

Urban safety through the eyes of cultural heritage

Hisila MANANDHAR¹ and Yogeshwar K. PARAJULI²

¹ Urban Planner, Kathmandu Valley Development Authority,
Anamnagar, Kathmandu, Nepal
hisila_man@hotmail.com

² Development Commissioner, Kathmandu Valley Development Authority,
Anamnagar, Kathmandu, Nepal
ykp.kvda@gmail.com

ABSTRACT

All developing countries are facing the phenomenon of urbanization. From the 1970s onward, Nepal has observed one of the highest rates of urbanization in Asia and the Pacific. Historically, Kathmandu Valley has enjoyed sustainable development practice and maintained an ecological balance of urban development through various physical features; cultural practices as well as sustainable opportunities for economic development. The valley reflects its long history through a variety of cultural heritage sites comprising of settlements, monuments, religious sites and traditional infrastructures. The cultural practice of worships and processions are embedded into the people's lives. Looking from the disaster risks viewpoint, cultural and natural properties are increasingly affected by the events. At times of stress, the significant role of heritage in contributing to social cohesion and sustainable development has stressed the importance of its safety. Open spaces of various scale, size and geometry were integral parts of traditional settlements in Kathmandu Valley. This paper tries to review on utilization of cultural heritage, especially traditional open spaces in risk reduction and disaster mitigation.

Keywords: culture, heritage, urban safety, disaster mitigation

1. INTRODUCTION

All developing countries are facing the phenomenon of urbanization. From the 1970s onward, Nepal has observed one of the highest rates of urbanization in Asia and the Pacific. Historically, Kathmandu Valley has followed a sustainable development practice and maintained an ecological balance of urban development through various physical features (e.g. mixed-use urban settlement pattern, indigenous architectural styles and construction techniques); cultural practices as well as sustainable opportunities for economic development (Adhikari, 2012; IUCN, 1999).

Kathmandu Valley presents a rich history of city planning and space making. As far as recorded in the history, the Kiratis are mentioned to be the early settlers of the Valley from around the 7th century BC till the 2nd century AD. Even in those early times, the Valley appears to have reached a relatively advanced stage of urban culture, with the

line of settlements probably following the Bagmati River. From the 3rd century onwards, four ruling dynasties – the Lichhavis, Mallas, Shahs and Ranas have set a trend of their own building trail in Kathmandu Valley. The Lichhavi period and the Malla period are supposedly the eras of city establishments. The ancient art, culture and traditional customs have flourished and enhanced during their reign (Pruscha, 1969). Over the years, this primary gateway for major economic opportunities in the country has experienced haphazard urban development, rapidly increasing population and environmental threats in the absence of a clear and comprehensive planning and land use policy (Haack & Rafter, 2006). Moreover, the valley is highly vulnerable to natural hazards, such as earthquake, flood and landslide (NDR, 2011). Rapid urbanization, haphazard construction, lack of emergency facilities and lack of effective policy implementation further add to the vulnerability mainly in the city core area (Bhattarai & Conway, 2010).

Since many years, Kathmandu Valley has been claimed to be highly prone to earthquakes by various national and international studies. Most of the infrastructure and buildings in the Valley are not strong enough to resist a high magnitude quake. To address the issue, a joint assessment was conducted by Ministry of Home Affairs (MOHA) and the International Organization for Migration (IOM) with the support from United States Agency for International Development (USAID)/ Office of Foreign Disaster Assistance (OFDA) and identified 83 open spaces suitable for Shelter, Aid and Medical Help in the Valley. These open spaces are designed to provide the initial response framework for rescue and relief to those in immediate need by the Government and partner agencies (Shrestha P. , 2015).

While Nepal was anticipating for another big earthquake after the one of 1934 Nepal-Bihar earthquake (ML 8.4), a M 7.8 earthquake occurred at 11:56 NPT with its epicenter about 80 km west of Kathmandu near Barpak, Gorkha, at the depth of 15 km on April 25th 2015. A total number of 1,735 people died and 13,102 people were injured in Kathmandu Valley alone (Nepal Disaster Risk Reduction Portal, 2015).

