiet, thus inspiring people to remain on their own will. The design emphasizes the dimensions and scale of the human within the general public space. They do not isolate people who are differently able. They do not make an individual feel small or insignificant by virtue of the size and scale of the human. This human scaled approach to urban design invites a mixture of various activities and has many diverse edges. Public spaces don't have to be large. Smaller

can actually be better space if managed and designed properly as the spaces in Copenhagen seems fuller and more attractive compared to the larger open spaces in other countries.

In other cases, large spaces were oriented to appear sort of a collection of smaller spaces. Offering an area for some people to remain is best than none at all. The key is to engage people and invite them to use these spaces.

Often in North America, people are discouraged from hanging get into these spaces because it’s often related to loitering, panhandling or the consumption of illicit substances.

b) *Streets:*

Unconventional and informal spaces (like sidewalks of roads and bridge) in Copenhagen were occupied since they were noticeably quieter. Taking an example of the sidewalks, they were full of people on the Dronning Louise’s Bro, a bridge



Figure 60 Steps in Public Space

Source:

<https://slowstreets.files.wordpress.com>

spanning over the Lakes in Copenhagen. This is often due to the low vehicle traffic volumes there. While the bridge sees several thousands of individuals cycling and therefore the occasional bus crossing every day, it is the place that isn't eroded by the extraneous noises of high volumes of fast paced car traffic since most of the people uses cycle for means of transport (Proulx, 2015).



Figure 61 Dronning Louise's Bro

Source: Alamy Stock Photo

4.3.2.2 Use and Activities:

a) Anchor Public Spaces with Food

Almost all of these spaces are provided by some form of restaurant or Café. People can eat and drink and have an anchored to that space, no matter how small or large



Figure 62 Food Stall on Public Space of Copenhagen Source : Flickr

that serves food, invites people and suggests that they are welcome to stay.

b) Let Public Spaces Self Regulate

None of those spaces had signs telling people what they couldn't do. Spaces will never work properly if you create them. Public spaces need people in them to achieve success. Spaces full with people have a form of self-regulation about them. It tells people 'we trust you' and that we want you to use our spaces. This lack of overprotectiveness is inviting – as a consequence, people use the spaces.

c) Give People Things to Do

The greater form of people you invite and accommodate for, the more successful your public spaces are going to be. Offering a large diversity of activities attracts a large diversity of individuals. The Copenhagen spaces also invited activities like



Figure 63 Skateboarding in public space (Flicker), Wrestling ring in Super kilen (slowstreets), Gym Equipments (Shutterstock)

skateboarding which most of the youth prefer which are often band in Canada and other countries.

4.3.2.3 Sociability:

a) *Be Good To People*

Slowstreets(2015), states that “It is so cheap to be sweet to people.” And it pays off in spades, as a result of a few inexpensive details, people stay outside and make the public spaces attractive. As a result of more people being outside, safety is improved with more “eyes on the street.”

“If you don’t think this can be done in your hometown, let me leave you with this. Jan Gehl is one of the key actors in the humanizing of Copenhagen – spending over 50 years of his life studying public life. Gehl is often quoted saying that 40 years ago the people of Copenhagen also said that they would never hang outside, they cried “but we are not Italians”. Strategic and thoughtful designs can engage and invite people in a relatively inexpensive way.” (Proulx, 2015)

Great public spaces will also generate spin-off activities, where people are more likely to support adjacent businesses.

b) *People Attract People*

Successful urban places require the presence of people. Successful public spaces offer people a ‘third space’ – an area to meet with other people outside of their home or work. A public space full of people will predictably attract others. Perhaps, the most remarkable thing about humans is that we are happiest once we are around other

humans. A good public space is one that reflects diversity and encourages people to live together effortlessly, creating the necessary conditions for permanence, which invites people to be on the street.



Figure 64 People relaxing in the park.

4.3.2.4 Comfort and Image:

a) *Offer Places for People to Sit – Whether Formal or Informal*

Source: <https://slowstreets.files.wordpress.com>

All of the public spaces in Copenhagen have space to sit; whether informal like the steps of a staircase, or the rim of a planter or actual street furniture like benches and chairs. People like to sit. If we provide seating in a comfortable space along edges and there is something to watch (like other people), people will use them.



Figure 65 Seating Space in Copenhagen

Source: Mikkel Eye

b) *Allow People to Relieve Themselves*

Often neglected in designing public spaces is the bathroom. This usually means people must move to restaurant or café and spend money to use the toilet. In Copenhagen public spaces have free public washrooms. If people are treated with respect by acknowledging their need then they're going to feel welcome and can more likely choose to stay longer in that space.



Figure 66 Public Toilets in Copenhagen

Source: <http://theindependent-travellers.com>

c) Don't Be Afraid To Be Eccentric or Bold

Each public open space should have its distinctive character to attract the people there and make them to stay. Proulx (2015), states that the Super Kilen is one of the most incredible spaces he have seen; it was an inspiration with its peculiar colors and details. Cities should not be afraid to be bold when designing public spaces. Something as simple as a coat of paint can radically change the aesthetics of a space.



Figure 67 Use of Bold Color in Super Kilen, Source: archdaily.com

CHAPTER 5: COMPARISION

5.1 Comparison of Kuleshwor Awas Area and Golfutar Awas Area

Comparison Unit	Kuleshwor Awas Area	Golfutar Awas Area
Total Study Area	522 Ropani 26.56 Hectare	213 Ropani 10.54 Hectare
No. of Plots (Initial)	751	500
No. of Houses (Present)	911	445
Total population	3826	1869
Population Density	144.05 ppha	177.32ppha
Public Spaces	Park Playground Neighborhood Open Space Library Community Building Temple	Park Playground Market Area Temple
Available Public Open Space Within the Study Area (Beside Road)	Number = 27 Total Area = 1.29 Ha (12907.88sq.m.) Tinkune Volleyball Ground Neighborhood Open Spaces (Green Plots)	Number = 3 Total Area = 0.73 ha (7303 sq.m.) Golfutar Basketball Ground Golfutar Footaball Ground Children Recreational Park Golfutar Park
Open Space Density	33.71 ha/100000 3.37 m ² per person	39.05 ha/100000 3.9 m ² per person
Percentage of Open Space	4.85 %	6.92 %
Available Open Spaces in Periphery of Study Area	Kuleshwor Mahadev Temple Area Bhuwaneshowari Temple Area	
Proximity among	1 – 5 min – 67.5 %	1 – 5 min – 85 %

Respondent	5 – 15 min – 32.5 %	5 – 30 min – 15 %
Time of Day	Morning – 55 % Day - 12.5 % Evening – 45 %	Morning – 59 % Day – 23.1 % Evening – 61.5 %
Duration of Use	1 – 15 min – 55 % 15 – 30 min – 27.5 % > 30 min – 17.5 %	1 – 15 min – 25 % 15 – 30 min – 45 % > 30 min – 30 %
Usage	Exercise and Yoga – 22.5 % Social Interaction – 35 % Religious Activities – 12.5 % Sports – 30 % Parking – 35 %	Exercise and Yoga – 44.7 % Social Interaction – 57.9 % Religious Activities – 23.7 % Sports – 44.7 % Parking – 0 %
Safety	Very Safe – 25 % Safe – 52.5 % Less Safe – 12.5 % Not Safe – 10%	Very Safe – 27.5 % Safe – 60 % Less Safe – 12.5 % Not Safe – 0 %
Involvement in Organization	Yes – 45 % No – 55 %	Yes – 37.5 % No – 62.5 %
Relation with Neighbor	Very Good – 10 % Good – 75 % Moderate – 15 % Not Good – 0%	Very Good – 15 % Good – 62.5 % Moderate – 22.5 % Not Good – 0 %
Interaction with Neighbor	Daily – 17.5 % Weekly – 52.5 % Occasionally – 30 %	Daily – 22.5 % Weekly – 42.5 % Occasionally – 35 %
Settlement Layout	Detached – 78.97 % Row – 21.03 %	Detached Houses
Solid Waste	Very Good – 12.5 % Good – 62.5 % Moderate – 25 %	Very Good – 12.5 % Good – 60 % Moderate – 27.5 %

Drainage	Very Good – 10 % Good – 32.5 % Moderate – 57.5 %	Very Good – 17.5 % Good – 52.5 % Moderate – 30 %
Road Accessibility to Residence	2 m – 4m – 43.45 % 5m – 6m – 36.30 % >6m – 20.25 %	2 m – 4m – 12.02 % 5m – 6m – 55.77 % >6m – 32.20 %
Management of Public Space	Local community with the help of Kuleshwor Awasi Pariwar Kalyan Sanstha	Local Community
User Perception		
Benefit	Playing space Parking space Storage of materials During Disaster	Playing space Recreational and Health Benefit During Disaster Mental and spiritual Relaxation Religious Benefit
Changes Seen	Open Space is minimized and road expanded from 2 m to 3m Building height increased Market area is converted into fenced open Space	Community Facilities to Park Open Space is Converted into Playground Market Area is encroached with police bit
Suggestion for Improvement	No dedicated Park for children and senior citizens	Parking Space should be given Everyone responsible for Maintenance and Cleanliness

Table 6 Comparison of Kuleshwor Awasi Area and Golfutar Awasi Area

CHAPTER 6: ANALYSIS AND FINDINGS

6.1 Access and Linkage

6.1.1 Availability of open Space:

From the study of both site and services, it is observed that the open space in both the settlement is enough compare to the planning norms and standard. As far as the provision of public space in Kuleshwor Awas is concerned, it is not satisfactory in terms of both the quality, although it meets the requirements of the current norms and standards. The existing open spaces do not contain basic amenities or elements of interest for engagement of the users. Therefore the spaces are less inviting. The community building and library of Kuleshwor Awas is less satisfactory in terms of its capacity. Contradictory to this, in Golfutar site and services area availability of public open space in terms of both quality and quantity is satisfactory. Whereas, public spaces like library and community building are not present in Golfutar Area.

