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on

**USE AND MANAGEMENT OF PUBLIC OPEN SPACES IN KATHMANDU
VALLEY**

by

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076MsUrP012

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ABSTRACT

Public open space is open area that is freely accessible to everyone without any limitation for social, cultural, environmental, economic, and political uses. They are crucial to urban planning and to fostering social contact, which in turn promotes the development of a sense of community. To achieve the research's purpose, public open space encompasses parks and open spaces where public access is unrestricted at least during daylight hours and public do not need to pay. It does not include streets, squares, traditional open spaces, civic spaces and private/ institution owned open spaces.

One of the rapidly urbanising and highly populated city, Kathmandu valley has open spaces which are decreasing due to encroachment, development of infrastructures and lack of proper management. This research implements a case study approach to explore the management of public open spaces and its challenges focusing on three POSs of different hierarchy, scale, location, similar function and responsible management agencies namely UN Park, Shankha Park and Suryamukhi Garden. These public open spaces are public parks, offer free access to users and are located in the Kathmandu Valley. The study considered users' opinion for assessing the use and management of POSs. To evaluate the usage of open spaces, six aspects are considered: Access and linkages, Comfort and Image, Inclusiveness, Engagement, Use and activities and Management. Also the theories and concepts of management and various models have been discussed and related to the study areas. A mixed methods approach was considered for data collection, including questionnaire survey, interviews, observation, and also collection of required information from journals, documents and past researches related to the study.

Based on the survey, it can be seen that user attributes like gender, age, education level, or user group have little bearing on what people seek in terms of the usage public places. People come for various physical, social, informal and quiet activities in these spaces. From the result, it can be concluded that these public open spaces are not well maintained, the spaces lack sitting spaces, infrastructures, greenery, regulation and timely monitoring and maintenance. One of the reason for dissatisfaction among the users is lack of maintenance and inefficient management. The study also found out the deficits in each management of open spaces despite being managed by the federal government, municipality or community.

It has been perceived that well-managed POS greatly improves living conditions, quality of life and urban development in cities. In order for these POSs to best serve the many facilities and services, it is crucial that they be made accessible, user-friendly, appealing, and functional as well as socially, economically, and environmentally sustainable. These open spaces need to be safe, well-maintained, clean, and meet people's expectations for comfort.

Keywords: public open spaces; user's perception; parks; management

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LIST OF ACRONYMS

DUDBC: Department of Urban Development and Building Construction

GoN: Government of Nepal

HPCIDBC: High Powered Committee for Integrated Development of the Bagmati Civilization

IBM SPSS: International Business Machines Statistical Package for Social Sciences

IOE: Institute of Engineering

KII: Key Informant's Interview

KMC: Kathmandu Metropolitan City

KVDA: Kathmandu Valley Development Authority

MOUD: Ministry of Urban Development

NGO: Non-Governmental Organization

NUDS: National Urban Development Strategy

POS: Public Open Space

POU-model: Park- organisation- user model

TDC: Town Development Committee

TU: Tribhuvan University

UN: United Nations

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CHAPTER ONE: INTRODUCTION

1.1 Background

Public open spaces have different interpretations and is defined in numerous ways according to the context in which it is situated. Public open space (POS) is defined as the outdoor places which is accessible to the public and is of free access without any restrictions. It could be owned by government, non-profit organization or private individual providing public access. Public open spaces such as green spaces and parks are vital elements of the built environment. In reference to urban areas, public open spaces provide space for recreation, enhancing people's well-being, social interaction and livability of an area. Thus, public open spaces form an essential part of urban life. Successful public spaces are created and developed in such a way that they are easily accessible and can attract a varied range of users and activities, allowing users to socialize. In densely populated developing countries, where private homes typically lack outside spaces, public open space is more valuable because it serves as a venue for social interactions, the establishment of social bonds, and the building of social capital (Bourdieu, 1986).

De Magalhães and Carmona (2009, p. 112) define public space management as "the set of processes and practices that attempt to ensure that public space can fulfil all its legitimate roles, while managing the interactions between, and impacts of, those multiple functions in a way that is acceptable to its users". In today's urban environment, the quality of public space is degrading regardless of its significance. "What is common to the greatest number gets the least amount of care," as Aristotle once said. According to Gehl and Gemzoe (2001), modern cities' public space has altered considerably due to traffic and parking. The lack of management of public open space shows a significant level of challenge in maintaining these spaces. Tibbalds, 2001 also claims that the public spaces lack maintenance as are often neglected. The management of public open space addresses the open areas that are poorly managed and transform them to recreational areas for public interest.

The rapid increase in population causing a high growth rate of urbanization has been demanding more land for housing, infrastructure development in the cities of developing countries which has led to decreasing public open spaces. A shortage of open space exists in cities in developing nations. In the context of Nepal, the uses transformation, encroachment, improper management policies etc. are the major reasons for the loss of public open space. The public spaces in the traditional settlements have changed in their use value with time, organically growing areas do not have allocated open spaces and even in the new planned settlements, open spaces have been provided to fulfill the requirement of the building and planning laws but it does not consider the need of the people who will be using the space. For the management of public places, there is a absence of effective planning and financing. Chitrakar, Baker, & Guaralda (2016) suggest that the challenges with public space management in Kathmandu are a key issue that has received little attention from government entities.

The characteristics of public open spaces is shaped by the activities, perception and attitudes of people towards the space equally as it is by the natural and built features, physical setting and spatial integration of elements. People and their attachment to the space also defines the character of public open spaces thus influencing the planning, use and management of the place. Through regular maintenance and use regulations, public space management allows the space to fulfill its role as a social gathering place while remaining secure and inviting to users. Mohapatra (2016) proposes that a focus on people-place interactions is critical to address concerns of open space planning and management and community involvement is important for its effective and sustainable management. This paper explores three public

open spaces in different areas of the Kathmandu and examines its use, how these spaces are being managed and the management problems that they are facing.

1.2 Need of the Research

Over the past decades, there is an increase in the percentage of people living in urban areas. According to the World Urbanization Report 2014, the world population living in cities is 54% in 2014 and is projected to reach 66% by 2050. Thus, it has become an important development challenge to manage the urban areas. Public open spaces influence the health and well-being of the people promoting healthy lifestyle. The urban green spaces reduce environmental damages, improve the urban climate and also abate the urban heat island effect. They also define the built up character of the urban areas and are an integral part of urban life. So, it has become essential to take into account the existence, conservation and management of open spaces in urban planning.

Kathmandu Valley is among the most rapidly urbanizing cities of Nepal. The public space has changed dramatically with traffic, parking and encroachment. There is absence of community and public access to safe open and green space which has impacted the urban life of the people residing in the valley. The problems is that the government agencies have not given the management issues in contemporary public areas enough attention, which is a big challenge (Maharjan, 2018).

As such, this research shall examine the public open spaces, the existing policies, the challenges they are undergoing in the management, and possible strategies for their proper management. To promote inclusive, safe, and accessible public spaces for all, civil society, academia, and the private sector must collaborate.

1.3 Importance of the Research

The importance of public open spaces is being considered and realised by the people. Open spaces contribute to disaster preparedness and response during an emergency and also enhance the community and its well-being. Literatures have been carried out regarding the need of open spaces in any city and urban areas along with its benefits. But there is a gap in understanding why the public spaces are not being addressed in our context regarding its management and policy formation. Management is associated to the place use, quality, attachment and other attributes and is context specific. Thus, policy makers and planners can refer to the research output for policy making and formulation of planning interventions for enhancing the management of open spaces. This research can be used by responsible agencies as a credible reference to address the existing problems regarding the management issues and ways to address them.

1.4 Problem Statement

The importance of open spaces has been a matter of discussion in the past few decades. The need of the public open spaces has become more prominent due to the earthquake in 2015 where open spaces were used as temporary shelter. In today's context, people seek for leisure, peace, recreation apart from their busy schedule which can all be fulfilled with the provision of open spaces. Thus, the demand for public open spaces is increasing with the increase in population.

Public open spaces are one of the urban development issues that has gotten little attention. There is a lack of documentation on open spaces planning and management. Chitrakar et al., 2016 addresses the lack of management of public space as a critical subject of urban development in Kathmandu. The Kathmandu Valley is one of the fastest-growing urban agglomerations in South Asia (National Urban Development Strategy, 2015). The problem of urbanization and improper management of open spaces

has led to its encroachment. It has also been confirmed that in the event of a severe disaster, the government would be unable to obtain necessary open space in Kathmandu for treatment, emergency assistance, rescue, and recovery. There is now a growing consensus among scholars that an effective management of public space can increase the quality of modern life and create sustainable urban environments (Chitrakar et al., 2017). But the public open spaces have not been addressed properly in Kathmandu Valley degrading the quality of life. The main issue with open space in the valley is the absence of management of those spaces. As a result, the strategic management of these open spaces should be investigated for the city's overall development.

1.5 Objectives

The main objective of the research is to study the issues in use and management of open spaces in Kathmandu Valley.

The specific objectives include:

- To identify the use of the open spaces and the prevailing issues.
- To assess the institutional capacity in the management of the public open spaces.
- To propose planning interventions for the management of open space.

1.6 Limitations of the Research

The public open spaces in this research is limited to open space in new development areas and public parks and does not include palace squares, civic squares, religious open spaces and privately/ institution owned open spaces. Open spaces which are not freely and readily accessible to the public are not included in this study. The institutional capacity of the management bodies covers the following three aspects i.e. the legal provisions for open spaces, the institutional framework and the resources.

CHAPTER TWO: CONCEPTUAL FRAMEWORK AND RESEARCH METHODOLOGY

This chapter deals with the research framework and philosophical perspective of research process to carry out the research objectives. It explains the study's context, sample design, measurement tool, data collection procedure, and data analysis techniques utilized to arrive at the research conclusions.

2.1 Research Methodology

The use and management of public open spaces is subjective and has a social dimension. The institutional capacity and users' perspective for the usage of the public open spaces are socially constructed concepts due to which the nature of reality of this research is socially constructed which is different from natural reality. Multiple stakeholders (People, government, policy makers) are involved for the data collection and each one interprets the same context differently resulting in multiple reality. The ontological position for the research is that for the proper management of the public open spaces, the gaps in its usage and institutional capacity of management bodies should be assessed and mitigation measures should be adopted.

Epistemology deals with what can be considered as a valid knowledge to claim the ontological assumption. The epistemological position for the study is that the institutional capacity and users' perception of the usage of the public open spaces can be obtained from qualitative interpretation of the interaction between researcher and participants. The valid knowledge can be attained through observation, interviews, and interpretation of secondary data. The plans and policies regarding public open spaces can be obtained from documents. The challenges in the management, its changing pattern and how people interpret this situation can be obtained by focus group discussion.

Research paradigm helps to examine the social and natural realities of the world. "Research paradigms can be characterized by the way scientists respond to three basic questions: ontological, epistemological and methodological questions" (Guba, 1990). Trochim, W.M., Donnelly (2001) put forward "the beliefs the researcher holds, will reflect the way the research is designed, how data is both collected and analysed, and how the research results are presented." Thus, recognizing a paradigm is critical to aiding the research process, finalizing the course of action, and determining opinions.

The positivist paradigm has an assumption that everything resorts to a single reality which can be understood, identified, and measured. Positivists believe that knowledge should be developed objectively without the values of the researchers or participants. Positivists operate in dualism and objectivity where the researcher and participants are separated to reduce bias in the study. The research is conducted in a controlled and manipulated setting, as is done in the natural sciences. Since the research is based on social science and cannot be done in a controlled setting, this paradigm is not applicable.

Post-positivists think there is a mutual influence, in contrast to the logical positivist movement where the scientist is independent and detached from the research (Krauss, 2005). Here, scientific methods are adopted but the idea of truth gets modified and the reality is extracted not as a singular reality and concerns observations which are rooted in theory. Since the research is not based on any theory and does not adopt scientific methods, this paradigm is not suitable.

Interpretivists believe that each interpret their view of the world based on one's perceptions. One of the basic beliefs of this theoretical paradigm is that that reality is socially constructed. Since the research topic is dealing with multiple realities and the knowledge is socially constructed by people active in the

research process, through qualitative interpretation of the interaction between the researcher and the responsible institutions, interpretivist paradigm is adopted. No experiment is required nor is the research done in a controlled environment.

Transformative researchers felt that the interpretivist/constructivist approach to research did not adequately address issues of social justice and marginalized peoples (Nowlla Machenzie, 2006). The research does not deal with such issue; hence this paradigm is not applicable.

Pragmatist researchers focus on the 'what' and 'how' of the research problem (Creswell, 2003, p.11) Pragmatism is not committed to any one system of philosophy or reality. When two or more paradigms are applied in a research, it is known as pragmatic paradigm. Since the research is going to be done only through the approach of interpretivist paradigm to address the research objectives, this paradigm is not adopted.

Methodology

Methodology deals with how and what procedure can be used to acquire the knowledge. Methodology generally means the data collection, analysis and evaluation techniques.

2.2 Data Collection Techniques

Qualitative research is adopted for this study. The data collection techniques that were used are direct on site observations/ checklists/ photographs where what is seen, heard or encountered were recorded. A case study approach was used to explore the users' opinion for assessing the use and management of public open spaces focusing on three POSs. Semi structured and open ended interviews was conducted by personally asking people questions and respective authorities in one-on-one conversations. Surveys was conducted with questions to understand the perspective of people on the nature and management of open spaces and its correlation with their day to day life where a total of 225 questionnaires were filled out by respondents from the three public open spaces. The usage of open spaces was evaluated based on six aspects: Access and linkages, Comfort and Image, Inclusiveness, Engagement, Use and activities and Management. All the above mentioned techniques are the primary data sources. For secondary data, collection of existing data in the form of texts, images, etc. was carried out. Policy documents, journals, and past researches related to the study were reviewed. Relevant international cases were identified and reviewed which provided insights to address the research problem.

2.3 Methods

2.3.1 Literature Review

Literature reviews was done to find the importance of public open spaces, their aspects, characteristics and classification. The concepts for management, management models and the policy documents were also reviewed.

2.3.2 Observation

In participant observation, the researcher has to immerse themselves in the setting where the respondents are, while taking notes and/or recording. Observation also helps to analyse the actual condition and problems on the study areas. Checklist was prepared related to site topography, physical infrastructures, open spaces, usability of public amenities etc. and photographs were taken.

2.3.3 Sample survey

In the selected public open spaces, random sampling technique was used for the survey such that the respondents represent a diverse range of ages, genders, and occupations. Their viewpoint regarding the visit and management issues was derived. The questionnaire helped understand the users' perceptions of public open spaces.

2.3.4 Key Informant Interviews

Key informant interviews are qualitative in-depth interviews with people who know what is going on in the community (UCLA, 2016). Semi structured questionnaire was conducted for the key informants of the area. Interviews was also conducted with corresponding stakeholders and responsible agencies/ organisations related to the management and challenges faced by them for implementation and execution in the study areas.

2.3.5 Case Study

For this research, case study method was chosen and the selected cases are UN Park, Shankha Park and Suryamukhi Garden which are of different hierarchy of public open spaces. It will aid in the collection of more precise data about practices and the use of public open spaces, existing problems and issues.

CHAPTER THREE: LITERATURE REVIEW

3.1 Public open spaces

Public open spaces are those that are unrestricted for social, cultural, environmental, economic, and political uses and are accessible to urban residents (UN-Habitat, 2018). Public open spaces are shared resources, which are not closed or blocked up and provide access for people and express conditions of public life, civic culture, and everyday social life activities (Woolley, 2003). POS is also considered as a place for living, society, public life, and a place of urbanity (Low and Smith, 2006; Madanipour, 2012). There exists a distinct difference between open space and public open space. All forms of open spaces, including private and public open places, are included in the term open space. Public open space, on the other hand, is open area that is freely accessible to all people without any restriction.

Land set aside for public enjoyment, recreation, gathering and protection of environmental, social, cultural and economic qualities is referred to as public open space (POS). A neighbourhood, suburb, or regional area's aesthetic appeal and value can be improved by the provision of public open space. Depending on its location, size, accessibility, landscape design, and services, open space can provide a variety of needs. It plays “an important part in urban heritage, it makes a valuable contribution to environmental quality, health and social cohesion and receives public endorsement as major contribute to quality of life” (Gallacher 2005, pp.41). In an urban environment, public spaces play a huge part. All communities' public landscapes now include public open space as a key component. They are crucial to urban planning and to fostering social contact, which in turn promotes the development of a sense of community.

Many studies show that public open space (POS) is an important element of the urban environment (Shirvani, 1985). Effective public spaces should encourage psychological comfort and security. (Danisworo, 1989). Different cultures have paid more or less attention to the establishment and upkeep of public space as it serves as a setting for community activities and collective urban life at various points throughout history. It has been perceived that well-managed POS contributes to better living conditions and urban development in small cities. By providing enough street space, green areas, parks, leisure centres, and other public places, cities with a strong sense of the public show their dedication to improving the quality of life for its residents. In order for these POSs to best serve the many facilities and services, it is crucial that they be made accessible, user-friendly, appealing, and functional as well as socially, economically, and environmentally sustainable.

For the purposes of the research, public open space was taken to mean all those parts of the built and natural environment where the public have free access. It encompasses open spaces and parks where public access is unrestricted at least during daylight hours and public do not need to pay. It does not include streets, squares, traditional open spaces, civic spaces and private/ institution owned open spaces.

3.2 Importance of public open spaces

Public spaces, such neighbourhood parks or community gardens, are one of the crucial components that form a city's distinctive attraction points, according to several urban theorists. They also serve as symbols of civic pride and sense of place which promote the notion of community. Public open spaces have been linked to a number of benefits, including social, political, and economic benefits as well as ecological and environmental benefits.

Environmental benefits

Environmental benefits can be gained through promoting a sense of emotional and psychological tranquility through visual landscapes, vegetation, water, animals, and bird life for natural relaxation and a healthy environment. Open spaces promote urban ecology and helps reduce pollution, control urban heat island effect, an improvement of the air quality and the absorption of atmospheric pollutants, and also protection of natural habitat.

Social benefits

Open spaces enhance sociability and encourages interpersonal connections. It creates places for formal and informal sport and recreation resulting in community interaction. It provides space for activities and uses for different ages, groups/individuals at different times of day. These spaces shape the cultural identity of an area, contribute to its unique character and builds a sense of place for local communities.

Economic benefits

The establishment of amenities supporting visit for sport, refreshment and tourism in public open spaces creates economic benefits thus creating more value. They have a variety of positive effects, such as enhancing property values, boosting retailer sales, generating job opportunities, revitalizing inner-city neighbourhoods, and promotion of tourism.

Aesthetic benefits

Public spaces with thoughtful design enhance the aesthetic value of the surrounding landscape and contribute to the overall aesthetics of the surroundings, improving the city's overall appearance. Public spaces provide people with a pleasant breathing space and an opportunity to escape the typical urban environment in addition to adding beauty to an otherwise busy landscape.

3.3 Aspects of public open spaces

The paper suggests a theoretical framework to evaluate public open space: a good public open space is accessible, inclusive in nature, provides physical and psychological comfort, engages the users in varieties of activities and is regularly maintained (Figure 1). These are discussed below:

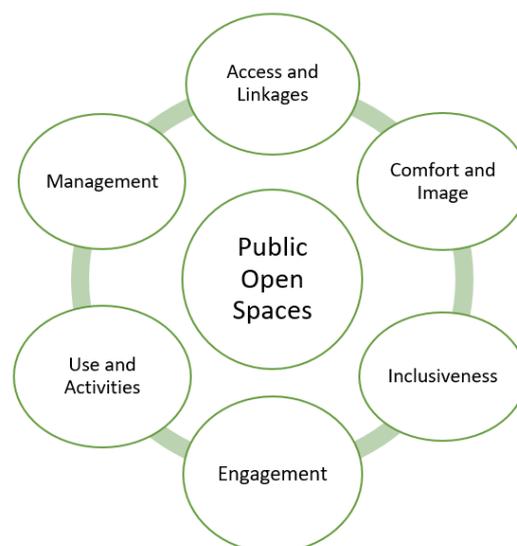


Figure 1: Aspects of public open space

Access and Linkages

Access to public spaces is concerned with the ability to reach the space and to enter and use it. Access deals with the proximity, mode of transportation and time taken to reach the space, and the ability of people to be in the public space and use it (Mehta, 2021). Madanipour (2010) acknowledges accessibility as a key feature of any public space. Accessibility should not only consider healthy adult but should consider senior citizen with cane, mother with stroller and also children (Harnik, 2006).

Comfort and Image

Comfort in public space depends on various factors such as perceived level of safety, climatic comfort, physical and psychological comfort, convenience etc. (Ujang, 2012, Peng et al., 2021, Chen et al., 2020, Tiesdell & Carmona, 2007, Sharma et al., 2003). In the context of public space, safety is a person's ability to feel safe from the social and physical factors—from crime and traffic. The safety of public space is assessed by rating how safe people feel in the space at various times of the day, the appropriateness of the physical state and maintenance of the area, as well as whether or not the existence of surveillance measures in the public space makes people feel safer (Mehta, 2021). The presence of landscape features, attractive views, appearance, no outdoor noise while roaming POS etc. are considered for good image of the public space (Zhao et al., 2022, Wood et al., 2017).

Inclusiveness

The extent of inclusiveness of any public space is determined by the range of activities which take place and the user group it supports (Mehta, 2021). It also looks at how easily different people and groups can access the area, and whether or not different activities and behaviours are encouraged. Equitable access, social cohesion and users' freedom helps in analysing the inclusiveness of the space. Public open spaces should promote an environment where people feel free to act protecting the privacy of the users, all users should have access to the POS and also give opportunity to people to participate in various activities and events (Ahirrao & Khan, 2021).

Engagement

Engagement focuses on the involvement of users in various activities which is associated with the engagement with space and engagement with community. Active and passive activities help the users to engage with the space. POS should provide users opportunity to interact with other unknown users, relate with one another and develop bonding (Ahirrao & Khan, 2021).

Use and activities

Activities in public spaces are like building blocks that gives people reason to come to the public space and spend their time. Group activities increases socialisation encouraging various physical activities, informal activities, social activities etc. Activities should address different age groups and gender and ought to consider the elderly people (Karacor & Akcam, 2016). Public open spaces should encourage public oriented activities and vibrant use of the spaces to make it lively and happening.

Management

People prefer to visit POS that provide safe environment and are well managed. One of the most crucial elements in creating successful spaces, improving comfort, and increasing utilisation is maintenance (Pasaogullari & Doratli, 2004). POS should be considered as national property and people should avoid vandalism and littering and maintain a peaceful environment. The management authorities should respect the right of users and provide basic facilities in the space (Maghrabi, 2019).

