

## **April 2015 Earthquake and its effects on museum of Kathmandu valley in Nepal**

### **What is Disaster?**

A disaster is a serious disruption, occurring over a relatively short time, of the functioning of a community or a society involving widespread human, material, economic or environmental loss and impacts, which exceeds the ability of the affected community or society to cope using its own resources. Developing countries suffer the greatest costs when a disaster hits – more than 95 percent of all deaths caused by disaster occur in developing countries and losses due to natural hazards are 20 times greater in developing countries than in industrialized countries.

There are mainly two types of disaster, one Natural disaster and the other Human Instigated (manmade) disaster. A natural disaster is a natural process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. Various phenomena like earthquakes, landslides, volcanic eruptions, floods, hurricanes, tornadoes, blizzards, tsunamis, lightning, avalanche, hailstone, and cyclones are all natural hazards that kill thousands of people and destroy billions of dollars of habitat and property on each year.

Human-instigated disasters are the consequence of technological hazards. Examples include stampedes, fires, transport accidents, industrial accidents, oil spills and nuclear explosions/radiation etc. Wars and deliberate attacks may also be kept in this category.

### **Scope of Presentation**

The scope of my presentation will limit to the effect of April 2015 earthquake on museum of Kathmandu valley in Nepal. In this presentation, I will cover briefly the destruction on museum in Kathmandu, Lalitpur and Bhaktapur districts (Kathmandu valley) and highlight the rescue and recovery of object and artifacts aftermath the earthquake.

### **Introduction about Nepal**

Nepal, now officially the Federal Democratic Republic is a landlocked central Himalayan country in South Asia. Nepal is divided into 7 provinces and 75 districts and 744 local units including 4 metropolises, 13 sub-metropolises, 246 municipal councils and 481 village councils. It has a population of 26.4 million and is the 93rd largest country by area. Bordering China in the north and India in the south, east, and west, it is the largest sovereign Himalayan state. Kathmandu is the nation's capital and the largest city. The name "Nepal" is first recorded in texts from the Vedic Age, the era which founded Hinduism, the predominant religion of the country. In the middle of the first millennium BCE, Gautama Buddha, the founder of Buddhism, was born in south-west of Nepal. The highest

mountain in earth, Mount Everest, rising 8,848 m (29,029 ft.) above sea level is in Nepal. Nepal is a developing nation, ranking 144th on the Human Development Index (HDI) in 2016. Nepal covers 83 per cent of hilly and mountain areas. Total 125 ethnic community and 123 different languages are spoken in country.

The history of Modern Nepal starts from the 18th century marked by king Prithivi Narayan Shah who united Nepal as a single kingdom. Before him Nepal was divided into many little principalities and were ruled by different kings in each state. King Prithivi was aware of the expansion of British Empire in the neighboring India and decided to isolate Nepal from outer interference.

A major turn in the history of Nepal took place when a man named Jang Bahadur Kunwar seized power and declared himself Rana and prime minister in 1846. After him, the kings of Nepal were only treated as ceremonial and the Rana rule continued till the next 105 years.

In 1950 the Rana rule was overthrown and royal authority was restored. Then in 1959 elections were held. However the then king disagreed with the elected Congress Government and dismissed it in 1960. Under a new constitution in 1962 the king had all the real power. However during 1990 widespread protests by the people of Nepal led to the restoration of democracy. Nepal gained a new constitution and in 1991 elections were held. Then in 1994 a minority Communist government took power which was soon nullified in 1995 by the Supreme Court on regards to the election results. As a result of this, the previous parliament was then reinstated.

In 1996 a Maoist (Communist) insurgency began in Nepal which severely damaged the economy of the country. Later a peace accord was signed in November 2006 and elections were held on April 2008 which brought a coalition government into power. In May 2008 the monarchy system was abolished in country and Nepal became a republic. Nepal gained a new constitution in 20 Sep 2015.

Despite a ten year long insurgency and history of various political changes Nepal still remains a poor country. A huge population depends on farming and economic growth of the country is very slow. However Nepal still have a great potential in sectors like tourism, hydropower, and export of various herbs and spices.

