International Conference 2015

"Revisiting the Philosophy of Preserving Wooden Structures:
Value of Wooden Structures in Asia and the Concept of Authenticity"
(15 – 17 December 2015, Nara, Japan)

Cultural Heritage Protection Cooperation Office,
Asia-Pacific Cultural Centre for UNESCO (ACCU)
Agency for Cultural Affairs, Japan
World Heritage Institute of Training and Research for the Asia and
the Pacific Region under the auspices of UNESCO (Shanghai)

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KUMAMOTO Tatsuya
Director
Architectures and Other Structures Division,
Cultural Properties Department,
Agency for Cultural Affairs, Japan
International Conference 2015


IWARA Nobuko
Rohit Jig
ina Majid

Preface

ACCU Nara Office has been holding International Conferences every year aiming to contribute protection and preservation of cultural heritage in Asia Pacific region. Since 2011, we and WHITRAP Shanghai had started to organise international conference jointly either in Nara or Shanghai as a part of collaboration between us.

This is the third time when the International Conference is being held under the general theme of "Revisiting the Philosophy of Preserving Wooden Structures". At the first conference, we discussed how wooden structures had been restored; especially the changes in the philosophy of preserving wooden structures and restoration methods for preservation after the formulation of the "Nara Document" in Nara in 1994. Cases of individual buildings were given as examples. Second year, rather than looking at individual buildings, we focused on groups of buildings, such as town streetscapes and villages, and the surrounding environment. We facilitated discussions on their relationship with the local communities that play an important role in preserving the landscape with wooden structures.

In October 2014, in the second year since we began with this theme, the Agency for Cultural Affairs, Japan (*Bunkacho*), Nara Prefectural Government and Nara City Government co-organised the "20th Anniversary of the Nara Document on Authenticity Meeting", at which debate was exchanged over the achievements of 20 years of the Nara Document, and prospects for future developments. The "Nara + 20" text was adopted as an achievement of the conference.

At the last conference, building on the two prior occasions plus the debate from the Nara Document 20th anniversary meeting, we would like to hold comprehensive discussion on the concepts of authenticity and the locus of value of wooden structures in the Asian region, and take as our goal the drawing up of a proposal as a means for bringing closure to this series of meetings spanning the past three years.

Lastly, I would like to extend special thanks to all those who have given advice and support in regard to holding this conference, beginning with the Agency for Cultural Affairs, Japan (*Bunkacho*); National Research Institute for Cultural Properties, Nara and Tokyo (Independent Administrative Institution, National Institutes for Cultural Heritage); WHITRAP Shanghai; International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM); JAPAN ICOMOS National Committee; the Japanese Association for Conservation of Architectural Monuments (JACAM); Nara Prefectural Government and Nara City Government.

NISHIMURA Yasushi
Director
ACCU Nara Office

Preface

The 3rd Session of International Conference on "Revisiting the Philosophy of Preserving Wooden Structures" was held from December 15 to 17, 2015 in Nara Japan within a cooperation framework between ACCU and WHITRAP. The event gathered heritage conservation experts from ICCROM, China, Japan, Norway, South Korea, Malaysia, Nepal and Sri Lanka to discuss the topic of "Value of Wooden Structures in Asia and the Concept of Authenticity".

Wooden structures are widely used in Asia. The region has formed a unique system of wooden structures in a long-term practice and accumulated abundant experience from the construction and maintenance of those structures. The achievements made in the region reflect on both the technical accomplishments attained by Asian people in their use of wooden structures and the in-depth philosophical thinking and profound traditions regarding this architecture type as well. Hence, it is of great value.

The 1994 Nara Document on Authenticity first proposed the issues regarding the judgment of authenticity in different cultural contexts, and served as an important reference for the repair philosophies and approaches of wooden structures in Asia. Over past two decades, countries in the region have never stopped their explorations and thus have accumulated rich experience. On the occasion of the 20th anniversary of Nara Document in 2014, "Nara+20" builds on its predecessor by adding to five critical issues concerning the conservation of the authenticity of cultural heritage and provides corresponding measures.

This conference revisits the conservation philosophy of wooden structures from both theoretical and practical aspects. I believe that the outcomes of this conference will substantially facilitate the interpretation of values of wooden structures and promote the development of the idea of authenticity in Asia.

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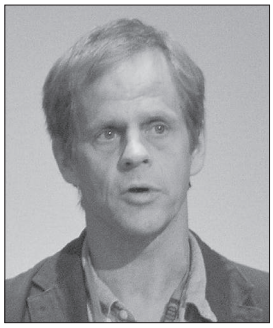

Revisiting the Philosophy of Preserving Wooden Structures
The relationship between theory and practical work

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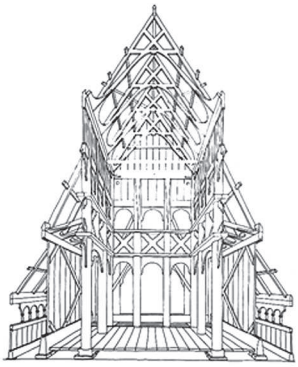
Project Manager
The Directorate for Cultural Heritage
Norway

In 2001, the Directorate for Cultural Heritage in Norway initiated a programme to repair all the Stave Churches in the country. This project will be completed by the end of this year.

A Stave Church is a medieval wooden Christian church building once common in North-Western Europe. The name is derived from the building's structure of posts and lintels, a type of timber framing where the load-bearing posts are called "stav" in Norwegian. (figure 1)



Stave Churches were once common throughout Northern Europe. In Norway alone, it is thought that there were about 1500. Today only 28 Stave Churches remain in the whole country. They are Norway's most important contribution to world architecture and among the oldest preserved wooden buildings in the world. They are unique in a European context and represent our foremost contribution to international construction history. One of the churches, Urnes, is listed on the World Heritage List. (figure 2)

The Stave Churches are not only valuable as buildings. They also form valuable elements in the cultural landscape, and contribute to illustrating where the major traffic arteries have been routed, and how the landscape has previously been used. It is therefore vital that the area surrounding the churches are not diminished or changed.

The Stave Church Programme

Due the poor condition of the Stave Churches the Directorate for Cultural Heritage, initiated the repair programme in 2001. The aim of the Stave Church Programme, which will be completed by the end of this year, is to repair all the churches. In the following paper, I will concentrate on the actual work that was done by using two illustrating examples, but first I will describe the central position the actual craft, along with the skilled craftsmen, have in a project run by The Directorate for Cultural Heritage.

Craft and Craftsmen

In order to illuminate the importance of handicraft and the craftsmen and their role in the work with cultural wooden heritage in general, I will use the Medieval Project of The Directorate for Cultural Heritage as an example. The Medieval Project was initiated in 1991 and completed in 1999. The project was motivated by the aim of repairing to an acceptable standard, all wooden profane or non-religious buildings dated prior to 1537. At the time the project was completed, a total of 230 wooden buildings had been repaired to the point of being saved for the foreseeable future. One of the conditions of the project was that the buildings should be maintained and restored using the same techniques and quality of materials with which they originally had been built.

The main challenge was that a lot of the knowledge about the old techniques had been lost. From the time of the middle ages up to industrialization, there had been an almost unbroken chain of building techniques and choice of building materials. The knowledge had been transferred from father to son and from master to apprentice for generations. Learning by doing had been the pedagogical technique for generations and is often referred to as action-borne knowledge.

The work maintaining the buildings from the Middle Ages made it necessary to re-activate this knowledge. The result was that the project to maintain and rehabilitate buildings from medieval times, turned out to be much more than just a maintenance program. Instead, it developed into a crafts program where the skills and knowledge of the craftsmen were in focus. In connection with the project, several seminars and courses were held with topics such as tools, working and building techniques, constructions, choice of materials and preparation of raw materials. All the topics were of great importance in order to be able to do the practical work.

At the gatherings, those still practicing the traditions were used as instructors, together with experienced and also young and inexperienced craftsmen. In that way the knowledge was passed from one generation to another.

In addition, the craftsmen got the role of being building researchers. The most important source of knowledge about the medieval building traditions are the structures themselves. There are few other sources than the actual buildings. Evidence regarding the use of tools and the signs of use were copied in such a way that the old techniques could be perfected. The quality of the original material was studied and similar quality materials was selected in the case where material replacement was necessary. The craftsmen had an important role to play in the documentation of the maintenance work. Working operations, building parts, use of materials and types of materials were described and photo documented.

