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**ORGANISATION DES NATIONS UNIES
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**CONVENTION CONCERNING THE PROTECTION OF THE WORLD
CULTURAL AND NATURAL HERITAGE**

**CONVENTION CONCERNANT LA PROTECTION DU PATRIMOINE
MONDIAL, CULTUREL ET NATUREL**

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**Item 7 of the Provisional Agenda: State of conservation of properties inscribed on the
World Heritage List and/or on the List of World Heritage in Danger**

**Point 7 de l'Ordre du jour provisoire: Etat de conservation de biens inscrits sur la
Liste du patrimoine mondial et/ou sur la Liste du patrimoine mondial en péril**

MISSION REPORT / RAPPORT DE MISSION

**Kathmandu Valley (Nepal) (C 121bis)
Vallée de Kathmandu (Népal) (C 121bis)**

20–25 March 2017

REPORT ON THE JOINT
WORLD HERITAGE CENTRE/ICOMOS/ICCROM
REACTIVE MONITORING MISSION
TO THE KATHMANDU VALLEY
(NEPAL, C 121BIS)

20–25 March 2017



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The Mission Team greatly appreciated the information and cooperation provided by the authorities of the seven Monuments Zones (component parts of the World Heritage property), in particular to the Site Managers and the experts of Hanuman Dhoka Durbar Square Monument Zone, Changu Narayan Monument Zone, Bhaktapur Durbar Square Monument Zone, Patan Durbar Square Monument Zone, Swayambhu Monument Zone, Pashupati Monument Zone, and Baudhdhanath Monument Zone.

Finally, the Mission Team would like to thank the Head and Representative of the UNESCO to Nepal, Mr Christian Manhart, and his colleagues for their unconditional support to enable the preparation for the mission and its activities. The UNESCO Culture Specialist, Mrs Nipuna Shrestha, generously provided her professional advice and assistance throughout the mission to ensure the smooth running of all activities and accurate reporting.

EXECUTIVE SUMMARY

BACKGROUND

From 20 to 25 March 2017, a joint World Heritage Centre/ICOMOS/ICCROM Reactive Monitoring mission (Decision **40 COM 7B.41**) visited the World Heritage property of the Kathmandu Valley, inscribed on the World Heritage List in 1979, then on the List of World Heritage in Danger between 2003 and 2007, to assess its state of conservation. The recent mission was a follow-up mission to the previous joint World Heritage Centre/ICOMOS/ICCROM Reactive Monitoring mission of 27 October to 2 November 2015, which found that the April/May earthquakes of 2015 had caused considerable damage to the World Heritage property, substantially impacting its integrity and authenticity, and placing its Outstanding Universal Value (OUV) at serious risk.

The purpose of the recent mission was to further assess the scale and extent of damage inflicted on the property by the disaster, including its impacts on the attributes of OUV for each of the monument zones; to review the progress accomplished by the State Party of Nepal in documenting and addressing the threats to the property and its OUV; and to further define corrective measures, as part of an overall Recovery Plan to optimize the conservation of the property and its attributes of OUV.

The 2015 mission found that the earthquakes had inflicted serious damage, rendering the Kathmandu Valley extremely vulnerable, and that, without a well-coordinated and focused recovery, the property was facing serious deterioration of its architectural and town-planning coherence, which would affect its physical and historical integrity and authenticity, and in turn its cultural significance. As the scale and scope of the recovery process were not adequate to deal with the ascertained and potential threats to the property and its OUV, the Reactive Monitoring mission recommended that the World Heritage Committee inscribe the Kathmandu Valley on the List of World Heritage in Danger, in order to define and implement comprehensive mitigation and/or corrective measures, in collaboration with key national and international stakeholders, as this solution would hold the best prospects for addressing the current threats facing this property. The recommendations of the 2015 mission were presented to the Committee at its 40th session (Istanbul/UNESCO, 2016).

The Committee requested that the current Reactive Monitoring mission consider the progress made by the State Party of Nepal on the recommendations of the 2015 mission and the Committee's Decision **40 COM 7B.41**, and in particular to determine whether comprehensive mitigation measures can be defined, in collaboration with key local, national and international stakeholders, which might allow the reversal or mitigation of these threats, with a view to considering, in the absence of significant progress, the possible inscription of the property on the List of World Heritage in Danger.

For the sake of clarity, it must be emphasized that the current Mission Report should be read together with the Report of the 2015 Reactive Monitoring mission.



Historic settlements and modern concrete structures in Changu Narayan Monument Zone (right)

Jagannath Temple (left)

FINDINGS OF THE 2017 REACTIVE MONITORING MISSION

The 2017 Reactive Monitoring mission has reconfirmed that the Kathmandu Valley World Heritage property (KVWHP) was severely damaged by the 2015 earthquakes, seriously affecting many of its significant attributes and putting the integrity, authenticity and OUV of the property at risk. Furthermore, the 2017 mission has confirmed that the KVWHP is facing serious deterioration of its architectural and town-planning coherence during the recovery process, leading to further impacts on the integrity and authenticity of the World Heritage property. It is acknowledged that the State Party of Nepal has undertaken a considerable amount of work to recover the property, yet the scale of the disaster and the response required are considered to exceed by far the capacity and resources of the Department of Archaeology (DoA).

The mission found that the extent of damage for each of the seven monument zones varied greatly and that the scope and quality of the recovery has also been variable.

To date, some significant attributes of the property have been recovered, including the Bouddanath Stupa, the Patan Palace Museum and several temples. But in many cases, such as that of the Hanuman Dhoka Palace, the work has barely begun, with inadequate protection being provided to the monuments and salvaged elements still awaiting repair. New housing and commercial development in Swayambu, Pashupati and Changu Narayan are contributing to the degradation of both the historic built and natural environments of the monument zones, and management of reconstruction and development in the buffer zones is very weak across the whole World Heritage property.

The traditional houses with their ground floor shops are attributes that were already threatened by urbanization and modern development and have suffered severely from the earthquakes and the recovery process: most of the severely damaged buildings were demolished and replaced with new concrete-framed buildings. Although the new buildings are brick clad and incorporate carved window elements, they are often taller than their historic counterparts and many have flat roofs in place of the traditional steeply pitched roofs. Very few of the traditional houses are being repaired, despite local monetary incentives. This has affected most of the monument zones, and more particularly Changu Narayan, Bhaktapur, Pashupati and Hanuman Dhoka. It must be noted that these houses. Thus the traditional urban house is seriously under threat in the post-earthquake recovery.

It is acknowledged that the Government of Nepal has done a great deal to rescue important artefacts and, with the help of the international community (ICCROM, ICORP and many others) to provide capacity building for site managers, artisans, local professionals and local community members, in an effort to improve the protection and repair of the monuments. However, in general, there does not seem to be a systematic approach to documenting and assessing the damage to the monuments or mapping the damage across the seven monument zones, nor has a centralized database of information been established. Although conservation guidelines have been prepared, no recovery plans have developed, in consultation with local community stakeholders, to guide the work in each of the monument zones.

Unfortunately, the recovery and reconstruction processes added new threats to the integrity and authenticity of the property. This has occurred through uncontrolled and poor-quality reconstruction work, which in many cases involved major interventions resulting in considerable loss of significant fabric. In many instances, the work undertaken has not been based on a good understanding of the traditional construction materials and techniques, nor have they been justified through detailed assessment of the sites, including the ground conditions around the monuments, archaeological remains (both structural and artefacts), condition of the urban fabric, historical records and past interventions. Thus, crucial assessment of the evidence appears to be missing across almost all sites, causing solutions to be proposed and implemented before the significance of the fabric or the causes of failure have been properly identified. In addition, the impact of the interventions on the significant fabric of the monuments, the property's OUV and its attributes have not been assessed, resulting in the loss of significant fabric and archaeological remains.

The apparent lack of an agreed understanding of what constitutes the attributes of OUV and what is meant by 'recovery of OUV' is a concern. The systematic removal of 19th-century Rana-style and early 20th-century neo-classical-style buildings and their replacement with Malla-style buildings (considered locally as proper Newari buildings) fails to recognize the importance of retaining all the historical layers of the property and the effect that their removal has on the integrity and authenticity of the property. Furthermore, the very limited documentation and assessments of the damage, the failure to implement a clear process to analyse the restoration and reconstruction methods to be used

and the proposed interventions, together with the inexperience of building contractors in traditional construction and building conservation methodologies, has resulted in poor-quality reconstruction, the uncontrolled introduction of inappropriate new materials and the implementation of destructive interventions, resulting in the loss of significant building fabric, particularly in the monument bases. Thus, the recovery process has contributed a further threat to the OUV of the property.

The mission identified the following major threats to the property, its OUV and attributes of OUV, which have arisen through the recovery process:

- Poor coordination between the DoA, the National Reconstruction Authority, site managers, local communities and various project partners (local and international);
- Lack of capacity (architectural expertise and experience in heritage conservation) and resources (human, technological and financial) within the DoA to enable it to manage the post-disaster recovery efficiently and effectively;
- Lack of a recovery master plan for each of the monument zones, focusing on community needs and recovery of the OUV through the recovery of its attributes, both tangible and intangible;
- Lack of protection for severely damaged monuments, to ensure that they suffer no further deterioration (particularly the Hanuman Dhoka palace and the surviving houses in Bhaktapur);
- Lack of adequate documentation of the damage to the monuments caused by the earthquake;
- Lack of adequate record keeping, including centralized collection and storage of all relevant documents relating to the KVVHP;
- Lack of evidence and values-based decision making for the recovery of monuments, resulting in substantial loss of historic fabric and subsurface archaeology due to major interventions;
- Use of inappropriate construction methods and materials as a result of the open tender system used for the recruitment of contractors to undertake the repair and reconstruction of the monuments;
- Lack of adequate monitoring of the work in progress to ensure that appropriate standards are met; and
- Inadequate planning with local communities in relation to the recovery, as well as ongoing management, care and maintenance.

The mission considers the following to be of particular concern:

- The absence of sufficient coordination between the DoA, the Hanuman Dhoka Durbar Museum Corporation and the various project partners responsible for the rehabilitation, strengthening and conservation works to the Hanuman Dhoka Palace;
- The low quality of the clay used for brick production;
- The loss of mud mortar as a key attribute of OUV for the KVVHP, particularly in relation to the tiered temples;
- The proposed reconstruction of Kasthamandap in Hanuman Dhoka Durbar Square, which may result in the loss of exceptionally significant early fabric in its brick base and is the subject of dispute with the local community;
- The potential demolition of the Lal Bhaitak wing of the National Art Museum (Bhaktapur Palace) and its replacement with a building replicating that of an earlier period (pre 1858) the design of which will be based partly on conjecture;
- The loss of traditional housing in all urban monument zones and ancient settlements;
- The potential impact of new urban infrastructure on subsurface archaeology within the monument zones;
- New and uncontrolled urban development within the monument and buffer zones; and
- The potential impact of the proposed new ring road extension around the Pashupati Monument Zone on various monuments in close proximity to it.

CONCLUSIONS

The World Heritage property of the Kathmandu Valley is a very special place, highly valued by the people of Nepal and the international community.

Given the scale and scope of the damage experienced in all seven monument zones, the immense complexity of the situation across many of the monument zones, the extent of the degradation for housing and traditional commercial properties within the historic urban areas and ancient settlements, and the lack of an adequate protection for many of the damaged areas and structures, the mission team is of the view that, notwithstanding the good measures taken by the State Party, the recovery process is not currently adequate to deal with the major challenges that have arisen after the earthquake. The recovery has not been well planned or coordinated and the work is not being carried out on the basis of sufficiently detailed evidence, with the objective of retaining as much of the surviving fabric and recovering the attributes of OUV. In many cases, the recovery fails to respect the historic foundations of the monuments, attributes that are critical to maintaining their integrity and authenticity, and disregard the archaeological resources that provide evidence of the buildings' historical development over the centuries. In some cases, the recovery process also fails to respect the traditional construction methods, materials, knowledge and practices used to create and maintain the monuments. All of this is impacting adversely on OUV and has potential to inflict even greater damage.

In view of these considerable, potential and ascertained threats, the mission considers that the recovery process requires greater input from and collaboration with the international community, and that there is an urgent need for the development of a coherent and coordinated Recovery Plan.

To this end, it is the opinion of the Reactive Monitoring mission that the best way forward for the protection and recovery of the property is that it be placed on the List of World Heritage in Danger. This will enable greater mobilization of the international community and its extensive network of experts and resources to assist the Government of Nepal in providing the necessary care for the property, and is considered to give the best prospect for the recovery of the property, its OUV, attributes of OUV, integrity and authenticity.

The 2017 Reactive Monitoring mission recommends that, in accordance with paragraphs 177 and 179 of the *Operational Guidelines for the Implementation of the World Heritage Convention*, the World Heritage Committee consider inscribing the Kathmandu Valley on the List of World Heritage in Danger at its 41st session in July 2017.

RECOMMENDATIONS

The Reactive Monitoring mission recommends that:

1. The World Heritage Property "Kathmandu Valley" be placed on the List of World Heritage in Danger, and that a Desired State of Conservation for the removal of the property from the List of World Heritage in Danger be proposed by the State Party of Nepal, along with appropriate Corrective Measures and a timeframe for their implementation. The property would ultimately be removed from the List of World Heritage in Danger when the Committee considers that the corrective measures have been implemented and the property has been returned to an agreed desired state of conservation.
2. The international community be mobilized to assist the State Party in its recovery of the KVVHP. This may include, but is not limited to, the provision of further capacity building, particularly in relation to the development of a secure centralized and accessible digital database for the management of all documents pertinent to the property and the recovery process, and the development of an overall Recovery Plan for the property, as well as individual Recovery Plans for each of the Monument Zones. Such plans must be linked to wider social and economic parameters and it is suggested they should reflect a Historic Urban Landscape (HUL) approach to urban development within the KVVHP and its buffer zones.
3. An International Advisory Committee of experts from UNESCO and the Advisory Bodies be established to advise the Government of Nepal and the DoA throughout the recovery and

reconstruction process. The Advisory Committee should review, critically evaluate and advise on the key recovery planning documents for the property and major proposed projects. This mechanism would operate in collaboration with international and national experts to enhance resilience of post-disaster heritage restoration in Nepal. This assistance could be dispensed either through ad hoc Advisory Committee meetings or by providing advice on strategies in such serious post-disaster situations.

4. The International Advisory Committee provide feedback to DoA in a timely manner, so as not to unreasonably delay the progress of the recovery.
5. Works to Kasthamandap, located in Hanuman Dhoka Durbar Square, the Hanuman Dhoka Palace (all portions) and the Lal Bhaitak wing of the National Art Museum, Bhaktapur, be reviewed by the International Advisory Committee before any works begin on site and before any irreversible decision is made, and that the works be halted if the evidence provided for the proposed works is inadequate, and that new proposals be prepared to support the recovery of the attributes and OUV property and minimize the loss of significant heritage fabric.
6. The proposed extension of the ring road around the Pashupati Monument Zone be reviewed by the World Heritage Centre and the Advisory Bodies, and notably its potential impact on the KVVHP, with the view to proposing suitable mitigation measures.
7. Corrective measures be implemented to ensure that the KVVHP, its OUV and attributes of OUV, its integrity and authenticity are recovered in a way that prevents further loss to the property and ensures that the latter can reach the agreed desired state of conservation.
8. The measures defined in Section 4.2.3 of the present report be implemented, as the DoA has failed to respond adequately to the recommendations of the 2015 Reactive Monitoring mission and the requests for information from the World Heritage Centre and the Advisory Bodies since then-. Submissions should be made to the WHC for review by the International Advisory Committee, in accordance with the program included in Section 5.3.

1 BACKGROUND TO THE MISSION

1.1 INSCRIPTION HISTORY

The Kathmandu Valley was inscribed on the World Heritage List in 1979 on the basis of criteria (iii), (iv) and (vi).

1.2 STATEMENT OF OUTSTANDING UNIVERSAL VALUE

This statement of OUV was adopted retrospectively at the 36th session of the World Heritage Committee (St Petersburg, 2012).

Brief Synthesis

Located in the foothills of the Himalayas, the Kathmandu Valley World Heritage property is inscribed as seven Monument Zones. These monument zones are the Durbar squares or urban centres with their palaces, temples and public spaces of the three cities of Kathmandu (Hanuman Dhoka), Patan and Bhaktapur, and the religious ensembles of Swayambhu, Baudhdhanath, Pashupati and Changu Narayan. The religious ensemble of Swayambhu includes the oldest Buddhist monument (a stupa) in the Valley; that of Baudhdhanath includes the largest stupa in Nepal; Pashupati has an extensive Hindu temple precinct, and Changu Narayan comprises traditional Newari settlement, and a Hindu temple complex with one of the earliest inscriptions in the Valley from the fifth century AD. The unique tiered temples are mostly made of fired brick with mud mortar and timber structures. The roofs are covered with small overlapping terracotta tiles, with gilded brass ornamentation. The windows, doorways and roof struts have rich decorative carvings. The stupas have simple but powerful forms with massive, whitewashed hemispheres supporting gilded cubes with the all-seeing eternal Buddha eyes.

As Buddhism and Hinduism developed and changed over the centuries throughout Asia, both religions prospered in Nepal and produced a powerful artistic and architectural fusion beginning at least from the 5th century AD, but truly coming into its own in the three hundred year period between 1500 and 1800 AD. These monuments were defined by the outstanding cultural traditions of the Newars, manifested in their unique urban settlements, buildings and structures with intricate ornamentation displaying outstanding craftsmanship in brick, stone, timber and bronze that are some of the most highly developed in the world.

Criterion (iii): The seven monument ensembles represent an exceptional testimony to the traditional civilization of the Kathmandu Valley. The cultural traditions of the multi ethnic people who settled in this remote Himalayan valley over the past two millennia, referred to as the Newars, is manifested in the unique urban society which boasts of one of the most highly developed craftsmanship of brick, stone, timber and bronze in the world. The coexistence and amalgamation of Hinduism and Buddhism with animist rituals and Tantrism is considered unique.

Criterion (iv): The property is comprised of exceptional architectural typologies, ensembles and urban fabric illustrating the highly developed culture of the Valley, which reached an apogee between 1500 and 1800 AD. The exquisite examples of palace complexes, ensembles of temples and stupas are unique to the Kathmandu Valley.

Criterion (vi): The property is tangibly associated with the unique coexistence and amalgamation of Hinduism and Buddhism with animist rituals and Tantrism. The symbolic and artistic values are manifested in the ornamentation of the buildings, the urban structure and often the surrounding natural environment, which are closely associated with legends, rituals and festivals.

Integrity

All the attributes that express the outstanding universal value of the Kathmandu Valley are represented through the seven monument zones established with the boundary modification accepted by the World Heritage Committee in 2006. These encompass the seven historic ensembles and their distinct contexts. The majority of listed buildings are in good condition and the threat of urban

development is being controlled through the Integrated Management Plan. However the property continues to be vulnerable to encroaching development, in particular new infrastructure.

Authenticity

The authenticity of the property is retained through the unique form, design, material and substance of the monuments, displaying a highly developed traditional craftsmanship and situated within a traditional urban or natural setting. Even though the Kathmandu Valley has undergone immense urbanization, the authenticity of the historic ensembles as well as much of the traditional urban fabric within the boundaries has been retained.

Protection and Management Requirements

The designated property has been declared a protected monument zone under the Ancient Monument Preservation Act, 1956, providing the highest level of national protection. The property has been managed by the coordinative action of tiers of central government, local government and non-governmental organizations within the responsibilities and authorities clearly enumerated in the Integrated Management Plan for the Kathmandu World Heritage Property adopted in 2007.

The implementation of the Integrated Management Plan will be reviewed in five-year cycles allowing necessary amendments and augmentation to address changing circumstances. A critical component that will be addressed is disaster risk management for the property.

1.3 REDEFINITION OF PROPERTY BOUNDARIES

The redefinition of the boundaries was suggested and discussed during World Heritage Committee meetings as early as in 1992. This was in response to urban expansion, which had changed the character of the large area originally inscribed. The redefinition of the boundaries for the Kathmandu Valley World Heritage property was requested by the Committee at its 28th session (Suzhou, 2004) and the State Party proposed a minor boundary modification which was approved by the Committee in July 2006 (Decision **30 COM 8B.42**).

Following the earthquake, and particularly the damage and demolition of traditional houses in the urban areas and ancient settlements, minor modifications to the boundaries may need to be considered in the future.

1.4 EXAMINATION OF THE STATE OF CONSERVATION BY THE WORLD HERITAGE COMMITTEE

From 1989 to 2016, the World Heritage Committee examined the state of conservation of the Kathmandu Valley on many occasions. The full documentation records are available on the UNESCO World Heritage Centre's web page at: <http://whc.unesco.org/en/list/121/documents>.

It should also be noted that at its 27th session (Paris, 2003), the World Heritage Committee inscribed the property on the List of World Heritage in Danger due to the uncontrolled urban development which continuously decreased the urban landscape and architectural fabric of the property, and in view of the lack of management mechanisms to adequately conserve the OUV of the property as well as the lack of a legally redefined boundary for the property and its buffer zones. The State Party took significant corrective actions to address these issues/threats and at its 31st session (Christchurch, 2007), the Committee removed the property from the List of World Heritage in Danger (Decision **31 COM 8C.3**), considering that the necessary management planning measures had been or were being implemented, notably the development of an Integrated Management Plan (2005-07) and the adoption of the boundary redefinition (2006). Nonetheless, the Committee continues to actively monitor the state of conservation to ensure that the property receives the best possible protection.

1.4.1 39 COM AND THE REACTIVE MONITORING MISSION, OCTOBER–NOVEMBER 2015

The devastating earthquakes that struck Nepal in April-May 2015 resulted in huge loss of human life and extensive damage to the historic monuments and buildings of the Kathmandu Valley. Initial assessments conducted jointly by UNESCO and the Department of Archaeology (DoA) of Nepal, recorded the damages caused by the earthquake to the property. In particular, the historical structures

of the Durbar Squares of Hanuman Dhoka (Kathmandu), Patan and Bhaktapur were severely affected. The temples in all seven monument zones of the property have also been severely affected, many of them having completely collapsed.

In response to the extensive damage to the property caused by the earthquake and aftershock, the World Heritage Centre and the Advisory Bodies recommended that the World Heritage Committee inscribe the property on the List of World Heritage in Danger during its 39th session (Bonn, 2015). The State Party requested a postponement, in view of the enormous efforts made.

In its Decision **39 COM 7B.69**, the World Heritage Committee considered that the extensive damage caused by the earthquake to the property represents both ascertained and potential danger, in accordance with Paragraphs 177 to 179 of the *Operational Guidelines*, and requested that the State Party invite a joint World Heritage Centre/ICOMOS/ICCROM Reactive Monitoring mission to consider the state of conservation of the property and the development of an Emergency Action Plan by the Government of Nepal. The Committee also called upon the international community to provide financial and technical support to the State Party of Nepal for the protection, conservation and restoration of the World Heritage property 'Kathmandu Valley' following the earthquake.

