

# THE RESTORATION OF THE PATAN DARBAR PALACE COMPLEX

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PROGRESS REPORT | NOVEMBER 2012

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# KATHMANDU VALLEY PRESERVATION TRUST

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#### TABLE OF CONTENTS

- EXECUTIVE SUMMARY 7
- PROJECT MILESTONES 2010-2012 9

2 MUL CHOWK GOLDEN DOORWAY ENSEMBLE

| 6 | SEISMIC REHABILITATION OF THE TALEJU TOWER

3 MUL CHOWK YANTAJU SHRINE

5 STONE GATES AND COURTYARDS

4 MUL CHOWK STONE LIONS

| 8 | BAHADUR SHAH PALACE

9 PATAN MUSEUM EXTENSION

PUBLICITY FOR KVPT AND DONORS

FUND RAISING AND PARTNERSHIPS

PROGRESS UPDATE

I MUL CHOWK

7 KOT PATI

12

18

36

52

62

70

76

90

96

98

104

105



Bahadur Shah North wing

Keshav Narayan Chowk – Patan Museum

Stone Gate (north) Deg

Degutale Temple

**The Patan Royal Palace Complex**, West elevation | 2007 KVPT projects highlighted in bold Drawing by Anil Basukala





Stone Gate (south) Taleju Temple

Mul Chowk

Small Taleju Temple

Sundari Chowk

Court Building





Panoramic view of the Patan Darbar Square, the Royal Palace and the garden | Nov 2012

6

# EXECUTIVE SUMMARY

The Kathmandu Valley Preservation Trust's Patan Royal Palace Restoration has made remarkable progress in the restoration of the Complex's monuments, and is nearing the on-schedule completion of its second major work phase. Since the Trust last reported to the World Monuments Fund in 2010, three major building components have been completed, and the program's scope has expanded as additional secondary projects have been implemented on a turn-key basis after targeted funding was secured.

The main courtyard building, Mul Chowk, has been completed and will host a contemporary arts exhibition as part of the 2012 Kathmandu International Arts Festival at the end of November 2012. The Kot Pati rest house has been restored back to the impressive and uninterrupted arcaded structure it once was. The Stone Gates and adjacent courtyards have been restored with the assistance of stone conservation experts from the University of Vienna. Additional projects such as the restoration and re-gilding of the Golden Doorway Ensemble in Mul Chowk's south wing, and the seismic rehabilitation of the Taleju tower temple have also been implemented, further widening the scope of the Patan Royal Palace Complex Restoration Program.

Continuing in the same spirit in which the Patan Royal Palace Complex Restoration Program was first launched, the Trust has forged ahead in these times of scarce funding prospects and attracted funding from diverse sources across international private and public sectors. Harnessing the momentum generated as a result of the Robert W. Wilson Challenge, the Trust has garnered support from a patchwork of dynamic donors: a private Japanese foundation, state funding from Germany and the United States, individual Nepali donors, and a Dutch foundation.

All of these achievements are made particularly significant in light of the difficult conditions under which the Trust has operated. Aside from the typical logistical setbacks prevalent in Nepal, such as adequate power and water supply and tedious government negotiations, the Trust was met with an excessive and unprecedented rise in timber prices and a severe shortage of building materials. Drastic inflation led to a major funding shortfall as the price of timber increased five-fold and timber itself became increasingly scarce. Faced with such a severe shortfall of project funds, the Trust has grown increasingly resourceful, and was able to secure a funding extension from the US Ambassador's Fund for Cultural Preservation to partially cover the deficit.

Despite the many challenges, significant project headway has been made, and major building components have been restored to the highest international standards. With the aid of the WMF matching funds grant, and the prestige afforded to our project by our affiliation with the World Monuments Fund, the Trust has been able to successfully carry out one of the largest and most ambitious architectural restoration programs in South Asia, and draw international attention to the exceptional but threatened architecture of Nepal.



8

# PROJECT MILESTONES: 2010 – 2012

I Private gifts from Nepali donors for discrete projects. In the fall of 2011, the Trust received a donation from Mr. Yogeshwor Amatya for the re-building and re-gilding of the small Yantaju shrine, located at the center of Mul Chowk's courtyard. The contribution signifies the Trust's first discrete project fully sponsored by an individual Nepali, and the Trust hopes to build on Amtaya's commitment by showcasing his project at a dedication ceremony for Mul Chowk in the Spring of 2013.

2 Federal Republic of Germany sponsors the restoration of the Mul Chowk Golden Doorway Ensemble. The Trust received a grant from the German Foreign Office for the restoration and regilding of the Golden Doorway Ensemble, the artistic focal point of the Mul Chowk courtyard, and a testament to Patan's rich heritage in the crafts of repousse metalwork, lost wax casting and fire gilding.

3 Negotiation with local stakeholders to invest in Bahadur Shah's North Wing. After many meetings and roundtable discussions, the Trust has forged an agreement with the local Patan Rotary Club and the adjacent government school to use Bahadur Shah's North Wing as a community meeting hall. The Patan Rotary Club itself will partner with the Trust in developing and managing the future meeting hall.

4 The Patan Museum Board contributes seed money for future Mul Chowk Museum. The Trust was able to secure from the Patan Museum board for the finishing of the Mul Chowk interiors in preparation for the space to be used as exhibition galleries. A design concept for the museum has been drawn up, and funding for exhibits and implementation is being sought.

5 KVPT celebrates its 20 Year Anniversary. Established in 1991, the Trust celebrated twenty years of success with an anniversary gala at the Rubin Museum of Art in New York. The event included a lecture by Honorary Chair Kanak Mani Dixit, and a silent auction featuring art works by Robert Polidori and Robert Kelly, followed by a seated dinner.



6 Ambassadors Fund for Cultural Preservation awards grant extension. In response to the unprecedented increase in the price of timber and the resulting funding shortfall, AFCP awarded the Trust a grant extension to the original 2009 Large Grant. This was the first time in the history of AFCP's philanthropy that an extension of funds has been awarded to a previous grant recipient.

7 Continued institutional partnership with the Conservation Department at the University of Vienna. The Trust has continued its institutional partnership with the University of Vienna, as teams of conservation students and professors have visited and worked on the restoration site over the past three years. These work missions resulted in a fruitful collaboration and exchange of knowledge between students and local KVPT craftsmen. To date, the visiting teams have conserved the stone components at Bhandarkhal Tank, Tusha Hiti, and the Stone Gates, as well as the metalwork and gold leafing of the Golden Doorway Ensemble.

8| Feature articles in ECS Nepal and Spaces Magazines. The Trust's work was featured in local Kathmandu publications, including ECS Nepal and Spaces magazine, bringing KVPT's restoration efforts and achievements to local attention.

9 Establishment of a new relationship with the Prince Claus Fund. The Trust received a Cultural Emergency Response award from the Prince Claus Fund (PCF) for the repair and seismic rehabilitation of Taleju temple, a rooftop temple located atop the northeast corner of Mul Chowk. Taleju suffered damages as a result of the 2011 Himalayan Earthquake, which originated in Eastern Nepal. After the successful completion of this project, the Trust is in discussion with PCF on opportunities for future collaborations.

# PROGRESS UPDATE

#### SUMMARY OVERVIEW

Major progress has been made in the Patan Darbar Palace Complex program of works, while the scope of the project has also expanded to include the restoration of additional components located within the Complex, as well as the development of future museum galleries.

Since the Trust last reported to WMF in 2010, the conservation of three major Phase II building components: Mul Chowk, Kot Pati, and the Stone Gates and courtyards, have been completed. Work on the remaining components of Phase II, namely Bahadur Shah Wing and the establishment of Mul Chowk museum galleries is currently underway.

## • PHASE I

Three out of four activities in Phase I have been completed: 1) the master planning and documentation of the site ) the restoration of the Tusha Hiti stepwell and 3) the restoration of the Bhandarkhal Tank. The restoration of Sundari Chowk is 35% completed, but is currently stalled due to a lack of funding.

▶ Further funding is urgently needed to complete the restoration of Sundari Chowk.

## PHASE II,

Three of the original five projects in Phase II have been completed: 1) the Mul Chowk Palace, 2) the two Stone Gates and courtyards, and 3) the Kot Pati resthouse. The seismic strengthening of the Taleju temple and the preliminary proposals for the future Mul Chowk museum development, two additional projects which were not part of the original phase planning, have now been completed.

