Community Led Post-Earthquake Heritage Reconstruction in Patan – Issues and Lessons Learned

Rupesh Shrestha

Abstract

Earthquake of 7.8 magnitude hit Nepal on April 25, 2015 leading severe damage to its heritage buildings built on 1934. Cultural heritage is an expression of the ways of living, developed by a community and passed on from generation to generation, including customs, practices, places, tangible objects, artistic expressions, and values. In addition to the reconstruction of monuments within Patan Durbar Area, Kathmandu Valley Preservation Trust (KVPT) is working with communities of Patan and technically supporting the reconstruction of their community buildings such as Phalcha / Pati, Chaapa:, Sattal, Guthighar and Aganchhen. Communities in collaboration with local government and lead agencies for heritage conservation are addressing heritage reconstruction. Community-led reconstruction is recognised by both Government of Nepal (GoN) and public as an important approach. The purpose of this paper is to examine community-led reconstruction approach undertaken by communities of Patan and share issues, success stories and lessons learnt. A literature review of documents related to the reconstruction and heritage buildings were conducted. Following a case study method and using qualitative method, data is captured from community members and technical personnel involved in reconstruction. A cause-and-effect or Ishikawa diagram is created to depict the issues hindering community-led heritage reconstruction. From this study it is found that people of Patan have sense of belonging to their heritage. They are interested in taking part and leading the reconstruction process. However, challenges exist in terms of budget, logistic, technical, social process and bureaucratic procedures. For successful project completion, there is a need of knowledge sharing and capacity building of communities who want to lead heritage reconstruction. The result from this paper can be used by communities as key points to frame their own reconstruction plans and by GoN to devise strategies to support communities who want to lead heritage reconstruction.

Keywords: community-led reconstruction, heritage, culture, conservation, architecture, Nepal earthquake 2015

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1. Introduction

On April 25 and May 12 2015, earthquakes of 7.8 and 7.4 magnitude struck Nepal with epicentre at Gorkha district\(^1\), north-west of the capital Kathmandu (April), and between Sindhupalchok and Dolakha districts north-east of the capital (May). This disaster resulted major economic and infrastructural damage with 8,702 human casualties. Immediately after earthquake, Post-Disaster Needs Assessment was prepared by the National Planning Commission. The total estimated damage to tangible cultural heritage was predicted to be NPR 16.9 billion (US$ 169 million) (PDNA Vol B 2015). In May 2016, Nepal Government launched a Post Disaster Recovery Framework (PDRF 2016) to provide vision and the strategic objectives to fulfil reconstruction goals. In PDRF 2016, GoN stated principles of recovery and “build back better” as the key element of reconstruction and rehabilitation policy. Strategic recovery objective of PDRF 2016 states “Restore and improve disaster resilient housing, government buildings and cultural heritage, in rural areas and cities”. It emphasizes an approach to Community Based Organizations (CBOs) to ensure community participation and ownership of reconstruction and recovery and at the same time enhance social cohesion to build resilient communities. It also emphasizes on preservation of both tangible and intangible heritage along with physically resilient reconstruction (Gyawali 2019).

Community-led reconstruction has been recognised by GoN and public as an important approach in post-disaster heritage reconstruction. In many neighbourhoods of Kathmandu valley, community-led organisations strongly associate themselves with heritage and want more responsibility in heritage reconstruction. A study of this approach together with the issues faced and lessons learnt is necessary. By assessing the implementation challenges and understanding successful cases in community-led reconstruction projects, suitable policies can be developed to upscale and increase the quality and speed of heritage reconstruction.

\(^1\) Nepal is divided administratively into three level of government – federal, state and local. State government is divided into provinces. Local government units includes rural municipalities, urban municipalities, sub-metropolitan cities and metropolitan cities at the bottom level. These local government units were further divided into Wards. Similarly, district level local governments are formed which can include the various municipalities.
The purpose of this paper is to:

1. Examine community-led reconstruction approach undertaken by communities of Patan towards cultural heritage reconstruction and share issues, success stories and lessons learnt.

2. Share procedures that were followed during heritage reconstruction projects and community engagement.

Different definition of community exists in literature. For this research, framework suggested by McMillan and Chavis 1986 and Kepe 1999 is used to describe community. McMillan and Chavis 1986 has identified four characteristics which a community possess. First is sense of belonging or membership to a group. The second is influence or a sense of mattering and making a difference to a group matter. The third characteristics is reinforcement: integration and fulfilment of needs. This is the feeling that member’s needs will be met by the resources received through their membership in the group. The last characteristics is shared emotional connection, the commitment and belief that members have shared and will share history, common places, time together and similar experiences. Kepe 1999 explains community as spatial unit, economic unit and a web of kinship, social and cultural relation. Cultural symbols and customs are used to imply community identity and exemplified through ritual activities, music and flags, or their equivalent religious institutions in which there is direct involvement of community in managing and developing local areas.

