



TRIBHUWAN UNIVERSITY
INSTITUTE OF ENGINEERING
PULCHOWK CAMPUS

Thesis No: 073/MSUP/215

MANAGEMENT OF PUBLIC OPEN SPACE
A CASE OF NANDI KESHWOR BAGAICHA (NARAYANCHAU)

BY

SANDIKA POUDYAL

(073/MSU/215)

A THESIS

SUBMITTED TO THE DEPARTMENT OF ARCHITECTURE AND URBAN
PLANNING IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE OF M.SC. IN URBAN PLANNING

DEPARTMENT OF ARCHITECTURE AND URBAN PLANNING

LALITPUR, NEPAL

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ABSTRACT

Open spaces are an essential component in any settlement. Public open spaces are quite important in enhancing quality of life and urban environment while offering social, health, environmental and economic benefits to a city and its residents.

This research investigates the management of public open space and its issues in Kathmandu Valley a case study of Nandi Keshwor Bagaicha (Narayanchaur), Naxal. The research therefore assesses the indicators for the management of public open space and also improving the quality of those spaces. It also studies about the condition of Narayanchaur after its renewal project and also looks at the perspective of the users who very often depend on easily accessible open spaces in close proximity to their homes.

The research employed three methodological phases which consist of mapping out existing open spaces, behavioral observation of the users and the use of open spaces and the users' opinion survey which helped in accessing the management condition in the study area. It also used both primary and secondary data to facilitate bringing forth knowledge on indicators on management of open spaces, needs and benefits of open spaces as well as concepts and theories of open space planning. Therefore, tools such as questionnaires, interview schedules, observation were used. Secondary data was sourced from published journals, documents, past research document and other books relevant to this study.

The study found out the deficiencies to the comprehensive management of open spaces in Kathmandu Valley. The shortage of facilities and amenities on the open spaces, poor linkages and connectivity to the spaces, security issues, poor landscape and facilities and conflicts among institutions are the reason for the poor management of open space in the valley.

The study provides measures to help improve condition of open spaces such as improvement and upgrading of existing amenities and facilities to aid usability, improving walkability and accessibility and effective management would be key in fostering their quality, which will spread effects to the social realm and economic realm.

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1 INTRODUCTION

Public space is the open access in a city which can be used by every individual in the society. It includes roads, parks, squares, temples, riverbanks and it also partially includes government buildings where people can get partial access. Public space determines the physical, social, economic and cultural function of the city and determines the quality of life of the residents of the city. Public space is the area devoted to public parks, squares, recreational green areas, public playgrounds and open areas of public facilities.

Public space is an integral part of urban life. It acts as “the stage upon which the drama of communal life unfolds” (Car, Francis, Rivlin & Stone, 1992). It is thus the “common ground where people carry out the functional and ritual activities that bind a community, whether in the normal routines of daily life or in periodic festivals” (Carr et al., 1992). It also refers to an undeveloped, publicly or privately owned, land or water area. This includes agricultural and forest land, undeveloped coastal and estuarine lands, undeveloped scenic lands, public parks and preserves. It also includes water bodies such as riversides, lakes and bays. The definition of public open space varies according to the context in which it is situated (*Gensler and ULI 2011*). These are not only the breathing spaces of the city but are the places for interplay between people’s activity and urban forms. Moreover, these are the open air theatres for an array of displays: from the complex festivals, to the expertise of trade, to the stationary artistry of the amazing monuments that quietly shape these premier public open space.

Open space in towns and cities are as old as cities themselves. They have ranged from the Hanging Gardens of Babylon to ancient London’s marshes and to the lavish formal gardens of Paris and Vienna (Gordin, 2017). Open space has become more specialized through time due to better organization capability and higher productivity. If we look into history of open spaces, we can find the evolution of



Figure 1: Hanging garden of Babylon (Source: www.historicmysteries.com/the-hanging-gardens-of-babylon)

open spaces in Greece and the middle ages. There was clear distinction between religious and civic urban spaces. Roman city planning introduces in small and medium sized cities and the concept of the forum as a space that blended both religious and civic activities.

According to De Magalhaes and Carmona, public space management is defined as “the set of processes and practices that attempt to ensure that it can fulfill all its legitimate roles, while managing the interactions between and impacts of those multiple functions in a way that is acceptable to its users.” Public space management is normally associated with the public sector and local government (de Megalhaes & Carmona, 2009).

The quality of public space is not only influenced by its provision and design, but also by the model and degree of its management. But in case of developing country like Nepal, the clear management of those spaces is not seen. There is lack of proper planning and budgeting for the management of the public spaces. People are not much aware about the importance of those spaces. But after the earthquake of 2015, some of the communities do have awareness about need and importance of the public open spaces. The management of public space thus enables the space to fulfill its functions as a venue for social contacts through regular maintenance and the regulations of use, while keeping it safe and inviting for the users.

With the unregulated and unguided urban sprawl in the Kathmandu Valley, agricultural land is being directly converted into built up areas without due consideration for planned infrastructure including organized open spaces.

Good public spaces play a role in attracting investment, uses and activities, thus enhancing safety, increasing property values, generating municipal revenue, providing opportunities for economic interaction and enhancing livelihood opportunities. Management of public open space is one of the important factor. Public spaces not only act as a recreational area but also act as lungs to breath in. People have a busy life schedule and need a space for relaxation and refreshment. A healthy and beautiful city provided good physical, mental and social wellbeing of the people living in it.

The Kathmandu valley presently exhibits two distinct forms of public space – the traditional public space from the historic cores and the contemporary public space in newly developing areas. (Sharma, fast disappearing open spaces (Defacto Lungs) of Kathmandu Valley, 2006). The traditional settlements of Kathmandu valley was properly planned with public open spaces where

most of the daily activities were performed. The open spaces in Kathmandu was highly organized and consciously planned. These open spaces were providing community space and also fulfilled the ecological requirement. Traditional Newari settlement of Kathmandu valley poses its own identity and character with provision of different hierarchy of urban open spaces from city level to residential level. The medieval cities of Kathmandu had two distinct types of spaces, first the pedestrian spaces and second the community spaces.

2 NEED OF RESEARCH

The research is intended to identify the existing management policies of public open spaces, analyze them and suggest the best possible ways to improve spaces while keeping the economics and quality of living into consideration.

The properly planned and managed open space is the need in today's context. Looking from the disaster point of view and the increasing urbanization in the valley, there is a much need for the management of the available open spaces. Capable local authorities and collaboration with inhabitants and other actors are required for the creation, protection and management of the public open space. These spaces require cities and local governments to take a trans-disciplinary approach by working in partnership with a range of stakeholders and organizations, which should include civil society, academia and the private sector to ensure inclusive, safe and accessible public spaces for all.

Local authorities and their elected politicians, meanwhile, would not invest in public goods that did not have an immediate political or economic return (Mandanipour, 2010). They also saw public space as a liability, as something that required higher maintenance costs and was a burden on their budgets. The research will be focused on management of the public spaces and the ways to improve it. Though there are many initiatives for management of open spaces in Kathmandu, but metropolitan is unable to execute any proper policies for the management of open areas.

3 IMPORTANCE OF RESEARCH

Public space provides a range of benefits to citizens of a community. And in rapidly growing urban and suburban areas, any preserved land can offer relief from congestion and other negative effects

of development. Public spaces are inevitably useful for the vitality of the city and to create sustainable cities. They have the potential to contribute at multi-scale within the entire city and can act as a proactive manner to solve the current and future issues through the planning and design interventions (R.R.J.C Jayakody, D. Amarathunga & R. Haigh). It is important from the disaster point of view where people can gather together and response rapidly during an emergency. Public spaces are also important for the community for the enhancement of their place. Local people will be more benefitted by these spaces, as it creates beautiful environment, protective nature and a good place for social gathering. It is socially, environmentally and financially benefit for the community.

A study shows that around 9 to 12 % of constructions occur annually in Kathmandu and other urban areas of Nepal. The rapid and uncontrolled urbanization is also responsible for the encroachment of agricultural areas, river banks and cultural heritage areas. The demand of public open spaces is increasing with the rapid and haphazard urbanization in Kathmandu (G Basyal, S Chaudhary, S N Shrestha, 2015, Open Spaces Inventory and Analysis for Planning of Earthquake Emergencies for Safe Evacuation Sites in Kathmandu Valley). The lack of management of public open space is making Kathmandu unhealthy as there is lack of healthy places for relaxation and exercises. Hence, the study of management practice of open space and the ways to improve it is needed.

4 PROBLEM STATEMENT

Increasing urbanization in Kathmandu is the major problem for today's context. Increasing number of settlements and buildings has hampered in the living style of people.

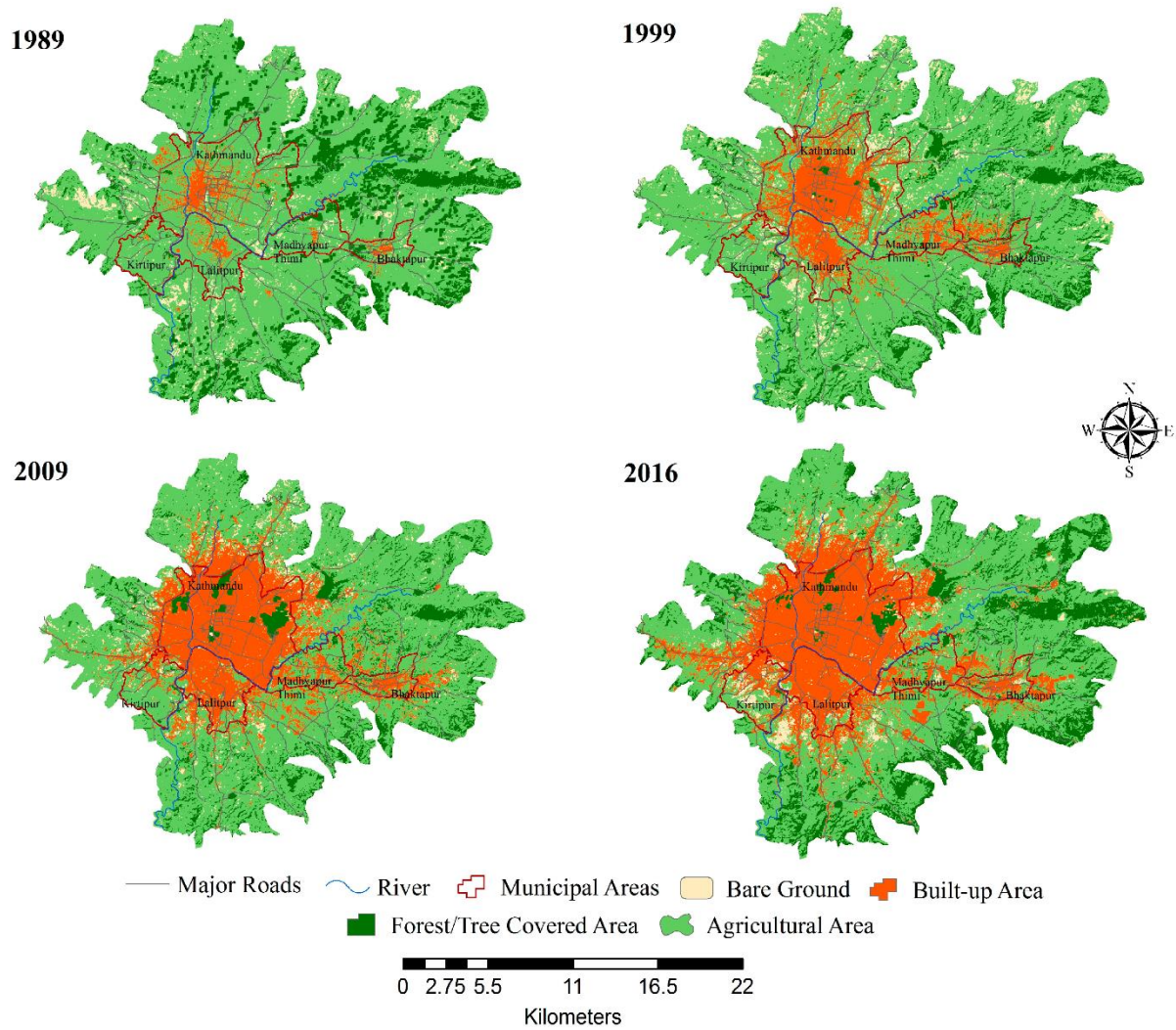


Figure 2: Settlement growth trend in Kathmandu Valley

(Source: Rapid Urban Growth in the Kathmandu Valley, Nepal: Monitoring Land Use Land Cover Dynamics of a Himalayan City with Landsat Imageries) (Asif, Shrestha and Chhetri, 2017)

As in the figure above, growth trend is increasing tremendously from 1989 to 2016. In this process, the natural and manmade open spaces are being encroached by buildings. There are decreasing trend of open space in Kathmandu Valley.

Factors of increasing population, increase demand of housing and land grabbing have contributed to the lack of adequate number of open space more so, some of the open spaces are poorly designed while most of them lack recreational amenities to support a good quality, pleasant social life that a comfortable open space is envisioned to. Recreational amenities such as places to walk on, places to seat or stand are either lacking or uncomfortable to use. In addition, insecurity caused by the

lack of amenities such as suitable lighting, lack of monitoring of open spaces, inaccessibility, poor or lack of maintenance of the open spaces and the perceived unfriendly form of nature and greenery in some of spaces towards their user makes them unattractive, psychologically uncomfortable and unusable for social use and recreation at certain times. Due to compact settlement, some open spaces are becoming dumping site.

The lack of management of those spaces is the major problem related to open space in the valley. There are no certain rules and regulations regarding those spaces. So, the strategic management of these open spaces should be studied for the overall development of the city.

Nandi Keshwor Bagaicha (Narayanchaur) is one of the neighborhood level open spaces in the valley which carries its historical importance. According to the time, it was being misused by the neighborhood people. Although, KVDA has made it architecturally beautiful, the management criteria is still not yet fulfilled in the park.

5 RESEARCH OBJECTIVES

Public spaces play a role in attracting investment, uses and activities, thus enhancing safety, increasing property values, generating municipal revenue, providing opportunities for economic interaction and enhancing livelihood opportunities. The challenge to maintain public spaces is often the responsibility of municipality but there is also a key role of the citizens, communities and of course the private sector. Local government can work together with citizens and the private sector to manage and maintain public spaces. The main aim of the research is to study the public open spaces in Kathmandu and its management procedures. The objectives of the study include:

- **To review the existing urban development policies and management practice of open spaces**

Though there are lack of proper policies for the management of public open spaces, but the related organization can provide some guidelines regarding this topic. In present scenario, Kathmandu Metropolitan City and KVDA is actively involved in studying about the land use of Kathmandu Valley. So, for reviewing the existing policies and practices for the management of open space, these offices were referred.

- **To categorize different use of public spaces by the people**

Case study was done for the information about how people are using the public spaces. Narayanchaur area was selected for the case study. Both qualitative and quantitative methods was used for the research. Questionnaire was prepared for the survey of various user groups and knowing about their opinion about the management of public open spaces.

- **To propose planning interventions for enhancing the management of open space**

6 CONCEPTUAL FRAMEWORK

The research included both qualitative and quantitative research. The Qualitative Research included data collection, interviews, observations, surveys and data display. Quantitative research included physical dimensions, distance, area and number of available space, calculating the available resources and capacity. It consists of secondary data collection: census data, satellite images, questionnaire survey, etc.

The research paradigm adopted for the research study was post positivist paradigm as it is used to describe an approach to research where large amounts of qualitative data are categorized to produce quantitative data to be analyzed using statistical methods. Post positivist paradigm accepts the theories, background, knowledge and the values of the researcher that can influence what's being observed.

7 METHODOLOGY

In the assessment of the management of open spaces in Narayanchaur, Naxal the methodology describes instrumentation, validation and reliability of the research instrument, data collection procedures and methods of data analysis.

7.1 Research Design

According to (Chava & David, 1996), research design is the blue print that enables the investigator to come up with solutions to research questions and problems, and guide him or her in various stages of research. Designing a study helps the researcher to plan and implement the study in a

way that will help him/her to obtain the intended results, thus increasing the chances of obtaining information that could be associated with the real situation (Burns & Grove, 2001).

This study combines the use of both qualitative and quantitative designs. The qualitative aspect helped the study to interpret relationships between the study variables. The study was descriptive/qualitative because it will comply with the characteristics of descriptive research (Creswell, 2012). On the other hand, the quantitative method helped to know the comprehensive experience of the topic under study. It also helped gather more information quantitatively of what has been learnt from the other sources.

Quantitative data was easy to interpret and analyze. It helped in getting responses of the similar questions mostly closed ended from a large sample and those responses are qualified for conclusion to be drawn. Survey strategies were used in gathering the necessary information which helped meet the objectives of the research. Survey design is an attempt to collect data from members of population in order to determine the current status of that population with respect to one or more variables. The research is done by asking questions to large groups of people (Holmes, et al., 2000)

Descriptive survey research design was used in this study. It is usually used in preliminary and exploratory studies to allow researchers to gather information and summarize, present and interpret data for the purpose of clarification (Burgess, 2003). (Leech, et al., 2010), asserted that surveys are self-report studies that requires the collection of quantifiable information from the sample. They are useful for describing, explaining or exploring the existing status of two or more variables (Mugenda & Mugenda, 1999). The survey design will be convenient since the researcher will use questionnaires as a tool of collecting data.

7.2 Sampling

Target Population: A set of persons or objects that possesses at least one common characteristics (Smith, 2015). The target population will be residents of Naxal and people visting Narayanchaur, who are deemed to be the users of this open spaces. It is through them that the researcher was able to find out what really goes on in this spaces and the generic use of this open spaces.

Sample size: A small part of the population selected for observation or analysis. By observing the characteristics of a carefully selected representative sample, one can make certain inferences about the characteristics of a population from which it is drawn (Atkinson & Flint, 2001)

A sample size of 49 respondents were taken from the target population of visitors and users of open space.

7.3 Data Collection

Data was sourced from both primary and secondary data sources. Primary Data for the research was collected using various instruments such questionnaires, interview schedules, checklist and observation guide.

Secondary data sources included; journals, articles, publications, maps and internet sources among others. This data will explicitly focus on the need and benefits of open spaces in neighborhood and their management criteria for the development.

a) Primary Data

Questionnaires

According to (Mugenda & Mugenda, 1999) questionnaires give detailed answer to complex problems. Additionally, questionnaires are also a popular method of data collection because of the relative ease and cost-effectiveness with which they are constructed and administered. Questionnaires give a relatively objective data and therefore, are most effective. The study used questionnaires which were administered to sampled population of visitors of Narayanchaur to determine the quality of space. Therefore questionnaires for the sampled population were prepared.

Interview Schedule

An interview schedule is a set of questions that the interviewer asks when interviewing the respondent (Mugenda & Mugenda, 1999). An interview is a flexible and adaptable way of finding things out. Interviews generally yield highest cooperation and lowest refusal rates, offers high response quality and it is multi-method data collection that combines questioning, cross examination and probing techniques (Owens, et al., 2002).

In this study, interview was taken to solicit information from the management committee of the open space and neighborhood, the administration and the visitors to help understand the condition of open space, their perceptions about the space, usage and misuse patterns, maintenance and the future plan of the space. From the interview, it was clear about the view of the visitors and the management criteria of the open space.

Observation

Observation is the process of collecting data directly by seeing, hearing, smelling and testing things as they occur in the real life situation (Bowen, 2009). The study used the observation method when people are unwilling to express themselves verbally. The study was able to observe the usage of the open spaces as well as other factors that cause misuse and disuse of the spaces such as pollution, lack/inadequate of amenity, encroachment, poor maintenance among others. The study had a checklist to provide information about the actual condition and behavior to be observed on the open spaces and note the observations.

Mapping, Sketching and Photography

Satellite images and maps used to assess the spatial layout overtime of the open spaces. The open spaces were mapped and areas computed to verify provision of open spaces per 1000 population. Photographs and sketches of the area were taken to facilitate the analysis of the spatial/physical layout of open spaces to the built up space.

Focus Group Discussion

These groups included staffs from the ward office, youths, children as well as folks in the area. Such people were useful during the study.

b) Secondary Data

Documents Analysis

This availed materials and information from literature, journals, magazines or newspapers which added more information to the study. The information sourced focused on looking into the parameters and elements of managing open space in a city context, local context as well as a neighborhood context.

7.4 Analysis and Synthesis

Data analysis should be done for the generalization to find relationship. It was done using statistical tools like SPSS, Excel to identify the patterns of data and software like AutoCAD and GIS for studying the spatial relationships. It helps to analyze the collected data in a definite form considering the comparative study. The final outputs of the data analysis are in the form of literature, tabular form, charts, graphs and maps and will help for the interpretation and comparative study.

7.5 Conclusions and Recommendations

Based upon the analysis from data collected and findings, conclusion was made and similarly the necessary recommendations was done.

8 LITERATURE REVIEW

8.1 INTRODUCTION

Public space has been one of the main concerns of the urban studies due to its fundamental roles in cities and urban life. The reason for its existence is put clear; however, the definitions on public space vary widely. A number of researchers have tried to define public space and its ontological attributes. Neal (2010a, p. 1) defines it as ,all areas that are open and accessible to all members of the public in a society, in principle though not necessarily in practice.’ Madanipour defines public space as the space that allows all the people to have access to it and the activities within it, which is controlled by a public agency, and which is provided and managed in the public interest’.

Public open space has become a central part of the public landscape of all communities. 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). The chapter seeks and set an insight into the development of public open space in which examining it’s meaning in the public realm and historical development as a theoretical base. It will also investigate literature of urban design principles in creating spaces. “Public Spaces as expressions of human endeavor and artifacts of the social world are the physical

and metaphysical heart of the cities, thus providing channels for movement, nodes of communication and common ground for cultural activities.” (Whyte 1980)

Cities that improve the quality of life for their citizen’s experience higher levels of prosperity; they are also likely to find themselves more advanced in terms of sustainability. Such cities strive towards social equity and gender equality by increasing access to the urban commons and public good, preventing private appropriation and expanding the scope for improved quality of life for all. Cities that have a strong notion of the ‘public’ demonstrate a commitment to an improved quality of life for their citizens by providing adequate street space, green areas, parks, recreation facilities and other public spaces.

The nature and character of public spaces are closely related to the nature and character of cities. As cities have changed, so have their public spaces. In smaller towns and cities of agrarian societies, with their relatively cohesive and homogenous populations, some public spaces were major focal points, where trade, politics, cultural performance and socialization all took place. As modern cities have grown larger, with heterogeneous population spread across large areas, public spaces have multiplied and expanded, but have also become more impersonal, losing many of their layers of significance. In the city of strangers, the meaning of public space becomes less personal, more transient, and at best merely functional or symbolic (Mandanipour, 2010). Kathmandu valley has lot of successful urban open spaces serving from long history.

Public space lends itself well to participatory approaches. Access to and participation in public space is a first step toward civic empowerment. Public space creation, protection, management and enjoyment are ideal opportunities for the involvement of all citizens, ensuring that individual and differentiated interest are transformed into collaborative practices.

8.2 THE MANAGEMENT OF PUBLIC OPEN SPACE

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”. They have conceptualized public space management as being made up of four interlinked processes that apply whether its activities are undertaken by public sector agencies, by community-based organizations, or by private sector companies.

8.2.1 The regulation of uses and conflicts between uses

The use of public spaces and the conflicts between uses have always been regulated, either formally through byelaws, and other prescriptive instruments, or informally through socially sanctioned practices and attitudes (Ben –Joseph and Szold 2005 and Madanipour 2003). Regulation sets out how public spaces should be used, sets a framework for solving conflicts between uses and determines rules of access and established acceptable and unacceptable behavior. How regulation is conceived, adhered to and how it adapts to changing societal needs is a vital dimension of public space management.

8.2.2 The maintenance routines

These ensures the ‘fitness for purpose’ of the physical components of public space. Public spaces and the infrastructure, equipment and facilities assigned in them need to be maintained in order to perform the functions that justify their existence. This concerns anything from ensuring that public spaces are usable, uncluttered, clean and safe, maintaining the surface of roads, street furniture, lighting, vegetation and facilities of all sorts; to removing anything that might deface or offend the symbolism invested in open spaces; to occasional capital intensive replacement of parts of the public realm.