The Bahadur Shah Palace, the restoration of which was on hold for two years, has finally received funding. The restoration of the Palace is expected to be completed within a year at the start of 2014.

The Court Building, a European-influenced arcaded structure dating to 1810, is the only building component in Phase II which has not yet attracted funding for its envisioned rehabilitation program. The Trust is currently seeking a Nepali investor to lease the space longterm and provide advance payment of approximately \$250,000 to be invested in the building's restoration.

▶ Further funding is needed to undertake the restoration of the Court Building.

#### PHASE III

The implementation of the projects in this phase have been delayed as the necessary funds could not be secured. The projects in this phase include important restoration activities as well as investment in educational programming and adaptive re-use development, which is absolutely imperative to securing a self-sustaining future for the entire complex.

► Further funding is needed to realize the Phase III projects, which the Trust is hoping to complete in 2015. These include the restoration of the Degutale temple, the Nasal Chowk, the future development of the archaeological garden, and the curating and implementation of the Mul Chowk and Sundari Chowk Museum Galleries.

ONGOING

The Trust must also locate funding for its annual operating expenses which has been generated in the past through event fundraisers in both New York and Nepal.

► Further funding is needed for KVPT's annual operating expenses, which includes site supervision, project management and office overhead costs.





## PHASE I PROJECTS

- Sundari Chowk
- Bhandarkhal tank & pavilion
- Tusha Hiti stepwell & courtyard

## PHASE II PROJECTS

- Mul Chowk
- Stone Gates & Courtyards
- Court Building
- Kot Pati
- Bahadur Shah Palace/North Wing
- Taleju Temple (seismic strengthening)

## PHASE III PROJECTS

- 10 Nasal Chowk
- Degutale Temple

30

40

50 meters

- Archaeological Garden
- Small Taleju Temple



**Patan Darbar Square** | Nov 1986 View from the west Photograph by Robert Kostka





Mul Chowk courtyard | 2012 The Mul Chowk courtyard building after its restoration.The original courtyard paving has been exposed and repaired, and the roof structure has been rebuilt in the traditional style.



#### PROJECT COMPONENT

Ι

Mul Chowk is the central courtyard building of the palace complex, and lies at the heart of the Patan Royal Palace Project. The two-story quadrangle survives in its original 17th century configuration and retains almost all original carved wood elements. Supported by the U.S. Ambassador's Fund for Cultural Preservation, the Trust has completed the restoration of the Mul Chowk palace, including its courtyard. The palace's first floor interiors have already been incorporated into the existing Patan Museum. The design and implementation of the new museum extension is already underway and will continue over the next two years. The successful restoration of this important building marks a significant milestone in the Trust's ambitious Patan Palace Restoration program.

The restoration strategy for Mul Chowk was the conservation and repair of historic fabric, the restoration of documented lost elements to restore integrity, and general repair efforts. Much of the damage the building had suffered was the result of rising damp and roof leaks, which was addressed by the replacement of the entire roof structure and the incorporation of waterproofing layers at the structure's foundation and roof.

#### Walls:

The worst affected wall areas were found in the east wing. The garden facade of the east wing, which was poorly reconstructed post-1934 earthquake needed to be completely rebuilt with new *ma apa* brick laid in mud mortar. The historic courtyard facade of the east wing was threatened by collapse and required extensive rebuilding; wherever possible salvaged historic brick was reused. Bearing walls in other areas were found to be in stable condition and only required minor in-situ repairs. In most cases, deteriorated or cracked brick were replaced to achieve a homogenous appearance. Additionally, all poorly-made partition walls, which were not original to the building and were erected as part of later interventions, have been removed.

#### Courtyard and Plinth:

The plinths and courtyard paving had been seriously altered and damaged after misguided restoration efforts made in the 1970s. The original courtyard was covered with machinemade tile laid in a damaging cement mortar. Parts of the historic pavement were found beneath the existing paving, and every effort was made to carefully remove the cement, and salvage and clean all original material. In the end, about 50% of the historic paving bricks could be re-used and were complimented by newly made bricks which matched the historic samples. Similarly, all plinths had been rebuilt with machine-made brick and tile. The historic stone edges had been lost and replaced with brick. The plinths were all rebuilt in their historic configuration employing stone-edges. The courtyard's water drainage system was also completely redesigned and rebuilt.

#### Carved timber elements:

All wood carved components have been properly cleaned of inappropriate paints, dust build-up, and bird droppings. For those carved pieces which were missing detail work, replicas were made and installed.

#### Floors:

Many of Mul Chowk's structural timbers, including the floor's joists, were damaged beyond repair and required replacement. Above these repaired joists and newly installed planking, rigid plyboard was installed for seismic strengthening purposes. Above this, brick soling, and traditional floor tiles (*telia* tile) were laid using traditional lime *surkhi* mortar.

#### Roof structure:

The existing historically inaccurate and poor-quality roof has been entirely replaced employing traditional building materials and techniques. The majority of structural roof timbers required replacement because they were damaged beyond repair by wet rot caused over many years of roof leakage. Planking and rigid plyboard were installed over newly replaced structural timbers above which a waterproofing membrane was installed to prevent from future water penetration, which was responsible for much of the building's damage. The roof was then tiled with traditional terracotta *jhingati* tiles, laid in a mud bed.

#### Seismic strengthening measures:

Strengthening solutions custom tailored to the specific challenges of traditional Newar buildings were introduced throughout the structure. These solutions included the use of steel ties, bracings, and plyboard diaphragms, which were employed to strengthen and unite the buildings' walls, floors, and roof structures.



Mul Chowk's North Wing | May 2006 View before restoration



Mul Chowk's North Wing | November 2012 View after restoration



Mul Chowk's East Wing | November 2007 View before restoration



**Mul Chowk's East Wing** | November 2012 View after restoration



Mul Chowk's East Wing, garden facade | November 2007 View before restoration



**Mul Chowk's East Wing, garden facade** | November 2011 View after restoration



**Mul Chowk garden facade** | Nov 2007 The south-east corner before restoration



**Mul Chowk garden facade** | Dec 2011 The south-east corner after restoration



**Mul Chowk garden facade door** | May 2006 Before restoration





Mul Chowk garden facade door | May 2006 Before restoration



Mul Chowk garden facade wall | December 2011 After restoration



Mul Chowk garden facade | August 2010 Dismantling of existing exterior wall

Mul Chowk garden facade | October 2010 Rebuilding of wall with salvaged and newly-made traditional brick



Mul Chowk garden facade | October 2010 Rebuilding of second level



Mul Chowk garden facade | January 2011 Installation of historic window





Mul Chowk interiors | December 2011 The interior of the building's south east corner after wall rebuilding and window repair. Here the floor awaits tiling.



Mul Chowk window | April, 2010 A window in Mul Chowk's east wing prior to restoration.



**Mul Chowk window** | December 2011 The window after restoration.



Mul Chowk east wing interiors | May 2006 Before restoration



Mul Chowk south wing interiors | May 2006 Before restoration



Mul Chowk east wing interiors | December 2011 During restoration



**Mul Chowk south wing interiors** | December 2011 During restoration



**Found altarpiece** | December 2011 Detail of a timber altarpiece, found in Mul Chowk's south wing. It is planned to display this in the future Mul Chowk museum exhibit.



Mul Chowk roof structure | October 2007 Before restoration



**Mul Chowk roof structure** | December 2011 After restoration of the roof structure. In this photo the excavated historic courtyard can be seen. The project was able to re-use about 50% of the original brick, and the exact historic pattern was replicated when the brick was re-laid.



## PROJECT COMPONENT

# MUL CHOWK GOLDEN DOORWAY ENSEMBLE

# 2



The Golden Doorway Ensemble after restoration | November 2012 The restoration of the Mul Chowk Golden Doorway Ensemble was made possible by a generous grant from the German Foreign Office, Berlin. This artistically outstanding sculptural group marks the entryway to the Taleju shrine, located in the south wing of Mul Chowk, and is the pinnacle of medieval Newar craftsmanship.

The ensemble consists of three primary components:

- 1 The gilded copper-clad doorway
- 2 The gilded tympanum atop the doorway
- 3 Two gilded life-size sculptures of the river deities Ganga and Yamuna positioned on either side of the door

The outstanding quality of the carvings and the repoussé gilding techniques are testimony to Patan's world renowned craftsmanship. Over centuries of ritual use and a lack of regular maintenance, the ensemble has fallen into a state of disrepair and has been the subject of looting and vandalism. The restoration of this important sculptural group is a major contribution to the ongoing work to restore the entire Patan Palace Complex, ensuring the Doorway's continued significance to Nepal's artistic traditions.