2. OPEN SPACES IN KATHMANDU VALLEY

In all ancient cities of Kathmandu Valley, it can be seen that the settlement is located on an elevated land. Usually a town in the valley would be a high density compact planned settlement with natural buffer zone created of field/ forest or river. These settlements highly encouraged walking and the use of public open spaces. Traditionally, open spaces of various scale, size and geometry ranging from street scale to courtyard scale and even urban squares have been endowed as integral parts of designated urban spaces. The concept of garden/ green space inside the settlement is rarely located. Instead, one finds open spaces in the form of paved courtyards, street squares or water bodies (Rai R. , 2011). Provisions of large open spaces (*khyo*) for public benefit were also made at town peripheries. These dynamic and functional spaces regulated and shaped urban forms as well as catered to socio-cultural activities (Sharma, 2013).

2.1 Types of traditional open spaces

It can be perceived that the traditional architectural spaces in the Valley were designed with the purpose of holding feasts, festivals, and rituals. Basically every temple and shrine has some open space within and around it, along with *patis*¹ and other attached buildings (Rijal).

Public open spaces in the Valley are more defined as social spaces that follow traditional and cultural trends. Some exist due to the natural design whereas others are delineated by architectural design predating the modern urban design. Following are the types of open spaces found in traditional towns of Kathmandu Valley (Sharma, 2013):

- Street Network
- Closed courtyards (Bahal/ Bahil)
- Neighborhood squares (Nani/ Chowk)
- Palace Squares
- Open space at town periphery (Khyo)



Figure 1: Examples of Closed courtyards (Bahals):
Tebahal, Kathmandu at left and Nagbahal, Lalitpur at right
(Source: www.pinsta.me and www.panoramio.com)



Figure 2: Example of neighborhood square: Pottery Square at Bhaktapur
(Source: www.panoramio.com)



Figure 3: Example of palace square: Patan Durbar Square
(Source: www.nepalontours.com)

The major backbone of a traditional town is the street network which connects all the closed courtyards (bahal / bahil), open courtyards (chowk or nani) and public squares.

¹ Public rest house

All these spaces are the focus of social settings used for multipurpose activities in daily life as well as during festival seasons. They were also utilized as a place to gather in an event of any natural or man-made disasters such as earthquake and fire (Shrestha B. K., 2011). They also used to be public agricultural land belonging to various community groups or temples and monasteries called *guthi* lands. The incomes generated from these lands were used for festivals and maintenance of temples and monasteries (Bhandari & Okada, 2009). The space called “*khyo*” were a type of architectural requirement of the Malla era. They were vast open spaces located near to any densely populated settlement so as to mark the boundary and space for performing larger social and cultural events. For example, Tundikhel alone remained open even when the rest of the Kathmandu city expanded to accommodate new settlements (Rai H. , 2002). Its use has ranged from holding feasts, place for making public announcements, performance of festivals like Ghode jatra and it has even been designated as one of the major spot for evacuation during disaster emergencies.

Thus the composition of these narrow streets, house blocks, numerous courtyards and plazas along with bordering open spaces of our traditional towns modeled sociable, cooperative, safe and secure neighborhoods of ancient times (Shrestha B. K., 2011).

2.2 Traditional open spaces and cultural practices for disaster risk mitigation

The concept of traditional compact settlement planning with settlement boundaries helped to preserve agricultural land that protected primary occupational base of the locals. This way the inhabitants were self-sustained in food products and could survive in the event of natural disaster for a longer period (Bhandari & Okada, 2009).

As per a research done in Kathmandu Valley by Nepal Engineering College (NEC) and Center for Disaster Management Informatics Research, Ehime University, Japan in June 2006, 70% of the respondents affirmed about having knowledge of a safer place in their community in case of a disaster event. This has been credited to the fact that traditional houses in Kathmandu Valley were built with large open spaces surrounded on all sides by residential buildings (Shaw, Srinivas, & Anshu, 2009). The rituals and festivals practiced throughout the traditional cities in the Valley also make local inhabitants familiar to the open spaces around them. Either they pull chariots for various *jatras*² or gather for feasts and festivals, people get a chance of making observational learning of city routes and spaces that are useful for life saving during disasters like earthquake (Bhandari & Okada, 2009).

In addition, the traditional houses were built with earthquake resistance measures such as symmetrical windows, double framing of windows, as well as the use of timber wedges called *chuku* that helped in creating earthquake resilience (Tiwari, 1998). Pradhan (n.d.) has pointed out that traditional residential buildings built with brick, mud mortar and timber were rather constructed with much rational thoughts put to withstand earthquakes. In comparison to brick and timber, mud is very weak in strength but the mud mortar cracks easily in case of greater thrust and helps to displace the wall thus absorbing the thrust. This causes only partial collapse of the building preventing it from falling down completely and hence giving time to residents to evacuate. It has also been

² Traditional procession of deities

stated that traditional building practice of Kathmandu Valley reflects “local cultural values, reduce the threat of seismic risk to lives of people and address the specific needs of the population” (Bhandari & Okada, 2009, p. 147).