Cultural heritage is an expression of the ways of living, developed by community and passed on from generation to generation, including customs, practices, places, tangible objects, artistic expressions and values (ICOMOS 2002). Once limited to monuments, archaeological edifices, and movable heritage artifacts, the definition of cultural heritage is broader and now includes historic urban areas, vernacular heritage, cultural landscapes (tangible heritage, which include natural and cultural sites), and even living dimensions of heritage and all aspects of the physical and spiritual relationship between human societies and their environment also known as intangible heritage (Jha et al. 2010).
1.1 Introduction of Patan

Patan is also known as Lalitpur or “City of Beauty”. It is in Kathmandu valley and considered to be the oldest among three cities in the valley. It is believed to be existing since 7th century BC during Kirat period (V. Subba, Jenkins, and Selter 2006). Kathmandu Valley was inscribed in the UNESCO World Heritage List due to its Outstanding Universal Value. The inscription in World Heritage List is an exceptional testimony to the architecturally explicit, traditional civilization of coexistence of Hinduism and Buddhism. Patan represents the legacy of Newar people who are renowned artisans and craftsmen who shaped the city a distinct identity. Patan Durbar Square exists at the centre of Patan which is a group of former palace complex and includes significant temples. The core area of Patan city takes a compact and dense form still prevalent. Private houses, community centres and business centres are in the core area. Core area also boasts of ancient Hindu and Buddhist temples, monasteries, shrines, chaityas, Pati or Phalcha (resthouses) and waterspouts. In the Patan city’s planning, city’s residents and heritage buildings exist in same neighbourhood. Most of the private, semi-private and public buildings are made of fired bricks with mud mortar and timber. Generally, the construction technology, proportion and construction detailing are similar in each building when relating its individual elements such as doors, windows, walls, posts and beams (Korn 1979). Uniformity exists in use of building materials where outstanding craftsmanship exists in brick, stone, timber and bronze (UNESCO 1979). The construction system is mostly load bearing in nature.

A wave of modernisation is changing the traditional, cultural, and architectural identity. Prior to earthquake 2015, the cultural heritage of Patan was facing issues such as congestion, demolition of historic structures, inappropriate construction, lack of maintenance, lack of original use, illegal encroachment, and defacement. The traditional urban fabric is also threatened due to developmental pressures.

1.2 Cultural heritage conservation principles

When dealing with reconstruction of heritage conservation - principles, practices and norms must be considered as they provide a framework for project initiation, planning, execution, monitoring and controlling. Scholars have reiterated that any intervention in cultural heritage restoration or reconstruction should have no impact on its value, authenticity, or integrity of a building and its immediate environment. However, in scenarios where this is not possible, the
impact should be minimal and the work should correspond to practices of heritage conservation (Jha et al. 2010; Ranjitkar 2006).

As per Nepal’s Ancient Monument Preservation Act 1956, the Nara Document on Authenticity and many other international charters, heritage reconstruction demands use of traditional materials. Furthermore, the Nara document on authenticity stemmed from the spirit of the Venice Charter, proposes not just authenticity of material but conservation methods that could substitute the physical carrier of monuments but preserve their essence, through survival of the traditional building/conservation techniques and communities that sustain them (ICOMOS 1994).

1.3 Heritage reconstruction through Community based organization - then and now

The case of Kathmandu Valley provides an interesting insight into a non-western model of heritage governance. When discussing about community-led management, it is noteworthy to discuss about Newar Guthi system which is believed to have existed since Lichhavi era (400 to 750 CE) (Shaha 1990; Shrestha and Singh 1972; Lekakis, Shakya, and Kostakis 2018). Guthi is a core feature of Newar socio-cultural setup. It is a community institution created within specific caste or groups within Newar society. Guthis can have objectives such as organizing festivals, workshops, teaching specific skills, maintaining and conserving heritage buildings (Lekakis, Shakya, and Kostakis 2018; Dahal 2012; Gurung 2000). It can be said that almost all temples and monasteries had some forms of a Guthi for its protection, preservation, and maintenance. However, this type of decentralized model of heritage management got replaced by a nationalized model after establishment of “Guthi Sansthan Act” of 1964 and further amendments in 1976. A state or market solution was envisaged through Guthi Sansthan Act which superseded the powers of community that would manage the heritage buildings. Many Newar Guthis and their functions were merged into the state-owned Guthi Sansthan Corporation to institutionalise modern public administration system. Thus, many of Kathmandu valley heritage structures have been missing their custodians and resources.

1.4 Community led reconstruction in literature

Community led reconstruction in this paper refers to an approach which actively includes beneficiaries or earthquake affected community in design, construction, and management of their heritage. Community led reconstruction would mean that financial and/or material assistance is channelled through community organizations that are actively involved in
decision making and in managing reconstruction (Jha et al. 2010). This approach closely relates to Community Driven Development (CDD) that is termed by the World Bank in which communities have direct control over important project decisions as well as the management of finances (Mansuri and Rao 2004). CDD is an approach that aims to empower communities and local governments with resources and the authority to use these flexibly, thus taking control of their development. In developing countries especially the South Asia region, scholars point out the strong bond in the community. However, in several cases, they lack capacity but not the ability of impactful action (Migdal 1988; Lekakis, Shakya, and Kostakis 2018). There needs to be a structured community engagement to identify concerns, goals, and abilities, but there is a possibility that there might not be consensus on these items (Jha et al. 2010).