This highly challenging and technically difficult restoration project was carried out under technical guidance from the Conservation Department of the University of Applied Arts in Vienna, who completed a detailed assessment of the ensemble and devised a recommended restoration plan in September of 2011 during a trip to the work site in Nepal.

The restoration activities included the dismantling and thorough cleaning of the statues and tympanum, the repairing of dents and cracks in the metalwork of the goddess statues, the application of a protective coating of "anti-corrosion oxide", and the replication and re-gilding of those key missing elements which have been lost, such as the goddess' shawls, crowns and attributes, as well as the tympanum figurines.

The Golden Doorway Ensemble is now nearing completion, and will be fully restored by the end of December 2012. A team of metal conservators from the University of Vienna worked extensively on the project during their return trip in August of 2012. The students helped to train KVPT craftsmen in metal surface cleaning, and gold leaf application, while in turn, KVPT craftsmen have taught the visiting students the basic techniques of metal repousse. Together with the help of the Austrian team, the restoration of the Golden Doorway Ensemble has gone smoothly and successfully., and is scheduled for completion at the end of 2012.


The Golden Doorway | approx. 1966 – 1972 Photo by N.R. Banerjee, Archaeological advisor to His Majesty's Government. Published in "Nepalese Architecture", (1980), Delhi.



**The Golden Doorway** | Sep 19, 2011 This image illustrates how many details, particularly the small statues of the tympanum, are now missing.

#### **Missing small sculptures from the tympanum** All sculptural deities were stolen sometime after the late 1960s, as documented by Dr. Slusser's photographs.

#### Missing deities from top door frame

The three deities originally placed on the top of the door frame, and depicted in the historic photograph on the left, are now missing.

#### Empty niches in doorjambs

The niches present in each doorjamb might have once housed deities. It is impossible to know who these deities were as there is no existing documentation.

- Guardian god missing repoussé covering This guardian god on the far left outer door molding is missing its copper repoussé covering, which all four other guardian gods still retain.
- Missing pillar base | Sep, 2011 The obvious gap between the abrupt end of the pillar and the ground level indicates that the original base of the pillar is now missing. The base was likely a lion, as lions are typically used throughout the valley.



Intact tympanum | approx. 1966 – 1972 This historic photograph taken by N.R. Banerjee shows that the tympanum was still be intact in the 1960s. Here all of the sculptural elements affixed to the inner tympanum, as well as the two small deities affixed to the outer tympanum, can be seen.

Detail of inner tympanum | 1968 Fortunately for KVPT's restoration efforts, his photo by the eminent scholar Mary Slusser shows the figures in sufficient detail to be identified. Due to the high quality of the photo, the deities can be identified and will be replicated and fire gilded to the highest achievable standards.





#### Yamuna's crown & jewelry | Sep 2, 2011

Yamuna's crown is pictured here, still intact, unlike Ganga's below. The turquoise stone is the only remaining crown ornament on the two statues and will serve as an example for replicating the missing three. A remnant of Yamuna's earring is also present here, and remains nowhere else.



#### Detail of Yamuna's right leg | Sep 2, 2011

The severe dent pictured above cannot be repaired in-situ and mandates removal of the statue, and gently hammering the dent out from behind. A crack in Yamuna's calf, measuring four centimeters, is also seen here.



Yamuna's turtle | Sep 2, 2011 The badly deformed turtle will also require disassembly and re-shaping of the copper body. Renewed gilding will be considered for the body of the turtle.



Ganga's missing crown & jewelry | Sep 2, 2011 Ganga will be restored with the same crown as Yamuna, as well as with the same jewelry, including earrings in both ears and the crown ornaments.



**Detail of Ganga's right leg** | Sep 2, 2011 Ganga's extensively damaged thigh is pictured above. Rectifying the severe damage, including a significant crack, will also require resurfacing and re-gilding of the affected areas.



Ganga's makara | Sep 2, 2011

The trunk of the makara has been completely bent backwards. Once held up at an angle, the trunk now lies flat against the makara's body. There are also damages to the body of the makara, requiring disassembly and hammering our of deformities. Renewed gilding will also be considered for the body of the makara

#### Damaged crown

Ganga's crown is entirely missing. A replica modeled on Yamuna's crown remnants will be made.

**Damaged shawl** Pieces of Ganga's shawl are missing.

#### Worn gilding

Ganga's gilding has been entirely worn off on these large patches on her forearms. This is a result of centuries of religious worshippers devotionally touching Ganga on her extended arms.

#### Dents in Ganga's right leg

The thigh on Ganga's standing right leg has been significantly dented. This cannot be repaired in-situ, but must be hammered out from behind after the statue is removed.

Missing metal covering The timber backing behind both statues is missing its original metal sheeting, and can be seen here still intact around both goddess' heads.

#### Damages to the makara

The makara's trunk is bent entirely backwards, while the body suffers from severe dents and resultant cracking.

**Ganga atop of her makara** | Sep, 2011 The severe deformation to Ganga's right leg, and the missing elements are immediately noticeable.



Yamuna atop of her turtle | Sep, 2011 The large dent in Yamuna's bent right leg, and her damaged shawl and crown can be easily seen here. The overall loss of gilding is also very apparent.

Damaged crown

Yamuna's crown is missing it's central component, of which there is a remnant.

Damaged shawl Pieces of Yamuna's shawl are missing.

**Missing stone** The turquoise stone on Yamuna's left arm band, is missing on her right.

Worn gilding The gilding has been entirely worn off on these rather large patches on both of Yamuna's thighs. This is a result of centuries of religious worshippers devotionally touching Yamuna in these areas.

Dents in Yamuna's right leg Yamuna's bent right leg has a severe dent, which cannot be repaired in-situ, but must be hammered out from behind after the statue is removed

Dents in the turtle's shell The severe dents to the turtle's shell





**Documentation of the Golden Doorway Tympanum's deity sculptures** | August 2011 The project was very fortunate to benefit from this historic photograph of the Golden Doorway's Tympanum, taken by Dr. Mary Slusser in the early 1970s. This photograph serves as the only surviving record of the original tympanum sculptures. KVPT's artists produced the above line drawings, which will serve as the models for the lost wax artisan.



Wax molding of tympanum deity for replication, front view The front view of a tympanum deity replica. This figurine has been carved in wax by a Patan artisan, using KVPT's drawings and photographs of the original as models. Note the incredible detail, from the folds in the deity's dress, to the many hand poses and instruments it holds. July 28, 2012



Wax molding of tympanum deity for replication, back view The back view of the typanum deity replica. This molding is in the first stage in the "lost wax" process; next, the figurine will be covered in mud, left to harden, and then the wax will be melted out and molten metal will be poured inside. Lastly, the mud will be broken away, and the metal figurine inside will be revealed. July 28, 2012



Missing bases under forward sitting comumns These columns are missing the decorative bases, a typical feature of Nepali architecture. Apr 22, 2012

Wood carving after removal of copper sheeting The decayed wood carving below the copper sheeting is exposed after removing the copper for cleaning and repair. Apr 22, 2012

Detail of wood carving After removal of existing debris, the wood carving can be more clearly seen. Apr 22, 2012





Column base depicting a lion This original lion column base is located on another doorway in Mul Chowk and provides an example of what the missing bases likely looked like. Apr 22, 2012



Exposed timber lintel after removal of bricks The masonry surrounding the lintel must be re-built and repaired. Here, the adjacent bricks have been removed, exposing the edges and existing conditions of the lintel edges. Apr 22, 2012





top left: Austrian students cleaning the Golden Doorway using scalpels, brushes, and soap, as part of a four-step extensive cleaning program.

top right: An Austrian student scrapes the thick patina of grime off of the door's lower right frame, exposing the fine details of the metalwork.

**bottom, left:** Pieces of the removed existing copper sheeting: the door frame column coverings, and the decorative threshold adornment.

bottom, right: Detail of the decorative repousse metalwork, which was located over the threshold to the shrine's entryway. This detail shows the deterioration of the metal, the loss of the gilding, and the incongrous holes and nails.



**top, left:** KVPT metal workers affix new copper sheeting to the repaired timber backing.



**bottom, left:** clearing debris and rubble from the place where Ganga stands on Mul Chowk's south wing. After removing the Ganga statue it was discovered that the hole behind her was filled in with rubble and brick pieces, making it structurally insufficient and in need of re-building.