The open spaces in Kuleshwor Awas are incorporated within the residential plots whereas the open spaces in Golfutar area are isolated from the residential plots through the road network. Therefore access of children's to the open space are more preferable in Kuleshwor Awas than in Golfutar Awas.

6.1.2 Distribution of open spaces:

Comparing the open spaces in both the site and services area, 27 small pockets of open spaces are distributed over the design spaces in Kuleshwor awas whereas 3 large open spaces were distributed at equal intervals in Golfutar Awas therefore, open spaces are more evenly distributed in Kuleshwor Awas compare to the Golfutar Awas. Looking at the open space in traditional settlements, Neighborhood level open spaces, Neighbourhood-level squares are more exclusively used by the nearby residents. Contrary to this neighborhood open space in Kuleshwor Awas are not used properly whereas open space Golfutar Area were used most often. Looking as the densities of open space, open space density is 3.7 m² per person and 3.9 m² per person in Kuleshwor Awas and Golfutar Awas respectively. This is because in Golfutar Awas all the residential plots are not occupied even in present scenario so; open space density is Kuleshwor Awas is more in compare to the open space density in Golfutar.

6.1.3 Accessibility of open space:

The study has revealed that accessibility is one of the major issues with the use of the existing public spaces in the neighborhoods. Several public spaces in Kuleshwor Awas area are not open to the residents on the daily basis. Some of the open spaces are only accessible in morning and evening time for certain hours only, these open spaces include temples whereas the open spaces like parks are not accessible to the public. Also those public spaces which are accessible to public are not inviting due to lack of regular maintenance and it also lacks the elements of interest. Whereas, the open spaces in Golfutar awas are open and accessible to public therefore are used properly.

6.1.4 Streets:

Streets in Kuleshwor awas was less crowded compare to the streets of Golfutar Awas. Since the golfutar residential street connects Golfutar main road and ring road so, heavy vehicles are seen on the streets of Golfutar Awas. Eventhough the streets were more crowded due to the presence of pedestrian walkways streets were quite safe to walk around. Since the streets of Golfutar are crowded so, it makes local children difficult to access to the parks and playground. Streets of kuleshwor awas are pedestrian friendly compare to Golfutar since there is not much traffic flow. Streets in Kuleshwor Awas was less crowded therefore most of the people feel comfortable walking in the roads even though there is no footpath.

During the direct observation, streets were also used by children's for playing. Since open spaces were mostly occupied by private parking and also some of them are fenced so, children's prefer to play on the streets.

Street markets seem to be important social hubs in Kuleshwor Awas and mostly open street markets are seen 5pm onwards in Kuleshwor Awas. The local café and restaurants located in the streets usually seem to be gathering points for people more often. These places have a provision of an outdoor space to accommodate the customers and the local residents. The residents quite often engage in a conversation while using these spaces. Peoples are also seen gathering at the front of local newspaper stores. Chitrakar et al. (2017) also suggest in his research that the local café, restaurants and newspaper stores are the places for the social interaction of the people in other contemporary settelments.

Out of total respondent 57.5 % of total respondent feel comfortable walking on the streets and 30% felt it was moderately comfortable and only 12.5% of total respondent feel discomfort while walking on the streets. Discomfort while walking in the streets was felt more by the elderly people

6.2 Use and Activity

6.2.1 Usage and functions of public space by community

Use of open space is determined by the availability, proximity and the accessibility of these spaces to the people. Also, the social structure determines the use of open space. It has been observed that in both site and services area the open spaces has been mostly used during the morning and evening hours. The open spaces were mainly used for walking and exercising, for health benefits then followed by social interaction, religious purpose. Also in Kuleshwor Awas, children do not have enough spaces to play and children are seen playing in the streets. The use of open space is found most in the disaster situation. Most of the people have to come in the open space for their safety during the earthquake. The spaces that were not used generally were also occupied during the earthquake. Open space in Kuleshwor awas are mostly fenced and doesn't have access to public and unfenced open spaces are not maintained properly and are not properly used. It has been only used for parking purpose and some household activities. Temple's in Kuleshwor Awas are opened in the morning and evening time only. The mostly used open space in kuleshwor awas is Tinkuney playground; it has been used for sports, community activities and other social, educational, religious and cultural purpose also. Contrary to this all three open space in Golfutar Awas is mostly used by people for social, religious, educational and community activities. The open spaces are also used for sports.

There are distinct rhythms and patterns to the use of public spaces, by time of day, day of week. The study found that public open spaces had particular rhythms of use older people were more in evidence in the mornings when markets were operating, while the young and adult people seems using the open space during the evening time during social interaction. During the day open spaces are mostly occupied by school and college students. Also the day of the week also defines the use of the open space. In both site and service area, open spaces are more occupied in Saturday and other

public holiday. The community building of Kuleshwor awas is used by old people on Wednesday.

6.2.2 Change in use of open space from planning till now

During the time of planning open space were designed for children. During time of design, children used to play outside as there was not much progress in technology. As there is advancement in technology, children were mostly involved in electronic devices rather than playing outside. The open spaces were not used by children in present scenario. Rather than going to open spaces children prefer to stay in their homes and paly in electronic devices. Also some of the children were seen playing in the streets rather than going to open space in Kuleshwor Awas, the reason for not using open space is lack of access to the open space. During the interview with local resident of Kuleshwor awas, they stated that the open spaces were initially used by the children whereas in present scenario the open spaces are extensively used for the parking purpose. During the time of planning there were not party palace and event management area so, space for community activity was provided, whereas in the present scenario the community activities like marriage and other functions are conducted in party palaces therefor the space defined for the community activities in present context are converted into playground and parks. The current usage of open space is mostly health and environment related. Study shows that most common usage of the open space is for exercise and morning or evening walks.

Market areas designed in both site and services areas were not used in the present context. The market area in kuleshwor awas is converted into fenced park, religious place and also some part of it is used for parking purpose. Also the market area of Golfutar Awas is converted into police bit.

6.3 Sociability:

6.3.1 Social Condition:

Both Kuleshwor and Golfutar area are planned residential area and no specific ethnic population group are targeted for that area, so people from various places buy plot and migrated to this area therefore the social composition is mixed type. The community is newly formed with people migrating from different places and different caste. The community is heterogeneous. As in traditional settlement most of the people were involved in guthi whereas in this planned settlements the most active community

group in these societies is Neighborhood community which works for the community welfare and also share some community activities. Looking at the result from questionnaire survey, as people were involved in neighborhood community, therefore people seem to have good interaction with their neighbors and their relation with neighbor is good. Even though people claim that they have good relation with their neighbor but during direct observation and interview of some of the residents, they claim that the interaction with the neighbors is quite less and the relation with the neighbor is not quite good.

Most of the residents have built their own house and migrated to this area. The building type is mostly residential, with 3-4 storey in average, with maximum houses with tenants. Newly constructed buildings around main road are used for commercial purpose.

6.4 Comfort and Image:

6.4.1 Maintenance and management of open space

(Parks and People Foundation, 2000) From their study find out that the open spaces are managed by partnership among three types of service provider, this is also valid in case of both the site and services area of Kathmandu. The three type of service provider defined in (Parks and People Foundation, 2000) are:

a. Grass root organization

Grass root organization refers to the neighborhood community (Uphobhokta Samiti) that performs the physical labor and community organizing aspects of projects.

b. Technical assistance group

Technical assistance group usually are non-profits organizations that provide support to neighborhood community groups through training sessions for the improvement of open spaces and also run various type of programs. In the case of Kuleshwor awas, Kuleshwor awas pariwar kalyan sanstha is the technical assistance group.

c. Urban land trust

Urban land trust refers to ward office and municipality that lend stability to projects by acquiring title to the properties, thus protecting them from the immediate pressures

of development and in many cases preserving the sites in perpetuity. It also, provides capital and variety of other resources for the technical assistance group for management of open spaces.