Ownership of the public ancient monuments in Nepal is vested in the Department of Archaeology (DoA). DoA is responsible government organization for conservation, maintenance and renovation of public ancient monuments (Government of Nepal 1956). A six-year recovery period which would require an average of US$ 34 million per year was proposed for the restoration and reconstruction of all damaged and collapsed historic buildings. To meet the associated challenges, GoN announced establishment of a public body, the National Reconstruction Authority (NRA) which has a mandate to oversee the reconstruction and distribution of aid to the affected. The heritage reconstruction processes are planned and monitored by a committee that involves the NRA, DoA and local municipalities.

1.5 **KVPT’s support for community-led post-disaster heritage reconstruction**

The Kathmandu Valley Preservation Trust (KVPT) was founded in 1991 with the mission to safeguard the extraordinary and threatened architectural heritage of the Kathmandu Valley. KVPT collaborates with community groups, local and international specialists, educational institutions, and DoA. A five-year Patan Darbar Earthquake Response Campaign is undertaken by KVPT to restore and reconstruct monuments inside Patan Darbar - palace and square which is a UNESCO World Heritage Monument Zone. In addition to KVPT’s earthquake response campaign, four community-based organisations in Patan have proactively requested KVPT for providing technical support for reconstructing their heritage buildings. KVPT has supported these communities as a social responsibility project by formulating conservation and reconstruction proposals using community participatory approach.
The goal of the support was to reconstruct the damaged heritage through community-based approach and preserve the Newar architecture and cultural heritage. Finances for construction had to be managed by community themselves. KVPT had no decision-making power and the projects are entirely community led. Researcher worked as Conservation Architect and part of technical team inside KVPT that supported the communities. Researcher had direct interactions with the affected community members during the support program. This paper studies include projects supported from 2017 till 2020 as case studies. It includes: -

1. Muchhen Aganchhen, Ward no. 12
2. Bhagavati Phalcha – Kobahal, Ward no. 9
3. Om Bahal Seto Ganesh Chapa Chhen (Guthi ghar), Ward no. 9
4. Mu Bahal Monastery, Kwapadyo shrine, Ward no. 20

Procedures adopted while supporting the community includes: -

1. Identification of building element at risk
2. Initial assessment for rescuing and reusing of debris or old materials
3. Identification of community needs and scope of assistance
4. Site survey, field observation and documentation of existing condition
5. Literature review, historical documents research, data collection on tangible and intangible value of building
6. Develop a conservation / reconstruction plan with various options based on available evidence
7. Discuss various pros and cons of reconstruction plans with community leaders
8. Agree on an option the future use or adaptive reuse plan of the building
9. Prepare architectural drawings, detailing and cost estimate based on the agreed option
10. Handover technical documents to community for further funding application
11. Construction monitoring / quality control as per request from community

During reconstruction as much as possible salvage materials were used. And during restoration a philosophy of “Minimal intervention” which means causing minimum disturbance to the original building fabric is planned to be adopted. It involves discrete repairs and localized reconstruction using the original materials and methods as well avoiding unnecessary cost. (Ranjitkar 2006).
1.6 Case study

a) Muchhen Aganchhen, Ward no. 12, Patan

Muchhen Aganchhen is located at the north of Bahadur Shah building at Patan Darbar Square. It is a 3 storey rectangular shaped building. This was built during Malla-era in early 15th century i.e. nearly 500 years ago. Muchhen Aganchhen resembles vernacular Newar house from outside, but with difference in purpose. Aganchhen is different because it is dedicated to tantric practices as “house of god”. It is located inside a courtyard. From exterior, it takes a form of Newar house but regarded as temple. Muchhen Aganchhen does not have a circumambulatory path like a temple or stupa. The façade has an ornately carved window called Pasuka Jhya with 5 bays placed at first floor and second floor level. The building is used for purposes such as storage of chariot of goddess Manamaneswari, worship, community hall for meeting and feast, area for practice of traditional musical instruments. Building materials used for its construction includes brick and mud mortar, wooden windows, and doors, jhingati roof tiles, telia floor tiles, brass. Previous purpose of this building was storage of Swords of Malla kings' after their deaths. The building was heavily damaged in the 2015 earthquake. Only the front wall of the ground floor remained. The main deity has been relocated to a neighbouring house.

The intangible heritage of this monument includes Khadgajatra or Layaku Payo which is special procession organised during Dashain festival. Due to lack of funds, the rebuilding process has not begun yet. The building needs complete rebuilding from the foundation, using traditional materials and technology, preserving the original appearance and size.
Figure 1 Muchhen Aganchhen before earthquake
Picture courtesy:- Dr. R. Ranjitkar

Figure 2 Muchhen Aganchhen after 2015 earthquake
Picture courtesy:- Mr. A. Joshi

Figure 3 Front facade of Muchhen Aganchhen (Proposed), KVPT 2017

Figure 4 Master plan of Muchhen Aganchhen (Proposed), KVPT 2017
b) Bhagavati Phalcha – Kobahal, Ward no. 9, Patan

Bhagavati Phalcha – Kobahal is a unique case because there was no available evidence that would precisely suggest that there was a Newar building. It was reported verbally by locals that before two and a half decades, a five-bayed half-roofed traditional phalcha was standing. In 1995, that structure was dismantled and replaced with concrete building with minimalist design philosophy (Basukala and Gutschow 2018). Due to lack of evidence, an exact replacement or rebuilding was not possible. Hence based on contemporary exigencies or evolving local needs of the community new architectural design was proposed which would respect the overall spatial and volumetric composition of the place. A study of surrounding urban form and historic setting was conducted to come up with a conjectural rebuilding strategy. It was also intended that the new architectural design would also guide further urban development in the vicinity. In 2017, the community members planned to reconstruct it in the "traditional Newar architecture". A user committee is formally registered which is now leading the reconstruction.