**bottom, right:** re-building the masonry surrounding Ganga's newly repaired and re-installed timber backing.



**top, left:** a conservation arts student from the University of Vienna applies gold leaf to the backing behind the statue of Ganga.

**top, right:** A team of students and KVPT craftsmen apply gold leaf to the copper sheeting covering Yamuna's backing.

**bottom, left:** Yamuna's backing covered in gold leaf. Note that those areas covered by the Yamuna statue will remain un-gilded.

bottom, right: Ganga's backing covered in gold leaf.









top, left: The repaired arm of Ganga, after the hand has been re-joined to the wrist. Cleaning and gold-leafing the arm still remain to be done.

top, center: KVPT draftsman holds up a replica of Ganga's crown, drawn based upon iconography and other sculptural ensembles depicting Ganga and Yamuna which are present throughout the Kathmandu Valley.

top, right: KVPT repousse artist prepares the metal pieces for Ganga's shawl, lightly tapping on the outlines of the shape with a specially-sized hammer.

**bottom, left:** A KVPT draftsman holds up a sketch for Ganga's future shawl, the end of which has been broken off and lost.

bottom, center: An Austrian student throroughly cleans the jewelry cuffs of Ganga and Yamuna, placed on the statues' wrists to cleverly hide the joint where the the hand was soldered to the forearm.

**bottom, right:** An Austrian student applies gold leaf to the newly repaired forearm and hand of Ganga.









**top, left:** An Austrian student extensively cleaning the lower half of the *makara* using a toothbrush.

top, center: Detail of the *makara's* severely cracked and contorted tunk, prior to any repairwork.

top, right: The *makara's* trunk during the repair process.

**bottom, left:** The *makara* after its trunk has been repaired. Note the discoloration of the repaired part - this is because the trunk has not yet been gilded via the application of gold leaf.

**bottom, center:** KVPT repousse artist and an Austrian student applying gold leaf to the newly repaired trunk.

**bottom, right:** The *makara* after gold leaf has been applied and the lower half has been extensively cleaned. The new, and therefore more vibrant, gold leaf will be antiqued slightly to more seamlessly match the patina of the lower half.



**Golden Doorway during restoration** | November 2012 The doorway after it has been extensively cleaned, partially re-gilded, and replica repousse pieces have been affixed.





*top:* **Makara** | November 2012 The makara after the repair of its severe cracking and partial re-gilding

*above:* **Ganga** | November 2012 The Ganga status after extensive cleaning, partial re-gilding, and the replacement of her missing attributes.





at right: Ganga and Jamuna after restoration | November 2011





### PROJECT COMPONENT

# 3



*above:* **Kirtimurkha** | November 2011 This drawing details the motif used at the apex of each of the four archway openings, known as *kirtimurkha*.

#### left: Yantaju shrine | November 2012

The rehabilitated Yantaju shrine, after the stone plinth was rebuilt, the inner timber structure refurbished, and all replicated repousse work applied.

# MUL CHOWK'S YANTAJU SHRINE

Sponsored by Mr. Yogeshwor Amatya, a private Nepali donor, the rehabilitation of the historically significant Yantaju shrine was included in the Patan Palace restoration program.

The Yantaju Shrine, a small, open-air temple located in the center of the Mul Chowk courtyard, was dilapidated and in dire need of repairs. Built during the Malla period by King Srinivasa, this gilt shrine was dedicated to the goddess Yantaju, a deity closely related to the Patan tutelary goddess of Taleju. The true identity of Yantaju has remained mysterious, but scholars believe it is probable that she is in fact Mahesvari, a form of the goddess Durga.

Many of the shrine's original metal repousse coverings have been lost, and were replaced with poorly made and hastily secured imitations of far lesser quality than the originals. These later pieces are incongruent with the surrounding metalwork. Fortunately, the shrine still retained key original repousse elements, which served as historical evidence for the fabrication of new replacements. All new repousse copies have been rendered to the highest standards, and re-installed along the shrine's four archways.

The stone plinth upon which the shrine sits was damaged beyond repair by the laying of cement paving over Mul Chowk's courtyard in the 1970s. This damaging tile pavement was removed, and the courtyard pavement surrounding the plinth was rebuilt with original brick. The stone plinth of the shrine was rebuilt with new stone. The inner timber structure of the shrine, which supports the large metal pinnacle, was in poor condition and most of these structural timbers were replaced.

The shrine structure and repousse work have now been fully restored and only the traditional mercury gilding finish remains to be done.



#### Yantaju shrine through the doors of Mul Chowk

The small, gilded, open-air shrine to the goddess of Yantaju can be seen here through the open door into the Mul Chowk courtyard. Here, the large bell dedicated to the worship of the Taleju goddess located directly in front of Mul Chowk's entryway, is casting its afternoon shadow onto the building's facade. Photograph by Mary Slusser, 1966



#### Historical view of Yantaju shrine

The Yantaju shrine can be seen in this photograph taken circa 1966. The shrine sits in front of the Taleju Temple, devoted to Yantaju's companion goddess Taleju. Photograph by Mary Slusser, 1966





#### **Plinth prior to pavement removal** | Sep. 2011 The original quarter-round base stone is covered here by the tile pavement, which was laid in the courtyard in 1975. The tile pavement was recently removed to expose the original flooring, but because hard cement mortar was used to lay the tile, the original stone work of the shrine's plinth has been damaged.

#### Original base stone | Nov. 2011

After removing the 1975 tile pavement, the original brick flooring and quarterround base stone of the shrine were revealed. However, approximately 60% of stones are damaged due to the use of hard cement mortar, and are in need of replacement. In some places, the stone work has been poorly repaired with brick fill-ins, which need to be removed and replaced with stone.



#### **North elevation** | Nov 2011 This is the only side retaining the original repoussé arch in its entirety. The gilded corner sheeting on the right is original. All other sheeting and decorative repoussé are later additions of inferior quality.





#### Detail of original chepa

head | Nov 2011 The north-facing elevation of the shrine is the only side which still retains the original arch. The repoussé work on the *chepa* head is outstanding, and the newer replacement arches on the other three sides of the shrine do not compare in craftsmanship to the original.

#### Detail of original arch |

Nov 2011 This detail shows the original copper repoussé work , still partly gilded, depicting twisted snakes and a makara, the mythical water creature. Behind the repoussé work there are new copper sheets, of much poorer quality than the original sheeting.





East elevation | Nov 2011 The east-facing elevation of the shrine is almost entirely new and in need of replacement. Only three small gilded pieces of original sheeting remain.





Detail of arch | Nov : When compared to th arch detail on the opp page, it is immediatel obvious that this later replacement does not match the original 17t century craftsmanship

#### Detail of decorative fr Nov 2011

Here, the shallow relisimple repoussé work the decorative frame I the arch lacks the det: depth of the original.



Yantaju Shrine Mul Cok | Jan 01, 2012 Rebuilding base plinth of the Shrine in traditional *ma-apa* and bead edge stone in lime-surkhi mort

57



Yantaju Shrine Mul Cok | Feb 12, 13, 15 & 16, 2012 Replicating of Shrine's repousse tympanum of north facade is ongoing.

5





**Yantaju Shrine** | September 16, 2012 The dilapidated timber structure of the shrine was dismantled to reconstruct new.

**Yantaju Shrine** | September 19 & 20, 2012 Timber structure of shrine during reconstruction.



Yantaju Shrine | October 2012

The shrine's new timber structure being covered with new custommade copper sheeting. At left, a repousse craftsman is fabricating a replica of the original floral trim metalwork to install on the shrine.

Yantaju Shrine | October 2012 Preparing to affix the new repousse work to the shrine, and the shrine's west side after all replicas have been installed.





### PROJECT COMPONENT





*left:* **Mul Chowk main entryway** | 2012 The principle entry to Mul Chowk after the Stone Lions were restored and the stone steps re-set.

## MUL CHOWK STONE LIONS

The Trust received funding from the Sumitomo Foundation for the restoration and consolidation of the Mul Chowk Stone Lion Statues, as well as the rebuilding of the main entryway steps. The two large lions flank the main entryway into the royal courtyard off the main thoroughfare of Darbar Square. framing the large doorway into Mul Chowk. An original component of the Mul Chowk's front facade, the statues were carved and configured contemporaneously with the courtyard's construction in 1666 during the reign of King Sri Nivas Malla.