To carry out the Stave Church Programme, it was necessary to further develop the knowledge about what was already known regarding the usage of traditional handicrafts, and "new" knowledge concerning the use of different traditional materials was re-discovered.

The Stave Church Programme

In the Stave Church Programme, the craftsmen have played a central role in all phases of repair. They have been responsible for the detailed condition assessment reports, including detailed damage analysis. In many cases, the craftsmen have also been directly involved in choosing the materials for the work which is to be done. They have been in the forests selecting appropriate trees and have been responsible for the whole timber production process; including the felling of the trees, the timber seasoning and the preparation process. In this way, the selection of appropriate wood for the work to be undertaken was secured. The reasoning behind the choice and preparation of material was justified by the craftsmen by looking at the very structures they were working on.

In close cooperation with the Directorate for Cultural Heritage, the craftsmen developed the plans for the actual repair work which was to be undertaken. Often the plans were quite general in character as the scale of work was hard to judge before actually starting the work. For example, a plan for repairing a roof could include directions for changing all damaged shingles, but it didn't state the condition a roof shingle should be in to justify replacement. It was also not possible to know the exact number of shingles which would need to be replaced before the building site was established and the scaffolding erected.

In the following section I will give to examples of the work undertaken as part of the Stave Church Programme.

Borgund Stave Church

Borgund is stylistically dated to around 1180 and is amongst the best preserved of all the Stave Churches. The roof shingles on Borgund form, along with the external gallery, dragonheads and carved ridge turret, the very identity of the church. It is remarkable that the elaborately carved, original ridge

turret is still in place. It is not possible to date with any certainty the age of the roof shingles, but it is probable that some of them are original. (figure 3)

The roof shingles were of different sizes and their condition varied considerably. Most of the shingles were made using an axe. Only in smaller areas, newer shingles had been made using a saw; a production method which first became usual around the second half of the 19th century.

To make the necessary repairs to the roof, it became clear that several thousand roof shingles would have to be replaced. But as the shingled roof played such an important part in the visual identity of the church, it would look very different if all the shingles were to be changed at the same time. It would be extremely difficult, if not impossible, to recreate the same visual expression that hundreds of years of weathering combined with smaller repairs had achieved. It was therefore decided to do some test-areas of repairs, a procedure which demanded great skill of the craftsmen involved.

Another big decision was whether the shingles should be made using an axe or a saw. The sawn shingles are much more precise in their shape than the axed ones, and roof surfaces with sawn shingles have a stricter and straighter expression. As much of the existing roof had been made using axed shingles, it was decided that the new ones should be produced the same way.

During the work on the test areas, different methods of working were tried. In this early stage of the work, the project manager was often on site to discuss the different solutions. Through close dialogue with the craftsmen, a preferred method was chosen where they could reproduce new shingles while

at the same time secure the usable existing ones. In this type of work it is important to find the right balance between conserving and renewing as it is vital to have a weatherproof roof, also over time. Conservation principles can't be too rigid where roof shingles are concerned; the shingles are placed directly on the underlying wooden sheathing without any additional materials and if water gets in rot can quickly occur. (figure 4)

After having completed several smaller test areas, the Directorate for Cultural Heritage concluded that the method where individual axed shingles were replaced was suitable for the whole church. But before the work could start in earnest, the right wood had to be found.

The awareness of the importance of choosing the right material was not really apparent before the 1990's. The best preserved shingles on the church are made of slow growth, dense pine. Analysis of the shingles shows an extreme density which is hard to find in Norwegian forests today and the craftsmen working for the Stave Church Programme had a real challenge on their hands trying to locate suitable wood. The shaping of the shingles with an axe demands good wood which should be both dense and straight in growth, something not possible to find in the near vicinity. The search had to be extended and eventually enough material was collected so the work producing the shingles could begin.

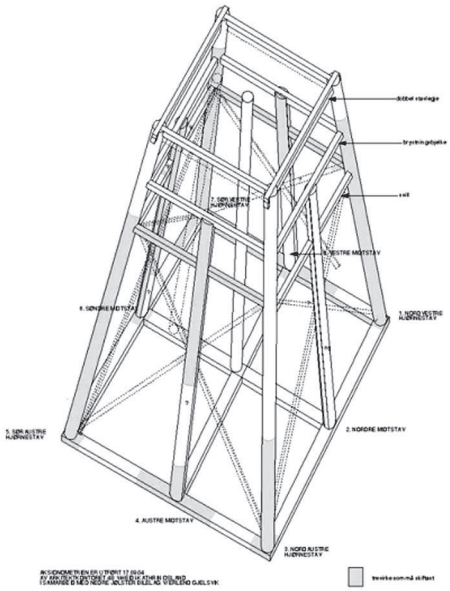
Part of the preparatory work on the church was also to determine what kind of scaffolding should be used. It was decided that a large frame should be erected around the entire church clad with tarpaulin. This scaffolding had two functions; it gave the craftsmen good working conditions while at the same time providing tourists and visitors to the church the opportunity to see the work being done. (figure 5)

When the work changing the shingles was started, the craftsmen used the test areas as a reference to the work they were doing, regarding both which shingles were to be kept and how the new ones should be adjusted. The test areas had also given a good indication as to how many shingles would have to be changed. This proved to be an efficient and effective way of continuing the work as most of the major decisions had been made during this earlier phase. After many months of work, the shingles were treated with wood tar. In total, about 8000 shingles were replaced. (figure 6)

The Belfry at Borgund

The belfry at Borgund, also included in the Stave Church Programme, is the only one of its kind left from the medieval period. It has a stave construction very similar to the type found in the Stave Churches and is an important element in the cultural landscape surrounding the church. (figure 7)

Significant parts of the belfry are medieval but it has undergone changes and additions in the 17th, 19th, and 20th centuries. Condition assessments determined that the belfry was in critical shape. It was only the part above the bell room which was in relatively good condition, while the other parts had significant damage. The "staves", or poles, had such a high degree of rot that several were completely hollow. The ground beams and joints were also full of rot.
The damage was so great that deterioration would accelerate if nothing was done quickly. Figure 8 shows the damaged parts, marked with gray.



Several options were discussed; strengthening the existing construction by adding a wood or steel load-bearing frame inside the original was one option, thereby propping up the damaged belfry. Because of the extent of the damage, this option would be very dominating and it was unclear how one could attach the old belfry on to the new frame. It would also be necessary to make certain changes to the original belfry so as to be sure no further moisture would enter the already severely damaged wood. In short, this option would have brought about a radical change to the belfry.

Another solution which would have guaranteed a complete preservation of the belfry was to move it under cover at a museum and build a copy on site. The belfry as an object would in this case be preserved but as a museum piece. One of the main reasons why this option was not chosen was that it directly opposes one of the main principles of Norway's cultural heritage legislation: that a cultural heritage object should be preserved in situ wherever possible. If the belfry was to be moved, the cultural landscape at Borgund would be diminished, even with a replacement copy.

The option which was chosen was to repair the belfry and to remove the rotten material. The work would be extensive so it was decided that the whole belfry would be taken down. The top section was hoisted down first, followed by the stave construction which was dismantled piece by piece and transported to a workshop where the work was done. An advantage with the dismantling was that

every single piece could now be thoroughly examined by the craftsmen who made detailed reports on joins and tool marks.

These studies formed the foundation in the work involving the remaking of building parts. Large amounts of original material had to be replaced, and it wasn't until all the pieces were examined that the extent of the damage became apparent. In the same way as the work on the churches, great emphasis was placed on locating replacement material of similar quality to the original wood. The craftsmen also used the same type of tools as far as possible. (figure 9)

Not just the visible elements were exact copies of the originals, but also all the hidden elements were recreated down to the smallest detail. For the belfry, it was of great importance that several of the load bearing elements were changed so the stave construction retained its load bearing function. (figure 10)

Conclusion

In the Stave Church Programme, the Directorate of Cultural Heritage has placed great emphasis on the importance of handicraft and material quality. The central role of the craftsman is also something new in the management and maintenance of the Stave Churches. While previously the craftsmen were told what to do, they were now part of the team - conducting the necessary investigations and appraisals. They gave important advice and their assessments played an important part in the discussions where principles were discussed. For the cultural heritage management in Norway to be developed, and for all the parties involved to learn from what they do, it is vital that the craftsmen who master the traditional crafts, maintain their position in the work being done. In this way the cooperation between the administration and the craftsmen can contribute to furthering our knowledge in the future.