Table 1: Measuring the use of public open spaces

Criterion	Variables (What to Measure?)	Indicators (How to Measure?)	References
Access and Linkages	Accessibility	Proximity, mode of transportation, travel time, location	(Sugiyama et al., 2010), (Pasaogullari & Doratli, 2004)
Comfort and Image	Comfort	Safety, convenient walkways and seating, climatic comfort	(Ujang, 2012), (Peng et al., 2021), (Chen et al., 2020), (Tiesdell & Carmona, 2007), (Sharma et al., 2003)
	Image	Landscape features, attractive views, no outdoor noise while roaming POS	(Zhao et al., 2022), (Wood et al., 2017)
Inclusiveness	Equitable access	Promotes diversity, universal access	(Moulay et al., 2017), (Wolfgang F. & Korydon H., 2011)
	Social cohesion	Participation in events and programs, sense of community, social networking, sense of pride	(Jennings & Bamkole, 2019), (Enssle & Kabisch, 2020)
	Users' freedom	Users to freely roam in the POS	(Mehta, 2021)
Engagement	Engagement with space	Space encourages a variety of activities, space fulfilling the need of users	(Mehta, 2021), (Tiesdell & Carmona, 2007), (Zamanifard et al., 2019), (Ujang, 2012), (Gehl, 2011)
	Engagement with community	Space encourages social activities and interactions, local culture and arts	(Holland et al., 2007), (Askari et al., 2015), (Eizenberg & Jabareen, 2017)
Uses and activities	Activities	Physical, informal, quiet and social activities	(Mehta, 2021), (Pasaogullari & Doratli, 2004), (Zhao et al., 2022) (Tiesdell & Carmona, 2007) (Gehl, 2011)
Management	Maintenance, provision of basic facilities	Availability of basic facilities- drinking water, washroom etc., cleanness and maintenance of space	(Carmona, 2019), (Shaftoe, 2012)

3.4 Classification of open spaces

3.4.1 Classification according to UN Habitat, 2018

Based on their distinct sizes and catchment areas, public open spaces can be divided into four major levels:

1. **Local/pocket open public spaces** – These are parklets that provide recreation for the nearby residential community within 400 meters of walking distance or 5 minutes' walk. Their typical land sizes range from 0.03 to 0.04 hectares, and they are frequently used for recreational activities.
2. **Neighbourhood public open spaces** – These spaces meet a community's social and recreational needs. They are conveniently located 400 meters away from homes and have sizes between 0.04 and 0.4 hectares. They can put up a range of activities, including recreation, sports, and the preservation of natural characteristics.
3. **District/city open spaces or city open spaces** – These areas are primarily created to accommodate formal organized sports. They have sizable recreation areas as well as some natural spaces. Players and visitors come from several neighbourhoods and surrounding districts to play and visit. The areas, which range in size from 0.4 to 10 hectares, are intended to serve people who live within an 800-meter radius or a 10-minute walk.
4. **Regional open space/Larger city parks** – These are spaces for organized play, socializing, relaxation, and enjoying the outdoors. They are likely to draw tourists from outside of any one local government area and serve one or more geographical or social regions. Their sizes vary from 10 to 50 hectares.
5. **National/metropolitan open public spaces** – These are substantial regions, between 50 and 200 hectares in size. They contain recreational, sporting, and basic facilities, and they support concurrent uses. (UN-Habitat, 2018)

3.4.2 Classification of open spaces in Nepal

Open spaces can be categorized into four sorts according to hierarchy, as stated in the paper "Conservation and Development of Open Spaces in Kathmandu Valley" by Er. Kishwor Thapa:

1. **City Level open space:** Open spaces at the city level in Kathmandu include Tudikhel, Ratna Park, UN Park, and others. These public areas can be utilized for exhibitions, political rallies, social and cultural events, parades, etc. These areas are more official and are directly maintained by municipalities or governmental agencies. Due to its size, scope, and equal ownership by all inhabitants, it ought to be owned and operated by the municipality.
2. **Neighbourhood/ Ward level open space:** The public can use the neighborhood-level open spaces for small sporting events, social and cultural activities, evening markets, disaster management, and as public parks and gardens. The recently constructed Narayan Chaur, Sano Gauchar Playground, and Shankha Park in Maharajgunj, Kathmandu are a few examples of this type of open space. The municipality's ward office should maintain it.
3. **Tole Level Open Space:** Residents of a tole or specific locality have access to tole level open spaces. Children, seniors, those with disabilities, and women, especially housewives, typically use these. Evening markets, places for people of all ages to hang out, children's play areas, tole level social or

official programs, wedding programs, parties and banquets, among other things, may be permitted in such open spaces. Local clubs or tole level organizations own it.

4. Cluster (or lane) level open space: The group of houses that are situated along a road, lane, or courtyard are next to cluster or lane level open areas. Such areas can be found in Kathmandu's inner city's traditional areas. This type of cluster level open area can occasionally be found in a courtyard or wider road. These areas are used for loading and unloading construction materials, temporary parking, greenery, waiting areas, places to store trash cans, tot lots (play areas for infants), temporary dumping areas for construction rubbish, etc. It should be jointly maintained by the house owners. (RECPHEC, 2016)

3.5 Land ownership and open space

An essential resource for urban development is land. In order to implement plans and proposals more effectively and fairly, it is helpful to understand the status of land that is available for development. Land ownership also helps to find out how the provision of parks and open spaces is influenced by the availability of government land. The categories of land ownership are:

1. Government Land
2. Guthi Land
3. Private

The availability of public open spaces is not uniform throughout the valley. Public open spaces are usually developed in government land. Some land is under the ownership of Federal government, some are given managerial right to Local government and there exists lands owned by municipalities where municipalities construct their physical structures. Some land are owned by Local government and managed by municipality under the condition that no built structure is to be constructed in that land. Housing developments, either developed by real estate developers or individual residents, also have provision of open spaces but due to the tendency of gated community, these open spaces are not accessible to the public. Temples, bahals and bahils are considered as open spaces which mostly lie under guthi land. Private institutions such as colleges and hospitals also have open spaces which are not accessible to public. Although there is availability of vacant land for open spaces in public land, due to the lack of initiatives and funds for the development and management, they are left unattended thus leading to encroachment.

3.6 Contemporary Urbanization Pattern and Public Open Spaces in Kathmandu Valley

The Kathmandu Valley's urbanization pattern is rapid and haphazard. Even the most basic framework of neighbourhood and public urban space could not be followed by the newly forming contemporary neighbourhood. Failure in the public realm of planning and design has led to a new set of issues, including discontinuity in traditional architectural vocabulary and the loss of public spaces increasing risk vulnerability. Residential neighbourhoods with few open spaces have less opportunities for informal interaction amongst neighbours. Community living culture is diminishing. The establishment of adequate public spaces in a community can promote social integration in a society. Due to the increase in indoor life, there is also a significant degradation in the quality of the urban experience as well as the quality and quantity of the urban environment.

There are very few open spaces of which some open spaces are occupied by Army, Police or sports units. Squatters in urban places occupy the remaining open spaces unlawfully. There is misuse of public

and open land. There is no open space inventory or monitoring. Open space encroachment is a serious problem. Encroachment of open spaces, which is a reflection of poor governance, is largely to blame for the decline of open areas in the Kathmandu valley and other major towns. Incompatible commercial operations have illegally encroached over the former use of public open spaces by various persons at various times for numerous purposes.

3.7 List of Open spaces of Kathmandu Valley

The public open spaces in Kathmandu are not fully and accurately accounted for in official statistics. In 2015, the KVDA issued "Atlas of Open Areas," a list of all potential public spaces in the Kathmandu Valley that could be used in the event of a disaster. The list, however, does not segregate the quantity of privately and publicly owned open spaces.

The Kathmandu Valley Development Authority (KVDA) recognized 887 open spaces in total, of which 488 are in Kathmandu district, 346 are in Lalitpur district, and 53 are in Bhaktapur district. Of the 488 open spaces in Kathmandu district, 266 are situated in Kathmandu Metropolitan City (KVDA, 2015).

Table 2: Types and status of open space in KMC

S/N	Types	Total area (km ²)	%	Useable area (km ²)	% share of useable area
1	Campus	0.08	1.39	0.04	50.0
2	Guthi, temple, church, stupa, etc.	0.75	13.1	0.45	60.0
3	Hospital	0.05	0.87	0.02	40.0
4	Institutional	0.34	5.92	0.14	41.2
5	Nepal government (public)	4.39	76.5	2.24	51.0
6	Lease (privately owned land area with institutional use)	0.07	1.22	0.04	57.1
7	School	0.06	1.05	0.03	50.0
	Total	5.74	100	2.96	51.6

Source: KVDA, 2015.

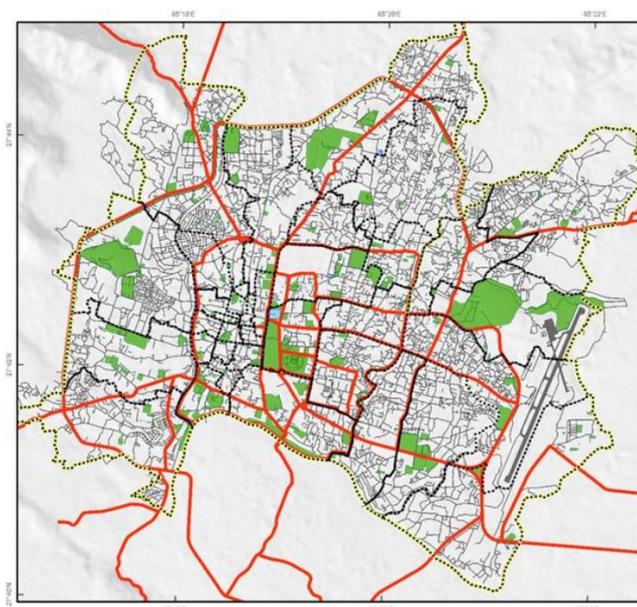


Figure 2: Distribution of open spaces in KMC

3.8 Concepts of Open space management

All public places, no matter how inclusive, democratic, and open they are, need some type of management in order to efficiently fulfill their varied functions. A wide range of stakeholders, such as infrastructure suppliers, motorists, pedestrians, retail operators, park users, etc., are connected to these responsibilities and are concerned that public spaces meet their own needs. (de Magalhães & Carmona, 2009)

Research has shown that concerns about public space quality and its better management are shared across the developed world (CABE Space, 2004b) (Carmona & De Magalhaes, 2006). The management of public places was conceptualized by De Magalhes and Carmona (2009) as four interconnected processes: Regulation of uses and conflicts between uses; maintenance routines; new investments and ongoing resourcing of public space; and coordination of interventions in public space. (Jansson et al., 2018)

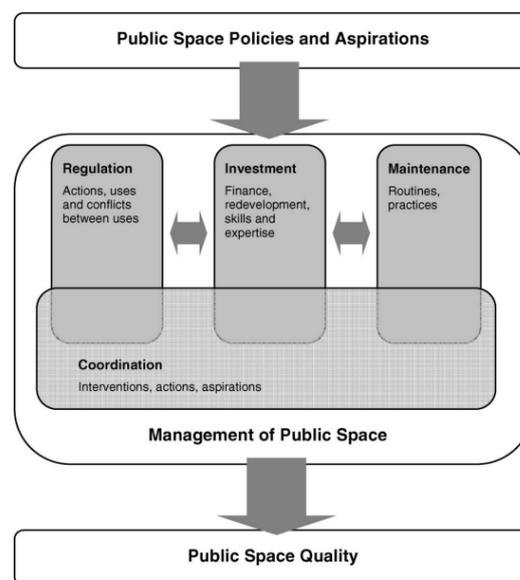


Figure 3: Public Space Management and its key dimensions

Regulation of uses and conflicts between uses: Regulation establishes access regulations, specifies how public areas should be utilized, and outlines acceptable and undesirable behaviour. It also provides a basis for undertaking conflicts between usage.

Maintenance routines: To fulfill the purposes that support their existence, public spaces and the facilities, equipment, and infrastructure invested in them must be maintained.

New investments and ongoing resourcing of public space: Regulating the uses, conflicts and maintenance of public spaces require resources – financial and material. Resources can be derived from a variety of sources, each of which has a unique set of constraints and opportunities. This calls for both ongoing income funding for daily administration duties and occasional considerable capital funding when major re-design and re-development are necessary.

Coordination of interventions in public space: It is necessary to coordinate processes to make sure that the individuals in charge of regulation, maintenance, and resource allocation are pulling in the same direction because these activities are likely to include a wide range of people and organizations, either directly or indirectly.

3.9 Management models

De Magalhães and Carmona (2009) conceptualised three management models for public spaces that have their own distinct rationale and how to deal with coordination, regulation, maintenance routines, and new investments and resourcing of public spaces. The three models' rationale each propose a unique set of remedies to deal with the challenges of public space management, but these solutions frequently result in additional issues and problems whose effects are not yet fully understood.

3.9.1 The state-centred model

This model describes public space management by public sector institutions with minimum input from private or voluntary sector. It clearly states the framework of responsibilities from policy makers to service users (public space users) and hierarchical structures of planning and delivery. It is also known as a dominant management model. Regulation is about securing agreement with public space policy, its aims and objectives and service obligations among public sector agencies at different levels. Here, the maintenance routines are primarily technical and budgetary exercises and investment refers to the budget allocation for public space services (de Magalhães & Carmona, 2009).

3.9.2 The devolved models

De Magalhães and Carmona (2009, p. 112) argue that “public space management has not been immune to changes affecting public service delivery and urban governance”, with an increasing control of public space by community-based organizations and private sectors. The emergence of alternative public space management models points to a move away from local government arrangements and toward the involvement of a variety of different stakeholders.

The devolved models comprise of two emerging models where the responsibilities for providing and management of public space is transferred from the state to other social agents. For management purposes, the fundamental concern is not who owns public places, but rather how those spaces are managed and maintained regardless of who owns them.

The market- centred model

In this model, the management of public places is entrusted to private entities whether they are publicly or privately owned. This is done through contracts in terms of principal-agent or client-contractor relationship. It entails the private design and delivery of services in specific regions, or even the private provision of a framework of service standards and design criteria for privately owned and operated public spaces.

Coordination requires careful consideration of contract specification, public-private agreement negotiation, monitoring, and enforcement. In order to handle conflicts between uses and usage patterns, the regulation in this model often relies on legislation and enforcement authorities granted to public entities. Maintenance routine is to be carried out as specified in the contract. The resources (financial and technical) are drawn from outside the public sector. (de Magalhães & Carmona, 2009)

The user- centred model

In this model, the management of public places is entrusted to user-based organisations, including associations of users of public spaces, interest groups that address issues related to public spaces etc. These organizations do not exist to provide services related to public spaces for a fee or to maximize financial gains from investments made in or near public spaces but have direct interest in the quality of public spaces for their use value. User participation in the delivery of public services has been deemed the most efficient method for its management.

The interventions of user-based agents on public space require good connections within public sector organisations with proper contract specifications. This model's regulation component also depends on the state's ability to enact and maintain law and order, frequently in support of a less formal policing function performed by the user community itself. Locally determined standards and maintenance routines are more likely to be responsive to local context and benefit from sense of ownership by local communities. Resourcing is associated with building community capacity, finding alternative sources, identifying the stakeholders and how they can contribute to the management of public spaces.

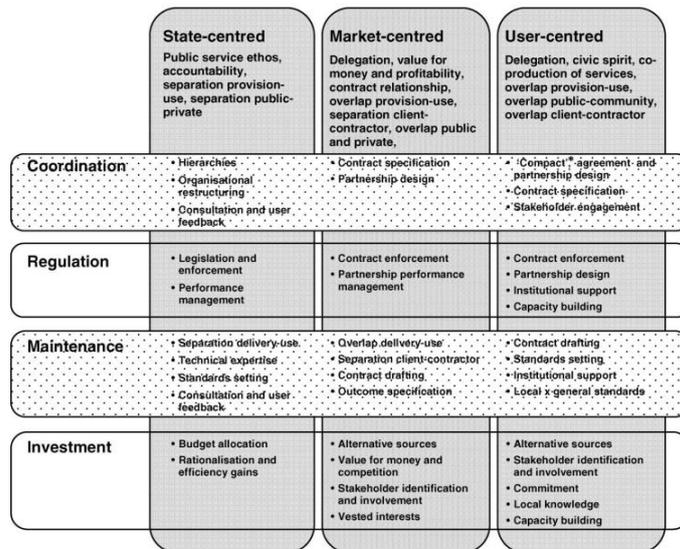


Figure 4: The models of public space management

3.9.3 The park management model

The model explains the relations associated to green spaces. Actors, stakeholders, or human interests are identified on one side, and aspects are defined on the other.

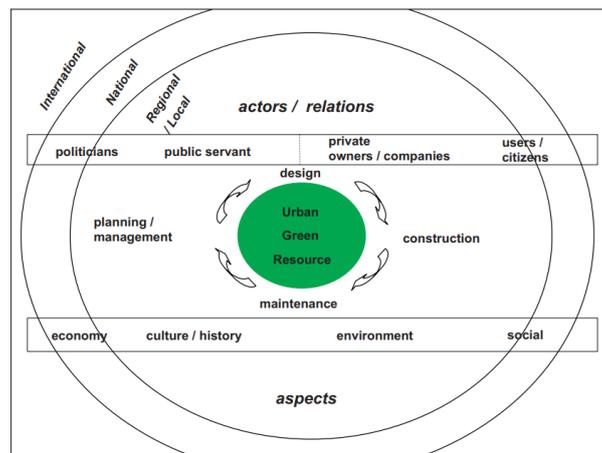


Figure 5: The park management model

The formal decision-makers, politicians, and their support staff are the actors in relation to public urban green spaces. Private businesses, represented by contractors, consultants, planners, and designers, as well as general people and users who have a close connection to the actual green space, exist outside of the public administrative structure. Steidle-Schwahn (2006) has a major focus on the maintenance of green spaces, but also describes the influence in relation to green space management as being economy, functions (e.g., social, cultural, aesthetic, ecological), users and knowledge derived from various types of research (biology, forestry, history, medicine, etc.)

This model puts the green space at the centre of any discussion. This calls for the equality of all agents and factors in theory. In practice, though, formal decision-makers and economic considerations typically take precedence in the majority of planning and management decisions (Randrup & Persson, 2009).

3.9.4 The park-organisation-user model

Public green spaces management can be described in simplified terms as described in the park-organisation-user (the POU – model), as developed from Persson (2005). The POU-model outlines the relationships between the current physical outdoor environment (such as public green spaces), the management organization, and the green space users (Randrup & Persson, 2009).

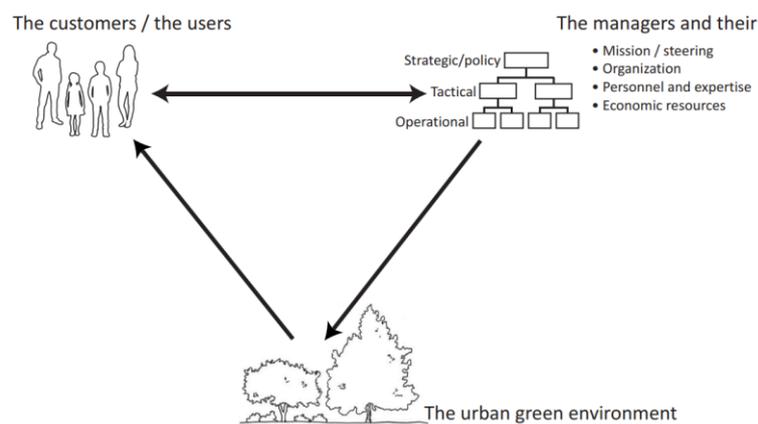


Figure 6: The park-organisation-user model

The "park-organisation-user model," which has three primary components (managers, users, and green spaces) and their interrelationships, was proposed by Randrup and Persson (2009) to analyze and describe the management of green space. This model has been applied in studies of management of residential areas, playgrounds and management theory (Jansson et al., 2018).

3.9.5 Strategic Park Management Model

Three levels of activities are included in the concept of Strategic Park Management. The model is based on a 3 X 2 division. There are two columns at the vertical level. They stand for a cross-sectoral strategy on the left, and a strictly sectoral strategy for the park on the right. On the horizontal level, three rows illustrate the three levels of activities to be included in Strategic Park Management; Operations, Tactics and Policies (Randrup & Persson, 2009).

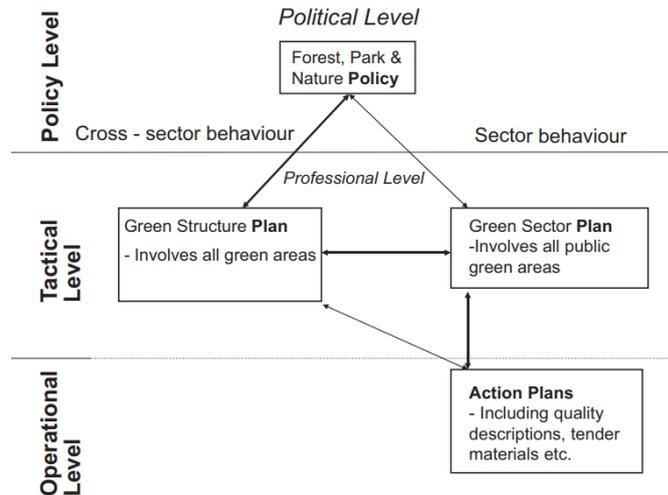


Figure 7: The Strategic Park Management Model

3.10 Institutional Set Up for open spaces in Nepal

A number of ministries, departments, organizations, and institutions are responsible for the formulation of policies, plans, and programs, as well as their implementation, monitoring, and evaluation. The key institutions those are involved are listed below:

1. Ministry of Urban Development (MoUD)

With a mission to make urban areas and settlements managed, clean, beautiful, and inclusive of suitable infrastructures and services, MoUD is in charge of the overall planning, development, and management of urban areas. It closely works with municipalities. Under the Ministry of Urban Development, the Department of Urban Development and Building Construction (DUDBC) actively works in the building, environment, and urban development sectors. It is in charge of creating various policies, rules, and bylaws.

2. Ministry of Federal Affairs and Local Development (MoFALD)

According to the Local Self-Governance Act (1999), the Ministry is in charge of coordinating, assisting, facilitating, monitoring, and evaluating decentralized local development programs and activities carried out by local governing bodies, including District Development Committees, Municipalities, and Village Development Committees. The Environment Friendly Local Governance Framework (EFLGF), developed and implemented by the Ministry, is currently being implemented at the district, municipal, and VDC levels.

3. Ministry of Land Reform and Management

Ministry of Land Reform and Management is responsible for the protection of state and guthi (trust) land for the benefit of the people at large, development of Land Information System for e-Governance, and modernized mapping services. The Ministry has also formulated Land Use Policy 2012.