The impressive statues each measure 1.5 meters across by 3 meters tall, and weigh several tons. The placement of a pair of lions at the thresholds of important shrines, temples, and monuments is a common practice throughout the Kathmandu Valley, as the animals serve as a symbol of loyal protection from looters and vandals.

Over centuries of exposure to the elements, a number of significant earthquakes, and recent periods of neglect, the sculptures required extensive restoration to prevent future and further damage. In September 2011, the Trust collaborated with a team of Austrian stone conservators from the Conservation Department of the University of Applied Arts in Vienna. The team consisted of two stone conservation specialists and five graduate students. The team performed an initial evaluation of the two lions' current condition and structural composition, and found the stone guardians to be in desperate need of repair. The Austrian conservators worked alongside KVPT's Nepali stone masons to successfully clean, dismantle, and then reassemble both lions with seismic strengthening clamps and a higher quality mortar.

The male lion, located at the doorway's north side, required relatively little rebuilding but complete regrouting with appropriate mortar and repairs of the damages to its pedestal and . The lioness, located at the doorway's south side, required complete dismantling and re-setting in appropriate mortar with seismic strengthening clamps.



Mul Chowk principle facade | December, 1977 This elevation drawing shows the west-facing principle facade of the Mul Chowk courtyard building, as it is seen from Patan's Darbar Square. The lions flank the main entryway into Mul Chowk, guarding the number of sacred temples and shrines that are located within the courtyard. Survey by the Nippon Institute of Technology



#### Historical view of Mul Chowk stone lions

The stone lions as they stood in 1924. The stone steps leading to the main doorway are seen here in their original position, extending past the lions into the Darbar Square walkway. Photograph by Perceval Landon, 1924



View of the lions from Patan's Darbar Square Local residents of Patan walk on the main thoroughfare that leads through the Darbar Square just in front of the Mul Chowk stone lions. A highly trafficked route, the stone lions are a familiar sight to residents and an integral part of the architectural landscape. Photograph by Mary Slusser circa 1970



A resting place | Jan 9, 2007

Local community members rest on the steps adjacent to the stone lions, a popular place to gather and spend time. Here it can be seen that the steps leading into Mul Chowk no longer extend into the walkway, and have been foreshortened.



**Cleaning and removal of biological growth** | Sep 9, 2011 A KVPT stonemason gently removes algae and other biological growth from the surface of the stone lioness with the use of soft brushes and potable water. This thick growth has formed over the years as a result of the statue's porous and water-retaining brick core.



**Removal of cement pointing** | Sep 14, 2011 The students from the University of Applied Arts, Vienna, are carefully removing the cement pointing with small chisels in order to disassemble the statue.



The stone lion's brick core | Sep 14, 2011 After removing this piece of the lion's mane, the inner brick core was exposed. It was decided to remove this brick filling, as it was unhistorical, and caused water retention inside the statue, leading to extensive damage.



KVPT stonemason | Sep 14, 2011

This KVPT stonemason is removing the cement from the back of the lion's head after it was removed from the statue. The cement was removed so that a stronger mortar mixture of lime, brick dust, sand, and cement, could be used when reassembling the statue.



**Air-tight sealing of stone components** | Sep 15, 2011 After treating the stone pieces with a gentle chemical to eliminate biological growth, the pieces were placed in air-tight wrapping.



Re-assembly of the stone lion | Sep 21, 2011

The stone components are being re-assembled here according to the configuration in which they were found. After being thoroughly washed and treated, and after all remnants of cement pointing was removed, the lion was re-assembled with a hollow interior and with the aid of stainless steel clamps.





**Female lioness' mane before restoration** | Aug. 2011 The growth is at its thickest surrounding the lioness' mane and brick, where the brick fill-in was placed.



**Detail of female lioness before restoration** | Aug. 2011 The thick growth and resulting dark colors obscured the statue's exquisite details, such as those seen here on the lioness' chest, and made the decorative carvings difficult to appreciate.



**Female lioness before complete restoration** | Aug. 2011 The female lioness statue prior to restoration was covered in dark green biological growth. The pointing between joints was also improperly and hastily done with cement, allowing water to seep into the statue. This combined with the statue's porous brick core, promoted this abundant and damaging biological growth.



#### Male lion before cleaning | Aug. 2011

The amount of growth on the surfaces of the stone threatens the lifespans of the two statues. Such growth not only conceals the carvings and craftmanship of the stone, but in extreme cases can cause stones to fracture. The male lion was thoroughly cleaned, but was not disassembled and completely restored like the female lioness.





**Female lioness' mane after restoration** | Nov. 2011 The lioness' mane has been thoroughly cleaned, and after re-assembly fits together more seamlessly than it does in the corresponding photo at left.



**Detail of lioness after restoration** | Oct. 2011 The details on the female lioness' chest are more easily observed after the growth has been removed. Here, he beautiful natural color of the stone is exposed.



**Female lioness after complete restoration** | Oct. 2011 The stone lioness is restored to her former glory after being thoroughly cleaned and re-assembled. The stone components fit together smoothly, and the pointing is properly done, thoroughly sealing the joints.



#### Male lion after cleaning | Nov. 2011

Just six weeks after the adjacent male lion was thoroughly cleaned, biological growth has already re-appeared around the statue's mane and chest. The male lion is in urgent need of complete restoration, as the improper pointing and inner brick core are the sources of this persistent and damaging biological growth.







Northern Stone Gate | Nov 2012 The Northern stone gate after its restoration. The gate has been extensively cleaned, repaired, and reassembled.



**Southern Stone Gate** | Nov 2012 The Southern stone gate after its restoration. The preexisting poorly made and inauthentic doors have been replaced with simple timber door blades.

#### PROJECT COMPONENT

# 5



Stone Gates | 2008 Drawings of the Stone Gates prior to restoration by Rajan Shrestha.

## STONE GATES AND COURTYARDS

The two stone gates flanking the Degutale temple, at the center of the west Palace facade on Darbar Square, are adorned with Malla-period sculptural stone bas-relief figures which frame the stone door surrounds. This entire ensemble collapsed in the 1934 earthquake and were then reconstituted, albeit with the stone figures in a makeshift configuration.

Preservation work on the Stone Gates necessitated a detailed study to determine how the stone elements originally fit together. After careful documentation and iconographic interpretation, it became apparent that determining the original configuration was impossible, and that the authentic configuration could not be replicated with certainty. The stone elements were conserved with the support of a team of visiting stone conservators from the University of Vienna. The brick walls surrounding the stone figures were in very poor condition, and required complete rebuilding. The existing wooden doors are also in poor condition and are incompatible, with carved figural work that competes with the stone figures.

The two small courtyards behind the Stone Gates were also in desperate need of restoration, particularly the southern courtyard, which has been abandoned and locked for decades. Additionally, building elements within the courtyards, such as plinths, staircases and floor paving required extensive restoration.

The complete restoration of the Stone Gates included: the conservation and cleaning of the rare Malla-period surviving stone sculptures; the removal of the improper portland cement infill; the cleaning, repair and rebuilding of the brick walls in which the gates are set; and the restoration of the small adjacent courtyards the gates define. The two courtyards behind each of the Stone Gates have been fully restored: the paving, plinths, and staircases have been repaired and rebuilt where necessary.

The southern courtyard was cleared of all rubbish, a significant achievement as all surrounding contractors and residents had used these inaccessible rear courtyards as local dumping grounds for decades, and more than eighty truckloads of waste had to be excavated from the site. Once the courtyard was cleared, the damaged historical plinth on the courtyard's south wall was dismantled and re-built at the proper height and orientation. The southern wall of the courtyard was also repaired, and a newly carved replica window was installed to replace the damaged window. The southern courtyard was also joined to the north wing of Mul Chowk by the creation of a doorway through the north wing's north wall, creating a second access point to the long-closed courtyard.

The northern courtyard is in far better condition than the southern courtyard, as it has been maintained by the local municipality which uses the courtyard as its offices, and therefore requires less extensive work. To date, the staircase located within the courtyard has been re-set, the defining brick wall has been entirely re-built and set back once again to its original location in line with the plinth of the adjacent Mul Chowk, the stone components within the gate have been dismantled, cleaned, conserved and re-set in the brick wall, and the courtyard paving has been excavated.

Lastly, the existing doors within each gate have been replaced with simple wood doors appropriate to the period.