II. Papers by Participants

On the Authenticity of Timber Structure Conservation Influenced by Chinese Culture

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Abstract
This paper introduces the early time when the wood was selected and used at the house construction and also introduces its influence to the idea and method of construction and restoration of structure, points three concepts of Chinese culture which also influenced the authenticity of heritage-"Xing Zhi", "Yi Jing" and "Qi" or "Form in ceremony system", "Artistic atmosphere" and "Vivid energy". The paper emphasizes that the intangible heritage is more important than tangible, so we should never forget it during the conservation process. The traditional culture is a double-edged sword to heritage conservation, and the main danger to the heritage authenticity maintaining is still coming from the destroying in name of construction.

Key words: authenticity, timber structure, restoration, historic culture, tradition

The Venice Declaration in 1964 firstly put forward the idea of authenticity as the core concept of cultural heritage protection movement. Then the Nara Document in 1994 unveiled the prelude of the discussion about authenticity worldwide. And this discussion is being underway around the influence on the interpretation of authenticity under different historical and cultural backgrounds, especially under the East Asian background. This paper is the continuation of this interpretation.

At the end of 2005, a group of senior cultural relic experts in China gathered in Qufu. They adopted a nongovernmental document-Qufu Declaration which is aimed at the movements like China joined the World Heritage Organization and accepted the specific protection principles in cultural heritage related documents of ICOMOS and other international organizations, and aimed at solving the problems appeared after a period of implementation in China. In the premise of accepting the fundamental spirit of relevant international principles, and basing on the repair practice of Chinese traditional architecture in the past hundred years, the declaration proposed that the building system of China is mainly wooden structure. It is different from the western masonry-based system, and it has its own rules of damage. Based on this kind of damage rule, the standpoints of protection practice of Chinese cultural relics protection which is integrated with international proposed by the declaration involve three main aspects: 1 replacing the constructional elements is conventional; 2 Rehabilitation is normal; 3 Rehabilitating and preserving traditional architecture by the ways of repair (original material, original technology and original shape) is inevitable in order to conserve historical information, otherwise the

wooden structure would be damaged and disappeared and any historical information would no longer exist. It actually means that the preservation of the basic form of wooden structure is the fundamental method of preserving historical information and its authenticity. It reflects the repair experience of Chinese cultural heritage protection movements of the past century. The International Symposium on the protection of color painting held in Beijing in 2006 once again touched the differences between the East and the West on the protection methods and protection philosophies.

Qu fu Declaration is the dissatisfaction of those scholars who have rich practical experience because the existing concepts has been introduced the internationally accepted concepts without making in-depth interpretation and modification combined with actual situation. The declaration is the expression of the richness and complexity of conservation practices. However, even though it is a wooden structure, the problems emerged during protection practices are far more complicated than those described in Qufu Declaration. Speaking from the macro theory or logic level, if the damage rules of wooden structure - namely the differences in materials affect the protection method, then the protection of the masonry structure between China and the West should be basically the same. However it is not the case. Once the building repair of traditional masonry structure apply relevant principles, it would also suffer the boycott of society. Therefore, further discussions of the repair and authenticity issues should be made in depth both in practice and theoretical levels.

1.The influence of wooden structure on Chinese history and culture from the fact that wooden structure buildings obtained the choice of history in China

Due to the low productivity of primitive society ancestors, they can only choose easily accessible materials from surrounding environment to build sheltering houses. The feature of obtaining raw materials locally is still being followed in the construction process of a large number of houses in contemporary countryside villages. In China's Paleolithic Age or even later, there are two main categories of living patterns, one is living in caves and the other is living on trees. However, no matter in the north or the south, large number of semi-underground, on the ground and even overhead residential buildings which are above ground have emerged after Neolithic Age. Scholars speculate that those are vertical frame, shacks and so on. Binding and tenon are used at node-areas. So the early wooden structure buildings appeared in China. There are three reasons. Firstly, the forest resources are rich in ancient China. For example, Tianluoshan site in Zhejiang Yuyao of Neolithic Age (about 6000 years ago) used 60 cm square timbers as building foundation. Until Spring and Autumn Period in 500BC, Yinshan Yuewang tomb in Shaoxing also used about 70 cm square timbers to build the tomb (Figure 1). The local chronicles that describes the construction process of Yingxian Buddhist Temple Pagoda in the north mentioned that the timbers of the pagoda are from surrounding forests. We can see that the wood resources in ancient China are far more abundant than now. Secondly, compared with stone material, wood is lighter and easier to be processing and handling. Hemudu Site of Neolithic Age shows the excellent tenon technique at that time. Scholars believe that ancestors may use bone saw tools from the inspiration of the jagged structure of plants and animals. Thirdly, prior to the construction of such relatively large scale wooden shacks, ancestors had thousands of years or even tens of thousands of years history using stone implements with wooden handles. They had already

accumulated the skills of binding nodes and dug export bases.

By 1500 BC, From the bronze pieces connected to the wood pieces of this period that unearthed from tombs, we can see clearly the emergence of bronze technology at that time and the demand of bronze weapons brought by the wars for land, and the rapid progress of technology in wood processing and node connecting. Compared with the objects of stone, jade and bronze weapons, the wooden handles of these objects are easily damaged and easy to replace.

Around the 3rd century BC of Spring and Autumn Period, the earliest artificial river course connecting different water systems appeared. It is not only used to transport troops, rations and forage, but also used for irrigation. The emergence of irrigation projects has greatly improved the output of agriculture. But the premise condition of water conservancy irrigation is the requirement of scattered plots of land restricted by the unified water management regime. Historians argued that because of the instability of the rainfall of Asian continent, agriculture of ancient China is different from that of ancient Europe. So the irrigation is of vital importance to ancient Chinese agriculture. Thus, due to the development needs of agriculture, the unified dynasty and unified management of water conservancy are reciprocal causation to promote Chinese history forward. From Shungeng Lishan, Emperor Yu taming the flood, to the construction of Zheng Guo Canal, Ling Canal and Han Channel, they all shows that agricultural society in China has experienced a long historical period, creating a Chinese agricultural civilization.

The long-term national unification and the non religious spirit which think highly of secular state created the condition that the religious power is always lower than the imperial power in China. Any religious building can't and not dare to exceed the size and grade of imperial palace. Thus those tall religious buildings in Europe which are seen as symbols of cities and in the pursuit of immutability do not exist in China. The highest level of the building is Royal Palace, national worship architecture and Royal Mausoleum. Their prototypes are residential buildings. They are wooden structure and lead the changes of times of Chinese architectural system. Because they are used to serve the emperor, his family and court officials and to serve the government needs of the court, they are often required to be completed in a short period of time. Thus in the royal architecture, the patterning and standardizing of wooden structure gradually formed. The remaining of the construction model of Song Dynasty and the projects of Qing Dynasty both illustrate this point. Emperor Yongle of Ming Dynasty brought hundreds of thousand of craftsmen from the south to Beijing to complete a major part of the palace, temples and tombs in the new capital Beijing in ten years. It is totally different from the west in which they spend hundreds of years to build a church.