4. Kathmandu Valley Development Authority (KVDA)

KVDA was founded in 2012, and its main responsibility is to create and carry out an integrated physical development plan for the Kathmandu Valley. The Minister of Urban Development serves as the Authority's chief executive. It has the authority to develop relevant bylaws, control mechanisms,

policies, standards, and resources. Public parks are being developed in the valley under KVDA, and several of them have already materialized, such as Nandikeswor Bagaincha in Narayan Chaur, Naxal. The Kathmandu Valley's potential open spaces that can be used during disasters are all listed in the 2015 publication Atlas of Open Spaces which was published by KVDA.

5. Kathmandu Metropolitan City (KMC)

KMC is a local organization operating under the Local Self-Government Act (1999). Ratnapark, Balaju Park, and Shankha Park are all under the jurisdiction of the Environment Management Department under KMC. The Disaster Management Department in the KMC is working on the identification of open spaces in the metropolitan area for preserving it.

6. Guthi Sansthan (Temple Trust)

Guthi is a dynamic structure of Nepalese society that is managed by traditional moral, ritual, and religious values. This approach has provided effective administration for safeguarding our society's ritual, traditional, and cultural values. The management of Kalmochan, the Eye Hospital premises, Bhimmukteswor, Kalimati, Ranamukteswor, and Triputeswor Mahadev is the responsibility of Guthi Sansthan.

7. National Society for Earthquake Technology (NSET)

On June 18, 1993, a group of experts established NSET with the mission "Earthquake Safe Communities in Nepal by 2020." The main goals of NSET were to "foster the advancement of science and practice of earthquake engineering and technology for mitigating the earthquake risk and increasing the seismic safety, to enhance professionalism, professional engineering, and scientific ethics, and to further the goals of the International Association for Earthquake Engineering as applicable to Nepal."

8. UN-Habitat

The United Nations organization UN-Habitat strives for a better urban future. Every year, the first Monday in October is recognized as World Habitat Day by the UN. The country-wide celebration of World Habitat Day 2015 included a number of events with the theme "Public Spaces for All." They organized the program in an expectation to boost government's plan to arrange at least one open space for every 25,000 populations in the Kathmandu Valley. The city has also planned to purchase privately held buildings and land in the city's core areas in order to create more open spaces.

9. Various other agencies

Various other agencies like wards, TLOs, user committee and specified organizations for particular open spaces are responsible for the management of open spaces. Wards are also responsible for the management like in Mitra park, High Powered Committee for Integrated Development of the Bagmati Civilization (under MoUD) for the management of UN Park, Pashupati Bikas Kosh for Pashupati area, Hanuman Dhoka Durbar Square Conservation Program for Kathmandu Durbar Square, Bagmati Savyata for Bagmati river premises, Nepal Army for Tundikhel etc. (RECPHEC, 2016)

3.11 Management practices of public open spaces in Kathmandu Valley

The management of public open spaces is practiced in Kathmandu valley in the following ways:

- Under Federal Government and managed by Federal Government

- Under Federal Government and managed by municipalities
- Under municipality and managed by municipality
- By preparing tender through private agencies
- By local community groups

KMC is mainly responsible for the management of Ratnapark, Balaju Park and Shankha Park. For minimizing pollution and conservation of the heritage areas, KMC has made plan to develop pedestrian zones at the old city areas. For environmental development, programs like management along Bagmati, Bishnumati and Dhobikhola river corridors, management and improvement of traffic junction at Sorakhutte, Teku, etc have been done in Kathmandu Valley.

KVDA has recently developed Narayanchaur, also known as Nandi Keshwor Bagaicha and Kamal Pokhari. Its revival project has been an example for the management of public open spaces. It is difficult to look after the management of every open spaces in the valley, so the responsibilities are handover to local community groups, local clubs, guthi or other private organizations. Local Clubs are organization established by the local residents of a certain area for the management of the open space that generally involves cleaning, monitoring and controlling the use of open spaces and streets. In the context of Nepal, local clubs are one of the active forms of organization. It develops a sense of belonging and feeling of responsibility for the space to the local people. Community organization covers a variety of initiatives at the community level intended to bring about the desired enhancement in the social well-being of individuals, groups and neighbourhood.

Public Private Partnership, PPP practice and experience by the public and private sector is premature in Nepal. Government privatized a number of public enterprises in the past without any detail study on economic viability and appraisals that could be continued with the models like PPP. Privatization and PPP are different in contract, procurement and operation. Although PPP is one of the many models of providing public goods, it harmonizes the interests of two parties, utilizes the private capabilities like better management and efficient allocation of resources and public sector also takes some risks as partner of the project. Ncell under Corporate Social responsibility (CSR) is involved in various social projects some of which includes initiative to plant trees and maintain landscaping on both sides of the road at the 10.2 km length of the Ring Road between Koteshwor and Kalanki, upgradation of Lainchaur ground which include features such as a mini football ground, basketball court, children's play areas, trees, other plants for greenery, traditional resting places, stone spouts, public restroom among others, construction of a senior citizen park in Sano Thimi, Bhaktapur and also various awareness campaign on environment conservation and protection.

3.12 Policy Review of open spaces in Nepal

There are no clear and definite policies on open spaces and parks. The existing ones are fragmented and embedded in other policies and regulations. Those policies are mentioned below:

3.12.1 Land Use Policy 2072

Land Use Policy 2072 mentions the lack of open spaces in the urban areas. Under policy 1, the entire land of the country has been classified into Public Use and Open Space Zone. It states under line no. 10 of strategy 3 of policy 2 regarding minimum green areas, open spaces gardens, sports grounds and recreation areas to be developed in the residential areas of urban and rural areas. It also states under line no. 11 of strategy 3 of policy 2 regarding the construction of open spaces and green belts along the both sides of river, road, ponds and canals.

3.12.2 Urban Environment Management Guideline 2067

Paragraph 6 of this guideline, mentions the identification of probable open spaces and green areas of urban area, preparation of estimation and implementation of plans involving local communities. It also states the establishment of separate section for the management of open and green spaces in the urban area by respective authority and provision of necessary resources (physical, economic, human etc.) The guideline further mentions the allocation of 2.5% of land for open and green areas at tole level and development of public private partnership for the plantation and proper management of endemic plants along the road, rivers, garden and park areas.

3.12.3 Bye laws 2072

The local bodies shall preserve the open spaces in their area and declare public land as open spaces and convert them into parks.

5% should be allocated for open space for any land pooling, house pooling or integrated settlement development programs. The area covering the open space should not be less than 80 sq. m. and width not less than 8m. The open space should not be adjacent to the neighbouring plot or boundary of the development area.

3.12.4 Planning Norms and Standards 2013

Planning Norms and Standards 2013 mentions 5% of total metro city is to be designated for neighbourhood park, local park, community park, district/ regional parks and 5% of total sub-metro city is to be designated for neighbourhood park, local park, community park, zoo park and specialised park.

3.12.5 National Urban Development Strategy 2017

According to NUDS, there is 0.48 % open space in Kathmandu and 0.06 % in Lalitpur. It points out the major issues for open spaces:

- 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.
- To manage the urban environment, which includes preservation of open spaces, etc., the municipalities lack the institutional capability, appropriate planning, and financial methods.
- There is no inventory and monitoring of open space.
- 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.

Milestone for open spaces:

- 2.5% of land as public open green space at ward level (maintained, monitored) in existing urban area
- 5% of land as public open green space at ward level (maintained, monitored) in new urban area

3.12.6 Atlas of Open Spaces, KVDA 2015

Gardens and playgrounds will be built in a variety of locations, according to the policies and plans 2071/72 released by the government of Nepal, according to the Atlas of Open Spaces, KVDA 2015 (line no. 43). Line no 78 of the same document indicates that a play space will be provided for each election district. Further line no. 132 explains that the Kathmandu Valley's public lands will be

safeguarded and the appropriate land will be obtained to create open spaces in at least 10 locations. In all municipalities there should be at least one open space to cater twenty-five thousand populations.

The Atlas has listed the following implementation strategies to be carried out accordingly based on priority:

1. The community open space and its uses at the local level should be made aware to the public.
2. The open spaces should be preserved and developed as green areas which could result in increasing the beauty of urban areas.
3. Basic infrastructures should be developed near these open spaces so that they can be fully utilized in case of disaster and emergencies.
4. The identification of open spaces of Kathmandu Valley is not complete so regular update is necessary.
5. To help with the preservation of the open spaces, a detailed study of the open spaces should be conducted, along with regular review of how they are used, database preparation, regular monitoring, and evaluation processes at the ward level so VDC/municipalities.
6. To properly inform the public about open spaces, it is required to develop appropriate policies and practices in coordination with the government, local authorities, local stakeholders, local NGOs, etc.
7. Through the cooperation of the government and stakeholders, appropriate concepts may be created to make these open places safe for use in emergency situations following disasters. To use the open spaces in emergency situations, the pre-defined work methodology between the local authorities (VDC/municipality) should be developed.
8. The community managed open spaces is considered as an appropriate measure. Local NGOs and community groups should promote the protection and promotion of open spaces with the help of the local participation.
9. The situation of the open spaces should be improved by creating and utilizing the local community's pre-disaster preparation plan.

3.12.7 Risk Sensitive Land Use Plan 2010

According to the Risk Sensitive Land Use Plan 2010, parks and open spaces will act as both recreational grounds and locations for relocating/evacuating during emergencies, adding to the physical infrastructure. A network of parks and open spaces is one of the plans that can be undertaken. A hierarchy of parks and open spaces from the city level all the way down to the ward level should be developed as a result of this program.

3.12.8 Park Development and Management Procedure, 2075

50% of the area inside the park should be open space and built structures should be limited up to 15% of the total area. Park should consist of local plants and fruit trees and should also represent the nation through some sculpture or design. There should be provision of drinking water, walkway and cycle lane, toilet facility, waste management, universal design, lighting facility, play areas, kids play area and parking facility. The procedure also states that skilled manpower should be provided for the management of park areas, along with safety and security with regular cleanliness of the park.

3.13 Disaster related initiatives for open spaces

Under the leadership of the Ministry of Home Affairs (MoHA), the International Organization for Migration (IOM) have identified open spaces within Kathmandu valley which could be used for humanitarian purposes in the event an earthquake occurred. A total of 83 open spaces were found in the survey for 2013. The locations and the guidelines established surrounding the application of the open-space program were described in the identified open spaces, which were published in the Government of Nepal Gazette in April 2013 (International Organization for Migration (IOM), 2020). Any open spaces (publicly or privately owned land) could potentially be used as open space for evacuation and rescue-relief during such events.

3.14 Case studies of open spaces in Nepal

3.14.1 Tundikhel

Tundikhel is divided into five parts according to the use of this space starting as Ranipokhari, Ratna Park, Khula Manch, Tundikhel area and Tundikhel under Army area. There is no public access to Ranipokhari, Tundikhel Army Control Area, or Army Restriction Area. Tundikhel public open space is clear ground where none of facility and design is provided such as lighting, sitting spaces and toilet facilities.

Management: During the Malla period, Tundikhel was maintained by the rulers for social and cultural events, including Ghode Jatra and Dashain celebrations. Encroachment of Tundikhel started when the Rana rulers started garnering military power. Shahid Gate, Ratna Park, and Dasarath Stadium were constructed, squeezing Tundikhel from the north and south sides. Royal Nepal Army built an officer's mess against public opinion and until late 1992 the space adjoining the Khulla Munch was allocated for a flea market (RECPHEC, 2016). Nepal Army is currently responsible for the management of Tundikhel.

3.14.2 Balaju Park

Built in 2026 B.S., Balaju Park is located in Balaju. It covers an area of 160 ropani and is called bais dhara since the park has a line of twenty-two stone water spouts built in the 18th Century, each of which has an ornately carved crocodile head. The garden has a swimming pool open to the public and the ponds beside the flower gardens. There is separate space for picnic spot but there is lack of proper water and toilet facility. Also due to open boundary at one side of the park, people enter the park without following its rules and regulations.

Management:

The park is under the surveillance of KMC. Management of the park is done through environment management division and Kathmandu Metropolitan City. There are almost 25 staffs working for the maintenance of the park. They are all recruited by KMC. The salary of the staff and all other expenses required for the park are looked after by KMC. Some of the income is generated from the park i.e. through ticketing (rs.25 per person) and through picnic spot. The amount generated is handed over to KMC.

3.14.3 Nandikeswor Bagaincha, Narayan chaur

The oval Shaped Nandi Keshwor Bagaicha popularly known as Narayan Chaur is located at Naxal and covers an area of about 20 ropanis. Previously, the open space was neglected used for various purposes

such as dumping site, playing ground and parking lot. Now, it is used as a space for recreation by the people at the heart of the city.

Management:

The Nandi Keshwor Bagaicha was revitalized by KVDA and was handed over to the Community Service Center, Naxal for the maintenance of the park. Maintenance of the park is also done by ward office. The service center and the ward office must give their approval before any events or programs are held in the park. Cleanliness is also done by the local community people and the community police group. Grass cutting machine has been sponsored by Sanima Bank, located at the eastern side of the park. There exist issues in the park regarding maintenance and facilities such as lack of toilet facility and maintenance of grass in the park. The park is under Guthi Sanstha and KMC.

3.14.4 Madan Bhandari Smriti Batika

Madan Bhandari Park is located at Koteshwor, where the barren and sloppy land with continual littering was converted to a park with an area of almost 4 ropanis in 2073 BS. The park provides comfortable seating options, including fixed benches at appropriate locations, CCTV cameras to ensure safety and security of all visitors and of the park properties and other amenities.

Management:

KVDA and KMC was involved for the construction of the park. Madan Bhandari Memorial Conservation Committee is now responsible for its operation and maintenance. Three staffs work at the park of which two are gardeners and one is supervisor. They are responsible for preservation of park, plantation, cutting dubo and other tasks. The park's main road has been a significant barrier and maintenance difficulty. Maintaining, keeping the park clean, garbage and litter free, preserving plant and flowers and preventing infrastructure are other challenges that the committee is facing.

3.15 Open space management practices in other cities

This study titled “Open Space Management of Dhaka City, Bangladesh: A Case Study on Parks and Playgrounds by Islam M., Mahmud A. and Islam S. M. D.” focuses on the current open space management system, the system's major weakness, and finally, a better management strategy that will help with future management. The study was conducted on December 2014 where a total of 5 parks and 5 playgrounds were assessed. (Islam et al., 2015)

Existing Management System of Open Space:

The park management system, which is maintained by public works, is ineffective. The Dhaka North City Corporation, DNCC maintained park is not well functioning, due to lack allocate of separate funds for the management. Among the three authority, Dhaka South City Corporation, DSCC maintained park is well functioning, in which the government agency leases private organization for maintenance and fund is provided from government agency.

Weakness of the Existing Management: Existing open spaces have a number of issues that prevent effective management. Major weaknesses that are found in open space management are:

- Lack of coordination among different authority
- Development activities of developer without considering the creation of new open space
- Funding limitations
- Lack of proper implementation of different open space related policy

- Poor organizational structure
- Conversion and misuse of open spaces
- Mismanagement and inequities in maintenance of the authority
- Lack of facilities and presence of blighted facilities
- Poor Infrastructure system
- Safety and security related weakness
- Environmental pollution
- Illegal Encroachment and
- Inadequate lighting facility at night.

Proposed Approach for Open Space Management:

Due to the high cost of land and the scarcity of suitable land, creating new open spaces is impossible in the Dhaka city and due to a lack of awareness, maintenance, and management, the current open spaces have a number of shortcomings in management. The following approaches have been proposed:

- Strong coordination among different organizations
- Inclusion of representatives from civil society and environmentalism organization in management
- Provision for OSMMC (Open Space Management and Monitoring Committee) for monitoring the whole management system
- Coordination in the creation of a detailed management plan between the management entity and the government agency
- The government agency will lease the open space for 3 or 5 years to the management entity
The management entity will be given supreme power in maintenance activity
- Adequate finance will be provided by government agency to the management entity
- Additionally, users will interact, participate, and converse with the management entity
- The government agency will provide advocacy help in Policy and Tactical level.
- Detailed management plan will be formulated for one year

The study titled “Adaptive management in sustainable park planning and management: case study of the city of Vancouver Parks by Stephen Appiah Takyi, and Andrew D. Seidel” focuses on the park systems in the City of Vancouver within the municipal jurisdiction.

According to the historical overview of parks in the City of Vancouver, the community residents contributed monetarily, donated land for park development, and provided labour as part of the park creation process. The Park Board Commission and non-profit organisations such as community associations and civic society organizations were also involved in the management of parks in the City of Vancouver. An established park management approach involves public and private sector cooperation in the creation of parks in the City of Vancouver. However, the contemporary park management system of the City of Vancouver has a major shift in the roles and level of participation of the actors involved in the process. There is an increase and diversity in the parties participating in the planning and maintenance of the contemporary parks system. Community residents and community associations are more into participatory role and there is also inclusion of developers and other private entities. This shows that the management strategies continue to change in response to the changing needs and values of park users (Takyi & Seidel, 2017).

3.16 Management issues

Open space is owned in KMC by government agencies, private citizens, guthis and community groups. These groups, plus a variety of non-profit organizations, play a major role in managing these spaces. At present, there is no centralized database of open space directly accessible although KVDA has listed the open spaces for disaster. Lacking both hardware and a complete inventory of open space presents significant obstacles to managing these properties in a comprehensive fashion. An inability to manage financial resources is equally responsible for the current poor management of public spaces in our context.

Chitrakar and Baker (2017), in the article “Emerging challenges in the management of contemporary public spaces in urban neighbourhoods” highlights the lack of management resulting in the degrading quality of public space. Using case study approach and Kathmandu as a study area, the challenges in the management of contemporary public spaces, with a focus on urban neighbourhoods was explored. The findings confirm that the management of public space is an important issue of urban development that demand adequate consideration from the stakeholders.

CHAPTER FOUR: CASE STUDY AREAS

4.1 The context

The research employs a case study approach to explore the use and management of public open spaces focusing on three POSs. One of the major challenge was the selection of the case areas. They were selected based on different hierarchy, management agencies and similar functions. UN Park was selected since it is a city level open space and is located in the central area of Kathmandu Valley. Shankha Park whereas is a neighbourhood level open space adjacent to the busy ring road and has similar characteristics and function as per UN Park. To see if a new perception could be obtained, Suryamukhi Garden was selected which is in a land pooling area and is of community scale. All these POSs have different management agencies being the Federal Government, Municipality and Community respectively. These POSs are public parks, offer free access to users and are located in the Kathmandu Valley. The study considered users' opinion for assessing the use and management of POSs.



Figure 8: Locations of selected public open spaces

4.2 Study area I: UN Park, Jwagal

4.2.1 History

UN Park was decided to be built within Kathmandu Valley on July 20, 1995 to commemorate the 50th anniversary of UN establishment day by the National Preparatory Committee. This was also intended to serve as a memorial for those Nepalese who died during UN peace keeping. Various criteria were considered for selection of the site such as topography and existing land use, land ownership, existing infrastructure, development impacts and costs, provision for future extension, proximity to urban center, surrounding environment and vista etc. after which Shankhamul-Teku Dovan Bagmati River Bank was finalized as the site for UN Park with the land area of 1576 ropanis.

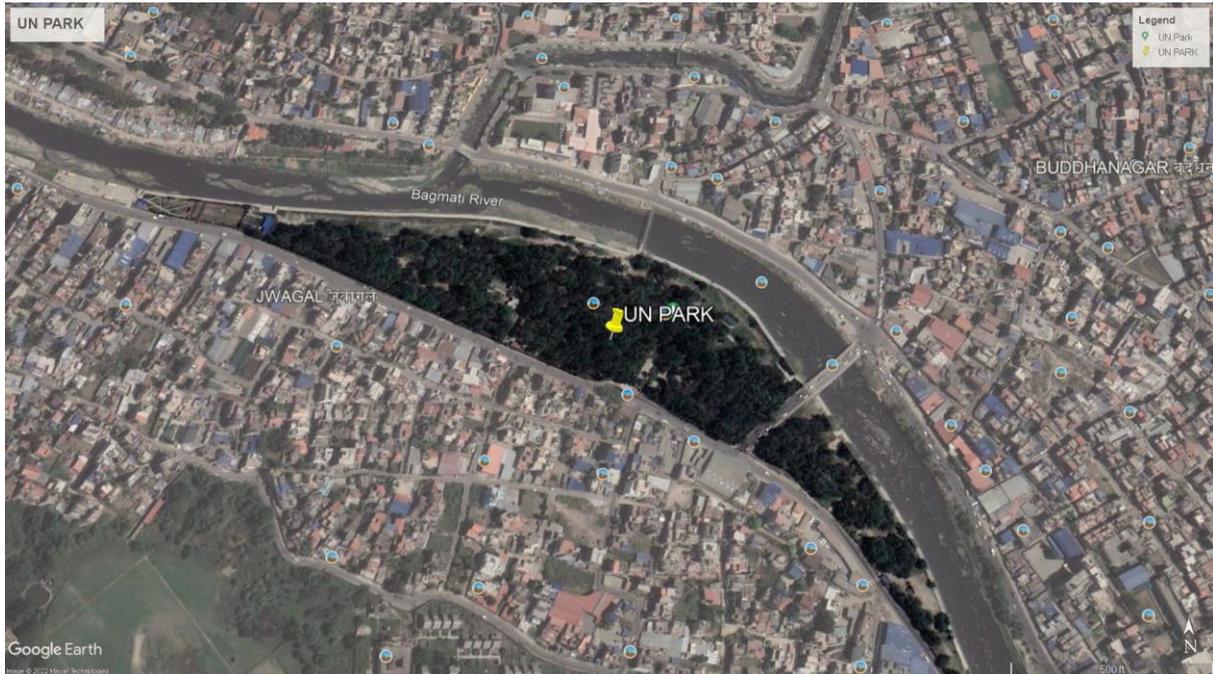


Figure 9: Location of UN Park

The goal was to save and promote the cultural and religious values of the Bagmati River along the cultural, historical and religious sites and monuments, to create a vast open space in the heart of the city and improve the urban environment of Bagmati Corridor.

Masterplan:

The total area was divided into 6 development zones:

Zone I: UN memorial pillar

Zone II: Heavy plantation, walkways, green spaces, car parking

Zone III: Elements of donor interest

Zone IV: Recreational activities, Children park, car park, plantation, green areas, kiosks, car parking

Zone V: Conservation of historical, cultural and religious sites and monuments

Zone VI: River course

UN Park is also one of the 83 identified open spaces for disaster. Usable area is 40,975m² and approximate capacity assuming 3.5 m² per person is 11,707. The suggested use is for settlement camp (tent only) (International Organization for Migration (IOM), 2020).