Nepal is a very primitive country with a rich history of thousands of year. Due to this there are various art and artifacts collected from the past to the present. Some of these have been preserved in the museums across the country while others have been ignored or unpreserved. The art and artifact in the museums across Nepal are certainly a matter of interest and fascinating to the museum lovers across the globe.

### **Kathmandu Valley-an Introduction**

The history of Kathmandu valley dates back to the ancient times. Archaeological explorations indicates that Kathmandu and the two other sister towns-Lalitpur and Bhaktapur in the Kathmandu valley are the oldest towns and traced back to the period between 167 BC and 1 AD. Excavation conducted in the towns like Hadigau and Luhu of Kathmandu valley have revealed ancient brick walls and Stone Age tools.

The geological setting of the valley points to the existence of a lake near Chobar gorge on the Bagmati River, below the present Pashupatinath Temple. This lake is said to have been drained by ManjushreeBodhisattva, a Buddhist saint, by cutting open an outlet in the southern rim of the valley. As a result, the valley that was created was fertile and people started cultivating and building their homes here. As the valley grew, Manjushree is said to have worshipped Swayambhu (a Buddhist shrine) on the hillock where the present Swayambhu temple is located. He also founded the city of Manjupatan, which today lies within the present Kathmandu Metropolitan area, located between Swayambu and Gujeswari near the current day Tribhuvan international airport. During the reign of the Licchavi (a clan, 400–750 A.D.), two adjoining settlements, Yambu or Thahne ('Yambu' in Nepal Bhasa means the field of Kathmandu and Thahne means "northern land") and Yangal/Kone ('Yangal' in Nepal Bhasa means the depressed area of Kathmandu, Kone means "southern land") formed Kathmandu, also known as Koligram.

The famous Chinese Buddhist monk, Xuanzang (Wade-Giles: Hsüan-tsang), spent about two years between 637 and 642 CE at the great university of Nalanda, which is almost directly south of Nepal. It is not certain that he actually visited Nepal, but he left a fascinating account of it, the capital city which we know as Kathmandu, and its king, which, presumably, dates from this period. The period 750–1200 is considered as a transitional kingdom in power in Kathmandu Valley, though concrete verifiable records are not available. According to custom, however, in the late 900s, Kathmandu was established by the King Gunakamadeva at the banks of Bishnumati River, whose southern limit was marked by the confluence of the Bagmati River and Bishnumati River in a place called TekuDovan (junction). The pre-existing settlements of Yambu and Yangal were merged into the Kantipur city.

KhasaMalla kings ruled in western Nepal during 1100–1484. However, AriMalla, first monarch of the Malla Dynasty, ruled in Kathmandu Valley from 1200 to 1216. Other notable rulers of the Malla dynasty were Jayasthiti Malla who ruled as king of united Malla kingdom from 1382 to 1395 and Yakshamalla reigned from 1428 to 1482 at the height of united Malla kingdom. The Malla dynasty period (1200–1768) witnessed further boost in enhancing the cultural heritage of Kathmandu by building pagodas, houses decorated with carved windows, exquisite open-air shrines and courtyards filled with brilliant sculptures. In 1484, the Malla kingdom divided into the three kingdoms of Kathmandu, Bhaktapur (Bhadgaon), and Lalitpur (Patan). Kings such as JitamitraMalla, King of Bhaktapur from 1673 to 1696 was noted in particular for his construction projects. He build many heritage such as durbar square, temples, courtyards in Bhaktapur. His son, BhupatindraMalla replaced him after his death in 1696 and was equally as fascinated with architecture, and continued the development of the Dharmasala Palace, its 55 windows palace and gardens.

The history of modern Nepal begins with King Prithivi Narayan Shah, he ascended to the throne of Gorkha in 1743 and was actively involved in unifying the small kingdoms of Nepal to a single nation. When he attacked Kirtipur, the combined army of Malla confederacy defeated him and killed Kalu Pandey, the MulKaji(Commander-in-Chief) in the Battle of Kirtipur. Even after the conquest of Kirtipur and Kantipur in 1768 in the Battle of Kathmandu, the Malla confederacy fought from Bhaktapur, where, later the rulers of all the three states of the Malla confederacy surrendered. By 1769 King Prithvi Narayan Shah, conquered the valley, forming the foundations for the modern Kingdom of Nepal. He conquered Kathmandu, Patan, Bhadgaon (Bhaktapur), eastern Nepal, and western Nepal between 1768 and 1790. Prithvi Narayan Shah, the first king of united Nepal died in 1775.