Furthermore, the open spaces in the traditional settlements are well endowed with good infrastructures such as resthouses (patis) and water supply (stone water spouts – hitis). The large size of the open spaces and their proximity from neighboring households made them functionally appropriate as evacuation spaces. One can find a correlation between the intangible cultural practices and the network of open spaces too. Local residents are obliged to be informed about and manage their surrounding spaces due to the repeated communication and active participation while performing the ritual activities. This space cognition ultimately helps in building community coping capacity against disaster events like earthquake (Shaw, Srinivas, & Anshu, 2009; Bhandari & Okada, 2009).

3. USE OF OPEN SPACES IN CASE OF DISASTER

Open spaces in urban areas primarily serve as breathing space for the citizen. Necessity of urban open space for recreational facilities is universally agreed. Alongside various recreational and social uses of open spaces, their importance in the disaster preparedness is increasingly being recognized. Open spaces are required to provide emergency and basic services on the aftermath of disasters.

Kathmandu Valley was exposed to the outside world after the construction of modern highway in late 1950s, coupled with the fast development of communication, rapid population growth and improvement in the economic condition. Rapid demographic change in Kathmandu’s old city core has resulted in the apparent loss of traditional social networks that encouraged the provisions of mutual support during any kind of disaster. In the past, neighborhoods were homogenous with families and relatives living near to each other. The citizens of core city have either shifted outside the city in the modern style buildings or started interfering the traditional architecture and urban spaces. The core settlements have been replaced by renters and more diverse ethnic groups. There have also been massive physical changes in the city center. The former chowks or courtyards, and even the neighborhood squares have been encroached by modern commodities and buildings. Practices of adding new floors or projections to the traditional houses without proper enforcement of building codes and diminution of open spaces have led to lack of light and ventilation on the streets and adjacent open spaces as well as added to the likelihood of casualties and injuries in case of earthquake (Shrestha B. K., 2011; Bajracharya B. N., 2013).

The news that followed the recent Gorkha earthquake and the blogs from various sources shows how traditional open spaces were utilized as shelter space after the disaster. A round sample survey done in those spaces illustrated that the ones who needed to take shelter due to collapse of their homes were not the original dwellers of the core city areas. The rich have left the core for residing in sprawled but still unsafe conglomerates, creating other vulnerable zones, in so called modern dwelling, personally abandoning the buildings to poor and working class floating migrants. The new dwellers do not have any understanding or attachment to traditional cultural

values/practices and this has made heritage preservation advocacy more difficult in the Valley.

Many inhabitants in the Valley, both locals and outsiders, have started understanding the significance of the indigenous concept of chowk (courtyard) after the April 25 quake. The chowk offered the residents of the surrounding houses open space to escape the disaster or any danger (Bajracharya G. B., 2015; Leve, 2015).



Figure 4: People taking shelter in a pati in Ason Tole, after April 25 Quake
(Source: proof.nationalgeographic.com)



Figure 5: People taking shelter in Yetkha Bahal, following April 25 Quake
(Source: www.anthropology-news.org)

The large open spaces such as Tundikhel served as a major evacuation space. It was one of the 83 gazetted open spaces marked for evacuation and refuge in case of disaster. It provided refuge to thousands of people after the recent Gorkha earthquake and is still providing shelters to many families who have lost their homes due to the earthquake.



Figure 6: Tent houses in Tundikhel
(Source: earthquake-report.com)

These spaces also brought the society and neighboring communities together at one place so that they can help each other. From building makeshift shelters to collecting necessary supplies, people came together at one place and helped each other. Thus these traditional open spaces also helped in building social and cultural resilience. The recent quake has reawakened the value of provision of open spaces for various daily uses and cultural practices. The provision of multi-purpose spaces used by communities is not

limited to serving only for mundane daily activities. They act as refuge area in case of disasters such as earthquakes and fires. This has been proven during earthquakes that hit the Valley time and again.

4. CONCLUSION

This paper discussed on the traditional open spaces of Kathmandu Valley and their usage in case of disaster such as earthquake. With a rich history of city planning and space making, the Valley boasts a variety of open spaces that caters to specific needs of the population. These open spaces have helped in providing the much needed physical space for evacuation and refuge during disasters. Furthermore, the daily use as well as cultural practices and rituals have made the locals familiar to these places. As a result, people know where to evacuate when there is a threat to their homes. The cultural practices have also brought the communities together and helped in building socio-cultural cohesiveness and resilience towards disasters.