At the invitation of the Department of Archaeology of Nepal, the joint Reactive Monitoring mission to Kathmandu Valley took place from 27 October to 2 November 2015. The report of this mission can be found at the following link: <http://whc.unesco.org/document/142384>.

1.4.2 40 COM AND THE CURRENT REACTIVE MONITORING MISSION, MARCH 2017

The October-November 2015 Reactive Monitoring mission noted that earthquakes had badly affected the authenticity and integrity of the property, placing its Outstanding Universal Value at risk. However, despite extensive damage and collapse, with the exception of some temples, examples of most building types remain and all seven monument zones continue to provide a testament to the OUV of the property.

The mission also noted that there was a lack of adequate responses to natural disasters and a lack of clear and effective direction from the State Party in pursuing recovery, primarily due to other political priorities. This had impacted the coordination of recovery efforts across the nation and has contributed to a delay in the functioning of the National Reconstruction Authority (NRA).

The mission proposed a wide range of recommendations related to the need to strengthen management, effective coordination, planning, tourism structures, technical support and capacity building. It further formulated recommendations concerning emergency work, documentation and recovery plans and processes.

The Reactive Monitoring mission considered that the property had already become vulnerable as a result of the earthquakes and that it was potentially facing serious deterioration of its architectural and town-planning coherence, of the urban or rural spaces, as well as serious loss of historical authenticity, and important loss of cultural significance. Given that the scale and scope of the recovery process is not currently adequate to deal with these potential threats, it is recommended that, in accordance with Paragraphs 177 and 179 of the *Operational Guidelines*, the Committee consider inscribing the property on the List of World Heritage in Danger, in order to define and implement comprehensive mitigation/corrective measures, in collaboration with key national and international stakeholders, which appeared to hold the best prospect for addressing the current threats. This solution appears to hold the best prospects to address the current threats facing this property.

In its Decision **40 COM 7B.41** (see Annex I), the World Heritage Committee took note of the report of the 2015 Reactive Monitoring mission (see link above) and requested the State Party to implement all its detailed recommendations.

The World Heritage Committee also noted some concerns about public tenders for the rehabilitation and reconstruction of monuments within and in the vicinity of the property, which were launched before comprehensive documentation was available, before damage was assessed, and for recovery plans and processes. The Committee requested the State Party to submit detailed information to the World Heritage Centre about any foreseen major restoration, rehabilitation or reconstruction works, for review by the Advisory Bodies in accordance with Paragraph 172 of the *Operational Guidelines*.

Taking into account all of the above-mentioned potential and ascertained threats to the property's OUV caused by the immediate impacts of the 2015 earthquakes, the Committee further requested the State Party to invite a joint World Heritage/ICOMOS/ICCROM mission to further define correctives

measures and to review the progress accomplished by the State Party. This would allow the Committee to examine the state of conservation of Kathmandu Valley during its 41st session in 2017, with a view to considering, in the absence of significant progress, the possible inscription of the property on the List of World Heritage in Danger.

At the invitation of the Government of Nepal, the joint WHC/ICOMOS/ICCROM Reactive Monitoring mission to the Kathmandu Valley took place from 20 to 25 March 2016. The Mission was composed of the following members:

1. Dr Feng JING, Chief of the Asia and the Pacific Unit, UNESCO World Heritage Centre (Paris);
2. Mrs Catherine Forbes (Australia), representing ICOMOS International;
3. Mr Lyu Zhou, Professor at Tsinghua University (China), representing ICCROM.

As detailed in its Terms of Reference (see Annex II), the mission assessed the state of conservation of the property and the implementation of the recommendations of the 2015 Reactive Monitoring mission in relation to ongoing recovery operations carried out by the State Party with the support of other donors. It also considered how the attributes of OUV damaged in the earthquake might be recovered, and through which reconstruction/rehabilitation and conservation processes. The mission also assessed progress made with the implementation of the Committee's requests, as detailed in Decision **40 COM 7B.41**. The mission further shared the ICOMOS working paper on reconstruction (March 2017) with the national authorities to enhance capacity building for restoration and rebuilding in relation to sustaining the OUV of the property.

2 LEGAL AND MANAGEMENT FRAMEWORK

2.1 HERITAGE LEGISLATION

The Ancient Monument Preservation Act, 2013 (AMPA, 1956, with the Fifth Amendment in 1988) is the principal legislation for the conservation, preservation and management of cultural property in Nepal. It gives the Department of Archaeology (DoA), currently under the Ministry of Culture, Tourism and Civil Aviation, the central responsibility for the conservation of cultural heritage throughout the country.

This Act gives the DoA the legal provisions to declare a monument or area to be a Protected Monument Zone (PMZ). The DoA is subsequently responsible for the protection of the site, including the prescription of building bylaws, approving requests for building permits and for any other construction activities within the zone. The DoA is also given the authority to stop inappropriate and/or illegal building activities and to request for the demolition of unauthorized constructions.

The seven Monument Zones of the Kathmandu Valley have been declared PMZs and the boundaries have been gazetted under the provisions of the AMPA. The DoA is therefore responsible for the preservation of the areas comprising the property inscribed on the World Heritage List.

In addition to the 1956 Act, the following legislation or regulations complement the legal grounds upon which cultural heritage is protected in Nepal:

- Local Self-Governance Act (1999)
- Town Development Act (1988)
- Pashupati Area Development Trust Act (1987)
- Guthi Corporation Act (1964)
- Building Bylaws (2007)
- National Building Code (prepared in 1994, approved in 2005)

The seven Monument Zones of the Kathmandu Valley were inscribed as a single World Heritage property in 1979. Twenty-four years later, in 2003, the property was inscribed on the List of World Heritage in Danger due to the loss of traditional vernacular heritage and the threat of uncontrolled development.

From 2004 onwards, the State Party has committed itself to work closely together with the stakeholders and responsible international agencies to address the issues that have threatened the OUV of the Kathmandu Valley. One of the key achievements have been the process leading to the development of an Integrated Management Plan (IMP, 2007), which was prepared in close cooperation between the Department of Archaeology and the local authorities and site managers, with international support and expertise. CWC,

2.2 INSTITUTIONAL FRAMEWORK, MANAGEMENT STRUCTURE AND COORDINATION MECHANISMS

As defined by the Ancient Monument Preservation Act 1956 (Fifth Amendment, gazetted in 1996) and the Integrated Management Plan, the DoA is the principle authority for the coordination of conservation activities of the World Heritage property. The World Heritage Conservation Section of DoA deals exclusively with cultural World Heritage (Kathmandu and Lumbini). The DoA also has site offices in Kathmandu, Lalitpur and Bhaktapur. A Coordinative Working Committee (CWC) has been established as per the provision of IMP. DoA has set up the CWC Secretariat within its structure. Powers in respect to enforcing bylaws and monitoring are handed down to the local authorities.

Site managers have been established for each of the seven Monument Zones and their roles clearly defined.

Processes and linkages within the management structure have been identified and improved, and a clear system for the flow of information has been established. Separation of reporting and decision-making processes for regular, irregular and emergency cases remain to be established.

For the conservation of historic buildings, community involvement and participation is to be encouraged, incorporating disaster and risk management.

The World Heritage property has been declared a PMZ under the Ancient Monument Preservation Act 1956, providing the highest level of national protection. The property is managed by the coordinative action of tiers of central government, local government and non-governmental organizations and the responsibilities and authorities are clearly enumerated in the IMP. The implementation of the IMP has been reviewed in five-year cycles allowing necessary amendments and augmentation to address changing circumstances. A critical component that has been identified is the need for disaster risk management for the property.

The IMP defines the approach and strategies for the preservation of the property's OUV through the improvement of existing institutional, legal and economic frameworks. The process is defined by the 16 documents that comprise the IMP. The Integrated Management Framework is the official document that has been adopted by the State Party, and supplemented by a working document, the Integrated Plan of Action. Additionally, Management Handbooks have been prepared for each of the seven Monument Zones, each supplemented by individual Plans of Action. These documents are to be reviewed and revised at regular intervals.

With the completion of the IMP in 2007, a clearly defined approach and strategies for the protection of the OUV of the Kathmandu Valley has been put in place through improvement of existing legal and administration frameworks. However, the IMP still requires further development after 10 years since its inception.

After the earthquakes of April-May 2015, the DoA has been developing conservation guidelines and a Recovery Master Plan to address the emergency situation of post disaster restoration and rebuilding for the World Heritage property. So far, the Recovery Master Plan has not been completed and submitted to the World Heritage Centre for review by the Advisory Bodies.

3 IDENTIFICATION AND ASSESSMENT OF ISSUES AND THREATS

3.1 INTRODUCTION

As this Reactive Monitoring mission is a follow-up mission to the RM mission undertaken in October-November 2015, this report sets out (a) to address the issues and threats identified by the first mission report prepared in the wake of the earthquakes; (b) to confirm whether or not they continue to be a threat, and (c) to identify additional issues or threats which have arisen through the recovery and reconstruction process.

3.2 MANAGEMENT EFFECTIVENESS

3.2.1 COORDINATION

The mission team acknowledges that the DoA and the Government of Nepal have been working extremely hard to recover from the disaster.

As the recovery has moved from the emergency response phase to reconstruction phase, the Earthquake Response Coordination Office (ERCO) established in the immediate wake of the earthquake has ceased to operate.

The National Reconstruction Authority (NRA), which was not operational at the time of the first mission, is now fully functional and is responsible for coordinating and supporting the reconstruction efforts of all ministries and government authorities, including those of the DoA. Regular meetings are held with representatives of each ministry. Two staff from DoA have been seconded to NRA.

Recovery of cultural heritage is identified by the government as the fourth priority of the recovery, behind (1) critical infrastructure and service delivery (eg. roads and hospitals), (2) schools (primary and secondary) and (3) housing.

COORDINATION BETWEEN DOA AND GOVERNMENT AUTHORITIES

Lack of adequate coordination between DoA and other government authorities continues to be an issue for the recovery of the Kathmandu Valley World Heritage Property (KVWHP).

- Although there are meetings between the various ministry representatives, there is no evidence that there is any coordination of works being undertaken in order to minimise the impacts of the proposed works on the KVWHP (eg. reconstruction of roads, electricity, water, sewerage and drainage is not planned to avoid the World Heritage property or to minimize its impacts on the property, including subsurface archaeology).
- There is no citywide mapping to identify overlaps between reconstruction projects (eg. new water distribution system and heritage sites) and thus potential conflicts are often not identified.

COORDINATION BETWEEN DOA AND SITE MANAGERS

For some monument zones the coordination between DoA and the local site managers seems to be working very well, but for others it is not, with the site managers planning and undertaking works without DoA consent.

- There has been no recovery master planning for the monument zones that identifies clear priorities for recovery and reconstruction or areas where new development may occur.
- A lot of work is being undertaken without reference to the DoA's adopted Conservation Guidelines, which prioritise repair of damaged monuments ahead of reconstruction of collapsed monuments.
- There does not seem to be a clear and agreed understanding of what constitutes recovery of OUV and attributes of OUV.
- There does not appear to be a systematic and standardized system for collecting relevant data or gathering evidence to support reconstruction proposals. In general, the assessment of

damage is limited in extent and quality, and the documentation provided for obtaining approvals, for going to tender or for construction purposes is very inadequate.

- In some cases, there is little or no evidence that the normal approval processes are being followed with proposals presented being supported by evidence and heritage impact assessments.
- Uncontrolled reconstruction is leading to inappropriate and destructive interventions being implemented on some sites, compromising the integrity and authenticity of the KVWHP and its significant attributes, and thus the property's OUV.

COORDINATION BETWEEN DOA AND LOCAL AUTHORITIES

The DoA has focused on recovery and reconstruction of significant monuments, leaving recovery of other elements within the monument zones and buffer zones, such as housing, non-listed monuments and public spaces, to local authorities. This seems appropriate, although there appears to be very little liaison between the DoA and local authorities regarding recovery of these areas and no clear guidance given by DoA.

- It is noted that most of the severely damaged traditional housing has been demolished. This has severely affected both the ancient settlements and the historic urban areas of the KVWHP, resulting in a clear loss of significant attributes and thus OUV.
- Local authorities are endeavouring to provide incentives to property owners to repair their houses or at least salvage and reuse the carved joinery elements (window and door ensembles in particular) in their new houses.
- There is no expectation that houses will be reconstructed in their original form, although brick facades with traditional detailing are encouraged. In some cases additional stories and roof top terraces have been added resulting in the loss of the traditional roof forms.

COORDINATION BETWEEN DOA AND INTERNATIONAL PARTNERS

Repairs to and reconstruction of various monuments are in many cases being undertaken by international donors with international experts undertaking much of the research. However,

- It is not clear what briefing is given by the DoA to international partners and whether they are provided with the Adopted Conservation Guidelines and other key documents.
- In some cases there is almost no information available to state what scope of work the international partners have actually committed to.
- There is no clear method of demonstrating accountability on the part of the international donors and experts for advice given.

COORDINATION BETWEEN DOA AND TECHNICAL EXPERTS

Some of the research undertaken by international experts is very technical in nature and its findings could be useful to many monuments. However,

- There appears to be very little sharing of research findings between sites, technical experts and the DoA.
- Contextual, holistic and critical evaluation of the research is needed to assess its applicability to specific types of monuments and situations.
- In many cases the research (particularly computer modeling of structural systems) appears to be independent of other critical evidence (such as historical data, archaeological evidence, condition assessment, geotechnical and hydrological analysis, maintenance requirements, local construction practices, etc) and thus jumps to conclusions that may not be well-founded.

COORDINATION BETWEEN DOA AND ICOMOS NEPAL

Following the initial emergency response in which ICOMOS Nepal worked very closely with DoA (through ERCO), ICOMOS Nepal has made further contributions of technical expertise in assisting DoA in development of the Conservation Guidelines for the recovery and reconstruction of Nepal's cultural heritage. ICOMOS Nepal has also assisted with organizing symposia and training for professionals to support the recovery effort.

- Coordination between DoA and UNESCO Kathmandu

- In coordination with DoA, UNESCO Kathmandu has supported several research and training projects undertaken to support the recovery of the KVWHP. These include:
- Archaeological investigations on various sites (with Durham University);
- Investigations to assess causes of differential failure of a pair of tiered temples in Hanuman Dhoka Durbar Square; and
- Provision of training in safe transport, storage, mixing and use of lime, a product that is being used in the reconstruction works at various sites (particularly Swayambu, Hanuman Dhoka and Changu Narayan). This training was temporarily halted by the local community at Swayambu due to lack of consultation prior to commencement.

COORDINATION BETWEEN DOA, WHC AND THE ADVISORY BODIES

REPORTING

DoA has not submitted to the World Heritage Centre (WHC) detailed information about any major restoration, rehabilitation or reconstruction works foreseen within and in the vicinity of the property, for review by the Advisory Bodies in accordance with Paragraph 172 of the Operational Guidelines.

Instead, it provided to WHC the annual State of Conservation (SOC) reports on the 1 February each year (2016 and 2017) and a series of drawings that had no annotations or associated reporting to state their purpose. The SOC reports are extremely thin on information and do not give a clear indication of what is happening on the ground. Nor do they provide any justification for the works being undertaken and/or planned.

- DoA has not responded to any of the WHC's requests for information since the 2015 Reactive Monitoring mission.
- A Recovery Master Plan has not been submitted to the WHC as requested for review and approval prior to implementation.
- The final post earthquake Conservation and Reconstruction Guidelines and updated IMP have not been provided to the WHC for review or comment.
- No submissions have been made to the WHC seeking advice or guidance from the advisory bodies on recovery planning or on proposed works.
- No submissions, accompanied by heritage impact assessments, have been made by the DoA to the WHC seeking approval for major works to structures prior to their implementation, although many of the projects visited by the mission team would definitely be regarded as major works.
- No documentation or research has been provided to the WHC to justify the works being undertaken or the methodology being used.

This lack of reporting contravenes the State Party's obligations under the World Heritage Convention to which the State Party is a signatory. The DoA noted that it is extremely difficult to get timely responses from the WHC and the Advisory Bodies. Thus, as there is an enormous sense of urgency to rebuild as quickly as possible, DoA had proceeded without liaising with the WHC and the Advisory Bodies.

Unfortunately, the actions taken without advice or approval from the WHC and the Advisory Bodies have in some cases contributed substantially to the loss of significant fabric and important attributes, resulting in further loss of integrity and authenticity in the reconstruction. Thus the recovery has impacted negatively on the OUV of the KVWHP.

CAPACITY DEVELOPMENT

With the coordination of DoA, the Advisory Bodies have contributed to several capacity development programs for DoA staff, museum staff, local craftsmen and local professionals to enable them to undertake the recovery more effectively.

DATA MANAGEMENT

A critical issue that is hampering the effective coordination of the recovery process is the lack of a centralized data management system. Although there has been some training provided to DoA staff, technical (computers) and human (operators) capacity is extremely limited and most work is still produced in hard copy rather than digital. This has limited:

- The capacity of the DoA to manage the data gathered in relation to the various monuments and sites, including damage assessments, photographic records, archaeological evidence, other technical reports, and documentation for recovery and reconstruction,
- The capacity of DoA to coordinate the works being undertaken by various parties, and
- The capacity to easily access information and facilitate knowledge sharing between DoA, site management authorities, project partners and research institutions.
- A local digital heritage inventory system (SIMS) has been established for the management of national data, but is only in its early stages of development. In addition, UNESCO has provided two laptops and sponsored two staff members to set up ARCHES and link it to the local Inventory system.

TIMING AND BUDGETS FOR RECOVERY OF THE WORLD HERITAGE PROPERTY

In the wake of the earthquake, the Government of Nepal proposed to rebuild Nepal, including the KVVHP, within six years. Hence, DoA prepared a Six Year Rehabilitation Plan for the recovery of the KVVHP and other heritage sites, a draft of which was submitted to the 2015 Reactive Monitoring mission. The Government allocated funds for reconstruction based on the figures included in the Post Disaster Needs Assessment (PDNA) (intended as preliminary budget only, based on rapid assessments) and the Six Year Rehabilitation Plan (very broad and unspecific in its scope).

There is pressure on the DoA to spend the allocated funds within each fiscal year. Funds not spent are then withdrawn. This has placed great pressure on the DoA to rush reconstruction, resulting in:

- A lack of coordinated and comprehensive planning,
- Insufficient evidence being gathered to support/justify the reconstruction methodologies proposed for monuments, and
- Inadequate documentation being prepared for tender and construction purposes.

DOA CAPACITY

Although DoA has some very experienced staff, the majority of staff are very inexperienced, making it very difficult to manage the scale of the post disaster recovery. In addition to its role as the principal approvals authority for works to the KVVHP and other heritage sites in Nepal, DoA has elected to document and oversee works to many of the affected monuments itself. Despite its best efforts, the lack of capacity within DoA has affected its ability to:

- Provide adequate coordination for the recovery of the KVVHP,
- Set and monitor conservation standards,
- Provide adequate guidance to those undertaking the work (internally and externally),
- Critically evaluate and review recovery and reconstruction proposals, and
- Monitor the work in progress.

TENDERING PROCESS

All government contracts, including those for the KVVHP, are subject to an open tender process. There is no prequalification required for contractors undertaking work on the KVVHP.

- Contractors with no experience in heritage conservation and little knowledge of traditional construction and the use of traditional materials are being awarded contracts for the work.
- Inadequate research is being undertaken prior to going to tender to determine the real causes of failure and what needs to occur to improve the future stability of the monuments.
- Documentation is extremely limited in its scope. It seems that drawings of what the monument should look like when it is finished are being provided, but no clear itemized schedules of work, bills of quantities, specifications or conservation guidelines are provided as part of the tender package. (Note: no samples of documentation could be provided for review by the Reactive Monitoring mission).
- As a result contractors choose their own methodologies for reconstruction. In many cases this has resulted in replacement of original fabric with new and very significant interventions being made into the foundations of the structures resulting in substantial loss of important subsurface archaeology.
- There is very little monitoring of the work during the construction phase due to inadequate staffing.

- Contractors do not always administer, or allow the local community to administer, the traditional rituals normally performed during construction of monuments and sacred sites. These practices are integral to the OUV of the KVWHP.

3.2.2 ACTIONS TAKEN

The following actions have been undertaken since the 2015 mission:

- Conservation Guidelines have been prepared and adopted by DoA.
- Additional staff have been appointed by DoA to undertake documentation and administration of the recovery and reconstruction process. However, most are young graduates with very limited experience.
- Responsibility for reconstruction of the various monuments has been allocated to various organisations. DoA is maintaining control of the recovery of some monuments, particularly in Hanuman Dhoka, Swayambu and Changu Narayan. Other monuments are the responsibility of local metropolitan authorities, local development associations, local NGOs and international partners and donor organisations.
- Documentation of damaged monuments has been prepared, including drawings (generally showing the form of the complete monument, not the extent of damage) and photographs. KVPT have undertaken full documentation of damage to monuments in Patan.
- Elements salvaged from the collapsed buildings have been cleaned, sorted, inventoried, reassembled and stored ready for reinstatement during the reconstruction process. Most have been stored in covered areas, but not all. Some of the larger, more difficult to move elements are still out in the open in public spaces.
- Research activities have been undertaken in some locations, including preliminary archaeological investigations and risk mapping of the three Durbar Squares, geotechnical investigations (particularly in relation to landslide areas of Swayambu and Pashupati), and structural modeling and analysis of some monument types.
- Tenders have been called for the reconstruction of many monuments throughout the property.
- Works on some monuments have been completed, other monuments are under construction, and some are yet to be commenced.

Actions recommended by the 2015 mission that have not been taken include:

- Maps showing extent of damage across the seven monument zones have not been produced or updated since the initial emergency phase. The maps used by ERCO and left hanging on the walls of the office in DoA have not been copied and kept for future reference.
- It has been reported that detailed damage and condition assessments have been prepared, but samples were not shown to the Reactive Monitoring mission team. It would appear that these have not been undertaken in any systematic way, and holistic critical evaluation of the evidence to determine the real causes of failure in many cases appears to be missing.
- Damage has been recorded photographically (talked about, but generally not seen by the Reactive Monitoring mission team), but not marked on drawings in many cases. The exception is work undertaken by KVPT in Patan.
- No reports were seen that reviewed and evaluated the successes and failures of past interventions into the monuments.
- Beyond the archaeological risk mapping of the Durbar Squares and the geotechnical reports relating to the landslide areas, there appears to have been very little further investigation into the local ground conditions around the monuments in the urban areas, specifically into ground levels, surface layering and subsurface pipes that may be broken and causing serious damp issues.
- A centralized database has not been established to manage the huge quantity of documents associated with the earthquake and recovery. Thus it is difficult to facilitate knowledge sharing.
- Although priorities for repair and reconstruction are set within the Basic Guidelines for Conservation and Reconstruction of Earthquake Damaged Heritage (2072), these have not been followed. New priorities for reconstruction of monuments have not been established or mapped as part of a Recovery Master Plan for each of the monument zones.
- Monuments that are not being repaired in the initial phase of reconstruction have not been protected from the elements to prevent further deterioration.
- There has been no discussion as to what monuments may not be reconstructed.