The building under-construction resembles a Sattal, with an open ground floor plan and wooden pillars supporting the upper floor. In ancient times, such buildings were originally built as rest house for longer sojourns of Sadhus, Gurus and other pilgrims. The new architectural design proposes a two-storey rest house together with a hall for community meetings. The ground floor has Phalcha or rest house together with a shop which can be rented to generate income for building maintenance. A community meeting area is planned on the first floor. On the day of Indrajatra, the community from Kobahal perform special worship of goddess Bhagawati. The responsibility for organising Krishna worship on the day of Krishnastami and Matya procession (an annual procession conducted in Patan) passes down in turn through different tole of Patan. This procession will be coordinated by community of Kobahal in few years.

During design process, lesson was learned that a certain level of flexibility must be adopted while working with communities. It takes time for community to decide on functional and spatial use and there can be several modifications before reaching a consensus. The initial proposal presented had an open plan for ground floor, later on there was a request by community to create a room for youth club. But during actual construction community decided that open plan on the ground floor that was initially proposed would be appropriate as it gave more gathering space. It was decided that room for youth club can be incorporated lon
the newly constructed top floor. These requests from community for design changes were acknowledged by architects.

Figure 5 Bhagavati Phalcha – Kobahal with modern RCC building, Year:- 2017

Figure 6 Initial design proposed by community, Year: 2017

Figure 7 Design refined by community with support from KVPT. Year:- 2018

Figure 8 Fund-raising feast (Newar Bhoye) organised by User committee, Date:- Nov 2018

Figure 9 New Bhagavati Phalcha under-construction, Date :- Jan 2020
c) Om Bahal Seto Ganesh Chapa Chhen (Guthighar), Ward no. 9

This is community building constructed primarily for gatherings Guthi members of Om Bahal Seto Ganesh Guthi. The photographic documentation of the building before 2015 clearly shows a 5-bay Phalcha (rest house) attached as portico to a 2 storey Newar style brick building. This building has no direct connection with any deity but an image of Shiva is found on one of its wooden pillar visible from its front façade. Before rebuilding, it was used to store salvaged wood and bricks. On the first floor, a large wooden window is placed also known as Biman Jhya. The ground floor which is enclosed by traditional bricks is still used when a sacred fire is made on Yahmarhipunhi festival. The Phalcha is used by community members of Om Bahal as a place to socialize and gatherings. 2015 earthquake caused a heavy damage to this building. Demolition and reconstruction were the only option. Rebuilding was initiated with partial - funding from Parliament Members Fund and support from Province no. 3 government. Reconstruction is going on using traditional materials and technology, preserving the original appearance, size, type, and composition of the structure. A user committee is formed that is a subset of Seto Ganesh Guthi. The user committee is autonomous in decision making but reports to Thakalis or Senior members of Guthi.
Figure 10 Historical picture of Om Bahal Seto Ganesh Guthi ghar, Year:-

Figure 11 Om Bahal Seto Ganesh Guthi ghar after 2015 earthquake

Figure 12 Community members leading reconstruction of Om Bahal Seto Ganesh Guthi ghar, Year :- May 2019

Figure 13 On-going construction of Om Bahal Seto Ganesh Guthi ghar, Year:- Aug 2019
d) Mu Bahal monastery, Kwapadyo shrine, Ward no. 20

Mu Bahal is one of the branch of Hiraṇyavarṇa Mahābhīhar or the famous Golden Temple. It is located nearby an Ashok stupa in PimBahal tole. Bahals can be called as temples for Vajrayana Buddhism practice. The Kwapadyo shrine is the central shrine inside a quadrangle shaped courtyard. The shrine is placed right opposite of entrance gate to the courtyard. Kwapadyo is named from image of Buddha placed inside the monastery. It is three-storied shrine building facing east. The front façade of the building is plastered with traditional plaster and white-washed with lime. The ground floor has central carved door, small lattice window called tikijhya. The first floor has a three bayed ornate window called Pasukajhya and latticed window on other side. The second floor has a large three-bayed window typical of a Newar house. The building is made with brick and mud mortar, wooden windows, and doors, jhingati roof tiles and telia tiles. The building was heavily damaged due to 2015 earthquake. The southern end wall is in critical condition. This will be termed as “restoration” which includes preservation of all dilapidated masonry walls, the rebuilding of the roof in original traditional style, and the conservation of all historic carved timber elements in its original appearance, size, type, and composition based on the evidence available. Additionally, seismic strengthening method is proposed ensuring the structure is safeguarded in the event of another earthquake.