These three-partner systems were observed in both Kuleshwor site and services area and Golfutar site and services area. The effective coordination of these three partnerships should be needed for the proper management of open spaces. In Kuleshwor awas management was done by grass root organization i.e.: neighbourhood committee itself. So, open space quality also depends on the participation of neighbourhood committee.

Apart from these three service provider, the people's behavior also depends in the maintenance of open space. Open spaces will be well maintained if it has functional value. The use of open space has changed through time. Therefore the open spaces should be designed with the changing need of people. The management of open spaces in Kuleshwor awas is not good in most of the cases. The major problem seen in kuleshwor area is the improper coordination among the members of grass root organization (i.e.: community or neighborhood) doesn't seem to be active in case of Kuleshwor Awas this is because of the lack of community feeling and also the individual behavior towards the society as well as open spaces. During the direct observation it is seen that some of the residents living near by the open spaces are throwing the garbage's in the open space. Also during the interview local residents are not satisfied with the behavior of their neighbors.

Community participation and support is most important factor for the short term and long term sustainability of the open space project, without the support of community open spaces cannot be managed, this can be seen in most of the open spaces of Kuleshwor Awas.

6.4.2 Environment

The environment of both study area is satisfactory. However, residents from Kuleshwor Awas area said their locality would be better if there were more open space or if the existing open spaces were properly managed. Solid waste is managed by the private companies in both site and services area. The private company collects fees to manage waste. In traditional settlement previously

Rainwater drainage is good in both settlements as there is no complaint of waterlogging during heavy rainfall. Most of the residents from both areas have considered air quality to be good in their area, very few have said the air quality is not good at Golfutar area.

There is good sunlight access when there are wide open spaces. In Kuleshwor area most of the residents have private space in front of their houses and residential plots that don't have private open space have public open spaces adjacent to them allowing the access to the sunlight. But in Golfutar awas area, all the residential plots were 4aana in size and open spaces were in the form of large parks and playgrounds so, the access to sunlight is not as good as that of Kuleshwor area.

It is seen that the place with more open space are quieter. The road width and the vehicle accessibility determine the noise level of the surrounding environment. Vehicle flow in Kuleshwor are is less than that of Golfutar are and aslo pocket of public spaces were distributed over the whole area in Kuleshwor so, Kuleshwor area is most quiet compare to Golfutar area.

6.4.3 Safety:

The use of public space and streets in Golfutar area is safe compare that of Kuleshwor area. Since, open space in Kuleshwor awas is not used properly due to lack of accessibility in some cases and due to lack of maintenance on the other hand. So, people don't use open space properly.

Also the streets in Kuleshwor area is less safe compare to Golfutar area since the neighborhood residential plots have high compound wall. The high compound wall is blocking the visual access to the streets and also the public space. Also streets lights are not managed properly in Kuleshwor area. But in case of Golfutar area the residential plots opens up to the streets providing space for commercial activities and also the open spaces management is good compare to that of Kuleshwor area. So, public open space and streets of Golfutar are safe compared to Kuleshwor area.

CHAPTER 7: CONCLUSION

As far as the provision of public space in Kuleshwor Awas is concerned, it is not satisfactory in terms of the quality, although it meets the requirements of the current by-laws. The existing open spaces do not contain basic amenities or elements of interest for engagement of the users. Therefore the spaces are less inviting. Whereas the open space in Golfutar Awas seems to be satisfactory in both quality and quantity. The community building and library of Kuleshwor Awas is less satisfactory in terms of its capacity. There is no community building and library in case of Golfutar Awas, the only community building seen in Golfutar awas is the ward office itself. Even though there are separate bylaws for Kuleshwor Awas Area and Golfutar awas area, it has not been followed in both of the site and services area. Therefore, the open spaces and buildings do not complement each other in physical form.

First research question of this research is to find out the initial purposes of Green plots in Kuleshwor site and services area and current use of those spaces. Main purpose for allocation of green plots is for children play area and for community gathering purpose (to improve social relation). Planning of kuleshwor site and services is done 6 decades ago so, during that time there is no event management places, also children used to play outside since technology has not progress much. So, those green plots were allocated during planning; whereas, whole use of the space has been changed in the existing situation. Four type of open space can be seen in present stage. First one is fenced open space which is not accessible and can only be used by some members of neighborhood committee. Second one is unfenced and unmanaged open spaces. These spaces are mostly occupied by private parking. Other than open spaces streets were also used for parking. These spaces were not maintained properly so not properly used. Some children were seen playing on these open spaces. Third one is playground; it is most used open spaces in Kuleshwor area. This area is initially designed for community gathering purpose but part of it is converted into fenced part, boring area and play area. Playground area is also used for social, cultural, religious and educational activities other than playing. Fourth one is temple area; during time of planning there were only 4 kumari temples in this area whereas, in present context there were more temples. Those temples were built by encroaching the public open spaces. Even though temple itself is type of public space the temples seems to be isolated from the open space so, degrading the open space quality. Therefore, temples

should be well connected to the surroundings during new construction and also management of existing temples.

Second research question is to find out the reasons for minimal use of existing open space. The finding of the study has revealed that accessibility is one of the major issues with the use of the existing public spaces. The open spaces are not open to the residents on a daily basis. Those public spaces that are accessible are not inviting due to poor management and the lack of elements of interest. There is no visual connection to the open space also due to high compound wall of residential plots. Public spaces also lacks basic amenities (like seating space, play equipment) and elements of interest, so people doesn't feel comfortable using the open spaces even though open space were accessible. The success and long-term sustainability of neighborhood open space projects depends entirely on the interests of neighborhood. While the growing neighborhoods have failed to appreciate the role of public space, the poor development of neighborhood public space is already affecting the quality of social life, with declining participation of the residents in the public spaces in case of Kuleshwor Awas. Neighborhoods have failed to appreciate the importance of public space therefore; poor development of neighborhood public space is seen which is also degrading the quality of social life, leading to the decreasing social interaction among the residents. Lack of neighborhood interest in management of public spaces is one of the major causes for the degrading of open spaces. The study shows the direct link with the public open spaces and community interaction. Provision of accessible open space promotes the interaction within the community. Community participation in the maintenance and management of open space allows more space for social interaction, leading to a sustainable society in the long run. Also, the management of open space also depends on the people behavior to the open spaces. Without the proper behavior of people and feeling of developing open spaces, open spaces can't be maintained. The inclusive open space fulfills the need of different members of society. The sense of equity and belongingness is developed when every individual of the society gets to utilize public resources and creates harmony in society.

Another reason for minimal use is buildings and public open space don't compliment with each other. Even though, there is separate bylaws for Kuleshwor it has not been implemented properly. Encroachment of public spaces are also seen in the open space of Kuleshwor Awas area, the encroachment is usually done for the vehicular access to

every household whereas, in the present context those encroached spaces were used for parking purpose. Parking in public spaces is also the major problems seen in the public spaces of Kuleshwor Awas which is also degrading the quality of open spaces. Most of the open public spaces in the kuleshwor Awas are occupied by private parking purpose. This problem of parking in public spaces is seen in most of the open spaces of Kathmandu Valley. It is one of the major problem and need to be addressed as far as possible. The problems of parking in open spaces are not seen in Golfutar Awas area.

Financial reason is also another major problem for the management and improvement of public spaces. The findings also suggest that the neighborhood streets are emerging as a dominant social space, due to the loss of open space and limited access to the existing spaces.

CHAPTER 8: RECOMMENDATIONS

8.1 Design guidelines for neighborhood open space:

Numerous plans and policies have been formulated for the urban development of Kathmandu valley whereas; the development efforts lack the urban design guidelines to regulate the urban growth at neighborhood level. Therefore, proper design guidelines should be formulated for the neighborhood open spaces. The current building bylaws have separate bylaws for the both site and services area, the people doesn't seem to follow the regulations so, even elevation in buildings are not seen which is degrading the overall look of planned area. Therefore building bylaws should be properly followed. Also proper guidelines should be made for the open space management and planning of neighborhood community and should be strictly implemented.

8.2 Provision of open spaces:

Open space should be allocated in each settlement on a planned way. Just assigning open space will not be enough to guarantee its usefulness. Its location, distribution and maintenance will affect its use. Therefore, open space must be well dispersed in the planning area; each area must have access to open space. People should feel connected to those spaces. Beautifully designed public spaces in the wrong location, with poor connections to retailing, and public amenities, can remain unused and empty.