3.2.3 RECOVERY PLANNING

The following comments respond directly to the items identified in the 2015 Reactive Monitoring mission report.

INTEGRATED MANAGEMENT PLAN

It was reported that the Integrated Management Plan (IMP) has been revised and is awaiting adoption by the government. A copy was not available for review by the Reactive Monitoring mission team. A Copy of draft revisions to the Integrated Management Framework (IMF) was provided to the team. It does not reflect any changes to the property and its OUV brought about by the earthquakes.

POST EARTHQUAKE REHABILITATION AND RESTORATION POLICY

It is not clear what the Government policy is regarding reconstruction of heritage structures. The Reactive Monitoring mission team was informed that the draft policy recommendations provided by DoA for inclusion in the Government's Post Earthquake Rehabilitation and Restoration Policy were not adopted at a national level.

CONSERVATION GUIDELINES

The adopted Basic Guideline for Conservation and Reconstruction of Earthquake-Damaged Heritage (2072) states that higher priority would be given to severely and partially damaged heritage structures over totally collapsed structures. This policy has not been followed. Rather, there has been a focus on reconstructing the principle monuments in most monument zones, including reconstruction of the collapsed monuments, and many damaged monuments and structures have been left unprotected.

SIX YEAR OVERVIEW REHABILITATION PLAN

The DoA are still aiming to reconstruct all monuments within the six year period of the Overview Rehabilitation Plan. The NRA, however, has stated that there will not be sufficient funds for this and that some monuments will need to have temporary protective measures put in place until funds are available and that it is possible that some monuments may not be reconstructed at all. These issues do not appear to have been addressed by DoA.

RECOVERY MASTER PLAN

An overarching Recovery Master Plan that sets out the recovery and reconstruction process and brings together documentation, analysis and understanding of the attributes of OUV as a basis for defining the way forward for each of the monument zones is still needed.

No Recovery Master Plans or Detailed Action Plans have been prepared that set goals and priorities against short, mid and long term actions, with targets, benchmarks and timeframes for each of the individual monument zones. Thus approaches to the recovery of various monument ensembles, streetscapes and public squares have not been clearly defined.

The previous Reactive Monitoring mission report recommended review of the Recovery Master Plan by the Advisory Bodies and submission to the World Heritage Committee for approval prior to adoption and implementation. This is still missing.

WORKS UNDERTAKEN BY EXTERNAL CONSULTANTS

It is not clear what structure is in place for review of work undertaken by external consultants. It is not known whether consultants are provided with specific briefs, key planning documents and conservation guidelines, and whether their contracts include requirements to submit reports and documentation to DoA for review and approval prior to implementation of the works. Although this may be the case, DoA staff and consultants could not provide relevant information to the mission team when requested.

3.3 RECOVERY OF THE EARTHQUAKE AFFECTED PROPERTY, ITS ATTRIBUTES AND OUTSTANDING UNIVERSAL VALUE

3.3.1 EARTHQUAKE DAMAGE

All seven monument zones of the KVWHP were severely damaged by the earthquakes of 25 April and 12 May 2015. The extent of damage was described in the 2015 Reactive Monitoring mission report. Since then, with more detailed assessment being undertaken, it appears that the extent of damage is greater than that previously reported, particularly in the Pashupati Monument Zone.

3.3.2 RECOVERY AND RECONSTRUCTION

The mission team visited all seven monument zones, but had very limited time at each. Thus the team could only inspect a sample of the work being undertaken. The progress of recovery and reconstruction in each of the monument zones is described below and refers primarily to the sample projects viewed during the mission and items discussed with the stakeholders at each site.

HANUMAN DHOKA DURBAR SQUARE MONUMENT ZONE

Hanuman Dhoka Durbar Square Monument Zone was the most heavily impacted of the monument zones within the KVWHP with eleven monuments (eight tiered temples, two sikhara temples and a pillar) recorded as having totally collapsed. This included Kasthamandap, reputedly the oldest temple in the square and the one after which the city of Kathmandu is named. Almost all the temples and other monuments in the monument zone were damaged, including the Hanuman Dhoka Palace, which was severely damaged.

The building artefacts from the collapsed temples and other structures have been cleaned, sorted, inventoried and stored, with window and door ensembles reassembled for reinstatement in the reconstructed monuments. Most items are stored under cover, although not all are stored off the ground or protected from wind blown rain. There are still some elements stored out in the open, including structural timbers such as the ring beams from Chyasin Dega (currently being reconstructed) and the main posts from Kasthamandap.

The Durbar Squares are generally open to the public and have again become very active places. Offerings continue to be made at shrines and temples, despite the propping that is still in place. The palace is roped off, although visitor access is available to the central courtyards. Hoardings have been erected around various construction sites where reconstruction works are currently being undertaken.

Work in the Hanuman Dhoka Monument Zone has in many instances yet to be started and no plans for recovery were shown to the mission team. The work has been divided amongst various local and international organisations, but coordination between the various groups seems to be lacking. This is particularly evident in relation to the large palace complex, which has been divided amongst several parties. The Hanuman Dhoka Durbar Museum Development Committee will possibly take the coordination role for these, but this has not yet been confirmed.

Conservation works to the palace that were underway prior to the earthquake have been completed. However, this only affects one portion of the palace (Panchamukhi Tower and the adjoining wing). The rest of the palace is still untouched and in very poor condition, although planning is underway for repair and restoration of some portions. In the meantime, no weather protection has been provided to prevent further deterioration of the building and its component elements (eg timber elements, mud mortared walls, pressed metal ceiling panels, etc are all still exposed to the weather). Most parties are hoping to repair/restore the palace in situ and provide seismic upgrade as necessary.

The archaeology report on the investigations of the foundations of Kasthamandap has been received from Durham University, indicating that the masonry base of the structure is in sound condition and dates from as early as the 7th century, rather than the 12th century as previously documented. The age of the timber superstructure is still unknown, but should be further investigated. Analysis of the surviving fabric found that previous conservation works (c1960s) were found to be faulty with the tennon of one the main posts supporting the structure having been set in place without repair. Effectively the structure had been standing on three legs rather than four, contributing to its failure during the 2015 earthquake. Further detailed historical analysis of the structure is required to determine whether the monument has collapsed in previous earthquakes and how often it has been disassembled and repaired as part of a cyclical renewal process. This would give some indication of

whether new structural interventions are needed during reconstruction to improve its seismic resilience.

Archaeological risk mapping of the Durbar Squares has been undertaken using ground-penetrating radar (GPR). The process has also located many broken pipes under the pavement. It is unclear whether this information has been shared with municipal authorities or those responsible for infrastructure development to prevent/minimise future impacts from urban infrastructure works. The paving in the durbar squares appears to have been repaired, although a new water distribution system is planned to go through the square. No details of this were provided.

UNESCO and JFIT have undertaken investigations into a pair of 17th century temples adjacent to the palace, Jagannath Temple and Shree Krishna Mahavishnu Temple, to assess the cause of the differential brickwork failures of the brickwork in the two temples. It was found that the timber structure embedded within the walls of at least one temple structure had rotted (with the bottom 1m of timber posts missing). These investigations appear to be reasonably thorough and present a good model for investigations into failures of other structures within the KVWHP. An additional and independent timber frame is proposed internally between the inner and outer brick walls to provide seismic strengthening. This will not be embedded within the walls so that its condition can be monitored.

Three temples have been repaired or are in the process of being repaired by Kathmandu Valley Preservation Trust (KVPT). These have been carefully repaired using as many of the original elements (bricks and timber) as possible, with new work undertaken using traditional materials and techniques, including the use of mud mortar.

The top of the enormous Taleju Bhawani Temple has been repaired, but the lower portions and surrounding walls to the stepped base have not. These are uncovered and are suffering further deterioration from exposure to the monsoon rains.

The Chyasin Dega, an octagonal tiered temple that collapsed, is currently being reconstructed under the supervision of DoA. New bricks and lime, sand and surkhi (brick dust) mortar are being used instead of the original bricks and mud mortar. The original carved timber elements are being repaired for reinstatement.

The brick façade of the bottom portion of the Degutale Temple (located at roof level at the northwest corner of the palace) has also been repaired under the supervision of DoA using new bricks and lime, sand and surkhi mortar. It is not known whether the new work has been bonded to the main body of brickwork behind or whether the damp issues have been resolved. Nor is it clear what the justification for changing the mortar is. There is extensive white efflorescence on the surface of the bricks, which is apparently due to the use of chemicals on the rice paddies from which the clay is excavated during the brick-making season (non-growing season). These salt deposits will need to be carefully monitored over time as they are likely to cause deterioration of the bricks long term, particularly in the damp conditions in which these buildings exist. The salt is also having a deleterious affect on the aesthetic qualities of the traditional brick structures.

Many of the other smaller temples damaged during the earthquake have been propped, but not repaired as yet. They are still open to the public. Safety is still a concern in the event of another earthquake.

There is some conflict between the local community, KMC (Kathmandu Metropolitan City) and DoA over the reconstruction of Kasthamandap. Documentation for the proposed reconstruction of the monument was not provided for review.

- The reconstruction of Kasthamandap has been put to public tender. It is not clear exactly what documentation was provided to tenderers (whether it included a detailed scope of works or methodology to be used in design and reconstruction of the monument).
- The place has been the subject of significant public debate with objections being raised to the proposals being presented by contractors. It is understood that these include substantial modifications to the foundations (despite the Durham University archaeological findings regarding its age, exceptional significance and stability) and the superstructure. These are reported to include the use of reinforced concrete.
- Local community members and local heritage professionals have banded together to present an alternate proposal to that already accepted by KMC and DoA. The new proposal would involve reconstructing the rest house / public meeting house to its pre-earthquake form, using traditional materials and techniques and reinstating as much of the original fabric as possible.

- The community wishes to re-establish a modern form of Guthi to manage the site and maintain it in the long term through revitalization of the traditional seasonal maintenance rituals and festivals.
It was noted that there could be potential issues with sustaining a traditional system of management and maintenance due to the mobility of the population living in the area and the lack of time that people have to devote to maintenance now that they work year round and no longer have time for participating in maintenance and artistic activities.
- The DoA and KMC have not commented on the alternate proposal.

Much of the earthquake damaged housing in the monument zone and buffer zone has been demolished, although not all. It is also noted that urban development had already claimed a substantial portion of the traditional housing prior to the earthquake. There are, however, still examples of traditional houses within the area, although some have been modified. KMC has provided some workshops for carpenters working on the repair of the traditional carved window ensembles. DoA has also provided workshops for masons. KMC are offering monetary incentives for people to repair their traditional houses, and a smaller amount to encourage people to salvage and reuse the carved window and door elements in their new houses. The new houses are to be faced in brickwork similar to that of the traditional Newari houses. KMC have requested guidance on possible other incentives that could be used to encourage retention of housing and other vernacular buildings within the monument and buffer zones.

SUMMARY OF IMPACTS AND THREATS RESULTING FROM THE RECOVERY

In general, the damaged structures within the Hanuman Dhoka Monument Zone are gradually being recovered. However, it is noted that the process of reconstruction is posing its own threats to the property, its attributes and OUV.

The impact of the reconstruction process on OUV and attributes of OUV in the Hanuman Dhoka Monument Zone is variable. The greatest threats come from:

- Poor coordination.
 - The palace, in particular, needs good coordination between the various recovery and reconstruction projects for sharing of knowledge, establishing a consistency of understanding of the issues involved and approach to be taken in repair, seismic strengthening and reconstruction; and
 - To ensure that the overlaps and gaps between the various projects are addressed.
- Lack of protection of damaged structures that have not been repaired as yet, resulting in further deterioration of the building fabric.
 - This applies particularly to the palace, which was very severely damaged. Loos of the roofs has resulted in lack of protection to mud mortared walls and floors, timber brackets, pressed metal ceiling panels, joinery, etc.
 - But also many of the smaller temples and the plinth walls of the Taleju Bhawani Temple.
- Lack of weather protection to some of the salvaged timber elements from the temples, causing further deterioration of elements intended for inclusion in the reconstructed monuments.
 - Elements need to be covered and timber elements stored securely off the ground.
- Poor information sharing.
 - Archaeological risk mapping of the Durbar Squares must be shared with the DoA, KMC and other authorities responsible for new infrastructure to minimise its impacts on the subsurface archaeology within the monument zone.
 - Findings from archaeological, building fabric, geotechnical and engineering analyses must be shared between projects to build better understanding of the issues, help decision-making and minimise doubling up on research.
- Insufficient evidence, particularly in the form of historical research, investigations into previous interventions and detailed condition assessments to identify causes of failures, has been provided to support or counter proposed engineering interventions in many cases.
 - Archaeological reports on the foundations and surviving building fabric of Kasthamandap must form part of the briefing documents for the reconstruction of Kasthamandap.
- Loss of original fabric in reconstruction.

- o Although bricks have been salvaged for many structures, for others there has been wholesale replacement of the bricks resulting in a loss of original fabric.
- Replacement of the traditional mud mortar with lime-based mortar is not consistent with the statement of OUV for the KVWHP, which clearly identifies mud mortar as an attribute of OUV.
- Nor is it consistent with maintaining the traditional timber framed structural systems of the tiered temples that are designed to be flexible and move in order to absorb the horizontal forces of seismic events.
 - o It is understood that lime was introduced to the Kathmandu Valley during the latter part of the nineteenth century for rendering the external walls of the Rana style buildings.
 - o Although lime surkhi has been found in the joints of some buildings, historical research should be undertaken to find out whether this coincides with post 1934 earthquake reconstruction, or whether it is earlier.
 - o A study needs to be undertaken to see how lime mortar fared in the recent earthquakes. Was it too rigid? Did it prevent or contribute to failure of the traditional structures?
 - o Lime surkhi may be appropriate to stabilize some building types, such as sikhara style structures, chaityas and stupas that are rendered and coated in lime, and not roofed for weather protection. These structures also incorporate little timber structure to absorb seismic forces. The top heavy Sikhara style temples appeared to be particularly vulnerable to the earthquakes.
 - o For the timber framed tiered temples, the brickwork is generally non-loadbearing and well protected from the weather by the large roof overhangs. Thus the replacement of the mud mortar with something more rigid could potentially cause problems in future earthquakes (restricting the movement of the timber structures and their ability to absorb the forces). In this case its use seems inappropriate.
- Quality of clay used in the brick and mortar production, which is full of chemical salts.
- The tender / bidding process which is being undertaken with inadequate research, poor documentation and guidance on methodologies to be used in reconstruction, and poor quality control through the construction phase.
 - o The lack of expertise and experience of tenderers in heritage conservation and /or traditional construction using traditional materials will potentially result in poor quality reconstruction and the introduction of unnecessary and invasive modern interventions.
 - o The process could potentially result in very poor outcomes for Kasthamandap, which is of exceptional significance, through the introduction of major excavations and concrete interventions into its historic foundations.
- Exclusion of the community from the recovery process, particularly in relation to the reconstruction of important community buildings, such as Kasthamandap, will potentially result in a disconnect between the structures and the people that would use, manage and maintain them and ensure their long term sustainability.
- Loss of traditional housing.

BHAKTAPUR DURBAR SQUARE MONUMENT ZONE

Bhaktapur was also very badly affected by the earthquake, with over 200 monuments damaged and destruction of much of its traditional housing. The Reactive Monitoring mission could not visit all parts of the monument zone and only focused on works around the main Durbar Squares.

A steering committee (composed of Bhaktapur Municipality, DoA and community stakeholders) and a technical committee (composed of architects, engineers and experts from two local Khwopa engineering colleges) are guiding the recovery in Bhaktapur. Repair of the monuments has been divided between the Municipality and DoA. It has been reported, however, that the Municipality has not referred recovery and reconstruction proposals to DoA for review and approval.

Ground penetrating radar (GPR) has been used to develop archaeological risk maps of the main Durbar Squares (Durham University and UNESCO). Further investigations include archaeological digs under collapsed building sites and further GPR scanning to document the ninety squares around which the Newari city had previously been laid out (Khwopa College).

Several temples in the main Durbar Squares and the long southern wing of the Taba Sattal (Tadhunchen Bahal - rest house) are currently in the process of being rebuilt. In the case of the Taba Sattal, the original rubble and earth fill within the brick plinth is being replaced with a layer of lime concrete laid over a rubble stone foundation and topped by layers of brickwork set in lime, sand and surkhi mortar to form a mat foundation. The original timber elements have been salvaged and repaired for reassembly. A similar approach has been taken at the Siddhi Laxmi temple, which was severely damaged and had to be disassembled. Each stone element has been recorded, numbered and inventoried to enable reassembly.

The Silu Mahadev (Fasi Dega) Temple, which collapsed in both the 1934 and 2015 earthquakes, is to be rebuilt to its pre 1934 sikhara form, based on photographic and surviving site evidence. It is not clear what evidence is being used for the detailed elements of the structure. The outer walls of the lower portions of the stepped plinth have been relayed using lime, sand and surkhi mortar. The upper two plinth levels have been rebuilt around the inner sanctum, which was conserved in situ. This is to provide a new brick mat foundation for the new temple. It was found that the 1934 structure, which was a much smaller structure than the original temple, had not been integrated with the base.

Historical research revealed that the stone Batsala Devi Temple has collapsed repeatedly in earthquakes and seismic strengthening is being considered for its reconstruction. The stone and brick elements, which had been repaired with modern rigid mortar, are still being separated.

The northwest wing of the National Art Museum (former palace) was severely damaged and has been dismantled for future reconstruction. Archaeological investigations beneath the structure are revealing evidence of previous structures on the site, including early grain processing and drainage systems.

There is considerable debate over the repair and/or reconstruction of the central Rana style wing (Lal Bhaitak) of the National Art Museum (former palace). Research undertaken by the Beckh, Schrom and Thapa Consultants for the German Development Cooperation (KfW) indicates that the wing was substantially rebuilt in the Rana style in 1858 to accommodate a long reception hall on the second floor with large windows overlooking the Durbar Square on its southern side. The structure appears to have been damaged in the 1934 earthquake and the roof lowered as part of the post 1934 recovery. The museum has proposed that the upper floor (including the reception hall), which was again damaged during the 2015 earthquakes (but still standing), be demolished and rebuilt to its pre 1858 form in the Malla style. This would be based on drawings from the 1840s and 1850s. The detail, however, would be conjectural. The German proposal includes repair and seismic upgrade of the existing building using steel tie rods and straps and introducing a new steel framed roof structure (to be rebuilt to its post 1858/pre-1934 height and form). This would retain the 1858 reception hall and allow introduction of an additional floor within the roof space above. The question of what constitutes acceptable interventions or reconstruction has not been resolved in relation to the KVVHP. The Municipality proposes to discuss the options with community stakeholders in a public meeting.

Some historic Newari houses still survive adjacent to the entry gate to the main Durbar Square, although they are severely damaged. The Bhaktapur Municipality has committed to assisting the families in repair of these houses, although no work has been undertaken to date. Nor have the houses been protected from further decay in the areas that have collapsed. Most of the other traditional housing located within the monument and buffer zones and impacted by the earthquakes has been demolished. New concrete framed houses are being built using modern brickwork and carved timber joinery similar in style to that in traditional Newari houses. The built form will be a simplified version of the historic Newari style houses, with modern floor-to-floor heights and window openings that are simpler and more regular in size, form and spacing.

SUMMARY OF IMPACTS AND THREATS RESULTING FROM THE RECOVERY

The greatest threats to OUV and attributes of OUV arising from the reconstruction process in the Bhaktapur Monument Zone include the following:

- In general, the assessment and documentation of damage has been limited and a clear process for assessing the restoration and reconstruction of the monuments appears to have been lacking.
- Many of the same issues and threats identified for the Hanuman Dhoka Monument Zone, including:
 - o Lack of protection of damaged structures and elements,
 - o Insufficient evidence being provided to support interventions,

- o Loss of original fabric (particularly in building foundations),
- o Use of lime surkhi mortar instead of mud,
- o Quality of clay used in brick and mortar production,
- o Poor documentation for the open tender/bidding process used to award contracts,
- o Poor monitoring of the work undertaken, and
- o Loss of traditional housing.
- The systematic removal of nineteenth century Rana style and early twentieth century neo-classical style buildings from the monument zone and their replacement with Malla style buildings (regarded locally as typical Newari buildings) affects the integrity and authenticity of the property and fails to recognize the layers of history that have created the monument zone to date.
 - o The systematic removal of layers of history is contrary to ICOMOS principles and will result in the removal of tangible evidence of Rana history.
 - o The decisions seem to be based on a local dislike for that particular period of history and its architecture.
 - o The reconstruction of buildings in forms reflecting an earlier period of architecture will be substantially conjectural and thus affect the authenticity of the KVWHP.
 - o In the case of the Lal Bhaitak, the evidence being used by the Municipality to support this approach is incomplete and flawed.
 - o The IMF states that none of the Rana style buildings were considered to be listed monuments in the original nomination, however, despite this, restoration of structures should not discriminate between Malla, Shah and Rana style buildings (IMF p.5).
 - o The palace (National Art Museum), including its Rana style wing, is a listed heritage building.
 - o It is acknowledged that the rushed reconstruction following the 1934 earthquake resulted in much smaller and simpler monuments being built in place of their earlier larger and more elaborate counterparts. Where these have totally collapsed other reconstruction options may be considered, including reconstruction to earlier forms if there is sufficient evidence to support this. However, where the 1934 structures survive, they stand and should be recognized as a record of the 1934 earthquake and the events following it – thus part of the Kathmandu Valley's history.
 - o Note: There was a query regarding the impact of the use of modern materials such as steel on attributes of OUV for the KVWHP. In order to retain as much historic fabric as possible, it may be necessary in some cases to introduce new materials such as this to ensure structural stability. However, in order to decide whether these interventions are appropriate or not to a particular situation, the attributes that contribute to the cultural heritage values of the place (OUV and local values – tangible and intangible) must be clearly assessed and defined, and the impact of the interventions on those values must also be assessed.

PATAN (LALITPUR) DURBAR SQUARE MONUMENT ZONE

The mission team could only visit the main Patan Durbar Square and part of the Palace Museum due to the time constraints on the mission. Several temples (both tiered and sikhara style), the patis of the Manga Hitti (step well) and portions of the palace museum complex collapsed within the Patan Durbar Square precinct. Almost all building elements were recovered after the earthquakes and stored within the palace complex. The recovery of the monuments within the Patan Monument Zone is currently being undertaken by KVPT, an organization that has been working on the conservation of the monuments within the precinct for many years.

Building artefacts from each of the structures have now been cleaned, sorted, stored and window and door ensembles reassembled. Missing or severely decayed elements are currently being carefully pieced in and carved to complete the ensembles prior to their reinstatement in the reassembled structures.