Rapid population growth and haphazard urbanization have put these spaces at danger. These spaces are being encroached upon and decreasing very quickly. Despite their diminution, the still present traditional open spaces provided shelter to many in the case of the recent Gorkha earthquake event. People have started again to value their design and existence. It is high time to preserve whatever is left of these spaces and create new spaces learning from the old city design experience. It is imperative to preserve the open spaces not only for retaining our identity but also to create urban safety and continue our heritage based economy. Both national and international commitment for conservation of our heritage spaces is the prime need of the hour.

REFERENCES

- Adhikari, N. (2012, May). Air pollution and human health in Kathmandu valley. *Public Health Perspective Nepal*, 2(5).
- Bajracharya, B. N. (2013, Oct 26). Protect your head. *The Kathmandu Post*.
- Bajracharya, G. B. (2015, May 21). Quake highlights value of Newari 'Chowk'. *Setopati*.
- Bhandari, R. B., & Okada, N. (2009). Formulating Time Tested Knowledge for Sustainable Disaster Risk Reduction; A Case Study of Kathmandu. *Annals of Disas. Prev. Res. Inst.*(52 B), 145-151.
- Bhattarai, K., & Conway, D. (2010). Urban Vulnerabilities in the Kathmandu Valley, Nepal: Visualizations of Human/Hazard Interactions. *Journal of Geographic Information System*, 63-84.
- CEN, CANN & UN-HABITAT. (2013, October). Urban Mobility in Kathmandu: Status and Trends.
- Haack, B., & Rafter, A. (2006). Urban growth analysis and modeling in the Kathmandu Valley, Nepal. *Habitat International*, 30(4), 1056- 1065.
- IUCN. (1999). *Environmental Planning and Management of the Kathmandu Valley*. Kathmandu: Government of Nepal, Ministry of Population and Environment.
- Leve, L. (2015, June 8). Strength, Security, Resilience and Nepal's Great Earthquake. *Anthropology News*.
- NDR. (2011). *Nepal Disaster Report. Policies Practices and Lessons*. Nepal: Government of Nepal, Ministry of Home Affairs.

- Nepal Disaster Risk Reduction Portal*. (2015). Retrieved June 6, 2015, from <http://drrportal.gov.np/>
- Pradhan, R. (n.d.). Seismicity and Traditional Buildings of Kathmandu Valley, Nepal.
- Pruscha, C. (1969). *The Physical Development Plan of Kathmandu Valley*. Nepal: Department of Housing and Physical Planning.
- Rai, H. (2002). Shrinking Tundikhel. *Nepali Times*(107).
- Rai, R. (2011, Jan 22). *Historic City Core of Kathmandu*. Retrieved from Ruprama's blog: <https://ruprama.wordpress.com/2011/01/22/historic-city-core-of-kathmandu/>
- Rijal, S. (n.d.). *Visiting Vikramshil Mahavihāra: Redefining Urban Spaces in Kathmandu*. Retrieved March 12, 2015, from webimap.org/docs/paper/c9fbfa86264b4bc1f5074298f570b96c.docx
- Sharma, B. P. (2013). *Morphology of Open Spaces in Towns, Study of Roles of Traditional Open Spaces in Safeguarding Urban Environment of Kathmandu*. Tribhuvan University: Ph.D. Dissertation.
- Shaw, R., Srinivas, H., & Anshu, S. (2009). *Urban Risk Reduction: An Asian Perspective*. Emerald Group Publishing.
- Shrestha, B. K. (2011). Street typology in Kathmandu and street transformation. *Urbani izziv*, 22(2), 107-121.
- Shrestha, P. (2015). 83 open spaces to S.A.M, setting an Example in Nepal how parks and open spaces can strengthen communities' resilience toward disaster.
- Tiwari, S. R. (2015). FROM PAST PATHS TO FUTURE WALKS: Reading and Learning From the Traditional Streets of Kathmandu Valley Towns.
- Tiwari, S. R. (1998). Traditional Architecture of Kathmandu valley -Responsiveness to earthquakes through empiricism. Pulchowk, Lalitpur: Workshop on Seismic Design of Buildings organized by CEC, Institute of Engineering on April 8-12, 1998.

Image Sources:

- www.proof.nationalgeographic.com
- www.earthquake-report.com
- www.panoramio.com
- www.pinsta.me
- www.nepalontours.com