During questionnaire survey, respondent prefer accessible parks with basic amenities in Kuleshwor Awas area. But Kuleshwor Awas area is planned settlement and only pocket parks can be developed there so, large parks need to be developed near the Kuleshwor Awas area. During the direct observation the

large park can be developed in Bhuwaneshwori temple area. Total area of Bhuwaneshwori temple is 82045 sq.ft. (14-15-2-3.56). Currently temple area consists

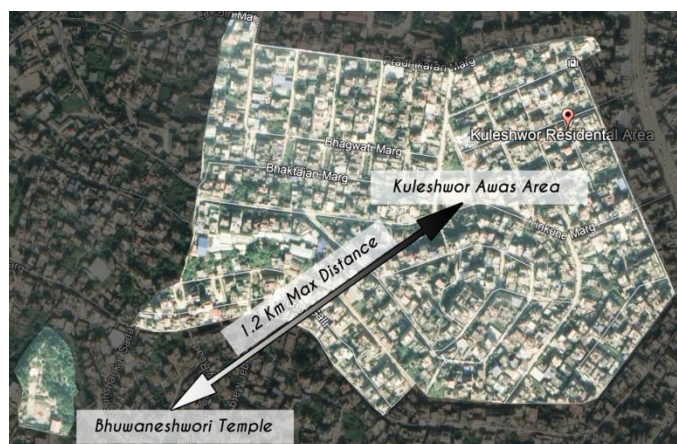


Figure 68 Distance from Kuleshwor Area to Bhuwaneshwori Temple Area

of temple buildings and two badminton court. The maximum distance from Kuleshwor Awas to Bhuwaneshwori temple is 1.2 km. Since the temple area is the closest proximity from the Kuleshwor Awas area and consists of maximum open space so can be developed as park.

8.3 Accessibility and linkages

From the questionnaire survey, it seems obvious that people prefer accessible park as an open space, therefore during the new construction or management of old existing open space, park with good accessibility and containing basic amenities or elements of interest should be provided for engaging the users. Open spaces should be inclusive and accessible to all. The proper design of open space should have following elements:

- Good and well-designed open space should include all age groups and social groups
- Public open spaces should encourage a strong sense of ‘local distinctiveness’
- The open spaces should look at developing a range of spaces with different security systems
- Most of the open spaces are not connected visually from the surrounding plots due to high compound wall of residential plots. Therefore, compound wall can be built with visual linkage to the open space.

8.4 Sense of place and community

Community participation and support is important aspect in the short-term and long-term sustainability of open space. Without the help of community and people the open spaces cannot be managed and maintained. One of the major problems seen in the Kuleshwor awas area is the lack of people participation in the conservation of open spaces. During the direct observation, local people are seen throwing the garbage of their house to the open spaces rather than cleaning and maintaining the open spaces. People used to keep their houses clean and throw the garages of house to the open space. Most of the residents don’t show interest in conservation of open spaces. But in Golfutar area the community participation in conservation of open space is good so that open spaces (parks) are properly managed.

Therefore, the participation of public and community is must in the development of open spaces. People and community should be encouraged towards the conservation of the open spaces. Also strict rules should be implemented for the people engaging in the wrong activities and behavior.

8.5 Self-regulation and respect

Findings of the study suggest that successful public spaces should build on the large degree of self-regulation of public behavior that already exists. Approaches that effectively encourage local distinctiveness and encourage social activity in public spaces as denied to shedding of open spaces of all features, susceptible to damage or misuse are more likely to result in cleaner, safer and greener public open spaces. The success of a particular public space is not only in the hands of the architect, urban designer or urban planner; it also depends on people adopting, using and managing the space. People behavior towards the public open space solely depends on the success or failure of open space. Therefore self-regulation and respect to the open spaces should be maintained by every individual.

8.6 Engaging the people

Good design of open spaces doesn't always lead to the proper utilization of that space. In contrast to the idea that public space can be solely defined in spatial terms, as a particular set of configurations of urban design and construction, the findings from the literature suggest that the space is 'co-produced' by the people themselves. The well designed public open spaces without the people is no use, therefore the open spaces should encourage people to get involved.

8.7 Maintenance and Management of open spaces

Even though three level management system is seen in both the site and services area, the grass root level management in Kuleshwor awas is not good and this was one of the reason for the degrading the open spaces. To improve the grass root level management, first the people or the community itself should be responsible and more focused towards the conservation of open spaces. Community should be made aware of advantages of the open spaces and certain trainings and education should also be provided for the management and conservation of the open spaces. Finance is one of the major reason for the degradation of the open space so, Urban land trust (i.e.: Ward

office and municipality) should be actively participate and provide financial support for the management of open space.

Looking at the traditional settlements of Kathmandu valley, the management of the spaces was done by the community itself. Local community are mainly responsible for the conservation and management of open spaces and the society developed certain rules regarding how these spaces should be used. But in both site and services area people with different belief and tradition live together; therefore, open space should fulfill their need in order to get proper attention from every individual. When space is well utilized it will be well maintained. Maintaining through user's groups and the committee can be a good way to maintain the open spaces. It can be observed in case of Golfutar site and services areas, as open spaces are properly used and therefore properly maintained. Also, this can be vice versa also if the open spaces are properly maintained then the open spaces will be properly used. The approach taken to design and management of a public space can help or hinder in facilitating people's use of it.

8.8 Playful spaces

Numerous children and youth appreciate less mobility nowadays, and may know less about attractions and features outside their own neighborhood. Even though children's are inbound of technology advancement and generally focused on electronics appliances, they still need opportunities for outdoor play in neighborhood spaces. Therefore children friendly open spaces should be provided which in turns develops the sense of belonging with the community.

8.9 Parking Space Management:

Parking is one of the major issues of the open spaces in Kathmandu Valley. In kuleshwor Awas, it is one of the major problem, most of the unfenced open spaces were occupied by private vehicles parking so, dedicate parking space should be provide in or near to the planned area. Conversion of green space into grey space (paving with interlocking blocks for parking purpose) is also seen in kuleshwor area which should be revitalize into green space.

8.10 Management of Temples

During the study, In Kuleshowor Awas area open spaces are diminished by the construction of temples with fence/ compound wall. These temples seems like isolated

from the open spaces whereas in Golfutar area temples were built as the part of the open space.

Therefore, the constructed temples should be managed as the part of open space and new construction of temples can be done in a way that it serves as an element of public open space itself.

8.11 Action Plan

Key Attribute : Access and Linkage						
Objective	Activity/ Action	Implementing Agency	Co-operating Agency	Time period (Years)	Estimated Cost (NRS.)	Remarks
Ensure all residents can access a range of public open space within the reasonable distance	Identify opportunities for upgrading POS and providing additional facilities to meet standards and provide access to public	KAPKS	Neighborhood community	5 years	3,00,000	Seed money to run project
	Develop new sites to meet the standards	Ward Office	KAPKS	5 Years	1,00,000	For developing proposal
	Bring disused allotment plots back into use	KAPKS	Neighborhood community	2 Years	5,00,000	Seed money
Improve physical and visual Access to the public open space from the surrounding environment	Improve the streets which is damaged during installation of Melamchi drinking water pipeline	Ward Office	KAPKS	5 Years	-	Government Fund
	Improve the visual linkage to POS from neighborhood residential plots by providing fund to rebuilding fence	Ward Office	KAPKS	2 Years	30,00,000	Seed money to run project

Objective	Activity/ Action	Implementing Agency	Co-operating Agency	Time period (Years)	Estimated Cost (NRS.)	Remarks
Remove on street parking and parking on public open spaces	Develop rules and regulations for traffic and vehicle management	Ministry of Urban Development	Ward Office	10 years	5,00,000	Seed money to run project
Key Attribute : Use and Activities						
Objective	Activity/ Action	Implementing Agency	Co-operating Agency	Time period (Years)	Estimated Cost (NRS.)	Remarks
Improve quality of playground and open spaces	Develop and implement plans and projects. Undertake assessment of catchment areas for play and identify gaps in provision any other provision	Ward office	KAPKS/ Neighborhood community	5 Years	10,00,000	Seed money to run project
Increase duration of use of public open space						
Develop sport and health activities	Develop walking routes on public open space and improve playground condition	KAPKS	Neighborhood community	5 years	10,00,000	Total project Cost

Key Attribute : Sociability						
Objective	Activity/ Action	Implementing Agency	Co-operating Agency	Time period (Years)	Estimated Cost (NRS.)	Remarks
Support and develop volunteering and engagement	Support neighborhood groups to take active role in management tasks and events	KAPKS	Neighborhood community	5 years	2,00,000	Seed money to run project
	Develop events and program for public spaces up gradation	KAPKS	Neighborhood community	5 years	1,00,000	Seed money to run project
Develop educational opportunities	Involvement of school students for cleanliness and maintenance	KAPKS	Private and Community School	15 years	50.000	Seed money to run project
Improve social Interaction	Run social, educational, cultural events in public open space	KAPKS	Neighborhood community, Private and community school	15 years	1,00,000	Seed money to run project