The collapsed western wing of Mul Chowk, which was in the process of disassembly during the 2015 Reactive Monitoring mission, has been rebuilt using the original building fabric (bricks and timber elements) and traditional construction techniques. This includes the use of mud mortar and traditional peg fixings for the timber members. Seismic upgrade has included the use of steel bolts to strengthen

corner connections. Copper sheet has been used to provide damp proof barriers under timber posts and door thresholds to slow future decay.

The palace towers (North and South Taleju Mandirs) are nearing completion. The metal pinnacle has been repaired for the North Taleju Mandir and is about to be re-gilded using gold leaf. The traditional mercury method is not being used due to its toxic nature and the desire to maintain the health of the craftsmen.

Temples that did not collapse, but were severely damaged (including Krishna Mandir and Visvesvara Mandir), are being repaired in situ. The stepped plinth of the latter is being strengthened through the replacement of its rubble fill with brick matting laid in mud. New larger bricks have been made to replace some face bricks in order to bond the outer brick skin to the main body of brickwork behind. Separation of the brick skins was an issue for many monuments. Decayed timber posts are being repaired and reinstated (some were missing the bottom 1m through rot). The brickwork, which is not load-bearing, will be reassembled around them using mud mortar.

A broken stone pillar in the Durbar Square has been repaired using stainless steel pins and re-erected.

GPR has been used to develop archaeological risk maps of the Patan Durbar Square and test trenches have revealed that the ground level was raised approximately 0.5m following the 1934 earthquake through distribution and compaction of the earthquake debris. The ground level around the monuments is currently being lowered to pre 1934 levels.

Generally, the damage assessment and works undertaken within the Patan Monument Zone have been well documented and recorded. With the exception of the replacement of inner plinth material, contemporary interventions are minimal and have generally been carried out in accordance with ICOMOS principles and best practice. The craftsmen undertaking the work are skilled and experienced in traditional trades and heritage conservation. The works undertaken provide a good example for work in other monument zones.

SUMMARY OF IMPACTS AND THREATS RESULTING FROM THE RECOVERY

In general, the recovery works in Patan seem to be well organized and focused on recovering OUV through the recovery of key attributes, retaining as much original fabric as possible.

- With the exception of the loss of historic fabric in the building foundations, the threats to OUV and attributes of OUV have generally been mitigated.

It is noted that the mud mortar used in Patan is of a higher quality than that used elsewhere. It appears to have a much lower chemical content having been excavated more than 2m below the ground surface.

CHANGU NARAYAN MONUMENT ZONE

Changu Narayan Monument Zone experienced extensive damage during the 2015 earthquakes, with the top of the main temple affected and the collapse of several smaller temples and the sattals surrounding them. The historic housing in the ancient settlement associated with the site also experienced extensive damage.

The recovery work at Changu Narayan has been divided between DoA (responsible for the main temple restoration), John Sanday and Associates (responsible for the reconstruction of the sattals and smaller temples) and Bhaktapur Municipality (responsible for overseeing the housing).

The upper portion of the Changu Narayan temple is currently being dismantled to enable reconstruction of its western wall. The dismantling is documented photographically. The brickwork is being relayed using lime, sand and surkhi mortar and the timber structure is to be strengthened. No details were given. The collection of sacred objects and religious artefacts from inside the Changu Narayan Temple have been removed and stored whilst the work is undertaken.

The smaller Kileshwar Mahadev Temple has been repaired reusing the original bricks, carved timber elements and metalwork. Rotted timber elements have been replaced. Lime surkhi mortar has been used as evidence of this was found in the structure. A full-scale model of the timber structure has been built as part of a symposium and educational program designed to develop better understanding

of the way in which the traditional timber structure is assembled and functions in resisting natural forces (wind, rain and seismic activity). It is on display in Nepal Engineering College, Kathmandu. (<http://www.worldwoodday.org/2016/cms.php?ctype=NEP013&t=0&vid=192065386>)

A partner temple to the Kileswar Mahadev, Lachshmi Charayan, collapsed during the earthquake and has not been reconstructed as yet. There is debate as to whether it should take the post 1934 earthquake truncated single tiered roof form or the pre 1934 double tiered roof form.

The sattals are currently being dismantled, one at a time, beginning with the Living Traditions Museum located in the southern sattal. As much of the original fabric as possible will be reused in their reconstruction. It is currently proposed to establish a new museum in the rebuilt sattals to enable some of the objects from the Changu Narayan Temple to be viewed by the public. There is some disagreement over this, however, as the chief priest wants the objects returned to the temple to which they belong when the work is complete.

In the village leading up to the temple, much of the original housing has been lost and is currently being replaced with new concrete framed structures clad in brickwork. The new houses are approximately one storey higher than the traditional houses and often have a flat roof (sometimes with a roof terrace) as opposed to the steeply pitched form of the traditional roofs. The windows and doors are carved timber, but are different in form and detail from the traditional Newari ones. These changes even apply to the houses closest to the entrance of the temple complex. The street layout, rest houses, hittis (step wells) and small shrines within the village survive, although have not yet been repaired.

SUMMARY OF IMPACTS AND THREATS RESULTING FROM THE RECOVERY

The greatest threat to OUV and attributes of OUV in the Changu Narayan Monument Zone is the loss of traditional housing in its ancient settlement.

PASHUPATI MONUMENT ZONE

The extent of damage to the monuments and other structures in the Pashupatti Monument Zone has been found on closer inspection to be much greater than reported during the 2015 Reactive Monitoring mission.

The primary focus of the Pashupati Development Corporation has been on refurbishment of the facilities used by the millions of pilgrims that arrive at the site (up to 1.3 million per day at peak festival times). This has included repair and restoration of rest houses and pilgrim houses.

As many of the temples are sacred spaces that cannot be entered by non-Hindus, the mission team could not enter and inspect them. In addition, there was not enough information presented for the team to assess the conservation works being undertaken. The Ram Temple adjacent to the Bagmati River has been repaired and the Shree Guhyeshwori Temple and sattal complex on the north-eastern side of the hill is currently being rebuilt. The damaged shrines and temples located on the top of the hill, including the domed Vishwarupa Temple, have not been repaired. It is planned to complete repairs to fifteen monuments this year, with half having already been tendered and contracted. No further details were given.

Many damaged sattals have been demolished around the site and it is intended to replace them. The Reactive Monitoring mission do not know what form this will take. The sattal of the Guhyeshwori Temple complex is being demolished and rebuilt in stages. Generally, all new materials are being used, with the exception of the main carved window and door ensembles. The more recent additional stories that existed prior to the earthquake are not being rebuilt.

No further landslides have been reported around the hilltop.

Work has begun on a new Master Plan for the site with the assistance of both local and international experts, including heritage experts. It is anticipated that this will take up to two years to complete, as it will involve considerable community consultation. This is a positive step that should reduce future threats to the site.

Barriers are to be erected across the road cutting through the protected forest in April, following the handing down of the Supreme Court ruling supporting this action. There is ongoing concern regarding the ring road that wraps around the site and its impact on the monuments around the edges of the

site, particularly as there are plans to upgrade the road and extend it 60m. There is concern by the Pashupati Development Corporation that this will cause collapse of some monuments. This area was not inspected as it was beyond the scope of this mission.

The new crematorium is fully operational and the number of cremations along the river at Aaryghat has been considerably reduced, improving the physical environment of the monument zone.

SUMMARY OF IMPACTS AND THREATS RESULTING FROM THE RECOVERY

Threats to OUV and its attributes of OUV in the Pashupati Monument Zone include:

- The lack of a recovery master plan with established priorities for the recovery and reconstruction of this extremely large site.
- Inadequate support being provided to structures that are still standing, when the neighbouring structures are demolished.
 - o At the Guhyeshwori Temple complex, this has resulted in the failure of adjoining buildings and the necessity to demolish and reconstruct them as well.
- Many of the same issues and threats identified for the Hanuman Dhoka Monument Zone, including:
 - o Lack of protection of damaged structures and elements,
 - o Insufficient evidence being provided to support interventions,
 - o Loss of original fabric,
 - o Use of lime surkhi mortar instead of mud,
 - o Quality of clay used in brick and mortar production, and
 - o Inadequate documentation for the open tender/bidding process used to award contracts and poor monitoring of the work.

SWAYAMBU STUPA MONUMENT ZONE

In general, the local federation of community stakeholders are organizing the works in the Swayambu Stupa Monument Zone.

The main stupa at Swayambu was found to have only superficial damage and has been repaired.

The pavement around the main stupa subsided on its northeastern side adjacent to the Katmaraj Gumba (monastery and museum), which collapsed. The pavement has been repaired, although it is unknown what remedial works were undertaken below the pavement to prevent further collapse. The slope below the collapsed monastery is currently being monitored. The priests' families wish to rebuild around the stupa, but development controls to minimise risk and heritage impacts have yet to be finalized. The close proximity of the houses and shops to the monument will impact their setting.

Work has begun on reconstruction of the small Tashi Gulma Temple and the two sikhara style temples, Pratipur and Anantipur that flank the steps leading up to the main stupa. Pratipur has been rebuilt twice in recent years, once due to fire damage and then again due to lightning strike. It was found that the rebuilt upper portion which used lime, sand and surkhi mortar in its reconstruction, rocked on the softer older base built using mud mortar, crushing the bricks in the base. These buildings are being rebuilt in new materials (new bricks and lime surkhi mortar, to their original forms, which were documented prior to demolition. The brick base of Antipur has also been replaced in new brickwork following investigations into its foundations.

The chief priest and his family, who have received both spiritual and technical training prior to undertaking the work, are repairing the Shantipur Temple. The wall mural from the entrance vestibule has been salvaged and taken to the National Museum for conservation. As it is in many small pieces, it has not been decided whether it can be reinstated or should be replaced by a new painting undertaken by the priests. A new painting would enable the intergenerational transfer of cultural traditions. It was noted that the temple appears to have been built in stages with an early basement or crypt located below the existing temple.

SUMMARY OF IMPACTS AND THREATS RESULTING FROM THE RECOVERY

Threats to OUV and attributes of OUV in the Swayambu Monument Zone include:

- Future landslides.

- Potential overdevelopment of the hilltop with the reconstruction of the monasteries, priest housing and their associated shops.
- Loss of original fabric in the reconstruction of several of the temples.

BOUDDANATH STUPA MONUMENT ZONE

The top of the large Bouddanath Stupa has been rebuilt around its new central pole reusing the original bricks. The new pole and relics were dedicated during the 2015 Reactive Monitoring mission and prior to its erection at the top of the stupa. The timber structure supporting the parasol has been repaired and re-erected, and the whole has been re-clad in the original metal sheets, re-gilded using the traditional mercury process. Recovery works are complete life has returned to normal with c of devotees are again meditating and praying as they circumambulate around the monument.

Brick dust and mud mortar from the top of the stupa have been used to create a row of chaitya located in a new memorial garden located in the buffer zone. They present the life of Buddha and commemorate the lives of those that died in the earthquakes.

SUMMARY OF IMPACTS AND THREATS RESULTING FROM THE RECOVERY

The threats to OUV and attributes of OUV in the Bouddanath Stupa Monument Zone have been rectified.

3.3.3 IMPACTS OF THE RECOVERY ON ATTRIBUTES OF OUV

The extent of earthquake damage to the attributes that support and express the OUV of the KWWHP is summarised in the 2015 Reactive Monitoring mission report. The list follows the broad summary of attributes included in the Integrated Management Framework (IMF). The 2015 Mission report noted that this list would need to be augmented by detailed analysis of damage in each of the Monument Zones. However, no evidence was presented to the team that any systematic analysis has been undertaken to date.

The following discussion assesses the impact of the recovery and reconstruction process on the attributes identified in 2015 and confirms whether the loss or threat to key attributes has been mitigated or increased.

LOSS OF OR THREATS TO UNIQUE ARCHITECTURAL ATTRIBUTES

The unique architectural attributes of the palaces, temples, stupas and other monuments, defined by their form, scale, structure and materials, are important attributes of the OUV of the World Heritage property.

PALACES

The Hanuman Dhoka Palace suffered the most damage, losing its tiered nine-storey palace tower, one of its oldest portions. It also experienced extensive structural damage to its more recent nineteenth century wings.

At present, although many of the carved elements have been salvaged and the damaged portions propped, large portions of the building remain in a precarious state and open to the weather with the likelihood of further damage from water entry and aftershocks.

Several international teams have been commissioned to document and undertake the conservation works to different portions of the palace.

The palace at Patan suffered some damage, with damage to two towers and the loss of one wing. The palace has been restored and is no longer under threat.

The palace in Bhaktapur (National Art Museum) suffered extensive damage to two wings, one of which has been demolished and is to be reconstructed, and the other, a nineteenth century Rana style wing (including a long reception hall) is threatened with demolition and replacement with a faux Malla style building.

Generally, the palaces are to be repaired. The greatest threat is to the areas that are still exposed to the weather and further decay, and to the nineteenth and early twentieth century portions, particularly in Bhaktapur, where these are not valued by the local Newari community.

TIERED TEMPLES

The tiered temples are generally as a group being reconstructed, with repair and reinstatement of their original carved timber elements. In many cases the bricks have also been salvaged and are being reused, but in many other cases they are being replaced with new.

The greatest threat seems to be to their stepped masonry bases, which in many cases are being rebuilt from the inside (some with brick and others with concrete foundations). This has resulted in a substantial loss of original fabric and significant archaeology. It is not clear what evidence has been gathered to suggest that this is necessary. The archaeological report on Kasthamandap suggests that the base of the temple, which is extremely old (7th century), shows no evidence of structural failure over a long history of earthquakes. The bases of some temples have been reported as having been built on rounded stones, which are considered to be unstable. However, supporting research that examines their performance over time has not been presented, nor has their potential to act as seismic isolators that help to reduce the impact of the earthquakes appear to have been assessed.

STUPAS

The large domed stupas of Bouddanath and Swayambu have been repaired and are no longer under threat.

OTHER RELIGIOUS ATTRIBUTES

The rectangular Shantipur temple at Swayambu is currently being repaired by the chief priest and his family.

The large nineteenth century domed Vishwarupa Temple on the top of the hill in the Pashupati Monument Zone has collapsed and has not been repaired. The Pashupati Development Corporation does not seem to consider it a high priority at present.

The Sikhara style temples at Swayambu and Bhaktapur suffered considerable damage and are currently being rebuilt. In Swayambu new materials are being used. At Bhaktapur the original materials, including the stone that has been bonded with rigid modern mortar, are being used where possible. However, one temple is to be rebuilt to an earlier (pre 1934) form based on historic photographs. The loss of original fabric and authenticity appears to be the greatest threat to the sikhara style temples.

Some of the fallen stone pillars have been repaired and re-erected, but others have not as yet. The bell and drum towers are also gradually being repaired.

SATTALS

In many cases the damaged sattals are being demolished and rebuilt. This was particularly noticeable in the monument zone of Pashupati, Bhaktapur Durbar Square and Changu Narayan, where the sattals collapsed. At Changu Narayan and Bhaktapur the original fabric is being reused wherever possible. This is not so clearly the case at Pashupati, although the buildings appear to match their pre-earthquake form, minus their recent top storey additions.

TRADITIONAL URBAN HOUSES AND SHOPS

The traditional houses with their ground floor shops appear to be the attributes that have suffered the most from the earthquakes and the recovery process. Most of the severely damaged houses have been demolished and are being replaced with new concrete framed buildings. Although the new buildings are brick clad and incorporate carved window elements, they are often taller than their historic counterparts, many with flat roofs rather than steeply pitched. Very few of the traditional houses are being repaired, despite local monetary incentives. This has affected most of the monument zones, including those that were already threatened by urbanization and modern development. The traditional urban house is seriously under threat in the post earthquake recovery.

REST HOUSES

The public rest houses have generally survived and are being repaired.

HITTIS (WELLS AND PONDS)

The earthquakes did not seriously affect the hittis and ponds and, although they are being used to store salvaged materials, they should remain key elements in the public spaces of each of the monument zones.

MATERIALS

Although the original carved timber and metal elements, and even brickwork in many cases, have been salvaged for reinstatement, the traditional use of mud mortar, which is clearly identified as an attribute of OUV, is currently under threat.

Lime mortar, which is far more rigid and coarse than the traditional mud mortar, is being used for the reconstruction of many monuments. It is not known what affect this will have on the seismic performance of the traditional timber-framed structures, particularly of the tiered temples.

THREATS TO THE HIGH LEVELS OF CRAFTS

In most cases, the decorative carved timber and gilded brass elements have been salvaged, carefully sorted, reassembled and repaired for reinstatement in the reconstructed/restored monuments. Where elements had decayed or been damaged, new pieces of timber have been carefully pieced in and carved to match the original in detail. The metalwork has also been repaired using traditional methods and re-gilded. Thus these elements are not under threat.

Considerable effort has been made to develop craft and artisan skills, with master craftsmen (carpenters, masons and metalworkers) being engaged to lead teams and provide training to others. This has been extremely important to the recovery of the monuments and is creating a new generation of artisans to continue the work.

A supply of Saal wood and pine (traditional timbers used in Newari architecture) has been facilitated by the DoA and the Government of Nepal to enable replacement of key elements. It is not known whether a sustainable forestry program has been developed to guarantee a long term timber supply for future conservation works.

New bricks are being produced to match the wedge shaped face bricks produced by the Newari up to the mid nineteenth century. The quality of clay being used, however, is poor and full of chemicals, and is likely to cause problems in the future.

LOSS OF AND THREATS TO THE UNIQUE URBAN AND ANCIENT SETTLEMENTS

The unique structure and fabric of the urban and ancient settlements provide the context within which the monuments are situated and are important attributes of the OUV of the property. The distinctive character of these areas is defined by the scale, form, design and materials of the traditional Newari architecture, as well as the layout of the public squares and narrow streets which give them their urban structure. Whilst many of the monuments were destroyed in the earthquakes, they are being rebuilt. The streets and squares are also being retained in their pre-earthquake form.

The loss of traditional housing, however, which is an important attribute of most of the monument zones, has been severely affected by both the earthquakes and the recovery, and thus threatens OUV in relation to the urban and ancient settlements associated with the monument zones. In most cases, the new housing is required to reflect the brick materiality of the historic houses and include carved timber window elements, but its scale (usually with an additional storey on top) and form (flat rather than pitched roof) is quite different.

It is really too early to assess the full impact of new development is having on the urban and ancient settlements of the different monument zones.

- The installation of new urban infrastructure has not significantly affected the monument zones since the earthquake (other than the solar street lighting previously identified), but it is known that a new water distribution system is being built throughout the city and planned to run through some of the monument zones threatening the subsurface archaeology.

- It is also known that the proposed Ring Road expansion around Pashupati is likely to affect some of the monuments within that zone.

THREATS TO TRADITIONS, BELIEFS, LEGENDS, RITUALS AND FESTIVALS

The traditional rituals and festivals associated with each of the religious monuments have generally continued with some adaptation to the changed conditions.

- All the religious sites appear to be fully functional.
- Despite the damage to temples and shrines, daily offerings continue to be made and religious advice sought.
- Seasonal festivals have been revitalized and contributed to the healing of the people and the city.
- The number of pilgrims attending sites is increasing and is anticipated to reach pre-earthquake levels within the next couple of years.

It is noted, however, that local communities have shut down some reconstruction sites as they have not been able to perform the rituals required during the reconstruction process. This has been the case particularly where contracts for reconstruction have been awarded through the open tender system. The neglect of these rituals poses a new threat to one of the intangible attributes of OUV.

3.4 ISSUES RELATING TO THE EMERGENCY RESPONSE, RECOVERY AND RECONSTRUCTION OF ATTRIBUTES AND OUTSTANDING UNIVERSAL VALUE

The following discussion responds to the issues identified in the 2015 Mission report (in the same order) and then raises new threats arising from the recovery and reconstruction process.

3.4.1 EMERGENCY RESPONSE

Emergency response included securing and stabilizing sites, and salvaging, inventorying, storing and protecting materials and artefacts from the sites. This process commenced almost immediately after the earthquake and has continued.

- Unstable structures have been shored up to await repair.
- Important collections have been rescued, cleaned, inventoried and stored.
- Most building artefacts, particularly the carved timber elements have been sorted and reassembled, and are in the process of being repaired for reinstatement within the reconstructed monuments. These are mostly under cover, although larger elements have been left lying out in public spaces in the open.
- Many structures have been disassembled to enable the repair of damaged elements prior to reassembly.
- Whilst reconstruction is proceeding, building elements are laid out on the ground for assessing their condition and assembly, but are often left uncovered at night leaving them exposed to rain storms.
- Generally those sites that are not included in the current program of work have been left uncovered and have thus spent the last two monsoon seasons out in the weather. This has resulted in further deterioration of the building fabric.

3.4.2 INVENTORIES

Building artefacts and collections have been inventoried and recorded photographically. Data management continues to be an issue.

3.4.3 HERITAGE EXPERTISE

Some of the projects being undertaken indicate a high level of heritage expertise and understanding of traditional structures (eg those undertaken by consultants that have had extensive experience in heritage conservation in Nepal in the past), whereas others demonstrate that the level of heritage expertise amongst many architects, engineers and contractors is limited. In many cases inadequate

assessments and documentation are being undertaken prior to determining the type and extent of interventions being made, with many resulting in very serious impacts on significant fabric and attributes of OUV (eg. the mass replacement of building foundations).

The DoA has employed a large number of engineers and architects since the earthquakes, but many are young and inexperienced, and not fully aware of the threats that particular types of interventions present to the property, its OUV and attributes. As a result there is a lack of critical evaluation of the information and research presented by both local and international consultants and contractors, as well as inadequate documentation being prepared for tendering and construction purposes, and inadequate monitoring of works under construction. Capacity development is still required in this area.

3.4.4 TRADITIONAL SKILLS AND KNOWLEDGE

DoA, KMC, ICCROM and other teaching institutions have provided capacity development in masonry, carpentry and wood carving in order to facilitate the recovery of the KVVHP. The recovery and reconstruction of the monuments has provided opportunities for local knowledge and skills to be passed on to future generations of artisans. Skills have also been developed in the salvage and conservation of wall murals, metalwork and collections management.

3.4.5 TENDERING PROCESS

The open tendering process has been a major issue for the recovery of the KVVHP.

Prior to tendering, contractors have not been required to demonstrate their capacity and skill to undertake the work to the standard that would be expected on a world heritage listed property. Many contractors have taken on the work without any experience in heritage conservation or the use of traditional materials and construction technologies.

Because those engaged to assess the buildings do not understand the ways in which the buildings are designed to perform, interventions have been introduced that are not compatible with retaining the maximum amount of heritage fabric or maintaining the traditional anti-seismic structural systems that should be considered an important attribute of the KVVHP and its OUV. In many cases there appears to have been an assumption that 'new is better than old'. In several cases the foundations of the temples have been dug out and totally replaced in concrete. At the time of the Reactive Monitoring mission, cases were reported where, dissatisfied with the work taking place, local communities have stepped in, locked contractors out of construction sites, demolished their work and redone it using traditional materials and methods.