Figure 14 Front facade of Mu Bahal monastery, Kwapadyo shrine, Year :- 2019
<table>
<thead>
<tr>
<th>Features</th>
<th>Muchhen Agan Chhen – central shrine</th>
<th>Bhagavati Phalcha – Kobahal</th>
<th>Om Bahal Seto, Ganesh Chapa Chhen</th>
<th>Mu Bahal - central shrine / KwapaDyo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary function</td>
<td>Esoteric shrine</td>
<td>Resthouse &amp; community hall</td>
<td>Resthouse &amp; community hall</td>
<td>Monastery building</td>
</tr>
<tr>
<td>Year of establishment</td>
<td>ca. early 15th century</td>
<td>Old structure unknown, new concrete building was built in 1995</td>
<td>ca. 19th century</td>
<td>Records mentions 1447 AD.</td>
</tr>
<tr>
<td>Total plinth area (approx.)</td>
<td>318.58 sq. ft.</td>
<td>397.95 sq. ft.</td>
<td>496.5 sq. ft.</td>
<td>552.31 sq. ft.</td>
</tr>
<tr>
<td>Total floor area (approx.)</td>
<td>955.32 sq ft</td>
<td>761.02 sq. ft.</td>
<td>906.61 sq. ft.</td>
<td>1618.85 sq. ft.</td>
</tr>
<tr>
<td>No. of storey</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Damage due to 2015 earthquake</td>
<td>Total collapse</td>
<td>No damage to Cement concrete structure</td>
<td>Heavily damaged</td>
<td>Heavily damaged</td>
</tr>
<tr>
<td>Main Deity (if any)</td>
<td>goddess Manamaneswari</td>
<td>Bhagavati</td>
<td>N/A</td>
<td>Akṣobhya Buddha</td>
</tr>
<tr>
<td>Estimated total reconstruction cost in NRs.</td>
<td>Rs. 74,97,475.13</td>
<td>Rs. 65,94,881.28</td>
<td>Rs. 73,88,623.81</td>
<td>Rs. 1,40,94,425.24</td>
</tr>
<tr>
<td>Community members / Direct beneficiaries</td>
<td>Joshi of Bakhumbahal, Kisi (Shrestha’s) of Ombahal, Rajopadhyayas of the Swatha tole</td>
<td>Members of Bhagvatiguthi and Residents of Ko bahaltole</td>
<td>Members of Shri Panchami Guthi and locals of Om Bahal tole</td>
<td>Shakya’s who are priests (thapāhāhju) of the courtyard and Shrestha’s of PimBahal</td>
</tr>
<tr>
<td>Intervention category</td>
<td>Full reconstruction</td>
<td>Conjectural reconstruction</td>
<td>Full reconstruction with minor facade changes</td>
<td>Restoration</td>
</tr>
<tr>
<td>Status</td>
<td>Awaiting funds</td>
<td>Work in progress</td>
<td>Work in progress</td>
<td>Awaiting funds</td>
</tr>
</tbody>
</table>
2. Methodology

The research was carried out following the "Case study method" from Yin (2009). Previous studies in the field of urban and disaster research in Nepal have applied qualitative methods (Marahatta 2013; Bhandari 2010; Sandholz 2015). Subba (2003) asserts to understand the contextual, reality and dynamic interplay between human actions and human needs.

A literature review of documentation related to GoN’s reconstruction plans, NRA framework, guidelines from DoA, historical documents about the heritage buildings, and agreements between Community Based Organisation and government bodies financing the reconstruction were studied. Semi-structured questionnaire was prepared for interviewing the community members in the four case study sites. Furthermore, formal semi-structured interview technique was chosen for interviews with key informants including Architects, Engineers supporting the communities, municipal- and ward-level civil servants and officials from NRA. Formal and informal semi-structured interviews were conducted to acquire qualitative data about perceptions, meanings, definitions, and a construction of reality. It also opened new leads to current research (Punch 2005; Chitrakar 2015). Data was gathered at the time of community visits, technical consultation meeting and site visits. During the case study and field visits, community drivers and inhibitors of reconstruction were documented.

The Ishikawa diagram has been used as an analysis tool that provides a systematic framework for looking at effects and their causes that creates or contributes to those effects. This technique has been well applied in other fields such as Obstetrics and Gynaecology, Emergency department healthcare management and Oil manufacturing industry (Masoud Hekmatpanah 2011; White et al. 2004). The process of understanding cause and effect has four major steps: identifying the challenges; working out the major factors involved; identifying possible causes and analysing the cause and effect diagram, which can be used later to resolve numerous challenges.
3. Results

3.1 Challenges in community-led heritage reconstruction

3.1.1 Financial aspect

The primary challenge for reconstruction of heritage building in all cases is lack of financial resources. Community of Om Bahal and Kobahal managed to gather funds from Government. Initially, the Guthi members of both communities which manage buildings started the fund-raising campaign internally. Om Bahal community received partial funding through Sansad Bikash Kosh for heritage reconstruction that was channelized to the newly formed user committee. Funding was not fully allocated but user committee decided to go ahead with reconstruction following an incremental approach. Kobahal community started the fund-raising campaign locally by organising a feast where locals would participate and donate money as per their capability. They also received partial funds through Lalitpur Metropolitan City. Muchhen Aganchhen community formed a user committee and applied for funding to Lalitpur Metropolitan City and NRA. Partial funding from Lalitpur Metropolitan City is approved. However, they have been unsuccessful to receive funding from NRA. Mu Bahal community has not been able to form a user committee nor could start a fund-raising campaign. The community there wants to start fund raising but have not consolidated their efforts like other communities and informed about lack of knowledge on funding application or bureaucratic procedures.