Stone Gate South | Mar 18 & 19, 2012
Far Left: Carved elements and images of the Stone Gate being cleaned with plain water.
Left: Flat brick soling being done courtyard and at the same time debris being cleared.

**Stone Gate South** | Mar 20, 2012 Flat brick soling on sand bed and surface rain water drain soling on lime-surkhi mortar completed.



**Stone Gate South** | April 02, 2012 Edge stone of the plinth being installed.

**Stone Gate South** | April 03 & 04, 2012 Principal wall of the Stone Gate wall being reconstructed with traditional brick *dachi* and *ma-apa* in lime-surkhi mortar.




Stone Gate South | April 24, 2012 Stone Conservator Prof. Manfred Trummer from University of Vienna doing his test to remove rigid black paint from the statue of Kali.

Stone Gate South | April 25, 2012 Stone carver replicating lost head of the statue of Stone Gate.





**Stone Gate South** | May 13, 15 & 17, 2012 Courtyard is being paved with traditional brick on edge on sand bed with historical pattern and a view after complete pavement.



#### PROJECT COMPONENT

# 6



**Proposed intervention** | April 2012 This drawing documents the proposed intervention to introduce two timber A frames to the 4th-level of the temple. These frames now structurally support the heavy load of the tiered roof above.

*left:* Taleju tower after rehabilitation | November 2012

### SEISMIC REHABILITATION OF THE TALEJU TOWER

The Trust secured a "Cultural Emergency Response" award from the Netherlands-based Prince Claus Fund for Cultural Heritage. This grant awarded funds for damage repairs and seismic strengthening measures to be made to the Taleju Temple, located on top of the courtyard building's northeast corner, which was damaged in the 6.9 magnitude earthquake that struck the Himalayas in September 2011. The previously wellpreserved Taleju Temple was originally excluded from the original restoration program but the recent damage to the temple and its structural vulnerability made its immediate repair and rehabilitation imperative.

The Taleju temple is a later addition built on top of the north wing of Mul Chowk, soaring above the northeast corner. Its position atop the courtyard building lends it the graceful effect of "floating" above the surrounding structures. This "floating" roof top temple design is unique to Nepalese architecture. The addition of such towers was a common architectural practice in Nepal, as successive generations often built new additions to existing monuments as a form of votive offering. Though this creates a stunning visual effect, the design and engineering of such a monument is extremely unsound, and is prone to damage.

The Trust followed the recommendations of a consulting seismic engineer, who devised a comprehensive rehabilitation plan of strengthening measures to address and upgrade the building's vulnerable areas. The restoration and seismic upgrading plan included: patching of cracks with lime mortar, rebuilding of masonry walls to properly interlock, stiffening of floor planes with the addition of plyboard and seismic steel nails, and the introduction of a horizontal truss system at the gallery level's roof. The third level roof structure was also entirely rebuilt, employing seismic strengthening measures with the use of stainless steel pins, rigid plywood board, and properly connected timbers. Lastly, two timber A-frames were installed at the tower's fourth level to provide structural support of the three roof tiers above, and to prevent from future load deflection.

One of the primary aims of the seismic upgrading plan was to adequately provide continuity between the third level's inner sanctum, an octagonal room which houses the Taleju diety, and the third level's outer walls. Prior to restoration, these two elements were not connected and therefore incredibly vulnerable to seismic movement. A force-fit transition between the roof's structure and the timber cornice of the sanctum was introduced, effectively unifying all structural components of the third level and safeguarding the structure from drastic movements in the event of an earthquake.

The temple has now been comprehensively upgraded, and will perform well in the event of a moderate earthquake, safeguarding the Taleju tower, an impressive architectural feature of the Patan Royal Palace Complex.



**Remnants of Taleju Temple after the 1934 earthquake** This photograph vividly documents the devastation the 1934 earthquake wrought upon the Patan Royal Palace Complex. The remnants of the Taleju Temple's tower can be seen in the background, while the Degutale temple in





### GALLERY LEVEL: DIAGONAL CROSS BRACING WITH STEEL





#### Gallery level roof: before & after | April, October 2012

**above far left:** The east end of the gallery. The roof trusses are spaced widely apart and are not connected to one another. This lack of lateral strength makes them prone to movement in an earthquake and could ultimately lead to the collapse of the whole structure.

**above left**: Another view of the gallery before restoration.

**above:** The east end of the gallery level after the installation of steel cross bracing. Diagonal braces effectively tie the horizontal timber beams together, creating a rigid warren truss.

**above right**: The west end of the gallery level after the installation of steel cross bracing.

left: Drawing detailing the design of the diagonal cross bracing system.







Details of steel cross-bracing of gallery level roof | October 2012

**above left:** This detail shows how the steel braces are connected to the original timber trusses by means of joining steel plates and steel bolts.

**above**: Detail of the steel cross-bracing from below. After the introduction of these steel braces, a rigid diaphragm is created, which will limit movement in the event of an earthquake.

**left**: Drawing detailing the design of the steel plates used to connect the introduced braces to the existing timber trusses.

### THIRD LEVEL, SOUTH SIDE: BEFORE & AFTER



**South side of the sanctum before restoration** | April 2012 Note the sagging of the rafters and the make-shift columns and beam supporting the roof, part of an inadequate recent intervention.



**South side of the sanctum after restoration** | October 2012 The uncarved columns (seen in the photo at left) were replaced with historic carved columns provided by the Nepal Government's Department of Archaeology. Although not original to this building, these columns date from the same period and are carved with similar motifs used on other timber elements. Also note the newly built roof with all of the bearing timbers replaced.

### THIRD LEVEL, NORTH SIDE: REBUILT ROOF STRUCTURE AND SUPPORT COLUMNS



**Roof before rebuilding** | April 2012 Note the sagging of the rafters and the inadequate timber column support.

**Roof after restoration** | October 2012 After rebuilding, the roof: no longer sags and rafters are placed more closely together, resulting in better support. New timber columns were made and were set significantly farther back in order to provide more efficient support.

## INNER SANCTUM: FORCE-FIT TRANSITION BETWEEN ROOF AND SANCTUM CORNICE



#### COLUMN AND BEAM DETAIL TALEJU TEMPLE

New timber support system | Sep 2012

This drawing shows the new timber column and beam support system installed around the inner sanctum. The new position of the columns allows the support beams to be directly joined to the historic wooden cornice and therefore provides a strong tie between inner sanctum walls and roof structure.

**Southeast corner of the inner sanctum before rehabilitation** | April 2012 The uncarved column in the foreground is not original to the building but was a later addition installed to support the roof.



Southeast corner of the inner sanctum after rehabilitation | October 2012 For the new roof support system historic carved columns were used. To compensate for the room height, the columns were extended. These columns were strategically placed much closer to the inner structure for maximum support.



Inner sanctum exposed | August 2012 After the dismantling of the third level walls and roof, the inner sanctum stands exposed. Here, work on the rebuilding of the plinth is ongoing.



Installation of new timber support system | August 2012 One of the new horizontal beams which runs along the face of the carved cornice is carefully moved to its position. This beam will serve as the force-fit connection between the roof and the inner sanctum. This will securely connect the roof structure to the inner sanctum core.



**Placement of crossbeam atop historic columns** | August 2012 As was planned in the original seismic report, the new system of columns and beams was installed around the inner sanctum. Historic columns were used, and were strategically placed before each corner column of the sanctum.



Frontal view of timber support system | August 2012 This photo shows the newly installed columns, capitals, and cross beam along the sanctum's south-facing side.

**Corner view of the timber support system** | September 2012 This view shows how the cross beams meet at the sanctum's southeast corner. Note that the newly installed system no longer has a column at the plinth's corner.

Inner sanctum after wall re-building | September 2012 Taken from the same perspective as the previous photo, this shows the southeast corner after the walls and roof were re-built. Here the roof rafters are all connected to the new timber cross beam, which is itself connected to the inner sanctum's cornice, uniting all components of the third level: walls, roof and inner sanctum.

### INNER SANCTUM: FORCE-FIT TRANSITION BETWEEN ROOF AND CORNICE







South side of the sanctum before restoration | April 2012 Note the strip of light along the top of the sanctum's cornice. This light is entering the third level via the large gap between the roof structure and the sanctum's walls. The chief focus of this seismic upgrade was to improve the structural connection between the inner sanctum's masonry structure and the surrounding roof. Also note the poor condition of the plinth. South side of the sanctum after restoration | October 2012 Note the improved condition of the masonry plinth, which was completely re-built. A new timber frame on the outer edge acts as a brace against seismic movement. The beam supporting the rafters was moved as close to the sanctum's structure as possible, and was connected to the sanctum with steel bolts and straps.