In the long-term practice of using wooden structure, the processing, production and installation of wood and wooden structure pieces made the following significant effects on the philosophies and methods of Chinese architecture construction and renovation: (1) the non-homogeneous characteristic of wood made craftsmen pay attention to the complexity, adaptability and flexibility of wood and improved the meaning of gathering experience. Such as the bulk side of wood rafters should be outward, so does purlin. Because the roots have better anti-corrosion property; the abilities of moisture

absorption and water resistance of wood with different directions of wood grains are not the same, so the hardwood with cross striation are used as Zhi to cut off the erosion of the condensation water on the wooden materials; Different materials and different qualities have different performance advantages. Fir can resist pests and diseases better than pine, and wingceltis can even remove the harm of snake, birds and insects in temples. The high strength of elm roots can be used as a large bucket to resist concentrated loads, and chestnut wood should not be burned or be used as external doors and windows, etc; The combination of these characteristics and the individual characteristics of the original wood, master carpenters will also trickily use wood with smaller section during the production and installation of beams and pillars. It not only increased the importance of the craftsmen, but also contributed to the important role of experience in the professional life. (2) the lashing of wooden structure pieces, the tenon of nodes and the repair method like making prop set right, landing gear overhaul determine the rationality of replacement of wooden structure pieces. (3) the deterioration quality of wood significantly related with the condition of environment and when the environment is harsh, the quality changes dramatically and rapidly. This characteristic and the above two contributed to the construction attitude of empiricism, which is also called practical rationality of building system. (4) the damage and replacement of wood and the maintenance of wood housing give the construction and repair of wooden structure housing a corresponding relationship which is similar to the relationship between the characteristics of farmland management and the life of the house owners. It becomes part of Chinese outlook on life which think highly of secular state. Until today, some minority areas in southwest China has maintained the planting and management of forest dedicated to village building just like planting and management of farmland, making a balance between deforestation and growth; in the relationship between the family and each room, they still keep the life cycle relationship between rooms and occupants.

The long-term accumulation of this kind of civilization including the perceptible cognition of the relationship among the sun, the moon and stars, the cycle of seasons running and the agricultural planting, cultivation, harvest and storage and including the concerns and vigilance of disasters. With the continued thinking of sages in the process of social development in Pre-Qin Period, “making the rationality liberated from the sorcery history culture of Shang and Zhou dynasties not to take the leisure road of abstract reasoning (such as Greece), and not to sink into pursuing the value of liberation which detests and rejects the world (such as India), but to be persistent in exploring the human morals. It think highly of life, goodness, and the value of the world. The characteristics of relative stability and cyclical nature of agricultural production reinforce the interpersonal relations based on the blood relationship, and this kind of common social psychological structure is called practice rationality or practical rational spirit by the philosopher Li Zehou. This spirit has long been recorded and expressed in the writings “Book of Changes” and “Yi” in Pre-Qin Period. And it was later be fully revealed through the diagram of the universe. Focusing on the existing world rather than the afterlife is also reflected in the expressions of Confucius” if I do not know the born, how can I know the death” and “respect the supernatural beings and be far”. When the architecture is formed in Europe during Renaissance period and Michelangelo and other great masters left the craftsmen class, Chinese are still in their own houses and positioned the buildings with residential prototype as “house is the hub to

balance yin and yang and the track of human ethics". It means that the role of architecture is not art, but its social function. Architecture should make critical and unconsciously influence in the mission of maintaining the social order.

Until the western technology came into China in modern times, when Chinese abroad students learned the major of Architecture and became the first generation of Chinese architects, when Chinese were eager to use modern technologies as soon as possible, when the Japanese who have directly introduced modern technology ahead of time translated the Architecture into "building", although the English name of the Chinese construction society is translated as "Society of Chinese Architecture", the founder of this society Zhu Qiqian still adhere to use "creating" instead of "building" in its Chinese name. Because in his opinion, creating embodies the essence of Chinese tradition. It contains not only the relevant technology, but also a broader sense of culture. Until then, it is still difficult for Chinese people to connect the goal of building houses with creating arts.

2.The traditional repair method of wooden structure

Scholars have not yet found the repair system of wooden structure in Chinese history like the system of Ise Shrine in Japan which changes every twenty years. Since the wood structure is not fire-resistant, the imperial palace of Ming and Qing Dynasties were often struck by lightning and then led to fire. And there are many issues such as water leakage and dilapidation because of the passage of time. Therefore, the maintenance of the imperial palace is a constant work throughout years. According to the records of the late Qing Dynasty, the renovation is depending on the financial situation in view of the large scale. A large number of folk temples and monasteries prove that they usually need a large-scale overhaul every 50 to 100 years and a medium-level repair every 20 to 30 years, and the routine maintenance will be conducted every year when the economy is in good condition. Wooden structure can be maintained through these small, medium and large repair procedures. Good material and well maintenance make the wooden buildings exist for hundreds of years or even thousands of years like the Great Hall of Foguang Temple. Even in the south, the hall called Phoebe Hall of folk residence can be found which lasted for six hundred years. Many buildings are destroyed either by a war or a fire, or man-made destruction like Suppression of Buddhist Movement and Cultural Revolution. The replacement of wooden components is normal during the repair process, and adding new supporting components and integrating them into the original system are conventional standards in Chinese traditional restoration. (Figure 2).

Figure 2 The eave-supporting pillars of Guanyin Pavilion in Dulesi Temple is the supporting structures added during renovation by later generation.

When the building is completely destroyed or the person in charge wants to highlight his own performance, the reconstruction will happen. The goal of rehabilitation and reconstruction is to rejuvenate the building, so the exterior color painting and oil painting become particularly important. A large number of words like “rebuild the temple and repaint the golden Buddha”, “create a new image of temple” appeared in historical documents. In the minds of ancestors, residential buildings are always linked with family prosperity and their social status. So the repair activities not only have technical function but also highlight the social impact connected with the homeowners. A large number of small and medium repair focus on the construction patterns and damage rules of traditional wooden structures,whcih means more changes will be made in the upper part. In terms of the layers of replacement, from less to more are: pillars, beams, purlins, brackets and other overhanging components, rafters. From the researches of scholars in recent years, the safety coefficient of rafters is greater than that of purlins. Rafters are easy to be damaged and be reduced the intensity because they are located in the most vulnerable parts facing with erosion by wind and rain. It is also the empirical approach formed by ancestors to deal with this issue. Due to the increasingly scarce of timber resources, and also because of the great development in brick-making industry after Ming Dynasty and the reduction of the cost, the brick maintained walls are more often used by builders who are above medium level. The huge eaves used to protect rammed earth and adobe walls before Yuan and Ming Dynasties can be reduced. The brackets used to solve the overhanging problem in high-grade buildings gradually become smaller. And the corresponding large wooden practice changes. When later generation repair the previous generation buildings, maximizing social effect with the least financial resources is the basic principle of restoration. The scale will not be very large unless the financial resources is abundant. In addition to overhaul by making the prop set right and landing the shelf, routine maintenance and minor repairs are more likely to be carried out by adding new components to reinforce it. Although this method does not maintain the status quo but change the situation, it still belongs to the original system. This is a kind of repair method inside the system. The newly added components become a part of the building sustainable development through landscaping. For example, buttress braces, eave-supporting pillars, brackets, corbels like cattle leg and shrimp-shape purlins.

Artisans may not familiar with the conventional practices of previous generation, so when they accommodate to the scale of brackets and beams of previous buildings, they always left the offspring approach which they are more familiar with and easy to operate in detail at the same time. Therefore under normal circumstances, traces from early time to late of different customary practices will be left on wooden buildings from bottom to top. There are only two exceptional cases in the current documentation. One is the main hall of Country Guarding Temple in Taiyuan, Shanxi. The craftsmen of Qing Dynasty repaired faithfully in accordance with the regulation of the Five Dynasties and almost reproduced the original appearance of that year (Figure 3). The other one is the gate of Longxing Temple in Hebei. Artisans of Qing Dynasty directly installed the small arch system of Qing Dynasty into the large arch system of Song Dynasty, forming a very harsh discordant result (Figure 4). The latter one is likely due to a serious shortage of financial resources. While the rest reflect more technology characteristics of later generations.

Figure 3 The brackets of later generation in the main hall of Country Guarding Temple in Pingyao, Shanxi which follow the Five Dynasties system

Figure 4 The brackets of the hall of Longxing Temple in Hebei have brackets from both Song Dynasty and Qing Dynasty

These repairs are a part of the ancient people's life in the past thousands of years. The experience of repair and the customary practice, along with other social activities build the collective unconscious of ancient practice rational spirit in construction and renovation activities. The most important feature of these renovation is to target the needs of owners, find the best input-output ratio by using the technology craftsmen are familiar with, continue and expand the function of use and other social functions of the building. Finally it leaves time traces which is gradually changing and also shows the characteristic of the separation between moral and objects.