Key Attribute : Comfort and Image						
Objective	Activity/ Action	Implementing Agency	Co-operating Agency	Time period (Years)	Estimated Cost (NRS.)	Remarks
Continue to address anti-social behavior in public spaces and littering	Undertake regular patrols	Police	KAPKS	10Years	20,000	Seed money to run project
	Increase awareness and undertake initiatives	Police	KAPKS	10Years	20,000	Seed money to run project
Monitor and increase public satisfaction with green space	Undertake public survey every 5 years	KAPKS	Neighborhood community	Every 5 years	80,000	Total Estimated Cost
Promote good design and management	Develop management plans for public open space	KAPKS	Neighborhood community	5 years	50,000	Seed money to run project
Provide basic amenities and elements of interest	Develop and improve seating space and renovating existing infrastructures	KAPKS	Neighborhood community	10 years	5,00,000	Seed money to run project

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ANNEX 1

Questionnaire Survey for Kuleshwar Site and Services

1. नाम
2. उमेर
3. लिंग
4. तपाईं कुलेश्वर आवासमा बस्नु भएको कति भयो?
5. कुलेश्वर आवासमा फोहोर व्यवस्थापन कस्तो छ?
a. धेरै राम्रो b. राम्रो c. मध्यम d. नराम्रो
6. कुलेश्वर आवासमा जल निकासको प्रावधान कस्तो छ?
a. धेरै राम्रो b. राम्रो c. मध्यम d. नराम्रो
7. कुलेश्वर आवासको हावा गुणवत्ता
a. धेरै राम्रो b. राम्रो c. मध्यम d. नराम्रो
8. आवासीय भवनमा सूर्य प्रकाश
a. धेरै राम्रो b. राम्रो c. मध्यम d. नराम्रो
9. वातावरणमा शोर स्तर
a. शान्त b. मध्यम c. उच्च
10. तपाईंको छिमेकीसँग सामाजिक अन्तर्क्रिया
a. दैनिक b. साप्ताहिक c. कहिलेकाँही
b.
11. आफ्नो छिमेकी संग सम्बन्ध कस्तो छ?
a. धेरै राम्रो b. राम्रो c. मध्यम d. नराम्रो

12. तपाईं कुन प्रकारको सार्वजनिक स्थान प्रायः भ्रमण गर्नुहुन्छ??
 a. पार्क b. खेल मैदान c. धार्मिक ठाउँ d. पुस्तकालय
 e. सामुदायिक भवनहरू f. अन्य
13. घर देखि सार्वजनिक स्थान को दूरी??
 a. १-५ मिनेट b. ५-१५ मिनेट c. १५-३० मिनेट
14. कति पटक तपाईं सार्वजनिक स्थान प्रयोग गर्नुहुन्छ?
 a. अक्सर b. सामान्य रूपमा c. थोरै d. प्रयोग गर्दिन
15. सार्वजनिक स्थान को उपयोग को समय?
 a. बिहान b. दिउँसो c. साँझ
16. कति समय तपाईं सार्वजनिक स्थान प्रयोग गर्नुहुन्छ?
 a. १-१५ मिनेट b. १५-३० मिनेट c. > ३० मिनेट
17. सार्वजनिक स्थान प्रयोग गर्नुको मुख्य उद्देश्य?
 a. व्यायाम र योग b. सामाजिक अन्तर्क्रिया c. वृक्षारोपण र सफाई d. खेलकुद
 e. धार्मिक गतिविधि f. पार्किंग
18. तपाईं खुला स्थानसँग कतिको सन्तुष्ट हुनुहुन्छ?
 a. धेरै सन्तुष्ट b. सन्तुष्ट c. थोरै सन्तुष्ट d. सन्तुष्ट छैन
19. सार्वजनिक स्थान कति सुरक्षित छ?
 a. धेरै सुरक्षित b. सुरक्षित c. थोरै सुरक्षित d. सुरक्षित छैन
20. यदि विभिन्न प्रकारको सार्वजनिक स्थान सिर्जना गरिएको छ भने कस्तो प्रकारको खुला स्थान तपाईं रुचाउनुहुन्छ??
 a. पार्क b. खेल मैदान c. धार्मिक ठाउँ d. पुस्तकालय
 e. सामुदायिक भवनहरू f. अन्य
21. के तपाईं कुनै समुदाय संस्थामा संलग्न हुनुहुन्छ?
 a. छ b. छैन
22. यदि छ भने, तपाईं कुन संस्था संलग्न हुनुहुन्छ?

23. के तपाईं कुल्लेश्वर आवास परिवार कल्याण संस्थाले गरेको कामबाट सन्तुष्ट हुनुहुन्छ?
a. धेरै सन्तुष्ट b. सन्तुष्ट c. थोरै सन्तुष्ट d.
सन्तुष्ट छैन

24. सडकको प्रयोग
a. सहज b. मध्यम सहज c. असहज

ANNEX 2

Questions for Focus Group Discussion in Kuleshwor Site and Services

समूह छलफलका लागि

1. कुलेश्वर आवास परिवार कल्याण संस्थाको भावी योजना र कार्यक्रम
2. सार्वजनिक स्थान कसरी प्रबन्ध गरिएको छ? व्यवस्थापनका लागि कुनै समिति
3. किन खुला ठाउँ बाडिएको छ? के यो पहुँचयोग्य छ?
4. यदि हो भने, यो स्थानीय समुदाय वा अन्य व्यक्तिलाई पनि पहुँच योग्य छ? समय?
5. खुला स्थान प्रबन्धनका लागि योजना र कार्यक्रम?
6. त्यहाँ खुला स्थानको विस्तारको लागि कुनै प्रावधान छ?
7. खुला स्थानको प्रयोग कतिको सुरक्षित छ? के त्यहाँ मानिसहरूको सुरक्षा को लागि कुनै प्रावधान छ?
8. कुनै योजना वा पहल सडकको स्थिति सुधार गर्न को लागि?
9. धार्मिक मन्दिर कसरी व्यवस्थापन भइरहेको छ?
10. कसरी फोहोर व्यवस्थापन भइरहेको छ?
11. कुलेश्वर आवासमा समुदायको पानी ट्याक? यो कसरी व्यवस्थापन गरिएको छ?
12. के कुनै अन्य संगठन कुलेश्वर आवास क्षेत्र मा सक्रिय छ?
13. कुलेश्वर आवासमा बजार क्षेत्रको स्थान? अझै उपस्थित छ?
14. डाटा आवश्यक:
 - a. कुलेश्वर आवासको नक्शा
 - b. नियम
 - c. Data related to Property Ownership (Personal and Rented)
 - d. No of plots and buildings
 - e. Population data
 - f. Caste and Ethnicity
 - g. Old photographs

ANNEX 3

Questionnaire Survey for Golfutar Site and Services

25. नाम

26. उमेर

27. लिंग

28. तपाईं गोल्फुतार आवासमा बस्नु भएको कति भयो?

29. गोल्फुतार आवासमा फोहोर व्यवस्थापन कस्तो छ?

- b. धेरै राम्रो b. राम्रो c. मध्यम d. नराम्रो

30. गोल्फुतार आवासमा जल निकासको प्रावधान कस्तो छ?

- b. धेरै राम्रो b. राम्रो c. मध्यम d. नराम्रो

31. गोल्फुतार आवासको हावा गुणवत्ता

- b. धेरै राम्रो b. राम्रो c. मध्यम d. नराम्रो

32. आवासीय भवनमा सूर्य प्रकाश

- a. धेरै राम्रो b. राम्रो c. मध्यम d. नराम्रो

33. वातावरणमा शोर स्तर

- a. शान्त b. मध्यम c. उच्च

34. तपाईंको छिमेकीसँग सामाजिक अन्तर्क्रिया

- c. दैनिक b. साप्ताहिक c. कहिलेकाँही
d.

35. आफ्नो छिमेकी संग सम्बन्ध कस्तो छ?

- b. धेरै राम्रो b. राम्रो c. मध्यम d. नराम्रो

36. तपाईं कुन प्रकारको सार्वजनिक स्थान प्रायः भ्रमण गर्नुहुन्छ??