Jang Bahadur Kunwar became the Prime Minister in 1846, after him his brother and nephews followed him as the prime minister and the Rana rule remained in power until 1950. During all this period, Shahs as Monarchs were figurehead monarchs, while the real power rested with the Ranas. The Kathmandu valley had no any progress in terms of culture and archeology during Rana period. However, several British styled palaces for their own use were built during their time.

On 1934 there was a mega earthquake in Kathmandu valley which damaged many infrastructure of archeological, cultural and religious value in Kathmandu valley. They were later rebuilt to their original form. After 1980s, the city witnessed a building boom, the farmlands got converted into urban building and the old core area got encircled by high-rise buildings of business houses, wide boulevards and upscale residential suburbs.

In recent years, Kathmandu has experienced a turbulent history and political instability, marred by outbreaks of violence and protests, which have often caused considerable damage to buildings or caused loss of lives. On June 1, 2001, a gruesome royal massacre occurred when the Crown Prince Dipendra gunned down his immediate family consisting of his father King Birendra, his mother Queen Aishwarya, his brother and sister, and also five of his relatives at the Narayanhiti Royal Palace, Kathmandu. He turned the gun on himself and was declared dead two days later in the hospital. Following this tragedy, King Gyanendra, brother of deceased King Birendra was crowned the king at the palace. At last in 2008 the monarchy system was abolished and republic system was established in country. Kathmandu is not only the capital of country, but also a main political, cultural, diplomatic, social, economic and trade center of the country. So, the Kathmandu valley is the center of gravity of Nepal.

### **Overview of April 2015 Earthquake in Nepal**

The April 25, 2015 Nepal earthquake killed around 9,000 people and injured nearly 22,000. It occurred at 11:56 AM Nepal Standard Time, with a magnitude of 7.8 magnitude and a maximum Mercalli Intensity of IX (*Violent*). Its epicenter was at Gorkha District of Barpak village, north-west of Kathmandu, and its hypocenter was at a depth of approximately 8.2 km (5.1 mi). It was the worst natural disaster to strike Nepal since the 1934 earthquake and crippled life across the country. Continued aftershocks occurred throughout Nepal at the intervals of 15–20 minutes. A major aftershock occurred on 12 May 2015 at 12:50 PM NST with a moment magnitude of 7.3. This aftershock also created a heavy loss of life and property.

Besides Nepal others three countries, India, China and Bangladesh also felt the earth shaking due to this earthquake. Nepal is the 11th most earthquake prone country in the world. According to historical records Nepal has faced earthquakes of 5 to 8 on the Richter scale every 50 to 80 years creating a huge loss of life, property and heritage. The first recorded earthquake occurred in 1224 AD.

### **Effect of April Earthquake on the Field of Museum in Kathmandu valley**

On 25 April 2015 the country experienced a tremor in Kathmandu valley and other 15 districts around the valley. The historical and cultural heritages of ancient time to modern age of three cities in valley have had a great loss. Centuries-old buildings were destroyed in the Kathmandu Valley. Dharahara, a famous tower, built in 1832; collapsed in the heart of Kathmandu city. As per the record of

Department of Archeology altogether, 33 heritage sites collapsed and 107 were damaged in Kathmandu valley world heritage property, where some of the museums were also housed.