8.2.3 The new investments into and ongoing resourcing of public space

Regulating uses and conflicts and physically maintaining public spaces requires resources, financial and material. The degree to which regulatory instruments and maintenance routines can be effective is linked to the amount of resources devoted to those activities. Moreover, resources can come from several sources, each of them with different combination of limitations and possibilities. This involves both ongoing revenue funding, for day – to – day management tasks, but also significant capital funding from time to time as and when significant redesign and redevelopment is required.

8.2.4 The coordination of interventions in public space

As regulation, maintenance and resourcing are likely to involve directly or indirectly a wide array of people and organizations, there is a necessity for coordinating mechanisms to ensure that the agents in charge of those activities pull in the same direction. This need for coordination applies

equally to units within an organization, such as departments of a local authority, as it does to different organizations.

Public space management is normally associated with the public sector and local government (de Magalhães & Carmona, 2009). Past practices show that urban governance plays a major role in the management of public space. Although public spaces have traditionally been owned and managed by the public agencies (Carmona & de Magalhães, 2006), the public space management model has changed over the past decades. 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 rise of alternative models of public space management suggests a shift from local government structures to involve a range of other stakeholders.

The quality of public space is not only influenced by its provision and design, but also by the model and degree of its management. De Magalhães and Carmona (2009, p. 112) argue that “all public spaces, no matter how inclusive, democratic and open, require some form of management so that they can fulfil their various roles effectively”. The management of public space thus enables the space to fulfil its function as a venue for social contacts through regular maintenance and the regulations of use, while keeping it safe and inviting for the users.

Most scholars agree that there is a decline of public realm in modern cities, which has been generally attributed to the lack of management of public space. According to Dempsey and Burton (2012), there are examples of many modern cities where public spaces are subject to poor management and maintenance practices, leading to the loss of comfort and safety during their use. In taking care of the neglected space, Tibbalds (2001) recognizes the role of public space management and the responsibility of formal agencies. 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 (Al-Hagla, 2008).

8.3 CLASSIFICATION OF PUBLIC OPEN SPACES IN HIERARCHICAL ORDER

According to the article “conservation and development of open spaces in Kathmandu Valley” by Er. Kishwor Thapa, open spaces can be classified into four types as per hierarchy:

1. City Level Open Space

City level open spaces include open spaces like Tudikhel, Ratna Park, UN park etc in Kathmandu. Such open spaces can be used for parades, political programs, social/ cultural programs, exhibitions etc. These spaces are more formal and maintained by government agencies or municipalities directly. It should be owned and managed by the municipality due to its size, scale and equally belonging to all citizens.

2. Neighborhood/Ward Level Open Space

The neighborhood level open spaces are accessible to the people of neighborhood and can be used for small sports events, social/ cultural programs, evening markets, disaster management and as public parks/ gardens. Newly built Narayan Chaur, Playground at Sano Gaucharan and Shankha Park at Maharajgunj, Kathmandu are some of the examples of such open space. It should be maintained by ward office of municipality.

3. Tole Level Open Space

Tole level open spaces are accessible to people living at the tole or a particular locality. These are generally used by children, senior citizen, disable people, and women particularly house wives. Activities that can be allowed in such open spaces are: evening market, hanging out for people of all age groups, children's play area, tole level social or official programs, wedding program, party/ banquets etc. It should be owned by local clubs or tole level organization.

4. Cluster Level Open Space

Cluster or lane level open spaces are located next to the group of houses which are arranged along a road, lane or courtyard. The traditional bahals of inner city of Kathmandu are good examples of such spaces. Sometimes, a courtyard or wider road can serve as such cluster level open space. These spaces are used for tot-lots (play area for infants), temporary parking, and greenery, waiting area, place for putting garbage bins, temporary dumping area for construction debris or place for loading and unloading construction materials. It should be maintained jointly by the house owners.

8.4 USERS IN PUBLIC OPEN SPACE

Children

Pre – school children will not use open spaces unsupervised by their parents, older relatives or other care takers. Generally, they will also not use spaces which are very far from home. Usually, some direct visual contact is to be recommended between play areas for these groups and the home. Generally younger children will also tend to focus more closely on their immediate caregivers and will benefit from having more enclosed and introverted outdoor spaces in which to play.

School Children

The limitations on mobility are relatively low on recreation open spaces can be located at significant from home. In the case of teenagers and young adults, locations well away from visual contact with other groups in society are likely to be sought out as places to meet and spend time. This group is generally physically active, but the provision of informal sports facilities, such as kick – about areas tends to favor use by boys, while studies have shown that girls tend to use open spaces in a more passive manner for their use during out of school hours.

Working People

Apart from the weekends and during holiday periods, open spaces close to the home are of equal importance to this group, for the simple reason that they need to be able to use these spaces in the small amounts of time they have available. This also makes it important to consider the provision of good quality recreation spaces close to people’s places of work that can significantly improve concentration and productivity.

The Unemployed

The unemployed differ in their open space needs from people in employment for two important ways: firstly, they are likely to have less money with which to travel to open spaces at a distance from their homes. This suggests the need to provide appropriate spaces in the immediate residential environment; secondly, they will, by definition have a considerably large time budget to spend in open spaces, something which usually can also be attractive in that it does not cost money.

Local Residents

This is the main group that needs to be catered for in open spaces within housing areas. Clearly this includes a cross section of ages and social groups, and the neighborhood open spaces to be created will need to cater for all of their needs.

Commuters and incoming workers

This group by comparison, represents people employment away from their residential environment. They will also have limited time budgets, being only able to make use of open spaces during their lunch and coffee breaks. However, the importance of having attractive open spaces where this time can be spent is not to be underestimated and as the studies on the positive effects of spending time in green spaces demonstrate the benefits are not solely for the workers themselves, but also for their employers.

Retired people and senior citizens

Retired people will generally tend to have more free time at their disposal and thus be able to travel further to open space. Their mobility may be restricted in comparison with younger people, but it is important not to fall into the trap of regarding them as being in the proverbial 'second childhood'.

Differently able people

In very simple terms where mobility is the problem, the aim should be able to create 'barrier-free' spaces without steps or other step changes of level (eg. Ramps steeper than 6%) which can impair the movement of wheelchairs. For the visually handicapped, open spaces which are easy to navigate and contain no dangerous obstructions to safe movement are important.

Tourists and visitors

Finally, it should not be forgotten that it is not only local residents who use public open spaces. Given the fact that the quality of the outdoor environment has a great influence on the quality of life of a town or city, their potential to attract facilities for tourists and visitors should be considered.

8.5 DIMENSIONS OF PUBLIC OPEN SPACE

Public open space is a multidisciplinary domain as it concerns not only the physical but also the non-physical dimensions with a significant amount of overlap among them. These manifold dimensions have drawn wide attention from a diverse range of academic disciplines besides architects, urban planners and designers. The main dimension of public spaces includes physical, social and psychological dimensions.

The physical dimension refers to the physical environment or “provision” of public space which provides a setting for social interaction, whereas the social dimension refers to the “use” or activities occurring in the space (Carmona et al., 2010). The psychological dimension relates to the perception of public space, which may be expressed in terms of how people interpret the space and give “meaning” to it, and how such meaning helps develop the public spaces.

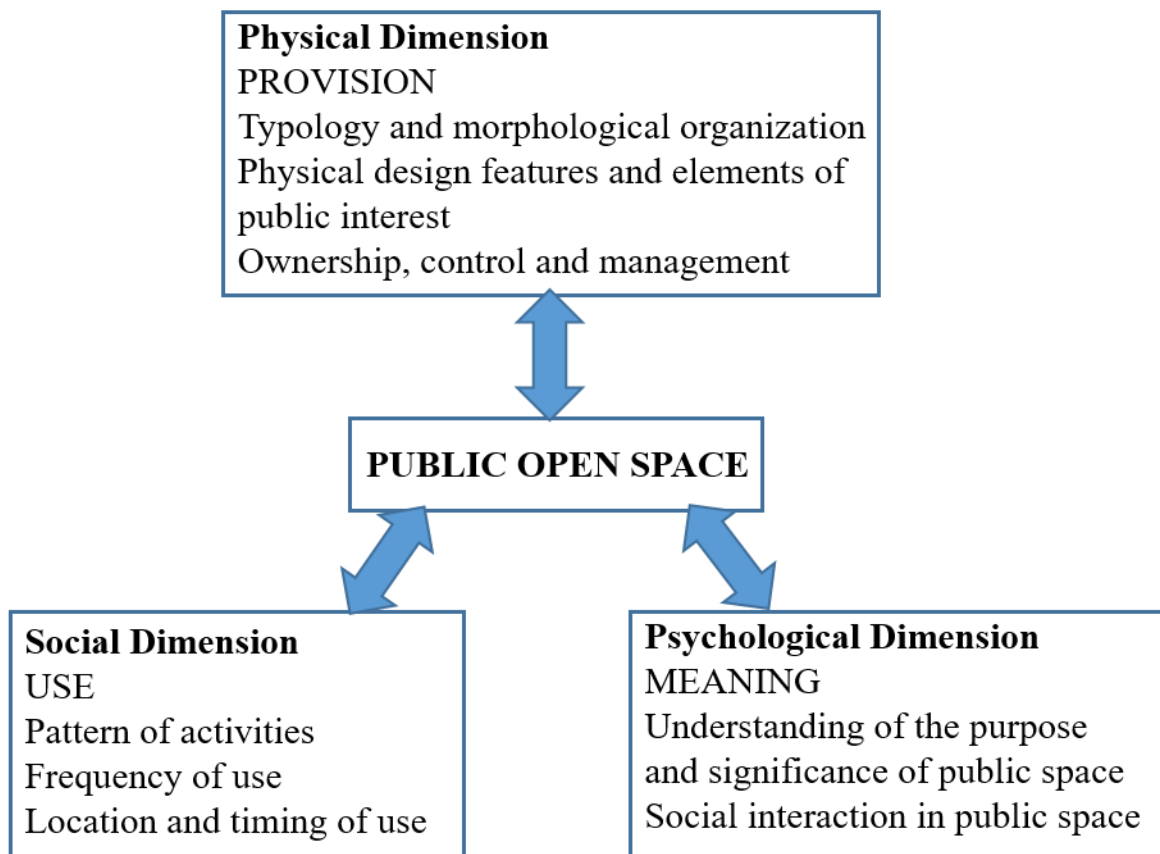


Figure 3: Dimension of Public Open Space

Studies have shown that there exists a strong relationship between the physical qualities of public space and its use. Gehl (1987) suggests that the physical design and condition of public space can largely influence the pattern of use. He argues that a good quality public space can attract a range of activities, making it lively and vibrant. The quality of public space may be assessed in terms of its provision, the physical features and design elements and the degree of accessibility. Similarly, Whyte (1980) argues that most sociable spaces are the ones which are easily accessible to the users, both physically and visually, with plenty of amenities to support the activities occurring in them. According to Lynch (1981), an accessibility of urban space is crucial to public life and thus, should include human concerns.

8.6 VALUES OF OPEN SPACES

Public open spaces have been associated with various benefits such *ecological and environmental, political, economic, addition of aesthetic value and social benefits.*

8.6.1 Environmental and ecological value of open spaces

The increase in hard surfacing and the reduction of the percentage of land covered by green spaces has led to higher temperatures in town and cities than in the surrounding countryside. Vegetation can help in addressing this imbalance. It would bring important environmental benefits to urban areas such as; the abatement of the urban heat island effect, an improvement of the air quality and the absorption of atmospheric pollutants, natural habitat protection. Some of the benefits are discussed below.

a) Reduction of the urban heat island effect –

Urban heat island effect is a condition created when the average temperature in urban areas is higher than the average temperature in the adjoining countryside. (Lowry 1967). The concrete jungle in cities and towns creates the urban heat island effect in the densely built up areas. This can be attributed to the differences in the building materials and paving in the city which conduct more heat than the land cover present in the countryside, heat generated from activities such as cooking, domestic and industrial zones structures in the city which have diverse shapes and orientation compared to those in the country as well as water disposal systems in the city such as gutters and drainpipes, which make the water flow very fast thus reducing the amount of precipitation that infiltrates into the ground. Therefore, creating the need to integrate soft

landscaping in open spaces in order to help correct the temperature imbalance by providing shade, cooling the air and winds as well. (Kiruma, 2014)

b) Improvement of the air quality

In the 1970's, Copenhagen, Denmark, introduced various measures in order to make the city centre more pleasant and appealing to pedestrians and cyclists alike. A six-fold increase in high quality public spaces in the city led to a variety of economic, social and environmental benefits, including a 65% increase in cycling. Therefore, as a result, there has been a significant reduction in the reliance and usage of motorized modes of transport, hence improving the air quality (Pucher & Buehler, 2008)

c) Natural habitat protection

Green areas and water surfaces within a public space provide a good habitat for living organisms. Apart from the intrinsic value of having nature in our cities, wildlife habitats in urban areas also provide a focus for the local communities, who often become attached to them (Sandström, et al., 2006). A good example is the City Park in Nairobi City, where the local people have formed a rare partnership with the monkeys in the area. Some have become so attached to them that they come to feed the monkeys every morning. They feel attached to the park such that they would not allow any form of development that would threaten the conservation of nature in the area.

d) Water and flood management

In order for our towns and cities to function properly as places where people live and work all year round, they need to be drained to remove surface water. Most of the surface treatments used within hard landscape areas are made of impermeable materials, which require surface water to be removed via the man-made drainage systems, many of which are old. During periods of heavy rainfall, the risk of flash flooding is high, putting lives, homes and businesses at risk and causing disruption to transportation and commerce. The soil system and vegetation that covers areas of green space is highly permeable, and is capable of soaking up even substantial rainfall. By soaking up water and recharging natural groundwater supplies, green space reduces the volume and rate of run-off and greatly contributes to a more sustainable urban drainage situation. Therefore, investment in an urban areas' green infrastructure

networks as part of a planned approach to sustainable urban drainage, would quickly pay for itself through savings on the cost of engineered drainage approaches, would improve the landscape, replenish the water table levels, provide opportunities for car free transport routes and make a major contribution to biodiversity. Environments with trees are more robust. Water quality is improved as trees act as natural filters. The root systems of trees also counter soil erosion.

8.6.2 Social Value of Open Spaces

When properly designed and maintained, public spaces and open spaces bring communities together, provide meeting places and foster social ties of that have been disappearing in many neighbourhoods, cities and towns. These spaces shape the cultural identity of an area, contribute to its unique character and builds a sense of place for local communities. The locals take some pride in the area they live in. (Woolley, 2003).

They provide communities with a sense of place and belonging, opportunities for recreation, health and fitness, events that reinforce social cohesion and inclusive society and offer an escape from the stresses and strains of modern urban living which can feel compounded by the built environment.

While well managed parks and green spaces can encourage visitors, and enhance social inclusion and cohesion, poor quality spaces, scarred by the evidence of vandalism and neglect, dominated by single groups and anti-social behaviour, can be a blight on any community. It is a measure of the peoples' commitment to green spaces and belief in their importance that there are so many examples of communities working together to transform their local space.

a) Promoting physical health

Visual landscapes appreciated by people have a resultant positive psychological effect on the people. Public spaces also have a therapeutic effect on the users as they provide people with places where they can relax and break away from the busy web of streets as well. They also help to improve physical health by encouraging individuals to walk more, play a sport or simply enjoy a green and natural environment. Public spaces take centre stage in the fight against lifestyle diseases like obesity among others. This is because they promote physical activity among individuals. Safe,

clean and attractive spaces encourage people to walk more. Studies also show that walking reduces the risk of a heart attack by 50%, diabetes by 50%, colon cancer by 30% and the fracture of the femur by up to 40%. (Wooley, et al., n.d.) As technology, traffic, artificial light and noise increasingly dominate our towns and cities, a park or green space can be an oasis of tranquility and calm that has a genuine effect on stress. Clinical evidence suggests that exposure to an outdoor green environment reduces stress faster than anything else. Simply viewing nature can produce significant recovery or restoration from stress within three to five minutes. (Ulrich, 1999). Physical environments that promote good health, such as green spaces, may be associated with a reduction in socio-economic inequalities in health. One Scottish study has shown that populations that are exposed to the greenest environments also have the lowest levels of health inequality related to income deprivation. This means that healthy urban planning must include a focus on accessible, quality urban open spaces, especially in low socioeconomic neighborhoods. (Mitchell, 2008)

b) Foster social cohesion and identity

Public spaces act like social catalysts. They bring people together for various reasons and activities. They have a symbolic meaning of coexistence. (Memluk, n.d.) Citizens from diverse social, political, economic, cultural backgrounds, age groups, and ethnicity gather together and relate as civic equals. They also offer ground for neutrality and expression of shared dreams, aspirations and fears. Squares are one good example of public spaces where people learn to tolerate and respect others. The way in which the interaction takes place and the context in which it happens reflect local identity. Some of them reflect the collective value of the community.

c) Foster democratic participation and social inclusion

Public spaces are open to all, regardless of ethnic origin, age, gender, race, political affiliation and or socio-economic status. People meet in them as civic equals. As such, they represent a democratic forum for citizens and the society. Public spaces provide space for human expression. They are also the places that provide solace in disaster and solidarity in protest.

8.6.3 Economic value of public spaces

The presence of high quality public spaces has a significant impact on the economic life of urban centres. As towns and cities increasingly compete with one another to attract investment, the presence of good parks, squares, gardens, streets and other public spaces become an important marketing tool and a vital economic lever to first attract and then retain new businesses. Corporates are attracted to locations offering well designed and well managed public spaces which in turn attract highly skilled employees and services. (Woolley, 2003). Their influence range from raising property values, increasing the business turnover for retailers, creation of employment opportunities, contribution to the regeneration of the inner city neighbourhood, and promotion of tourism. (Kiruma, 2014)

a) Increase in property values and local taxes

Evidence shows that a well-planned and well managed public space tends to raise the value of properties within its vicinity. A good example is New York City's Central Park where, as early as the 1850s, landscape architect Frederick Law Olmsted justified the purchase of land for the park by noting that the rising value of adjacent property would produce enough in taxes to pay for the park. By 1873, the park was responsible for an extra \$5.24 million in taxes each year.

b) Raising business turnover

For retailers, a good public realm with adequate walkability and comfort can greatly improve the sales by attracting more pedestrian population into the area. Pedestrian environments are bound to attract potential customers by mere convenience. As a result, coffee shops, outdoor eateries, food courts and other retail businesses register an increase in business turnover.

c) Creation of employment opportunities

Public spaces attract entertainers including acrobats and bands that entertain the public. These are employment in their own sense. The people who are employed to maintain such public spaces, guide people and provide security are a very important and integral part of public spaces such as parks and plazas. Photography is also a major business in public spaces. Food vendors also operate in public spaces. Food is an important element in successful public spaces.

d) Tourism

Many towns and cities rely on tourism to provide a substantial part of their annual revenue. In most cases, the public parks and green space in, or immediately around the town contribute to its attractiveness as a tourist destination. Whilst the green space may not always be the primary attraction, they are often the most visible; any significant decline in quantity, or quality, will quickly have a detrimental effect on visitor numbers. Public spaces, especially those of architectural and aesthetic significance serve as important tourist attractions.

8.6.4 Aesthetic value of Public Spaces

Well-designed public spaces increase the visual landscape value and also contribute to the overall environmental aesthetics, hence contributing to the overall image of the city. Apart from being an element of beauty in a crowded scene, public spaces give the users a pleasant break; a chance to escape the usual urban setting. Thus, people feel good being in these spaces and also feel refreshed as they appreciate the beauty of these places. This fosters an attachment to the spaces by the users. Good examples of such spaces are Vaux Le Vicomte and the Garden of the Versailles, both designed by Frenchman, Andre Le Notre.

8.7 KEY QUALITIES OF PUBLIC OPEN SPACE

To understand the quality of open spaces one must be able to understand the supply, use, access, operation, need and demand of open spaces more so, quality will be determined by planning and design, management and maintenance, and use of these spaces. The quality of green space is just as important as quantity. Based on most of these items outlined, a good quality space is:

- Welcoming and inviting
- Healthy, safe and secure
- Clean and well-maintained
- Environmentally sound
- Considerately conserved
- Caters for the needs of the whole community
- Well-marketed and promoted
- Planned in an understandable way

- Well accessible

According to project for public spaces (PPS), to be successful public space, they generally share the following four qualities: they are accessible; people are engaged in activities there; the space is comfortable and has a good image; finally, it is sociable place: one where people meet each other and take people when they come to visit. (Training & events: Project for public spaces, 2009)

Access and Linkages

Accessibility of a place can be examined by its connections to its surroundings, both visual and physical. A successful public space is easy to get to and get through; it is visible both from a distance and up close. The edges of a space are important as well. For instance, a row of shops along a street is more interesting and generally safer to walk than a blank wall or empty lot. Accessible spaces have a high parking turnover and ideally are convenient to public transit.

For a place to be successful, it should first be easily accessible. The public should easily get there and it should be accessible for all groups of people that would include for all genders, castes, creeds and all kinds of physical disabilities. Similarly, it should be linked from major areas such as transit points, bus parks so that people can have continuity to be here. So, to become accessible and proper linkage, the public space should be continuous, at the proximity, connected, readable, walkable and convenient and accessible. Access can be physical, visual and psychological.

(Bijaya K. Shrestha) describes that positioning security guards, installing camera and in some cases even taking photographs for monitoring the movement of people while entering certain facilities in public and semipublic spaces have further reduced the privacy, freedom of access and free use of those facilities. This will be limiting the accessibility of the public space.

A great example of a space that has tried to achieve this is the Pioneer Courthouse Square in Portland, Oregon



Figure 4: Pioneer Courthouse Square in Portland, Oregon (Source: PPs.org, 2015)

Comfort and Image

Whether a space is comfortable and presents itself well – has a good image – is key to its success. Comfort includes perceptions about safety, cleanliness and the availability of places to sit – the importance of giving people the choice to sit where they want is generally underestimated. A public space can be comfortable if it is safe, clean, green, walkable, sittable, charming, attractive and may be historic. So, public open space should be maintained properly and should be comfortable enough such that it would attract public. Proper sittings, walkways, soft and hard landscapes and beautiful views make it more appealing. Kelvyn Lynch has given image of the city includes that the image is obtained from five different elements which are District, nodes, landmarks, paths and edge. So, these elements should be considered in a public open space to form a great image of the

city. A good example of a space that has tried to achieve this is Luxembourg Gardens in Paris. There is adequate seating space for all and it is comfortable as well.



Figure 5: Luxembourg Gardens in Paris (Source: Google images)

Use and Activities

Activities are the basic building blocks of a place. Having something to do gives people a reason to come to place and return. When there is nothing to do, a place will be empty and that generally means that something is wrong. Without activity, a space would be a dead space. People go to public open spaces for various activities such as exercise, yoga, playing, refreshment, economic activities, festivals, etc. and it is thus activities that make public open space lively and vibrant. Multiplicity of use in public open space makes it vibrant and thus a successful public open space. Thus the public open space should be fun to be at, active, vital, special, real and very useful, indigenous, celebratory and sustainable.

(UN – Habitat, 2014) elaborates that public space is the setting for a multitude of activities such as festivals, trade, the movement of goods and people, provision of infrastructure or the setting for community life and livelihoods. Public spaces must be seen as multi-functional areas for meeting, economic exchange and cultural expressions among a wider diversity of people and should be designed and managed to build peaceful and democratic societies and promoting cultural diversity.

A good example that has vibrant usage is Kungstrad Garden in Stockholm, Sweden.



Figure 6: Kungstrad Garden in Stockholm, Sweden, with lots of activity taking place (Source: Google Images)

Sociability

This is a difficult quality for a place to achieve, but once attained it becomes an unmistakable feature. When people see friends, meet and greet their neighbors and feel comfortable interacting with strangers, they tend to feel a stronger sense of place or attachment to their community and to the place that fosters these types of social activities. A sociable public open space would be diverse, that would cater to diversified culture, diverse activities, would be cooperative, would have a neighborly feeling that would be friendly, and interactive and also welcoming. Since, public open space is very important for social gathering and socializing, there factors would be keys for their success.