- a. पार्क b. खेल मैदान c. धार्मिक ठाउँ d. पुस्तकालय
e. सामुदायिक भवनहरू f. अन्य

37. घर देखि सार्वजनिक स्थान को दूरी??
 b. १-५ मिनेट b. ५-१५ मिनेट c. १५-३० मिनेट
38. कति पटक तपाईं सार्वजनिक स्थान प्रयोग गर्नुहुन्छ?
 b. अक्सर b. सामान्य रूपमा c. थोरै d. प्रयोग गर्दिन
39. सार्वजनिक स्थान को उपयोग को समय?
 b. बिहान b. दिउँसो c. साँझ
40. कति समय तपाईं सार्वजनिक स्थान प्रयोग गर्नुहुन्छ?
 b. १-१५ मिनेट b. १५-३० मिनेट c. > ३० मिनेट
41. सार्वजनिक स्थान प्रयोग गर्नुको मुख्य उद्देश्य?
 b. व्यायाम र योग b. सामाजिक अन्तर्क्रिया c. वृक्षारोपण र सफाई d. खेलकुद
 f. धार्मिक गतिविधि f. पार्किंग
42. तपाईं खुला स्थानसँग कतिको सन्तुष्ट हुनुहुन्छ?
 b. धेरै सन्तुष्ट b. सन्तुष्ट c. थोरै सन्तुष्ट d. सन्तुष्ट
 छैन
43. सार्वजनिक स्थान कति सुरक्षित छ?
 b. धेरै सुरक्षित b. सुरक्षित c. थोरै सुरक्षित d. सुरक्षित छैन
44. यदि विभिन्न प्रकारको सार्वजनिक स्थान सिर्जना गरिएको छ भने कस्तो प्रकारको खुला स्थान तपाईं रुचाउनुहुन्छ??
 a. पार्क b. खेल मैदान c. धार्मिक ठाउँ d. पुस्तकालय
 e. सामुदायिक भवनहरू f. अन्य
45. के तपाईं कुनै समुदाय संस्थामा संलग्न हुनुहुन्छ?
 a. छ b. छैन
46. यदि छ भने, तपाईं कुन संस्था संलग्न हुनुहुन्छ?
47. सडकको प्रयोग
 a. सहज b. मध्यम सहज c. असहज

ANNEX 4

Final Presentation Comments

Professors	Comments	Addressed Comments (pg. no.)
Kumar Prasad Lohani	Need some changes in Action Plan	Revision of action plan in recommendation section
Kumar Prasad Lohani	Percentage of private and public open space to built up space can be calculated.	Future research works to be carried out
Prof. Dr. Ajay Chandra Lal	Social background of Copenhagen and Kuleshwor doesn't meet	Reference on how public space can be managed to make it successful is taken from the study of Copenhagen Denmark
Prof. Dr. Jiba Raj Pokharel	Conclusion Part to be revised in Report	Comments have been addressed in conclusion part of research
Umesh Bahadur Malla	Role of Tole Sudhar Samiti and Neighborhood committee in present context	Comments have been addressed in recommendation part of research

Activating Public Space: Rethinking of Public Open Spaces in Kuleshwor Site and Services Area

Praveen Maharjan ^a, Jiba Raj Pokharel ^b,

^{a, b} Department of Architecture and Urban Planning, Pulchowk Campus, IOE, TU, Nepal

Corresponding Email: ^a praveenmhrzn@gmail.com, ^b jibaraj@gmail.com@gmail.com,

Abstract

Public open spaces are platform in which people can be part of public sphere. It is the place where people can physically join the wider community, contradictory to the setting of home or work place. The characteristic of a new emerging town has been disappearance of neighbor relations, and isolation of residents due to lack of well maintained public open spaces. Many public open spaces around the globe have suffered from under appreciation and serious neglect. A properly designed public open space would encourage people to leave their houses and engage in different form of activities. This can improve the quality of space in terms of its use and occupancy. This research aims to identify and evaluate dysfunctional public open spaces and weak connections in those spaces, and come up with a suggestions to improve these spaces and activate public life by identifying the architectural and urban features of the public open spaces.

Keywords

Public Open space, Access and Linkage, Use and Activities, Sociability, Comfort and Image

1. Introduction

Public space is a place that is generally open and accessible to people. It is a space in which people can choose to be, regardless of their ethnicity, age, ideologies and gender. A public space doesn't necessarily indicates a typical square or garden but can also be a space of everyday use such as streets, sidewalks and public library [1]. It must be well connected with the surrounding environment which is important to attract people and activities in that space.

The quality in public space design was achieved in the past in the form of great city squares in both eastern and western parts of the world these historic squares that developed over the time span more than two millennium, still exists in European and Asian towns [2]. This case is validated in case of traditional towns of Kathmandu Valley as well. Whereas the modern cities developed in periphery of the core area of Kathmandu valley seems to ignore traditional planning and features. Resulting in unmanaged and poorly designed public spaces and are not properly utilized. Various plans and programs have been formulated to meet housing needs for growing populations, such as site and services, grouping of land, development of land for housing private

developers, etc., whereas need of public spaces are not kept in consideration due to which the public open spaces are degrading.

2. Objectives of Study

- To identify initial objective to design open spaces in Kuleshwor site and services area and current use of those spaces.
- To find out passive open spaces in study area, and reasons for its minimal use.

3. Literature study

3.1 Public Open Space

Public Open Space can be defined as [3]:

- Public: open to the people
- Open: allowing entrance or access to public
- Space: interval between points or objects, area.

Public space can be defined as a common areas that is not closed or blocked up and provides access for people to share. It is a common space shared by strangers for a place of enjoyment, gathering, politics,

religion, commerce, sport etc. Public open space is an important part of the city; with quality spaces having a huge impact on city ranging overall areas including social, economic and environmental benefits. Open space can enhance the character of residential areas, civic buildings, conservation areas and archaeological sites [3].

3.2 What makes Successful Public Space?

Within the framework of Project for Public Spaces; In a study conducted worldwide, more than 1000 public spaces were studied which concluded that success of the public spaces majorly depends on four key attributes [4]:

- Access and Linkage
- Use and activities
- Sociability
- Comfort and Image

Access and Linkage is concerned with how space is connected to its surroundings both visually and physically [5]. Accessibility is an important component of making a successful public space. Successful squares aren't just well walked around and usable but leading roads should also be safe and inviting to the pedestrians [4]. "Access and Linkage" aims at describing the accessibility relationship between the public open space and the surrounding environment to define its approach. Public space should be accessible to and used by all.

Sociability involves the feeling of willingness to interact comfortably with people (i.e: local people, neighborhood, including particularly strangers also)[5]. Social life is a basic element for every successful public space. The important starting point in developing a concept for any public space is to identify the talents and assets within the community [6]. Besides from finding of Project for Public Spaces, many other researches have proved that people participation and sense of belonging are the important factors [4]. It is also concerned with users participation in maintaining space in a good condition.

Uses and activities are considered as the main reason why people often visit and use a space. Activities can convert any space into a different new spot, that is distinguishable among the city's other public spaces based on their diversity, and the opportunities provided to the users to partake in them [5]. Activities in public space must achieve a good balance between

the genders and users of all ages to ensure the continuity of utilizing them throughout the day.

Comfort and image is related to the success of a space because when a space is comfortable, it can represent itself well and leave good image in peoples mind [5]. Comfort and image includes how individuals feel towards the public space, in terms of safety, cleanliness and maintenance. In addition to this individual's perception towards adjacent building and surrounding's character are also equally important. Furthermore, comfort in public spaces should have the space for people to sit. Many public spaces don't provide place to sit, so just to be comfortable, people are often forced to adapt to the situation in their own way [6].

4. Methodology

The research was carried out using both quantitative and qualitative methodology within the interpretative paradigm. 3 methodological steps were included in the research:

- Mapping of existing open spaces
- Observing user behavior and the use of open spaces
- Residents' opinion survey - help assess the quality of open space in the study area.

Quantitative research was carried out for the physical dimensions, distance, area and number of available space, calculating the available resources and capacity. Primary and secondary data were collected to facilitate the distribution of knowledge about quality indicators of open spaces, the needs and benefits of open spaces, as well as the concepts and theories of planning of open spaces in the neighborhood.

A systematic random sampling was carried out depending upon morphology of the settlement. The main purpose of survey was to get the perception of people towards public open spaces therefore samples from different areas were tried to incorporate.

5. Site and data

The selected area for the study is 'Kuleshwor Site and Services'; which was one of the first planned residential settlements representing the contemporary urban settlement of Kathmandu Valley. Kuleshwor site and services is located in Kuleshwor Height ward

no -14. Due to community participation, continuous efforts and dedication of “Kuleshwar awas pariwar kalyan sanstha” this area has been making a remarkable progress in present scenario [7]. Even though community is progressing, public spaces of settlement doesn't seem to be properly utilized in present scenario. So, Kuleshwar Site and services area was selected for my research.