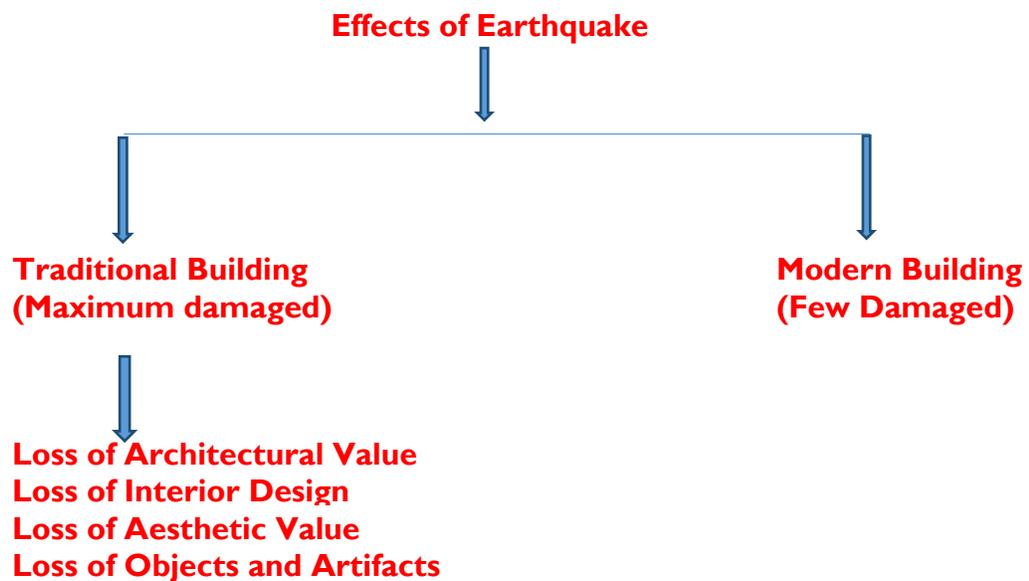
Seven UNESCO heritage sites are situated in valley alone. The famous old palaces (Durbar) i. e. Kathmandu durbar, Patan (lalitpur) Durbar and Bhaktapur Durbar complex in Kathmandu valley were damaged and destroyed. Besides that the main shrine of Hindu and Buddhist such as Pashupatinath temple, Changunarayan temple, Swayambhu Stupa, Bauddhanath Stupa and others small and big temples and Stupas were also destroyed in Valley. They were a part of living museum in the country with a rich cultural heritage. The main museums i. e. National Museum, Hanuman Dhoka museum, Patan museum and Bhaktapur museums and others small community museums were also damaged in valley. All those museums hosted a collection of ancient galleries along with the archeological collection and historical artifacts. Kathmandu valley holds around 20 big and small museums. Most of those museum were affected by April earthquake. Some details of affected museums are as follows;

- **Hanuman Dhoka Museum** This museum is housed inside the Hanumandhoka Durbar (palace) in Kathmandu. This is the property of the government and the Durbar complex itself comes under the UNESCO world heritage site. Almost all building of Durbar complex has been destroyed by quake. Thus currently the Hanumandhoka museum is closed due to damages. The objects and artifacts of museum have been rescued safely.
- **Patan Museum** This museum is also located within the premises of Patan Durbar. Nearly half of the section of this Durbar complex have been damaged and the building that housed the Patan museum was also damaged in the earthquake. However reconstruction work have promptly been started by the Kathmandu Valley Preservation Trust (KVPT). Total 90 per cent of this museum is operational as usual after few weeks of quake. The reconstruction work is still going on rapidly within Durbar complex.
- **Bhaktapur Museum** The Bhaktapur Museum is located within the Bhaktapur Durbar complex. The Bhaktapur Durbar complex was also adversely affected by the earthquake. The building of the Bhaktapur museum was also damaged, however with some renovation work total 70 per cent part of this museum is now in operational for the visitors.
- **National Museum** This museum is situated around 2 KM west of Kathmandu city. It has three main buildings in museum complex. This museum is an encyclopedia museum, housing artifacts of metal, wood and manuscript art of Nepal. In the art gallery section called the Juddha Jatiya Kalashala, a Buddhist Art Gallery related to Buddha, international doll gallery, an ethnographic section and numismatic gallery are also present in this museum. The Main building that holds a traditional neo-classical architecture has been damaged. The weapon gallery, the numismatic gallery and the gallery of royal costumes are temporarily closed for visitors due to damage of building. Visitors are thus only allowed in the ground floor of this building for viewing of art and artifacts. Rest two museum building are open as usual for visitors.
- **Living Museum** Three Durbar Squares located in Kathmandu, Patan and Bhaktapur Durbar complex which comes under the UNESCO world heritage sites have had many temples and ancient infrastructures. They are the living museum of country. The international visitors has to

pay an entry fee to visit these sites. But most of the temples and infrastructures in these complex have been completely damaged due to earthquake, reducing the full charm of the living museum. Right now these sites seem to have been changed into a construction zone and is a fresh reminder of the April earthquake of Nepal. At Hanumandhoka palace complex (Kathmandu) alone 12 ancient infrastructures collapsed and 37 were partially damaged by quake.