The most sociable spaces usually possessed the following features:

- a) A good location, preferably on a busy route and both physically and visually accessible
- b) Streets being part of the ‘social’ space – fencing off a space from the street isolated it and reduces its use
- c) Being level or almost level with the pavement spaces significantly
- d) Places to sit – both integral e.g. steps, low walls and explicit e.g. benches, seat, etc.
- e) Movable seats, enabling choice and the communication of character and personality

The typical example of such a place is Jackson Square in New Orleans, USA



Figure 7: Jackson Square in New Orleans (lots of activity going on in the space, encouraging socialization)

8.8 PUBLIC OPEN SPACE PRINCIPLES

8.8.1 Principle 1: Attractive Distinct Character

The principle aim of design for open space is to create innovative and distinguishing spaces that are able to attract users and stand out amongst a city. This is especially essential for spaces that aim to become landmarks where creating a distinctive built form character in public space, draws interests and assists in attracting users. With this, creating open spaces that are visually stimulating and intriguing is important in creating character for space. The use of materials and landscaping that are able to stand out in “context, visual juxtaposition and irony,” (Loukaitou-sideris 1998, pp. 203) are essential. The positioning of trees, seating, public art and access points should be appropriately positioned to highlight the different qualities a space holds such as views, microclimate, lighting, surrounding uses, etc.

Achieving a distinct character for spaces produces a theme. Mitrasinovic (2006) states that theme for space is important as it builds qualities that achieve distinct character for spaces. In developing this character and theme for space, it should be a reflection on its users and the city. The theme of the space should be able to connect to its users so they are able to understand the purpose of that particular space.

8.8.2 Principle 2: Significant of space and public art

The provision of public art in public spaces has existed since early times. The significance of public art is recognized in its ability to reinvigorate the urban landscape and provide an opportunity

to connect with its users. It is an important tool in gaining meaning for open spaces. The provision of a high quality public art culture, with artworks created distinctly for specific public spaces is necessary. Artwork need to hold meaning through visual symbolism and provide a reflection on the history of a city and its people. It allows users to understand and reflect upon the underlying objectives and aspirations of an open space and its city (Corbett 2004, pp.119). This is especially important in key landmark open spaces where people find definition in a city through key public spaces. Public art should be positioned to act as a focal point and punctuation mark for open spaces (Gallacher 2005, pp.59). Locating public art in places of high pedestrian activity and clear visual sightline is important in catching the attention of pedestrians. The artwork should not take away key qualities of a space.

8.8.3 Principle 3: Good Lighting

The most successful public open spaces around the world utilize lighting as a major tool in creating attractive aesthetics that attract users. Gallacher states “the visual and amenity value of lighting needs to be recognized in the design of spaces, rather than operating as a separate and purely functional element”. In providing good lighting, it is important to recognize the importance of both natural sunlight and artificial lighting. Providing good sunlight for an open space is important both aesthetically and functionally as this has a great impact on the number of users attending a site. Good sunlight draws users to a space as people are more likely to use open spaces that hold positive microclimates with good natural sunlight (Corbett 2004, pp 107). Open spaces must consider this especially in the Kathmandu context given Kathmandu generally has good warm weather (Gehl 2007). However, appropriate shading is necessary also to provide cover for pedestrians and spaces to enjoy both sun and shade depending on the weather.

8.8.4 Principle 4: Linking and Connecting

All spaces require available ease of access and appropriate linkages to its surroundings to attract users. This is derived from the human mentality whereby people are more likely to use space or places where they are easily accessible. “The degree of movement within any square is depended upon how well its site is connected to its surrounding districts and to the city as a whole. This is especially true and one of the key problems in Kathmandu’s open spaces. In doing so, spaces need to be aware of its surroundings and provide appropriate points of access to encourage thoroughfare

in accordance with “pedestrian desire lines” (Gehl 2007). This in turn encourages pedestrian activity increasing the opportunities for use of the open space. The connecting streets should utilize areas that are high in pedestrian activity increasing the chances of users accessing the space. This includes making ease of access to public transport.

Providing appropriate connections to its surroundings also incorporated the need to make use of elements such as topography so that it directs pedestrians to open space. Corbett points out that “if a square is significantly higher or lower than its connecting streets, it runs the risk of appearing detached from street activity”. This can act as a barrier to the number of users likely to use a space.

8.8.5 Principle 5: Legibility

Creating legibility in public open spaces is important to define the boundaries of a spaces with clear accented entrances and good focal points. Users need to be able to identify where a space begins and ends to evaluate their position in a spaces and city. “Creating legible centers within a main square strengthens the identification of a space” (Gehl 2007, pp.53). Entrances to spaces must be legible and pronounced as they are the first point of entry into a space. Pronounced entrances allow users to identify an open spaces and should be permeable to provide clear views into and out of a space. Clear legible and permeable entrances attract users to open spaces especially within high and dense cities such as Kathmandu city.

In providing legibility, it is important to implement distinguishable hard and soft edges within a space. Hard edges should be clear and distinct such as building frontages and entrance points so as to provide a clear indication to users of the boundaries of a space. Soft edges are passive in nature, allowing for activation of a space connecting a space and the city. This includes pathways and routes within a space that create a visual linear direction or boundary to a space.

8.8.6 Principle 6: Activating Edges

Creating strategies that promote active frontages which are both attractive and inviting are important in ensuring open spaces are able to uphold a steady flow of users. These active edges should provide an appropriate activation of open spaces. (Jan Gehl) The placement of mixed uses along these edges is a common frontage along landmark open spaces. As Gallacher points out “the most successful new public spaces are associated with ‘mixed use’ economics and settings” (2005,

pp.38). In providing mixed used developments along street frontages, it is important to ensure uses “provide a positive response and edge to spaces”. Ensuring uses along frontages fit within the character of the open space and meet the appropriate demands of users is important in ensuring there is harmony in uses. Gehl (2003) promotes active frontages as a source of renewed public life and a common attribute within the most successful spaces in the world.

Proposed uses should operate during hours that utilize spaces most proficiently. This includes normal hours of predominant activity in spaces and outside of these hours to bring new life to open spaces. Allowing for uses to operate in a way that activates open spaces through a sustainable flow of activity in space.

8.8.7 Principle 7: Designing for Accessibility and Diversity

In today’s community, especially in Kathmandu where a diverse demographic of people reside, it is important that open spaces provide available access and cater to the inherent needs of different cultures. Kathmandu has always promoted itself as a culturally diverse city that promoted equality amongst its people. Promoting elements of this in open spaces, whether by the users of these spaces or through public art is essential in defining the underlying values of a city. Providing accessibility for users of all ages and physical attributes is important. Past open space in Kathmandu have often neglected to design for persons with a disability. Installation of uniform high quality pavements that are smooth in surface, accessible ramps, accessible car spaces within distance of key open spaces are all measures that can be implemented to allow for use of spaces for people with a disability.

Catering spaces to attract youth is equally as important. Whilst it can be argued that certain spaces cater for a different demographic to that of children it must be recognized that children play an important part in society. They are next generation and promoting spaces that cater for their needs is important. A diverse array of users in an open space is a measure to some degree on the success of a public open space.

8.8.8 Principle 8: Memorabilia and Experience

The best places that people visit are always the most memorable. They are memorable because of the distinct feeling and experiences they give to people. They bring about memories that excite the

senses marking an imprinted impression in the mind of that place. This is a common attribute in iconic open spaces around the world. New York time square evokes a buzz that characterizes it as the central hub of New York, defining its place through the open plaza surrounded by bright neon billboards, bustling traffic, hot dog stands and charges of people. Rome's Spanish steps that bring about a defining presence of history as it is flocked with tourists, chattering of people, ancient European architecture. There all create photographic imprints in the mind signifying its representation in place and time. It produces a theme of the space. These iconic places are essentially a representation of the city. It is 'more than a place in space. It is a drama in time' (Gallacher 2005). Hence it is appropriate to create these positive experiences in spaces by placing actors in the senses. These can vary depending on the open space but these triggers become the identity of the place and ultimately identity of Kathmandu. Visual, acoustic and smell sensory are all keys in activating the memorabilia of a place.

8.8.9 Principle 9: Sustainable Open Space

Developing open spaces that are sustainable within a city's development, community evolution and change in meaning is essential in the survival of a quality public realm. Public open spaces that consider the notion of sustainability in their design and management are the most successful ones. "the best public open spaces are those that can be expand from their original intention, accommodating new uses and conditions, constantly enriching their stock of meanings and associations, a space should be full, but not 'full up' (Gallacher 2005). This is especially true with the recognition of depleting resources and growing negative impacts of global warming around the world. Appropriate implementation of green landscaping and microclimate aware designs can assist in open spaces development. Suitable landscaping choices that are self-sustaining under the right microclimate can assist in the reduction of greenhouse, gases and reduce the need for watering etc. it is important to also recognize the many positive attributes of landscaping in sustainability such as natural shading properties, aesthetically beautiful, symbolism, etc.

Use of renewable energy sources in open spaces and environmentally friendly material also achieve sustainability. In doing so, sustainable open spaces must ensure they are easy to maintain and manage. The failures of open space often relate to unsustainable management practice in open space due to economic evolvment, costs in maintenance and political pressures. Management of open space must ensure that spaces are able to cope with changes in the environment, economy

and community which can be very difficult in the development process with so many stakeholders. Clear strategies and directions need to be in place to ensure heritage conservation practices in public open spaces encourage sustainability and promote history of spaces.

8.8.10 Principle 10: Sense of Place

The creation of public open spaces is essentially to create useable and meaningful spaces for people. In achieving this, there is needed to create a sense of place. Having a sense of place holds different meanings for individuals but it is important to recognize common traits for having a sense of place. Sense of place for people can include qualities such as connection and meaning with place, position in place, personal role in place, safety in place, warmth in place, etc. it is important that public open spaces especially key ones are able to achieve these common traits. This allows key spaces to act as places of identity and refuge for users. Having a connection and meaning with place is important for people. When people are able to understand the significance of a place and their personal connection to that place, they become comfortable with a place. These factors build personal identity and security creating sense of place. It gives users a mental recognition of the position in a space both socially and physically. To know that you are at a significant place, users are able to feel the awe of a place. This is essential especially in landmark iconic open spaces.

Place promotion is a useful tool in promoting a sense of place. The most successful landmark open spaces become iconic because of effective place promotion which can involve hosting of key events or advertisement of the qualities of an open space. Events that involve the gathering of people in an open space create a sense of place as “coming together as one gives people a sense of membership, this generates a sense of place: (Gehl, 2007). Achieving a sense of place for all users is the ultimate aim in all spaces where by “people can actively participate in life within the public realm, this is especially important for developing ideas about citizenship. By simply standing in a lively public realm, where different age groups and different members of society are gathered together, there is a shared experience that evokes a positive sense of participation,” a sense of place (Gehl 1987)

8.9 Necessity of Public Open Space and its management

In Kathmandu, a number of open spaces play a key role in providing venues for a range of community events including music concerts, fairs and fetes and sporting competitions. Access to

open spaces for sport, play or general recreation is viewed as an important part of life. Open spaces also play an important role in developing communities, health and well-being enhancing biodiversity value, urban regeneration, recreation, flood prevention, and education.

The rapid pace of development, social shifting and subsequent commercialization, the image of open space is being lost into a characterless chaos. There seems a need of a Vision for the whole city reinforced by comprehensive strategies and measures that can be dealt at local level which will help in bringing these places back to the people. Moreover, the remarkable design philosophies of these spaces confirming to the visual and functional principles could actually be the logical paradigm for future open spaces of the city. Understanding all these theories we can refine it in summary that we need open spaces and its management in which following seven characteristics define a Successful Open Space.

1. **Encourages social exchange/interaction:** The space is a welcoming, friendly space with options for sociability and interpersonal connections.
2. **Enables positive experimental interaction with the natural world:** Encourage sense of emotional and psychological peace through interaction with vegetation, water and animals and bird's life with the public for natural relaxation and good environment.
3. **Provides for recreation:** The space offers activities and uses for different ages, groups/individuals at different times of day. The use of space should fulfill the diversity demand of the public.
4. **Retains a strong sense of place:** The space promotes a feeling of community and connection to neighborhood, district, city; sense of cleanliness, safety and comfort, history and importance of place.
5. **Promotes urban ecological/human health benefits:** Local pollution control, air and water quality improvements and design for self-sustainable space.

6. **Accessible to the constituent community:** Public open spaces need to be convenient to public transit, accessibility to disable and adjacent to neighborhoods, ease of entrance and exit, good control on distance from dangerous pedestrian roads and auto traffic.
7. **Enables multiple sector activities:** The space allows recreation and income generation which can appeal to a broader urban audience, generate more value and create a more inviting urban open space with public art. Need of facilities like Parking, benches, lights, well maintain toilet and some snacks and drink bar with proper management for waste and garbage to give the significant of space and retain people in place. Boundary and space should be more legible and open to activity edges.

8.10 Approaches to public open space planning

Over the years public planning of open spaces reveals two contradictory approaches. The first more typical of planners and geographers, focuses on providing a response to human demands for recreation, amenities and environmental quality. This is expressed by the types of open space it supports mostly gardens and parks within or close to urban and metropolitan areas (French, 1973; Heckscher, 1977; Turner, 1992; Tibbets, 1998). The other approach typical of ecologists and conservationists, focuses on open space conservation as a means for protecting existing landscape and natural values (Safriel, 1991). These two approaches may be seen as representing a “demand approach” and a “supply approach” correspondingly.

According to the demand approach open spaces are meant to fulfill the population’s needs. Therefore, they should relate mainly to attributes of the target population—its size and demographic variables, values and preferences, residential distribution and density (though some attributes of the natural environment may be considered too, such as topography that affects accessibility). On the other hand, a supply approach, which aims at conservation of high-quality natural and landscape values, relies on visual, ecological and spatial attributes of the existing natural environment. In fact, the differences between demand and supply approaches are the conceptual expression of the distinction between recreation and conservation functions of open spaces and their relevant planning principles, as was described above. Following table demonstrates the differences between the two approaches through examples of some of those guiding planning principles.

Table 1: Approaches to open space planning

Examples of guiding planning principles		
Planning Aspect	Demand Approach	Supply Approach
Site Selection	Proximity to users	Presence of high-quality natural values
	Accessibility (e.g. mild topography, no obstructions)	Uniqueness or vulnerability of natural values
	Visibility	Visual Quality
	Relation to other open spaces	Integrity of ecosystem
		Vital ecological processes
Quantitative Measures	Size of each open space unit	Preferably defined by natural features or ecosystem boundaries (e.g. Drainage basin)
	Total amount of open spaces	
Types of activities	A variety of recreational activities	Limited outdoor recreation (e.g. hiking)
	Activities fit for different groups	Activities compatible with conservation goals
	Suitability to special needs and preferences	
Site Design	Design for intensive use	Minimal intervention
	High maintenance	Limited access
	Wide selection of facilities	Few facilities
		Low maintenance

(Source: *Open space planning models: A review of approaches and methods*)

The distinction between the two approaches is revealed also by their relevance to various types of open space. The range of open space types includes paved squares and plazas – representing a maximum level of interference with the natural environment – on one end of the scale, and wilderness areas without interference on the other. These types may be divided into several groups, distinguished from each other by their spatial location, level of intervention in the natural ecosystem and their use.

8.11 OPEN SPACE PLANNING MODELS

The history of open space planning is relatively young. Until the 18th century open spaces were easily accessible to most city dwellers, since cities' growth was limited by the surrounding agricultural areas (preserved as a source of food for the local population) and technological barriers limiting transportation and infrastructure facilities. This situation began to change following the

industrial revolution. Emergence of new income sources – independent of land – along with technological innovations and decreasing dependency on agriculture resulted in accelerated migration from rural areas to urban settlements (Aalen, 1992). Cities expanded and peripheral open spaces were left detached from inner-city residents, who lived in crowded conditions under poverty and distress (Pregill and Volkman, 1993). Public parks were established in the 18th and 19th centuries as a response to an increasing public demand for amenities and recreational areas, and to reduce social stress which was threatening the existing social order and political systems. The term “open space” was probably used for the first time in the year 1833, by the select committee on public trails in London (Turner, 1992).

As experience in open space planning accumulates, various types of planning models and may be identified, expressing different approaches to the functions of open spaces within and outside developed areas. Some of the planning models are described below:

8.11.1 Opportunistic Model

The term “opportunistic” is used here to describe a pattern where open spaces are the result of opportunities that pop-up rather than of a systematic planning process. Among the best known examples are the first major parks opened to the public in London during the 19th century, which were established on lands donated by the king to the citizens. The same occurred in Paris and in other European capitals (Pregill and Volkman, 1993; Schenker, 1995). Many parks in the United States exist on lands donated to the public by wealthy families (Heckscher, 1977). In Israel, the Rothschild family donated the land of Park Hanadiv in Zichron Yaakov to the public to serve as an educational and ecological site.

Opportunities may arise in additional ways. For example, demolition of slums in Paris by Haussmann in the 1860s offered an opportunity to create the famous boulevards of the city (Schenker, 1995). Another example is Central Park in New York that was the result of an opportunity to get rid of environmental nuisances (Runte, 1987). The Al-Azhar Park project in Cairo is an example of recycling an old accumulation of construction fill and debris, transforming it into a leisure and recreational space.

Space left over after planning (SLOPE) represents another variant of the opportunistic model, where residual parcels of land that were left after allocating land for all other uses are designated

for open space purposes. Such residual parcels tend to be small, irregular or inaccessible for other uses, and are usually poorly suited for open space uses as well. Opportunistically created open spaces are usually part of urban environments, with some of them becoming renowned parks, as shown in the examples above. However, an opportunistic model is in essence casual, depending on realizing and seizing opportunities as they present themselves. It is not a systematic outcome of any specific guiding principle. It therefore does not ensure a sufficient response to the population's needs, or provides for appropriate protection of natural resources.

8.11.2 Space Standards – A Quantitative Model

Sir Raymond Unwin was apparently the first to suggest using space standards for allocating open spaces in London, at the end of the 19th century. The leading guiding principle for this model is quantitative matching between open space and the respective user population, claiming that adequate response to needs requires a certain minimal area size of open space for a given population. Space standards are a popular and common planning tool for all kinds of public services in the urban environment, and are usually expressed in terms of land units per person. Planning by space standards is easy to implement, since it is based on quantitative data only, and does not require acquaintance with the characteristics of complex social or ecological systems. That explains why the use of space standards as a measure for allocating open spaces quickly expanded around the world (Gold, 1973; Hill and Alterman, 1977).

Application of a quantitative model should be monitored to ensure actual realization of the desired standards. In Israel, for example, large gaps were discovered between the actual open space compared to the size and amount allocated according to standards in plans initiated by the Ministry of Building and Housing. Even when fully realized, the quantitative model lacks reference to site features, including nature and heritage values of the plan site. In other words, it does not ensure conservation of high-quality landscapes and disregards potential ecological and environmental uses and benefits.

8.11.3 Park System Model

A park system is a set of functionally interrelated open spaces – sometimes interconnected physically – in a given geographical area. It is employed mostly in urban areas, guided by a motive of offering the population an expanded variety of experiences and opportunities. A park system approach may already be detected at the end of the 19th century. Examples of this approach are Prospect Park in New York and the Emerald Necklace in Boston, both planned by Olmsted and Vaux, and Cleveland's plan for the park systems of Minneapolis and Saint Paul. park system may also be arranged hierarchically, with an array of gardens and parks of different sizes according to their range of service – starting with local pocket gardens – of limited use—up to major urban and metropolitan parks which serve a large population and offer a variety of uses (French, 1973; Gold, 1973; Heckscher, 1977; Hill and Alterman, 1977). The hierarchical concept relates open space plans to the spatial distribution of neighborhood units, their size and structure—data that are readily available, and therefore this model is widely used.

A system of interrelated parks and gardens – whether hierarchical or not – is easily created in new developing areas, but less so in existing urban areas due to constraints imposed by the spatial distribution of existing development. Moreover, this model – in similar to the quantitative model – emphasizes population needs, but does not protect natural landscapes or ensure ecological and environmental functions.

8.11.4 Garden City – A Comprehensive Planning Model

The well-known garden city model represents a comprehensive approach to urban planning, which regards open spaces as an integral part of development, relating their spatial array to the configuration of developed zones. The model was conceived by Ebenezer Howard at the end of the 19th century (Alexander, 1992). This was an era of accelerated uncontrolled urban growth, accompanied by crowding and unsanitary living conditions that produced social stress, high housing prices and land speculation which exacerbated socioeconomic gaps, increasing air and water pollution, abandonment of agricultural fields and lack of open space. Howard aspired to achieve social reform through comprehensive urban planning, based on socioeconomic (e.g. land reform, cooperatives and self-containment), environmental (e.g. creating buffers between residential zones and pollution sources) and structural (a radial structure with open spaces as

central parks, as green fingers between neighborhoods and as peripheral greenbelts) principles (Ward, 1992a; Girling and Helphand, 1994).

The garden city model is considered to be a cornerstone of modern urban planning in general, and open space planning in particular. Though it was never fully realized, some of its principles – especially the structural – have inspired planners around the world. Among others, it is also the origin of shape-related models, such as greenbelts and green fingers (Ministry of Housing and Local Government, 1962), which are discussed below.

8.11.5 Shape Related Models

Shape-related models refer to cases where the open space is defined by its shape, which in turn relates to the shape and spatial arrangement of the adjacent built-up zone or of elements within it. The best-known of these are “greenbelt”, “green heart”, “green fingers” and “greenways”.

The greenbelt model was a response to uncontrolled growth of cities at the end of the 19th and beginning of the 20th centuries, characterized, inter alia, by the expansion of urban development into peripheral rural areas. Conserving a “greenbelt” of agricultural and natural areas around the city was supposed to prevent its expansion and merging with small nearby settlements. The use of this belt as an amenity and recreation zone for the urban population was a secondary goal. The greenbelt concept was developed and applied mostly in England, although it was also adopted in other countries in Europe, America and Asia.

The green heart model is the opposite of greenbelt, describing an open space encircled by built-up urban areas (similar to the central park principle in the garden city model). A well-known example of a green heart implemented on a metropolitan scale is the Randstadt in the Netherlands, where four cities (Amsterdam, Hague, Rotterdam and Utrecht) form an urban ring encircling a large rural and agricultural area. maintaining Green fingers – also known as green wedges – are radial strips of open space that penetrate the built-up area. Roberts (1970) cites some early examples in the US, such as Charles Eliot’s 1901 Boston plan, which proposed radial wedges based on waterways and forested land.

The greenway model, according to Zube (1995), may already be traced – as a greenline concept – in the Adirondack Park, in New York State, founded in 1892. Greenways were given a variety of

definitions and typologies (Ahern, 1995), all referring to open space of a linear nature, based mostly on existing linear surface elements, whether natural (streams or ridges) or man-made (rights-of-way of roads and railways). Greenways coinciding with natural elements offer a better response than the previously described models to natural resource conservation possibilities in metropolitan areas—albeit still limited because of their linear nature.

Shape-related models may be used alone or in combination with other models, as exemplified by Feitelson's (1995) proposal for the core metropolitan regions of Israel. On the whole, they are easy to apply, based on maps or aerial photos. Since understanding of social or ecological processes is not necessarily required, it is no wonder that models of this type were so extensively used by planners around the world.

8.11.6 Landscape Related Models

Planning based on visual landscape values in urban environments was already exercised in cities and metropolitan areas at the 19th century. Its purpose was to conserve highly valued landscapes, especially topographical (mountains and ridges) and hydrological (rivers and streams) elements. An example of this model is the Genius Loci concept used in Washington, DC in the 1960s to mark prominent landscape features that gave the city its uniqueness. However, landscapes valued as scenery – such as mountainous terrain and stormy waterways, for instance – tend to be a deterrent to human settlement. Therefore, an approach based on unique or prominent landscape features is of limited value as a universal planning model for urban areas.

8.11.7 Ecological Determinism

Ecological determinism means that planning is determined by the natural characteristics of the land. The ecologically oriented planning process starts with collecting and analyzing data on the natural features of the plan area; sites identified as highly valued for conservation (or hazardous for development) are set aside for open space uses. The rest of the land is then allocated for built-up uses according to development needs. Ecological considerations may already be traced in works of landscape architects and planners in the 19th and early 20th century, among them Olmsted, Eliot, Cleveland and Geddes.

One of the first projects that considered ecological values on a systematic basis was the plan for the twin valleys in the metropolitan area of Baltimore, prepared in 1963 by a group of planners led by McHarg, a landscape architect and a leading figure in the field of ecological planning. The ecological approach in planning has many versions, differing by types of data used, methods of analysis and scale of the plan, thus the product of the planning process may vary accordingly. For example, the plan for the Jerusalem hills and the Judea plain in Israel – which constitute part of the Jerusalem metropolitan region – was based on an analysis of surface morphology, bedrock, flora and fauna, hydrology, agriculture and cultural heritage, which were evaluated qualitatively according to their integrity, rarity, diversity and visual quality.

