

Salvaging, recovering and inventorying wooden elements and artifacts from the earthquake damaged monuments of Hanuman Dhoka Durbar Square

(December 2015 - September 2016)

FINAL REPORT

(For fulfillment of Article No. I.10 c of Contract No. 4500306002)



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Preamble

In the chaos of emergency rescue operation after 25 April 2015 earthquake, the timber members/elements that fell down from damaged or collapsed monuments of Hanuman Dhoka Durbar Square were rapidly piled in different locations. And in repeated clearing activities, that was done in short period of time and in unplanned ways, timber members/elements from damaged or collapsed monuments got mixed up making it quite difficult to separate them according to the monuments to which they belong. Besides due to approaching rainy season it was felt necessary to provide them adequate rain protection. But due to lack of resources, all response activities were slow and insufficient.

It was found that the dispersed timber elements/members were piled in more than 16 different locations. The need to salvage, sort and inventory them was widely voiced. The planning and discussion on the topic continued for months. And only in November 2015, with the general agreement between different stakeholders including the Department of Archaeology, Hanuman Dhoka Museum Development Committee, UNESCO Office in Kathmandu and ICOMOS Nepal, it was decided to carry out the salvaging, sorting and inventorying work of dispersed timber members/elements in Hanuman Dhoka Durbar Square with the support of UNESCO Office in Kathmandu. Due to administrative complexities, the contract was handed over to ICOMOS Nepal with major responsibility of hiring national expert and field reporter for the job and engaging different team members for supportive works including carpenters and labors.

Wider discussion on finding best expert for the job narrowed down to two people - Prof. Dr. Mukunda Raj Aryal and Sukra Sagar Shrestha. Prof. Mukunda Raj Aryal had served in the Faculty of Culture & Archaeology of Tribhuvan University for more than 40 years. Sukra Sagar Shrestha had been a senior archaeologist and art expert in the Department of Archaeology. Owing to their long experience in teaching and working especially in the field of Nepalese iconography, they were entrusted with the position of team leader in the program. Discussion with these experts revealed various aspects of the project:

- * They expressed that despite their extensive experience on the subject, it can not be guaranteed that exact position and iconography of each and every timber work can be reclaimed completely.
- * In the course of previous restorations, renovation or reconstruction works, most of the timber works were wrongly positioned and sadly this has been taken as authentic over time.
- * Extensive research work and collection of archival documents will be necessary to ascertain the iconography, position and proper sequence of the timber elements.
- * This is a time consuming work that needs high scrutiny and patience.

After their field visit they provided the list of following temples that were partially or completely collapsed and whose timber members got mixed up during the emergency rescue and subsequent clearing operations.







- 1. Kasthamandap
- 2. Nau Dega (Siva Mandir NW of Kasthamandapa)
- 3. Pun Dega (Trailokya Mohan Temple)
- 4. Maju Dega
- 5. Santanesvara Temple
- 6. Garud Narayan Mandir (North of Maju Dega)
- 7. Chyasilin Dega (Radha Krishna Temple)
- 8. Siva Temple (just outside the gate of Taleju Temple complex)
- 9. Siva Temple (North of Nag Pokhari)
- 10. Nautale Durbar (Basantapur Tower)
- 11. Bhaktapur Tower

Of these, Shiva Temple to the north of Nag Pokhari was excluded from the list as it was already taken up by a Japanese team for sample inventorying before the current inventorying program was initiated.



Kasthamandapa (Before earthquake)



Kasthamandapa (After earthquake) Page 3



Pun Dega (Before earthquake)



Maju Dega & Santanesvara (Before earthquake)



Pun Dega (After earthquake)



Maju Dega & Santanesvara (After earthquake)



Nau Dega (Before earthquake)



Chyasilin Dega (Before earthquake)



Nau Dega (After earthquake)



Chyasilin Dega (After earthquake)

In the initial reconnaissance, it was found that timber piles were dumped in at least 19 different places (*shown in red*). During the subsequent salvaging and screeing work, four additional heaps (*shown in blue*) were discovered making a total of 23 heaps of timber artifacts that had to be salvaged and screened.



SCOPE AND LIMITATION

Considering the unprecedented and unfathomable volume of work, initially it was hard to define the scope and limitation of the work. However it was decided that we should move on with the salvaging, screening, sorting and inventorying works first and if time allows, we might think about considering further works possibly related to repairing damaged artifacts and recreating non-usable or lost ones which was basically a research based work and might require a workshop based approach involving experts and artisans. Recommendation of last stakeholder pointed towards establishing a centralized workshop for such activity and suggested that it might be a good approach to exercise quality control in artistic works. A similar suggestion was also given to establish a centralized procurement unit overseeing the supply of timber for overall reconstruction work. Cleaning, dust blasting, paint removal, chemical treatment etc. of the artifacts were other possible activities that could not be included in this phase. In a nutshell, salvaging and screening the artifacts, sorting them as per the monuments, inventorying them and storing them in a secure and systematic way was all that could be done within this phase.