4.2.2 Existing Scenario

UN Park is located on the riverside of Bagmati with the river on the north, road on the south, a vehicular bridge crossing the river in between. The park has a total of three gates through which the park can be accessed and a commuter bridge connecting the park to the other side of Bagmati river i.e. Kathmandu. It is used by all age groups for recreational purpose. The park is open to all and does not have specific opening and closing time. It has free access and Rs.500-Rs.1000 is charged for video making and shooting purposes.



Figure 10: Commuter bridge and walkway adjacent to the river

There exist various infrastructures in the park such as staff quarter, office building and public toilet in the park. A water filtration plant is also present in the site that filters river water and supplies it to Chakupat area.



Figure 11: Staff quarter, office building and public toilet

Park users are mostly from the surrounding areas. Most of the users walk from their home or office to the park. People tend to come to the park walking despite the distance because there is no such huge open space around the proximity. Activities in the park cover leisure, health and physical activities. The park has become a social space where people gather together: yoga group with around 150 members

take place daily in the park from 5 a.m. to 7 a.m., cleaning organised every Saturday, group of people acquainted to various sports such as volley ball, cricket, badminton etc.



Figure 12: Various activities in UN Park

The park quality and maintenance has a lot of issues. There is provision of one toilet which is pay per use. There exist children play area and temple area but both are locked. Seating benches are placed at different areas of the park but are not well maintained and is not approachable during rainfall.



Figure 13: Seating spaces in the park

The pathways are not convenient for walking and water clogs during the rainy season. During the observation, it was noticed that the pathway was extended due to which the pathway blocks are of two different texture and the camber slope is not maintained due to which water clogging is an issue during rainfall.

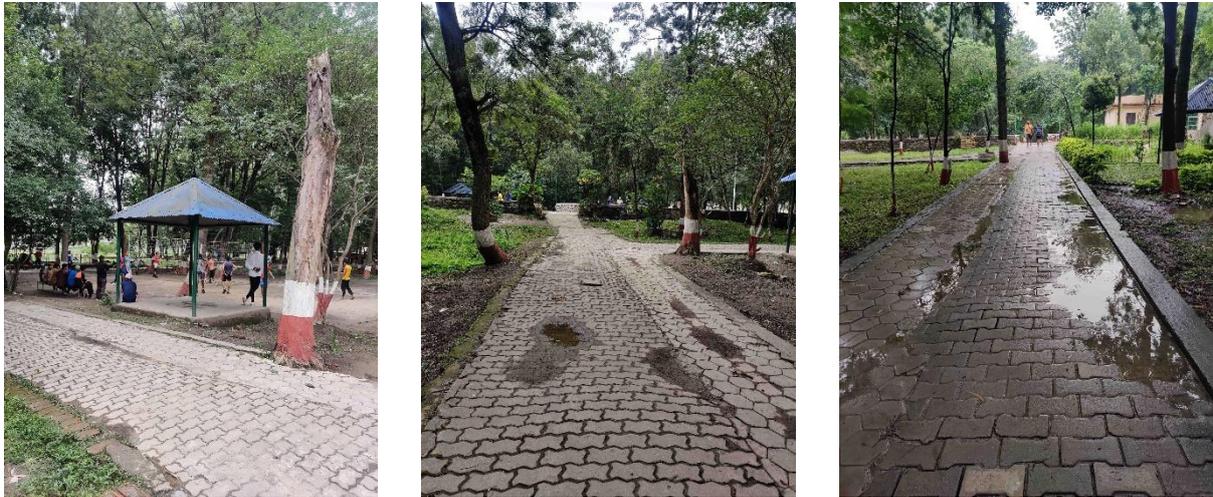


Figure 14: Condition of pathways

There is no drinking water or water tap facility. No rules are present at the front gate of the park. No events are held in the park and cooking is not allowed, only snacks and drinks are allowed inside. Despite that some people consume alcohol and illegal activities take place in the park due to which it is not safe at night. There are garbage bins throughout the park but not at places convenient for users. Also due to lack of awareness, dumping of waste can be observed in the park premises.



Figure 15: Waste bins in the park

The fallen trees and branches are not addressed which could cause accidents. There are only three covered spaces in the entire park. There is no provision of safety kits or immediate health care facility for injuries. Despite the issues in the site, many people are satisfied as there is no other alternative in terms of size of the open space, distance and proximity. People are becoming more health conscious, thus realising the importance and need of public open spaces.

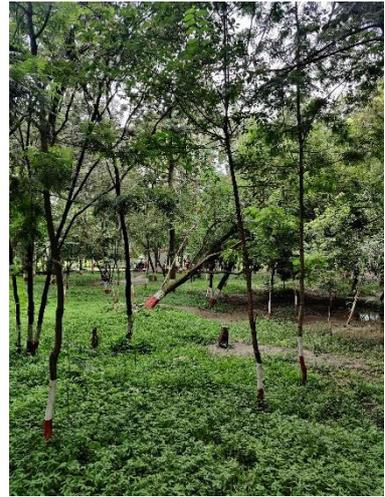


Figure 16: Covered spaces and fallen trees and branches in the park

4.3 Study area II: Shankha Park

4.3.1 History

Shankha park is located near Chappal Karkhana, Kathmandu and covers an area of 27 ropanis. It was established in 2036 B.S. and inaugurated by King Birendra and was known as Panchayat Silver Jubilee Park. This park was a PPP model between government and people of Ward 4 of KMC and built in public land. Shankha park was designed by landscape architect Ar. Bharat Sharma.

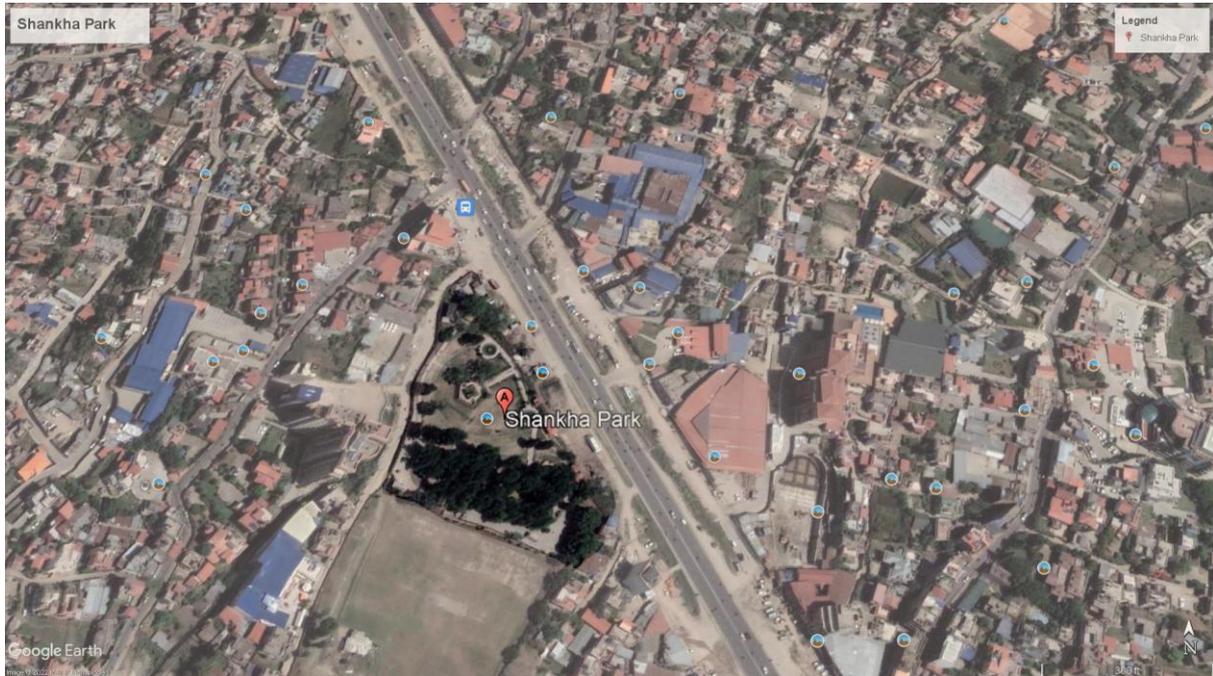


Figure 17: Location of Shankha Park

The park has free access to the general public and commercial activities such as video making, photo shooting, blood donation programs and picnics were allowed in the past. The condition of the park was in devastating condition with no proper toilet facility, and the greenery and its maintenance was disappointing. Thus, renovation of the park was carried out in 2076- 2077B.S. by Environment Management Department under Kathmandu Metropolitan City, KMC.



Figure 18: Condition of the park before renovation

(Source: Mr. Harisharan KC, Site office Head)

4.3.2 Existing Scenario

Shankha park comprises of hard and soft landscape. The central part of the park is multi levels lawn space and consists of a pillar with Shankha placed at the centre. The northern part consists of the temple space and southern part is exercising space with physical activity machines, children play zone with blocks paved on the surface. There exists only one entry access to the park which has a gate and security guard. The park opens at 5a.m. and closes at 7 p.m. The traffic around the park is high due to the busy ring road which is on the eastern side of the park. Thus, Shankha park acts as a breathable space in the hustle and bustle of the city.



Figure 19: The central space and entry gate of the park

In the temple, religious and cultural rituals are performed on a daily basis. People come to worship the temple and some after their workout and exercises, worship the temple. This aspect incorporates the social and cultural value of the people. A newly built sattaal by Environment Management Department sits in the temple premises which is a space for gathering, bhajan, morning yoga and elderly people's socializing space. Events are also held during teej, dashain and other major festivals.



Figure 20: Temple premises inside the park

Air pollution measurement block under Environment Division of Ministry of Forest and Environment is also situated in the southern part of the park. There is provision of water ATM by KMC but its location is not convenient for the users and its access is from outside the park premises. There is proper water supply inside the park for watering the plants and trees. Also the toilet has been renovated due to which it is well maintained and cleaned except that there is no provision of basin for hand washing.



Figure 21: Air pollution measurement block, water ATM and public toilet

Most of the users walk from their home or office to the park. There exists a trail for walking or running purpose, cycling not being allowed in the park. Physical stretching machines have been provided by Ward 4, and is seen usually occupied by all age groups. Despite that people tend to exercise in the grass area which has been restricted for any physical exercises. Activities in the park cover leisure, health and physical activities. There is yoga and zumba group who start their workout since 5a.m. in the morning. People also enjoy sitting and relaxing in the grass lawn during the daytime and evening.



Figure 22: Various activities in Shankha Park

There is designated area for kids to play which is well maintained. Usually, kids are seen during the evening and on Saturdays. Taekwondo class takes place daily inside the park. Thus, this park is a social space for gathering, exercising, strolling with ample amount of trees and green spaces.



Figure 23: Kids play area

During the morning hour (8a.m. to 11 a.m.), the staffs maintain and look after the park (collecting trashes, looking after the flowering plants, cutting grass etc). Regulations to be followed inside the park are displayed in various areas of the park.



Figure 24: Regulations in various areas of the park

Commercial activities have been restricted after the renovation for better maintenance of the park. There are garbage bins throughout the park. Despite the efforts, there lacks proper parking space outside the park. The sitting spaces are also not enough and there is need for maintaining the slope in the park for self-drainage.

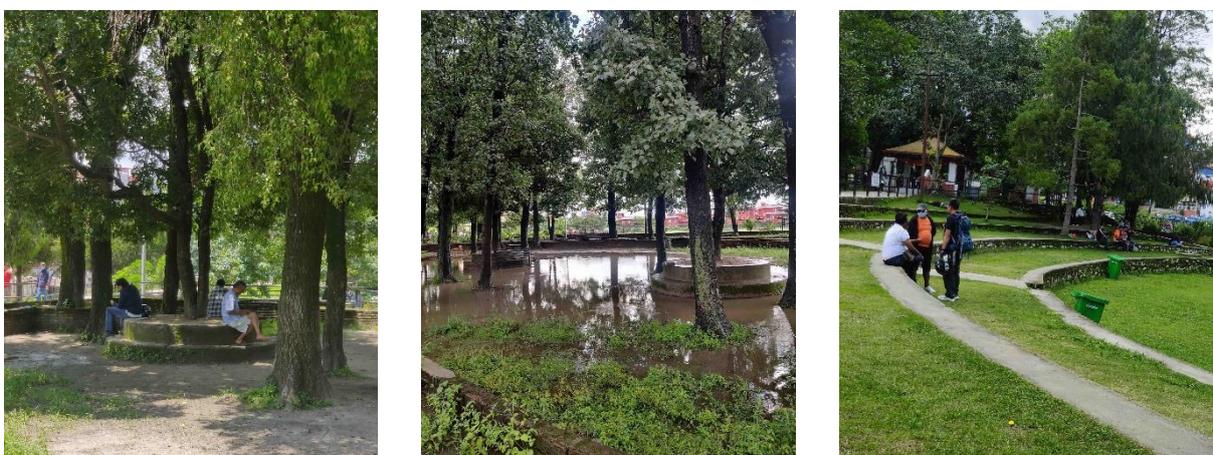


Figure 25: Seating spaces in the park

4.4 Study area III: Suryamukhi Garden

4.4.1 History

In 1995, Sinamangal Land Pooling was established in accordance with the Town Development Committee (TDC) Act of 1988 in order to manage Sinamangal's chaotic urban growth and satisfy the rising demand for urban housing. It is located at Ward No 32 in the eastern side of KMC. The total area of the project is 36 hectares and comprises of five open spaces in each block. Suryamuhi garden is located at Block IV of Sinamangal Land Pooling and covers an area of 4 ropanis 13 annas.

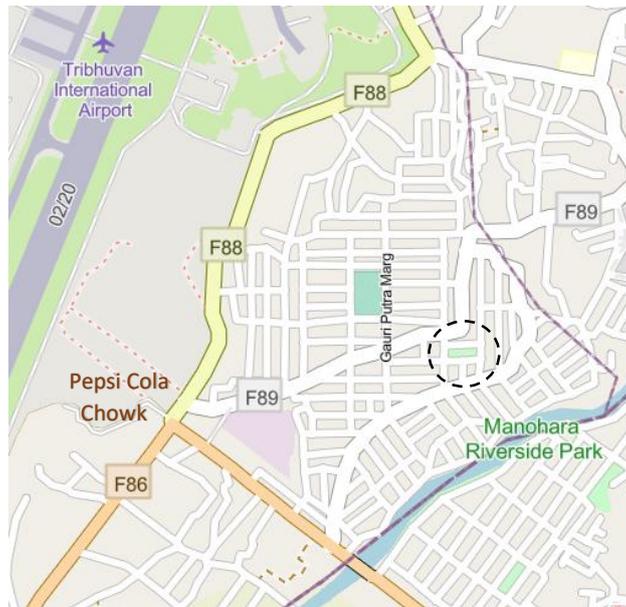


Figure 26: Location of Suryamukhi Garden in Sinamangal Land Pooling

The open space is surrounded by road on all sides and 3 to 4 storey buildings. It consists of a chautari at the centre of the open space, trees along the boundary and a walking trail with seating adjacent to it.

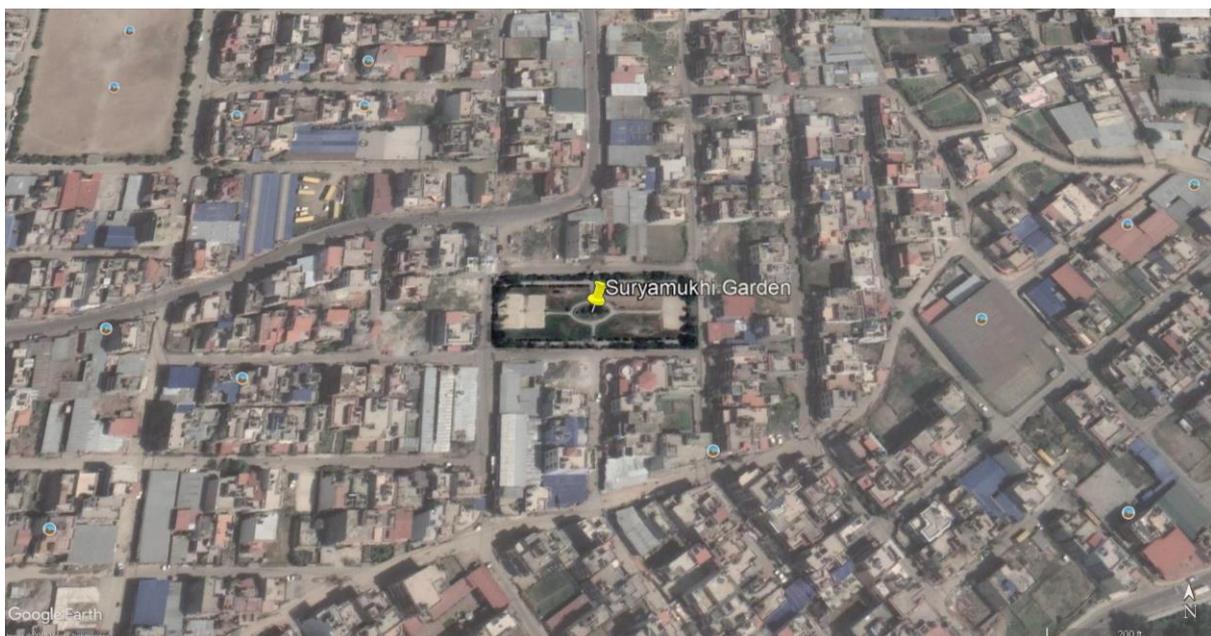


Figure 27: Location of Suryamukhi Garden

4.4.2 Existing Scenario

Suryamukhi garden is surrounded by road on all side and located within the neighbourhood. Most of the houses are residential with few tea shops and eateries on the periphery. The open space has a total of three gates. During the observations that took place throughout the data collection phase, only two of the three gates was ever open. The centrally placed gate was permanently closed since kids started hanging and playing in the rotating door which was unsafe. There is no security guard to control the gates and the gates are locked and opened by the community. The garden opens at 6 a.m. and closes at 8 p.m. but during summer time opens at 5 a.m. and closes at 8 p.m. The controlled access is observed due to the insecurity of open space by damaging the infrastructures and polluting in the area. Thus, the garden is now fenced.



Figure 28: Entrance gates to the garden

The open space was closed during the pandemic and was also used for tents and shelter during earthquake. Various regulations have been made by the community and displayed inside the park. There are two badminton playing areas inside the park. The pathway is on the periphery of the entire garden which is paved with block tiles. Various types of trees surround the periphery of the garden. Sitting benches are also placed adjacent to the pathway.



Figure 29: Various aspects of the park

There are two badminton courts and a space with physical activity machines which has been sponsored by Siddhartha Bank Ltd. The physical activity machines are used by all age groups and genders. Users are mostly from the same neighbourhood and some travel around 15 minutes to reach this site. People get engaged in different physical exercises such as walk, yoga, group exercises, playing badminton, etc. They have been improving their health on the one hand and developing social capital through social networking and the formation of community groups and organizations in society. Evergreen Health Club is one of the examples of community organizations activated during regular yoga exercise. Kids usually come to play during the evening and the site is usually filled with kids during daytime and evening during Saturdays. Kids were seen climbing the trees and most of them without any parent which is not safe. Some were even seen climbing the fences and closed gate.



Figure 30: Various activities in the park

Garbage bins are present near the eastern and western gates. The bins placed near the western gate has two separate bins for biodegradable waste and recyclable waste which was sponsored by Bidgyawani Pathshala. Lots of works are to be done in the open space but the problem is lack of budget. The grasses in the ground are unmanaged. There is no security guard or CCTV but provision of lighting. There are no shading structures inside the open space. There are no toilets or drinking water facility in the space.



Figure 31: Garbage bins and seating in the garden

CHAPTER FIVE: DATA ANALYSIS AND FINDINGS

5.1 Sample size

A survey of 225 people was done and their perspective regarding the use and management of the POSs was gathered from the questionnaire survey conducted.

The survey was carried out three times a day, i.e.

- Morning time: 6 a.m. to 9 a.m.
- Day time: 12 p. m. to 3 p.m.
- Evening time: 4 p.m. to 6 p.m.

The survey was conducted three times a week, i.e. Tuesday, Friday and Saturday

The number of visitors in the POSs daily was obtained from the operation staffs in the site.

- UN Park: 1750
- Shankha Park: 930
- Suryamukhi Garden: 300

Sample size calculator was used to determine the sample size with confidence level of 95% and margin of error being 5%

- UN Park: 316
- Shankha Park: 273
- Suryamukhi Garden: 169

But due to the time and resources constraint, the actual sample survey conducted was:

- UN Park: 100
- Shankha Park: 75
- Suryamukhi Garden: 50

5.2 Exploring the uses of the study areas

The aim of conducting case studies was to explore the usage of public open spaces. Further, issues relating to the public open spaces, such as user behaviour and its management, were explored with the interview participants. The results of the interviews are summarised according to all case studies.

5.2.1 Respondents Profile

A total of 225 questionnaires were filled out by respondents from the three public open spaces. Male participant's response rate was higher than that of females in all study areas. Users between the ages of 25 and 39 responded the most to the survey. All 225 respondents were educated and 52% were degree holders. Most of the respondents were working in the private sector, followed by students and then unemployed, then followed by self-employed people lastly being in the public sector. Table 3 illustrates the respondent characteristics in detail of all the three public open spaces.

Table 3: Characteristics of Respondents

		UN Park		Shankha Park		Suryamukhi Garden	
		Count	%	Count	%	Count	%
Total responses		100		75		50	
Age	0- ≤19	19	19%	9	12%	10	20%
	>19-≤39	43	43%	38	50.66%	18	36%
	>39-≤59	26	26%	20	26.66%	13	26%
	59 and above	12	12%	8	10.66%	9	18%
Gender	Male	67	67%	43	57.33%	31	62%
	Female	33	33%	32	42.66%	19	38%
	Others	0	0%	0	0%	0	0%
Education Level	High school or below	41	41%	41	54.66%	26	52%
	Bachelor's degree	41	41%	26	34.66%	24	48%
	Master's degree	18	18%	8	10.66%	0	0%
	Doctorate	0	0%	0	0%	0	0%
User Group	Entrepreneur	9	9%	9	12%	2	4%
	Private sector	19	19%	24	32%	14	28%
	Public sector	9	9%	5	6.66%	0	0%
	Unemployed	23	23%	11	14.66%	6	12%
	Student	32	32%	14	18.66%	19	38%
	Others	8	8%	12	16%	9	18%

5.2.2 Respondents Behavioural Characteristics

Time preferred for visit: According to the survey, most people prefer to visit UN Park in the morning, Shankha Park in the morning and Suryamukhi Garden in the evening. These open spaces were seen being used mostly during the mornings and evenings since 73% of the users were involved in some profession or job in the case of UN Park and the percentage being 80% in both Shankha Park and Suryamukhi Garden.