8.11.8 Protected Landscapes

Protecting landscapes by legal measures is practiced mainly for conservation of outstanding, unique or endangered values of landscape, nature or heritage on a national scale. With time the objectives of protection expanded from a focus on outstanding visual landscape values—mostly wilderness lands far from developed areas to also include natural values of high ecological and cultural significance, regardless of their visual quality. Nowadays, more than a thousand of protected landscapes exist around the world (Lucas, 1992).

The International Union for the Conservation of Nature and Natural Resources (IUCN) defined eight categories of protected landscapes differing from each other in their level of conservation, from strict nature conservation to multifunctional areas where some human-related land use and intervention are allowed by law (Lucas, 1992). The relevant law in Israel, for example, distinguishes between nature reserves, national parks and landscape reserves. This distinction is expressed by the aims of conservation, level of intervention, management and the institutional structure created for each landscape type.

However, the legal status is relatively inflexible and is also generally accompanied by restrictions on potential uses, leading to conflicts between conservationists and stakeholders (land owners or investors), which might hamper the implementation of conservational objectives. Nevertheless, protected landscapes are widely accepted around the world as a means for conserving natural resources and habitats, especially in undeveloped areas, where natural resources are relatively

undamaged. It is, however, of limited use in urban and metropolitan areas, where natural environments tend to be few and already degraded due to accumulated effects of development.

8.11.9 Biosphere Reserves

A biosphere reserve is composed of three concentric zones: (a) the core area that is essentially a protected space designated for maximum conservation; (b) a buffer zone around the core that includes natural and agricultural areas; and (c) a peripheral transition zone with various uses, including small settlements whose inhabitants cultivate the agricultural lands in the buffer zone. This structure was intended to enable research on structures and functions of natural ecosystems in the buffer zone, thus keeping unnecessary intervention out of the protected biological and genetic resources in the core area. Other objectives of the biosphere reserve were: conservation of cultures, heritage and traditional cultivation methods, and efficient use of existing resources for the improvement of local population's economic conditions without damaging local natural ecosystems (Ashkenazi, 1996). Another objective was to eliminate negative effects of human activities on the protected resources in the core, by establishing a spatial separation through a buffer zone of restricted uses (such as agriculture and ecotourism).

The biosphere reserve model may be more relevant than protected landscapes for conservation of open spaces in metropolitan areas, because it combines conservation with some development, and may be flexible in response to spatial, social and economic changes. However, its success is dependent on appropriate adjustment of the existing legal and institutional structures.

9 CASE STUDIES

9.1 CASE Study I: Beardmore Park in Glasgow

Beardmore Park is one of the prominent reclaimed park. It is Glasgow's first urban community park to be created in twenty years and is a fascinating exemplar for the rest of the cities in both developed and developing countries. Communities within the East End of Glasgow identified Beardmore Park site as one of the most prominent local eyesores in the City Council's 2001 East End Eyesores' report. More to this, the need to convert a vacant and derelict land into a quality open space was emphasized in the East End Social Inclusion Partnership's Towards a Development Strategy. The aim of the project was to create a quality outdoor facility for all the

residents to access while assisting the community to meet their aspirations of ensuring the East End is a better place to work, live and visit.



The makeover of the derelict land into a vibrant, multi-functional play and open space area became a major achievement. The park now contains play areas for all age groups, events space and garden spaces for rest and relaxation.

As the project has developed over time the local community has become instrumental in advocating for changes to the layout within the park. This has included an additional self-closing gate to the toddlers play area to protect planted areas, additional barrier protection and the introduction of football equipment. From the commencement of this project, environmental justice through the involvement of as wide a cross-section of the diverse East End communities as possible has been seen



as essential to its long-term success. There is continued partnership working between community and the City Council. The project emphasizes the value of community ownership and there is growing confidence amongst the community that they have a central role in sustaining the park. It also highlights the value of the commitment of the local authority in taking the views of the community on board and where possible acting upon them.

9.2 Case Study II : Tokyo

The most important feature of the open space system in Tokyo is the emphasis in sustainable safety, protecting the city from natural disasters like fire and earthquake. The historical evolution of the open space is recognized in four stages; (1) period from 1923 to 1950 when open space was introduced as disaster prevention measure and large parks were constructed and connected to major roads as part of reconstruction plan following the Kanto Big Earthquake, (2) the period following World War II (1950s to 1960s) when planning for open was occurred as reconstruction project and green belt was designated along the fringes of Tokyo to prevent urban sprawl (3) the project 1995-2002 when planning of open space functioned as reconstruction project following Hanshin-Awaji earthquake, this time community parks were introduced to mitigate damage during the disaster and introduction of streams of open space plan. Fourth period is the revitalization of open space system creating safe living environment zone.

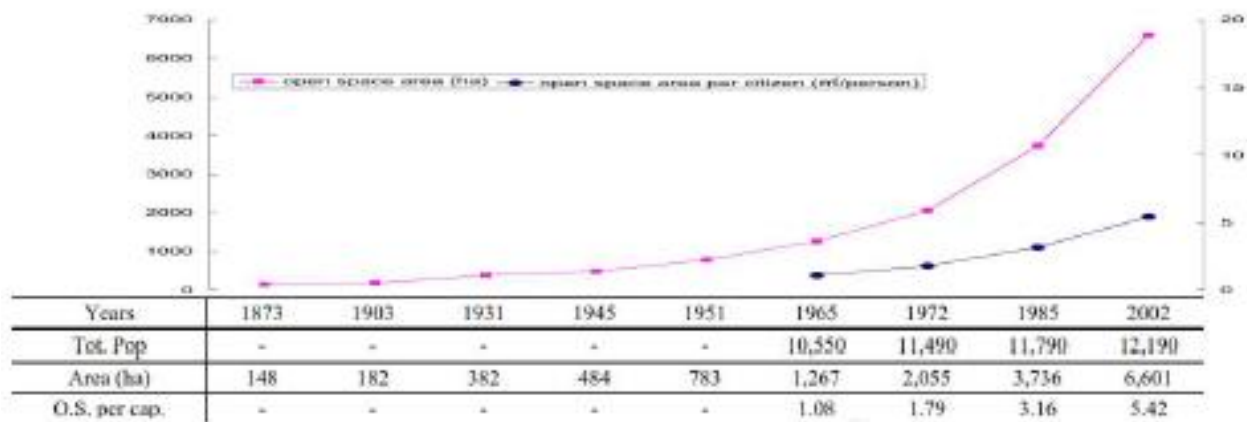


Figure 8: Increase in open space in Tokyo (Source: Urban Open Space plan for a sustainable City: Application to the Tokyo Area)

The total amount of open space in Tokyo’s four central wards Chiyoda, Chou, Minato, Shinjuku totals approximately 1100 ha and the amount and type of major open spaces is respectively 590 ha and divided into six categories. They are Imperial Palace, Akasaka Palace, the grounds of the State Guesthouse, Aoyama Cemetery, etc.



Figure 9: Distribution of open spaces in Tokyo

The open space in Tokyo is maintained in the form of facilities such as parks, green belts, forests, and agricultural areas. The total area of public parks and green spaces in Tokyo is 10,473 ha. The urban planning system for the regional green areas designates scenic beauty districts, green zone conservation districts, productive green zone districts and national capital suburban green zone conservation districts.

There are three types of parks in Tokyo in terms of development process: i) Planned parks, created as urban facilities with consideration of the scale and type of park, ii) memorial parks established to commemorate national events or preserve natural and cultural heritage and iii) public spaces developed from vacant areas donate to the city by the imperial household, repossession of leased land, landfill, and the utilization of riverbeds.



Figure 10: Miyamoto Park



Figure 11: Tsukitkawa Park



Figure 12: Shiba Park

(Source: Urban open space plan for a sustainable city: Application to the Tokyo area)

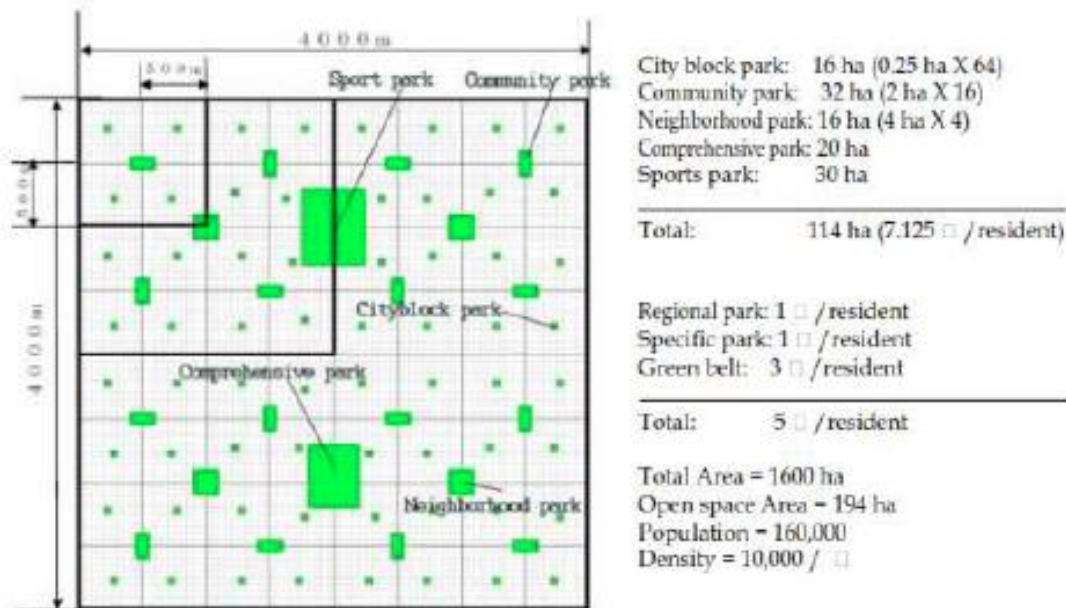
The government of Tokyo announced “The Green Tokyo Plan” in 2000 AD. The targeted percent of open space in ward area is 20% and 48% in Tama area. The plan defines Tokyo in 2050 as the

“dignified city Tokyo with a network of water and green” and states policies to be implemented by 2025 to achieve the vision of Tokyo from the five viewpoints: an urban environment protected by greenery; a disaster resistant city, supported by green; the lure of Tokyo created by green; a green habitat for living creatures; and Tokyo citizens are to perform the main role in generating green. (Song & Nishimura)

Plan for the distribution of urban open space

Factors to be considered are the number and location of open spaces and accessibility to these sites.

- City block park: one in every 500 X 500 m area
- Community park: one in every 1000 X 1000 m area
- Neighborhood park: one in every 2000 X 2000 m area
- Comprehensive park, sports park: one in every administrative district
- One administrative district is assumed to be 4000 X 4000 m in size



Evolution of green space planning in Japan (Xu, 2011)

The land use of Japan has changed as the cities transformed from feudal to modern cities. The urban spaces are influenced by the external forces such as natural disasters and war. In Japan the large scale redevelopment started after the Great Kanto Earthquake and World War II. Tokyo

introduced the new green space system plan to lay a strong foundation for the structural optimization of urban land through the establishment of green spaces. To prepare from the disasters firefighting services, disaster warehouses, ambulance bases and other emergency assistance are located in the parks. The parks are evenly distributed as possible. (Xu, 2011)

Small parks has played significant role in fulfilling the need of urban green space in Japan. Large parks and special parks require large financial resources therefore small parks have more advantage. The small parks are evenly distributed and have good accessibility.

10 EXISTING MANAGEMENT PRACTICE OF PUBLIC OPEN SPACE IN KMC

Management of public space is a complex task as it requires proper allocation and mobilization of resources. In Kathmandu, there are various organizing system for the management of open spaces. Land use policy 2072 has identified that internal migration, haphazard settlement and urbanization has resulted in the surge of agricultural land and increment in encroachment of government, public and forest lands. It also mentions the lack of open spaces in the urban areas.

In order to raise awareness about the importance of open parks and playgrounds, Kathmandu Valley Development Authority (KVDA) has prepared and published the "Atlas of Open Spaces". In the coming fiscal year, KVDA plans to facilitate the open space mapping overlaid on officially approved cadastral base maps so as to ensure their legal validity. Government of Nepal (GoN) has also identified and published the 83 open spaces in one of its gazettes. Nine of these sites have been enlisted as temporary debris storage sites in case of emergency response due to any kind of disaster event.

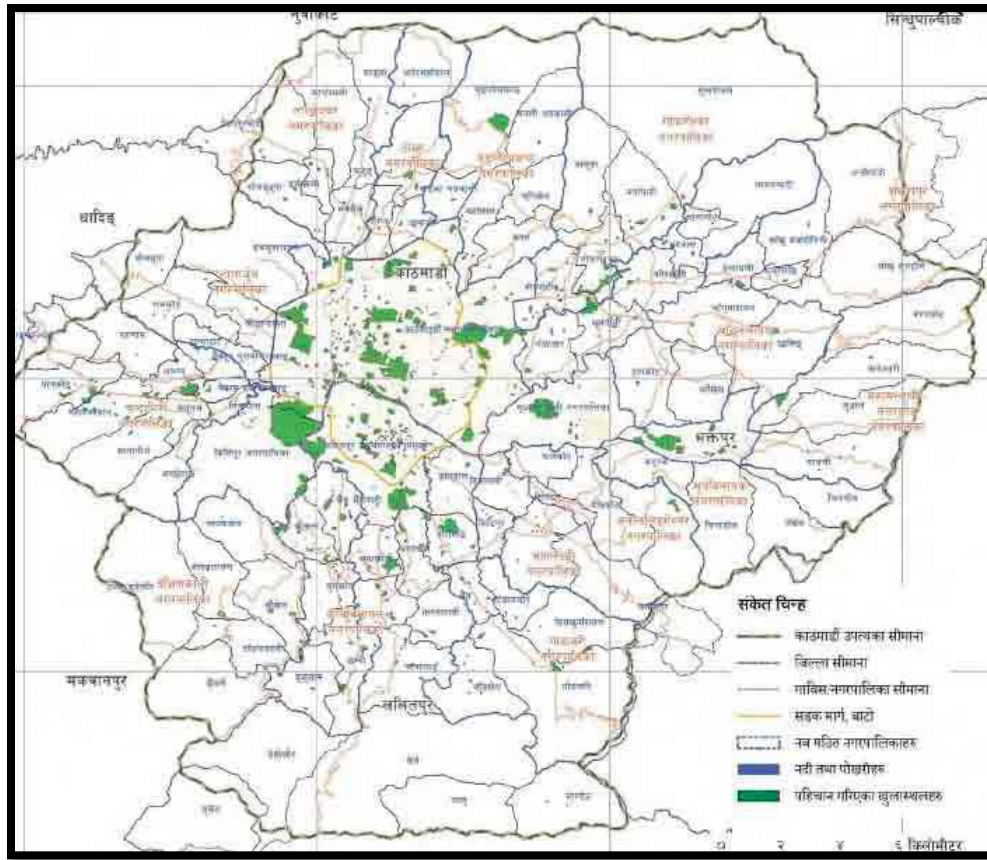


Figure 13: Identification of open spaces in Kathmandu Valley

10.1 HISTORY OF PUBLIC OPEN SPACE IN KATHMANDU VALLEY

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

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

Traditional towns of Kathmandu Valley consist of numerous urban squares –public spaces where a great amount of human interaction takes place till date. Urban Square is a form of public open space in a city, considerably larger and easily accessible by the community, where notable amount of public activity takes place. Most of these are centrally located and represent civic center of the city.

Public spaces in the form of squares (Durbar square to town square to neighborhood square) and residential courtyards (and Buddhist monasteries) including street and pedestrian lanes are the most singular important urban design elements of Malla towns of the Kathmandu valley. Accounting for about 10-12% of built up area of residential neighborhoods (Adhikari, 1998), these community spaces comprising of religious monuments (temple, chaityas, etc.) and social amenities (rest house, dabali, well, community tap, stone spout, etc.) are the venue for numerous socio-cultural and religious activities in daily lives as well as in festival seasons and act as ‘figure’ against ‘ground’ of compact urban fabrics.

Riverfront promenades, greenery parks and open spaces together with construction of huge palace complexes with extensive landscaping and gardening (covering the whole street blocks) developed in the Rana period (1846-1951) along the historical peripheral area represent another typology of public space. the networking of such public spaces together with the harmonious balance between man-made structure and natural ecology, integration of open and built spaces, and architectural composition of buildings and monuments all have not supported the existence of a culturally advanced urban society of ‘Newars’ in the Kathmandu Valley but they have also proved that those builders were extraordinarily skillful as well as capable of integrating visual and functional principles into the social needs (Hosken, 1974).

10.1.1 Urban Square

The inner city of Kathmandu, as Shrestha defines, has closed and compact settlement. Town consists of basically two elements, namely urban open space enclosed by buildings and built form. The reason behind it are, the first may be to economize the fertile agriculture land. Secondly, the close compact town is more easily defended. Thirdly, the compact settlement helps in the extension of communicable residential patterns. Social structures and community feelings are still intact in the inner city. Fourthly, the courtyard system is good for cold climates as it enables the preservation of energy.

Urban Square for outdoor living and recreational activities are essential elements to create better social and physical environment. Urban open spaces in some form or the other are an elementary necessity for healthy physical and social conditions. In addition to this, open space is needed for satisfying the various human activities and for the beauty of the city. The elements of urban square are the built forms like houses, temples, platform, pati, god houses (Dyo – Chhen) and wells. All these elements are related with the socio-cultural life of the people in the inner city.

The inner city of Kathmandu has district set of squares with clear hierarchy of socio cultural activities. The hierarchy of squares is determined on the basis of function and not on the basis of size and shape of the square. These are the spaces occupied for the religious activities or by any temples. Usually, Guthi related to the temple are responsible for the management and operation of these kind of spaces.

A space's identity is affected by how residents use that space and whether or not the space meets the needs of the residents. However, at the same time, inhabitants won't use public spaces unless they identify and feel connected with it. In order for a public space to be effective in creating a community, it must simultaneously be functional for use and be easy to connect to. These are constant shifts due to the influence of cultural exchange, technology and the changing political and economic system.

The major hierarchy of public open spaces since traditional period in Kathmandu are:

- i. Durbar Square/ The Palace Square
- ii. Market Square
- iii. Neighborhood Square
- iv. Private Residential Square

i. The Palace Square

This was the major public square shaped by the edges of the palace complex along with number of temples, raised performance platforms and sculpture elements like statue pillars. This square confirmed to the viable image of a public open space by the virtue of concentration of an array of activities in the form of major cultural proceedings like festivals and socio-political gatherings.

The palace square is the central urban area where the palace is located. This is also the space where all the streets lead to, whether as independent routes or as feeders to the main streets. The main street is along its length with the palace on one side and the temples on the other side. All the major Gods and temples are located along this space. Some Gods of national importance will be located in the market square or on the outskirts, they are represented by replica structures similar in concept and detailing to the original one. As a result of the number of development phases or its length of history, the Kathmandu Durbar Square appears and has some very complex space. The durbar square is a space where movement of the onlooker is required to feel its full importance. The essence of space lies, therefore in its changing combination of temples and bounding elevations and even after entering the square.

The palace square actually acted as an open air theatre, uniquely achieved by the demarcation, hierarchy and flow of spaces within spaces.

ii. The Market Squares

These were the major market nodes for mercantile exchange. Moreover, these were the public places for daily socializing, foyer for squares beyond and collection spaces during earthquakes, often marked by temples and structures of religious and landmark values. The visual anticipation is often provoked by a decent architectural element at the mouth of the square, leading to the dynamism of a major monument of high architectural value land marketing the square.

The market square is remarkable for its heightened urban space sense and has many elements of urban interest. Though some of these market squares may be smaller than some of the third order squares but this plays a great role in the socio-cultural scene of the town. These squares have attained such importance by virtue of main temple in the square that even the Durbar square is often culturally dominated. The market square is the archetype model square located at a street intersection. As each street coming into the space needed a visual focus, therefore each square is usually having more than one element of visual focus.

iii. The neighborhood Squares or Community Courtyards

These were the areas used by group of people living in a neighborhood. Usually, the Bahal are example of this kind of spaces. The purpose of these spaces are basically as the ground for day to

day activities such as playground for children spaces for communal celebrations, gathering, sun basking and so on.

iv. Private Residential Square

The private residential square is almost a large courtyard house designed for communal lifestyle of an extended family and can be conceived of as a continuous space largely independent of the street, the rest of the squares are depended on of the street for their visual and spatial appeal. These squares are laid out at nodal point or spaces where street directions change and two or more streets lead in or out of it and are always marked by some temple or religious landmark or sometimes just a stone water conduit or well.

10.2 MANAGEMENT PRACTICES OF PUBLIC OPEN SPACES IN KATHMANDU VALLEY

Mainly management of public open space is practiced in following three ways in Kathmandu Valley:

- By municipality or local government itself
- By preparing tender through private agencies
- By providing handover to local community groups

Rapid urbanization and haphazard sprawl has put a lot of stress on the open spaces available in Kathmandu Valley. Increasing in urbanization in tremendous pace has resulted in decrease of open spaces resulting in an unconventional city living style, traffic congestion and environmental pollution. Kathmandu Metropolitan City and Kathmandu Valley Development Authority has made certain plans to address the management of open spaces and to maintain the quality of life of urban residents. There is specific division for working on the cleanliness of the city by sweeping and collecting wastage from households. From the city level, KMC mainly focuses on Ratnapark, Tundikhel, Sundhara and other open areas as important spaces of the city core. 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.

The latest project for open space considered by KVDA is the development of 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 around 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. Different organization to look after the community are described as below:

- **Guthi:**

In Kathmandu, the public spaces were managed by the “Guthi”. The community has their specific Guthi according to the Gods they worship. They had the right to the Guthi land but after the Guthi Act, the Guthi are not active as they were before causing public spaces to deteriorate.

- **Local Clubs:**

These 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. Local clubs are one of the active form of organization in context of Nepal. It develops a sense of belonging and feeling of responsibility for the space to the local people.

- **Community Organizations**

Community organization covers a series of activities at the community level aimed at bringing about desired improvement in the social well-being of individuals, groups and neighborhood.

- **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. major obstacles on successful PPP in Nepal are entangled in all four phases of PPP cycle: identification, preparation, procurement and implement phases.

Management and planning for the street parking facilities are planned by the implementation of Public Private Partnership (PPP), with an agreement between government and the private sector regarding the provision of public services or infrastructure. PPP is a means of bringing together social priorities with the managerial skills of the private sector, relieving government of the burden of large capital expenditure and transferring the risk of cost overruns to the private sector. In this system, rather than completely transferring public assets to the private sector, as with privatization, government and business work together to provide services and the process is monitored by the local authority.

As a part of PPP implementation, reconstruction of Kamalpokhari, Balaju Park, Tinkune, Old Bus Park are also included in KMC plan on open spaces for the year 2010 targeting “Nepal Tourism Year 2011”. Due to the lack of institutional capability and loopholes in management, the plans which were intended to be complete in 2011, are still in the pace of implementation.

PPP is a form of procurement involving the use of private sector capital to wholly or partly fund an asset that would have been otherwise purchased directly by the public sector and used to deliver the public sector services. PPP can be defined as a joint venture initiative between the public and private sector, which takes advantage of the expertise of each partner, to best meet the clearly defined public needs through the appropriate allocation of resources, risks and rewards. The objectives of PPP can be summarized as follows:

- a. Cost effective delivery: The net present cost of a service delivered under a PPP should be lower than that achieved under traditional procurement, reflecting the benefits of competition, whole life costing, design innovation, improved efficiency and risk transfer.
- b. Good Quality Services: In principle, the quality of service delivered under a PPP should be equivalent or higher than that achieved under traditional procurement, reflecting the benefits of competition, innovation, performance incentives and planned life cycle maintenance.