3. Several concepts of authenticity influenced by Chinese history and culture

New social requirements of this practice didn't emerge until modern times. After the new architecture type of the West and the new system of structure and material were introduced in the modern times, buildings in China changed greatly. The new principles of restoring the ancient buildings were put forward by Liang Sicheng. In the 1930s, he said that, since our generation, restoration cannot add the features of the times to the heritage of the ancient buildings. In the 1960s, having seen the restoration outcome of the Zhaozhou Bridge, he was dissatisfied with the completely new look and brought forward the principle "the old is repaired to be as old". Represented by Liang Sicheng, scholars who accepted the western education began to think about the conservation and restoration of heritages from

the modern angle. Combining the traditional restoration experience with the modern concepts in the West, they influenced the restoration practice of the second half of the 20th century, within which, the maintenance of the present condition and the restoration to the original state have become the constant aim of discussions and pursuits.

However, as for the craftsmen, including the engineers who discussed restoration with the craftsmen for a long time, especially the social aspect that decided the direction of restoration and authority, there was no sudden change of thoughts or of practice research. The social psychological structure didn't change fundamentally or in other words, it didn't change suddenly and greatly because of the changes of building technology and material system. The concepts and ideas originated from the ancient social practice still have great influence on the contemporary conservation in China and our understandings of authenticity. Together with the damage rule of timber structure, these concepts even influence our restoration more fiercely. They are still existing and developing on the extension of traditional culture which values life, goodness and harmony and are still important parts of social life today. Having failed continuously, we have got to pay close attention to and research the rationality and existence of these concepts. As it's mentioned by The Nara Document, "It's impossible to judge the value and authenticity based on fixed standards. On the contrary, due to the respect to all the cultures, the consideration and judgement of heritage projects should be done under the relative culture backgrounds." The influence on authenticity by traditional Chinese concepts is the extension of this understanding.

"Xingzhi" is the first concept that is closely connected with authenticity. Though the eight descriptions of authenticity contained in the Operational Guidelines for the Implementation of the World Heritage Convention after The Nara Document are much abundant than the simple material elements, and its "form and design" is quite close in meaning, "Xingzhi" which contains deep institutional culture cannot be summarized. We can say that "Xingzhi" is the written regulation on the class of building including its width, roof, the number of brackets and so on; and it is the overall summarization of the physical forms of buildings in the feudal society and its ritual system.

The provisions about how people travel and wear, recorded in Ming Dynasty are typical social hierarchy, concerning rules on residences of officers and the public. It requires there cannot be more than three halls on the axis of the residence, but there can be more than three rooms on both alleys. There cannot be more than corbel bracket under the roof of the hall. And there cannot be Xieshan ridge roof with corners like the royal palace in any of the rooms. Of all the ancient architecture we saw today, there are no temple with more than seven rooms instead of nine. It is because only the emperor can enjoy the respect. All rules on the residences, temples and palaces, as well as sacrifice and music used on sacrificial ceremonies, music and clothes on wedding and funerals, are restraining social behaviors in the public. In the warring period, emperor of Zhou declined as the rise of the warlords. Rituals and musical enlightenment system collapsed. Confucius felt very sorry for the instability of the society, the chaos of social relations. Then appeared Chunqiu, the history book recording history of all countries. This book led people to know the importance of the social stability and affecting the society

with exemplary stories in the book. This book make rebels scared. Confucius tried his best to explain Zhou Rites again.Si Maqian, in Han dynasty, wrote Records of the Grand Historian as a historian official. He wrote about rites and rituals in history, that is, The Book of Rites. He wrote in The Book of Rites that, restraining things in the world and making people behave themselves are all inseparable with people's efforts. Looking back to the rise and fall of Dynasty of Xia, Shang and Zhou, it is clear that the rites and rituals made according to reason and nature could be permanent. Rites and rituals are standards for behaviors of people. "Therefore, there is a proper or not standard of the order of kings and officials, travel and clothes, palace and residences, drinking and food, wedding and funerals and the use of things." Thus, emperors in all dynasties in Chinese history believes that constraining oneself and behaving according to rites and rituals is the most important thing. For example, Zhu Yuanzhang, the first emperor of Ming Dynasty, used to be rude before he became the emperor. He still followed the tradition when he became the emperor. According to records in the history of Ming Dynasty, Zhu Yuanzhang set up two organizations controlling rites and music when he just became emperor. In this way, people could distinguish each other no matter who he is. The enlightenment of the whole society lies on this.

Therefore, during the restoration, Chinese people pay attention to the authenticity and performance of "xingzhi" instead of the authenticity of the fragmented component materials in their subconsciousness; which promotes the reconstruction during restoration invisibly and influences the control of identifiability in restoration in particular.

The concept is "yijing" (artistic conception) and Chinese people sometimes use "boundary" to convey the similar meaning. It was Wang Guowei of Qing Dynasty who put forward this concept for the first time and revealed the spiritual pursuit among Chinese literature especially in poetry. This pursuit also exists in the heritage of landscape and its existence is even more obvious. Accompanied by the brilliant literature and poetry, it becomes poetic and inspires the emotions of visitors. If we need to define "yijing", we might as well say that it is the atmosphere of overall aesthetic appreciation created by the material parts and the environment of heritage; and it is the overall feature of environment of the appreciation subject inspired by its object who shares the same culture. There are similarities between ''spirit of place" and "yijing", however, for Chinese people, "yijing" is the integration of spirit and place and it emphasizes on the art and emotional values of the heritage materials. The case of Hangzhou West Lake's application for the list of world heritage as a cultural heritage and its process show that the value of "yijing" created in the whole landscape of West Lake makes the weakness of time negligible, even though the Ten Scenes of West Lake or the buildings and trees in some of the scenes are replaced and restored while some heritages are later than the 1980s. In other words, the authenticity of "yijing" is much more important than that of the material carrier of parts.

The third concept is "Qi". "Qi" is not only the concept used to select construction site by geomancers, but also the concept which is widely used in various fields by artists, writers, etc. For example, painter requests his painting to be "vivid and lively". Eastern and Western scholars both have done some studies about "Qi". Architectural theorist Charles Jencks believes that Qi is "vivid energy". Many

people have realized that in the context of Chinese culture, “Qi” is both material and immaterial. More than ten years ago, the leaders of Jiangsu province in China decided to build Jiangsu Grand Theatre on Imperial Palace site of Ming Dynasty. They made archaeological exploration in some sections of the site and did not find relics of Ming Dynasty palace. Then they wanted to make massive construction projects on this site for there is no relics left. However, Jiangsu experts said they can not engage in construction even if nothing has been found. But they were unable to present concrete and sufficient reason at that time. The core of this reason which can not be stated is “Qi”. Because “Jinling is the imperial state of many ancient emperors”. It is called “a place to accommodate Long and tigers”. Chinese people believe that the Imperial Palace of Ming Dynasty is the place where “Qi of emperors” is. This kind of Qi determined by the surrounding mountains form identified by ancients and the spacial environment it created. (Figure 5). This the Qi of emperors give Nanjing a status which is far higher than just as a capital city of today, indicating that it was once the political, cultural and economic center of south China in the history of Nanjing.

The central axis of Beijing is similar to the above case. The axis of this city is determined by Liu Bingzhong et al after observing the form of landscape in Beijing. Its north part is close to Yanshan mountain. This central axis not only contributes to the construction of imperial city and capital in ancient three generations Yuan, Ming and Qing Dynasties, but also in fact still makes contribution to the construction of Beijing city and the heritage conservation after 1950s. It is known as “the pulse of dragon” among the people, and build the spatial pattern of Beijing along with the Forbidden City and the Three Sea together. For Beijing, the area around Tiananmen Square along the central axis has undergone dramatic changes, but this axis still exists now and further extends to the north and south. It is still working and growing. The site and its influence of space and axis also belong to Qi, or in the category of Qi of emperors. Its existence or absence is clearly more important than the changes of a single building (Figure 6).

Figure 6 The central axis of Beijing from Ming and Qing Dynasties still exists in the planning of 1950s and the new century

4. Other important factors that affect the authenticity from repair examples of contemporary traditional wooden structure

If further discuss all the contemporary factors that affect the authenticity of heritage restoration, in addition to the Chinese traditional concepts which are mentioned above, there are all kinds of controversy about the history and the elaboration of history. The value evaluation of heritage is

constantly emphasized and deepened around the world, and makes great influence on the relationship between the focus and the core value of the authenticity such as the renovation of A Bing's former residence in Wuxi. People gradually realized through value evaluation that the broken walls of house is closely related with A Bing's life state at that time and his famous song The Moon Over a Fountain. It changes the practices of usual protection and the reinforcement of wooden frame into efforts to protect the walls and allow the purlins replacement in wooden frames.