### FOURTH LEVEL: INSTALLATION OF TIMBER A-FRAME BRACES









Timber A-frames installed in fourth level | September 2012

**above left:** A carpenter installs the steel corner braces onto the timber A-frame. These braces serve to strengthen timber joints, and unite all of the timber pieces in the event of seismic movement.

above center: The installed timber A frame at the west end of the fourth level

**above right:** A thumbnail of the drawing for the timber A-frame installation, showing the A-frames's strategic placement in the fourth level to support the weight of the three roof tiers above.

left: Detail of the timber A-frame drawing





**Kot Pati** after restoration | December 2011 Kot Pati restored to its original form as a long, uninterrupted arcade.

### KOT PATI

#### PROJECT COMPONENT



Historic view of Kot Pati | circa 1900

The narrow, 70-meter long single story Kot Pati, historically a rest house or pilgrims' house, defines a major forecourt for the approach to the Patan Royal Palace Complex from the east. It faces the main road, a major Patan thoroughfare known locally as Mangal Bazaar, and, along with the adjacent Court Building, defines the southern edge of the palace complex.

The Pati retained much historical material, but had been altered significantly in recent decades and was in serious need of repair and restoration. Once a long and open arcade, the structure was divided with makeshift doors and partitions to accommodate various small-scale businesses - such as dumpling shops, T-shirt vendors, cheap fast food shops, and tea stalls etc. The maintenance of the building could not be supported by the low rent, and the occupants damaged the structure over time. The historical tiled and steeply pitched roof structure had been replaced with flat machine-made pan tiles, and the insufficient roof was severely leaking. The original timber roof structure was altered during its rebuilding after the 1934 earthquake: because building materials and labor were scarce at the time of rebuilding, the rafters were incorrectly spaced widely apart. Sometime later in the 20th century, a continuous concrete plinth was installed along the length of the Pati, obliterating the historical plinth and bringing issues of rising damp to the historic Pati fabric. The long brick back wall was in extremely poor condition, and was being supported by dilapidated 20th century buttresses.

With the support of the U.S. Ambassador's Fund for Cultural Preservation, the restoration of Kot Pati has been completed.

The primary objective of the restoration was to retain as much historic fabric as possible, while removing all inauthentic elements, and to restore the roof back to its original profile.

The concrete plinth was removed, exposing a severely damaged historic stone-edge plinth. The stone plinth was rebuilt with new materials according to its original configuration as evidenced by historic photographs. The back brick wall was entirely re-built using original brick where possible, and the damaged and dilapidated buttresses were replaced. The roof was entirely restored, recapturing the historic roof profile, with the use of historic *jhingati* tiles laid in a mud bed. The installation of a waterproof membrane beneath the layer of mud was used to prevent further water penetration.

The historic timber columns were all cleaned of the unhistorical black paint, repaired, extended, and re-installed. The cement flooring was removed, and a traditional floor of *telia* clay tiles was installed. Additionally, seismic strengthening measures were incorporated throughout the building, primarily in the roof structure, wherein the introduction of wooden pegs and a layer of waterproof plyboard between the planking and waterproofing membrane, brought a horizontal rigidity to the roof. A three meter gap in the Pati's back wall was introduced in order to serve as an entryway for public access to the future Mul Chowk garden.

The restored Pati is now back to its original, impressive open and arcaded form, and will serve as one of the primary entry points for future visitors to the Patan Royal Palace Complex.



**Kot Pati** | June 2009 Kot Pati before restoration. Note the poor and damaged condition of the roof, the cement plinth and the division of the space into storefronts.



#### **Kot Pati** | December 2011 Kot Pati after restoration. Here the partition walls have been removed, the plinth rebuilt, and the roof re-built in the traditional style.



Kot Pati | June 2009 Frontal view of Kot Pati before restoration.



Kot Pati | December 2011 Frontal view of Kot Pati after restoration.



**far left:** Kot Pati carved column detail before restoration

**center:** Kot Pati pillar base extension before restoration

**at left:** Kot Pati's damaged roof structure before restoration

**far left:** Kot Pati carved column detail after cleaning, repair and reinstallation.

**center:** Kot Pati column base extension after restoration

**at left:** Kot Pati's restored roof structure



**at left:** KVPT carpenters extending and installing the timber columns

**at right:** Kot Pati columns being installed after cleaning





**at left:** The re-building of Kot Pati's roof.

**at right:** The re-building of the rear Pati wall using traditional brick.





**Kot Pati after restoration** | December 2012 This view of the entire expanse of the Pati demonstrates the resthouse's impressive length.



#### PROJECT COMPONENT

8





#### **Bahadur Shah Wing**

*top*: The Bahadur Shah Palace as seen from Patan Darbar Square 1 2006

above: West elevation drawing | 1994

*left:* interior of the main assembly hall | May 9, 2006

### BAHADUR SHAH PALACE

The Bahadur Shah Palace, built in 1790, stands at the north end of the Patan Palace, overlooking the stepwell of Mangal Hiti. As the first double-bayed structure in Nepal, Bahadur Shah Palace is the earliest building to exhibit a British-Indian influence, which later came to characterize Nepalese architecture in the mid-19th century. The building's main hall offers a prime gathering space for community events and will be restored and placed in proper local management, making it available for use by the public.

Due to a funding shortfall, the Trust put the restoration program of Bahadur Shah on hold until all necessary funds for its completion could be found. Only in 2012, after receiving a funding extension from the U.S. Ambassador's Fund for Cultural Preservation, the Trust has now secured the necessary funds to restore this important building. Work on the conservation of the Palace will begin at the start of 2013, and is anticipated to be completed by the first quarter of 2014. The restoration and repair of this relatively intact building will include repairs to the existing roof, removal of incompatible paint, major repair of damaged doors, windows, balconies and railings, replacement of mismatched telia flooring tile, and conservation of the interior sgraffito friezes. Appropriate seismic strengthening measures will be integrated throughout the structure. A new electrical and lighting system will be installed.

The restoration of the large hall will provide the Patan Museum and the city with its only historic interior space of this scale, which can be used as a multi-purpose gathering venue for local community and neighborhood organizations, as well as visiting international conferences and workshops. The ground and first floors have been chosen to house the satellite branch of the Nepal Architecture Archive, as well as serve as a public reading room. For the time being, the main assembly hall will be managed and used by Patan's Rotary Club, which has already invested in the space in exchange for its future use.



**Proposed museum circulation plan** | April 2012 The proposed circulation plan of visitors through the extended museum complex.

#### PROJECT COMPONENT

# 9



Mul Chowk's interiors after restoration | November 2012

### PATAN MUSEUM EXTENSION

The restored Mul Chowk and Sundari Chowk buildings will house extension galleries to the Patan Museum, significantly expanding the exhibition capacity of the Royal Complex. The highly successful Patan Museum, established in 1996 and housed in Keshav Narayan Chowk, showcases the religious art of Nepal. For the Mul Chowk Museum, the Trust foresees a museum of architecture and ritual, drawing from KVPT's collection of artifacts and drawings, assembled over the twenty years of restoration work in the Kathmandu valley. KVPT's network of national and international experts will provide all necessary research and curatorial assistance. Future plans involve the creation of an archive and resource library, making available not only KVPT's, but also other researcher' materials on Nepal's traditional architecture and history.

The restored palace of Mul Chowk will serve as a living exhibit, wherein the visitor learns about the very buildings in which they stand and engages with the space in a thoughtful, interactive way. In the palace buildings the visitor will experience first-hand the palaces' many-layered histories and traditional and contemporary design influences. The visitor will also have the opportunity to view exceptional woodcarvings and repousse work. Changing exhibits of architecture and crafts will also be housed in the neighboring Sundari Chowk. A comprehensive plan for ticketing and management of the Palace Complex will be developed. Upon project completion, all three palace courtyards will ideally be open for longer hours, seven days a week as the Patan Museum courtyard and rear garden is today. The existing Patan Museum management structure under the Museum Development Board will remain unchanged and will incorporate the two new palaces in its current management plan. The Trust is working in conjunction with the Patan Museum to devise a ticketing system that is both fair and will sustain continued success. These matters are under negotiation and currently being discussed with all involved parties and stakeholders.