The open tender system presents a clear threat to the KVVHP, its OUV, attributes, authenticity and integrity, particularly where there is inadequate documentation, no prequalification of contractors, proposals are not subject to critical review by experts in the field and works are not closely monitored.

In order to reduce this threat:

- Appropriate and comprehensive research must be undertaken prior to design solutions being presented for remediation or seismic upgrade works to the monuments. Refer to Evidence Based Decision Making below.
- Full documentation must be prepared prior to tender. This should include detailed drawings showing which elements are to be repaired/replaced, detailed schedules of works, bills of quantities, specifications and conservation methodology to be followed.
- All proposals must be subject to critical review by experienced heritage practitioners prior to approval being given by DoA.
- All tenderers for conservation, repair and reconstruction works on sites within the KVVHP must be able to demonstrate the necessary skills and expertise required for this class of work (ie conservation of heritage fabric and knowledge of traditional construction methods and technologies). Prequalification with references from recognized experts to support the applications would be appropriate.
- Contractors must commit to having appropriately skilled and experienced artisans leading the work on site.
- DoA must closely monitor the work being undertaken and be willing to intervene when work is not consistent with conservation of the KVVHP, its OUV and attributes of OUV.

3.4.6 MATERIALS

The DoA has been able to provide a supply of traditional Saal wood, pine, bricks and mortar for the recovery of KVWHP. It is not known whether the long term supply of timber has been addressed. The quality of timber provided appears to be satisfactory. However, the quality of clay used in brick and mortar production is not as good due to its high salt content (from agricultural chemicals used on the land from which it is obtained). Standards of production need to be established to reduce the risks to the buildings from the use of these materials.

At this stage it appears that inadequate research has been provided to support the replacement of traditional mud mortar with lime, particularly in relation to its use in the tiered temples. This must be addressed as mud mortar is identified as a key attribute of the KVWHP and its OUV.

Lime is being imported from India. However, in most cases it has already gone off by the time it arrives on site due to lack of protection from the rain in transit or in storage. On site the lime is slaked for a very short period of time prior to use (approx. 5 days on average). This is not consistent with international standards. It is also being used without adequate health and safety measures being implemented.

The traditional gilding method using mercury is highly toxic to workers and alternate methods must be considered to ensure their safety.

3.4.7 HUMAN SAFETY

People have access to all sites, although some monuments are closed to visitors. Temporary shoring is in place to prevent further collapse of monuments, but people are generally able to move around and through the shoring without restraint. Human safety is still considered an issue, particularly in the event of another earthquake.

3.4.8 BUILDING CONDITION

Although building condition, particularly decay of key structural elements, has been identified as a major contributor to failure of many of the monuments, few solutions have been proposed to remedy the situation. Decayed materials (rotted timber posts embedded within walls and decayed brickwork) are being replaced as part of the recovery and reconstruction of monuments, however, almost no solutions have been proposed to prevent rising damp, salt attack, rot and insect attack.

Consideration must be given to drainage systems, ground levels and surface treatments, as well as damp proof courses at the base of monuments. In Patan, ground levels are being lowered and copper sheet is being inserted under timber elements (post bottoms and door thresholds), but not brickwork. This approach was not evident on other sites, even though archaeological evidence at Kasthamandap indicates that copper sheet has been used under the main timber posts in the past. The failure to address this problem poses a long term threat to the monuments. The use of salt laden clay in the new bricks and mortar will exacerbate this issue.

The process currently being adopted for the recovery of many of the monuments includes disassembly, repair and reassembly of the structures. This traditional approach to building conservation, known as cyclical renewal, is considered an authentic part of the recovery process. There is some historical evidence that this process was undertaken approximately every ninety years for some monuments (Ranjitkar) as part of a regular long term maintenance program. The approach is necessary due to key structural elements, which are vulnerable to decay, being hidden and inaccessible within the structures. The process of cyclical renewal is consistent with retaining the OUV and attributes of OUV of the KVWHP.

3.4.9 ROUTINE MAINTENANCE AND REPAIR

Many traditional maintenance practices are associated with seasonal festivals, such as cleaning out the local water supply systems and drains, and weeding of roofs. Although the festivals continue, the maintenance practices associated with them have generally been abandoned. This is primarily due to the development of modern work practices that engage people in year round work rather than seasonal work which gave time for seasonal maintenance, and the dissolution of the traditional Guthi system following its nationalization in the 1970s.

Regular maintenance of monuments and sites is critical to their long term survival. With the lack of government resources available for this, it will be extremely important to actively involve local communities in the regular care and maintenance of the monuments. Lack of community participation in the ongoing care of places threatens their long term survival. The community proposal for Kasthamandap seeks to address this issue, but it will require considerable long term commitment from both the local community, the KMC and the DoA.

3.4.10 URBAN INFRASTRUCTURE

The impact of urban infrastructure (roads, drainage, water supply, electricity and street lighting) on the monuments, public squares, streetscapes and housing does not appear to have been considered or addressed in the recovery. Thus they continue to pose a threat to the KVWHP and its attributes of OUV (monuments, other structures, streetscapes and public spaces). It is extremely important that archaeological findings are shared with the local planning and infrastructure authorities and that suitable guidelines are prepared and adopted by the government for the construction or installation of new infrastructure within the KVWHP and its buffer zone.

3.4.11 URBANISATION AND PRIVATELY OWNED HERITAGE

Much of the privately owned property that was damaged by the earthquakes has been reported as demolished. Replacement buildings are generally of concrete framed construction with brick façades incorporating carved timber window and door elements. They generally follow the guidelines established by local authorities for construction within the monument zones of the KVWHP.

3.4.12 SOLAR STREET LIGHTING

Solar street lighting, although practical in lighting public spaces, remains a visually intrusive element within some of the monument zones, particularly Hanuman Dhoka and Pashupati. Its installation has resulted in uncontrolled and undocumented disturbance of archaeological remains in the main Durbar Squares and along the banks of the Bagmati River.

3.4.13 POLITICAL SUPPORT

Recovery of Nepal's heritage is a high priority of the Government of Nepal, ranked fourth behind critical infrastructure, housing and education. However, the impact of infrastructure on Nepal's heritage, including the KVWHP, is not recognized or addressed in planning.

3.4.14 RECORD KEEPING

It is clearly evident that record keeping in relation to the KVWHP is very weak within DoA. It is extremely important that all relevant records for the property are kept for future reference. This includes, but is not limited to:

- all planning documents for the monument zones, including infrastructure works; plus
- documents relating to individual monuments including:
 - o archaeological reports,
 - o historical records (documents, photographs and illustrations),
 - o archival records of the damage caused by the earthquakes (including measured drawings and photographs),
 - o building condition assessments,
 - o geotechnical and hydrological reports,
 - o inventories of building artefacts and collections (lists, photographs and storage location),
 - o structural reports,
 - o full documentation for repairs and reconstruction (including drawings and specifications, bills of quantities),
 - o heritage impact assessments,
 - o records of work in progress (including minutes from site inspections, photographs showing opening up works and work in progress).

3.4.15 EVIDENCE BASED DECISION MAKING

In some cases there has been extensive research undertaken to establish the history of the monument and causes of failure prior to determining the most appropriate solutions for reconstruction. In others, the research undertaken has been extremely limited, with insufficient justification being provided to support major interventions into the heritage fabric.

All decision making must be evidence based. This requires balanced and critical evaluation of all the relevant evidence, which may include, but is not limited to:

- Documentary research into the history of the structure, past collapses and other failures, past interventions and past conservation and maintenance programs that may have included disassembly, repair and reassembly of the monument in a process of cyclical renewal;
- Detailed condition assessment of the historic fabric, including structural failures, decay and past interventions;
- Detailed archaeological assessment to determine the age and condition of the subsurface structure and past changes to the structure;
- Geotechnical and hydrological assessment and monitoring of the ground conditions;
- Assessment of ground levels and surface treatments, their potential heritage significance and potential impact on the condition of the monuments;
- Assessment of site drainage conditions and potential damage to water supply, sewerage and drainage pipes that may be affecting the ground conditions around the monument;
- Understanding the traditional structural system, construction techniques and materials used (their qualities, role, performance in relation to seismic and other hazards (wind, rain, lightning strike), strengths and weaknesses within the structural system);
- Analysis of the causes of failure (Was failure due to the design, the ground conditions, past interventions, decay, lack of maintenance?);
- Analysis of the impact of past interventions on the traditional systems (Were they successful or not? Did they compromise the traditional system contributing to its failure or support the traditional structural system? How?); and
- Assessment of the elements salvaged, their potential for repair and safe reuse.
- Assessment of whether the proposed interventions support or compliment the traditional anti-seismic design of the monument; and
- Consideration of possible solutions to damp and maintenance issues that are consistent with maintaining or protecting the attributes of OUV.

In many cases there seems to have been an assumption that the structures need seismic strengthening, even though the evidence suggests that the cause of failure is not a product of the design or materials used, but rather other causes (eg decay of key elements due to rising damp and lack of maintenance). In addition, the engineering solutions proposed often seem to conflict with, rather than support, the traditional structural systems that are an important attribute of OUV.

3.4.16 VALUES BASED RECOVERY

Balancing consideration of all the evidence, all recovery options must also be values based. Thus they must support the recovery of OUV and attributes of OUV. This requires:

- Clear identification of the attributes of the monument that support or exemplify OUV (both tangible and intangible); and
- Identification of solutions, whether structural or other (eg to minimise damp and decay), are consistent with maintaining or recovering OUV.
- Many structural alterations are irreversible and have significant heritage impacts on the monuments and archaeology, and thus threaten, rather than support, the recovery of OUV and attributes.

3.5 POSITIVE AND NEGATIVE DEVELOPMENTS IN THE CONSERVATION OF THE PROPERTY SINCE THE LAST REPORT TO THE WORLD HERITAGE COMMITTEE

3.5.1 POSITIVE DEVELOPMENTS

- The mission team notes the following positive developments in the conservation of the property since the 2015 Reactive Monitoring mission report to the World Heritage Committee:
- There has been considerable progress on the post disaster recovery and reconstruction in most monument zones, although the standard of work is variable.
- DoA has adopted Basic Guidelines for the Conservation and Reconstruction of Earthquake-Damaged Heritage (2072).
- DoA has employed additional staff to undertake documentation and administration of the recovery and reconstruction process, although most are young and inexperienced.
- Elements salvaged from the collapsed buildings have been cleaned, sorted, inventoried, reassembled, repaired and stored ready for reinstatement during the reconstruction process.
- Research and documentation has been undertaken for the recovery of many of the monuments, although the standard is variable.
- Training of artisans has been undertaken.
- Conservation works have commenced in most monument zones, with some monuments completed, others in progress, and tenders called and contracts let on yet others.
- Bouddanath and Swayambu stupas have been repaired.
- The mural from Shantipur temple has been salvaged and taken to the National Museum for conservation.
- Repairs to the palace in Patan are almost complete.

3.5.2 NEGATIVE DEVELOPMENTS

The mission team note the following negative developments in the conservation of the property since the 2015 Reactive Monitoring mission report to the World Heritage Committee:

- There has been a lack of adequate coordination and recovery planning, including prioritization of works based on recovery of OUV and attributes of OUV, in most monument zones.
- Many damaged buildings remain unprotected from the weather (particularly in Hanuman Dhoka, Bhaktapur and Pashupati).
- Traditional housing has been lost in the historic urban areas and ancient settlements (Pashupati, Bhaktapur and Changu Narayan)
- The Basic Guidelines for the Conservation and Reconstruction of Earthquake-Damaged Heritage (2072), which prioritise repair of damaged buildings ahead of reconstruction of collapsed buildings, are not being followed in many cases.
- Repair and reconstruction works have been undertaken without the approval of DoA or the WHC.
- Insufficient evidence has been gathered to support or justify some of the interventions proposed and implemented. This has resulted in the irreversible loss of significant fabric.
- Heritage impact assessments of proposed works are not being undertaken in many cases.
- Inadequate documentation has been prepared for tendering and construction purposes.
- The open tender process has lead to inexperienced conservation works being carried out that have severely affected the integrity and authenticity of the monuments.
- There has been little monitoring of works undertaken to ensure adequate quality control.

4 ASSESSMENT OF THE STATE OF CONSERVATION OF THE PROPERTY

4.1 ARE OUTSTANDING UNIVERSAL VALUE, INTEGRITY AND AUTHENTICITY OF THE PROPERTY MAINTAINED?

The 2017 Reactive Monitoring mission confirms the findings of the previous 2015 mission report, which indicated that the 2015 earthquakes severely damaged the World Heritage property of the Kathmandu Valley, that its integrity and authenticity were badly affected, putting its OUV at risk. Although some attributes of OUV have been recovered over the last eighteen months, uncontrolled and poor-quality reconstruction during the recovery process has further impacted the integrity and authenticity of the property and increased the risk to the property's OUV.

The emergency response for the KWHP has not been fully completed and many monuments and building artefacts remain exposed and vulnerable to further hazards such as monsoon rains, new earthquakes, human interference, theft or vandalism. The mission also noted that there is still a lack of clear and effective direction from the State Party for the recovery process, as evidenced by the lack of a RMP and of the absence of detailed recovery planning for the property, all of which has impacted the recovery efforts within the different monument zones.

Whilst some of the recovery and reconstruction work undertaken has been of a high standard, other work has resulted in considerable loss of significant fabric (in some cases all of the pre-earthquake fabric), thereby severely impacting the integrity and authenticity of the monuments.

The outcomes of the recovery work vary between monument zones:

- Repairs to the **Bouddanath** stupa have been completed and the site is fully functional. Thus the integrity of the Bouddanath Monument Zone has been maintained and attributes of OUV recovered.
- Work in **Patan** has been of a consistently high standard, generally following international best practice in heritage conservation. The repairs to the palace are nearing completion and works to the temples and other structures within the Durbar Square are well under way and anticipated to be completed within the next two years. In all cases, as much as possible of the original fabric (carved timber elements, gilded metalwork and brickwork) has been repaired and restored using traditional materials and technologies for the rehabilitation of the monuments. With the exception of the monument bases, the recovery has maintained the OUV and integrity of the attributes within the Patan (Lalitpur) Durbar Square Monument Zone.
- At **Changu Narayan**, the repair of the small Kileshwar Mahadev Temple has been completed and works to the larger Changu Narayan Temple are currently in progress. Works on the surrounding sattals have begun, commencing with the disassembly of the first sattal. It is intended that as much of the original fabric as possible will be retained and restored. However, lime-based mortar is to be used, which is inconsistent with maintaining and recovering all attributes of OUV. The loss of traditional housing at Changu Narayan has had a significant impact on the ancient settlement within the monument zone, and thus the monument zone's integrity, impacting the property's OUV.
- The **Pashupati** Monument Zone appears to have suffered much greater earthquake damage than previously reported. Many structures within the monument zone are being demolished prior to reconstruction, as part of the recovery process. Although the carved timber and decorative metalwork elements are being restored, the brickwork generally appears to be new and to have been laid with lime based mortar. The recovery efforts appear to have been focused on pilgrim houses and rest houses, and many of the temples inspected previously were left in a state of decay. Therefore, the integrity of the Pashupati Monument Zone is at risk due to the reconstruction process.
- At **Swayambu**, the main stupa has been repaired. Other smaller temples and shrines are being rebuilt to their previous form, but using primarily new materials. The wall mural from the Shantipur temple has been salvaged in small pieces and the chief priest's family is undertaking the repairs to the structure. It is proposed to reconstruct the monasteries and priest housing around the top of the hill, but on a smaller scale than previously, taking into

consideration the risks of landslide. Therefore, the integrity of the Swayambu Monument Zone is at risk.

- In **Hanuman Dhoka**, which was the monument zone most severely impacted by the earthquakes, limited progress has been made with the recovery. Although many of the buildings' artefacts have been salvaged, cleaned, sorted and reassembled, large areas of the palace complex remain unprotected, which results in further decay of the building structures. Coordinating the recovery planning efforts has been difficult due to the complexity of the situation. Although some important research has been undertaken in relation to the archaeology of the squares and some of the monuments, this information does not appear to have been sufficiently shared, since rather intrusive and destructive interventions are being proposed for some sites, including the Kasthamandap public rest house. The open tender process is having a significant impact on the quality of reconstruction in this monument zone, impacting the integrity, authenticity and overall OUV of the monument zone.
- At **Bhaktapur**, work on several sites has involved significant replacement of the early fabric of the temple and sattal bases, resulting in a significant loss of integrity, authenticity and OUV. The proposed demolition of the 1858 Rana style palace building for replacement with a pre-1850s Malla-style building will have a significant impact on the integrity and authenticity of the monument and the monument zone. The loss of traditional housing has also affected the integrity and OUV of the monument zone.

The impact of the recovery on the intangible aspects of OUV is also variable:

- In most cases the daily rituals and seasonal festivals associated with each of the religious sites have continued, maintaining this aspect of OUV.
- A substantial effort has been made to ensure that the traditional skills and knowledge of artisans are passed on through training and participation in the restoration of the monuments and repairs to housing throughout the monument zones. Thus this aspect of OUV is maintained.
- The traditional practice of cyclical renewal has been embraced on many sites, with monuments being disassembled, repaired and reassembled, reusing the original elements. Thus integrity, authenticity and OUV are maintained.
- Religious carvings that were severely damaged in the earthquake are being repaired or copied for reinstatement on the temples to ensure that the stories associated with the deities are maintained.
- The use of building contractors obtained through the open tender system has in some cases had an impact on the rituals that would normally be undertaken prior to and during the various phases of construction, thus impacting this attribute of OUV.
- Although there has been discussion of reforming guthis to manage and maintain the monuments, little evidence has been seen of this, other than the desire of some community members to reestablish a modern guthi for the recovery and long term care and management of Kasthamandap. At the time of the Reactive Monitoring mission, neither KMC or DoA had accepted the proposal.
- The traditional maintenance practices and regimes associated with the various festivals have not been revived to date, although there has been a proposal for this, particularly in relation to Kasthamandap.

4.2 FOLLOW-UP MEASURES

4.2.1 MEASURES IN RESPONSE TO PREVIOUS DECISIONS OF THE WORLD HERITAGE COMMITTEE ON THE STATE OF CONSERVATION OF THE PROPERTY

In response to the last decision of the World Heritage Committee (Decision **40 COM 7B.41**), the State Party invited the joint WHC/ICOMOS/ICCROM Reactive Monitoring mission to assess the state of conservation of the property and to review the progress of the State Party in undertaking the recovery of the property.

The following comments are made in response to the various requests and concerns expressed in the World Heritage Committee decision 40 COM.7B.41.

RENEWAL PROCESS (PARAGRAPH 6)

The World Heritage Committee stated that recovery and renewal must be based on a review and analysis of precisely what has been damaged and could be recovered and what has been lost and will need to be replaced with new structures; as well as on a clear understanding of the attributes of OUV for each of the monument zones and how these have been impacted.

Although some analysis has been undertaken in relation to individual monuments, it has not occurred in relation to the monument zones or the broad range of attributes and values (tangible and intangible) associated with each of the monument zones.

RECOVERY MASTER PLAN (PARAGRAPH 7)

The World Heritage Committee urged the State Party, in full consultation with local community groups including traditional Guthis and others, to develop a Recovery Master Plan (RMP) that would be supported by guidelines to identify the attributes of OUV that can be recovered, how choices can be justified, and how the recovery work would be phased and undertaken. The RMP would facilitate the appropriate use, management and maintenance of the sites, in accordance with the maintenance of the OUV of the property as well as other local and national values. This has not been done.

- A detailed review of the attributes of OUV that can or cannot be recovered within each monument zone has not been undertaken and no guidance has been given on recovery priorities based on the recovery of OUV and attributes of OUV.
- The general focus of reconstruction appears to have been firstly on reconstructing built form and then on recovering fabric, rather than on values.
- The general provisions of the “Basic Guidelines on Conservation and Reconstruction of Heritages Damaged by Earthquake, 2016” (2072) adopted by DoA provides general conservation principles for the recovery of Nepal's heritage, including KVWHP.
 - o It sets out recovery priorities based on the condition or extent of damage to the monuments and provides guidelines for reconstruction:
 - o All refurbishment and reconstruction is to be based on research and evidence, with no reconstruction being permitted based on conjecture.
 - o For collapsed or critically damaged monuments, the emphasis is to be on recovery of the built form using traditional materials and structural systems.
 - o Introduction of foreign materials must be justified.
 - o Reconstruction to an earlier form or style is only permitted if sufficient documentation is available and later alterations are considered inconsistent with the integrity of the structure (rather than its heritage values).
 - o Replacement of totally damaged monuments with new or contemporary structures is not considered.
- Heritage Impact Assessments are required prior to the initiation of any development activities.
- The document refers to the role of traditional craftspeople, involvement of the community and the need for periodic inspections and maintenance, with a dedicated fund being established for this as per the traditional Guthi system.
- The Six-Year Rehabilitation Plan provides broad guidelines for recovery, but does not include goals, short, mid and long term priorities, benchmarks or timeframes for achieving these.

INTEGRATION OF RECOVERY MASTER PLAN WITH SOCIO-ECONOMIC DEVELOPMENT (PARAGRAPH 8)

So far, recovery within the property has focused on the monuments, although capacity development of artisans has been undertaken. It is not clear to what extent communities have participated in the recovery or how recovery of the World Heritage property has extended social and economic benefits to local communities associated with them. KMC has provided monetary incentives to encourage local residents to repair their traditional houses.

REVIEW OF INTEGRATED MANAGEMENT PLAN (PARAGRAPH 9)

The DoA reported that the Integrated Management Plan has been reviewed and is currently awaiting adoption by the Government. A copy was not available for review by the mission team and thus it is not known whether it addresses the changes to the property brought about by the earthquakes and the impact that these have had on OUV, integrity and authenticity. The DoA has provided a draft of

the amended IMF, which does not refer to the changes to the property caused by the earthquakes, or plans for recovery.

PLAN OF ACTION – CAPACITY DEVELOPMENT (PARAGRAPH 9)

A Plan of Action for capacity building has not been presented to the mission team. However, it was noted that several capacity development activities have been undertaken, utilising both local and international expertise, to provide training for craftspeople (masons, carpenters and carvers); for museum and site managers in the emergency salvage and storage of collections; for local emergency workers, architects, engineers and site managers in salvage and emergency stabilization of structures; and for archaeologists in archaeological risk mapping through the use of GPR and site investigations.

Capacity development is still needed in:

- Understanding the values based approach to world heritage and the importance of heritage values to underpinning all decision-making for world heritage properties;
- Critical evaluation of evidence presented to support or justify structural or other interventions;
- Preparation of detailed documentation suitable for tender and construction purposes; and
- Maintenance of quality control through the construction phase.