- c. Clear customer focus: A PPP arrangement should help the public sector in general to focus more clearly on the services people want, rather than on the management of existing forms of service delivery. The shift in focus from service inputs to outputs can create the scope for innovation in service delivery and enhance customer focus overall.
- d. Enhanced service diversity: This can be done by exposing the provision of public services to competition and diversity, PPP should help enable the quality and cost of such services to be benchmarked against market standards, thereby helping to secure productivity improvements within the economy as a whole.
- e. Enhanced Incentive: Incentives can be enhanced by allocating risk to the party best able to manage it and by linking service payments to performance, PPP should provide a clear incentive to deliver capital projects on time and to budget and then to ensure that service standards are being met on an ongoing basis.
- f. Better asset utilization: Public sector assets can be better utilized by allowing the private sector to generate third party income from the commercial utilization of public sector assets.
- g. Improved project delivery: Project delivery capacity can be enhanced by using private sector finance where it is considered appropriate. PPP should promote the accelerated delivery of the public capital programme by enabling more infrastructure projects to be carried out within a defined period of time and by enabling the public sector to proceed with projects at times when capital budgets are constrained.

10.3 List of open space in KMC provided by City Planning Commission are:

S.N.	Location	Ward No.	Name of Open Space	Area Sq.M	Current Status	Managed By
1	Naxal	1	Narayan Chaur	10,266.17	Park in use	KVDA
2	Kamalpokhari	1	Kamalpokhari	20058.1174	Construction	KMC
3	Durbarmarg	1	Narayanhiti Durbar	384563.945	USE	KMC
4	Jamal	1	Traffic Island Jamal	302.2214	USE	KMC
5	Durbarmarg	1	Traffic Island Durbarmarg	193.4436	USE	KMC
6	Nagpokhari	1	Nagpokhari	3791.2272	USE	KMC
7	Naxal	1	Naxal Police Headquarter	76233.5393	USE	KMC
8	Hattisar	1	Hattisar	550.0425	USE	KMC
9	Durbarmarg	1	Durbarmarg	2127.6048	USE	KMC
10	Babarmahal	1	Ministry Of Education and Sports	52046.728	USE	KMC
11	Naxal	1	Police Headquarter	76236.5399	USE	KMC
12	Durbarmarg	1	Nepal Ind Dev Corporation	310.0267	USE	KMC
13	Thamel	2	Golkupakha	1623.9578	USE	KMC
14	Samakushi	3	Ranibari	3936.0249	Construction	KMC
15	Maharajgunj	3	Kanti Hospital	7232.7023	USE	KMC
16	Maharajgunj	3	Kanti sishu Bidhyala	12642	USE	KMC
17	Samakushi Road	3	Police Barrack	5763.9396	USE	POLICE
18	Maharajgunj	3	Teaching Hospital	44243.5409	USE	KMC
19	Ranidevi Marg	3	Raniban	55968.1791	USE	KMC
20	Chapalkharkhana	4	Shankhapark	41147.8953	USE	KMC
21	Chapalkharkhana	4	Kundalini Health Club	2653.6563	USE	CLUB
22	Basundhara	4	Traffic Island	19838.7729	USE	KMC
23	Tangal	5	Gahana Pokhari	1754.144	Construction	KMC

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24	Sano Gaucharan	5	Sano Gaucharan	9822.3732	Constructio n	KMC
25	Bishalnagar	5	Bishalnagar	3228.3508	USE	KMC
26		5	Ward Office	1156.8072	USE	KMC
27	Boudha	6	Hyatt Regency Hotel	82,979.29	USE	Hotel
28	Chuchepati	6	KUKL	75893.9175	USE	KMC
29	Boudha	6	Pambu Phant	9995.7847	USE	KMC
30	Chuchepati	6	Pasang Lamhu Park	454.8358	USE	KMC
31	Tushal	6	Tushal	454.8358	USE	KMC
32	Anandapur	6	Pasang Lamhu Sadak	1482.1179	USE	KMC
33	Chanakya	6	Chanakya Marg	5258.7654	USE	KMC
34	Boudha	6	Boudha	269.2374	USE	KMC
35	Mahankal	6	Mahankal Park	2957.2927	USE	KMC
36	Gopikisna	6	Gopikisna Parking	2842.3515	USE	KMC
37	Chabel	7	Bakot	3303.3003	Constructio n	KMC
38	Sifal	7	Sifal Ground	7019.8227	USE	CLUB
39	Dhobikhola	7	Dhobikhola	5761	USE	KMC
40	Chabel	7	Chabel Traffic Island 1	3022.499	USE	KMC
41	Chabel	7	Charumati Vihar	1936.2274	USE	KMC
42	Chabel	7	Chabel Traffic Island 2	3644.208	USE	KMC
43	Gopikisna	7	Gopikisna Marg	2842.3515	USE	KMC
44	Sukedhara	7	Sukedhara Traffic Island	5433.2797	USE	KMC
45	Kalopul	7	Kalopul	7213.9903	USE	KMC
46	Guheswori	7	Guheswori Water treatment	15021.1577	USE	KMC
47	Guheswori	7	Guheswori Water treatment	4325.2515	USE	KMC
48	Gaushala	7	Pandit Chabilal Foundation	11364.6052	USE	KMC
49	Guheswori	7	Adhikar Smpanna Bagmati Chettra	2801.3216	USE	KMC
50	Guheswori	7	Guheswori Chowk	1187.678	USE	KMC
51	Pashupati	8	Pashupati	93,000.08	USE	Pashupati Development Trust
52	Gaushala	8	Bhandarkhal Garden	80614.4192	USE	KMC
53	Gaushala	8	Bankali Garden	32394.6278	USE	Pashupati Development Trust

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54	Pashupati	8	Pashupati Park	4831.4777	USE	Pashupati Development Trust
55	Gaurighat	8	Gaurighat	25983.0093	USE	Pashupati Development Trust
56	Pashupati	8	Cow Farm	2408.7855	USE	Pashupati Development Trust
57	Pashupati	8	Mangala Gauri Batika	2964.7125	USE	KMC
58	Pashupati	8	Public Park	5510.5304	USE	KMC
59	Guheswori	8	Guheswori	7568.0778	USE	Pashupati Development Trust
60	Gaushala	8	Police Station	11006.9039	USE	POLICE
61	Binayak	8	Binayak Tol	2335.5763	USE	KMC
62	Airport	9	Airport Gluf Club	21702.3645	USE	KMC
63	Sinamangal	9	Aviation Museum	83298.226	USE	KMC
64	Naxal	10	Nandi Keshwar Garden	3147.2112	USE	KMC
65	Pradasani Marg	10	Tukhucha Khola	24851	USE	COMMITTEE
66	New road	10	Nayasadak Gate	7685	USE	KMC
67	Ramshah path	10	Padmodaya mod	3934	USE	KMC
68	Tripureswor	11	Dashrath Stadium	32,249.58	Constructio n	KMC
69	Maitighar	11	Maitighar Mandala	4471	USE	KMC
70	Singhadurbar	11	National Trading	6393	USE	KMC
71	Singhadurbar	11	Baggikhana	29515.129	USE	KMC
72	Singhadurbar	11	Singhadurbar	422300	USE	KMC
73	Tripura Marg	11	National Insurance	8370	USE	KMC
74	Thapathali	11	Nepal Rastra Bank	21238	USE	KMC
75	Babarmahal	11	Babarmahal	24415	USE	KMC
76	Ramshah path	11	Health Department	47141	USE	KMC
77	Pashupati	11	Bagmati Ghat	4603	USE	KMC
78	Minbhawan	11	Heavy Equipment Division	24566	USE	KMC
79	Babarmahal	11	Babarmahal Island	285.6222	USE	KMC
80	Sahid Gate	11	Sahid Gate	837.1872	USE	KMC
81	Bagmati	11	Bagmati Ghat	395.6688	USE	KMC
82	Bagmati	11	Bagmati Ghat	1093.3162	USE	KMC
83	Buddhanagar	11	Buddhanagar	271.4845	USE	KMC

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84	Tripureswor	11	Tripureswor Traffic Island	1623.2994	USE	KMC
85	Thapathali	11	Thapathali Traffic Island	1373.819	USE	KMC
86	Thapathali	11	Thapathali	3342.951	USE	KMC
87	Thapathali	11	Chesspark	1962.8146	Construction	KMC
88	Thapathali	11	Bagmati Ghat	44904.2359	USE	Committee
89	Babarmahal	11	Babarmahal Revisit	2244.4959	USE	KMC
90	Babarmahal	11	Forestry Department	999.7739	USE	KMC
91	Babarmahal	11	Tax Office	581.3813	USE	KMC
92	Babarmahal	11	Ministry Of Transport	7807.9889	USE	KMC
93	Babarmahal	11	Nepal Oil Co-orpation	2995.1398	USE	KMC
94	Babarmahal	11	CDO Office	728.4779	USE	KMC
95	Babarmahal	11	Urban Development Department	13118.8626	USE	KMC
96	Babarmahal	11	Royal Drug Ltd.	7007.7531	USE	KMC
97	Babarmahal	11	Nagarprahari	162.1059	USE	Committee
98	Singhadurbar	11	Sarbocha Adalat	2515.5494	USE	KMC
99	anamnagar	11	Kosha & Lekha Niyantran Office	938.7996	USE	KMC
100	Tripureswor	11	Eye Hospital	1438.8721	USE	KMC
101	Tripureswor	11	Department of custom	87.9284	USE	KMC
102	Tripureswor	11	Telecommunication office	1104.6629	USE	KMC
103	Tripureswor	11	Water Supply	2480.9836	USE	KMC
104	Tripureswor	11	Khanepani sasthan	791.949	USE	KMC
105	Sundhara	11	Central Jail	10926.7015	USE	KMC
106	Sundhara	11	Nepal Telecom	2038.3885	USE	KMC
107	Bhansighat Marg	11	Office	2101.466	USE	KMC
108	Tripureswor	11	Trolley Bus	1226.812	USE	KMC
109	Prasuti Marg	11	Conflict Mitigation Programme	312.0406	USE	KMC
110	Panchyan Marg	11	Office	3009.68	USE	KMC
111	Prasuti Marg	11	International Press Institution	3915.9392	USE	KMC
112	Singhadurbar Plaza Marg	11	Krishi Anusandhan Bhawan	5573.3141	USE	KMC
113	Singhadurbar Plaza Marg	11	Rastriya Samachar Samiti	3367.4313	USE	KMC
114	Singhadurbar Plaza Marg	11	Rastriya Mahila Aayog	1897.5682	USE	KMC

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					Constructio n	Committee
115	Teku	12	Chintamanighat	32422.7625		
116	Babarmahal	12	Sahid Sukra Galli	2150.331	USE	KMC
117	Babarmahal	12	Hyumat	3466.2407	USE	KMC
118	Teku	12	Pachali	548.634	USE	KMC
119	Teku	12	National Trading	25939.5073	USE	KMC
120	Pachali	12	KMC Building	5412.1726	USE	KMC
121	Dumping site	12	Cemetry	23481.6615	USE	KMC
122	Syuchatar	13	Syuchatar	2271.4525	USE	KMC
123	Syuchatar	13	Syuchatar	1300.9257	USE	KMC
124	Gyanodaya	13	Gyanodaya Marg	432.8794	USE	KMC
125	Gyanodaya	13	Gyanodaya Marg	378.4021	USE	KMC
126	Gyanodaya	13	Gyanodaya Marg	143.1359	USE	KMC
127	Soltee	13	Soltee Mod to Kuleswor	5450.0575	USE	KMC
128	Tankeshwor	13	Tankeshwor Ghat	28688.8717	USE	Committee
129	Kalimati	13	Kalimati Vegetable	18872.5829	USE	KMC
130	Red Cross Marg	13	Drinking Water Corporation	225.2245	USE	KMC
131	Bishnumati Tark Marg	13	Jilla Shikshya Karayala	954.1723	USE	KMC
132	Kirtipur	14	Jana Vikas High School	3247.2699	USE	SCHOOL
133	Kalanki	14	Sahid Memorial	3871.121	USE	KMC
134	Babarmahal	14	Balkhu	314535.042	USE	KMC
135	Kuleswor	14	Kuleswor Housing	942.237	USE	HOUSING
136	Kuleswor	14	Agriculture Input	9474.6141	USE	KMC
137	Swayambhu	15	Bhuikhel Ground	11903.4256	USE	Committee
138	Chaunni	15	National Museum	22131.0995	USE	KMC
139	Swayambhu	15	Amidewa Buddha Park	9609.3727	USE	SWAYAMBHUNAT H TRUST
140	Halchowk	15	Apf Sports Ground	127723.3166	USE	APF POLICE
141	Bhuikhel	15	Bhuikhel	2403.6615	USE	Committee
142	Babarmahal	15	Shovabhagwati	4637.6627	USE	TEMPLE
143	Swayambhu	15	Swayambhughat	541.6013	USE	SWAYAMBHUNAT H TRUST
144	Babarmahal	15	Jana Sudhar Bidhyala	1651.998	USE	SCHOOL

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145	Chaunni	15	Maitri Sishu Vidhyala Traffic Island	268.7324	USE	KMC
146	Chaunni	15	Millitary Museum Traffic Island	452.6412	USE	KMC
147	Chaunni	15	Chaunni	3449.1887	USE	ARMY
148	Swayambhu	15	Swayambhunath	317062.5096	USE	ARMY
149	Swayambhu	15	Swayambhu Jungle	61229.3557	USE	SWAYAMBHUNATH TRUST
150	Chaunni	15	Birendra Army Hospital	12992.5963	USE	ARMY
151	Chaunni	15	Nepal Telecom	14033.4952	USE	KMC
152	Babarmahal	15	Chaunni army Barrack	68117.9346	USE	ARMY
153	Babarmahal	15	Mahendra Ratna School	30404.6046	USE	SCHOOL
154	Swamim High School	15	Dallu Awas Planning Office	940.8106	USE	KMC
155	Dallu	15	Community Health Center	1904.9066	USE	KMC
156	Balaju	16	Baisdhara park	18791.9208	USE	COMITTEE
157	Paknajol Dallu	16	Saraswati Higher S.S	8850.0492	USE	KMC
158	Tahhiti	17	Thahiti	277.4885	USE	KMC
159	Babarmahal	17	Thahiti Traffic Island	410.233	USE	KMC
160	Yapikhya	17	Yapikhya Marg	3016.7116	USE	KMC
161	Dallu	18	Dallu Park	5617.7378	Constructio n	WARD OFFICE
162	Babarmahal	18	New Star school	1259.9305	USE	SCHOOL
163	Sankata	19	Yatkha Bahal	1392.6351	USE	CLUB
164	Babarmahal	19	Kangeswori	1124.8399	USE	KMC
165	Babarmahal	19	Mahendra High School	2515.5494	USE	SCHOOL
166	Teku	21	Lagantol	3074	USE	KMC
167	Teku	21	Lagantol	943	USE	Religious
168	Tahachal	21	Tahachal Chowk	4357	USE	KMC
169	Babarmahal	22	Election Comission Office	16,168.61	USE	KMC
170	Dharmapath	22	Bhogal Park	1929	USE	KMC
171	Sankata	22	Tebahal Sankata	4357	USE	CLUB
172	Basantapur	22	Kathmandu Durbar square	36264.6792	Constructio n	KMC
173	Ason	22	ITT Bahal	3834	USE	KMC
174	Putalisadak	22	Shankhardev	2024	USE	COLLEGE

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175	Ghantaghar	22	Trichandra College	21719	USE	COLLEGE
176	Dillibazar	22	Pk High S	6835	USE	COLLEGE
177	Charkhal	22	Bijaya Smarak School	5507	USE	SCHOOL
178	Mahadevsthan	22	Shree Sidheswor H.S	1907	USE	SCHOOL
179	New Road Gate	22	Nepal Airways	8369.1259	USE	KMC
180	Basantapur	24	Durbar Square	3085	Constructio n	KMC
181	Hanumandhoka	24	Durbar Square	18614	Constructio n	KMC
182	Ason	25	Ason Chowk	711	USE	LOCAL PEOPLE
183	Mahaboudha	25	Battu	426	USE	KMC
184	Mahaboudha	25	Chicken Atta	653	USE	KMC
185	Babarmahal	25	Chetrapati	3308.541	USE	KMC
186	Lainchaur	26	Lainchaur	4790.3671	USE	KMC
187	Swayambhu	26	Myaipei Ajima Temple	14681.5023	USE	TEMPLE
188	Gongabu Buspark	26	Traffic Island	638.0623	USE	KMC
189	Gongabu	26	Ntc Gongabu	510.9516	USE	KMC
190	Lainchaur	26	DudhBikas Sasthan	1072.466	USE	KMC
191	Lainchaur	26	Scout Headquarter	723.5447	USE	KMC
192	Lainchaur	26	Nepal Electricity Authority	220.6115	USE	KMC
193	Lainchaur	26	Department of Geology	353.0151	USE	KMC
194	Lainchaur	26	Post Office	971.1078	USE	KMC
195	Sorakhutte Chowk	26	Lekhnath Sahitya Sadan	1162.8179	USE	KMC
196	Ratnapark	28	Ratna park	177,288.49	USE	KMC
197	Jamal	28	Ranipokhari	53931.2128	Constructio n	KMC
198	Bhotahiti	28	Shantibatika	3964	USE	KMC
199	Tudikhel	28	Tudikhel	139678	USE	KMC
200	Maharajgunj	28	Nepal Academy	35586	USE	KMC
201	Old Buspark	28	Old Buspark	8310	Constructio n	KMC
202	Pradasani Marg	28	Bhrikuti Mandap	116114	USE	KMC
203	Sundhara	28	Sundhara, Hulak	7115	Constructio n	KMC
204	New road	28	Bir Hospital	9811	USE	KMC

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205	Pradasani Marg	28	Nepal Police Club	17095	USE	KMC
206	Ratnapark	28	Durbar High School	4387	Constructio n	KMC
207	Bhardrakali	28	Bhadrakali	358	USE	ARMY
208	Sundhara	28	Dharahara	7725	Constructio n	KMC
209	Pradasani Marg	28	Pradasini marg	7554	USE	KMC
210	Sundhara	28	Dharahara	3690.7584	Constructio n	KMC
211	Sundhara	28	Sundhara	1456.9937	Constructio n	KMC
212	Tourism Board	28	Traffic Island	873.9672	USE	KMC
213	Ranipokhari	29	Ratnarajya High School	2,721.00	USE	KMC
214	Balaju	29	Gongabu Buspark	171964.3832	USE	LOTSE PVT. LTD
215	Minbhawan	29	Minbhawan	37003.3834	USE	KMC
216	Mid Baneswor	29	R.R School	2,321.00	USE	KMC
217	Dillibazar	30	Napi Bivag	8724.4413	USE	KMC
218	Dillibazar	30	Hulak Sewa Bibhag	913.508	USE	KMC
219	Dillibazar	30	Charkhal Adda	4562.4116	USE	KMC
220	Bhimsengola	31	Bhimsengola	1151.0011	USE	CLUB
221	New Baneswor	31	Centre Co-operative Training centre	10889	USE	KMC
222	Padmodaya Mod	31	Padma Higher Secondary S.	2,230.23	USE	School
223	Bagbazar	31	PK campus	17,093.61	USE	Campus
224	Pradasani Marg	31	Rastriya Sabha Griha	13,589.23	USE	KMC
225	New Baneswor	31	BICC	84741.0422	USE	KMC
226	Babarmahal	31	Civil Aviation	39818.6085	USE	KMC
227	New Baneswor	31	Trolley Bus New Baneswor	15358	USE	KMC
228	Minbhawan	31	Civil Hospital	35391	USE	KMC
229	New Baneswor	31	Kathmandu Metropolitan Police	836.4813	USE	POLICE
230	Minbhawan	31	Minbhawan Campus	12349.8118	USE	COLLEGE
231	Minbhawan	31	Nepal Khanepani Sastha	3823.6123	USE	KMC
232	New Baneswor	31	EPS School	4967.5246	USE	KMC
233	New Baneswor	31	NCC	14338	USE	COLLEGE
234	Minbhawan	31	Napi Division	21990	USE	KMC

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235	Subidhanagar	32	Tinkune	28,372.15	Constructio n	KMC
236	Koteswor	32	Koteswor	12433.9707	USE	MAHADESTHAN COMITTE
237	Pepsicola	32	Pepsicola	5817.263	USE	TOWNPLANNING COMITTEE
238	Jadibuti	32	Jadibuti Traffic Island 1	2679.0371	USE	KMC
239	Jadibuti	32	Jadibuti Traffic Island 2	1243.5804	USE	KMC
240	Jadibuti	32	Jadibuti Traffic Island 3	291.2893	USE	KMC
241	Jadibuti	32	Jadibuti Traffic Island 4	348.1472	USE	KMC
242	Koteswor	32	Koteswor Traffic Island 1	2827.1865	USE	KMC
243	Koteswor	32	Koteswor Traffic Island 2	1497.7372	USE	KMC
244	Koteswor	32	Koteswor Traffic Island 3	5305.4344	USE	KMC
245	Koteswor	32	Koteswor Traffic Island 4	4290.8876	USE	KMC
246	Madevsthan	32	Madevsthan Island	213.6649	USE	KMC
247	Tinkune	32	Tinkune Traffic Island 1	376.3768	USE	KMC
248	Tinkune	32	Tinkune Traffic Island 2	471.4902	USE	KMC
249	Pepsicola	32	Pepsicola park	1585.2816	USE	KMC
250	Koteswor	32	Narephat	127746.1551	USE	KMC
251	Pepsicola	32	Himtaz Marg	2120.4853	USE	KMC
252	Pepsicola	32	Namuna Marg	7079.2012	USE	KMC
253	Jadibuti	32	Jadibuti Medicine	4802.6325	USE	KMC
254	Subidha Marg	32	Ku. K Building	755.9472	USE	KMC

(Source: City Planning Commission)

10.4 Management policies and practices of public open space

According to 83 open spaces to S.A.M, setting an Example in Nepal how parks and open spaces can strengthen communities' resilience toward disaster by Pooja Shrestha, in 2013 a joint Ministry of Home Affairs and the International Organization for Migration (IOM) assessment, with the support from USAID/OFDA, identified 83 open spaces suitable for Shelter, Aid and Medical Help (S.A.M) in the Kathmandu Valley. These open Spaces are designed to provide the initial response framework for the Government and partner agencies to engage in life-saving assistance to those in immediate need.

The Land Use Policy 2072 is the revised version of land use policy 2069 after April 25 2015 with a vision of minimizing risk and providing safe settlement. Land use policy 2072 has identified that internal migration, haphazard settlement and urbanization has resulted in the surge of agricultural land and increment in encroachment of government, public and forest lands. It also mentions the lack of open spaces in the urban areas.

According to line no. 10 of strategy 3 mentioned in policy 2, minimum green areas, open spaces gardens, sports grounds and recreation areas will be developed in the residential areas of urban and rural areas. Similarly, according to line no. 11 of strategy 3 mentioned in policy 2, open spaces and green belts will be constructed along the both sides of river, road, ponds and canals.

In strategy 4 of policy 6, it is mentioned that the residential areas of urban and rural areas will have minimum byelaws for the greeneries and open spaces.

According to the **urban environment management guideline 2067**, following tasks will be carried out to manage the open and green areas:

- Identify and prepare estimation of the probable open spaces, river banks and other green areas of urban areas and implementation of plans in those areas with involvement of local communities.
- As per public area management plan, respective authority will establish a separate section for the management of open and green spaces in the urban area and provide necessary physical, economic, human and other resources.

- While preparing plan for urban areas priority should be given to the open and green spaces and 2.5 percentage of land will be allocated at tole level for the development of managed open and green areas. It will be implemented at policy and implementation level.
- Plantation will be done along the roads, rivers, garden, park areas etc. and proper management will be done for their caring. Public private partnership will be developed for this purpose.

According to Bye-laws 2064, Kathmandu Metropolitan City is divided into various zones which include preserved zone and sports zone as well. Preserved zone is further sub-divided as green open sub-zone, park, forest sub-zone and cultural archeological and religious sub-zone. Green open sub-zone includes Dasrath Stadium, Tundikhel, Army Manch, Ratnapark, Bhrikuti Mandap etc. Park- forest sub-zone includes Raniban, Hatiban, Swyambhu, Bansbari and Zoo. These areas are meant for promotional and preservation only. The sports area includes Dasrath Stadium and Sano Gaucharan.