- **Religious Places** Changuanarayan temple, Pashupatinath temple, Swayambhu stupa and Bouddhanath stupa are the famous holy sites in Kathmandu valley for Hindu and Buddhist across the globe. These hold the historical as well as the religious values. These have also been damaged by quake and restoration work is on the way. These sites are also living museums of valley. At Swayambhu stupa complex (in Kathmandu) alone 4 infrastructures totally collapsed and 9 were partially damaged.
- **Community Museum** Some of the community museums in Kathmandu valley were also non-operational due to the damage of the building where they were housed. The Changuanarayan community museum is not operational after earthquake.

In general there were two types of building; traditional and modern, where the museums in Kathmandu valley were housed. Most of the museums that were damaged during the April earthquake were housed in the traditional building. The graph below shows the exact pictures of loss during the earthquake.



**Rescue, Salvaging, Sorting, Inventorying and Safe Storage of object/artifact**

Many museums building were damaged completely and partially in Kathmandu valley due to earthquake as mentioned earlier. The rescue and safe storage of museum objects and artifacts also started immediately after the mega disaster. The concerned authority and other related personnel coordinated with security forces, community leaders and volunteer for this rescue and restoration operation. 44 terracotta sculptures of Hanumandhoka museum had inventories and then safely stored in wooden

rack. The rescue work was carried out by UNESCO consultant on art history/archeology closely with museum staffs. In Hanumandhoka museum more than 250 artifacts labeled with photographs and more than 180 artifacts scientifically recorded before storing safely in the temporary shed. A workshop was carried out as part of a training workshop held in Kathmandu from 21-26 February 2016 for the post-earthquake recovery, safe storage and access of museum collections by the DOA, ICCROM, the institute for disaster mitigation of urban cultural heritage at Ritsumeikan University and ICOMOS Nepal with the generous support of the Norwegian Ministry of Climate and Environment. Around 27 participants from museum in Kathmandu and other regional museums participated in this workshop. Supports are still continuing for improving the storage facilities at the national museum for displaced museum collections. Around 2955 objects are to be moved from a storage building that was destroyed during the quake they will soon be cleaned and moved into new storage facilities (12 wall fans and about 60 storage units with tie up system) which is supported by UNESCO. Other related activities are also being supported under ICCROM.

The rescue and restoration operation started with a cleanup and removal of debris caused by the quake. Thousands of piled up carved timber from the building, fallen bricks, roof tiles and other materials were secured with the help of hundreds of volunteers, local stakeholders, Nepalese Army, Armed Police Force and Nepal Police personnel. After the thorough cleanup of debris access to the museums were cleared and almost all the artifacts were secured by the authorities. Some of the artifact were relocated in a secure building while other were cleaned, documented and stored until the provision for the display were made. The rescue, collection, documentation and relocation of artifacts went on for days to months. Due to the prompt action by the authorities and the stakeholders very less objects and artifacts were lost or damaged. Mainly, the manual process had been applied during this operation and it was a very big challenge for the personnel involved and to the museum experts.

### **Reconstruction, Restoration and renovation of museum buildings**

After two years of mega disaster in country the reconstruction, restoration and renovation work of old palace, historical and religious sites and museum buildings in Kathmandu valley are taking a pace. Around 20 big and small infrastructure are being reconstructed and restored at Hanumandhoka Durbar complex in Kathmandu. The rebuilding process are totally based on local expertise as most building were decorated with traditional handmade wood, metal and stone carving and the craftsmen working on it are mainly from the ethnic group (Newars) of the Kathmandu valley. Other modern forms of technology or tools do not entirely apply in restoration of building in its original shape and design. The craftsmanship skills gained by these craftsmen are passed down from generation to generation and little has been changed from its start.