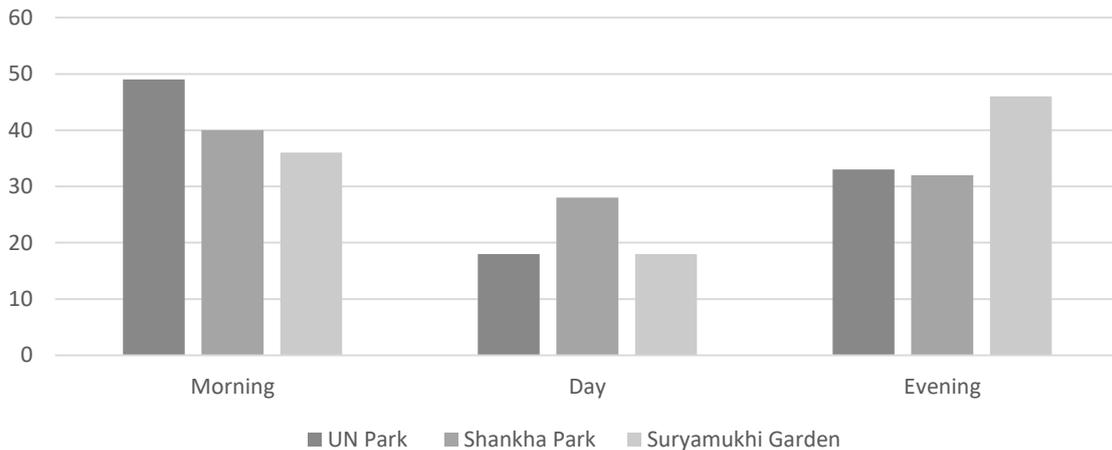


Chart 1: Time preferred for visit

Mode of transportation: People prefer walking to the public open spaces in all the three cases followed by bike and then public vehicle. Private vehicle is only seen in the case of Shankha Park because it is adjacent to the ring road thus convenient for the users. People only come walking or in bike to Suryamukhi garden because it is inside the land pooling area and most of the users reside there.

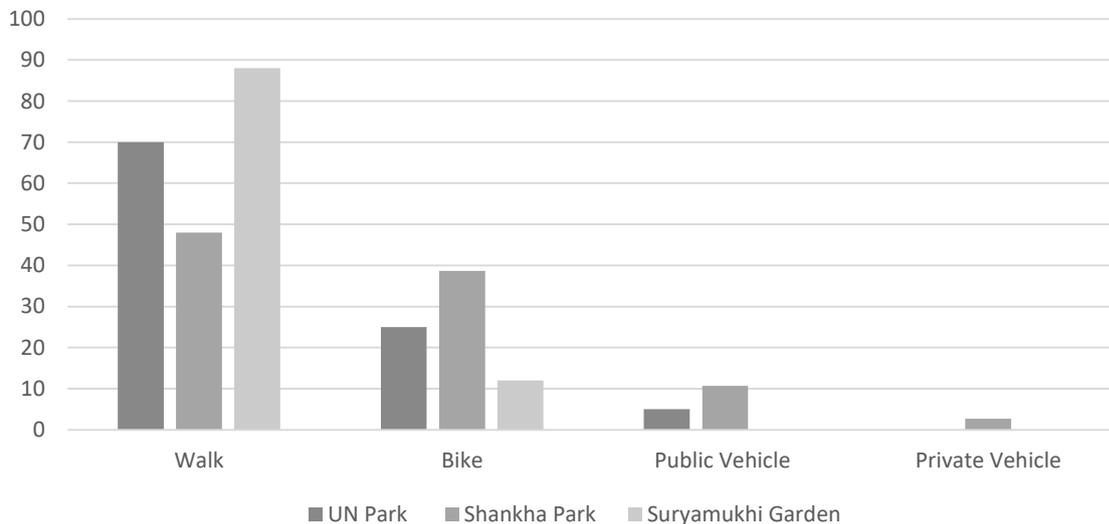


Chart 2: Mode of transportation

Time taken to reach the POS: 40% of the 100 can reach UN Park in 5 to 15 minutes, 57.33% of 75 can reach Shankha Park in 5-15 minutes. Suryamukhi Garden being in a land pooling area and most of the users are from the land pooling area, 60% of 50 can reach the garden in less than 5 minutes. 6% of the users visited UN Park although it takes more than 30 minutes because there is no other open space

of such scale and size in the nearby areas. As for Shankha Park, users responded that the ambience of the space attracted them to travel longer distance.

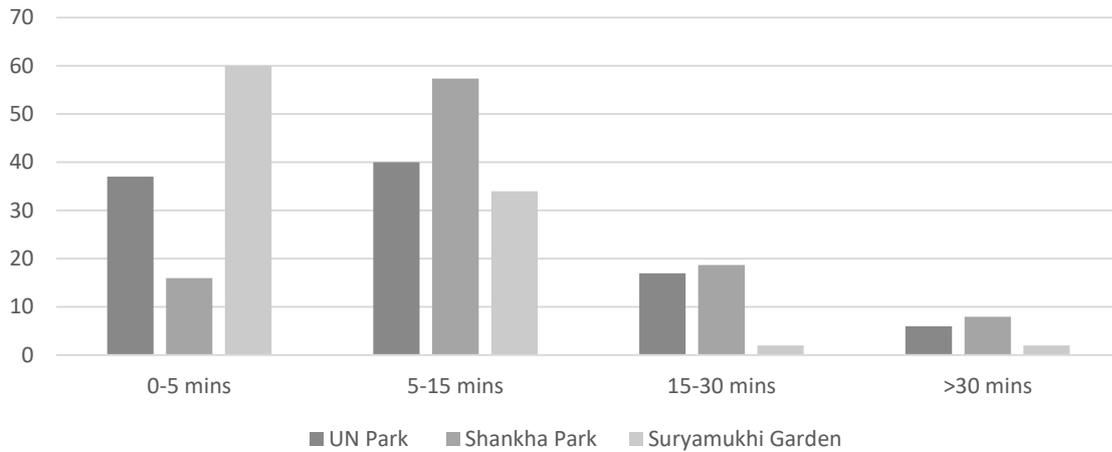


Chart 3: Time taken to reach the POS

Purpose of visit: These users were engaged in physical, informal, social and quiet activities. The survey recorded a higher percentage of users in this physical activities category, i.e., 50.47%, 36% and 42.18% in UN Park, Shankha Park and Suryamukhi Garden respectively. This category includes those who were involved in physical activities such as walking, jogging, playing sports, yoga and exercise. People are becoming more health conscious, thus they are engaged in some sort of physical activities. The elderly group usually come for yoga, walk or social gathering. Active age groups are mostly seen exercising, walking, jogging, running, physical workouts or playing sports. Children usually come to play.

There is designated open gym area in Shankha Park and Suryamukhi Garden. UN Park users also felt the need for open gym area. Kids play area was also provided in all the three study areas but in the case of UN Park, it was mostly locked. Kids were seen mostly in Suryamukhi Garden due to its accessibility and being inside a neighbourhood area. Kids visited Shankha Park mostly during Saturdays and in the evenings. In the case of UN Park, there was lower number of kids and only visited Saturdays for family outing. People came for sports activities in UN Park and Suryamukhi Garden but not in Shankha Park because there is no designated area for sports.

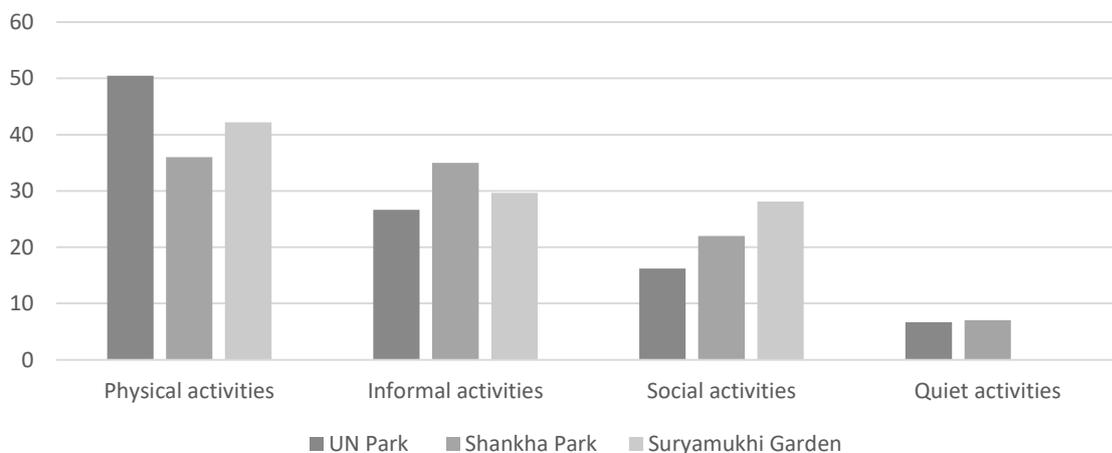


Chart 4: Purpose of visit

Frequency of visit: The study also noted the users' visit frequency in these open spaces. The analysis of the results showed that most users visited UN Park once a day whereas most of the users of Shankha Park and Suryamukhi Garden visited few times a week. Users who visited UN Park once a day reported 48% in UN Park. The analysis indicated that users living nearby the POSs visited these spaces more than users living at a far distance. Users who reside at a further distance usually prefer to visit spaces few times a week or occasionally. Few people visited occasionally, during Saturdays for family outing and recreation.

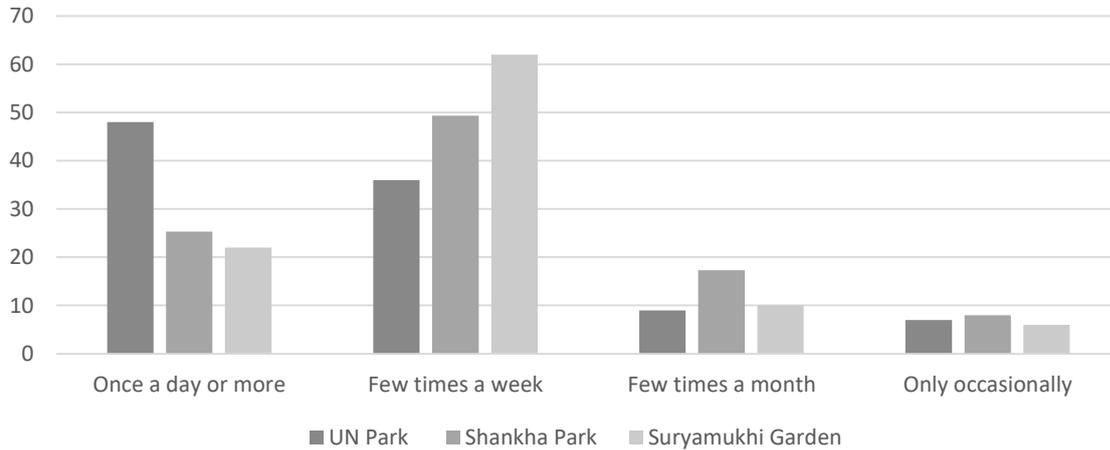


Chart 5: Frequency of visit

Time spent in the POS: In UN Park, 35% of the 100 spend 15-30 minutes, 29% of the 100 spend 30-60 minutes and 27% of the 100 spend more than an hour in the park. Similarly, in Shankha Park, 18.67% of the 75 spend 15-30 minutes, 50.67% of the 75 spend 30-60 minutes and 29.33% of the 75 spend more than an hour in the park. In the case of Suryamukhi Garden, 38% of the 50 spend 15-30 minutes, 38% of the 50 spend 30-60 minutes and 24% of the 50 spend more than an hour in the park. People usually spent at least 15 minutes or more in the park. Those visiting for physical activities spent an hour or more in the parks. People visiting for less than 15 minutes are commuters who quickly stop by the park on their way to home or office to enjoy the greenery and for fresh air.

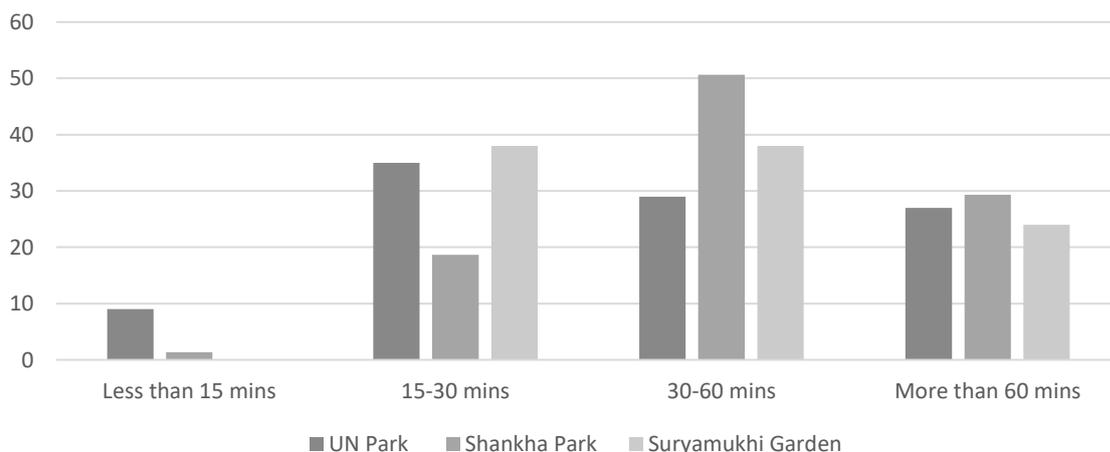


Chart 6: Time spent in POS

Table 4 shows the behavioural characteristics of respondents in detail of all the three public open spaces:

Table 4: Behavioural Characteristics of Respondents

		UN Park		Shankha Park		Suryamukhi Garden	
		Count	%	Count	%	Count	%
Total responses		100		75		50	
What time do you prefer to visit the POS?	Morning	49	49%	30	40%	18	36%
	Day	18	18%	21	28%	9	18%
	Evening	33	33%	24	32%	23	46%
What is your transportation mode to the site?	Walking	70	70%	36	48%	44	88%
	Bike	25	25%	29	38.67%	6	12%
	Public Vehicle	5	5%	8	10.67%	0	0%
	Private Vehicle	0	0%	2	2.67%	0	0%
How much time does it take to reach the site?	0-≤5 minutes	37	37%	12	16%	30	60%
	>5-≤15 minutes	40	40%	43	57.33%	17	34%
	>15-≤30 minutes	17	17%	14	18.67%	1	2%
	>30 minutes	6	6%	6	8%	1	2%

What is your purpose of visit to the site?	Physical activities (walking, jogging, exercise, sports)	53	50.47%	36	36%	27	42.18%
	Informal activities (strolling, relaxing, family outing)	28	26.66%	35	35%	19	29.68%
	Social activities (socializing, cultural activities, attending meetings)	17	16.19%	22	22%	18	28.12%
	Quiet activities (reading, meditating)	7	6.66%	7	7%	0	0%
What is your frequency of visiting the POS?	One a day or more	48	48%	19	25.33%	11	22%
	Few times a week	36	36%	37	49.33%	31	62%
	Few times a month	9	9%	13	17.33%	5	10%
	Only occasionally	7	7%	6	8%	3	6%
How much time do you spend here?	Less than 15 minutes	9	9%	1	1.33%	0	0%
	15-30 minutes	35	35%	14	18.67%	19	38%
	30-60 minutes	29	29%	38	50.67%	19	38%
	More than 60 minutes	27	27%	22	29.33%	12	24%

5.2.3 Respondent’s perception to usage and management based on various aspects of public open spaces

In the assessment of utilization and management of public open spaces, questions were asked according to the predetermined variables in access and linkages, comfort and image, inclusiveness, engagement, use and activities and management consideration.

Access and Linkages

UN park is located on the corridor of Bagmati river. There is no direct public vehicle route access to the park. Thus, most people walk or use private vehicles to reach the park. Shankha Park is adjacent to the busy ring road near Chappal Karkhana. Hence it is accessible to all types of users. Suryamukhi Garden is within the land pooling area and the users are mostly the households of the area resulting in complete accessibility to the site.

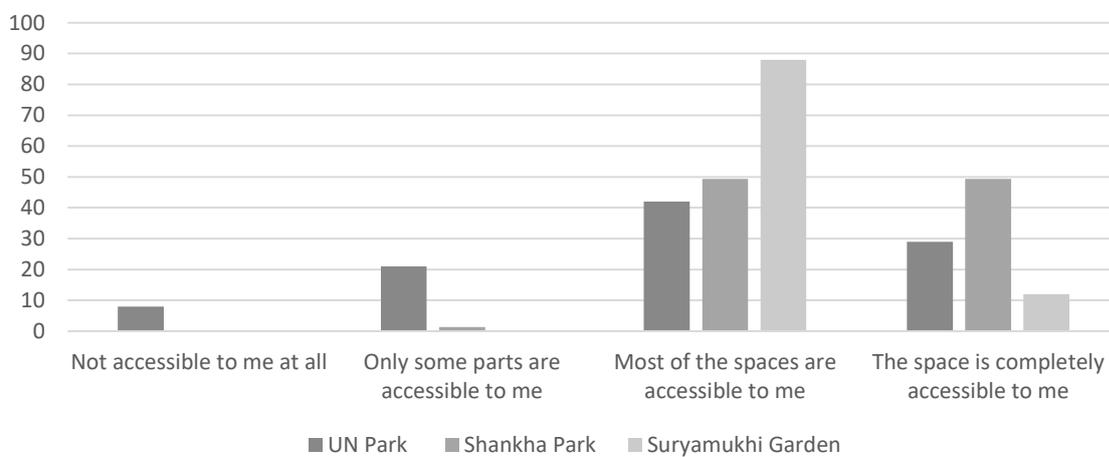


Chart 7: Accessibility in public open spaces

From the survey, it can be inferred that in these public open spaces, users find most of the spaces or all the spaces completely accessible to them. Shankha Park and Suryamukhi Garden is comparatively smaller in size as compared to UN Park and well maintained due to which the spaces are accessible, whereas in the case of UN Park, due to the undulating nature of land and lack of maintenance, few spaces inside the park aren’t accessible.

Comfort and Image

Various factors were considered to evaluate the comfort and image of the public open spaces such as safety, physical and psychological comfort, pleasant views and attractiveness etc. Most of the users in all three open spaces found it safe in terms of crime. The authorities had concerns regarding illegal activities during the dark in UN Park and Suryamukhi Garden. In UN Park, women were much more concerned with their safety, especially at dark since the space kind of feels isolated. Parents with kids had safety issues in Shankha Park due to the presence of street dogs inside the park. In Suryamukhi Garden, the users responded that there are no personnel who is responsible for the safety. None of the three spaces have universally accessibility but is safe for children, women and elderly people.

Comfort was analysed based on the physical infrastructures such as sitting spaces and pathways, climatic comfortable structures, and psychological comfort. Users expressed their discomfort in the case of UN Park. The pathway and seating needs maintenance. The sitting spaces are not approachable in the rainy season. Broken seating are left unattended. There is lack of enough sitting spaces throughout

the park. Only three covered structures are in the park which is insufficient for different climatic conditions. In Shankha Park, the pathways are in good conditions. Sitting benches are placed in the park but is not sufficient. The stepped lawn is also used for sitting but cannot be used in rainy season. In Suryamukhi Garden, users most of the users were comfortable. The open space has landscape elements, walking pathway and benches beside the pathway wherever possible.

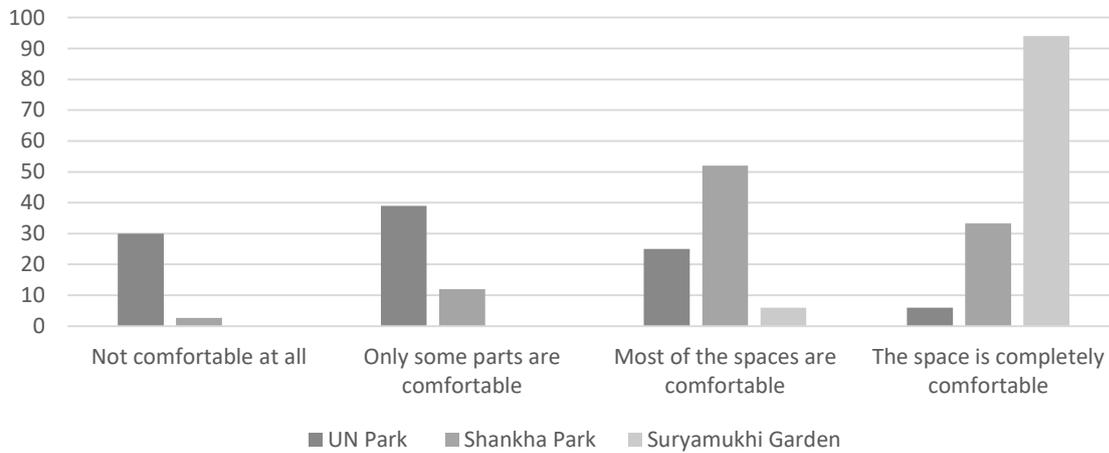


Chart 8: Comfort for physical spaces

75% of the users found noise due to vehicles inside UN Park since it is adjacent to the road. The remaining did not find it distracting because the other end of the park is along the river and is free from noise. Similar result was found in Shankha Park due to ring road adjacent to the park. People had no issue regarding noise in Suryamukhi Garden.

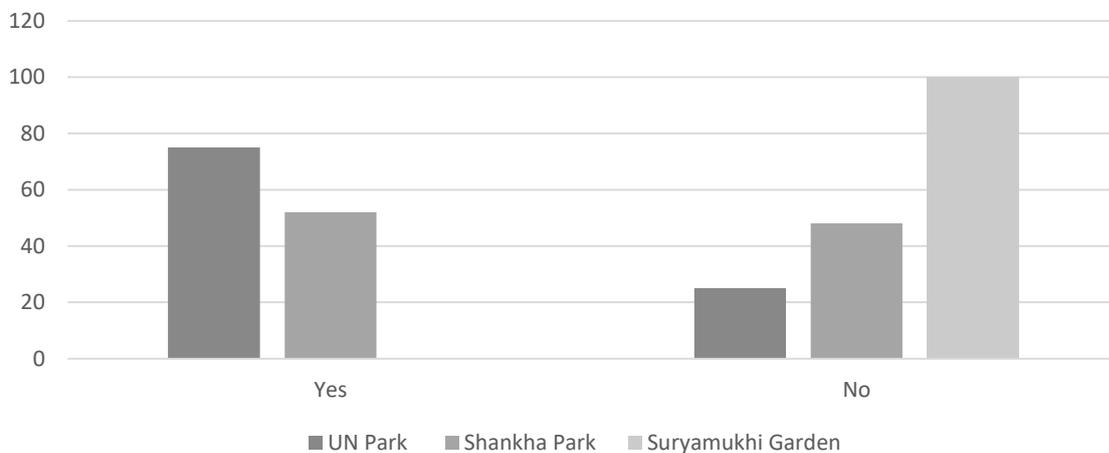


Chart 9: Nuisance noise from traffic or otherwise in the public open spaces

Users find UN Park attractive due to the wide amount of trees, riverside view, presence of sculptures and also play areas. Despite that, few reveal that the park is unattractive due to lack of maintenance. The trees are not well maintained, litters are thrown on the ground, grass are not mended, fallen trees and branches are left unattended. 100% of the users of Shankha Park and Suryamukhi Garden find the space attractive. Shankha Park was renovated and many problems have been addressed due to which the users are satisfied. As for Suryamukhi Garden, the users maintain and the space themselves and people tend to come to the park for fresh air and greenery.