By the time the screening and sorting of artifacts from other temples was complete and only that of Basantapur Durbar and Bhaktapur Tower was left, it was found that these two towers were in precarious condition and it was risky to approach their upper stories. Hence some of the heaps that could possibly be in upper stories could not be reached. The team decided to gather whatever was accessible and approachable with less threat to human life. Hence not all of the items could be salvaged and it was left for future campaigns hoping that when the restoration of these towers will be undertaken, the items that could perhaps be in upper stories will be recovered.



STAGES OF WORK

Salvaging

The carved and uncarved timber elements that were heaped in different locations were carefully taken out from their respective locations and taken to the screening area at Nasal Chowk and Trishul Chowk inside Hanuman Dhoka Durbar premise, which were only available secure locations at that moment. Controlled labor work was employed in the work so that the subsequent screening work could be properly managed. From the outset the carved and uncarved timber members were separated and as far as the timber artifacts could be identified, they were grouped according to their type, size and colour. The damaged, broken and fragmented artifacts were kept separately to be subjected to further screening work. The uncarved timber elements, most of which included rafters, beams and uncarved pillars were neatly piled inside Daakh Chowk and Nhulachhen Chowk.



Spreading and screening

The artifacts which could be instantly identified were grouped separately. And the artifacts which could not be identified and the fragments of the artifacts which were yet to find their proper place to fit in had to be spread over a large area. It required masterful eyes of the master carpenter and the experts to see which piece fits into which. It was sort of playing jigsaw puzzle trying to fit the correct pieces together. Sometimes when some pieces of an artifact could not be found from a pile, it had to be kept spread in a hope to find its missing pieces until other piles are opened. This is where the expanse of open space in Nasal Chowk and Trishul Chowk became useful. However, due to frequent ceremonies taking place in Nasal Chowk and daily programs of army personnel in Trishul Chowk, the artifacts had to be repeatedly shifted to different locations as per the situation. The time and labor that went on for such additional work was made contingent by the lack of proper screening space and these overlapping activities.

Besides the space in Trishul Chowk was also utilized for the Panchamukhi Hanuman Restoration Project which also forced the work to be done in shift and turn basis.



Sorting & grouping

The thing that was helpful in identifying to which monument the artifact belonged was the iconography of the deity that was depicted on them. Secondly, the differing size of the artifacts, the colour and the paints applied on them were also suggestive of their monument of origin. Even though the general identification of the monument to which the struts belonged could be made, their exact position could not be claimed as almost all of the hands of the deities on the struts had detached from their positions. The hands found in separate pieces were collected together in a hope that they could be placed in their correct position if some authentic information could be found in the future. Most of the ku salas (corner struts) were found intact.





Assembling

It took the experience and skill of master carpenter and junior carpenter to find out the correct pieces that could fit together. Assembling was especially challenging as far as the doors and windows are concerned as there are lots of individual pieces, decorative or otherwise, that went into making a set. And when some pieces of a door or a window could not be found, they had to wait until all piles are opened and screened. Until then they could not be photographed or their inventory made. The recovered pieces of windows or doors were assembled in their respective places and loose/fragmented parts were kept tied using stainless steel wires.



Photographing & Inventorying

Photographing the artifacts was done parallel to screening and sorting work whenever the sets of artifacts were found complete. An inventory form was developed that included the photograph of the artifact. The inventorying work required some sort of coding system that could be attached on inventory form as well as on the artifact itself. To attach the codes on the artifact, a small piece of white medical tape was stapled on the artifact and the code no. was written over it manually with a permanent marker. The experts went on through the individual artifacts recording their data in their respective inventory forms and putting remarks and recommendations regarding those artifacts. Separate inventory forms were used for all all unique artifacts while for modular artifacts, like *tham* (pillar) and *dhalikhwaas*, a single representative inventory form was made. Firstly, the inventoy was prepared on item-wise basis e.g. struts, *kunsala* (corner struts), *tham* (pillars), *meth* (bracket) etc. irrespective of monuments. Once it was complete, the only thing required was to shuffle and separate them according to the monument which ultimately led to the compilation of monument-wise inventory.