It is noteworthy that a traditional building would cost approximately twice as much as a modern minimalist reinforced concrete building in Kathmandu valley. This is a constraint or a project feature that must be addressed while formulating any reconstruction plans.
Table 2 Comparison of reconstruction cost of different buildings

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Cost of Newar heritage building as per detailed estimate (Rs.)</td>
<td>7,497,475.13</td>
<td>6,594,881.28</td>
<td>7,388,623.81</td>
<td>14,094,425.24</td>
</tr>
<tr>
<td>B</td>
<td>Total floor area (sq. ft)</td>
<td>955.32</td>
<td>761.02</td>
<td>906.61</td>
<td>1618.85</td>
</tr>
<tr>
<td>C</td>
<td>Per sq ft cost based on detailed estimate (Rs.)</td>
<td>7,848.13</td>
<td>8,665.84</td>
<td>8,149.73</td>
<td>8,706.44</td>
</tr>
<tr>
<td>D</td>
<td>Cost Per sq ft @ Rs. 4500 of same sized modern RCC building (Rs.)</td>
<td>4,298,940.00</td>
<td>3,424,590.00</td>
<td>4,079,745.00</td>
<td>7,284,825.00</td>
</tr>
<tr>
<td>E</td>
<td>Cost Difference in constructing a heritage building vs modern RCC building (A-D)</td>
<td>3,198,535.13</td>
<td>3,170,291.28</td>
<td>3,308,878.81</td>
<td>6,809,600.24</td>
</tr>
<tr>
<td>F</td>
<td>Ratio (A divided by D)</td>
<td>1.74</td>
<td>1.93</td>
<td>1.81</td>
<td>1.93</td>
</tr>
</tbody>
</table>

Communities from Om Bahal and Kobahal reported that GoN has a fixed rate for materials and labor services which is also called District rate created under Public Procurement Act 2064, clause 148. However, User Committee has objected that for some items the rate does not match with prevailing market rate due to rising cost of building materials and higher remuneration rate of skilled craftsman in the market. A comparison chart is presented for wages in Table 3. There is a variation in initial cost estimate and actual cost during execution. Conservation norms nationally and internationally demand highest level of craftsmanship. But incongruence in rates causes adverse effect on quality of works. Their demand is to reconcile the rates in heritage reconstruction works.

Table 3 Comparison of per day cost of wages (NRs.)

<table>
<thead>
<tr>
<th>S.N</th>
<th>Description</th>
<th>Unskilled labour</th>
<th>Skilled labour and craftsman</th>
<th>Jhingati roof tile layer</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Government rate (as per DoA material rate 2075-76)</td>
<td>700</td>
<td>1300</td>
<td>1450</td>
</tr>
<tr>
<td>B</td>
<td>Market rate (2075-76)</td>
<td>900</td>
<td>2000</td>
<td>3500</td>
</tr>
<tr>
<td>C</td>
<td>variation (A-B)</td>
<td>-200</td>
<td>-700</td>
<td>-2050</td>
</tr>
</tbody>
</table>
3.1.2 **Logistical aspect**

In sectors such as private housing, education buildings, health facilities, the build back better concept has been achieved through introduction of modern materials, site planning and construction technology. But in heritage recovery, national and international norms recommend traditional construction materials and technology. Only when traditional technology cannot reduce seismic risk from a technical perspective, non-traditional construction materials and technology can be used after submitting proper technical report. This is also an aspect where communities who have less or no technical support face huge challenge. Communities in all case study sites want a more resilient buildings. However, they are not aware of what a resilient building means for heritage structure—what are the aesthetics or history that must be retained and modern practices that can be introduced while reconstructing. At the same time, supply of good quality traditional construction materials has been reported as constraint by communities. Supply of seasonal timber from Sal wood, traditional bricks & stones is a major issue. This has caused significant project delays and user committee has failed to meet the project deadline set by funding institution.

3.1.3 **Technical and skilled human resource constraints**

Community groups have been facing with shortage of skilled artisans and craftsmen who can undertake reconstruction. Experts and conservation architects have been reiterating that heritage reconstruction works demand people with quality, precision and knowledge about traditional crafts and construction. The traditional system of knowledge transfer from generation to generation of craftsman’s family is diminishing. Furthermore, a need of training to engineers and architects has been imperative. As most of architects and engineers are trained for modern reinforced construction; there is a skill gap in planning, designing, and constructing Newar buildings with the features and quality set by national and international norms. Skilled structural engineers who can enhance seismic strength of traditional building using traditional materials is of high demand. The four communities that approached KVPT are provided instructions about heritage conservation and Newar building construction techniques. But such type of technical support is not available to all the community groups.

Community members are also challenged with maintaining quality of works because they have less experience in construction works. They often seek support from technical partners who would guide them to maintain the appropriate standards. In addition, various national and international norms must be followed for heritage buildings make it a more challenging to
them. A systematic and technical documentation/archives of heritage in all phases of reconstruction works with less technical expertise is not maintained. User Committees are often perplexed by questions such as - extent of building details, characteristics, form that must be retained; construction details which can be improvised or changed; modern interventions that can be introduced without compromising authenticity of building. In addition to that, user committee must manage the constraints of project which are timely completion, cost management, scope fulfillment and high-quality project delivery.