Inclusiveness

Based on the observation, all the three public open spaces are inclusive in nature in terms of people of all age groups and genders who had free access to the space. But universal design has not been adopted in any of these spaces, thus not universally accessible and inclusion of differently abled people. There were less concerns about the security guards, as a means of intimidation or infringement upon their privacy in UN Park and Shankha Park. Most of the users felt free about their behaviour in all three POSs. Couples in the park felt judged by other users of the park.

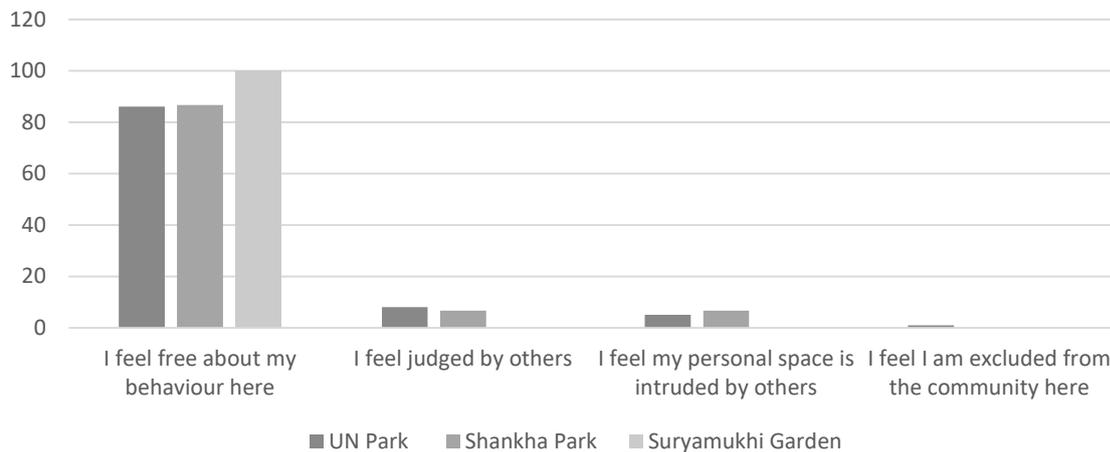


Chart 10: User freedom

Use and activities

The public spaces support wide range of activities and behaviours and the users were engaged in physical, informal, social and quiet activities. The survey recorded a higher percentage of users in this physical activities category, i.e., 53%, 48% and 54% in UN Park, Shankha Park and Suryamukhi Garden respectively. Users mentioned that the area is good to walk and run along, without any disturbance from traffic.

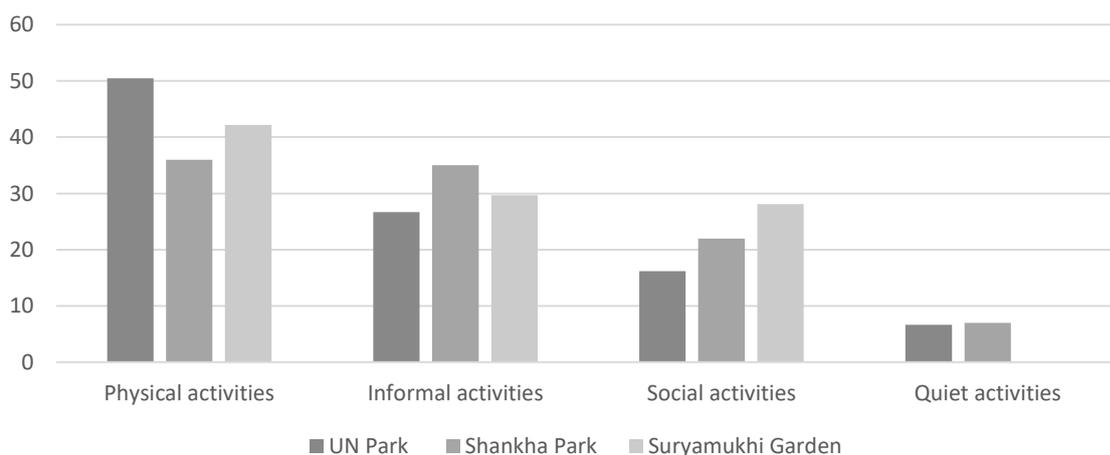


Chart 11: Use and activities

Sports activities can be seen in UN Park such as volleyball, cricket, football and badminton. People of age group up to 50 was observed playing volleyball and badminton. A yoga group visit regularly from 5 a.m. to 7a.m. There is no proper space for physical workout sessions. Users mentioned the need for water tap facility and open gym. Elderly people feared walking along the pathway due to no fencing in play areas with balls. Kids has no designated play area. People also come for social gathering and strolling. Many people come on Saturdays for family outing. Some people stop by the park on their way to home, office or school. Lack of sitting space for yoga and meditation is also a concern of such users.

Shankha Park has a temple inside the park premises due to which socio- cultural activities are also observed. Elderly people come for yoga, bhajan and daily religious rituals. There is designated open gym area and kids play area thus attracting kids and all age groups in the park. Physical activities are seen mostly during the morning and evening time. During the day, people come for strolling and relaxing.

Suryamukhi Garden due to its accessibility and being inside a neighbourhood area has all groups of users. Kids come to play mostly during Saturdays and in the evenings. Badminton is played daily by the user groups in the morning. People come for walk and exercise in the morning. A yoga group also takes place in the morning. People come for fresh air, hangout and greenery during the daytime. The evenings are highly occupied by the users for physical activities and informal activities.

Engagement

The users perceived a greater ability to participate in events and activities at the open spaces. Yoga club organises events such as dahi chuirea etc. in UN Park. People also come for wedding photoshoot and video recording. Most of the activities in the park are male oriented thus female users feel that they cannot participate. Previously, commercial activities were held in Sankha Park but has been restricted after the renovation of the park for its maintenance. Events are held during teej, dashain, shivaratri where people from far distance come to the park and participate in the events. Elderly people also come for socialising and various bhajan programs.

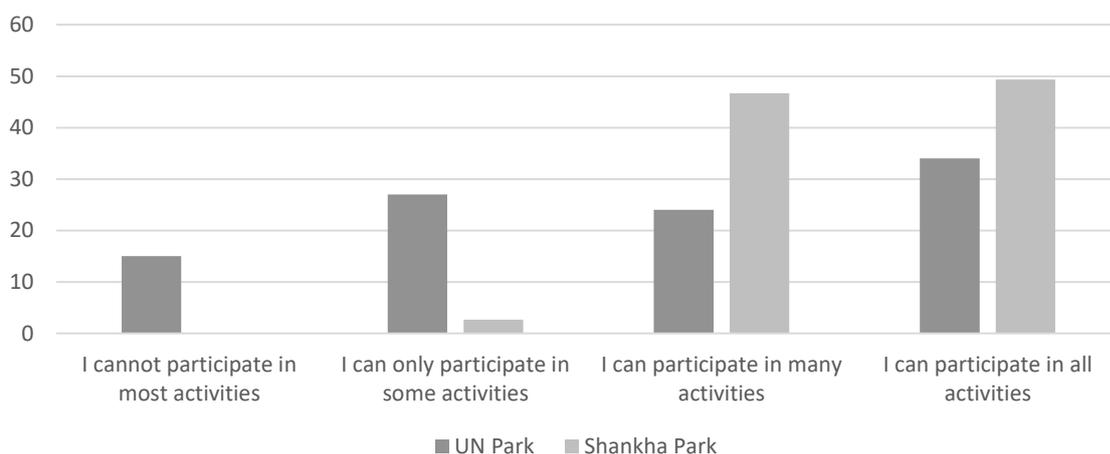


Chart 12: Participation in regular activities and events

The POSs encourages a variety of activities and need of users. It also encourages social activities and interaction. Various activities for all users should be encouraged to entertain and indulge the users in these spaces.

Management

The survey reveals that the users are dissatisfied with the lack of maintenance highly in the case of UN Park, followed by Suryamukhi Garden and finally Shankha Park. UN Park despite being a city level open space does not have the required amenities and is not well maintained. Shankha Park after its renovation has less issues to be catered for maintenance. Suryamukhi Garden is maintained regularly by the user groups but in the current scenario, grasses are left unattended due to the rainy season. Hence users are concerned about the maintenance in the park.

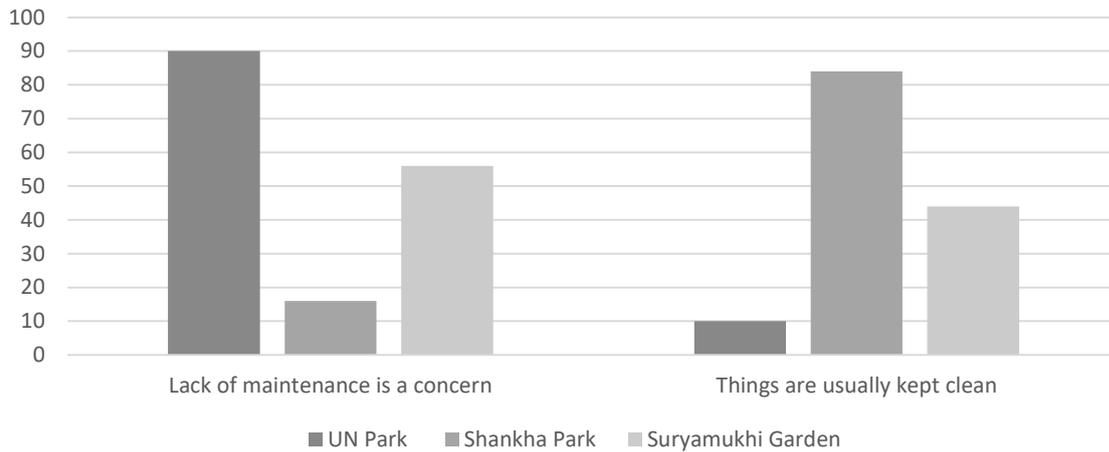


Chart 13: Maintenance of the public open spaces

The evaluation of the users for the management of the POSs reveal that the management is poor in the case of UN Park. People are comparatively satisfied with the management in the case of Shankha Park and Suryamukhi Garden.

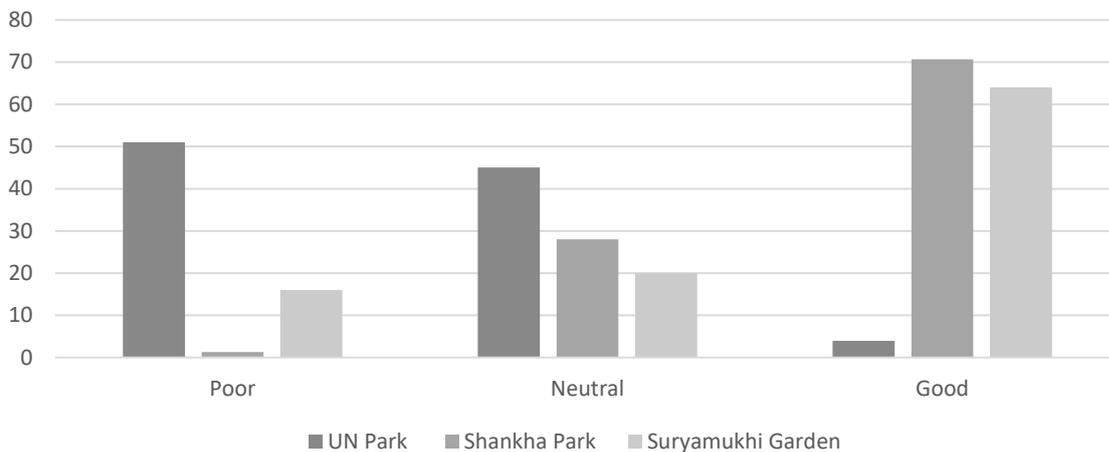


Chart 14: Management evaluation by the users

The problems in these public open spaces based on users perceptiveness were identified. Lack of infrastructure included toilet facilities, drinking water, semi covered areas, proper sitting spaces and maintenance of pathways. Users identified safety concerns relating to crimes, illegal activities, safety for the kids and elderly people. Lack of flowering plants and greenery was also highlighted suggesting fruit trees plantation. Regulations are not properly followed inside the park premises for which strict measures should be adopted.

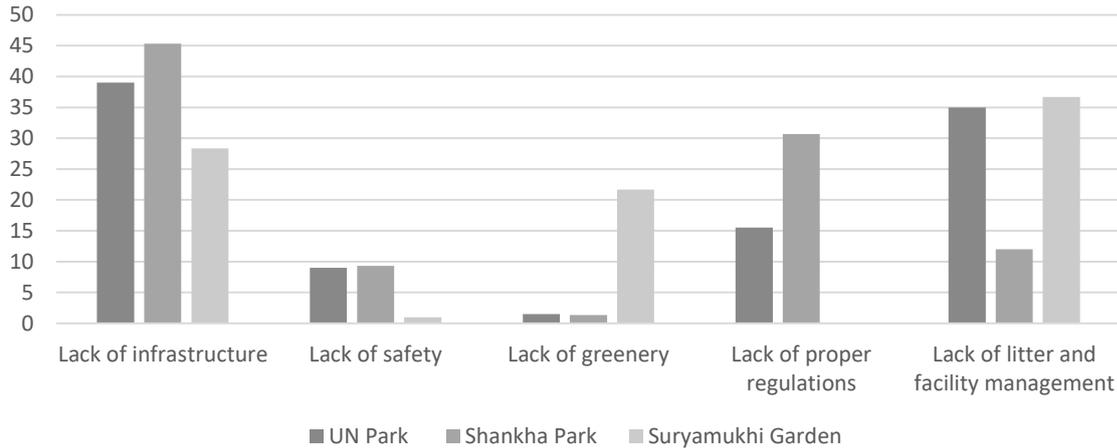


Chart 15: Problem in the public open spaces

Discussion

Based on the survey, it can be seen that user attributes like gender, age, education level, or user group have little bearing on what people seek in terms of the usage of public places. Despite the varied characteristics of the respondents, they had many of the same opinions. The findings of the survey reveal the state of public open spaces in terms of its utilization and management. However, it is by studying the results of each aspects of public open spaces, the positive and negative qualities of these spaces are understood.

Regarding the use of the public open spaces, in the aspect access and linkages, from observation, it can be seen that Shankha Park lies adjacent to the ring road thus making it easily accessible to users using all transportation modes to reach the park. UN Park on the other hand is adjacent to the road but does not have direct public vehicle access. Suryamukhi Garden is completely accessible to the users and most users come on foot. Harnik (2006), emphasizes that accessibility should also consider the distance for senior citizen, mother with toddlers and children rather than only healthy adult. Unfortunately, all the three POSs does not consider this factor. People also travelled more than 30 minutes to reach the POSs due to no open spaces being of such scale in their proximity in the case of UN Park, great ambience after renovation in the case of Shankha Park, green and comfortable quality in the case of Suryamukhi Garden.

In the aspect comfort and image, Mehta (2021), argued that users experienced psychological comfort due to attractive and pleasant views which holds true for all the POSs. People are highly satisfied in the case of Shankha park since it was recently renovated and has addressed most of its previous drawbacks. This comfort on the other hand was affected by safety concerns regarding dogs, playing balls and cycling in UN Park. All the three POSs were considered safe during the daytime but during evenings and after dark, people were not comfortable in UN Park due to safety concerns and lack of lighting facility. Also the study areas had poor climate responsive design with few sheltered spaces and none in the case of Suryamukhi Garden making it difficult to be functional during monsoons. Also users of UN Park and Shankha Park claimed that they could hear traffic noise but some didn't mind it.

Regarding the aspect inclusiveness, people could freely access all the parks regardless of the age, gender and status. Users should feel free while inside the parks regarding their behaviour, which holds true in all the case areas. But in UN Park, couples felt judged by other users. Wolfgang and Korydon (2011),

mentions the need of universal design in public spaces but all the case areas are not universally accessible. For engagement, the yoga clubs organised various programs during festivals and encouraged people to participate in them. In Shankha Park, people came from far away to celebrate teej, dashain and other festivals. Also cultural activities could be seen in the park which involved senior citizen. Ahirrao and Khan (2021), mentioned opportunities for people to interact and participate in various activities. Some of the users of Shankha Park mentioned the need for activities to engage all range of users. Sports activities is not possible due to lack of space.

Concerning the aspect use and activities, people come for various physical, social, informal and quiet activities in these spaces but they should also provide activities for all age groups and genders with different characteristics as mentioned by Karacor and Akcam (2016). In UN Park, people come more for physical activities. The mornings and evenings usually have a larger mass for walks, light jogging and running in a limited walkway space making it difficult for the elderly to walk. They were also concerned regarding their safety due to lack of proper play area. UN Park supports limited range of activities for female users, thus they believe that they could be more involved in the activities if there were some based on their preferences. Despite the availability of space, the park has not been used up to its full potential and many spaces inside the park are left unattended which could be used to include wider range of activities. Shankha Park consists of temple area which engages elderly during morning for cultural activities and yoga. The sattal is also used during the daytime for bhajan purpose. There is no space for sports activities inside the park but the provision of open gym and designated kids play zone engages all groups of users. The lawn space which is also the central space in the park is used for meditation and quiet activities such as reading. Users in Suryamukhi Garden come for walks, fresh air, physical activities and socialising. In regards to its scale, it is utilised to its full potential.

The result of aspect management showed that from users' perspective, all the open spaces lack in one way or the other. Pasaogullari & Doratli (2004), stated that maintenance is vital for increasing utilisation but this is lacking the most in the case of UN Park. The survey reveals that UN Park required high maintenance for infrastructures, greenery, sitting spaces and walkways. Shankha Park has less issues regarding maintenance after its renovation. And maintenance of Suryamukhi Garden is done by the user committee who are also the users of the park due to which it is well managed. Users should also be responsible while using the open spaces but despite the regulations and instruction in the site, they do not follow it. From the result, it can be inferred that these public open spaces are not well maintained, the spaces lack sitting spaces, infrastructures, greenery, regulation and timely monitoring and maintenance. The most important reason for dissatisfaction among the users is lack of maintenance and inefficient management.

5.3 Exploring the management of study areas

Various government agencies, the private sector, community organizations, toles, wards, etc. manage public open spaces. The three public open spaces considered in this research are also managed by different agencies. The detailed study regarding each of these public open spaced are mentioned below:

5.3.1 Management of UN Park

UN Park Development Committee (under MOUD) was responsible for the management of UN Park from 2052 B.S. to 2075 B.S. Ashad. The High Powered Committee for Integrated Development of the Bagmati Civilization (HPCIDBC) under the Bagmati Area Physical Infrastructure Development Project (BAPID) Projects' Package 5 involves development in the area from Shankhamul Bagmati bridge to Balkhu bridge. UN Park lies under this area thus, from 2075 B.S. Shrawan till date, UN Park is being managed by HPCIDBC and is under the ownership of Government of Nepal. According to Er. Ashim Adhikari, Engineer incharge of UN Park, HPCIDBC, the management of the park is described below:

Regulation: UN Park has open access to all and does not have specific set of rules. As stated by GoN, smoking and illegal activities are restricted in public spaces which applies to the park as well. The park does not have specific opening and closing time. Picnic is not allowed but eateries and drinks are allowed.

Resources:

Financial resource: Toilet facility is pay per use and the assigned personnel for its operation and maintenance pays Rs. 3000 per month to HPCIDBC. Besides that, there is no other source of income of the park. The budget for the maintenance and management is obtained from HPCIDBC. The previous annual budget was Rs. 70-80 lakhs which was used for railing works near the riverbank and construction of deep tube wells.

Human resource: There are a total of 16 staffs who are responsible for the maintenance and supervision of the park of whom most are gardeners. One staff along with his family resides in the park area and is available anytime.

Maintenance: Regular maintenance is carried out in the park. But the maintenance of the park (cutting grass, cleaning, planting flowers) is difficult due to huge area of the park and limited manpower. Plantation attempts been done several times in the park but was not possible due to lack of awareness in the people. The flowers are plucked making it difficult to protect the flowering plants.

Coordination: Various rotary clubs and school volunteer for the cleanliness of the park. The toilet facility operation and children park is assigned to private sector, but there is a challenge in coordination due to the play of political power.

Challenges:

- The suspension bridge acts as a commuter route between Lalitpur and Kathmandu. It is difficult as people have access throughout and illegal activities take place which is not possible to control. Previously, drunk people visited the park and damaged the water basins of the toilet facility.
- Lack of awareness in the people is challenging (plucking of flowers, exercising in the riverbank railings). The efforts of maintaining flowering plants is in vain and demotivates the responsible authority.

- People bring their dogs in the park and cycling is done in the walkways which affects the psychological comfort of the people.
- The present UN Park is constructed according to the 2052 B.S. masterplan. Due to the changing needs and demand of people and time, a new masterplan is prepared which needs to be implemented.

Future plan and vision:

- Lighting provision in the park area
- Maintenance and cutting of trees and low branches and plantation of flowering plants.
- Ticketing system for access to the park
- Removal of suspension bridge connecting UN park to the other side (Kathmandu)
- Additional toilet facility
- Maintain slope for natural drainage to prevent flooding in the park area

5.3.2 Management of Shankha Park

Shankha park's development and management is under Environment Management Department of KMC and is under the ownership of KMC. According to Mr. Harisharan KC, Site incharge of Shankha Park, KMC, the management of the park is described below:

Regulation: Shankha Park has open access to all and the park opens at 5a.m. and closes at 7 p.m. As stated by GoN, smoking and illegal activities are restricted in public spaces which applies to the park as well. Picnics and other commercial activities are not allowed. Playing ball inside the park, cycling and loud music is restricted in the park. Also users are not allowed to bring dogs inside the park.

Resources:

Financial resource: There is no source of income of the park. The budget for the maintenance and management is obtained from Environment Management Department. The previous budget received for renovation was Rs. 50 lakhs.

Human resource: There are a total of 10 staffs who are responsible for the maintenance and supervision of the park. Three of the staffs are for administrative purpose, one is security guard and the remaining are gardeners and cleaners. Cleaning of the park is done during the morning hours and gardening is carried out during the daytime.