The by-laws have the following provision for community open space for planned residential zone:

- a. For 5 to 10 ropanies 5% of total land area
- b. For 10 to 25 ropanies 4% of total land area
- c. For 25 to 100 ropanies 3.5% of total land area
- d. For >100 ropanies 2.5% of total land areas

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

According to the KVDA, following measures is applied for the management of public open spaces:

- Without the permission from the implementing agencies, concreting cannot be done on the open spaces
- Conservation and management of open spaces is done through maintaining greenery by coordinating with the local community groups
- Construction of compound wall and walking track inside the open space
- Construction of wheel chair friendly park
- Implementation of ground water recharge concept

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

According to the Atlas of Open Spaces, for the implementation with objectives of proper utilization and preservation of open spaces within Kathmandu Valley, following points will be implemented in priority, putting into consideration the multi-dimensional benefits, environmental protection, greenery, disaster risk management and post disaster settlement plan.

- Public awareness on need and importance of open spaces should be enhanced starting from local level. This is particularly important given that open spaces are of vast importance to the completion of integrated development projects locally.
- In the present context, open spaces could be developed as green area. This will help to further enhance the urban natural beauty, through encompassing preservation and conservation.
- Open spaces are not complete without proper development of basic infrastructure (eg. Water facility, access to healthcare facilities, link to main roads etc). If that is done, open spaces can be used as an area for temporary settlement area in case of disaster or an emergency.
- The details of open spaces in Kathmandu Valley are still incomplete. They should be regularly researched and updated on the record.

- Regular monitoring and evaluation of the usage of open spaces should be done, using scientific data-base. This is more effective when done by local representatives and local government.
- Effective co-ordination amongst local government and stakeholders, NGOs should be sought for proper sharing of information and usage of open spaces. Any policy formed from this association will be of vital use.
- Standard Operating Procedure (SOP) shall be prepared by local government on the usage of open space in post disaster scenario. Government and stakeholders shall also agree upon procedures on post disaster situation.
- Open space management plan based on community has been viewed as most effective. Conservation based on local community capacity and co-ordination with NGOs and participation of locals is seen to ensure most effective usage and conservation.
- Significant change needs to be made from current state to prepare open spaces for contingencies and disaster. This could mean provisioning the storage of basic necessities keeping in mind the disaster preparedness.
- The community managed open spaces are observed to be suitable. The local NGOs and community organization should advocate for the preservation and promotion of open spaces through local participation.

Implementation of following plans will be prioritized for meeting basic requirement from open spaces within the valley:

- The atlas book (KVDA act, 2054) including the public open spaces, will be published in Government's official gazette as an integral part of Kathmandu Valley Development Project
- The public open spaces should not be permitted to land utilization and transformation acts. Open spaces should be the property of general public and no such space should be haphazardly given for utilization in any name (be it local clubs, schools, temple restoration, etc.). It has been seen that, schools lease or rent out spaces for commercial use. Notice prohibiting such practices will be published and made effective
- Based on location and size of open space, certain marked spaces could be used as multipurpose venue (eg. As cultural preservation site, disaster risk management,

entertainment activities, health activities, gardens for children). KVDA will take the lead in this initiative after proper consultation with local representatives and stakeholders.

10.5 Management of Balaju Park and Rani Bari community forest

10.5.1 Management of Balaju Park

Balaju Park situated at Balaju was constructed in 2026 B.S. for public. It covers an area of 160 ropani which is decreased due to the encroachment by roads and buildings. 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.

The park is well managed as there are staffs working 10 am - 5 pm every day. For the solid waste management, the overall wastage are collected in one dumping site and it is carried away by solid waste carrying vehicle. Deep boring is done in 2050 B. S. for provision of water so it is sufficient for the park except around the picnic spot.

Melamchi water project has helped for concreting in some areas of the park which has controlled in the haphazard flow of soil water during rain. Other than this, there are no any other organizations helping for management of the park. 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.

The major issue in the park is its boundary. There is no tight boundary due to which the problem of robbery is seen time and often. Due to open boundary at one side of the park, people enter the park without following its rules and regulations. There is separate space for picnic spot but there is lack of proper water and toilet facility due to which people are complaining about the problem.

According to the incharge of the park, Mr. Niranjana Basnet, KMC is not giving proper care to the park. Staffs working in the park insufficient for its management.



Figure 14: Map showing Balaju Park



Figure 15: Balaju Park

10.5.2 Management of Ranibari community forest

Ranibari community forest is also a public open space. The open space was present very earlier i.e. 200 -300 yrs ago. But it was developed into community forest in 2057 B.S. It covers an area of 6.95 ha. Main parent organization looking towards this public space is ministry of forest and soil conservation. The space is managed as space for visiting and protecting natural habitats rather than creating it as a park. It



is not developed as a place for recreation and place for children to play. About 70-80 visitors visit the place in daily purpose except those who come for morning walk.

The management process of the public space is decided by the working committee. In every 5 years, the tenureship is changed. Working committee members are selected through voting in every 5 years' time period.

Till now for the management of the forest area, some activities are carried out inside the boundary. For proper walking inside the public space, pathways are created by blocks. Boundary walls are constructed around the area. Staircase are also constructed in needed areas so that it will be easy

for visitors to walk in. Various plantation are also done in open areas for the beautification of the area inside.

Tourism board has helped financially for the management and maintenance inside the forest area. Parent organization and KMC has been actively involved. Private organization has also helped for the construction of certain buildings i.e. office room. Bio diversity conservation learning center is also being established inside the forest area.

Certain income is generated inside the forest area which will somehow help for the maintenance. Tickets bought by visitors i.e. rs. 10 per person and price for photoshoot is the income generated. For the safety, there is provision of security guard. There is separate staffs for gardening and maintenance of the area. Certain amount of money is provided by parent organization in monthly basis.

For the solid waste management, collection of waste is done which is carried away by the vehicle. Considering cleanliness and pollution there is no entry for plastics materials inside the forest area. There is also no entry for sound and music system. There is provision of ground water recharge system and rain water harvesting for water facility. Center for integrated urban development (CIUD), water aid and the Coca-Cola foundation are associated for water management inside the forest area.

Certain issues and problems are seen in the forest area. There is pressure from the society people for constructing “*Kriyaputri Bhawan*”. The area is mainly focused for bio diversity and pleasing environment for visitors rather than recreation and music. Some visitors force for organizing picnic which is against the plan of the community forest area. There are certain complain from some neighbors about the shade created by trees inside the forest area. Apart from the consumer community group, other people also want to enter in the organization which may create problem in the management due to maximum number of people. There is also no specific by - laws for constructing buildings around the boundary which may create problem of encroachment in later period.

As it is the public space, every citizen is not included in the design and planning. Differently abled people and elderly people do not have proper access inside the area due to lack of ramps and

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seating spaces. Long term plan is not prepared which would help for the proper management in long run.



Figure 16: Ranibari Community Forest

10.6 ISSUES REGARDING OPEN SPACES IN THE VALLEY

There are various issues regarding open space management in the Kathmandu valley. Some issues regarding open spaces are mentioned below:

- 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.
- There is no inventory and monitoring of open space. Encroachment of open spaces is a major issue. Decline in open spaces in Kathmandu valley and other major cities owes largely to unmonitored encroachment, a reflection of poor governance.
- 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
- The size of open space is determined by the population density of the area. The open spaces are used by the people of that certain area. The new by-law has declared the increase in FAR of the building which ultimately helps for the increase in floor height and people living in that building. But the open space remains the same, which is insufficient to the increasing population. So, this is the main issue regarding the management of open spaces.

11 INTRODUCTION OF SITE – NANDI KESHWOR BAGAICHA (NARAYANCHOUR)



Figure 17: Nandi Keshwor Bagaicha, Naxal, Kathmandu



Narayan Chaur is an open field located next to Naag Pokhari (kitta no. 470, 477) in WARD no. 1. It is located in the heart of Kathmandu in Naxal in the North East side of Kathmandu and is an

oval-shaped park - open land. The land has an area of 18 ropanis (2 acres). The design of the existing Narayan Chaur Community Park has been designed by Ar. Prabal Shumsher Thapa. Land ownership is Guthi Sanstha. The surrounding area has a high traditional and cultural significance with historical Narayanhiti Palace Museum, located on the west side and Nagpokhari Pond on the south side of the proposed site. In addition, the site is adjoined by Sama Marg on the north side where the visa application center for Australia, Canada, and Denmark is located. The east side of the site is occupied by a vegetable market and Shankha Kirti Mahabihar. Various banks, financial institutions, corporate offices, police head quarter and residences of high profiles are situated around the premises of the proposed site. Due to the diversity of land use around the area, the locality usually remains busy and mobile most of the time.

11.1 INTRODUCTION

The area has a high traditional and cultural significance. The park was selected for the purpose of beautifying Kathmandu Valley on the occasion of 18th SAARC Summit, held on November 26 and 27, 2014. This is also one of the initiatives and a first step towards the preservation and creation of multi-purpose open spaces within Kathmandu Valley.

11.2 HISTORY OF THE PARK

The park is popularly known as Narayanchaur at present and holds a historic heritage and was known as Nandi Keshwor Bagaicha during the 6th century. This fact has been affirmed while describing Kailash Kut Bhawan during the period of Anshuvarma. The “Nandi Keshwar” temple was built in B.S. 1858 by then queen Subarna Prabha Devi (second wife of



Figure 18: Nandi Keshwor Bahal

Rana Bahadur Shah. The Temple was surrounded by houses and patis (resthouses), and hence the area was also known as Nandi Keshwar Bahal. A shilalekh (stone scripture) was put at the western side of the temple area, in B.S. 1865 by a poet Vani Vilas Pande with scriptures written both in Sanskrit and Nepali languages. Another shilalekh, only in Sanskrit language, was added at the

northern side due to the previous one having grammatical errors. Daily rituals, management of the temple and the surroundings, and various festivities were held with the help of income generated from Guthi land holdings at that time. The garden was also one of the Guthi land holdings of the temple. The queen Subarna Prabha Devi used to worship in the Nandi Mahadev Temple using flowers from this garden, and hence the garden was named Nandi Keshwor Bagaicha. In B.S. 2004, Nandi Keshwor Bahal was brought to use as a school by the name of Nandi Ratri School. Even though the space has been adopted for modern times, the preservation of the temple, the surroundings and the garden area were neglected for many years. This was brought to attention by Mr. Narendra Bahadur Shrestha (Chairman of the Community Service Center Naxal), and efforts were made for the revitalization of the garden area. (Government, N,2015)

LAND USE CHANGES AND ENCROACHMENT AROUND THE PARK



Figure 19: Nandi Keshwor Bagaicha in 2012



Figure 20: Nandi Keshwor Bagaicha in 2013



Figure 21: Nandi Keshwor Bagaicha in 2014



Figure 22: Nandi Keshwor Bagaicha in 2015 (During Earthquake)



Figure 23: Nandi Keshwor Bagaicha in 2018

From the earlier year i.e. 2012 to till now, area of Nandi Keshwor Bagaicha has been decreasing due to the encroachment by roads. The surrounding built up environment is increasing tremendously. The new comers didn't know about the value of this space and so it was in degrading condition. Keeping in view of the historical importance of this open space, KVDA initiated the renovation process.

11.3 SITE CONDITION BEFORE DEVELOPMENT

The Narayanchaur was previously used for various purposes in the past such as dumping site, playing ground and parking lot. The surface soil at the project area is predominantly dark gray silty clay or black cotton silty clay with sewer odour and occasional sand pockets. This type of soil is suitable for growing grass and plantation. The top surfacial silty clay is underlain by clayey sand to sand at about 10 feet depth. Furthermore, ground water table was encountered at 19 to 26 feet during well boring (Nandi Keshwor Bagaicha Revival Project, June 2015).

The park had been neglected and deserted for a very long period. The park had been used for quite some time as a dumping site. The widening of roads had further worsened the situation with all the waste dumped in the field converting it into mini hills of solid waste. Despite regular concerns and best efforts from the local community, the area still consisted of garbage disposal in the south-eastern part of the park.

The condition of Narayanchaur before its revival was very dangerous. It was of no use rather than collecting waste. So, KVDA initiated the project for its revival due to its location, historical importance and need of people. After many meeting and discussion, the project was successfully constructed. Meetings were held during initiation phase, field approval, design discussions, with stake holders, management committee, etc.



Figure 24: Debris collected in the park



Figure 25: Water logged in the park

(Source: Nandi Keshwor Bagaicha Revival Project, 2015)

The objectives for the revival of Narayanchaur (Nandi Keshwor Bagaicha) were;

- To provide a dynamic public space that pays homage to local history
- Cater the need of different age group people: from children to elderly people

- To provide a health park which can be used by people from all side of lives for leisure, morning/evening walk, children playground
- Promote citizen engagement in preserving cultural heritage
- Make it a unique example of a minimum maintenance park
- Design the park to make a positive environment impact with appropriate ground water recharge and oxygen supply
- Incorporate the park as Disaster Risk Management Zone

According to Ashok Kumar Shrestha, various issues were confronted during the construction of the park;

- People with vested interest were against the construction of garden because the site was used as a mini transfer station for easy access to dump waste
- The source of funding was also major challenge in the initial phase
- Publics also raised questions about the security after the construction of mounds as part of landscape at four corners.
- Representatives from KVDA convinces local people about the security system of the garden and explained the uses and salient features of those mounds. Installation of a high surveillance system has been proposed
- Community police played a critical role in convincing the locals

11.4 CONDITION OF THE PARK AFTER DEVELOPMENT

The new design was done by the consultancy with the target to provide a dynamic public space, reducing acoustic disturbances, preventing water logging and allowing ground water recharge system. Different natural techniques are used for decreasing pollution. Mounds have been created to reduce acoustic disturbances and achieve minimal visual barrier. The trees planted along the garden acts as a medium to filter the air and sound. The central area is left for multipurpose use such as playground for children, recreational area for youth and resting space for elderly as well as for the purpose of disaster management. Sitting areas have been created for children and elderly. A walkway has been constructed around and connected with four access point at North, South, East and West. The park is specially designed with techniques to help ground water recharge and decrease air pollution.



Figure 26: Proposed design for Narayanchaur after its revival

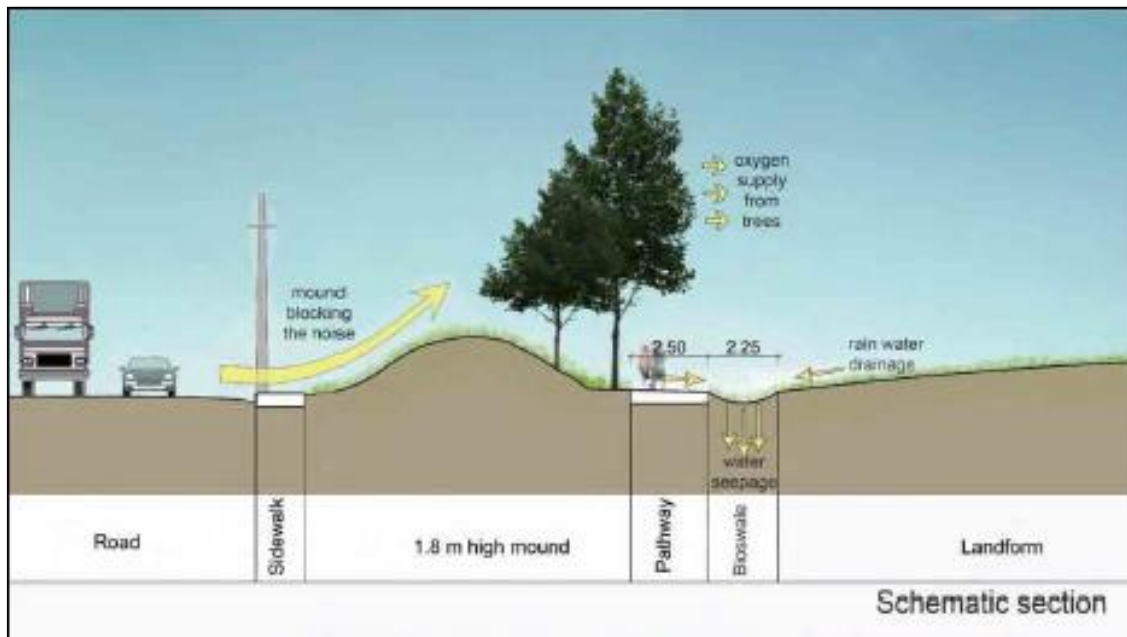


Figure 27: Section of the park after its revival showing raised mounds

The park is facilitated with following features:

1. Recharge Wells

Ground water is an important factor in soil conservation service operation. Large amount of water is lost due to runoff and evaporation in the same areas where ground-water supplies are being depleted. Added emphasis is needed on the conservation and use of excess runoff where there are possibilities for increased underground storage. In most of the areas, long-term withdrawal exceeds long-term recharge and water is being "mined". Without proper management to obtain a sustained yield, artificial recharge becomes a mere stop-gap measure. It may be possible to manage a ground-water reservoir like a surface reservoir.

Therefore, recharge wells are constructed in Nandi Keshwor Bagaicha to recharge the ground water table. Altogether six wells are constructed to recharge ground water table. The depth of recharge well is 8m. Aggregates and marble chips were filled up to 30 cm in depth.



Figure 28: Recharge well in the park

2. Grease Chamber

Grease traps and grease interceptors work by providing a “retention chamber” that is designed to slow the drainage flow, so as to permit grease to float and solids to settle in the chamber. This then allows less polluted water to exit through the drain lines and into the sewer system.

In the Narayanchaur, grease chamber is provided to trap the grease, oil etc. and to settle the solid particles present in the drain water. Chamber is specially designed to purify the road water up to certain level so that water can be used for recharging ground water table. Depth of grease chamber is 9 feet. Chamber is circular in cross-section and is made up of well rings of 1.0-foot depth and 1.2m diameter.

3. Rapid Sand Filter

Filtration is the process whereby water is purified by passing it through a porous material. In rapid sand filtration much coarser sand is commonly used as filter medium and the filtration rate is much higher than slow sand filter. Water from grease chamber is filtered in rapid sand filter and then it is supplied to the recharge well.

4. Soaking Filter Chamber

Altogether six soaking filter chambers are constructed in the park. Each soaking filter chamber is connected to the nearest recharge well. The purpose behind the construction of soaking filter chamber is to collect rain water and divert it to the recharge well. Soaking filter chamber enhances the water absorption rate. The length, breadth and height of soaking filter chamber is 2m, 0.7m and 1m respectively. Dry aggregate filling and sand filling is done up to the depth of 30 cm and 60 cm respectively.

5. Mounds

Four mounds are created at the four corners of the garden. Approximate height of a mound is kept at 1.8 m. The purpose of these grass covered mounds is to insulate the garden from outer noise of traffic. They not only provide aesthetic look but also divert the sound coming from surrounding traffic.



Figure 29: Mound blocking views from the road

6. Ramps

Two ramps are placed on each gate, making altogether 8 ramps in four gates. Ramps are constructed to provide easy access for differently abled. Width, length and depth of ramp are 1m, 2.5m and 0.45m respectively.

7. Railings

Railings are erected along the outer boundary walls for safety purpose. According to the ward person, various issues were encountered during the construction of railing, as some people were against the concept of construction. For the safety of garden from domestic animals, unmanaged and unorganized use of garden by local people, for example making playground for children, making parking lots etc., construction of railing was considered important. Finally, it was put in place addressing and considering all the issues regarding construction.



Figure 30: Railings around the park

8. Footpaths

Footpaths are constructed in and around the site. Pre-existing external footpath was widened to 3.5m in width. Footpaths inside the park are of 2.5m width and 25m perimeter. The footpath is surrounded by trees (*dhupi*) on the both side at the spacing of 1m. It is paved with interlocking concrete block and is surrounded by kerb stone. Five sitting platforms are provided around the footpath in the park. The footpaths are connected to main gate by flag stone paved platform of size 6 m by 6 m.



Figure 31: Footpath in the park

9. Plantation

Plantation in the park is done to protect natural land and preserve the environment. Trees reverse the impact of land degradation and provide food, energy and income, helping communities to achieve long – term economic and environmental sustainability. Trees also filter the air and help from the effects of climate change. Trees are planted in the hump pipe of diameter 60cm at about 1m from the boundary wall and at the spacing of 4m in the outer footpath.



Figure 32: Plantation in the park (Source: *Nepalitimes.com*)

During earthquake of 2015, this park was used as a shelter.



Figure 33: Shelter during earthquake 2015

11.5 CRITERIA FOR ENHANCING OPEN SPACE (VARIABLES)

a. Access and Linkage

Narayanchaur is accessed from different locations. Since it is Neighborhood level public space, most of the people from nearby community visit this place by walking or by private vehicle. Also, this place is near to Nagpokhari (culturally important area) and Narayanhiti Palace, so people visiting these places also visit Narayanchaur. As the park is newly formed and managed in the Kathmandu Valley, so people from other areas also visit here through private or public vehicles. The public vehicle moving to Ratnapark, Baneshwor, Koteshwor, Baluwatar and similar places are easily accessible from the park.

Due to the parks and playgrounds, the site is accessible for children. Children come to visit this are with their parents. Due to the school nearby, school children also visit the park during their break time and after school. The seating and ramp provided for differently abled and elderly people, help them for entering into the park. So, the park is accessible for every age group of people.

b. Comfort and Image

The area inside the park is safe and secure. The 24 hours' security and the open environment helps make the environment safe. The good environment with less air and noise pollution in the park leads to the comfort zone inside the park.

c. Use and activities

Most of the people visit the park for morning and evening walk due to its proper walking track. The less polluted environment inside the parks makes easy for walking.

People also visit the place for recreation, gathering with friends and relatives. Some people bring their children along with them for refreshment. The seating and greenery provides relaxation for the people.

Reduction of cultural space and negligence of social artefacts have not only adversely affected the people's relaxation, socialization, communication and celebration of events but also helped in the obliteration of memories of place. This has impact on weakening the social ties and public life,

hampering the scope of bringing people from different societies together. The use of such type of public spaces increase sociability among people.



Figure 34: Different activities in the park

d. Sociability

The gathering of people helps for the use of public spaces. There are various opportunities that promotes social life in the park. The design helps for people to stay and relax in the park.

11.6 MANAGEMENT PRACTICES DONE SINCE THE REVIVAL OF THE PARK

After the construction of the park, it was handed over to the Community Service Center Naxal for the maintenance of the park. The ward office is also responsible for the maintenance of the park. For any event and programs to be organized in the park, there should be permission from the service center and the ward office. The practices done till now for the management of this area are:

- Cleanliness is done by the local community people and the community police and army groups

- Provision of grass cutting machine from Sanima Bank, located at the eastern side of the park
- Coloring in the railings and seating by the ward office for beautifying the area

11.7 INSTITUTIONAL CONFLICT OF NANDI KESHWOR BAGAICHA

According to the DY-Administrator Saroj Thapaliya of Guthi Sansthan, they are not much satisfied with the renovation of the park by KVDA. Nandi Keshwor Bagaicha is the space with historical significance. It is located immediate to the Nandi Keshwor temple where flowers from this space were used to worship in the temple for the goddess. The park was 21 ropani during early period. After the encroachment of roads, 2-2.5 ropani land has been decreased. Due to growing of flowers, the garden was protected in earlier days but later it was used as a dumping site and disposal area. Government of Nepal took the land for making of Jana Andolan Smriti Park but it did not do payment to the Guthi Sansthan. According to Mr. Thapaliya, Guthi Sansthan itself had made plan of 70 lakhs for conserving the open space during SAARC summit but KVDA used the land for making a park. The owner of the land wants to get the payment or the land back for conserving according to their plan. So, there is institutional conflict among Guthi Sansthan and the Kathmandu Valley Development Authority.

12 DATA ANALYSIS AND DISCUSSION

My research is based on the qualitative and quantitative data obtained from primary and secondary sources. The primary data were collected from the questionnaire survey and discussions with the various stakeholders and responsible communities. These interviews and questionnaire survey provided the information required to understand the views of the user group regarding the area and its aspects.

12.1 ANALYSIS BASED ON QUESTIONNAIRE SURVEY

A random survey of 49 people was done and their views regarding the areas was taken with the questionnaire prepared for gathering the information.