5.1 Planning concept and public spaces in Kuleshwar site and services in past

During an interview conducted on 14 February 2020, Planner Kriti Krishna Nuchee Pradhan stated that initially the land of kuleshwar site and services was used for agricultural purpose. Since the area consists of high contour land, the topography of site area seems to be key factor in determining the planning of Kuleshwar area. Site consists of high contour land and plain land which was separated through a 7m wide road and inner areas were connected through 5 m and 2m road. The concept of design was based on minimizing the road area and providing maximum residential plot area. Market area was defined at the highest point of the contour. Open space were provided at the center of the Market area which were surrounded by building plots containing the shutter area for shops facing towards open space. Also community school area 4578.63 sq.m. were provided on the high contour land.



Figure 1: Conceptual Map of Kuleshwar Site and Service Area

Plot of 127.18sq.m., 190.78sq.m., 254.37sq.m., 413.35sq.m. and 476.94sq.m. was defined for residential plots. The plot configuration, public space distribution, street network layout and provision of infrastructure were project specific because planning standards and guidelines didn't exist at that time. In

fact, the plot size was first defined, which determines the complete layout plan.

Parks and open spaces shows less hierarchy but all the open spaces were matched to plot sizes except Tinkuney area which was formed at the cross section of 3 roads. Open spaces were provided for the 127.18sq.m. (4 aana) and 190.78sq.m. (6 aana) land. Altogether 26 open spaces were provided in kuleshwar Area. The general layout of open space provided was illustrated in the figure below. The total allocation of land to open space was 4 % in Kuleshwar Awas.

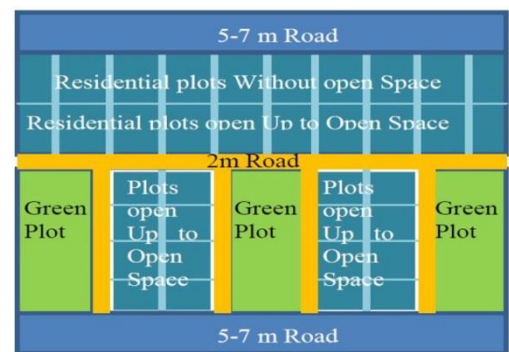


Figure 2: Typical Open Space Layouts of Kuleshwar Site and Services Area

Open Space was designed in such a way that it was surrounded by houses in three sides and separated by 5 -7 m road. During an interview conducted on 1 February 2020, Treasurer of Kuleshwar Awas Pariwar Kalyan Sastha, Madan Shrestha and an interview conducted on 14 February 2020, Planner Kriti Krishna Nuchee Pradhan stated that open space was initially designed for following purpose:

- Creating a suitable place for children to play
- It is also designed for the community gathering to improve social relation

5.2 Existing Scenario

The total site area of the Kuleshwar Awas is 26.56 ha, with a total of 911 existing residential plots. Other than residential plots, a total of 27 plots of different sizes represent the public open spaces. Total area of open space 1.29 ha, which is 4.85 percent of total planned area. Open space density is 3678.84 ppha. Street length is 8401 m, with the area of 3.47 ha.



Figure 3: Existing Distribution of Open Spaces in KA

Among the 28 green plots in Kuleshwor Awasi. 15 of the green plots are fenced with no access to public. During an interview conducted on 1 February 2020, Treasurer of Kuleshwor Awasi Pariwar Kalyan Sanstha, Madan Shrestha states that the fenced open space will be opened for public after the newly planted plants were fully grown. The fenced open space was managed by the neighborhood committee with the help of Kuleshwor Awasi Pariwar Kalyan Sanstha. Among them 2 open spaces were converted into park by Ban Karyalaya with the initiative of Kuleshwor Awasi Pariwar Kalyan Sanstha. 13 open spaces in Kuleshwor Awasi are not properly maintained and are not properly used. Most of them are used for Private parking purpose. Among them 1 plot was converted into parking lot with paved surface of interlocking blocks.



Figure 4: Open space Converted to parking

In Kuleshwor site and services area there are two playgrounds. One is Tinkune volleyball ground in block A and badminton court in Block C. Badminton court in Block C was made by local community for exercise and recreation purpose but was not properly used and now used as private parking area whereas, Tinkune volleyball ground in block A has been intensively used as playground and other educational, social and cultural events. It is only managed public space which is easy to access by public and is intensively used. This playground is managed by Kuleshwor Awasi Pariwar Kalyan Sanstha.

Market area of Kuleshwor Awasi is not used in the present context and part of this market area was converted into fenced open space and have access to local people. Also rest of the spaces were converted into parking space. Ganesh Temple is present in market area where people can have access in any time. There are altogether 14 temples in Kuleshwor Awasi among them 3 Kumari temples were pre-existing temples before the design of Kuleshwor site and services whereas other 11 temples were built by local community. Sarveshwar Temple of Block A, Kuleshwor Bhagwati, Radha Krishna temple of Block B, Ganesh Temple, Raj Devi, Gaurishankar Temple of Block C and Ganesh Mandir 3 of Block D were fenced and open for public in morning and evening. These temples were built by encroaching the open spaces. Whereas, Kuleshwor Binayak Temple, Panchali Bahairb, CharDham temple of Block C and Ganesh temple 1 and 2 of Block D is open for public in any time. It remains as a part of Public open Space.

5.3 Changes seen from planning to existing site

The major changes seen in public open space is its transformation of usage. In the interview planner Kirti Kishan Nuchee Pradhan stated that, Tinkune open space is provided for community activities. In present context, Tinkune community space is converted for three different uses by dividing space into three parts. 1st one is the playground itself and it is one of the most used spaces in present scenario. 2nd part is the park made by Department of Forests and Soil Conservation with the initiative of Kuleshwor Awasi Pariwar Kalyan Sanstha. This park is currently fenced. Before it was designed into park, it was used for parking space. 3rd part is the community boring area.



Figure 5: Typical Encroached Open Space Layouts of Kuleshwor Area by road

Comparing figure 2 and 5, the major change seen in Kuleshwor Area is encroachment of public open space by road expansion. The main reason for extending 2m road to 3m was for the ambulance and emergency vehicle entry as stated by Mr. Madan Shrestha and Mr. Kul Prasad Bhattari during the interview whereas they were not satisfied due to local people behaviour of parking vehicles in the road. The expanded road is now used by some local people for parking of car.

Also the construction of temples in open spaces is another change seen there. The construction of temples with compound wall in place of green open space also seems to be problem because during the time of planning of kuleshwor area those spaces were left for green open spaces and no other construction were allowed to build there [8]. During the time of site visit also most of the public open spaces in each block were used for private parking purposes which are degrading the open spaces.

Initially open spaces are designed for children to play and for improving social relation among neighbors but in present context 37 % of open space is fenced and not accessible to public. Also the market area initially designed for commercial purpose but now it is used for parking and also contains fenced open space which is not accessible to public.

Open plots are increased in present context than the initially planned settlement, it is one of the positive changes seen in Kuleshwor site and services area. The open space is created by Department of Forestry and Soil Conservation with the initiative of Kuleshwor Awasiyari Kalyan Sanstha.



Figure 6: New Open Spaces by Department of Forestry and Soil Conservation

6. Results and Discussions

A total of 40 respondents were surveyed through random sampling technique during the research. The data were coded into SPSS software for descriptive

statistical analysis. The main focus of this analysis is to understand the user perception towards public open spaces area. The result is categorized into 4 attributes.

6.1 Access and Linkage

6.1.1 Proximity

Open Spaces at Kuleshwor Awasiyari area are neighborhood open spaces, therefore most of the residence have open space within 1-5 minutes. 67.5 % of the household have open space within 1-5 minute. 32.5 % of the household have open space within 5-15 minutes distance. Larger open space near to this area is Kuleshwor Mahadev Temple and Bhuwaneshwari Temple.

6.1.2 Settlement Layout

Kuleshwor Awasiyari area is site and services scheme therefore houses are built individually, most of the houses are detached houses, with compounds. Approximately 78.97 % of settlement is detached house and 21.03 % is row housing but have uneven facade and floor height. Even though row housing is present the design, style and vertical height of the buildings differ from one another. Even though separate bylaws is prepared for kuleshwor Awasiyari area it is not been properly implemented.

6.1.3 Road access to Residence

The road access to the houses at Kuleshwor Awasiyari area is mostly 2m-4m, 43.45 % have road access of 2 to 4 m, 36.30 % have road access 4m-6m and 20.25 % have road access greater than 6m.

Use and Activity

6.1.4 Public Space people use in KA

In Kuleshwor Awasiyari, 20.5 % people uses Park. Due to fenced green space most of the respondent doesn't have access to those spaces and unfenced open spaces are poorly maintained so most of the respondent doesn't visit park in Kuleshwor Awasiyari. 43.6 % people uses public playground. 28.2 % of respondent uses religious place. 15.4 % respondent uses library, 15.4 % use community building and 10.3 % of respondent visits other public spaces.