Storage

From the very outset, a need for proper storage space to store recovered artifacts was expressed. Since it was uncertain when the reconstruction of collapsed monuments will start, it was likely that these recovered artifacts had to be stored for a long time. Some kind of shelter that could provide rain protection to these artifacts was felt necessary. By the time the program was closed, three temporary covered shelters were built inside the Hanuman Dhoka Durbar premise to house the recovered artifacts. The first and the biggest one (30x60 ft) was set up to the east of Taleju Temple in Trishul Chowk at the beginning. Two smaller ones, one to the east of Naag Pokhari (1.8X20 m) and the other to the west of it (10X10m), were built a little later. The technical and financial assistance for the construction of these sheds was provided by UNESCO Kathmandu.

To save space inside the shelters, staking racks were made using tubular steel pipes (2" diameter) and clamps and wherever possible, the artifacts were laid flat down or in standing position tied with stainless steel wires. Some icons were even tied to the truss members above.

In spite of these, there was a sheer lack of storage space for all recovered artifacts due to which some of the artifacts like doors and windows had to be kept displayed on the plinths of Lohan Chowk and Nasal Chowk hoping that this will serve a dual purpose of display as well as storage. Some doors and windows had to be kept covered with tarpaulin on the terraces of Taleju Temple inside Trishul Chowk. No other temporary sheds were constructed due to the lack of proper space inside Hanuman Dhoka Durbar premise.

Security

As the whole program was conducted inside the premise of Hanuman Dhoka Durbar premise which is constantly guarded by the army personnel of Shardul Jung Garrison stationed there, the issue of security was of less concern. Moreover, all these works were left under the custody of Hanuman Dhoka Palace Maintenance of DoA wing inside palace premise.



Synopsis of stakeholder meeting organized on 03 October 2016, Monday.

The first thing that should be done while initiating reconstruction work is to establish a centralized wood crafting workshop to cater the needs of all collapsed/damaged monuments under one roof. This may greatly reduce the doubt hovering at the moment pertaining to the idea that the contractual approach might produce poor result. We can ask the contractor to supply craftwork in desired quality in ways similar to asking to supply timberwork. But this may not be possible through government channels because here all monuments are individually treated or individually estimated. In some way if we can adopt a centralized approach we can exercise a major quality control as far as the artistic quality is concerned. It is where the outside assistance can be helpful. Rest is only a matter of engineering quality control.

The heritage reconstruction might be a decade long activity. So it is only pertinent that government should think about establishing centralized office/workshop to look after the research and production activity related to woodcraft. A similar approach can be adopted for controlling the quality of timberwork, traditional bricks like dachi appa and ma appa and so on. But this might be possible through outside funding and assistance.

Beyond woodworks, we should also think about recreating the traditional bricks in quality similar to that was originally used and not just using whatever is available in the market. This is how we should create conservation standards because these things have not been done elsewhere and we are presented with an opportunity to explore these areas.

This is also an opportunity to produce specialized craftsperson specializing in particular item of artifacts e.g. ga jhya, gaa: jhya etc. Traditionally the craftsmen were endowed with knowledge as well as skill. But with time, the skill might have remained but the knowledge was lost in memories. This is an opportunity to produce craftsmen with knowledge wherein lies the need to integrated research and study aspect to the skill aspect.



Final Recommendation

However, the salvaging, sorting and inventorying the wooden artifacts of earthquake damaged monuments of Hanuman Dhoka Durbar Square has been accomplished to some extent, we are faced with yet another challenge if we are thinking of taking it to a next level. Some of the artifacts are lost while a lot of those recovered need extensive repair and strengthening work. Due to time constraints and the volume of work that had to be dealt with in this phase, the identification/recommendation about the iconographic features of the lost or the damaged artifacts had to be forcefully excluded from this phase. But that will be essential if the program of remaking lost and/or unusable ones or the repair of damaged ones is to be initiated. Prior to the actual reconstruction/renovation of the damaged/collapsed monuments, some of programs that could be organized as a base work can be recommended as follows:

SN	Particular	Туре	Expected Output
Program 1	Identification/Recommendation	Research/Study	Illustrated report on the
	of the iconographic features of		identification/recommendatio
	lost or damaged wooded		n of all artifacts associated
	artifacts recovered.		with the damaged/collapsed
			monuments in Hanuman
			Dhoka Durbar Square.
Program 2	Establishing centralized	Workshop	Keeping artifacts required for
	workshop of artisans to		the reconstruction and
	fabricated lost/unusable		renovation of the
	artifacts and repair damaged		collapsed/damaged
	ones. Required treatment		monuments in ready
	included.		condition.

As the realistic inventory of the artifacts such as doors, windows, struts etc is now prepared, it can be used as a cross reference to verify the architectural drawings of the collapsed monuments that DoA is preparing at the moment.