Survey was taken in different time and day of the week i.e. morning time, afternoon time and evening time. To calculate the visitor in the park, data was calculated from Saturday and other working days and average was calculated.

i) Morning time

- Time: 6 am to 9 am
- Total people: 208
- Sampling method: Convenience Sampling method
 - 10% of total population = $208 \times 10\% = 21$ people

ii) Afternoon time

- Time: 12 pm to 4 pm
- Total people: 48
- Sampling method: Convenience Sampling method
 - 20% of total population = $48 \times 20\% = 10$ people

iii) Evening time

- Time: 4 pm to 6 pm
- Total people: 180
- Sampling method: Convenience Sampling method
 - 10% of total population = $180 \times 10\% = 18$ people

12.1.1 Total number of people in the Park

- Per day people visiting the park: 436 (average)
- Maximum number of people were found in the morning time mainly for morning walk
- Minimum number of people visit the park during day time

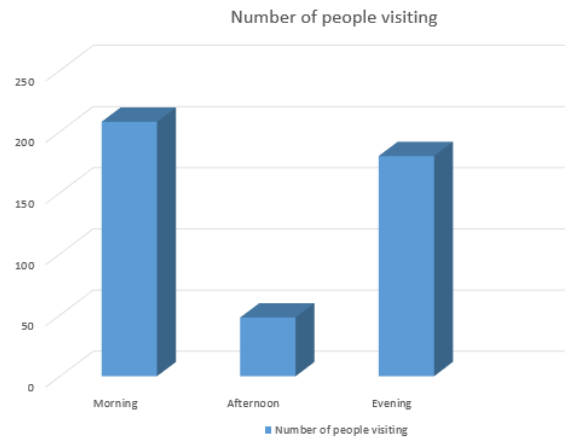


Table 2: Total number of people in the park in different days:

No. of Day	Morning	Afternoon	Evening
Day 1(Saturday)	224	60	206
Day 2 (Friday)	205	54	184

Day 3 (Tuesday)	195	30	150
Total	624	144	540
Average	208	48	180

12.1.2 Composition by gender, age and religion

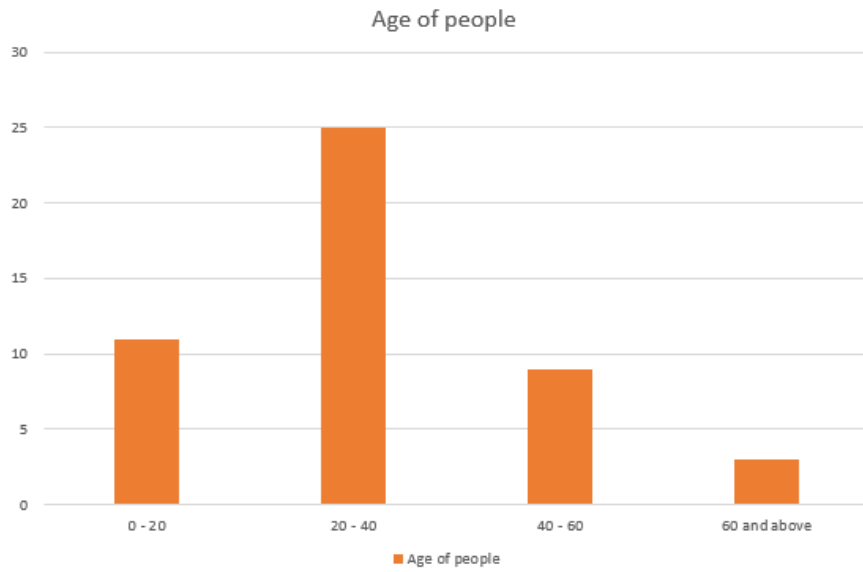


Figure 35: Sample composition by age
Composition by Gender

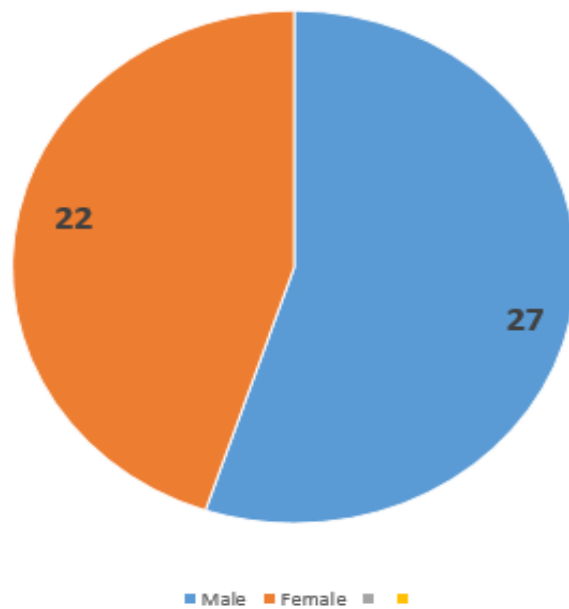


Figure 36: Sample composition by gender

The composition of the sample according to the gender was found that percentage of male visiting the park was 56% and female was 44%. And it is also seen that people with age group 20 – 40 years mostly visit the park in comparison to other age group people.

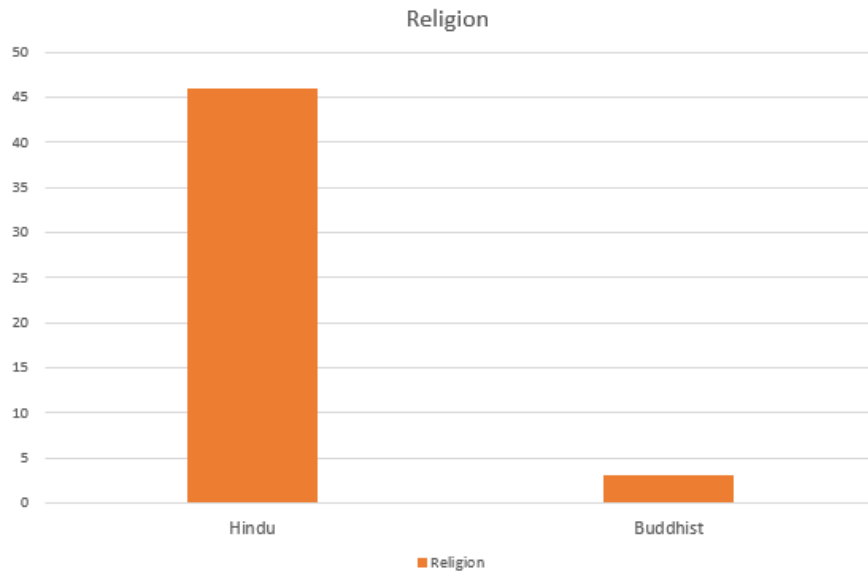


Figure 37: Sample composition by religion

According to religion, it is found that people who follow Hinduism mostly visit such type of public spaces for recreation and other activities. Among 49 sample, it is found that only three person follow Buddhism other rest are Hindus.

12.1.3 User Groups

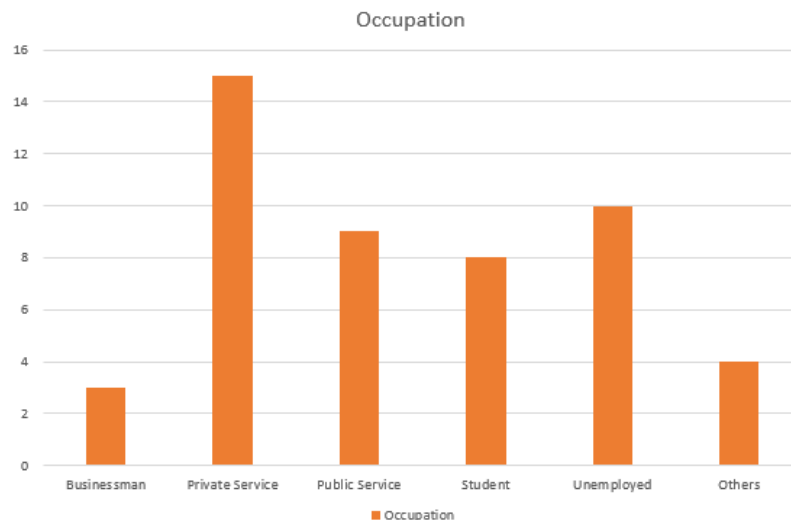


Figure 38: Various occupation of the user group

In the study area, people from different occupational status were observed. The composition of various occupation is illustrated in the above graph. Majority of user group were found to be involved in the private service (15/34) where as some were found to be involved in public service works (9/34). Unemployed and retired people also come to visit the place during morning and evening time for recreation.

12.1.4 Time preference by the user

The users were also asked about the time of preference for them to visit the site. It occurred that most of the people preferred to visit at the morning. The area was also observed more lively during the evening time. As most of the people of age group 20-40 years visit the place and almost all of them are job holder. So, they need some recreation during the evening time and visit the park. People visiting in the morning are mostly for morning walk purpose and they also visit during evening walk. The place is both useful for walking and recreation.

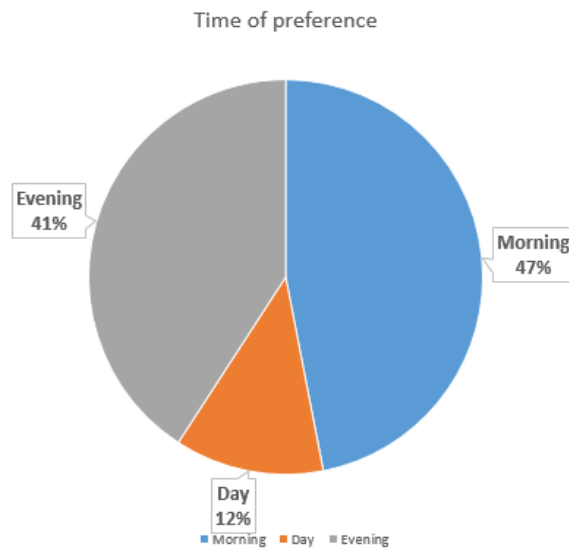


Figure 39: Time preference by the user

12.1.5 Means of access to the site

The choice of means of travel depends on various aspects such as economic status, proximity of the site, preference of the user, ownership of private vehicle, purpose of visit and many more. Since, Narayanchaur is Neighborhood level park, so it is found that most of the visitors visiting

the park were from inside the valley and nearby around the park. So, most of the people prefer walking. It is found that 76% people visiting the site were from inside the valley. And 60% prefer walking, 35% in their private vehicle and rest others use public vehicle for visiting. The main reason for people walking is due to the close proximity of the park from their settlement area.

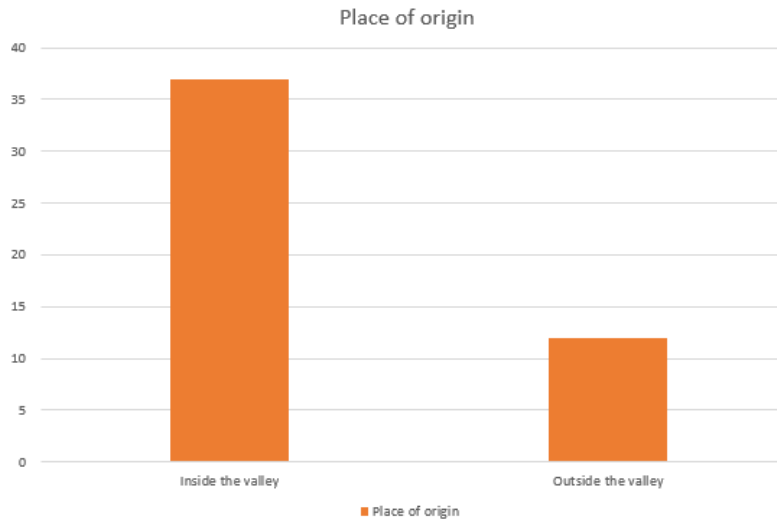


Figure 40: Place of origin of user group

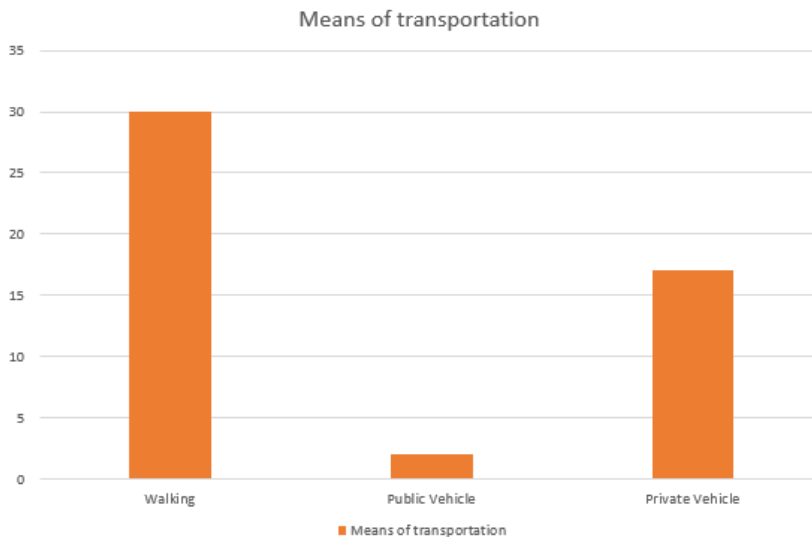


Figure 41: Means of transportation preferred by the user

12.1.6 Purpose of visit

It is essential to know about the main purpose of visiting the place by the user group. It gives the idea about the features that attracts people to come and be involved in the activities. From the survey, it is found that most of the people visit this place for recreation (33%). People also visit

mostly for gathering with friends (18%). The place is the center of attraction and due to its clean environment and less pollution, people visit here for recreation. 18% people visit the park with their children and 26% for walking in the morning and evening.

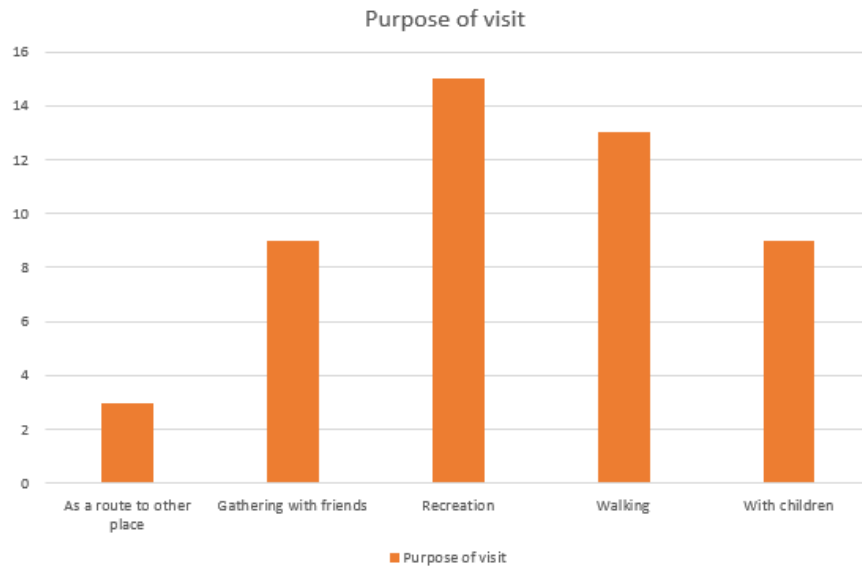


Figure 42: Purpose of visit

12.1.7 Frequency of visiting the park

From the survey, it is found that 41% people mostly visit the site 2-4 times a month and 30% people visit twice in a week. 25% people visit the park daily for walking purpose. The study shows that, people are satisfied with the park so that they visit the place time and again. The question for satisfaction was also asked for the user and 88% of them said they are satisfied with the place. It is found that the park is good and managed enough to satisfy the visitors.

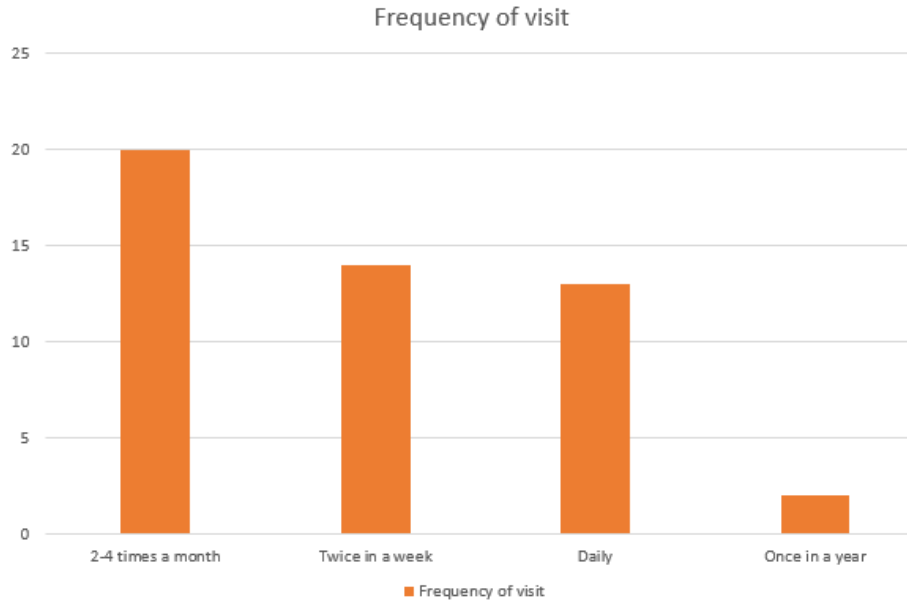


Figure 43: Frequency of visiting the park

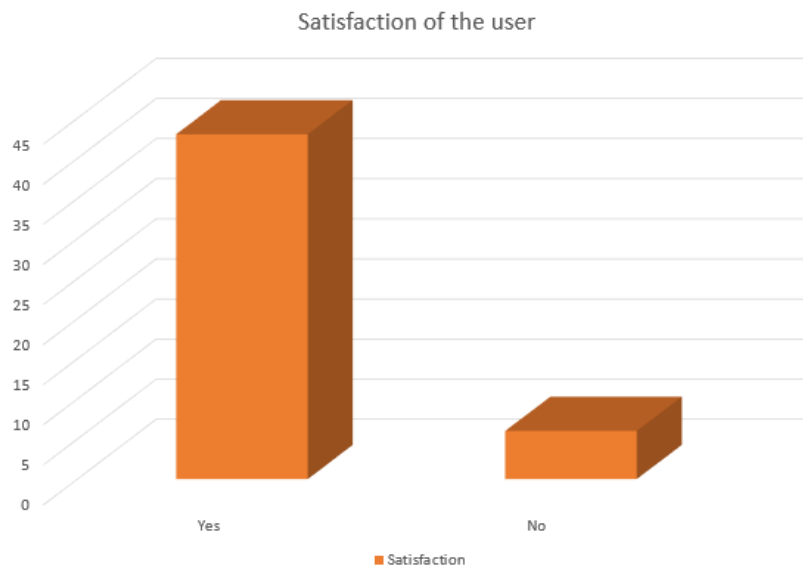


Figure 44: Satisfaction of the user

12.1.8 Condition of the area

During the survey, users were asked how they felt about the condition of the area. 91% referred the place is managed. The clean and safe environment and less pollution is the main factor that declared the place is managed. 29% people said the place is clean, safe and less polluted, 23% of them said it is clean, safe, less polluted and beautiful.

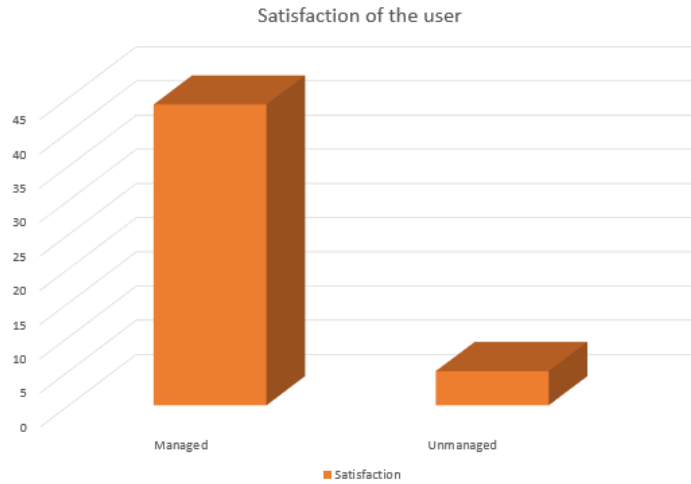


Figure 45: Users views regarding the condition of the site

12.1.9 Safe and Inclusive nature of the park

Due to the center location, environment inside the park and facilities, 80% people think that the place is accessible for everyone. But remaining 20% feel that the place is not more comfortable for elderly people due to the lack of sitting spaces. Due to the open area and security inside the park, 94% people feel safe inside the park. This means there is proper management regarding safety and inclusiveness of the area.

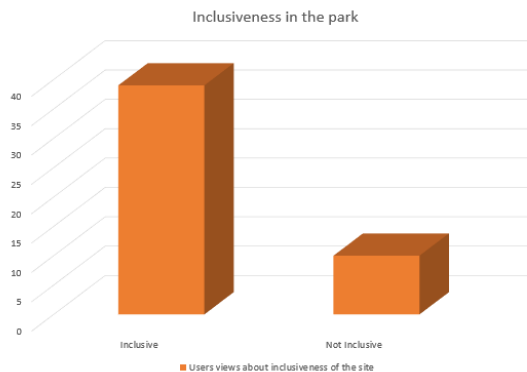


Figure 46: Users views about inclusiveness in the park

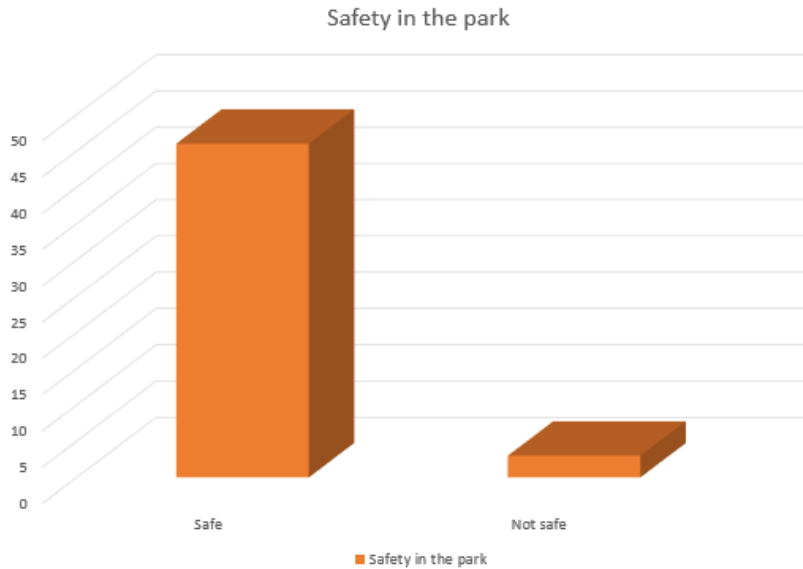


Figure 47: Users views about safety in the site

12.1.10 Motivation factor for visiting the site

During the survey, people were asked about the motivation factor about the place to visit. 47% people said that clean environment of the area influence them to visit there. 26% and 18% people said about the beauty and recreational area of the site makes them to visit there. According to the user, 79% of them find walking space as the proper facility in the site and 15% said that along with walking space, seating spaces are also the facility provided inside.

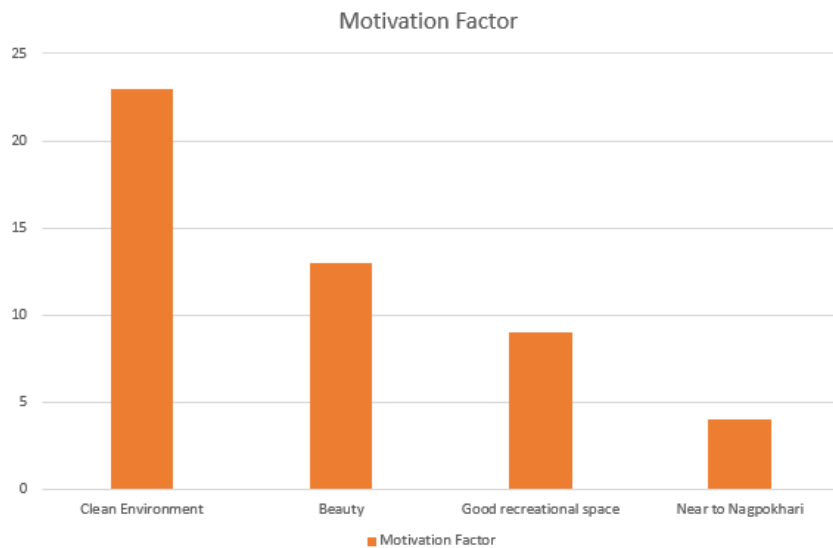


Figure 48: Motivation factor for visiting the site

12.1.11 Problem in the site

Visitors were asked about the problem in the site and what would they change if they would be provided with opportunity to manage the place. 59% of them found the lack of infrastructure facilities inside the park and most of them said there need to be a toilet in the site. 21% of them also want the good landscape design in the park to look it more beautiful. Most of the elderly people (11%) also found the lack of seating spaces and some of them (9%) find the lack of greenery in the park.