In addition, all sorts of mandatory provisions about security, fire prevention and the use nowadays also relate to a part of building heritage. China has strengthened the study of improving the earthquake-resistant capability of cultural relics protection governments and mitigating threat to people in disasters after Wenchuan earthquake. Obviously, the preservation of heritage from disasters in a maximum limit and the protection of the main body of value are both important issues in heritage protection and the protection of its authenticity. Along with China's cultural relics protection governments extending from "monument and historic site" to those "modest works" explained in Venice Charter that its importance increased with the passage of time, a large number of residential, factory buildings went into the protected heritage list. Their protection mostly rely on the financial support from local governments and general public, and the economic conditions and use requirements will also affect the preservation of the authenticity during their renovation.

5. Conclusion

Based on the long river of history, there is reason why Chinese civilization can be sustained for thousands of years. The traditional ideology plays an important role in reconstruction and adjustment and optimization. The significance of intangible culture is broader and the vitality is more durable. As Lao-Tzu said "having it brings convenience and not having it brings functions". But on the other hand, "without the skin, hair could not survive". Intangible culture is relying on the tangible culture, so the heritage protection should take into account both false and actual situation. We just emphasize that we need to pay more attention on it because the intangible culture like the Qi of form, mood and place is more important than substance materials.

Chinese culture makes a double-edged sword effect on the authenticity of heritage protection. It makes us pass on the gene of Chinese civilization in the changing history, so that the core part of it can be inherited and promoted and the core value of heritage can obtain a more accurate positioning. At the same time, it makes us easy to ignore the authenticity of micro and meso level, and easy to overlook the specific and true historical information of material carriers. This disadvantage can directly hurt the fate of the heritage itself with the fashion extension of the separation between moral and objects, and with the neglect of archives in social dramatic changes period. Chinese and foreign culture made a fusion and collision once again at the turn of the century, and the social psychology of Chinese also changes generation by generation. Many western concepts have deeply affected later generations. But the change of social transformation is more profound and huge. It becomes more and more important to pay attention to the authenticity and credibility of inheritance. Therefore, from the practical level of protection, the constructive destruction and the loss of the heritage authenticity it caused are still

China’s main risks currently. What’s more, solving the issue of authenticity also needs to combine with the type and particularity of individual case, and combine with the value assessment and security and other requirements.

Restoration principles and example of maintaining authenticity of Korean architectural wooden heritage

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1. Restoration principles and authenticity of Korean architectural heritages

Every cultural heritage, including architectural heritages, incorporates not only the history and culture native to a people, but retains and expresses the techniques/skills of the time period of construction. In this respect, it is extremely important to maintain and preserve cultural heritages, which are a synthesis of history and culture, as well as a precious treasure house, directly leading to inherit the human heritage, not to speak of the establishment of identity in a people.

On the basis of such values owned by cultural heritages, in Korea, "Cultural Heritage Protection Law" was enacted (Jan. 10, 1962) and has been enforced to date[1], stipulating that the basic principle of the preservation, management and utilization of cultural heritages lies in maintaining an original form[2].

Furthermore, to enhance the quality of cultural heritage restoration, "Law on Cultural Heritage Restoration, Etc." was enacted (Feb. 4, 2010) and has been enforced. This law specifies that its purpose is to preserve/inherit cultural heritages to an original form, and that the basic principle of restoration of cultural heritages lies in maintaining the original form.[3]

For reference, the term "restoration" here used includes such as repair, restoration, maintenance, and the measures against damage prevention.

In addition, the CHA has enacted and enforced the "General Principles for Repair, Restoration and Management of Historical Architectural Heritages and Archaeological Sites"[4] (Sept. 3, 2009) that was formulated, in order to specifically substantiate the basic principle, i.e., "maintaining an original form", while paying due respect to international charters and the standards laid down by the Principles as well as according to actual conditions and reality in Korea.

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[1] "Cultural Heritage Protection Law", Article 1 (Purpose) stipulates that "The purpose of this Law is to promote the cultural edification of Korean nationals and to contribute to the development of human culture by transferring national culture and enhancing it to be utilized through the preservation of cultural heritage.

[2] "Cultural Heritage Protection Law", Article 3 (Basic Principles of Protection of Cultural Heritage) stipulates that "The basic principle for the preservation, management and utilization of cultural heritage is to preserve them in their original state".

[3] Article 1 (Purpose) of the "Law on Cultural Heritage Restoration, Etc.", enacted on Feb. 4, 2010 and enforced on Feb. 5, 2011, stipulates that "The purpose of this Law is to enhance the quality of restoration of cultural heritage and develop cultural heritage restoration works in a sound manner by prescribing matters necessary for the restoration of cultural heritage, on-site survey and design, superintendence, registration of cultural heritage restoration works, technology management, etc. in order to preserve and inherit cultural heritage in its original form", clarifying that the purpose of restoration of cultural heritage is to preserve and inherit cultural heritage in its original form.

⇒ The Principles also stipulate that "It is extremely difficult to restore the original form of a cultural heritage, if once damaged. Accordingly, efforts shall be made to maintain and preserve the value and authenticity of a cultural heritage." Furthermore, the principles also prescribe that the original form of a cultural heritage shall be defined as the aspects that maintain the value and authenticity of the cultural heritage.

Meanwhile, the "Guidelines for Cultural Heritage Restoration, Etc."[5] enacted by the CHA as the restoration guidelines to be applied to every architectural heritage including wooden buildings stipulates that "For applying the criteria of time period to a cultural heritage restoration, the valid contributions of the elements of all periods to the construction of the cultural heritage must be respected and maintained." In other words, a restoration shall be undertaken so that it respects and maintains the elements of all periods shown on the cultural heritage.

Specifically, Architectural heritages that deteriorate over time and suffer periodical damages caused by natural disasters, etc. have been constantly repaired/restored to maintain their values[6]. The original appearance of an architectural heritage gradually changes through the above process, reflecting the techniques and materials available during each time period in which repair/restoration has been carried out, and retaining the vestiges of such time periods. Consequently, we regard every such change in appearance during each time period as an original form, and pay respect to the vestiges of all periods[7].

In the case of Korea, therefore, the basic principle for the restoration of architectural heritage, including wooden buildings[8], lies in maintaining an original form. It is stipulated that the valid contributions of the elements of all periods to the construction of a cultural heritage must be respected and maintained[9]. Accordingly, the criteria for authenticity in cultural heritages are grounded in the maintenance of the original form explained above.

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[4] The preface of the "General Principles for Repair, Restoration and Management of Historical Architectural Heritages and Archaeological Sites" states that cultural heritage-related international organizations including the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and the International Council on Monuments and Sites (ICOMOS) have contributed to the restoration of various types of cultural heritages including historic monuments, archaeological heritages, etc. to be implemented based on international criteria and principles by adopting international charters and recommendations for systematic preservation and management. The "General Principles for Repair, Restoration and Management of Historical Architectural Heritages and Archaeological Sites" is the criteria formulated with respect to the criteria laid down in accordance with the existing international charters and principles such as the "Venice Charter" and "Nara Document on Authenticity" as well as by adjusting it to the actual conditions and reality in Korea.

[5] Article 2 of these guidelines restricts their scope of application to the restoration of buildings, historic sites, places of scenic beauty and similar cultural heritages among the designated cultural heritages.

[6] The term "restoration" used in the Korean cultural heritage-related field includes such concepts as repair, restoration, etc. Article 2 of the "Law on Cultural Heritage Maintenance, Etc." provides the definition that includes repair, restoration, maintenance, and measures for damage prevention.

[7] Article 15, "Principles for Applying the Criteria of Time Periods to Cultural Heritage Restoration", of the "Guidelines for Cultural Heritage Restoration, Etc." stipulates that "For applying the criteria for time periods involved with cultural heritage restoration, the valid contributions of the elements of all periods to the construction of the cultural heritage must be respected and maintained. However, if the vestiges of a previous restoration of a cultural heritage have historical, archaeological or aesthetic value greater than that of the currently existing restoration, it is allowable to apply the restoration state of the previous restoration". Meanwhile, in the case of damaged or broken cultural heritages, in compliance with the related proviso, they are to be restored to the previous appearance before the damage or breakage. In this case, in order to maintain the value and authenticity of the heritages, restoration is carried out by referring to direct reference materials for historical accuracy including old photographs, related structural remains, records, etc.