RECOMMENDATIONS OF 2015 MISSION (PARAGRAPH 10)

Numerous recommendations were included the 2015 Reactive Monitoring mission report. These related to:

- Detailed analysis and mapping of the impact of the earthquakes on the attributes of each of the monument zones and the use of OUV to establish priorities for recovery;
- Development of a detailed database of relevant information gathered to support the recovery;
- Outstanding emergency response work;
- Development of a Recovery Master Plan;
- Capacity development of artisans, architects and engineers;
- Ensuring a sustainable supply of materials;
- Coordination;
- Management structures;
- Conservation policies/guidelines;
- Planning for ongoing care and development;
- Development of a social revitalization program;
- Engagement of tourists;
- Mitigation of threats to the OUV, integrity and authenticity in the recovery; and
- Provision of international technical support by the advisory bodies.

Outstanding issues that have not been addressed and are of particular concern relate to the following:

- Lack of detailed recovery planning based on the recovery of OUV and the attributes of OUV, whilst maintaining integrity and authenticity;
- Lack of a well-coordinated response and recovery program;
- Lack of protection of the damaged monuments to prevent further deterioration;
- Lack of detailed investigations to determine the causes of failure and critical evaluation of the findings to support reconstruction proposals;
- Failure to develop a centralised database to store the data gathered and facilitate information sharing;
- Lack of planning for the ongoing care of the monuments through community engagement and participation;
- Lack of development of a social revitalization program; and
- Failure to seek assistance or advice from the Advisory Bodies regarding the recovery of the World Heritage property.

COORDINATED APPROACH TO RECOVERY AND RECONSTRUCTION (PARAGRAPH 11)

Given the immense scale of the disaster and the DoA's limited resources (human, technological and financial), it has been very difficult for the DoA to coordinate the recovery of the KVVHP across all

seven monument zones. Responsibility for the recovery has generally been delegated to site managers, local authorities and other community-based organisations involved in the day-to-day operations and management of the sites. However, the lack of a centralized management system has made the overall coordination very difficult. Coordination with the NRA and other ministries has also been difficult.

URBAN DEVELOPMENT PRESSURE (PARAGRAPH 12)

It was not possible within the timeframe of the mission to review the impacts of urban development on the monument zones. It was noted, however, that many traditional houses have been replaced with new concrete-framed structures and that a new water supply distribution system for the city is in the process of construction. Its impact on the KVWHP and its significant archaeological deposits has yet to be assessed.

4.2.2 MEASURES THE STATE PARTY PLANS TO TAKE TO PROTECT THE OUTSTANDING UNIVERSAL VALUE OF THE PROPERTY

The DoA proposes the following measures to protect the OUV of the property:

- To continue repair and reconstruction of monuments within the KVWHP in accordance with the DoA's Six Year Rehabilitation Plan and their current program of work;
- To coordinate works with the NRA, other ministries, local authorities, community groups and local and international partners;
- To review and assess recovery and reconstruction proposals presented by consultants and contractors;
- To continue calling for tenders for repair and reconstruction of monuments through the open tender process, but implementing strategies to ensure that appropriate conservation standards are met; and
- To hold a community meeting to determine community opinion regarding the future of the Lal Bhaitak (Rana style wing of the Bhaktapur Palace – National Art Museum).

4.2.3 PROPOSED MITIGATION AND CORRECTIVE MEASURES

The 2017 mission team proposes the following corrective measures to mitigate the threats to the property and to facilitate its recovery so that it meets the desired state of conservation:

1. As a matter of urgency, a **coordination framework** must be established that sets out clear management and reporting structures, roles and responsibilities for all stakeholders including the NRA, DoA, local authorities, steering committees for each of the monument zones and relevant community groups, clear lines of communication, and responsibilities for decision making, reporting, reviewing and approving recovery priorities and all works undertaken.
2. As a matter of urgency and as previously requested, a **Recovery Master Plan** must be developed for each monument zone in consultation with the relevant stakeholders. It must identify the attributes of OUV that will be recovered within each monument zone and those that will not. It must indicate priorities for recovery based on recovery of the both tangible and intangible attributes of OUV, and thus OUV of the KVWHP, as well as other national and local values and attributes.
3. As a matter of urgency, those monuments which have been seriously affected by the earthquakes and are still exposed and vulnerable to other hazards, such as the monsoon rains or further earthquakes, must be protected to prevent further deterioration of their significant fabric. Of particular concern is the Hanuman Dhoka Palace, including the Rana wings and Gaddi Bhaitak. In addition, the damaged monuments and salvaged building elements must also be protected from human interference, damage or theft.
4. As people are using the spaces in and around the damaged monuments, it is very important that appropriate protective measures are implemented to ensure their safety. Increased stabilization or protective measures may be required or exclusion zones implemented.
5. The Government of Nepal and the DoA must ensure that all recovery and reconstruction work undertaken within the boundaries of the KVWHP and its buffer zone passes through the normal approvals processes adopted for work within the KVWHP. This would include full

documentation of the proposed work, accompanied by well-documented evidence (all relevant evidence as set out in section 3.4.14 of this report) to justify any interventions, and a detailed assessment of the heritage impacts of the proposal. The approvals process should ensure that work undertaken does not unnecessarily destroy significant fabric and that the integrity and authenticity of the property are maintained in the recovery of attributes.

6. All major works must be referred to the DoA and the World Heritage Centre for approval prior to commencement. **major works** include works incorporating materials other than the original (eg change in mortar type), interventions into the bases of the monuments, as well as modifications to the superstructures, reconstruction in new materials (even though the original form is to be replicated), monuments to be reconstructed in a different form or style to the pre-earthquake structure, and any new development.
7. Monuments that are disassembled and then reassembled with damaged elements repaired using traditional materials and methods do not need to be referred to the World Heritage Centre, but should be referred to the DoA or the delegated authority for approval prior to commencement.
8. The DoA must provide copies of all planning documents to the World Heritage Centre for review and approval in accordance with a set of predetermined benchmarks and timeframes. Refer to Section 5.3 of this report.
9. The Government of Nepal and the DoA must agree on **quality control measures** to be adopted and implemented alongside the open tender system of procurement for all works undertaken within the KVWHP. This would include a certified system of prequalification for contractors to ensure that those tendering on work to monuments within the KVWHP have the expertise and experience to carry it out to the standard that would be expected of a world heritage property and a place of exceptional significance to the people of Nepal.
10. The DoA must ensure that **full and detailed documentation** showing the full extent of repair or replacement is prepared prior to calling tenders. The documentation should be reviewed by an experienced heritage architect prior to issue. If the contractor is required to undertake the research and design for the repair/reconstruction of a monument, all proposals must be reviewed and approved by DoA (and WHC if major works are proposed) prior to commencement.
11. The “Basic Guidelines on Conservation and Reconstruction of Heritages Damaged by Earthquake, 2016” (2072) must be included in all tender packages and the contractors must sign an agreement stating that they will abide by them.
12. The DoA must closely monitor work undertaken to ensure that it is being carried out in accordance with the approved documentation, the “Basic Guidelines on Conservation and Reconstruction of Heritages Damaged by Earthquake, 2016” (2072) and best international practice in heritage conservation.
13. The Government of Nepal must ensure that new urban infrastructure to be constructed within the KVWHP is referred to the DoA for review and comment. Every effort must be made to minimise impacts on the KVWHP and its significant attributes, which include the public squares and streets, as well as the monuments, houses, other structures and subsurface archaeology.
14. It is recommended that the HUL (Historic Urban Landscape) approach be used for managing development within the KVWHP monument zones and buffer zones. This may be the subject of a possible workshop with site managers and community stakeholders. <http://historicurbanlandscape.com/themes/196/userfiles/download/2016/6/7/wirey5prpznidqx.pdf>
15. With international assistance, a secure centralized **data management system** needs to be progressed as soon as possible to enable the DoA to coordinate activities within the KVWHP more efficiently and effectively, and to enable information sharing between authorities and sites.
16. The DoA should seek a less contaminated supply of clay for brick production and use in mud mortar and consider setting a minimum standard for salt content in clay and bricks to be used in the rehabilitation of the KVWHP.

17. The DoA and other relevant authorities must ensure that the standard rituals undertaken at commencement, during and on completion of construction work are able to be carried out by the local community with the support of the building contractors.
18. The DoA must actively involve local communities in the decision making and recovery of the monuments, particularly those that are important public or community structures, such as Kasthamandap. The important role of the community in the long term management and maintenance of these structures must be recognized and consideration given to establishment of a modern form of Guthi with an appropriate fund to enable their ongoing care and maintenance.
19. The DoA, in consultation with site managers, local communities and emergency response organisations, must develop and implement a **Disaster Risk Management Plan** for each of the monument zones.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

The 2017 Reactive Monitoring mission has reconfirmed that the Kathmandu Valley World Heritage property (KVWHP) was severely damaged by the 2015 earthquakes, seriously affecting many of its significant attributes and putting the integrity, authenticity and OUV of the property at risk. Furthermore, the 2017 mission has confirmed that the KVWHP is facing serious deterioration of its architectural and town-planning coherence during the recovery process, leading to further impacts on the integrity and authenticity of the World Heritage property. It is acknowledged that the State Party of Nepal has undertaken a considerable amount of work to recover the property, yet the scale of the disaster and the response required are considered to exceed by far the capacity and resources of the Department of Archaeology (DoA).

The mission found that the extent of damage for each of the seven monument zones varied greatly and that the scope and quality of the recovery has also been variable.

To date, some significant attributes of the property have been recovered, including the Bouddanath Stupa, the Patan Palace Museum and several temples. But in many cases, such as that of the Hanuman Dhoka Palace, the work has barely begun, with inadequate protection being provided to the monuments and salvaged elements still awaiting repair. New housing and commercial development in Swayambu, Pashupati and Changu Narayan are contributing to the degradation of both the historic built and natural environments of the monument zones, and management of reconstruction and development in the buffer zones is very weak across the whole World Heritage property.

The traditional houses with their ground floor shops are attributes that were already threatened by urbanization and modern development and have suffered severely from the earthquakes and the recovery process: most of the severely damaged buildings were demolished and replaced with new concrete-framed buildings. Although the new buildings are brick clad and incorporate carved window elements, they are often taller than their historic counterparts and many have flat roofs in place of the traditional steeply pitched roofs. Very few of the traditional houses are being repaired, despite local monetary incentives. This has affected most of the monument zones, and more particularly Changu Narayan, Bhaktapur, Pashupati and Hanuman Dhoka. It must be noted that these houses. Thus the traditional urban house is seriously under threat in the post-earthquake recovery.

It is acknowledged that the Government of Nepal has done a great deal to rescue important artefacts and, with the help of the international community (ICCROM, ICORP and many others) to provide capacity building for site managers, artisans, local professionals and local community members, in an effort to improve the protection and repair of the monuments. However, in general, there does not seem to be a systematic approach to documenting and assessing the damage to the monuments or mapping the damage across the seven monument zones, nor has a centralized database of information been established. Although conservation guidelines have been prepared, no recovery plans have developed, in consultation with local community stakeholders, to guide the work in each of the monument zones.

Unfortunately, the recovery and reconstruction processes added new threats to the integrity and authenticity of the property. This has occurred through uncontrolled and poor-quality reconstruction work, which in many cases involved major interventions resulting in considerable loss of significant fabric. In many instances, the work undertaken has not been based on a good understanding of the traditional construction materials and techniques, nor have they been justified through detailed assessment of the sites, including the ground conditions around the monuments, archaeological remains (both structural and artefacts), condition of the urban fabric, historical records and past interventions. Thus, crucial assessment of the evidence appears to be missing across almost all sites, causing solutions to be proposed and implemented before the significance of the fabric or the causes of failure have been properly identified. In addition, the impact of the interventions on the significant fabric of the monuments, the property's OUV and its attributes have not been assessed, resulting in the loss of significant fabric and archaeological remains.

The apparent lack of an agreed understanding of what constitutes the attributes of OUV and what is meant by 'recovery of OUV' is a concern. The systematic removal of 19th-century Rana-style and early 20th-century neo-classical-style buildings and their replacement with Malla-style buildings

(considered locally as proper Newari buildings) fails to recognize the importance of retaining all the historical layers of the property and the effect that their removal has on the integrity and authenticity of the property. Furthermore, the very limited documentation and assessments of the damage, the failure to implement a clear process to analyse the restoration and reconstruction methods to be used and the proposed interventions, together with the inexperience of building contractors in traditional construction and building conservation methodologies, has resulted in poor-quality reconstruction, the uncontrolled introduction of inappropriate new materials and the implementation of destructive interventions, resulting in the loss of significant building fabric, particularly in the monument bases. Thus, the recovery process has contributed a further threat to the OUV of the property.

The mission identified the following major threats to the property, its OUV and attributes of OUV, which have arisen through the recovery process:

- Poor coordination between the DoA, the National Reconstruction Authority, site managers, local communities and various project partners (local and international);
- Lack of capacity (architectural expertise and experience in heritage conservation) and resources (human, technological and financial) within the DoA to enable it to manage the post-disaster recovery efficiently and effectively;
- Lack of a recovery master plan for each of the monument zones, focusing on community needs and recovery of the OUV through the recovery of its attributes, both tangible and intangible;
- Lack of protection for severely damaged monuments, to ensure that they suffer no further deterioration (particularly the Hanuman Dhoka palace and the surviving houses in Bhaktapur);
- Lack of adequate documentation of the damage to the monuments caused by the earthquake;
- Lack of adequate record keeping, including centralized collection and storage of all relevant documents relating to the KVVHP;
- Lack of evidence and values-based decision making for the recovery of monuments, resulting in substantial loss of historic fabric and subsurface archaeology due to major interventions;
- Use of inappropriate construction methods and materials as a result of the open tender system used for the recruitment of contractors to undertake the repair and reconstruction of the monuments;
- Lack of adequate monitoring of the work in progress to ensure that appropriate standards are met; and
- Inadequate planning with local communities in relation to the recovery, as well as ongoing management, care and maintenance.

The mission considers the following to be of particular concern:

- The lack of sufficient coordination between the DoA, the Hanuman Dhoka Durbar Museum Corporation and the various project partners responsible for the rehabilitation, strengthening and conservation works to the Hanuman Dhoka Palace;
- The low quality of the clay used for brick production;
- The loss of mud mortar as a key attribute of OUV for the KVVHP, particularly in relation to the tiered temples;
- The proposed reconstruction of Kasthamandap in Hanuman Dhoka Durbar Square, which may result in the loss of exceptionally significant early fabric in its brick base and is the subject of dispute with the local community;
- The potential demolition of the Lal Bhaitak wing of the National Art Museum (Bhaktapur Palace) and its replacement with a building replicating that of an earlier period (pre 1858) the design of which will be based partly on conjecture;
- The loss of traditional housing in all urban monument zones and ancient settlements;
- The potential impact of new urban infrastructure on subsurface archaeology within the monument zones;
- New and uncontrolled urban development within the monument and buffer zones; and
- The potential impact of the proposed new ring road extension around the Pashupati Monument Zone on various monuments in close proximity to it.

5.2 RECOMMENDATIONS TO THE WORLD HERITAGE COMMITTEE

The Reactive Monitoring mission recommends that:

1. The World Heritage Property “Kathmandu Valley” be placed on the List of World Heritage in Danger, and that a Desired State of Conservation for the removal of the property from the List of World Heritage in Danger be agreed upon, along with appropriate Corrective Measures and a timeframe for their implementation. The property would ultimately be removed from the List of World Heritage in Danger when the Committee considers that the corrective measures have been implemented and the property has been returned to an agreed desired state of conservation.
2. The international community be mobilized to assist the State Party in its recovery of the KVWHP. This may include, but is not limited to, the provision of further capacity building, particularly in relation to the development of a secure centralized and accessible digital database for the management of all documents pertinent to the property and the recovery process, and the development of an overall Recovery Plan for the property, as well as individual Recovery Plans for each of the Monument Zones. Such plans must be linked to wider social and economic parameters and it is suggested they should reflect a Historic Urban Landscape (HUL) approach to urban development within the KVWHP and its buffer zones.
3. An International Advisory Committee of experts from UNESCO and the Advisory Bodies be established to advise the Government of Nepal and the DoA throughout the recovery and reconstruction process. The Advisory Committee should review, critically evaluate and advise on the key recovery planning documents for the property and major proposed projects. This mechanism would operate in collaboration with international and national experts to enhance resilience of post-disaster heritage restoration in Nepal. This assistance could be dispensed either through ad hoc Advisory Committee meetings or by providing advice on strategies in such serious post-disaster situations.
4. The International Advisory Committee provide feedback to DoA in a timely manner, so as not to unreasonably delay the progress of the recovery.
5. Works to Kasthamandap, located in Hanuman Dhoka Durbar Square, the Hanuman Dhoka Palace (all portions) and the Lal Bhaitak wing of the National Art Museum, Bhaktapur, be reviewed by the International Advisory Committee before any works begin on site and before any irreversible decision is made, and that the works be halted if the evidence provided for the proposed works is inadequate, and that new proposals be prepared to support the recovery of the attributes and OUV property and minimize the loss of significant heritage fabric.
6. The proposed extension of the ring road around the Pashupati Monument Zone be reviewed by the World Heritage Centre and the Advisory Bodies, and notably its potential impact on the KVWHP, with the view to proposing suitable mitigation measures.
7. Corrective measures be implemented to ensure that the KVWHP, its OUV and attributes of OUV, its integrity and authenticity are recovered in a way that prevents further loss to the property and ensures that the latter can reach the agreed desired state of conservation.
8. The measures defined in Section 4.2.3 of the present report be implemented, as the DoA has failed to respond adequately to the recommendations of the 2015 Reactive Monitoring mission and the requests for information from the WHC and the Advisory Bodies since then. Submissions should be made to the WHC for review by the International Advisory Committee, in accordance with the program included in Section 5.3.

5.3 CORRECTIVE MEASURES

5.3.1 CORRECTIVE MEASURES AND TIMEFRAME FOR THEIR IMPLEMENTATION

In order to ensure progress with the recovery of the property, the State Party and the DoA should implement the following Corrective Measures and make sure that the necessary documents are submitted within the timeframe included in the following programme:

Item No.	Action	Submission to WHC	Submission Date
1.	Develop a coordination framework that sets out the coordination structure, roles and responsibilities of the various parties engaged in the recovery (including national, local and international parties), lines of communication, coordination meetings, and the review and approvals processes for the recovery of the KVWHP and any related works including urban infrastructure and new development within the property and its buffer zones. Refer to section 3.2.1 of this report for coordination needs.	Coordination Framework	1 September 2017
2.	Grant increased protection to damaged monuments, particularly those that are not included in the current program of work, to minimise any future deterioration of the heritage fabric. Additional safety measures should be implemented to ensure the safety of both locals and visitors to the sites.	Evidence of the implementation of protective measures , including the covering of severely damaged monuments and building components exposed to the weather.	1 September 2017
3.	Review impacts of the earthquakes on the attributes (both tangible and intangible) of each monument zone and thus on the OUV for the property. Identify and map the attributes that can and will be recovered using the surviving fabric and which cannot without be replaced as new because of the extent of damage.	Maps of the monument zones showing the extent and scale of damage experienced. Maps of the monument zones showing potential for recovery (i.e. which monuments can be recovered and which cannot.) Impact Statement concerning the consequences of the earthquakes on the attributes of OUV in each monument zone.	1 September 2017
4.	Prepare a Recovery Master Plan for the whole property and for each Monument Zone, mapping the recovery of the monuments and indicating whether they are of short-, medium- or long-term priority. Base priorities on condition, recovery of attributes and values, and community needs. Goals, benchmarks and timeframes for the recovery should be clearly identified. <i>Please note:</i> timeframes should be realistic, with the expectation that detailed research and documentation is required and that the standards for craftspeople must be high. The timeframes should not necessarily be set to meet the Government's six-year recovery program.	Recovery Master Plans for the whole property and for each Monument Zone, including a statement of recovery goals, benchmarks, timeframes and maps showing the monuments to be recovered and indicating whether they are programmed for recovery in the short, mid- or long term.	1 September 2017

Item No.	Action	Submission to WHC	Submission Date
5.	All major works projects must be reviewed and approved by the WHC and the Advisory Bodies. Works incorporating materials other than the original (e.g. change in mortar type), interventions into the bases of the monuments, as well as modifications to the superstructures, reconstruction in new materials (even though the original form is to be replicated), monuments to be reconstructed in a different form or style to the pre-earthquake structure, demolition, relocation or any new development fall into this category.	Documentation , including evidence for proposed interventions and Heritage Impact Assessments for: - all major works for projects undertaken in the recovery; - projects already commenced or in tender or contract phase;	1 September 2017
		projects in planning phase.	Approval must be granted prior to commencement of any works.
	Halt any demolition and excavation works on projects that have not been approved by WHC until such approval is given.	Halt work on unapproved major works projects	Immediately
6.	Halt all work in relation to Kasthamandap and Lal Bhaitak (National Art Museum, Bhaktapur) until approvals have been given by the WHC.	Halt all demolition, excavation and construction works on Kasthamandap and Lal Bhaitak	Immediately
		Provide full documentation , including evidence for proposed Interventions and Heritage Impact Assessments for the proposed works.	1 September 2017
7.	Establish quality control measures to be implemented, including in conjunction with the open tender system of procurement, to ensure that the monuments are repaired and reconstructed in accordance with best practice and that the work is undertaken by appropriately experienced master craftspeople with specialist expertise in the use of traditional materials and traditional methods of construction.	Adopted Quality Control System including: criteria for prequalification of contractors, quality documentation being provided for tender and construction purposes, contract conditions including adherence to the “Basic Guidelines on Conservation and Reconstruction of Heritages Damaged by Earthquake, 2016”, and monitoring of work in progress.	1 September 2017
8.	Coordinate with NRA and infrastructure providers regarding the construction of the new water supply system through the property. Review proposals and provide feedback to the authorities, identifying heritage impacts on the KVWHP and its attributes, including the subsurface archaeology, the monuments and other structures, paving and streetscape. Negotiate the most acceptable route with the authorities prior to its implementation. Develop protective and mitigation measures to be implemented during construction including archaeological monitoring, recording and salvage.	Plans for installation of new water supply system through the property , Heritage Impact Statement and Mitigation Measures to be implemented during construction.	As soon as route is identified and agreed with DoA.
9.	Undertake further research into the historic use of mud mortar and lime mortar and their specific use in different types of monuments. Review the impact of the use of lime mortar on monuments during the recent earthquakes. Refer to discussions in this report.	Research evidence on the historic use of lime and mud mortar and the impact of their use on the seismic performance of the tiered temples and on the OUV.	1 September 2017

Item No.	Action	Submission to WHC	Submission Date
10.	Develop a secure, centralized and accessible Data Management System to enable more effective and efficient coordination of the recovery as well as information sharing between authorities and individual projects and consultants.	Evidence that Data Management System is loaded with information relating to the recovery of the property and:	
		• Fully operational within the DoA	1 December 2017
		• Accessible to others	1 February 2018
11.	Develop a Risk Management Framework for the World Heritage property. In consultation with local Site Managers, communities and emergency responders, prepare a Disaster Risk Management Plan for each of the monument zones.	• Risk Management Framework for the World Heritage Property	1 February 2018
		• Disaster Risk Management Plan for each Monument Zone	1 February 2019

5.4 INCLUSION ON THE LIST OF WORLD HERITAGE IN DANGER

The World Heritage property of the Kathmandu Valley is a very special place, highly valued by the people of Nepal and the international community.