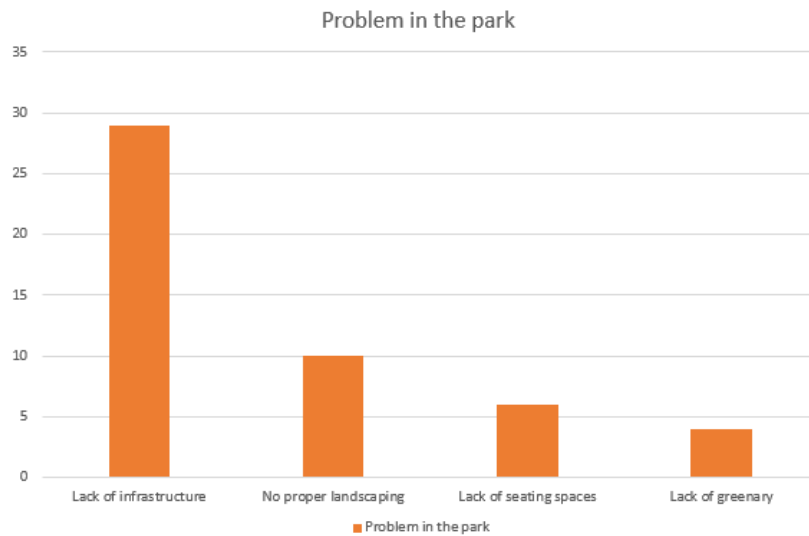


Figure 49: Problem in the park according to users

Survey and interviews with the people of nearest ward:

For getting information about use of the park by the nearby people, nearest location was selected. People of ward number 2 which is located near the Nandi Keshwor Bagaicha were surveyed. Gairidhara, Baluwatar and Tukucha were the area selected. It takes 5 mins walk to reach the Bagaicha from these areas.



Sampling Method: Random Sampling Method

- Total HH in Ward no. 2: 2500 (source: ward office, Tukucha)
- 3% of the total household: $2500 \times 3\% = 75$ HH

i) People Visiting Different Parks

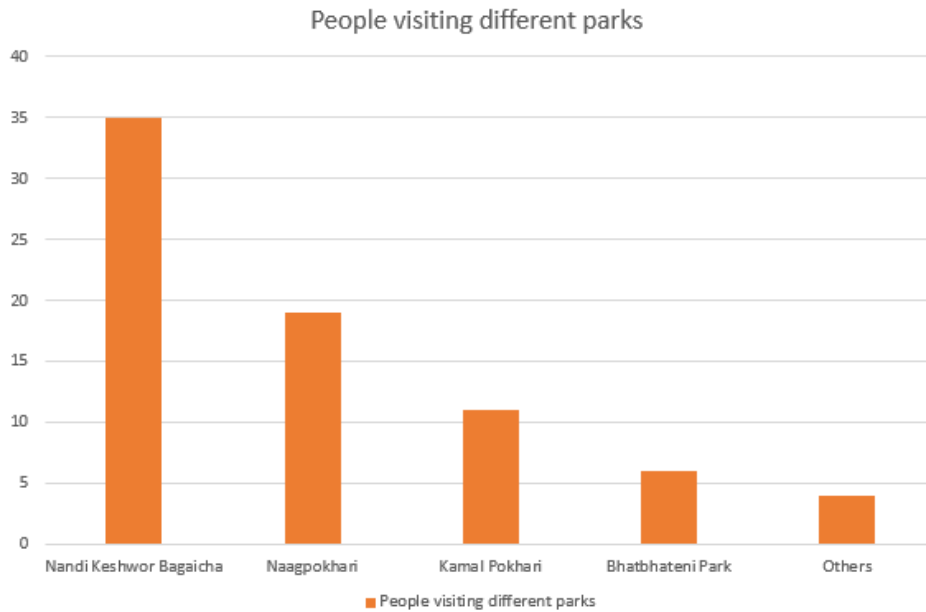


Figure 50: People visiting different park from ward no.2

From the above chart, it is clear that the people from ward no. 2 visit Nandi Keshwor Bagaicha mostly as compared to other parks. Out of 75 household, 35 visit the park.

ii) Frequency of visit in the park

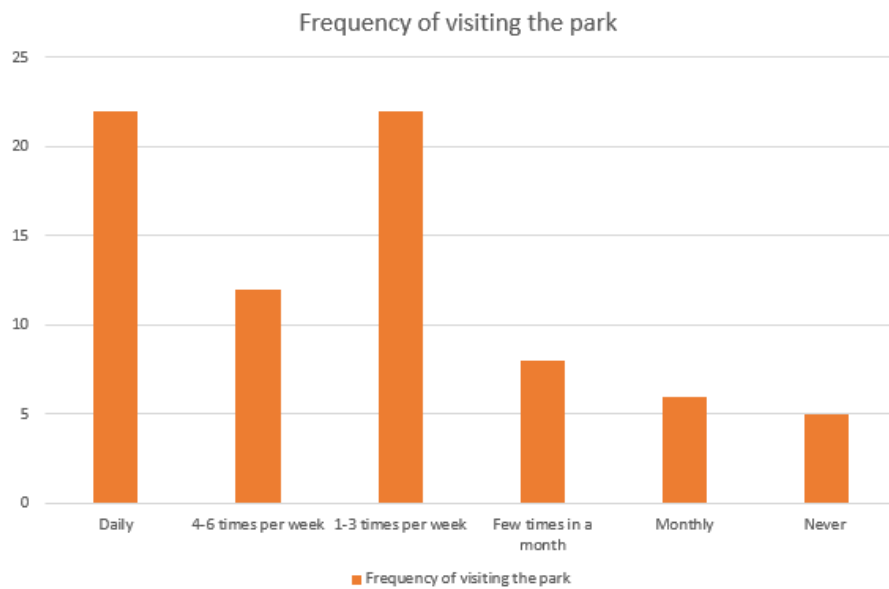


Figure 51: Frequency of visiting the park from ward no. 2

Maximum number of people visit the park daily for different activities and mostly for morning and evening walk i.e. 30% and then others are followed by 4-6 times per week and 1-3 times per week.

iii) Activities in the park

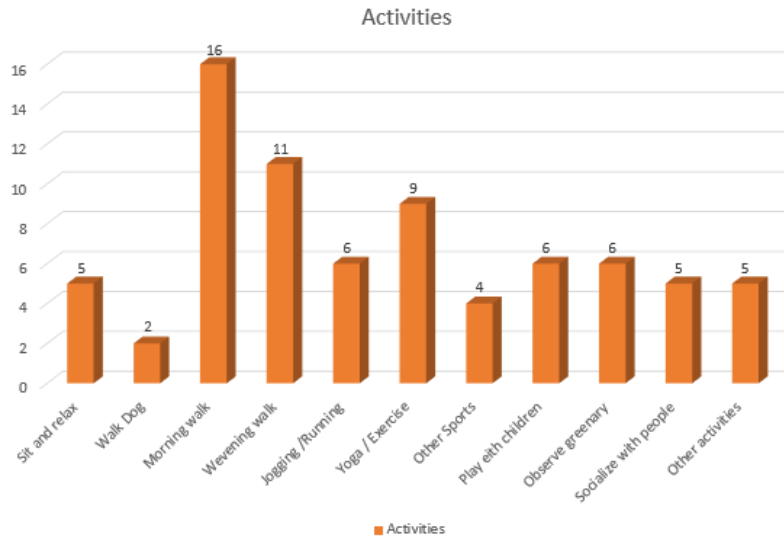


Figure 52: Different activities in the park

From the chart, it is seen that the park has been mostly used for morning and evening walk by the people. It has also been used for yoga and exercise/ Other than that, children use the park as their playing area. Hence, park has been mostly used for recreational activities.

iv) Time spent in the park

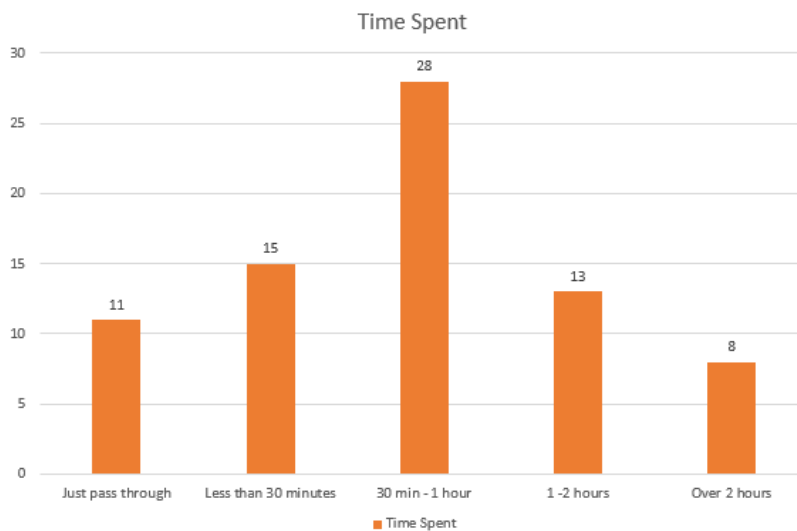


Figure 53: Time spent by people in the park

It is found that, most of the people stay in the park about 30 minutes to 1 hour during their visit. It can be concluded that people at least visit for half an hour to one hour to refresh themselves from their busy schedule.

v) **Made the area more attractive and beautiful**

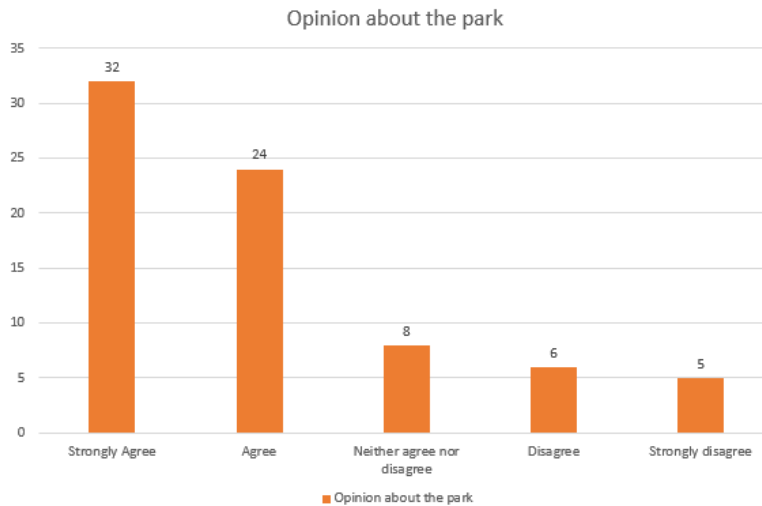


Figure 54: Opinion about the park

Maximum number of people strongly agree that the establishment of the park has made the surrounding area more attractive, lively and beautiful.

vi) **Level of satisfaction**

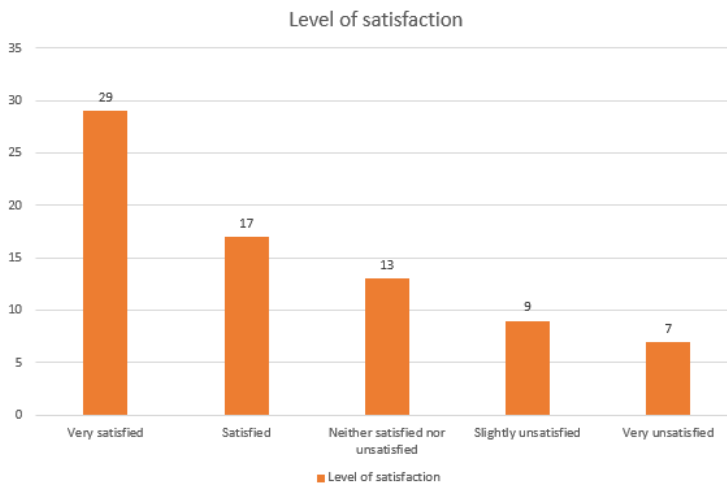


Figure 55: Level of satisfaction

Maximum number of people are very satisfied with the establishment of the park. Park has proven to be beneficial to the community.

12.2 DISCUSSION

From the above survey data, we can find the view of people and their perception about the management of the park. We can see that, people of age group 20 yrs to 40 yrs mostly visit the place for recreation. Less number of children and elderly people visit here as there is insufficient playing area and proper sitting and hanging space for elderly people. Almost every people visiting the park are Hindu and only some percentage are Buddhist. It shows that other religion people mostly visit Church or Masjid or Gumbas.

As the park is surrounded by private organizations, most of the people visiting here are private employee. And during the evening time or during holidays, students are also seen around the park.

Time for visiting the park depend on the age group and occupation of the visitors. Student and workers mostly visit during evening time and holidays. They gather along with friends for recreation and for playing. Elderly people mostly visit here for morning and evening walk. According to them, the park is suitable for walking as it is pollution free and clean and safe. There is not enough hanging space for elderly people, so they were only seen for walking purpose.

As the park is neighborhood level, people of nearby places visit here. So, maximum number of visitors visit the place by walking. Those who are a bit far, use their private vehicles. As the park is at good location, there is good road network and easy access to vehicle. Location is also one of the main criteria for planning and managing the open spaces.

As the park is mostly visited by young age people, they come here for recreation. Mostly park is occupied by people who come for walking and for gathering with friends. So, people visit the park daily (who does walking) and 2-4 times a month (who come for recreation). For what purpose open space is used should be mainly kept in mind. The infrastructure and element in the open space should be planned according to the surrounding built up areas.

Narayanchaur is renovating park, which was a dumping site before. So, neighborhood people are satisfied from its renewal. The area inside is clean and safe so it is managed according to their perspective.

12.3 ANALYSIS

Narayanchaur is the good example in Kathmandu metropolitan city for the proper management of public open spaces. It is good enough for the people to visit the place for recreation, gathering with friends, bringing children and many more. The facilities provided inside the park as discussed earlier has helped for the management of the place. The provision of security has created the safe environment in the park.

Narayanchaur is the neighborhood level park serving mainly the people of that neighborhood. The condition of the site was vulnerable before its management. After the management of this park, this place is very lively. Stakeholders and local people seems to be happy by revival of the park. The park is also at good location where public vehicles move from other main areas of the valley. The history of the park is also interesting which will influence for its management.

Some problems are there in the park regarding maintenance and facilities. The major problem analyzed was the lack of toilet inside the park. Toilet is the major infrastructure to be considered in the park. Although there is provision of dustbin in several places in the park, people are unaware about the cleanliness. There is seen the haphazard throwing of plastic and other food materials in the ground which if increases in the same rate may create problem of solid waste. The maintenance of the grass in the park is also the important element to consider. The seating spaces provided on the walk ways are not seen sufficient. Elderly people are not getting proper seating areas inside the park which should be managed.

During the management process of Nandi Keshwor Bagaicha also there were different issues confronted. From the users perspective, the park is well managed, they have got recreating and gathering spaces. The environment of the neighborhood is changed by the management of the park. But, the guthi organizations are not much happy with the result of the management. There were certain institutional conflicts among the Guthi organizations and the KVDA. KVDA has taken the responsibility for the management of Nandi Keshwor Bagaicha. According to Guthi organizations, KVDA did not concerned properly with the required authority for changing the plan and also they have not provided required payment to the guthi organizations. The area of the Nandi Keshwor Bagaicha was 22 ropani earlier but due to the encroachment, it is now decreased to 18 ropani land.

Besides the infrastructures, there is sense of belonging of the place. The local people, private organizations and other stakeholder are aware about the management and maintenance of the place. The wanting of the people to look the place and surrounding better, is the major factor for the management. Local people have compared the place of today with the same place of yesterday where they have seen much more differences. The management of Narayanchaur have made impact in their daily life activities. The interest of private organizations in maintenance of the park is the positive impact of its management.

If the maintenance of the place continues, it will be the good example for the managed public open space in the valley. But if there will be decrease in interest among the people, it will again loose its identity. The history of Nandi Keshwor Bagaicha will lost and there will be the change in the use value of the place. The neighborhood public space will degrade if there will be lack of interest among the people about the management of these spaces. So, to make the good example of the public open space, the management of those space is most.

12.3.1 Management practices of three parks

Balaju Park	Ranibari Community Forest	Narayanchaur	Remarks
Location: Balaju	Location: Lazimpat	Location: Naxal	
Area : 160 ropani	Area : 6.95 ha	Area : 20 ropani	
Managed by KMC	Managed by community	Managed by community	
25 staffs working	5 staff working	One staff i.e security guard	
KMC is fully responsible for financial management	Community and other organizations are responsible for financial management	Community and other organizations are responsible for financial management	
Neighborhood people mostly visit the park	People of ward no.3, 26, 16, 2 and 4 mostly visit the community forest	People of neighborhood mostly visit the park	
It is used for recreation and refreshment	It mainly focus on conservation of bio-diversity and also some recreation	It is used for recreation, refreshment and exercises	
It is under Environment management division and KMC	It is under ministry of forest and soil conservation	It is under <i>Guthi Sanstha</i> and KMC	

13 FINDINGS

The literature review identified the key concepts that should be incorporated in the planning of public open space in residential neighborhoods. Each value of open space i.e. environmental, social, economic and aesthetic should be incorporated during the management. The variables of open space i.e. access and linkage, comfort and image, use and activities and sociability should be the major criteria during planning.

A number of salient factors, which directly or indirectly influence the use of open spaces of the study area are brought out in the findings. Among them is the condition of open space in terms of facilities, amenities, site planning and design, solid waste management and condition of the landscape. In addition, the open space also exhibit significant management problem.

The research also finds that management of the public spaces will led to the happiness and the safety of the public. The good environment will help for the betterment of the neighborhood which ultimately led to the quality of life of the people. But the lack of proper policies related to the management of the public spaces has increased in the conflict among the stakeholders and the implementing agencies. Organizations only work for their benefits which will help only for the temporary benefit of the people. Various issues related to the management, has helped the third party to encroach in the area. Management of public open space is most in the Kathmandu Valley but it should be done in permanent way. The ownership of land is the main cause for the conflict between users.

Management of the park has proven to be very beneficial to the community in every aspect. The park in the present condition requires regular maintenance such as trimming the grasses, trees, management of the waste, etc. Making people aware to keep the park cleaner. Because they are the one who use it and they themselves are responsible for its maintenance. The solar lights in the park should be checked and maintained. As the existing one do not work. Maintenance of the children recreational area is also required. And more sustainable features can be added to the park. The value of open space i.e. environmental, social, economic and aesthetic and the variables of open space i.e. access and linkage, comfort and image, use and activities and sociability, should be incorporated during the management of open spaces.

In Kathmandu valley itself there are many chances of finding open spaces even in the core urban areas such as Narayan Chaur. Need not necessary it has to big in area. These open space needs to be found and those open spaces could be converted into beautiful green spaces which will not only help to improve the environmental condition but will also plays a vital role during the natural disaster. Now the people have understood how important the open space is. It's high time that people should be well aware to create open spaces in different place considering the advantages provided by Narayan Chaur Community Park. Side by side government should also formulate policies and program for the constructions of open green spaces especially in the urban core areas of the country. Creating multipurpose open green space that will be used for recreational purpose as well as during the disaster also.

For the management of public spaces, local community and the developing partners play important role. There should be mutual understanding among themselves only then the management will be successful. Taking the example of Beardmore Park as discussed earlier, there is a good partnership in between community and the city council. The community people have known their central role for sustaining the park. So, the understanding between involving parties should be created for managing every public spaces.

13.1 Guiding principle and concepts for the proper management and designing of open spaces

The literature review of this study cited a number of principles and concepts for designing of sustainable open space structures. These principles include:

Access, Connectivity and Linkages. Indicated by its connections to its surroundings, both visual and physical. The open spaces need to be accessible by all users including the disabled persons. This can be done by improving all accesses to the open spaces as well as integrating them with estates circulation network.

Comfort and Image: Good open spaces offer comfort and pleasant environment for use. Comfort and image includes the perceptions about safety, cleanliness, and the availability of places to sit. Therefore, open spaces in Kathmandu Valley should be redeveloped to offer pleasurable environments for its residents

Uses and Activities: Since activities are the basic building blocks of a place, it is important to provide something to do and this gives people a reason to come to a place and return. It is important to formulate programmes that will draw people onto the open spaces as well as provide the necessary facilities and amenities that will facilitate the uses and programmes developed.

Sociability. Involves creating open spaces where the social life of the residents can be enriched and enhanced. This is a difficult quality for an open space to achieve, but once it is attained, it becomes a distinctive feature. Creating attractive and inviting places for people is key. There should be a range of facilities for all in proximity to attract different persons in terms of age, income levels, cultures, and races. Open spaces are opportunities to heighten the social aspect of a community and neighbourhood.

Walkability: The open spaces in the estate should be within a 10-minute walk from home with pedestrian friendly street design. This can be achieved by separating motorist way with those of pedestrians.

Quality Urban Design: Urban design seeks to enhance the beauty, aesthetics, human comfort as well as creating a sense of place of a neighbourhood. Open spaces should therefore be designed in terms of the surrounding needs of the community.

Sustainability is the focal point of development and use of the available resources for now with a considerate view of the anticipated future. When developing the open spaces, there need to be minimal environmental impact of development, and maintainability as well as the respect for ecological, cultural and societal value of natural structures.

Other guiding concepts include:

- a) *Legibility:* the mental map of the area which held by the users.
- b) *Structure and identity:* the recognizable, rational pattern of urban solid and voids.
- c) *Imageability:* the users' perception in motion and how people experience the space of the city.

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- a. Walking b. Public vehicle c. Motorbike/Car d.
Office Vehicle e. Others

3. What time do you mostly visit this area?

- a. Morning b. Evening c. Day

4. How often do you visit this place?

- a. Daily b. Twice in a week c. 2-4 times a month d. Once in a year

5. Do you think the place is in good location/do you think it is accessible from any places?

- a. Yes b. No

6. Do you think the place is managed?

- a. Yes b. No c. I don't Know

7. If yes, how can you decide it is managed?

- a. Infrastructure provision b. Clean and safe c. Less pollution
d. Beautiful e. Harmony among people f. Others

8. If no, what problems do you see in its management?

- a. Conflict among people b. Less space for children and elderly people
c. No response from management committee d. Lack of seating spaces
e. Air and noise pollution f. Others

9. Have you visited the place earlier before its revival?

- a. Yes b. No

10. If yes, what changes do you feel after the management of this place?

- a. Safe b. Environment friendly c. Beautiful d. A good
recreation space e. I don't find any changes f. Others

11. Are you satisfied with this place?

- a. Yes b. No c. I don't know

12. Do you think the place is inclusive for all?

- a. Yes b. No

13. Do you feel safe in this place?

- a. Yes b. No

14. What is the major motivation factor for visiting Narayanchaur?

- a. Its history b. Near to Nagpokhari c. Its Beauty d. Clean
environment e. Good recreational space f. Others

15. What are the facilities you find in this space?

- a. Good seating space b. Drinking water c. Toilet d.
Shops nearby e. Proper walking space f. Others

16. If you were provided with opportunity to manage this place, which factor would you focus on?

- a. Walking tracks b. Greenery c. Infrastructure d. Proper
seating space e. Good landscape design f. Inclusive g. Others

17. Do you have any suggestions regarding this place?

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Questions were also asked with the stakeholder about the management of the place.

The questionnaire prepared for stakeholders is open ended questions to know their views:

- 1. Name:**
- 2. Age:**
- 3. Gender:**
- 4. Occupation:**

- 5. Do you like the change in Narayanchaur after its revival?**
- 6. How was this place before ?**
- 7. What changes do you feel after the revival of the open space?**
- 8. What are the important elements that make Narayanchaur unique?**
- 9. What is the history of this place that you find interesting?**
- 10. Where do you dispose the solid waste which is generated from the house?**
- 11. What was the condition of the place before its revival?**
- 12. What kind of problems do you see or feel in Narayanchaur even after its revival?**
- 13. Have you made any policies in the community regarding the management of the public space?**
- 14. What practices have you done till now for the management of Narayanchaur?**
- 15. Why do you think the Narayanchaur or any other public space should be managed?**