6.1.5 Activities and Use of Open Space

People use open spaces usually for social interaction, sports, exercise and yoga, religious activities and

parking. 22.5 % of people use open space for Yoga and exercise, 35.0 % of people uses open space for social interaction, 12.5 % of respondent use open space for Religious activities, 30 % respondent use open space for sports. Since tinkuney volleyball ground is most used open space in Kuleshwor Awas so, most of the respondent uses tinkuney volleyball ground. In this ground not only sports activities but other social, cultural and educational activities also takes place. 35 % respondent uses open space for parking purpose.

6.1.6 Time of Use

48.9 % of people use the open spaces in the morning, 11.1 % people use open space in afternoon and 40 % of people use open spaces in the evening.

6.1.7 Duration of Use

As the open spaces are not managed properly, 55 % of the respondent visits the open space for 1 to 15 minutes. 27.5 % of respondent visits the open space for 15- 30 minutes and 17.5 % of respondent visits the open space for more than 30 minutes.

6.1.8 Public Spaces people prefer

Most of the respondent prefers accessible park among the other public spaces. 65 % of respondent prefer to have parks, 5 % respondent prefer playgrounds, 17.5 % prefer to have Religious buildings and 12.5 % prefer to have library and community buildings.

6.2 Sociability

6.2.1 Relation with Neighbors

Respondents claim their relation with their neighbours is good, 10 % said they have very good relation with their neighbours, 75 % said they have good relation and 15 % said they have moderate relation.

6.2.2 Interaction with Neighbor

Among the respondent, 17.5 % of respondent claim that they interact with their neighbour daily, 52.5 % of respondent claim that they interact with their neighbour weekly and 30 % of respondent claim that they interact with their neighbour occasionally.

6.2.3 Streets

Streets in Kuleshwor Awas was less crowded therefore most of the people feel comfortable walking

in the roads even though there is no footpath. Out of total respondent 57.5 % of total respondent feel comfortable walking on the streets and 3 % felt it was moderately comfortable and only 12.5 % of total respondent feel discomfort while walking on the streets. Discomfort while walking in the streets was felt more by the elderly people. During the direct observation, streets were also used by children for playing.



Figure 7: Children playing on street

6.3 Comfort and Image

6.3.1 Safety of Public Open Space

Among respondent, 25 % feels very safe during public space use, 52.5 % feels safe to use public space. 12.5 % respondent feels less safe while using public space and 10 % of respondent doesn't feel safe using public space.

6.3.2 Solid waste

12.5 % respondents said solid waste management is very good, 60 % of the respondents said solid waste management in their locality is good and 27.5 % said solid waste management is moderate.

6.3.3 Rainwater Drainage

17.5 % said it is very good, 52.5 % said its good and 30 % said moderate.

6.3.4 Air Quality

The 25 % of the respondents consider air quality in their locality very good, 50 % of the respondents consider air quality in their locality is good, 15 % consider it to be moderate and 10 % said it is bad.

6.3.5 Sunlight

Among the respondents 50 % said they receive very good sunlight, 40 % said good and 10 % said it is moderate.

6.3.6 Noise

Among the respondents 25 % said their locality is quiet, 62.5 % said it is low, 12.5 % said moderate.

7. Findings and discussions

7.1 Access and Linkage

Comparing the open space in Kuleshwar Awas with the guidelines, there is sufficient open space in Kuleshwar Awas Area but most of the open spaces are not properly utilized. A large portion resident used to go for a walk around the neighborhood streets mostly in the morning and evening. Such walking used to work as a facilitator to generate other public activities such as meeting and communication among neighbors. Whereas, due to Melamchi drinking water project streets of Kuleshwar Awas area are less suitable for walk nowadays due to poor road condition. So, during the direct observation only few people are seen on the streets. Other street activities include children playing in inner streets. This is due to poor access and maintenance of the open space.

Heavy vehicles were rarely seen on the streets. Motorcycles and cars were seen on the streets of Kuleshwar Awas but the streets are not busy so, even though the absence of footpath peoples feel comfortable to use streets.

7.2 Use and Activity

The use of public open space is changing with the changing provision. Initially the open spaces of Kuleshwar Awas were designed for the children to play but due to rapid progress in technology children are more engaged in electronics devices than the real environment.

The use of public spaces is also affected by what is on a particular place and also varies according to the time of day and day of the week. During morning adults and old age people mostly uses open spaces whereas during evening time it is mostly used by children and teenagers. Also the day of the week can also determine the use of public space. During Saturday and other holidays children are mostly seen using public spaces.

7.3 Sociability

The open spaces are also poor in terms of management and landscape design as they lack elements of interest and show no or less sign of

physical design or development. Direct observation reveals that not all the open space is really open to public. As revealed from the focus group discussion conducted on 1 February 2020, the fenced open space will be opened to the public when the newly planted plants will be fully grown. Also the management of open space is not satisfactory. Contrary to the findings from questionnaire survey, in the interview conducted in 1 February 2020, Treasurer of KAPKS ^aMadan Shrestha and Local resident of Kuleshwar Awas ^bKul Prasad Bhattari state that the major problem in the management of open space is the absence of community feelings in the neighbours. Even though there is management committee for open space in each neighbourhood, the open space cannot be managed until and unless all the people residing there have the feeling of conserving the open space.^b He also state that most of the open space in KA degraded during the time of earthquake as most of the people uses opens spaces that time and then most of the household doesn't show interest in maintaining the open space after that. The only open spaces that open daily for the residents are the temple area and the tinkune volleyball court. Unfenced open spaces are open to public but are poorly used and most often they are the places for the private parking spaces.

7.4 Comfort and Image

The existing open spaces do not contain basic amenities or elements of interest for engagement of the users. Therefore the spaces are less inviting. Even though there are separate bylaws for Kuleshwar Awas Area, it has not been followed. Therefore, the open spaces and buildings do not complement each other in physical form.

Temples were built by neighborhood themselves. The existing temple areas generate a very small amount of daily activities as the residents do not visit them on a regular basis. Temples were mostly used by elderly people.

From the questionnaire survey, it is clear that the open spaces are safe and solid waste management and rainwater runoff of the open space are also good enough whereas the use of open space is not satisfactory.

Looking at the environmental data (air quality, noise level and sunlight) is also satisfactory in Kuleshwar Awas.

8. Conclusion

As far as the provision of public space in Kuleshwor Awas is concerned, it is not satisfactory in terms of the quality, although it meets the requirements of the current by-laws in terms of quantity. The finding of the study has revealed that accessibility is one of the major issues with the use of the existing public spaces. The open spaces are not open to the residents on a daily basis. Those public spaces that are accessible are not inviting due to poor management and the lack of elements of interest. The success of neighborhood open space projects depends entirely on the interests of neighborhood participation. Lack of neighborhood interest in management of public spaces is one of the major causes for the degrading of open spaces. Neighborhoods have failed to appreciate the importance of public space and poor development of neighborhood public space is also degrading the quality of social life. Parking in public spaces is also the major problems seen in the public spaces of Kuleshwor Awas which is also degrading the quality of open spaces. The temples spaces which were built by encroaching the open spaces also degrading the open spaces.

The existing drawbacks with the public spaces is in terms of both the design and management (including poor maintenance, the lack of proper access and use for parking) seem to have affected their use, both on a daily basis as well as during social events.

Looking at all the four aspects, it is clear that if the open spaces in KA are maintained properly then open space has high opportunity for the proper use and also helps in the environmental benefit of the Kuleshwor Awas as open spaces seems to be distributed well.

9. Recommendations

- From the questionnaire survey, it seems obvious that people prefer accessible park as an open space, therefore during the restoration of existing open space, park with good accessibility and containing basic amenities should be provided for engaging the users.
- Even though children are inbound of technology advancement and generally focused on electronics appliances, they still need opportunities for outdoor play in neighborhood spaces. Therefore children friendly open spaces should be provided which in turns develops the

sense of belonging with the community.

- The success of a particular public space is not only in the hands of the architect, urban designer or urban planner; it also depends on people using and managing the space. People behavior towards the public open space depends on the success or failure of open space. Therefore self-regulation and respect to the open spaces should be maintained by every individual.
- Parking is one of the major issue of every public space so, dedicate parking space should be provide in or near to the planned area.
- Even though there is bylaws for Kuleshwor Awas, people doesn't seem to follow the regulations so, even elevation in buildings are not seen which is degrading the overall look of planned area. Therefore building bylaws should be properly followed.
- Open spaces are diminished by the construction of temples with compound wall. The construction of temples can be done in a way that it serves as the element of open space itself.

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