Maintenance: Regular maintenance is done in the park. Renovation was done in 2076- 2077B.S. Plantation attempts been done after the renovation in the park. Hence, dogs are not allowed inside the park for the maintenance and protection of flowering plants.

Coordination: The management of the park is entirely handled by Environment Management Department. It also has a site office inside the park, which directly supervises all the activities in the park and informs the head office regarding any issues or concerns.

Challenges:

- The lack of budget is a concern. Although renovation work has been carried out, there are many works yet to be done. But since there is no return for investment in the park, allocation of budget and receiving the amount as requested is difficult.
- Lack of awareness in the people is challenging (despite the rules displayed in various areas of the park, people still disregard it and do activities that are not allowed)

- There are street dogs inside the park. Dogs could damage the flowers, plants and also cause safety issues for kids who visit the park.

Future plan and vision:

- Additional seating facility inside the park
- Maintenance of the existing water fountains
- Maintenance of the ground slope for natural storm water drainage
- Additional carriage ways for flowering plants

5.3.3 Management of Suryamukhi Garden

Sinamangal Nagar Sewa Samaj is a User Committee, comprising of 11 members including representatives of all the blocks. Each block representative can self-elect other two members who are responsible for looking after the problems and issues in the block and bringing it in sight of the Committee. Suryamukhi Garden is managed by the User Committee of Block IV known as Suryamukhi Samaj and the garden is under the ownership of Sinamangal Town Planning. According to Mr. Janak Singh Thapa, former co-ordinator of the committee, the management of the park is described below:

Regulation: Besides the set of rules stated by GoN, the park has its own specific set of rules which are written on boards and placed near the entrance gates. Users are not allowed to bring plastics inside the garden and the trashes are to be thrown in the provided bins. Cycling and playing ball is not allowed inside the garden. Also loud noises and such activities are restricted.

Resources:

Financial resource: There is no source of income of the park. Membership is to be renewed annually by each household in the land pooling area, thus each household pays Rs. 200 for renewal. This amount and personal donations are handled by Sinamangal Nagar Sewa Samaj. Each block is then provided some amount for its operation and maintenance works. Rs. 10.5 lakhs was provided by DUDBC during the last year’s annual budget, of which maintenance work was carried out in the garden.

Human resource: There are no assigned staffs for the maintenance and supervision of the park. One person is paid by Suryamukhi Samaj, for opening and closing the gates in the mornings and evenings.

Maintenance: Maintenance of the park is carried out by the community. The badminton players who are the regular users of the park, comprising of about 40 households, collect a sum of money for cleanliness and maintenance of the space. Cleaning and maintenance is done by the user committee, Suryamukhi Samaj. From last year’s received budget from DUDBC, maintenance work was done in the park such as wall painting, fencing around the garden, provision of water tank, grass cutting machine, plantation of flowering plants etc.

Coordination: Suryamukhi Samaj responsible for the maintenance of the park. The elected member of each blocks also coordinates with Sinamangal Nagar Sewa Samaj regarding the issues in their respective blocks.

Challenges:

- The households of the community help maintain the garden but most of the users are rental population. Thus, they do not have sense of belonging towards the garden.
- Lack of awareness in the people is challenging (plucking of flowers, damaging the property etc.)

- Despite the regulations, people break the rules inside the park. It is difficult to control such actions.
- Although the user groups self-maintain the garden, it is challenging in the sense of taking responsibility and providing time for the well care of the park.

Future plan and vision:

- Plantation of flowering plants
- Maintenance and cutting of trees and low branches and cutting grasses.
- Assign a staff for guarding the garden

The table below summarizes the management processes of the three study areas as conceptualised by De Magalhães and Carmona.

Table 5: Management practices of the three POSs

Management	UN Park	Shankha Park	Suryamukhi Garden
Regulation	-No opening and closing time -Picnic and illegal activities not allowed	- Opening time of the park: 5 am to 7 pm -No ball, loud music, illegal activities, picnic, cycling and pet animals in the park	- Opening time of the park: 6 am to 8 pm -Regulation by the user committee including restriction of cycling, balls, loud music
Resources	Financial Resource: -HPCIDBC is responsible for the overall financial management -Rs 3000/month collected from the toilet facility Human resource: -16 staffs for maintenance and supervision in the park	Financial Resource: -KMC is responsible for the overall financial management Human resource: -10 staffs for maintenance and supervision in the park	Financial Resource: -Significant capital funding from DUDBC for development -Financial funding from user committee and personal donations Human resource: -Users of the park and user committee itself
Maintenance	-Regular maintenance carried out in the park	- Regular maintenance (Cleaning during morning and gardening during daytime)	-Maintenance done by the users and user committee when required
Coordination	-Coordination among private sector responsible for the toilet facility and children play area	-Coordination among Environment Management Department and site office	-Coordination among Sinamangal Nagar Sewa Samaj and User Committee (Suryamukhi Samaj)

5.4 Findings on the management of open spaces

There was broad agreement on the major issues and difficulties involved in managing public space, which may be broken down into three categories: resources, regulation, and maintenance which were interconnected and together they presented the authorities concerns regarding the management of public open spaces.

Resources: The most frequent response when asked what the biggest issue confronting public open space management was, was a lack of funding. The shortage of human resources, especially for tasks involving direct maintenance, enforcement, and coordination of activities was a key problem. In UN Park, for example, the staffs are only sixteen in number, not sufficient for the maintenance provisions. Also the finance was entirely based on government funding, thus making it difficult to receive appropriate budget necessary for the development and maintenance.

Regulation: Regulation issues frequently revolve around antisocial behaviour and the general maintenance problems brought on by the increased use of public open spaces. Some cited problems with enforcing laws to regulate users. Local authorities also identified littering around the space despite the provision of bins throughout the public open spaces. There exists challenge that concerns the lack of resources to employ monitoring and enforcement staff.

Maintenance: Authorities discovered several significant maintenance-related process issues. Perhaps the most important was the insufficient level of maintenance investment. Since public open spaces do not provide return of the investment and is for the social causes, there is limitation in the segregation of budget. Another issue is short-term development costs versus long-term maintenance concerns. Parks are being designed in a large amount during the last few years but the maintenance aspect should be highly considered for its long term sustainability.

From the study areas, management models of different types were explored:

- Management by Federal Government
- Management by Municipality
- Management by Community

The study revealed that models have their own core advantages: the ability to draw resources from a much wider area in the case of Federal Government, more sensitivity and responsiveness to cater the needs and demands in the case of Municipality and the potential of public engagement and sense of belonging in the case of community. However, these models also have potential disadvantages, from the lack of flexibility and less attention due to the wider scope of the Federal Government, to the spatial inequality in terms of resources in the community model. Successful management is observed in case of the community managed public open spaces with participation of the local people. Stakeholder involvement in public open space management can be perceived as a crucial part of their system for managing the public spaces which can be seen in the case of Suryamukhi Garden. The authorities involved local community in public space management through direct local participation such as voluntary graffiti cleaning groups. Local businesses in the form of the private sector can also contribute to the management of public spaces in a number of ways; sponsorship was the most prevalent in the case study such as street furniture, hanging baskets, etc. in Suryamukhi Garden, the playing arena was sponsored by Siddhartha Bank Ltd., and the dustbins by Bidhyawani Pathshala.

Furthermore, the management of public open spaces also includes the provision of safety and security for users. No accidents have been caused on these study areas but it may occur with people clashing while riding bicycles on the walkway, cricket ball, football and volleyball and also exercising on the railing of the riverfront in UN Park. The management and maintenance is also associated with visitor behaviour in public open spaces. There is lack of awareness in people and their negligence such as not throwing litter in the provided bins, plucking of flowers and damaging the plants, exercising in the restricted areas etc. making it difficult in the maintenance process. Management should also consider the procedure for fixing and maintaining the equipment and facilities in the site which may not be considered at the planning and design stages. Maintenance should consider outdoor gyms, pavements, lighting, planting, parking, toilets, cleaning and site furniture too. The maintenance and management of public open spaces also influences user satisfaction.

Insufficient financial resources were the most significant challenge impacting the maintenance of public open spaces in all the study areas. There is lack of budget, the parks don't make money of its own and the facilities need to be maintained. Resolving these issues requires both a sufficient budget and the provision of resources by the municipality, alongside thorough collaboration between all stakeholders, in order to increase safety by improving onsite facilities. The research reveals that the management of public open spaces in general is weak.

5.5 Policy gaps of Public Open Spaces

Public Open Spaces do not yet have any specific guidelines published. The policies, acts, and other documents specify the preservation of open spaces, but they do not explicitly define what preservation actually means. Open space has not been defined nor has the standards or guidelines been established for different hierarchy of open spaces. Importance of policy needs to be realised for its proper implementation. There are also no specific guidelines for maintenance for the open spaces. As mentioned in National Urban Development Strategy 2017, the existing provisions are fragmented and embedded within other policies and regulations. The government has recognized a number of open places that are appropriate for use in the event of an emergency, however the majority of these spaces are located within the grounds of gated institutions including schools, colleges, and public and commercial offices. These public areas might not be easily accessible during disasters and are not conducive to activities that promote social welfare (playing, jogging/walking, etc.).

The Land Use Policy 2072 mentions the development of minimum green areas, open spaces gardens, sports grounds and recreation areas in the residential areas of urban and rural areas, the construction of open spaces and green belts along the both sides of river, road, ponds and canals but it fails to clearly specify the mechanism that will be used to provide such open spaces in the areas which lack public lands. Amendment has been done in Bye laws 2064 regarding open spaces. In bye laws 2072, the area of the open space, its position and its minimum width has been clearly specified. But according to Ar. Yek Raj Adhikari, Joint Secretary of Ministry of Urban Development (MoUD), it is challenging and difficult for the practical implementation.

Further, the policies lack the provision of preparing plans for public open spaces which will be suitable for social welfare and shelter during disaster as well. For the design and protection of public open spaces, the policies lack effective implementation mechanisms. For the design and protection of public open spaces, the policies lack effective implementation mechanisms. Only the quantity of open space that must be given in the city as part of any new development is mentioned in the land use guidelines. These guidelines do not extend to the design or character of an Open Space, and there are no specific guidelines for the provision of neighbourhood parks.

5.6 Management issues

The foremost challenge to explore the management of the open spaces was to identify the responsible management bodies. Open spaces are not under the scope of a single institution, and is done by all three tiers of the government. The authorities do not know which institution is responsible for a specific open space management. The KII responses suggested that no local authorities possess departments dedicated to public open spaces. The majority of the time, a considerably larger unit is in charge of managing public open areas. Tracking and monitoring of open spaces is difficult due to the lack of a central database accessible by the government and people.

According to Er. Nisha Koirala, Assistant Director, Environment Management Department, KMC, there exists environment act but no working procedure and directory for parks and urban forests. There are no specific policies regarding open spaces. This is due to lack of funding and vaguely formed policies. Lack of awareness in people and lack of manpower and also skill of manpower responsible for the maintenance of the parks are challenges to overcome. There is lack of linkage between policy formulation and implementation. The vaguely formulated policies, fragmentation of initiatives are barriers to the better co-ordination of policies, programmes and actions. Lack of resources especially for enforcement of regulations and maintenance is also challenging.

Ar. Bhagwat Bhakta Khokhali, National Project Manager (EbA Project), KVDA suggested that having a single supra department responsible for public open spaces could help in coordination, regulation and management of public spaces. The current management approach appears to be static and content-oriented, focussing mostly on the provision of typical park facilities and minimum standard maintenance, without addressing specific spatial quality issues and improving usability. There exists no integrated management strategy for public open spaces. Although there is no management strategy, wide range of initiatives are nevertheless increasingly being adopted to deliver better management of the public open spaces such as community involvement etc. Open spaces have not been defined properly in our context, thus making it difficult to coordinate responsibilities for public open spaces that remain split between different tiers of government, and formulation of specific policies and its implementation. Identification of 887 open space of Kathmandu Valley has been carried out by KVDA but it's in its preliminary stage and verification is yet to be conducted. 83 among those open spaces has been identified for disaster preparation and as an evacuation site but the need and requirements of an evacuation site is not met in these open spaces. Aspects such as solid waste management, toilet provision, drinking water facilities etc. are not met.

The open space policy and implementation is specified by different ministries and the policy is often translated into a large number of disparate initiatives, with different timescales, compounding the problems of co-ordination. Typically, it seems, this is also aggravated by a lack of clarity concerning where responsibility for each policy area lies within the responsible authorities. There is no clear management plan for public open spaces at either the site or the decision-making level. This finding indicates the lack of collaboration between different departments at municipality level in terms of the management and maintenance of designed public open spaces. Insufficient financial resources and a lack of collaboration between the related departments at municipality level are the most significant challenges impacting on the maintenance and provision of public open spaces. The management of most of the public open spaces is dependent entirely on government funding which needs for alternatives.

Municipalities are renting out the public spaces or converting it to built structures. To avoid encroachment of public lands, parks are being constructed in these areas without considering its quality and strategies for maintenance as stated by Dr. Kirti Kusum Joshi.

In summary, the management of public open spaces suffers from fragmentation of responsibilities, insufficient financial resources, a lack of equipment and poor resource allocation and expertise. Furthermore, the management of these spaces is also impacted by a lack of coordination when organising resources, which can lead to poor levels of maintenance.

CHAPTER SIX: CONCLUSION AND RECOMMENDATION

This paper has explained case study approach for assessing public open spaces in terms of usability and management. It can be seen that user attributes like gender, age, education level, or user group have little bearing on what people seek in terms of the usage public places. People come for various physical, social, informal and quiet activities in these spaces. From the result, it can be inferred that these public open spaces are not well maintained, the spaces lack adequate amenities/facilities, infrastructures, greenery, regulation and timely monitoring and maintenance. An important reason for dissatisfaction among the users is lack of maintenance and inefficient management. The study also found out the advantages and deficiencies in each management of open spaces despite being managed by the federal government, municipality or community. Insufficient financial resources were the most significant challenge impacting the maintenance of public open spaces in all the study areas. It has been seen that well-managed public open spaces contribute to better living conditions, quality of life and urban development in cities. In order for these POSs to best serve the many facilities and services, it is crucial that they be made accessible, user-friendly, appealing, and functional with a variety of activities as well as socially, economically, and environmentally sustainable. These open spaces need to be safe, well-maintained, clean, and meet people's expectations for comfort.

Due to the lack of a centralized database that the public and government can access, tracking and monitoring of open spaces is challenging. Hence a central database need to be formulated. Workable policies, guidelines, procedures, vision, standards and management plans should be established for open spaces. These guidelines should specify the role of each participant and penalty should be enforced which shall help in regulation and implementation of activities. Also while preparing policies and addressing cross cutting issues relating two or more agencies, the respective institutions and agencies in charge of doing so should coordinate with one another. Information sharing and transparency in information at all levels could enhance the efficiency of institutions, organizations and communities. A separate department/section in the municipalities comprising of a committee including ward members, users, neighbourhood people, and staffs from the environment department of the municipality dedicated only for open spaces should be established which shall identify and monitor the open spaces from its planning phase to its implementation phase. Initiatives that involve collaborations with businesses from the private sector to finance and put into action improvements to public open spaces should be considered to create alternative for government funding which is solely responsible for the management and upgradation of public open spaces in our context. Programs and opportunities that engage community members in implementing public space regulations into action, creation of forums for public participation, and active participation of the community should be established which shall motivate the users and also convey a sense of ownership. A long-term approach would involve promoting awareness, educating users of public open space about appropriate behaviour, which would reduce the need for management and enforcement in the first place. Sustainable approaches to developing new parks and open spaces would be advantageous in the long run as maintenance requires continuous financial and human resources. Amenities inside the open spaces could be added such as eateries, kiosks, etc. which shall be run by private sector for financial aid. Open space should comprise of basic infrastructures such as potable drinking water, cleanliness and maintenance of the facilities, aesthetics in the space, safety and security, proper lighting and drainage, comfortable seatings and walkways and skilled human resource assigned for the maintenance of the open spaces. Thus, along with the initial quality of the public open spaces, the management aspect should also be given equal importance and considered from the planning phase itself.

Further Research

By integrating the perception and attitude of additional stakeholders involved in the development and maintenance of public open space, this research can be expanded even further. Private sector managed open space could be further studied so as to have an overall understanding of all the different management agencies. Also, for this research three hierarchy of open spaces were considered but research could be done to compare and contrast two or more open spaces of each hierarchy.

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ANNEXURES

ANNEX 1: LIST OF KEY INFORMANTS

1. Ar. Yek Raj Adhikari, Joint Secretary of Ministry of Urban Development (MoUD)
2. Er. Surendra Mohan Shrestha, Deputy Director General, Urban Development Division, DUDBC
3. Er. Nisha Koirala, Assistant Director, Environment Management Department, KMC
4. Er. Ashim Adhikari, Engineer incharge of UN Park, HPCIDBC
5. Ar. Bhagwat Bhakta Khokhali, National Project Manager (EbA Project), KVDA
6. Dr. Kirti Kusum Joshi
7. Ar. Bharat Sharma
8. Janak Singh Thapa, former co-ordinator of Suryamukhi committee
9. Toyam Rayamajhi, Suryamukhi Garden
10. Subash Parsai, Suryamukhi Garden
11. Harisharan KC – Site office Head, Shankha Park

ANNEX 2: QUESTIONNAIRE

Questionnaire for Interview of the Respective Authorities of Study Areas

This questionnaire has been developed as a requirement during the master's thesis study in Urban Planning under Department of Architecture, Pulchowk Campus, Lalitpur, I.O.E., T.U.

Consent from the interviewee

The survey will be conducted completely anonymously. I will group all information I have gathered and analyse to reach logical conclusion for my study. I will use the information and publish in my research thesis and paper. Would you be willing to participate voluntarily in the survey?

Yes No

Please ask any question if you have about the research.

Name of the Key Informant/Expert to be interviewed: _____

Working Profession/Field of the Expert: _____

Name of the Office: _____

Address: _____

1. What regulations have been enforced for the use of the open space?
How public spaces should be used:
Rules of access:
Established acceptable and unacceptable behaviour:
2. What measures/initiatives have been taken for maintenance of the open spaces?
Streets/ walkways:
Greenery and vegetation:
Cleanliness:
Toilet:
Furniture:
3. How are the resources handled?
Ongoing revenue funding for day-to-day management tasks:
Significant capital funding from time to time as and when significant re-design and re-development is required:
No. of staffs, their roles and responsibilities:
4. Are there proper co-ordination mechanisms for the implementation?
5. What are the issues/ challenges in open spaces and its management?
- Resources (Financial /human):

- Regulations:

- Maintenance:

6. What could be done for better management?

7. What do you think would help the most in improving the existing situation of POS?

Questionnaire for Government Institutions

This questionnaire has been developed as a requirement during the master's thesis study in Urban Planning under Department of Architecture, Pulchowk Campus, Lalitpur, I.O.E., T.U.

Consent from the interviewee

The survey will be conducted completely anonymously. I will group all information I have gathered and analyse to reach logical conclusion for my study. I will use the information and publish in my research thesis and paper. Would you be willing to participate voluntarily in the survey?

Yes No

Please ask any question if you have about the research.

Name of the Key Informant/Expert to be interviewed: _____

Working Profession/Field of the Expert: _____

Name of the Office: _____

Address: _____

1. What are the goals, objectives of your organization regarding open spaces?
2. What are the policies for open spaces? What are its implementation, operation and drawbacks?
3. Are there any integrated strategies/ plans for managing public spaces?
4. How is resource management of open spaces done?
5. Is there proper coordination among the departments related to open spaces? Is there formal coordination mechanism?
6. What are the issues/ challenges regarding open spaces and its management?
7. What measures initiatives have been taken for maintenance/ management of open spaces?
8. What could be done for better management of open spaces?

Questionnaire for Respondents

Socio-demographics of respondents

1. Age

- 0-19
- 20-39
- 40-59
- 60 and above

2. Gender

- Male
- Female
- Others

3. Education level

- High school or below
- Bachelor's degree
- Master's degree
- Doctorate

4. User Group

- Businessman
- Private sector
- Public sector
- Student
- Unemployed
- Others

Behavioural factors of respondents

1. What time do you prefer for visit?

- Morning
- Day
- Evening

2. What is your transportation mode to the site?

- Walking
- Bike
- Public Vehicle
- Private Vehicle

3. How much time does it take to reach here?

- 0-5 mins
- 5-15 mins
- 15-30 mins
- >30 mins

4. What is your purpose of visit to the site?

- Physical activities (Walking, jogging, exercise, sports)
- Informal activities (strolling, relaxing, family outing)
- Quiet activities (reading, meditating)
- Social activities (socializing, cultural activities, attending meetings)

5. What is your frequency of visiting the site?

- One a day or more
- Few times a week
- Few times a month
- Only occasionally

6. How much time do you spend in the site?

- Less than 15 mins
- 15-30 mins
- 30-60 mins
- More than 60 mins

Respondent's perception to usage and management based on various aspects of public open spaces

1) Do you feel the POS is accessible to you?

- Not accessible to me at all
- Only some parts are accessible to me
- Most of the spaces is accessible to me
- The space is completely accessible to me

2) Do you feel safe (crime related) in POS?

- Yes
- No

3) Is this space comfortable for you to be in (place to sit, stand, etc.)?

- Not comfortable at all
- Only some parts are comfortable
- Most of the spaces are comfortable
- The space is completely comfortable

4) Is there nuisance noise from traffic or otherwise in the POS?

- Yes
- No

5) Do you find the POS attractive?

- Yes
- No

6) Are you satisfied with the landscape features?

- Yes
- No

- 7) Is the POS safe for women, children, elderly citizen, people with disability?
 - Yes
 - No
- 8) Are you able to participate in the regular activities and events in this public space?
 - I cannot participate in most activities
 - I can only participate in some activities
 - I can participate in many activities
 - I can participate in almost all activities
- 9) Is the presence of surveillance cameras, security guards, etc. intimidating and you feel that your privacy is infringed upon?
 - Yes
 - No
- 10) User freedom
 - I feel free about my behaviour here
 - I feel judged by others
 - I feel my personal space is intruded by others
 - I feel I'm excluded from the community here
- 11) Does the space encourage a variety of activities, the need of users?
 - Yes
 - No
- 12) Does the space encourage social activities and interaction?
 - Yes
 - No
- 13) How well maintained is this place?
 - Lack of maintenance is a concern
 - Things are usually kept clean
- 14) In general, how would you evaluate the management here?
 - Poor
 - Neutral
 - Good
- 15) What do you think is the problem in the POS?
 - Lack of infrastructure
 - Lack of greenery
 - Lack of safety
 - Lack of proper regulations
 - Lack of Litter, facilities management
- 16) What does attract you to use this space? What encourages you to use this public space?
- 17) What are the three most important things that you would like to change or add in this public space?