Given the scale and scope of the damage experienced in all seven monument zones, the immense complexity of the situation across many of the monument zones, the extent of the degradation for housing and traditional commercial properties within the historic urban areas and ancient settlements, and the lack of an adequate protection for many of the damaged areas and structures, the mission team is of the view that, notwithstanding the good measures taken by the State Party, the recovery process is not currently adequate to deal with the major challenges that have arisen after the earthquake. The recovery has not been well planned or coordinated and the work is not being carried out on the basis of sufficiently detailed evidence, with the objective of retaining as much of the surviving fabric and recovering the attributes of OUV. In many cases, the recovery fails to respect the historic foundations of the monuments, attributes that are critical to maintaining their integrity and authenticity, and disregard the archaeological resources that provide evidence of the buildings' historical development over the centuries. In some cases, the recovery process also fails to respect the traditional construction methods, materials, knowledge and practices used to create and maintain the monuments. All of this is impacting adversely on OUV and has potential to inflict even greater damage.

In view of these considerable, potential and ascertained threats, the mission considers that the recovery process requires greater input from and collaboration with the international community, and that there is an urgent need for the development of a coherent and coordinated Recovery Plan.

To this end, it is the opinion of the Reactive Monitoring mission that the best way forward for the protection and recovery of the property is that it be placed on the List of World Heritage in Danger. This will enable greater mobilization of the international community and its extensive network of experts and resources to assist the Government of Nepal in providing the necessary care for the property.

The 2017 Reactive Monitoring mission reconfirmed that the Kathmandu Valley was severely damaged by the 2015 earthquakes and that many of its important attributes were affected, putting the integrity, authenticity and OUV of the property at risk.

The scale and scope of the recovery process are currently inadequate to deal with the potential and ascertained threats. Progress will require collaboration with the international community, and **it is therefore recommended that, in accordance with Paragraphs 177 and 179 of the Operational Guidelines, the World Heritage Committee consider inscribing the property 'Kathmandu Valley' on the List of World Heritage in Danger at its 41st session in July 2017.** An inscription on the List of World Heritage in Danger is considered to give the best prospect for the recovery of the property, its OUV, attributes, integrity and authenticity.

ANNEXES

Annex I:	World Heritage Committee Decision 40 COM 7B.41 (Istanbul, 2016)
Annex II:	Terms of Reference
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ANNEX I: WORLD HERITAGE COMMITTEE DECISION **40 COM 7B.41**

Decision adopted by the World Heritage Committee at its 40th session (Istanbul, July 2016)

Kathmandu Valley (Nepal, C 121 bis)

Decision: 40 COM 7B.41

The World Heritage Committee,

1. Having examined Document WHC/16/40.COM/7B.Add,
2. Recalling Decision 39 COM 7B.69, adopted at its 39th session (Bonn, 2015),
3. Acknowledges the efforts of the Department of Archaeology, with the support of UNESCO and various donors and agencies, to respond to the effects of the April/May 2015 earthquakes;
4. Notes that all seven monument zones have suffered extensive damage from the earthquakes of April-May 2015, which resulted in adverse impacts on attributes, authenticity, integrity and management of the property and put its Outstanding Universal Value (OUV) at risk;
5. Also notes that earthquakes are a regular feature of the Kathmandu Valley, and that the “cyclical renewal” carried out by craftspeople, using traditional processes and materials, has sustained the heritage values of the property over time;
6. Considers that a renewal process could help restore some of the attributes affected by the earthquake, thereby reducing the impact on the OUV, but emphasizes that this work must be based on a review and analysis of precisely what has been damaged and could be recovered, of what has been lost and will need to be replaced by new structures, as well as on a clear understanding of the attributes of OUV for each monument zone and how each has been impacted;
7. Urges the State Party to develop, in full engagement with local community groups, including traditional Guthis and others, a carefully-designed Recovery Master Plan (RMP) supported by guidelines to identify what attributes of OUV can be recovered, how choices are justified, and how the recovery work will be phased and undertaken. The RMP should facilitate the appropriate use, management and maintenance of the sites, in accordance with the OUV of the property and with other local and national values;
8. Also urges the State Party to integrate the RMP within an overall socio-economic revitalisation programme for urban communities, to encourage residents and local businesses to engage in the recovery process and to ensure that it delivers wide-ranging social and economic benefits;
9. Requests the State Party to review the Integrated Management Plan (IMP) for the property, taking into consideration the damage caused by the earthquakes, its impact on the OUV of the property and the provisions of the RMP, and to prepare a plan of action to build capacity through coordination of local and international expertise, training programmes for both heritage principles and master crafts and a scheme to foster long-term sustainability through the provision of reasonable remuneration and long-term employment;
10. Takes note of the report provided by the 2015 Reactive Monitoring mission and also requests the State Party to implement all its detailed recommendations as appropriate;
11. Notes with concern the need for a coherent, consistent and coordinated approach by national institutions for adequate response from the State Party in pursuing recovery and reconstruction of the heritage property;

12. Further notes the dimensions of the recovery task and the potential for the property to be subject to considerable pressure to rebuild within the monument and buffer zones using new approaches and technologies, and to use contractors with inadequate experience and familiarity with traditional materials and local processes, all of which could have considerable adverse impacts on the OUV of the property;
13. Taking into account all of the above-mentioned potential threats and the ascertained threats to the property's OUV caused by the immediate impacts of the 2015 earthquakes, further requests the State Party to invite a joint World Heritage Centre/ICOMOS/ICCROM Reactive Monitoring mission to further define corrective measures and to ascertain the progress accomplished by the State Party;
14. Calls on the international community to continue providing support for both the short-term protection and emergency safeguarding measures and the long-term conservation of the property, which are both necessary to maintain the OUV of the Kathmandu Valley;
15. Requests furthermore the State Party to submit to the World Heritage Centre, before any irreversible decision is made, detailed information about any major restoration, rehabilitation or reconstruction works foreseen within and in the vicinity of the property, for review by the Advisory Bodies in accordance with Paragraph 172 of the Operational Guidelines;
16. Finally requests the State Party to submit to the World Heritage Centre, by 1 February 2017, an updated report on the state of conservation of the property and the implementation of the above, for examination by the World Heritage Committee at its 41st session in 2017, with a view to considering, in the absence of significant progress, the possible inscription of the property on the List of World Heritage in Danger.

ANNEX II: TERMS OF REFERENCE FOR REACTIVE MONITORING MISSION

Terms of Reference for a joint World Heritage Centre/ICOMOS/ ICCROM Reactive Monitoring mission to the Kathmandu Valley (Nepal) (C121bis)

20-25 March 2017

At its 40th session, the World Heritage Committee requested the State Party of Nepal to invite a joint World Heritage Centre/ICOMOS/ICCROM Reactive Monitoring mission to the Kathmandu Valley in Nepal (Decision 40 COM 7B.41). The objective of the Reactive Monitoring mission is to consider the implementation of the recommendations of the WHC/ICOMOS/ICCROM Reactive Monitoring mission to Nepal carried out in October-November 2015 and of the afore-mentioned Committee Decision 40 COM 7B.41, in particular to consider how the attributes of Outstanding Universal Value (OUV) damaged in the earthquake might be recovered through appropriate reconstruction.

The mission will also monitor the overall state of conservation of the property and how work to recover OUV relates to the wider social and economic recovery of the Kathmandu Valley.

The mission will be led by Dr Feng Jing, representing the World Heritage Centre, Ms Catherine Forbes, representing ICOMOS and Prof Lyu Zhou, representing ICCROM.

In particular, the mission should explore the following issues with the State Party:

1. How, through survey and analysis, an overall assessment can be made of the damage to the attributes of OUV for each of the monument zones as well as of attributes that have survived;
2. How options for the recovery of damaged or destroyed attributes can be explored and evaluated for their effectiveness in contributing to OUV and in supporting attributes that have survived;
3. How, in full cooperation with local communities and other stakeholders, an overall coordinated Recovery Master Plan for the property can be prepared for all the monument zones that sets out how the recovery work will be undertaken and phased, how it will be coordinated and consistent and how it will be supported by national institutions;
4. How Guidelines might be developed to guide the delivery of the Master Plan;
5. How the Recovery Master Plan will be linked to a wider socio-economic revitalisation programme for the whole Kathmandu Valley, and how the recovery of attributes of OUV can deliver social and economic benefits;
6. How a recovery programme can be linked to capacity building for local crafts and others through the coordination of local and international expertise, training programmes for both heritage principles and master crafts and schemes to foster long-term sustainability through the provision of reasonable remuneration and long-term employment;
7. How the Integrated Management plan might be updated and linked to the Recovery Master Plan for the property.
8. How the Recovery Master Plan can define Corrective Measures necessary to address the damage to OUV caused by the earthquake.

The State Party should facilitate necessary field visits to key locations. In order to enable preparation for the mission, it would be appreciated if the following items could be provided to the World Heritage Centre (copied to ICOMOS) as soon as possible and preferably no later than 28 February 2017:

1. Brief progress report on work so far undertaken to record and document damage, including damage to intangible attributes;
2. Progress report on offers of help to support the reconstruction of damaged areas;
3. Progress report on work so far undertaken and being planned.

The mission should also hold consultations with the Nepali authorities at national, municipal and site levels.

Based on the results of the above-mentioned assessments and discussions with the State Party representatives and stakeholders, the mission will develop recommendations for the Government of Nepal and the World Heritage Committee with the objective of providing guidance to the State Party for actions to be taken to recover attributes of OUV.

The mission will prepare a concise report on the findings and recommendations within six weeks following the site visits, following the World Heritage Centre Reactive Monitoring mission report Format.

ANNEX III: MISSION SCHEDULE

MISSION SCHEDULE - MARCH 2017	
Monday, March 20, 2017	
	Arrival of the Mission Team

Tuesday, March 21, 2017	
Time	Programme
9:45 -10:45	UNESCO, meeting with UNESCO Head and related staffs
11:00-11:45	Meeting with DOA - DG, WH Section, related DoA staffs
11:45: 1:00	Meeting with DOA staff and Representatives from Municipalities
1:00-2:00	Lunch
2:00-5:00	Field Visit-Hanumandhoka Durbar Square and PMZ

Wednesday, March 22, 2017	
9:30	Departure from Hotel
10:30-11:30	Field Visit-Changunarayan
12:00-1:30	Field Visit-Bhaktapur Monument Zone
1:30-2:15	Lunch
2:15	Departure for Patan Field Visit
3:00-5:00	Field Visit-Patan Durbar Square and PMZ
6.30 onwards	Dinner hosted at the Residence of Christian Manhart, UNESCO Representative to Nepal

Thursday, March 23, 2017	
9:30	Departure from hotel
10:00-12:00	Field Visit-Swayambhu Hill top and PMZ
12:00-1:00	Lunch
1:00-3:30	Field Visit-Pashupati PMZ
4:30-5:30	Field Visit-Bauddha PMZ

Friday, March 24, 2017

10:00-4:30	Stakeholder's meeting/Workshop for Kathmandu Valley on Post Earthquake Conservation, Reconstruction and Rehabilitation - CWC members, Site Managers, Representatives from Ministry of Culture, Tourism and Civil Aviation, Guthi Corporation, National Reconstruction Authority, Department of Urban Development and Building Construction, Municipalities, Experts and related stakeholders (locals) (Program schedule will be provided same day)
17:00	De-briefing - DOA/UNESCO

Saturday, March 25, 2017

	Team prepare the Draft Report Jointly in the Hotel & Departure of the Mission Team in the late evening/night
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ANNEX IV: MISSION TEAM

The mission team was composed of the following members:

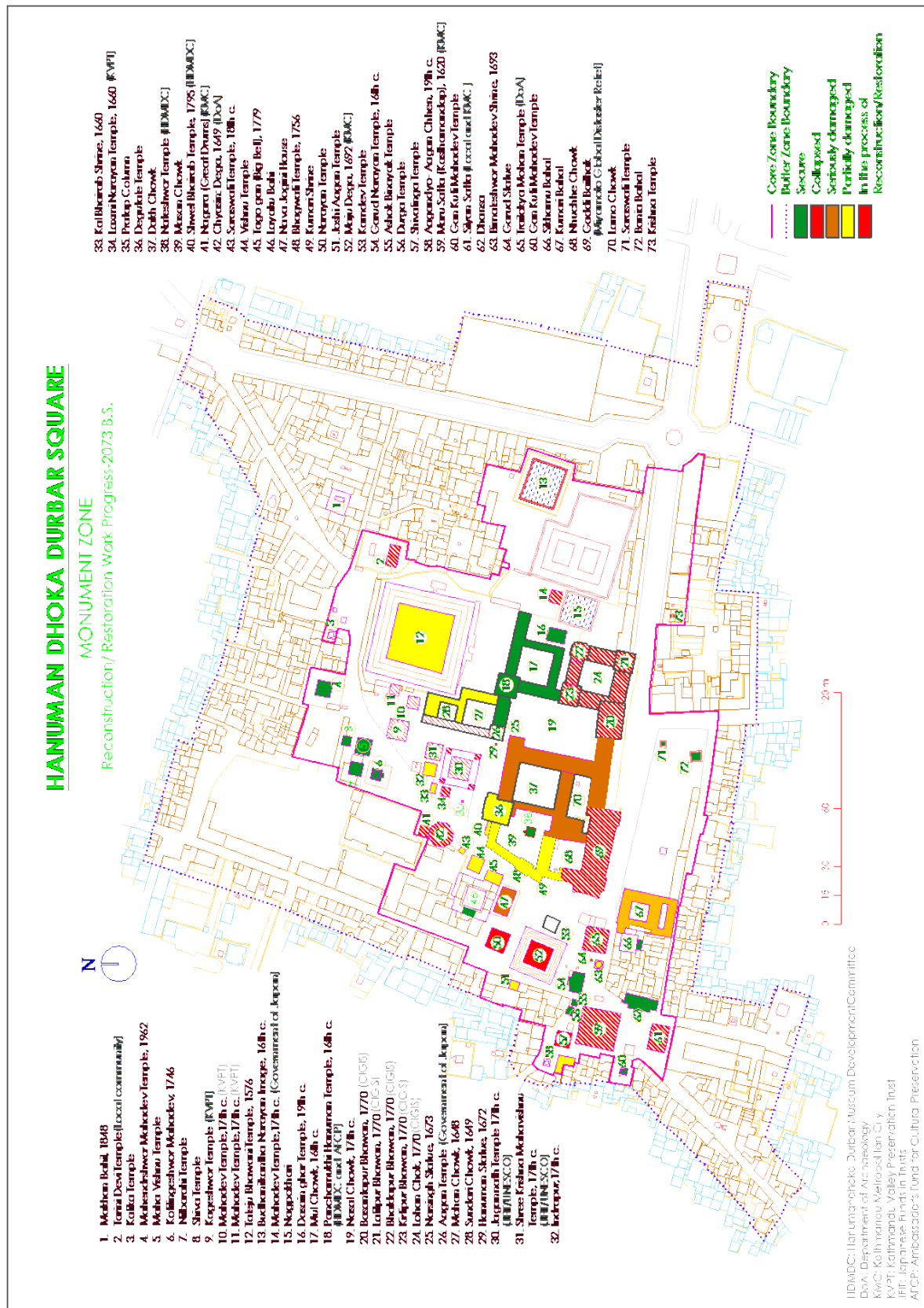
1. Dr. Feng Jing, Chief, Asia and the Pacific Unit, UNESCO World Heritage Centre (Paris)
2. Mrs Catherine Forbes (Australia), representing ICOMOS International
3. Mr Lyu Zhou, Professor of Tsinghua University (China), representing ICCROM.

ANNEX V: PEOPLE MET DURING THE MISSION

Representatives of the Government of Nepal, sites managers and experts:

1. H. E. Mr Parashuram Tamang, State Minister of Culture, Tourism and Civil Aviation, Nepal
2. Mr Shankar Prasad Adhikari, Secretary of Culture and Chairman of Nepal Tourism Board
3. Bhesh Narayan Dahal, Director-General, Department of Archaeology (DoA) Nepal
4. Suresh Suras Shrestha, Chief Archaeological Officer, Chief of World Heritage Conservation Section, DoA Nepal
5. Christian Manhart, UNESCO Representative to Nepal and Head of UNESCO Office in Kathmandu
6. Debendra Bhattarai, Archaeological Officer, DoA NepalSampat Ghimire, Senior Divisional Engineer, DoA Nepal
7. Thomas Schrom, UNESCO Consultant for cultural heritage coordination
8. Nipuna Shrestha, Culture Unit, UNESCO Office in Kathmandu
9. Sujan Shrestha, UNESCO Consultant (Structure engineer)
10. Kai Weise, ICOMOS/Nepal
11. Dr Rohit K. Ranjitkar, Nepal Program Director, Kathmandu Valley Preservation Trust
12. Saraswati Singh, Chief of Hanuman Dhoka Museum Development Committee
13. Narayan Babu Bhattarai, Chief of Heritage Division, Kathmandu Metropolitan City (KMC)
14. John Sandy, Chairman, Jonh Sanday Associates, Kathmandu, Nepal
15. Mangala Pradhan, Chief of Monument Conservation and Palace Maintenance Office, DoA Site Office, Bhaktapur
16. Mohan Krishna Shrestha, Engineer, Chief of Monument Conservation and Palace Maintenance Office, DoA Site Office, Bhaktapur
17. Mrs Chandra Shova Shakya, Chief of Heritage, Culture and Archaeology Conservation Centre, Lalitpur Sub Metropolitan City
18. Mahendra Ratna Buddhacharya, Secretary-General (volunteer engagement), Federation of Swayambhu Management and Conservation (FSMC), also from local Priest community
19. Pynya Sagar Yonja, Treasurer, FSMC
20. Panna Kaji Buddhacharya, Secretary, FSMC
21. Dr Govind Tandon, Member Secretary, Pashupati Area Development Trust (PADT)
22. Rajendra Dhar Rajopadhyaya, Deputy Director, PADT
23. Sampooru Kumar Lama, Chairman, Bauddha Nath Area Development Committee (BNADC)
24. Chakrajit Moktan, Member, BNADC
25. Kosh Prasad Acharya, former Director-General of DoA/ Nepal
26. Bishnu Raj Karki, former Director-General of DoA/Nepal
27. Ambica Shrestha, President, Nepal Heritage Society
28. Tadatsugu Tai, Expert, JICA Nepal Office
29. Susanne Von Der Heide, Founder, Asia/Himalayan Foundation

ANNEX VI: MAPS OF MONUMENT ZONES

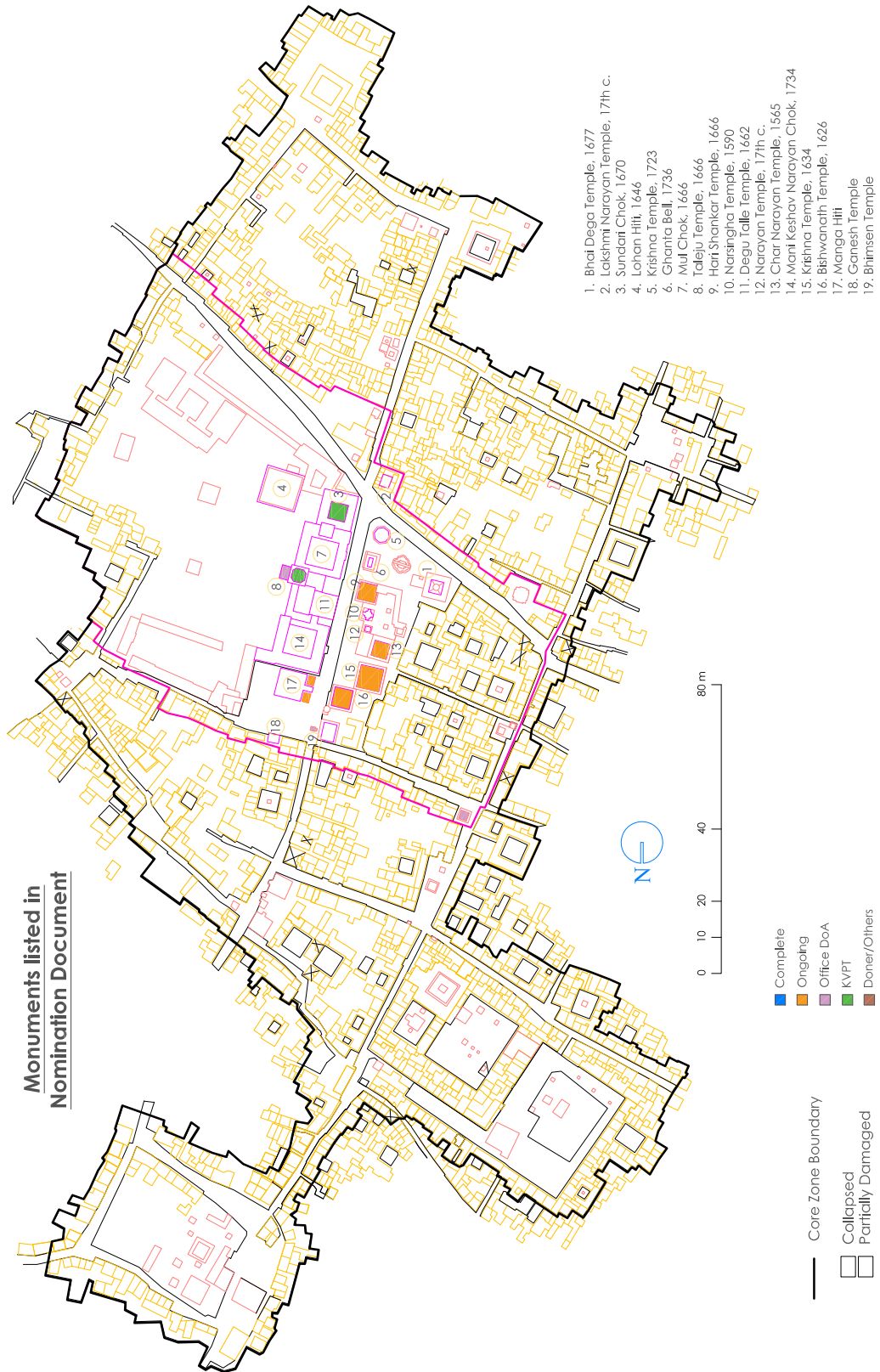


Maps showing Works Currently being Undertaken in the Monument Zones provided by DoA