It is also recommended that when the restoration of Basantapur Tower and Bhaktapur Towers is undertaken, the artifacts that could possibly be in their upper stories need to be inventoried as well.

APPENDIX

Core Team Summary of Artifacts Recovered Location of Artifacts stored in Open Space

CORE TEAM

Name	Role	Address	
Prof Mukunda Raj Aryal	Iconographic expert	Saraswatisthan, Gairidhara, Kathmandu	9841210840 trailokyaaryal@gmail.com trailokyaaryal@yahoo.com
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Rakesh Birbal	Master Carpenter	Nasamana-13, Bhaktapur, Nepal	9841133690
Rajendra Laghu	Junior Carpenter		
Anil Koju	Junior Carpenter		

Sunil	Photographer	Inakha,	4242854, 9841208989
Dangol		Kathmandu	sumir_dg@yahoo.com
Dipendra	Field	Narayantar,	9801103725
Shrestha	Reporter	Jorpati, Kathmandu	shresthadeepen22@gmail.com
Anju	Volunteer	Wotu,	9841489904
Shakya		Kathmandu	anjushakyanju@gmail.com

SUMMARY OF ARTIFACT RECOVERED

KASTHAMANDAP (MARU SATA:)

Particulars	Previously existing		Recovered		Remarks
	0	Usable*	Unusable	Lost	
Wooden frieze carved with the Saivo Buddhist story in four pieces	4	4			Some pieces of balustrade are flaked off (605 cm). It seems that frieze piece is not lost to be replicated anew - old one to be sent to museum
Wooden images of Bhairav	48	48			2 are completely broken, Some are cracked and effaced. 35 pieces are in good condition
Stone Icon of Gorakhnath	1		1		Broken into two pieces - to be replaced
Stone icons of Ganesh	4		4		2 of the with broken arms to be replaced
Pillars					
Big	4	3		1	
Small		30			
Meth					
Big		16			
Small		135			
Deco. Piece	2	2			
Copper Inscription		3			Recorded Inscription in copper

* Directly usable or usable after repair.

NAU DEGA (BIMALESVARA TEMPLE)

Particulars	Previously existing	Recovered		Remarks	
		Usable*	Unusable	Lost	
Struts	24	24			
Corner struts	8	8			
Windows					
Gaa Jhya	16	16			
Yaku Jhya	8	7		1	Yaku Jhya have parts missing and 1 has only 2 pieces remained.
Doors	4	4			
Pillars	12	12			tenons to be refitted

Meths				
Full	8	8		
Half	8	8		
Chakulaan	12	9	3	3 of them are lost. 3 of them have parts missing
Dhalinkhwaas		more than		
		100		

* Directly usable or usable after repair.

The items from this temple is mostly saved.

PUN DEGA (TRAILOKYA MOHAN TEMPLE)

Particulars	Previously	Recovered			Remarks
	existing	Usable*	Unusable	Lost	
<u> </u>	24	15	Ollusable	LUSI	D (
Struts	24	15	9		fragmented.
Corner struts	11 (carved) + 1 (plain)	10 (carved)	1	1 (plain)	1 was already in plain timber before collapse
Windows					
Gaa Jhya	20	19		1	All partially damaged
Yaaku	8	8			
Jhya					
False Window	8	8			
Doors	4	4			
Pillars	20	20			tops and bottoms are to be redone
Meth					
Full	16	16			
Half	8	6			
Chakulaan	20	20			
Dhalinkhwa		more than			
		150			
Stone Icon	1	1			

* Directly usable or usable after repair.

Sizes in average:

Windows	Top 100 x 180 cm, middle- 128 X 235 cm, bottom - 133 X 236 cm
	Yaku Jhya at bottom storey only measuring 96 X 54 cm
Pillars:	25 x 25 x 190 cm in average.
Doors:	190 x 170 cm at the widest part.
False windo	ws: 25 X 53 cm

MAJU DEGA

Particulars	Previously existing		Recovered		
	8	Usable*	Unusable	Lost	
Struts	48	33	13#	2	2 are lost and
					fragmented fragmented
Corner struts	12	11		1	9 still reusable
Windows					
Gaa Jhya	20	20			All partially
					damaged
Yaaku	14	14			
Jhya					
Doors	4	4			Some parts missing,
Pillars	20	20			Tenons in all of them have to be repaired.
Meth					
Full	16	16			
Half	8	8			
Chakulaan	20	20			
Dhalinkhwa		more than 150			
Stone Icon	1	1			

* Directly usable or usable after repair. [#] Although these pieces were unusable, some 30 fragments of these pieces were inventoried *because of their high artistic value*

Sizes in average:

Pillars 25 to 30 cm X 25 to 30 cm X 200 cm Doors: Height 210 cm and breadth at the widest is 355 cm Gaa Jhya central ones 110 X 210 cm, two in sides 100 X 175 cm Windows: Yaaku Jhya measures 60 X 95 cm

SANTANESVARA TEMPLE

Particulars	Previously existing	Recovered			Remarks
		Usable*	Unusable	Lost	
Door	1	1			Base stone lost
Stone pillars	2		1	1	1 Broken and
					lost
Stone Icon	1	1			In Nhulachhen
					Chowk

* Directly usable or usable after repair.