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Date: September 14, 2022

To Whom It May Concern

This is to confirm that the paper titled "*Use and Management of Public Open Spaces in Kathmandu Valley*" submitted by **Rojina Shrestha** with Conference ID **12108** has been accepted for presentation at the 12th IOE Graduate Conference being held in October 19 – 22, 2022 at Thapathali Campus, Kathmandu.

Khem Gyanwali, PhD
Convener,
12th IOE Graduate Conference



Use and Management of Public Open Spaces in Kathmandu Valley

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Abstract

Public open space is open area that is freely accessible to all people without any restriction for social, cultural, environmental, economic, and political uses. For the purposes of the research, public open space encompasses open spaces and parks where public access is unrestricted at least during daylight hours and people do not need to pay. This research employs a case study approach to explore the users' opinion for assessing the use and management of public open spaces focusing on three POSs of different hierarchy, scale, location, similar function and responsible management agencies located in Kathmandu Valley namely UN Park, Shankha Park and Suryamukhi Garden. To evaluate the usage of open spaces, six aspects are considered: Access and linkages, Comfort and Image, Inclusiveness, Engagement, Use and activities and Management. Also the concepts and theories of management and various models has been discussed and related to the study areas. A mixed methods approach was considered for data collection, including questionnaire survey, interviews, observation, and also collection of required information from journals, documents and past researches related to the study. According to the results, it can be inferred that these public open spaces are not well maintained, the spaces lack sitting spaces, infrastructures, regulation and timely monitoring and maintenance. The most important reason for dissatisfaction among the users is lack of maintenance and inefficient management. The study also found out the advantages and deficiencies in each of the open spaces despite being managed by the federal government, municipality or community. In order for these POSs to best serve the many facilities and services, it is crucial that they be made accessible, user-friendly, appealing, and functional with consideration for management prospect in the planning phase itself.

Keywords

Public open spaces, User's perception, Parks, Management

1. Introduction

Public open spaces (POSs) have different interpretations and is defined in numerous ways according to the context in which it is situated. Public open space is defined as the outdoor places which is accessible to the public and is of free access without any restrictions. It could be owned by government, non-profit organization or private individual providing public access. Public open spaces such as parks and green spaces are key elements of the built environment. In the context of urban areas, public open spaces provide space for recreation, enhancing people's well-being, social interaction and livability of an area. Thus, public open spaces form an essential part of urban life. Public open space is more valuable

in the dense cities of developing countries where individual households do not have open spaces and people use public open space as a place for enhancing social capital and well-being for social interactions and establishing relations in the society. Kathmandu Valley is one of the most rapidly urbanizing cities of Nepal. The public open spaces have changed dramatically with traffic, parking, improper management policies and encroachment. The demand of public open spaces is also increasing with the rapid and haphazard urbanization in Kathmandu. There is lack of community and public access to safe open and green space which has impacted the urban life of the people residing in the valley. The problems with the management of contemporary public spaces are a significant issue that has failed to receive adequate

consideration from government agencies. [1] There is now a growing consensus among scholars that an effective management of public space can improve the quality of modern life and create sustainable urban environments.[2] As such, this research shall examine three public open spaces in different areas of the Kathmandu Valley, explore its use, the existing policies, the challenges faced by the responsible management agencies, and possible strategies for their proper management. The public open spaces in this research is limited to open space in new development areas and public parks and does not include palace squares, civic squares, religious open spaces and privately/ institution owned open spaces. Open spaces which are not freely and readily accessible to the public are not included in this study.

2. Literature Review

2.1 Defining Public open spaces

Those spaces which are available without any restriction for social, cultural, environmental, economic, and political uses is known as public open space. Public open spaces are shared resources, which are not closed or blocked up and provide access for people and express conditions of public life, civic culture, and everyday social life activities. [3] POS is also considered as a place for living, place of society, a place of public life, a place of urbanity.[4, 5] There exists a distinct difference between open space and public open space. All forms of open spaces, including private and public open places, are included in the term open space. Public open space, on the other hand, is open area that is freely accessible to all people without any restriction. POS consists of green space and of civic space. For the purpose of the research, public open space encompasses open spaces and parks where public access is unrestricted at least during daylight hours and people do not need to pay. It does not include streets, squares, traditional open spaces, civic spaces and private/ institution owned open spaces.

2.2 Aspects of Public open spaces

The paper suggests a theoretical framework to evaluate public open space: a good public open space is accessible, inclusive in nature, provides physical and psychological comfort, engages the users in varieties of activities and is regularly maintained.

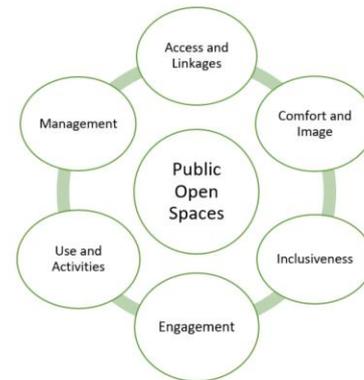


Figure 1: Aspects of public open space considered for the study

Access deals with the proximity, mode of transportation and time taken to reach the space, and the ability of people to be in the public space and use it.[6] Madanipour (2010) acknowledges accessibility as a key feature of any public space. Comfort in public space depends on various factors such as perceived level of safety, climatic comfort, physical and psychological comfort, convenience etc.[7] The presence of landscape features, attractive views, appearance, no outdoor noise while roaming POS etc. are considered for good image of the public space.[8, 9] The extent of inclusiveness of any public space is determined by the range of activities which take place and the user group it supports.[6] Equitable access, social cohesion and users' freedom helps in analysing the inclusiveness of the space. Public open spaces should promote an environment where people feel free to act protecting the privacy of the users, all users should have access to the POS and also give opportunity to people to participate in various activities and events.[10] Activities should address different age groups and gender and should also consider the elderly people.[11] One of the most crucial elements in creating successful spaces, improving comfort, and increasing utilisation is maintenance.[12] The management authorities should respect the right of users and provide basic facilities in the space.[13]

2.3 Management of Public open spaces

All public spaces, no matter how inclusive, democratic and open, require some form of management so that they can fulfil their various roles effectively. De Magalhães and Carmona [14] conceptualised the management of public spaces as

four interlinked processes: Regulation of uses and conflicts between uses; maintenance routines; new investments and ongoing resourcing of public space; and coordination of interventions in public space. [14] also conceptualised three management models for public spaces and how to deal with coordination, regulation, maintenance routines, and new investments and resourcing of public spaces which are the state-centred model, the market-centred model and the user-centred model.

3. Research Setting

The research employs a case study approach to explore the use and management of public open spaces focusing on three POSs. One of the major challenge was the selection of the case areas. They were selected based on different hierarchy, management agencies and similar functions. UN Park was selected since it is a city level open space and is located in the central area of Kathmandu Valley. Shankha Park whereas is a neighbourhood level open space adjacent to the busy ring road and has similar characteristics and function as per UN Park. To see if a new perception could be obtained, Suryamukhi Garden was selected which is in a land pooling area and is of community scale. All these POSs have different management agencies being the Federal Government, Municipality and Community respectively. The study considered users' opinion for assessing the use and management of POSs.

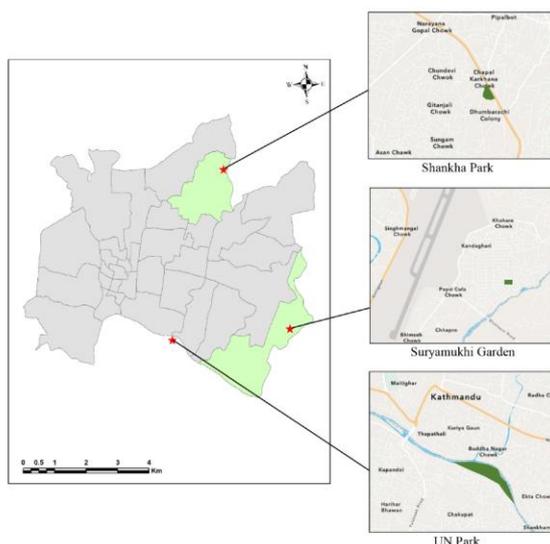


Figure 2: Location of study areas

4. Methodology

Interpretivist paradigm is adopted for the research and employs a case study approach to explore the users' opinion for assessing the use and management of public open spaces focusing on three POSs. A mixed methods approach was considered for data collection, including questionnaire survey, interviews, and observation. A total of 225 questionnaires were filled out by respondents from the three public open spaces (100, 75 and 50 in UN Park, Shankha Park and Suryamukhi Garden respectively). The usage of open spaces was evaluated based on six aspects: Access and linkages, Comfort and Image, Inclusiveness, Engagement, Use and activities and Management. The observation and questionnaire survey were carried out multiple times a day and week. Required information were also collected from interviews with key personnel and responsible management agencies, journals, documents and past researches related to the study.

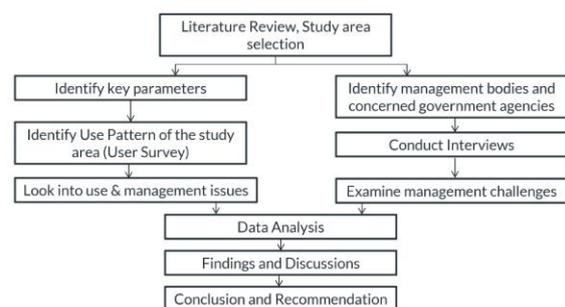


Figure 3: Schematic representation of the methodology adopted for the study

5. Results

5.1 Exploring the use of study areas

The aim of conducting case studies was to explore the usage of public open spaces. Further, issues relating to the public open spaces were explored with the interview participants.

5.1.1 Respondents Profile

A total of 225 questionnaires were filled out by respondents from the three public open spaces. Male participant's response rate was higher than that of females in all study areas. Users between the ages of 25 and 39 responded the most to the survey. The majority of those who responded worked in the

private sector, followed by students and then unemployed, lastly being in the public sector.

		UN Park		Shankha Park		Suryamukhi Garden	
Total responses		Count	%	Count	%	Count	%
Age	0-19	19	19%	9	12%	10	20%
	20-39	43	43%	38	50.66%	18	36%
	40-59	26	26%	20	26.66%	13	26%
	60 and above	12	12%	8	10.66%	9	18%
Gender	Male	67	67%	43	57.33%	31	62%
	Female	33	33%	32	42.66%	19	38%
Education Level	High school or below	41	41%	41	54.66%	26	52%
	Bachelor degree	41	41%	26	34.66%	24	48%
	Master degree	18	18%	8	10.66%	0	0%
	Doctorate	0	0%	0	0%	0	0%
User Group	Entrepreneur	9	9%	9	12%	2	4%
	Private sector	19	19%	24	32%	14	28%
	Public sector	9	9%	5	6.66%	0	0%
	Unemployed	23	23%	11	14.66%	6	12%
	Student	32	32%	14	18.66%	19	38%
	Others	8	8%	12	16%	9	18%

Table 1: Characteristics of Respondents

5.1.2 Respondents Behavioural Characteristics

According to the survey, most people preferred to visit UN Park in the morning, Shankha Park in the morning and Suryamukhi Garden in the evening especially for physical activities where they spend more than an hour. Daytime visit was for informal and social activities. People preferred walking to the public open spaces in all the three cases and could reach within 5-15 minutes. Some visited the parks on the route to their work or home where they spent less than 30 minutes.

		UN Park		Shankha Park		Suryamukhi Garden	
Total responses		Count	%	Count	%	Count	%
What time do you prefer to visit?	Morning	49	49%	30	40%	18	36%
	Day	43	43%	38	50.66%	18	36%
	Evening	26	26%	20	26.66%	13	26%
What is your transportation mode?	Walking	70	70%	36	48%	44	88%
	Bike	25	25%	29	38.67%	6	12%
	Public vehicle	5	5%	8	10.66%	0	0%
	Private vehicle	0	0%	2	2.66%	0	0%
How much time does it take to reach?	0-5 minutes	37	37%	12	16%	30	60%
	5-15 minutes	40	40%	43	57.33%	17	34%
	15-30 minutes	17	17%	14	18.66%	1	2%
	More than 30 minutes	6	6%	6	8%	1	2%
What is your purpose of visit?	Physical activities	53	50.47%	36	36%	27	42.18%
	Informal activities	28	26.66%	35	35%	19	29.68%
	Social activities	17	16.19%	22	22%	18	28.12%
	Quiet activities	7	6.66%	7	7%	0	0%
What is your frequency of visit?	Once a day or more	48	48%	19	25.33%	11	22%
	Few times a week	36	36%	37	49.33%	31	62%
	Few times a month	9	9%	13	17.33%	5	10%
How much time do you spend here?	Only occasionally	7	7%	6	8%	3	6%
	Less than 15 minutes	9	9%	1	1.33%	0	0%
	15-30 minutes	35	35%	14	18.67%	19	38%
	30-60 minutes	29	29%	38	50.67%	19	38%
More than 60 minutes	27	27%	22	29.33%	12	24%	

Table 2: Behavioural Characteristics of Respondents

5.1.3 Respondent's perception to usage and management based on various aspects of public open spaces

Access and Linkages: There is no direct public vehicle route access to UN Park thus, most people walk or use private vehicles. Shankha Park is adjacent to ring road and is accessible to all types of users. Suryamukhi Garden is complete accessible as the users are mostly from the land pooling area. Shankha Park and Suryamukhi Garden are well maintained due to which the spaces are accessible, whereas in the case of UN Park, due to the undulating nature of land and lack of maintenance, few spaces inside the park aren't accessible.

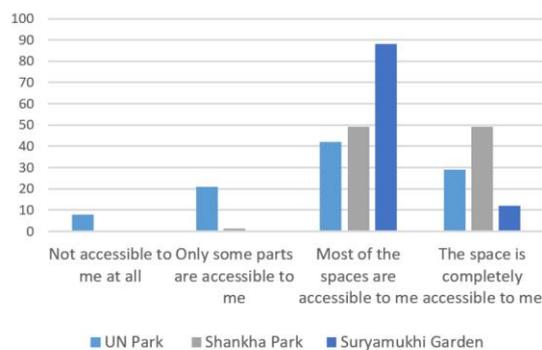


Figure 4: Accessibility in the study areas

Comfort and Image: Most of the users in all three open spaces found it safe in terms of crime. None of the three spaces have universally accessibility but is safe for children, women and elderly people. Users expressed their discomfort in the case of UN Park due to need of maintenance for pathway and seating. Most of the users find UN Park attractive due to the wide amount of trees, riverside view, presence of sculptures and also play areas. 100% of the users of Shankha Park and Suryamukhi Garden find the space attractive.

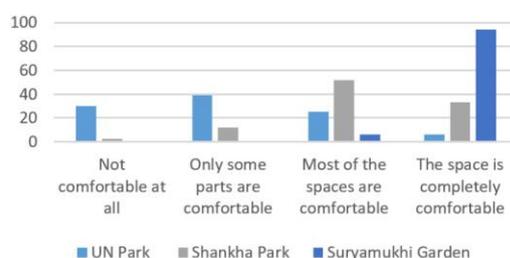


Figure 5: Comfort in the study areas

Inclusiveness: All the three public open spaces are

inclusive in nature in terms of people of all age groups and genders. But universal design has not been adopted in any of these spaces, thus they are not universally accessible and inclusive of differently abled people. There were less concerns about the security guards, as a means of intimidation or infringement upon their privacy in UN Park and Shankha Park. Most of the users felt free about their behaviour in all three POSs.

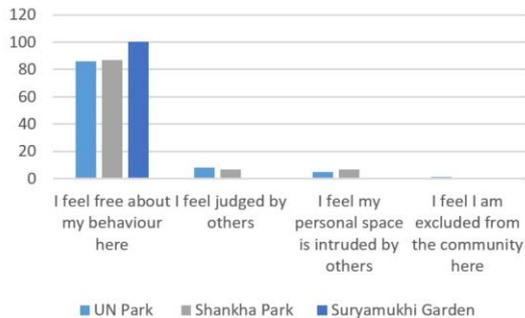


Figure 6: User freedom in the study areas

Use and activities: The survey recorded a higher percentage of users in this physical activities category, i.e., 53%, 48% and 54% in UN Park, Shankha Park and Suryamukhi Garden respectively. Sports activities can be seen in UN Park such as volleyball, cricket, football and badminton. Shankha Park has a temple inside the park premises due to which socio-cultural activities are also observed. Suryamukhi Garden due to its accessibility and being inside a neighbourhood area has all groups of users. People also come for social gathering and strolling. Many people come on Saturdays for family outing.

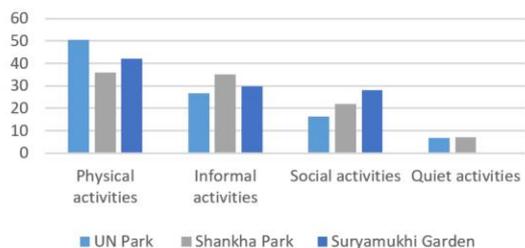


Figure 7: Activities in the study areas

Engagement: The users perceived a greater ability to participate in events and activities at the open spaces. Events are held during teej, dashain, shivaratri where people from far distance come to the park and participate in the events. Elderly people also come for socialising and various bhajan programs. Most of the

activities in UN Park are male oriented thus female users felt that they could not participate.

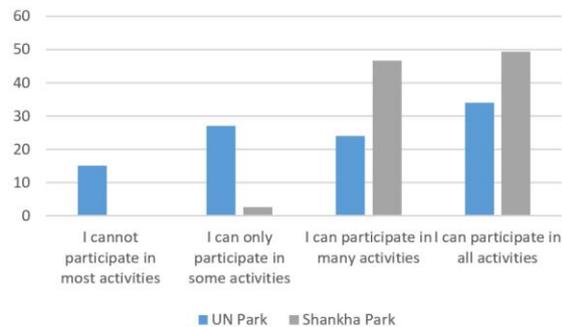


Figure 8: Participation in activities in the study areas

Management: The survey reveals that the users are dissatisfied with the lack of maintenance highly in the case of UN Park, followed by Suryamukhi Garden and finally Shankha Park. UN Park despite being a city level open space does not have the required amenities and is not well maintained. Shankha Park after its renovation has less issues to be catered for maintenance. Suryamukhi Garden is maintained regularly by the user groups. The evaluation of the users for the management of the POSs reveal that the management is poor in the case of UN Park. People are comparatively satisfied with the management in the case of Shankha Park and Suryamukhi Garden.

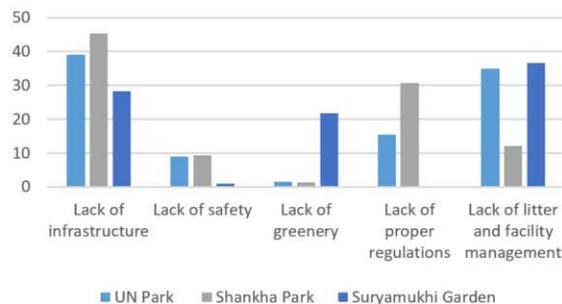


Figure 9: User perspective regarding management in the study areas

5.2 Exploring the management of study areas

High Powered Committee for Integrated Development of the Bagmati Civilization (HPCIDBC) under Ministry of Urban Development is responsible for the management of UN Park, Kathmandu Metropolitan City, KMC is responsible for Shankha Park and User Committee (Suryamukhi Samaj) is responsible for Suryamukhi Garden. Specific rules are set by the User

Committee in Suryamukhi Garden. Each parks have their specific opening and closing time but challenge exist in UN Park as there exists a suspension bridge which is open all the time. The finance for the maintenance is entirely on the government funding expect for Suryamukhi Garden where the users contribute both financially and also labor for cleaning and place keeping thus enhancing sense of belonging. There are less human resources in UN Park as compared to its size and no designated personnel for the place keeping in the case of Suryamukhi Garden. Need for maintenance prevails in all the three study areas.

6. Discussion

Findings on use of open spaces:

The findings of the survey reveal the state of public open spaces in terms of its utilization and management. Regarding the use of the public open spaces, in the aspect access and linkages, Harnik [15] emphasizes that accessibility should also consider the distance for senior citizen, mother with toddlers and children rather than only healthy adult. Unfortunately, all the three POSs does not consider this factor. People also travelled more than 30 minutes to reach the POSs due to no open spaces being of such scale in their proximity in the case of UN Park, great ambience after renovation in the case of Shankha Park, green and comfortable quality in the case of Suryamukhi Garden. Mehta [6] argued that users experienced psychological comfort due to attractive and pleasant views which holds true for all the POSs. People are highly satisfied in the case of Shankha park since it was recently renovated. Also the study areas had poor climate responsive design with few sheltered spaces and none in the case of Suryamukhi Garden making it difficult to be functional during monsoons. Regarding the aspect inclusiveness, people could freely access all the parks regardless of the age, gender and status. Users should feel free while inside the parks regarding their behaviour, which holds true in all the case areas. Concerning the aspect use and activities, people come for various physical, social, informal and quiet activities in these spaces and the activities in these spaces should consider all age groups and genders with different characteristics. The areas are thought to be free from crime but they lack comfort and cleanliness. From the result, it can be inferred that these public open spaces are not well maintained, the spaces lack sitting spaces,

infrastructures, greenery, regulation and timely monitoring and maintenance. The most important reason for dissatisfaction among the users is lack of maintenance and inefficient management.

Findings on management of open spaces:

Despite the open spaces being of different hierarchy and managed by different agencies, the most significant challenge impacting the maintenance was a lack of funding. The shortage of human resources, especially for tasks involving direct maintenance, enforcement, and coordination of activities was a key problem. Another issue is short-term development costs versus long-term maintenance concerns. Parks are being designed in a large amount during the last few years but the maintenance aspect should be highly considered for its long term sustainability. The study revealed that models have their own core advantages: the ability to draw resources from a much wider area in the case of Federal Government, more sensitivity and responsiveness to cater the needs and demands in the case of Municipality and the potential of public engagement and sense of belonging in the case of community. However, these models also have potential disadvantages, from the lack of flexibility and less attention due to the wider scope of the Federal Government, to the spatial inequality in terms of resources in the community model. Public open space that are administered by the community and include local residents demonstrated successful management.

7. Conclusion and Recommendation

This paper has illustrated an approach for assessing public open spaces in terms of usability and management. The three study areas evaluated through questionnaire survey showed that these spaces were used for various physical, social, informal and quiet activities. And despite being managed by various agencies had similar issues regarding financial challenges and lack of awareness among the users.

The involvement of the private sector and the local community in public open space management could be a means to reduce the resources respective authorities require to managing public spaces. The management and maintenance is also associated with visitor behaviour in public open spaces. Thus educating users of public open space into better behaviour, hence lowering the need for management and enforcement in the first place itself could be a long term solution. Local businesses in the private

sector can provide a variety of contributions to the management of public spaces. The management of most of the public open spaces is dependent entirely on government funding which needs for alternatives.

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