PATAN DURBAR SQUARE

MONUMENT ZONE

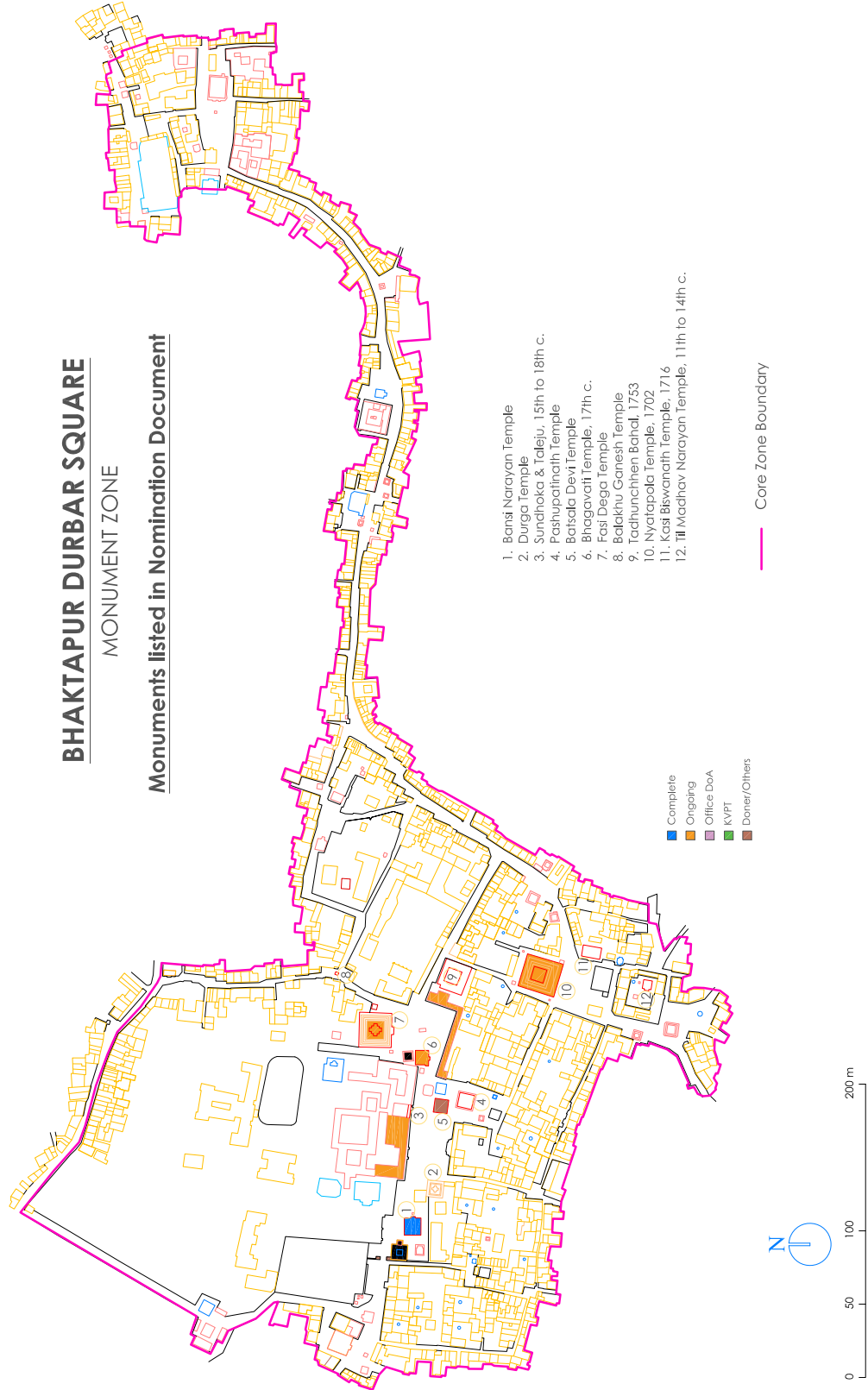
Monuments listed in Nomination Document



BHAKTAPUR DURBAR SQUARE

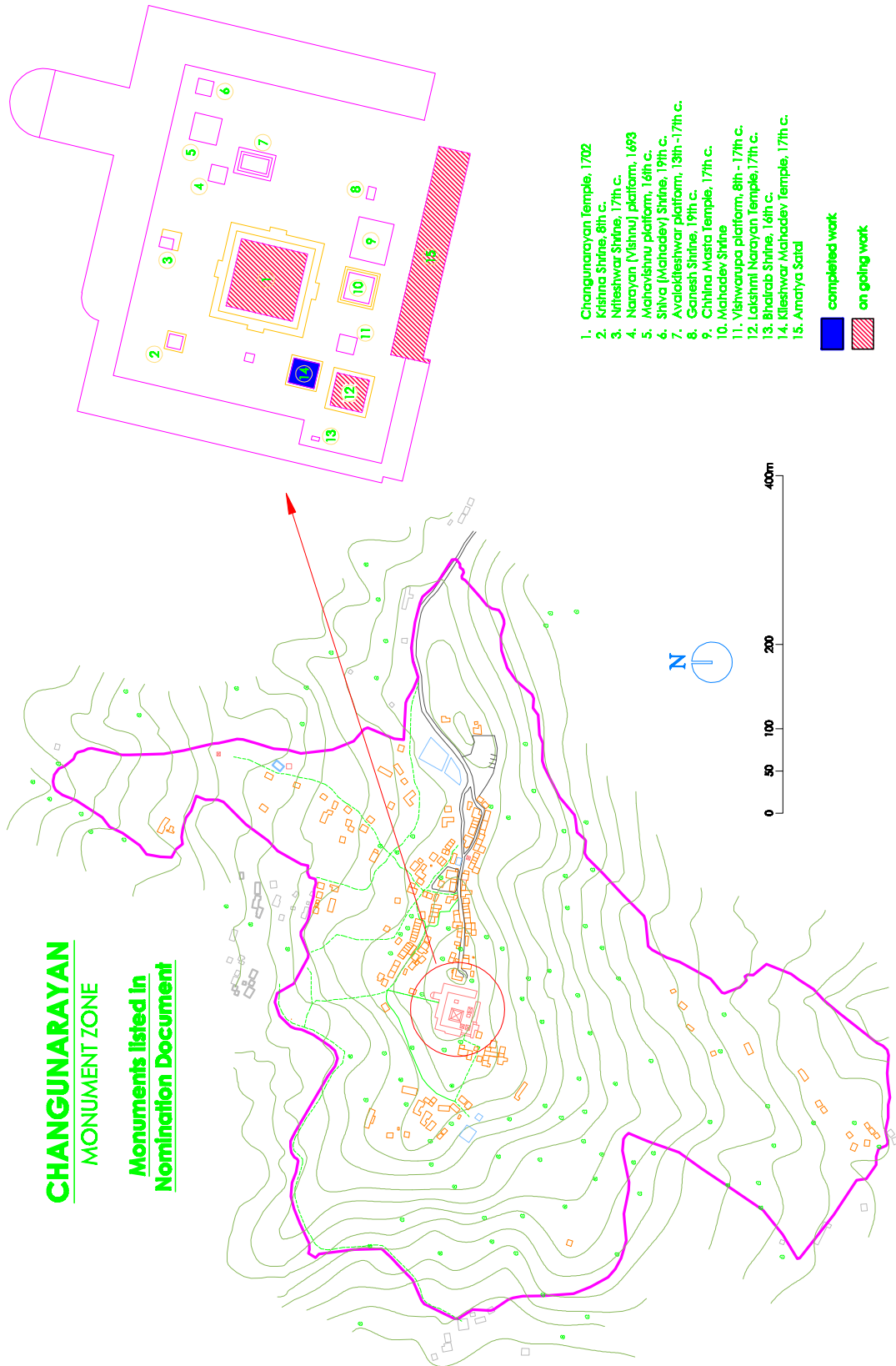
MONUMENT ZONE

Monuments listed in Nomination Document



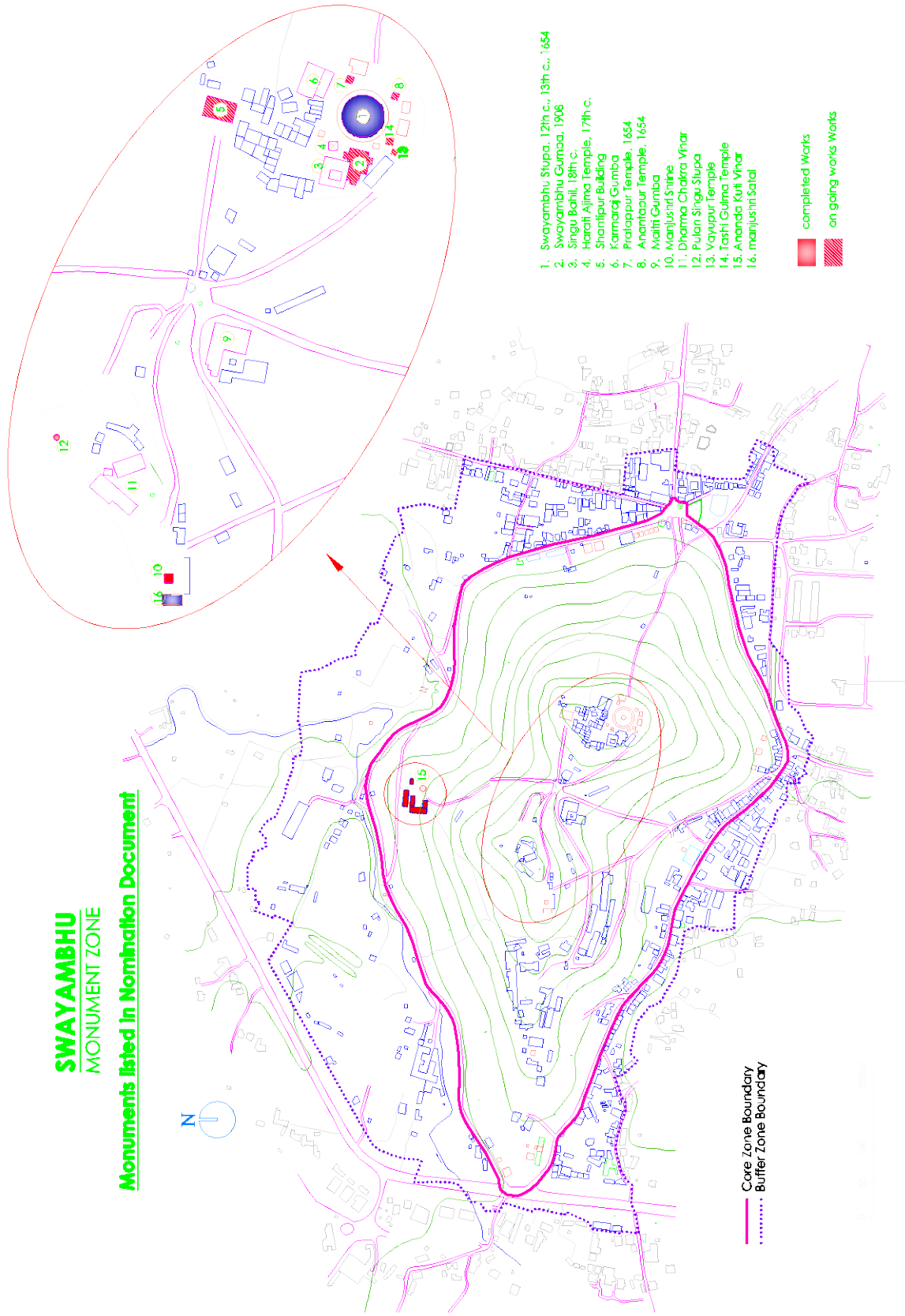
CHANGUNARAYAN MONUMENT ZONE

Monuments listed in Nomination Document

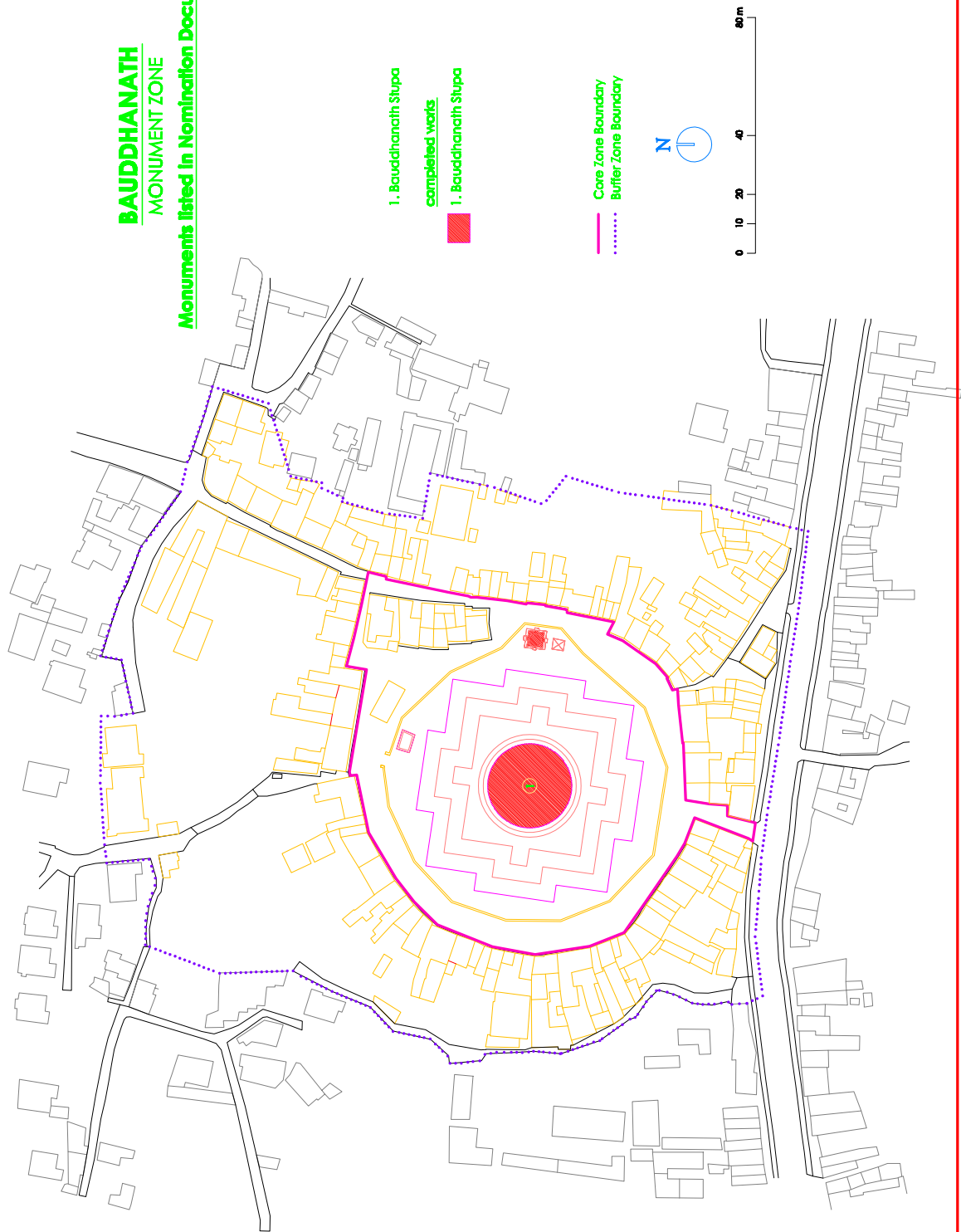


SWAYAMBHU MONUMENT ZONE

Monuments listed in Nomination Document



BAUDDHANATH
MONUMENT ZONE
Monuments listed in Nomination Document



ANNEX VII: PHOTOGRAPHS FROM THE MISSION (MARCH 2017)

HANUMAN DHOKA DURBAR SQUARE MONUMENT ZONE



Hanuman Dhoka Palace from Durbar Square.



Nine Storey Palace (Basantapur Bhawan).



Temporary roof over Lalitpur Bhawan.



Area of Nine Storey Palace showing signs of deterioration from continued exposure.



Bhaktapur Bhawan recently completed – works commenced prior to earthquake.



Seriously damaged Rana buildings around Lamo Chowk with shoring – no repair works to date.



Timber from collapsed temples is stored in Dhak Chowk and is often left uncovered at the end of each work day.



Seriously damaged Rana style wing still exposed to weather. Eastern end of Gaddi Bhaitak on left.



Western front of Gaddi Bhaitak (Royal reception hall and throne room) facing Hanuman Dhoka Durbar Square.



Southern elevation of Gaddi Bhaitak showing severe cracking.



Interior of Gaddi Bhaitak with large windows and French doors along southern side and glass chandeliers.



Hand painted, pressed metal ceiling and cornice of Gaddi Bhaitak, starting to detach due to roof damage and exposure to elements.



Southern colonnade of Gaddi Bhaitak, showing pressed metal ceiling panels corroding and falling due to lack of weather protection.



Dado of hand painted pressed metal panels to walls of Gaddi Bhaitak.



Carved timber elements of collapsed temples cleaned, sorted, reassembled and stored in sheds in Hanuman Dhoka Palace grounds.



Terra cotta decorative elements sorted and stored on racks in Hanuman Dhoka Palace courtyard.



Timber elements from Chayasin Dega, including ring beams, posts, brackets and window and door assemblies are laid out and repaired in the Dahk Chowk of the Hanuman Dhoka Palace.



Windows of Chayasin Dega being repaired before reinstatement in the rebuilt temple.



Chayasin Dega being reconstructed. The tiles of the original temple have been salvaged and washed for reinstatement on the reconstructed temple.



Surviving timber posts of Kastamandap are still located in the Durbur Square.



Site of Kasthamandap with archaeological test pits refilled. The post stones are still in place to mark the location of the structure.



Post that fitted into this stone was not properly prepared in previous c1960s refurbishment. Brick paving had been laid across the top of the stone, between it and the post. Evidence of previous copper flashing to bottom of posts survives on the stones.



External wall below Degutale Temple has been repaired, but the bricks are showing white efflorescence, believed to be due to chemicals in the clay used in their production



Top of Talegu Bhawani Temple has been repaired, but the walls around its tiered plinth have not been repaired and are deteriorating due to exposure to the weather.



Jagannath Temple has been the subject of archaeological investigations and structural modelling. Photographs taken through holes in walls show that timber posts have rotted at their bases. Person stepping over props that have been installed to stabilise the structure.



Bricks in corner shrines have moved since 2015 mission. Temporary props appear to also have moved and are no longer supporting the structure.



Offering are still made at Aagan Temple embedded within one of the northern wings of the Hanuman Dhoka Palace.



Crowds have returned to Hanuman Dhoka Durbar Square and customary activities continue.

BHAKTAPUR DURBAR SQUARE MONUMENT ZONE



Bhaktapur Durbar Square with the palace on the left.



Lal Bhaitak, Rana style wing, of the National Art Museum (former palace).



Inside ground floor showing early door from previous Malla style palace. Timber arcade on the left belongs to Rana style building (1858).



Early Malla style window surviving in rear wall of Lal Bhaitak at ground floor level.



Reception Hall located on upper floor, built 1858.



Large timber beams support the ceiling and roof, but are decayed. Cracks in the end wall of the hall are being monitored.



Cracks in end wall of Lal Bhaitak (Rana style wing of former palace, dated 1858).



Cast iron balustrades in French window openings along southern side of hall.



Western wing of palace has been demolished and archaeological investigations have revealed evidence of earlier development on the site including early drains and a stone device for pounding grain.



Stepped plinth of Fasi Dega Temple, which is to be rebuilt to its pre 1934 earthquake form, based on photographs. The plinth has been substantially rebuilt.



South wing of the Taba Sattal.



The brick plinth has been replaced in new brick matting with lime, sand and surkhi mortar.



Stone elements of the Bhagavati Temple have been carefully numbered to allow its reconstruction.



The cart being assembled for the annual Bisket Jatra festival in Bhaktapur.

PATAN (LALITPUR) DURBAR SQUARE MONUMENT ZONE



Patan Durbar Square



Krishna Temple (left) and Bishwanath Temple (centre) are currently being repaired in situ.



The lower portion of the Krishna Temple remains active, whilst the upper levels are severely damaged.



New brick matting being laid within the temple plinth base. New bricks have been designed to bond the external skin to the body of the paving – Bishwanath Temple.



Rounded stones in the base of a brick temple plinth.



Paving and ground level being lowered around monuments to pre 1934 levels.



Repairs to northern Talegu Mandir, Patan Palace, nearing completion.



Repairs to southern Telaju Mandir have been completed.



Eastern wing of palace around Sundari Chowk reconstructed using the original bricks and timber elements.



Copper flashings have been laid under the door thresholds and posts as part of the reconstruction.



Reconstructed upper timber portion of palace with new elements pieced in where original elements were severely damaged or missing.



Window ensemble being repaired for reinstatement in reconstructed temple.



Carved timber elements salvaged from one of the collapsed temples in the Durbur Square.



Carved timber brackets being repaired.



Repair of window ensemble



Salvaged elements carefully salvaged, cleaned, sorted and stored ready for reinstatement in reconstructed temple.

CHANGU NARAYAN MONUMENT ZONE



Changu Narayan Temple with upper level partially dismantled for repair.



New internal window frames for upper storey of Changu Narayan Temple.



Kileshwar Temple (centre) repaired.



Senior priest on base of Lakshmi Narayan temple.



Full scale model of Kileshwar temple built as part of a wood symposium and capacity development exercise undertaken by an engineering college in Kathmandu.



Sattal in process of being dismantled. Bricks and timber elements are being salvaged for reuse in the reconstructed structure.



Salvage elements from sattals stored on site.



Housing in ancient settlement is being replaced with modern concrete framed structures.



House opposite temple gate rebuilt with a concrete frame and brick cladding. It is one storey higher with a roof top terrace.

PASHUPATI MONUMENT ZONE



View towards the main Pashupati Temple showing demolished sattals to left and in midground.



View along the Bagmati River ghats. Since the construction of the crematorium (chimney at centre), Aarughat is seldom used.



Footings of demolished sattal covered.



Ram Temple repaired.



Shree Guhyeshwori sattal complex – sattal at centre has been reconstructed incorporating the original timber window elements.



Shree Guhyeshwori Temple and sattal complex – this portion of the sattal in the foreground has been demolished for reconstruction. The adjoining portion (still standing) has not been supported and has suffered additional structural failure.



One of the rebuilt rest houses within the precinct.



Small shrines on top of hill have not been repaired.

SWAYAMBU STUPA MONUMENT ZONE



Swayambu stupa has been repaired.



Pratipur has been partially demolished. The upper section is set with lime based mortar, the lower section is set with mud mortar and was damaged during the earthquake.



Site of monastery that collapsed in landslide.



Anantipur has been demolished and is being rebuilt in new materials, including its base, to its original form.



The Shantipur Temple is being repaired by the Chief Priest has his family. Others are not permitted within the sacred space.



Portion of wall mural salvaged and taken to the National Museum for conservation.



Salvaged portions of wall mural from Shantipur Temple now at National Museum for conservation.

BOUDDANATH STUPA MONUMENT ZONE



Bouddanath Stupa has been repaired.



Top of stupa has been reconstructed and the timber framed parasol and gilt metal cladding have been reinstated.