GARUD NARAYANA TEMPLE

Particulars	Previously existing	Recovered			Remarks
	0	Usable*	Unusable	Lost	
Struts	40	40			Some rotten rest good. 6 are fragmented.
Corner struts	12	12			1 broken no more useful
Windows					
Gaa Jhya	20	19			Partially damaged
Yaku Jhya	8	8			Partially damaged
Door	4	4			
Pillars	16	16			Topsandbottomsaretoberedone
Meth					
Full	8	8			
Half	8	8			
Chakulaan	8	8			
Dhalinkhwa		more than 100			
Stone Icon	1		1		Broken
Decorative Piece		7			

* Directly usable or usable after repair.

Sizes in average:

Doors: Height 170 cm X breadth 275 cm at the widest part

Pillars: 21 X 22 cm in average X Height 180 cm

Windows: *Yaaku Jhya* 62 X 36 cm, *Gaajhyaals*: bigger ones= 125x190, medium ones=115x180 and smaller ones = 117x75 cms.

CHYASIN DEGA (RADHAKRISHNA MANDIR)

Particulars	Previously existing	Recovered			Remarks
		Usable*	Unusable	Lost	
Pillars	24	24			Since this temple has no remarkably
Full Meth	16	7			carved, no individual inventory is made, simply
Half Meth	16	3			screened and deposited

* Directly usable or usable after repair.

As the restoration/reconstruction of this temple was undertaken before the inventorying of the recovered artifacts could be done and its artifacts were taken away to be reused.

SHIVA TEMPLE

Particulars	Previously existing		Recovered		Remarks	
		Usable*	Unusable	Lost		
Struts						
Big	8	8				
Small	8	7		1	Few to be reinforced	
Corner Strut						
Big	4	4				
Small	4	4				
Windows						
Gaa Jhya	8	8			Parts missing	
					in some	
Doors	1	1			parts missing,	
					see inventory	
Dhalinkhwaas	72	61		11	41 can be reused	

* Directly usable or usable after repair.

BASANTAPUR TOWER (NAUTALE DURBAR)

Previously there were four three-bay windows (San Jhyah), four corner struts (kunsala), and sixteen long struts in the roof structure second from the top with sixteen additional small struts to support the bay windows all four sides. There were eight Yaka Jhyah on either side of four San Jhyah. Likewise, the topmost roof had four corner struts and twenty standing pillars that were supporting the grilled windows of a single piece spanning four sides of the structure. There were twenty small struts supporting the grilled windows.

One big and one small windows, which are assembled almost in complete state, along with 50 pieces of small individual images of gods, men, animals and other figures are recovered are placed inside shelter 3 below Bhaktapur Tower and behind the stairs at Lohan Chowk.

BHAKTAPUR TOWER

The whole structure of Bhaktapur Tower that stands above the terrace was almost a single entity with sixteen windows supported by sixteen main standing pillars with decorative carved sub pillars. There were 16 windows made into one piece spanning entire storey. Due to the fall from high place and members being thin and smaller in scale most of them are broken.

Note:

By the time the screening and sorting of artifacts from other temples was complete and only that of Basantapur Durbar and Bhaktapur Tower was left, it was found that these two towers were in precarious condition and it was risky to approach their upper stories. Hence some of the heaps that could possibly be in upper stories could not be reached. The team decided to gather whatever was accessible and approachable with less threat to human life. Hence not all of the items could be salvaged and it was left for future campaigns hoping that when the restoration of these towers will be undertaken, the items that could perhaps be in upper stories will be recovered. Thus, the artifacts from Basantapur Tower and Bhaktapur Tower could not be sorted completely. However, the following artifacts are recovered and stored in Shelter 3 and Lohan Chowk.

Struts (Large)	21
Struts (Medium)	6
Struts (Small)	17
Corner Struts	3
Struts (Long)	22
Struts (Medium)	3
Corner Struts	15
	Struts (Large) Struts (Medium) Struts (Small) Corner Struts Struts (Long) Struts (Medium) Corner Struts