The project philosophy also follows accepted international norms in using a maximum use of historical materials and creating careful and extensive documentation that will enable future generations to track the design and construction process. There is lack of detailed pre-earthquake documentations of many sections of buildings, but a good amount of forensic evidence has been obtained from the surviving plinths and other recovered building elements. Using a host of salvaged fragments, the building, temples and other section of damaged structures are in the process of returning as close as possible to their original dimensions and forms.

The reconstruction work of three ancient durbars (palace) of Kathmandu valley including museum buildings in Durbar complex has already started. At the same time other historical and religious sites in

the valley including the national museum building, various temples and stupas are already in the process of reconstruction. Besides the durbar area, the reconstruction of holy Bouddhanath stupa is in its final stages with the help of local community and the government. The Kathmandu Valley Preservation Trust (KVPT) is also taking active participation in the reconstruction work with their special focus in the reconstruction of Patan Durbar complex. They have assessed damage and rescued historic elements for reuse at many of the important sites in the Kathmandu valley. They have also considered potential donors, partners and implementing agencies in their reconstruction work. KVPT have also forecasted their five-year plan for restorations and reconstruction work in Patan Durbar area.

The Department of Archeology (DOA), Government of Nepal is taking a lead role in the whole reconstruction process. The Nepal Reconstruction Authority is also involved in the reconstruction work and actively participated in the reconstruction of cultural heritage sites and historical building including the museums in Kathmandu valley. Other countries and organization such as USA, China, Japan, UNESCO Kathmandu, Kathmandu Metropolitan city and local community are also assisting the reconstruction work.

However, due to the political instability of the country the intended target for the reconstruction work has not been achieved. Primary factors on this are the change in government, bureaucrats and the change in personnel involved in the reconstruction process. On top of that, months long Indian blockade in 2015-16 wreaked havoc on materials cost and availability, which also disturbed the whole reconstruction work in country. Apart from this, there are two general kinds of structural challenges that is faced during the reconstruction work; one, rebuilding collapsed structures-where modeling will be possible but implementation of its quality will be difficult to predict and the other is that, most of the building are partially damaged and the repair and reconstruction of it is a rigid task. The biggest challenge for these cases will be in the tradeoffs between new and old construction methods. So, the duration of reconstruction work of cultural heritages, historical, religious sites and museums in Kathmandu valley may takes many year even when everything would be in favorable condition.

## **Conclusion**

In the context of earthquake in Nepal, National Planning Commission estimated that the country needed more than US\$ 7 billion for recovery. But the exact loss on museum sector in Kathmandu valley has not calculated yet. Two years after the devastating earthquakes that struck Nepal, the country is struggling to bounce back. Nearly 70% of the affected people still live in temporary shelters, and it is common to see damaged houses, temples without roofs, and earthquake debris lying around, everywhere in the capital Kathmandu. The same situation remains in concern with reconstruction of cultural heritages and museums. Given the persistent seismic risks in the Himalayas, there is a need to create an effective response structure for disaster recovery in the field of museum in Nepal.

A disaster can hit us any time. It is generally caused by natural forces like earthquake, hurricane, flood, Tsunami or by human induced carelessness like negligence, bad judgment etc. As a museum lover, we should endeavor that museums are kept safe from any of these disasters. Generally speaking, risk of earthquake and fire are very prone for museum. Necessary precaution by museum management is a must to save the museum from it. Every museum must have a disaster response plan to protect the museum from any sort of disaster. Periodic risk assessments of the museum building, museum collection and other areas of the museum must be done in order to prepare and protect from the disaster. Risk assessment should typically include identifying and analyzing of any hazards, risk and

danger that may encounter the museum. Policies, Plans and Procedures to deal with such events should also be incorporated in the risk assessment and emergency response plan of the museum. In addition to this staffs working in the field of museums should be included in various trainings, exercise, seminars, conference for capacity building and exchange of knowledge and information. Involving a suitable insurance plane for the museum can also be done to reduce and minimize the risk of disaster of any kind. Simultaneously it is also very important that the museum management follow the **Guidelines for Disaster Preparedness in Museums** published by ICOM-ICMS. Doing all this and more we can minimize the effect of disaster in museum and keep it safer than what it is now.

**(This paper has been presented on the Annual Meeting of Asia and Pacific Alliance (ICOM ASPAC) in Chabahar Port, Islamic Republic of Iran from 1st to 3rd November 2017.)**

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