2. Specificity and Limit of Cultural Heritage Restoration

For restoration of architectural heritages, authenticity should be strictly applied in compliance with the principles of "maintenance of original form", paying respect to the elements of all periods observed in the cultural heritages[10]. Nonetheless, there are specificity and limits to these principles.

Firstly, even an architectural heritage has basically been a place in which people live, and has been restored so that people can continue to live when it deteriorates due to aging, and losing its endurance, while striving to maintain its value as a cultural heritage and authenticity[11]. Incidentally, in some cases, there are differences in methods of restoration between countries, depending on the natural environment, cultural and historical backgrounds, economic power, and restoration policy formed through all such factors of each. Consequently, this leads to such specificity that the concept of authenticity differs between countries.

For instance, in Japan which has a natural environment in which earthquakes occur frequently, it is necessary to conceptualize heritage restoration as concept focusing around preservable parts/units. Accordingly, the foundation and the walls of an architectural heritage may be reinforced within the structure by resolutely utilizing modern construction methods, presenting an extremely flexible interpretation of authenticity in aspect of construction materials and traditional techniques/skills.

As an example of this flexible interpretation, Gekkoden Hall[12] of Gokokuji Temple, a Japanese Important Cultural Property, underwent restoration work for the period in 2008-2013, wherein the stainless steel bars were fitted onto the cornerstones, and upon which steel-framed seismic isolation pedestal structures were mounted, in order to secure the stability of the upper area of the building during an earthquake by separating the upper and lower areas. Furthermore, barriers using the reinforced concrete with iron bar supports were installed at the lower part of the cornerstones, and bearing walls were installed inside the building as an earthquake resistant treatment.

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[8] Since Korea has a natural environment with rich trees and stones, they have been extensively used for buildings through the ages. Accordingly, wooden buildings are an important part of architectural heritages.

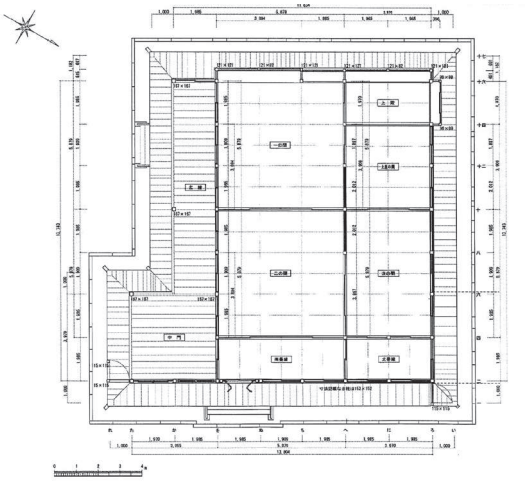
[9] The elements of all periods include form and design, materials and substance, utilization and functions, traditional skills and techniques, place and neighboring environment as objectives.

[10] This principle requires research on reference materials for historical accuracy, present-state survey and field measurement, and analysis of the record of restoration undertaken in the past before starting the project; subsequently, blueprints and specification are to be created. Furthermore, even after the project has started, it is necessary to continuously[continue to] perform the procedures to research reference materials for historical accuracy, present-state survey associated with dismantlement, and sampling, if necessary; while carefully proceeding with the restoration work.

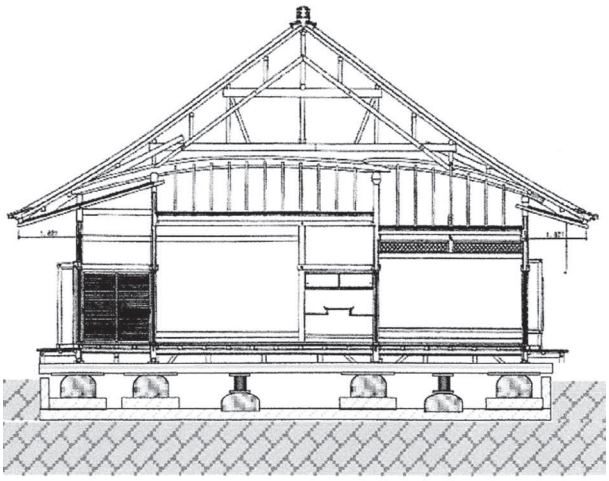
[11] In some cases, however, destroyed buildings with bullet marks may, as exceptions, be restored as they are, in order to transmit the cruelty of war.

[12] A hall existing in the precincts of Gokokuji Temple located in Otsuka, Bunkyo-ku, Tokyo. Although it originally existed in the precincts of Onjoji Temple (a.k.a. Miidera Temple) located in Otsu city, Shiga prefecture, Rokuro HARA (1842-1933), a banker, economist, and businessman of the Meiji era bought it in 1892, and moved it to his own residence in Tokyo. Finally the hall was relocated to the current location in Gokokuji Temple in 1928. The Gekkoden hall, measuring seven spans in the span direction and six spans in the ridge direction, was designated as a national treasure on Jan. 19, 1931; and, as an important cultural property in 1950.

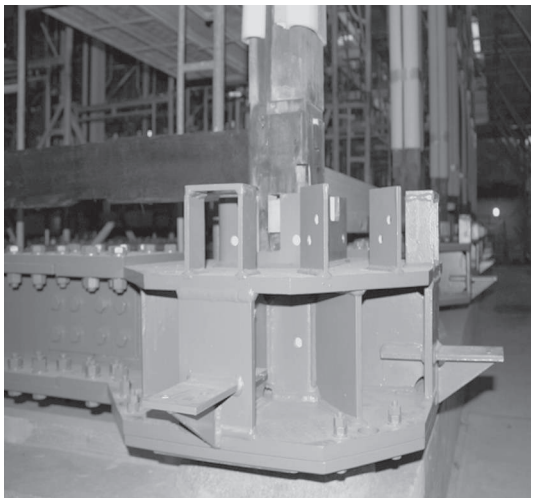
Entrance view (Photographed: May 18, 2003)



Plan view



Entrance view (Photographed: May 18, 2003)



Plan view

Secondly, a specificity of architectural heritages is that the original form is overlapped by successive forms as time proceeds. In many cases, the original appearance of architectural heritages have changed through repeated restorations over time, reflecting the techniques/materials available in each time period in which the restorations were undertaken, and retaining the traces of such time periods. In addition, the appearance of plane and elevation may also have changed to no small extent, depending on time period and use conditions.

In this case, not only the appearance at a single point of time but that at the other points must be respected as “original forms”. However, at such times, an expert judgment becomes necessary concerning whether to attach equal or differentiated importance to each time period involved in the changes, while being based on related historical reference materials.

In addition, when undertaking cultural heritage restoration, the maintenance of original form faces a limit that there is limited by the gap between the ideal original form and that in reality under the

practical conditions such as: (i) replacement of the materials harmful to the human body, including asbestos, with those harmless; (ii) physical limit to the lifetime of the materials used for a cultural heritage; (iii) level of restoration techniques/materials accumulated to date; (iv) cultural heritage utilization plan and perspectives based on humane study; (v) budget and time period for the restoration; and, (vi) different natural environments of each country.
These specificity and limits cause difficulty in quantifying authenticity.

3. Authenticity seen from the Restoration Example of Suwon Hwaseong Paldalmun Gate in Korea

In Korea, in order to ensure the quality of the restoration of every cultural property including wooden architectural heritages, to meet international criteria, and to reflect the Korean features[13], the "Law on Cultural Heritage Restroration, Etc." and a broad range of the regulations and guidelines[14] have been enacted for undertaking the restoration of cultural heritages. Above all, the CHA aims to maintain the original form of state-designated cultural properties through design review and technical guidance by strictly interpreting and applying "authenticity" to the aspects of form, design, raw materials/ substances, utilization and functions, as well as traditional skills and techniques so that original form can be maintained. The restoration example of the Paldalmun Gate of the Suwon Hwaseong Fortress (a UNESCO World Heritage) demonstrates the fact well[15].