![Figure 15 Triple constraints of project management faced in community-led projects](image)

### 3.1.4 Social processes

User committee of most of the case study areas reflected that reaching a consensus within the community members is one of the challenges. Community is heterogeneous with variety of sub-groups, opinions, and perceptions. User committee agrees that managing local community’s perceptions and coming to an agreement is necessary but often time-consuming process.

User committee members have reported that convincing community members on use of traditional construction materials and technology is challenging. The community is often unclear on the logic for not using cheaper and modern construction material like reinforced cement concrete. An awareness at community level on heritage conservation norms is felt necessary. From table 2 it can be observed that a traditional building would cost approximately twice as much as a modern minimalist reinforced concrete building. User committee also must provide justification to community members for the costlier approach.

Community members who have led the project expressed grievances on lack of appreciation they get from other community members and local government. Much of the reconstruction
has been done with the active participation of community members who felt responsible and stood up to lead the initiative. The user committees have taken risk by being contractually liable to complete the reconstruction, invested considerable time and effort – all of which is voluntary or pro bono. But the community members involved in reconstruction expressed melancholy due to stakeholders and counterparts not corresponding and valuing their intention and effort. This perception is also reflected from craftsmen who felt that their skills are less valued by the society.

3.1.5 Bureaucracy and administrative requirements

The user committees have reported that for initiating reconstruction works they must prepare a lot of paperwork, documentation and understand government procedures. Community leaders have to apply hit and trial process and they often have to repeat the same process again and again due to lack of knowledge in fulfilling bureaucratic requirements. It is very stressful to visit many offices which are spread across province no. 3 and it also brings logistic hassles. In the initial phase of execution, they also reported lack of knowledge about book keeping and accounting system.

Another challenge experienced by the user committee members is the project deadline which does not match with community’s work plan. Bhagavati Phalcha – Kobahal and Om Bahal Seto Ganesh Chapa Chhen (Guthighar) received government funding had a strict project deadline which was the end of a fiscal year. However, the fund disbursement to user committees was late which caused managerial hassles and scope of the project could be only partially completed. Renewal of the funding was not possible and a completely new application had to be submitted.

3.1.6 Knowledge and Capacity

Knowledge and capacity within community members leading the heritage reconstruction is another challenge. Reconstruction projects possess challenges in wide sectors which must be handled competently. Communities who are engaged in heritage reconstruction require regular knowledge sharing, training, support, and capacity building. During engagement with communities it was found that knowledge sharing on Newar construction technology is needed for community. Also, there is conceptual unclarity about heritage conservation which needs to be abridged through training and capacity building. Due to lack of funding
application procedures many communities fail to gather finances for reconstruction hence training on funding application is also necessary. Knowledge sharing on managing construction projects would also be vital if communities will be leading reconstruction projects. Furthermore, handling booking keeping and knowledge about accounting practices are also necessary for smooth execution and project closing.

3.2 Knowledge and Capacity of User groups which influences success of community-led heritage reconstruction

While engaging with communities, following key points ensures effective community-led heritage reconstruction:

- Initial proposal should be strong. Justification of the project must be well thought
- Clarity in monuments current use and if any changes in future use, adaptive reuse plans
- Clarity in local contribution in the form of funds or labor
- Technical resource person in the steering committee or user committee, or technical partner with a person skilled in heritage conservation allocated
- Community having knowledge about bureaucracy and government requirements
- Harmony between stakeholders managing the heritage building so that consensus can be reached sooner
- Communication and coordination skills of user committee
- Conflict management skills of user committee
- An institutional setup that would manage the heritage after its built. Beneficiary community should be able to devise a resource management strategy.
- Effective leaders within community members

An Ishikawa diagram or fish-bone diagram summarizing challenges in community-led post-disaster heritage reconstruction is shown in Figure 16.
Table 4: Showing how various communities in Patan are leading the reconstruction of their cultural heritage

<table>
<thead>
<tr>
<th>Reconstruction stage</th>
<th>Community contribution in heritage reconstruction</th>
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</table>
| **Initial Assessment** | - Community comes together and coordination begins  
                          - Proper site security and documentation as per site condition (safety and risk for community)  
                          - Salvage of reusable materials and proper storage  
                          - Inventory of salvage material and its condition assessment  
                          - Community-led needs assessment  
                          - Local environment analysis  
                          - Stakeholder analysis  
                          - Request technical partner for support  
                          - Assessment of financial needs and supporting documents / paperwork |
| **Project initiation** | - Prioritize activities for building in their community for reconstruction  
                          - Goal setting  
                          - Define scope of works and build a consensus within community to reconstruct  
                          - Identify leader of the project and core team members or form Committee |
| **Planning and design** | - Learning from peer groups on construction and Newar Architecture  
                           - Community consultations, technical discussions  
                           - Site survey  
                           - Provide feedbacks on architectural design, detailing and cost estimate provided by technical partner  
                           - Construction material sourcing  
                           - Internal community fundraising  
                           - External fundraising  
                           - Convince / manage voluntary labor and decide community’s financial contribution in reconstruction in case of such clause is set by donor  
                           - Application for funds to donor agencies  
                           - Signing of agreement with donors, federal or local government body  
                           - Assessment of funds received |
| **Project implementation** | - Execute actual brick and mortar reconstruction  
                              - Assemble a team of craftsmen, laborers, carpenters  
                              - Supervise construction as per architecture design and cost estimate  
                              - Communicate with technical partner and request necessary support  
                              - Banking related tasks  
                              - Manage financial disbursements  
                              - Book keeping / accounts management  
                              - Materials inventory management |
| **Monitoring and controlling** | - Record keeping of construction materials and workers’ wages  
                                - Participate in monitoring and auditing of bills  
                                - Assist in community grievances  
                                - Communicate donor agency regarding reconstruction progress and tranche based criteria completion |
| **Project closing** | - Inform technician from donor about project completion  
                           - Prove that there is no financial irregularity in reconstruction and that project scope is achieved  
                           - Complete final paperwork  
                           - Gather other members of community and handover |