To date, the interior galleries of Mul Chowk have been restored and only plastering of the walls and installation of a lighting system remain to be completed. Mul Chowk's interiors will house a temporary art exhibition in the fall of 2012 as part of Kathamndu's International Art Festival. The restoration of Sundari Chowk and its preparation as a museum space will be completed by the end of 2014.

Following are excerpts from the Trust's proposal for Museum development, submitted to the Patan Museum's Development Board.







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### GALLERY 00 PATAN ROYAL PALACE PROJECT DOCUMENTATION

This gallery on the ground floor of Mulcok's north wing will be accessible free of charge to visitors and serve as an introduction to KVPT's achievements since 1989, and provide detailed documentation of the Patan Royal Palace Complex restoration. Utilizing drawings and photographs, restoration documentation will introduce the visitor to a variety of aesthetic decisions, technical solutions, and working methods developed by the Kathmandu Valley Preservation Trust. This presentation will illustrate the synthesis of local and international knowledge and expertise, and also pay tribute and highlight the important contribution by all of the donors who have made these works a success.





Introduction to KVPT and DoA projects implemented over the past 20 years in Kathmandu and Patan.



Deatailed documentation of Patan Royal Palace Projects:

- Historic photographs
- Restoration of Mulcok and Sundari Cok
- Tusha Hiti and Bhandarkal Tank
- The Taleju Temple
- Kot Pati and Court House
- The Golden Door Ensemble and Yantaju Shrine





#### Gallery 04 installations:

tracks	4 meters
spots	4 pcs.
wall washers	2 pcs.

object display: D 04-01: (140 x 300 x 60 cm) Wood-carved altar

display case: C 04-01: (190 x 70 x 10 0) Ritual objects C 04-02: (190 x 70 x 10 0) Ritual objects, coins, charms, etc.

panels:		
P 04-01:	(70 x 120 cm)	Mulcok ritual
P 04-02:	(70 x 120 cm)	Mulcok ritual





Panel P 04-02

Panel P 04-01



### GALLERY 04 A WOOD-CARVED ALTAR AND RITUAL OBJECTS

When restoration work to Mulcok Palace started, a small room without any access was discovered in the west wing on the second level. This space was most likely a meditation room, known as "Bidhyapeeth" in Nepali. Since meditation tradition in Mulcok was discontinued a long time ago, one explanation for the blocking of the space could have been to prevent those individuals who were not initiated from entering. The room contained a beautifully carved wooden altar, and a number of ritual objects which will now be seen on display in the same location in which they were found.

When doing restoration work on the ground floor just below, a large cache of ancient coins and jewelry was discovered under a 2 foot layer of mud. These objects need to be further researched and identified, and will also find their way into a showcase.









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### LIVING CITIES

A wonderful characteristic of the Kathmandu valley towns and cities is that they are resilient to change. There was a time a few always been fascinated with the world around them and have decades ago when the doomsday predictors of the valley went around declaring the end of the Kathmandu valley architecture as evolved. If you venture into Thimi and watch the potters and clay we knew it. Today the perception is quite different and quite posi- artisans at work, you could excused for thinking that everything tive. Bhaktapur is doing really well as a living 'world heritage city'. The opening of 'new' courtyards in the Hanumandhoka palace is a great attraction for visitors and heritage lovers. In Patan, the won- take some time out to visit these great people and purchase all derful and painstaking work being undertaken by the Kathmandu Valley Preservation Trust (KVPT) is very special and encouraging. KVPT has set a high standard on how our heritage should and can be preserved. Everyone looks forward to the day when visitors will be able to see the Turba Hiti and the water tank, and the gardens in the old palace. One of the things that KVPT has done really well is the documentation of the preservation work, which will hopefully last larger than the monuments themselves.

On the same note, one of the greatest milestones in preserving the Kathmandu valley heritage happened when Mr. Niels Gutschow published and launched his three-volume book Newar Architec- the people who make it all happen. Whatever you are planning to ture' in Kathmandu amidst a very meaningful program where he do this month, we hope you will make time for the Nepaliway. thanked all the people who helped him write the books since 1962. It is hard to make a strong argument, but during these politically tough times, documenting our heritage may very well be the most critical thing to do so that we can recover them in better times. This captured knowledge, combined with the skills and techniques of the artisans will keep Kathmandu a living heritage city for a long time to come.

Talking of living heritage cities, from ancient time people have not stopped wondering how everything was created and how it was first crafted in clay and then 'brought to life'. People who know how to do this are called the Prajapatis. This month, please the clayware you need for the spring for the house and garden.

The new year has brought great news for everyone who loves wildlife and nature as well. In the entire past year, not a single thino was poached; what a great achievement! Everyone involved deserves a pat on the back and should be acknowledged publicly. Once again, in the early 1970s the doomsday predictors did not give these beautiful animals too many years before they would become extinct. This is the beauty and the thing about Nepal. There is so much negativity and bad news all around if one so chooses. If not, you can choose to focus on what is good and



### PUBLICITY FOR KVPT AND DONORS

Over the past two years the Trust has been profiled in local publications, featured on donors' websites, and was host to several visiting United States officials and award ceremonies:

- The Prince Claus Fund for Cultural Preservation showcased the Trust's work on the Taleju Temple as a "Featured Project" on the website's home page.
- The ECS Nepal magazine featured an article on KVPT's Patan Palace project in November 2011.

• Niels Gutschow, senior advisor to KVPT, received the Fukuoka Arts and Culture Prize 2011 in a ceremony hosted by the Japanese ambassador in the Patan Palace restoration site

• The Trust celebrated its 20th Year Anniversary Gala at the Rubin Museum of Himalayan Art in New York City., which was featured in the fall 2011 issue of Orientations magazine.

• A feature film on the work of KVPT titled "In the Valley of a Thousand Gods: The Temple Rescuers" was produced for Austrian Television (ORF) and the German Bayern Alpha channel.

• The Trust hosted the visits of many visiting U.S. officials, including US Congressman Steve Chabot, Global Health Initiative President Lois Quam, US Ambassadors to Nepal Scott DeLisi and Peter Bodde, and Under Secretary of State Maria Ortero.

### FUND RAISING AND PARTNERSHIPS

#### FUND RAISING

Despite our fundraising achievements, KVPT faces a shortfall of funds needed to restore the final remaining structures in the second major phase of the Patan Palace Restoration Program, as well as to embark on the Program's third and final adaptive re-use and development phase.

The Robert W. Wilson Challenge to conserve our heritage not only catalyzed the ambitious restoration program, but also allowed the Trust to attract major donors and raise an unprecedented amount of funds. The World Monuments Fund has played a critical role in continually supporting KVPT over the past seventeen years, allowing our organization and its projects to grow in capacity and garner international philanthropic attention. KVPT will continue to tirelessly seek new sources of funding from diverse sources both inside and outside of Nepal.

As we near the end of the matching funds available to the Trust under the Robert W. Wilson Challenge, we hope to explore new possibilities for continued partnership and collaboration with the World Monuments Fund.

We look forward to continuing this fruitful relationship and to jointly seek creative new approaches to soliciting funds.

#### PARTNERSHIP STRATEGIES INCLUDE:

• Further collaboration with the Prince Claus Fund for Culture and Development on future educational programming: historic walks throughout the square, short video vignettes on different conservation issues, and workshops which disseminate knowledge about traditional seismic building techniques.

• A targeted fundraiser in the Spring of 2013 to raise the remaining amount necessary for the completion of Sundari Chowk

• Continued consistent support from the German Foreign Ministry, the Sumitomo Foundation and the U.S. Ambassador's Fund for Cultural Preservation

• Increased outreach towards local Nepali participation, using Yogeshwor Amatya's donation for Yantaju Shrine as the focal point of the Mul Chowk inaugural ceremony and publicly encouraging similar donations from individual Nepali donors

• Targeted outreach to private donors for the financing of the future museum, seeking individuals to serve as patrons for specific gallery wings

#### FUND RAISING PROJECTIONS: 2012 - 2013

The Trust is constantly working to seek new funding sources and establish new institutional partnerships to supplement our already existing partnerships and loyal supporters. The Trust is happy to report the productive continuation of old partnerships, as well as the successful establishment of new ones.

In the meantime, as the Trust has exhausted the funds available to it under the Robert W. Wilson grant money, the Trust hopes to explore new ways that the World Monuments Fund can continue to support the Patan Royal Palace Restoration Program and see the project through to its full fruition.



KATHMANDU VALLEY PRESERVATION TRUST