The listed activities are not linear in nature. The list of activities may not be fulfilled by all the communities.
Figure 16: Ishikawa Diagram / Cause and Effect diagram
4. Discussion

Patan city is rich in culture and heritage. Reconstruction of its heritage buildings is important because they are its identity and related to social, economic, and cultural aspects. Pragmatic approaches are needed that accelerates reconstruction and is widely accepted. Community-led reconstruction is such an approach which ensures local participation, inclusive decision-making mode and a sense of ownership from the community. Another effect of this approach is greater social cohesion and in long run - resilience and productive community which is prepared for further development works. Reconstruction of buildings studied in this research would not have started if the community had taken the lead.

While the community led heritage reconstruction approach looks promising, several set of challenges such as financial, logistical, technical and skilled human resource constraints, social processes, bureaucracy and administrative requirements pose a serious challenge. Knowledge and capacity within community is another set of challenge that hinders this approach.

Government and donor organizations can step in or increase their support to bridge the challenges. Until now there has been little interest from INGOs / NGOs to support in heritage reconstruction. Capacity and knowledge of a community was, by the present study, identified as an important factor to determine success. Several dimensions of knowledge and capacity have been identified, among them - skills, knowledge of norms, leadership, communication, conflict management and a culture of cooperation and learning.

KVPT support during initial proposal preparation phase including project justification which is significant for the community to proceed ahead. Technical services like community consultations, technical discussions, site supervision are essential for proposal writing. These services can be easily provided by technical experts who are working in heritage conservation. Hence a strong technical partner which can guide the user groups in heritage reconstruction is highly recommended.
5. Conclusions and Recommendation

Community-led reconstruction is an important approach in post-disaster heritage reconstruction in Kathmandu valley. It is necessary to support such initiative and understand the issues faced by communities. Adequate tools, techniques and policies must be developed for smooth implementation of community projects.

This research leads to several preliminary recommendations that could both help in the continued heritage building reconstruction in Kathmandu and where community have a strong connection with the heritage building:

1. Government as well as donor agencies must step in to support such bottom-up initiatives. However, “one size fits all” approach is not suitable as communities in heritage zone have varied capacity and needs. Not many INGOs / NGOs are working in this sector to support communities to rebuild their heritage buildings. They can step in to support communities.
2. Most of the heritage buildings exist within urban areas where municipal and local governments are active. The capacity of government technicians, engineers and architects must be proportionally increased.
3. Bureaucracy and administrative requirements must be communicated properly to the community with clear flows of information to avoid hurdles in later phase of the project. If capacity does not exist within communities, donors can step in to support the community. There are already international and national personnel who have experience to carryout field assessments, administer funding and process paperwork.
4. A pragmatic and acceptable solution is necessary to reconcile the district rates especially for heritage reconstruction works which demands higher quality of material and craftsmanship.
5. It is important to balance ‘building back better’ with heritage conservation norms. Communities must understand that heritage buildings have different set of values than a modern concrete building. And reconstruction projects must endorse these values. As much as possible traditional materials and technology should be used. If it cannot reduce seismic risk from a technical perspective, then only non-traditional construction materials should be used.
6. Public awareness regarding heritage conservation norms and values of heritage buildings is essential.

7. Skilled technical personnel must be consulted while preparing reconstruction proposals so that User groups of the reconstruction work become fully aware of what should be done during field implementation and vice versa. GoN can create a roaster of experts who have specific skills in heritage conservation and share the roaster with community for consulting services or advices.

8. One fiscal year duration is inadequate for heritage conservation works led by community in present scenario. Reconstruction projects should be multi-year projects or encouraged to be incremental type.

9. Community members and craftsmen working in heritage reconstruction must be appreciated for their effort. Community members provide time and effort in voluntary or pro-bono basis. Society must also appreciate and respect craftsmen who continue to protect and promote our heritage. Job security and financial sustainability for them can be few options as appreciation.

Identification and correction of weaknesses is necessary to fully benefit from community-led reconstruction approach. This will lead to greater impact on the local community as well as opportunity to upscale the community-led reconstruction approach. Further research should investigate how the weaknesses could be resolved in a practical and acceptable manner.

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7. References