The Paldalmun Gate of the Suwon Hwaseong Fortress located at 2-138 Paldal Street, Paldal Ward, Suwon City, Gyeonggi-Do was constructed in 1794[16] as the south gate of the Suwon Hwaseong Fortress[17], under the leadership of King Jeongjo, by concentrating the Spirit of Practical Science and scientific techniques of the 18th century, and by adopting the advantages of foreign fortifications into the Korean traditional fortifications.

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[13] Korea has properties such as stable natural environment in which almost no earthquakes occur and perspectives based on humane study respecting ancient times.

[14] The regulations and guidelines include the "General Principles for Repair, Restoration and Management of Historical Architectural Heritages and Archaeological Sites (Sept. 3, 2009)", "Guidelines for Cultural Heritage Restoration, Etc. (Dec. 22, 2010)", "Regulations on Technical Guidance for Cultural Heritage Restoration (Aug. 20, 2009)", and "Guidelines on National Subsidy Projects for Cultural Heritage Repair and Maintenance"

[15] The Paldalmun Gate of the Suwon Hwaseong Fortress was dismantled and restored under the technical guidance of the Restoration Technique Div. of the CHA during for the period from June 2008 to March, 2013, by injecting about ₩4,710,000,000.

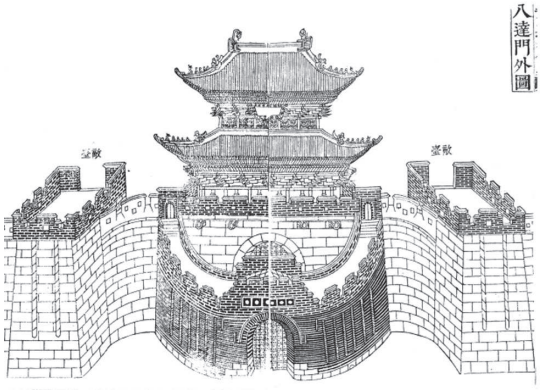
[16] Designated as a treasure on Sept. 3, 1964, the gate has two storied building that the first floor is 161.95㎡ and the second floor is 110.60㎡ in area, measuring five spans in the span direction and two spans in the ridge direction.

[17] The Suwon Hwaseong Fortress is not only a state-designated cultural property (historic site No. 3) but also a UNESCO world heritage site (inscribed on the List in 1997) as a modern architectural heritage autonomously constructed through unique methods based on Korean fortification techniques, while adopting advantages seen in those of China, Japan and the West. The fortress Measures 5.744 kilometers in total length, and 188,000 sq. meters in area, incorporating many heritages of national-defense structures including gates such as Paldalmun Gate (Treasure No. 402), West Gate (Treasure No. 403), North-East Pavilion (Treasure No. 1709), etc. and observation towers and pavilions and so on.

General arrangement of Suwon Hwaseong Fortress and Paldalmun Gate

Complete map of Suwon Hwaseong Fortress

It is possible to know the details of the Paldalmun Gate of the Suwon Hwaseong Fortress not only by observing the existing architectural heritage buildings but also by reading the "Completion Report on the Construction of the Hwaseong Fortress"[18] that scrupulously records the fortification process of the Suwon Hwaseong Fortress.



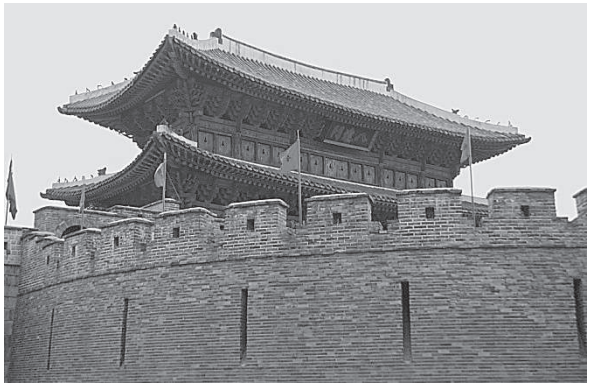
Paldalmun Gate of Suwon Hwaseong Fortress

Full view of Paldalmun Gate
(Photographed on July 1, 2009)

[18] The Completion Report on the Construction of the Hwaseong Fortress is a complete record of all the fortification processes of the Hwaseong Fortress from the pre-construction plan to the completion. This report is composed of 9 books (10 vol., 1, 334 pages) in total, including one preface, six texts, and three appendices. In addition, the report records every detail of the fortification such as the contents of the work of fortification laborers (including a full view of Hwaseong, scale drawings of each building, equipment and tools used for the fortification, official documents exchanged between authorities, as well as the names of carpenters, masons and painters), and even the cost of every single stone and nail, showing each process of the construction of the Hwaseong Fortress.

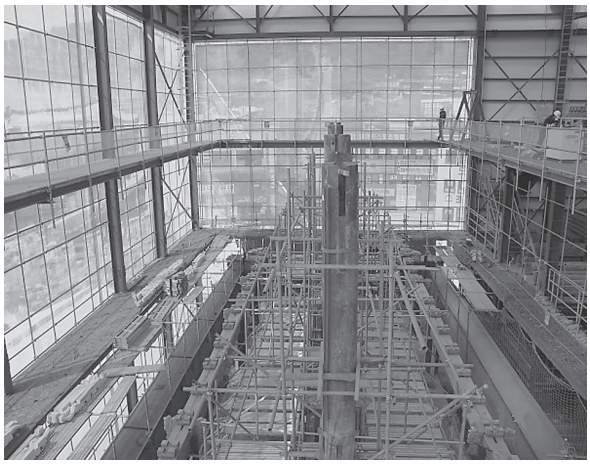
This Paldalmun Gate has been maintained as it was built except for several repairs of the roof including tiles[19]. Recently, however, such problem occurred that the beams have projected outside, widening the gaps between the construction members. To fundamentally solve this problem, the dismantling restoration work was implemented for the first time in 200 years.

Designing of the restoration of the Paldalmun Gate was carried out during 2008-2009; meanwhile, the restoration work was undertaken from June, 2010 to March, 2013. The total restoration cost of ₩4,710,000,000 (approx. \500,000,000) was injected into this project of the Paldalmun Gate restoration including the dismantlement/repair of the two storied building and preservation treatment of the outer castle wall as a "project under the CHA technical guidance".



A view of Paldalmun Gate
(Photographed on June 22, 2010)

Paldalmun Gate covered with steel-frame prefabricated housing
(Photographed on Mar. 27, 2012)

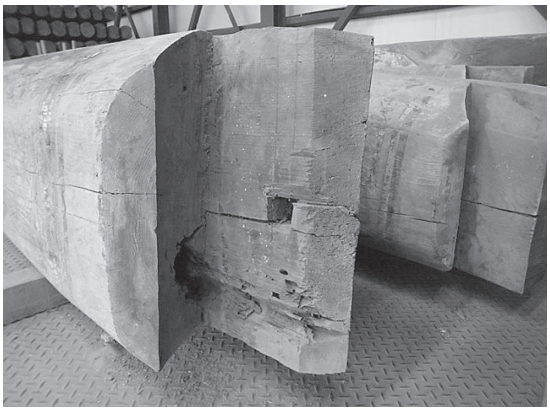


Inside of the provisional prefabricated housing for the Paldalmun Gate
(Photographed on Mar. 27, 2012)

Restoration materials on the rack
(Photographed on Mar. 27, 2012)

[19] The Paldalmun Gate has undergone trifling repairs several times, such as the replacement of roof tiles in 1950, 1960, 1975, and 2000, in addition to partial repairs of the outer castle wall in 1975 and 2002. However, during the period of occupation by Imperial Japan in 1929-1934, the area above the roof rafters was temporarily transformed into the Japanese style. It has now been restored to the original form.

Through this restoration of the Paldalmun Gate, in principle, deteriorated wooden members are repaired and reinforced to the maximum for reuse, not replacing them with new ones. The girders had deteriorated due to such causes whereby; (i) the portions on which the pillars are installed had cracks and rips; (ii) natural drying caused cracks and splits; and, (iii) white-rot fungus caused corrosion. To solve these problems, the girders have been repaired and reinforced by using the hybrid restoration method after being pasteurized and fumigated.



Conditions of girders (Photographed on Mar. 22, 2012)

Through this method, firstly, the deteriorated parts of wooden members or those corroded by rot fungus are removed. Then, a special epoxy resin is injected into the portions from which the deteriorated parts were removed. They are then pressed with a hydraulic press, and lastly, reinforced with fittings.

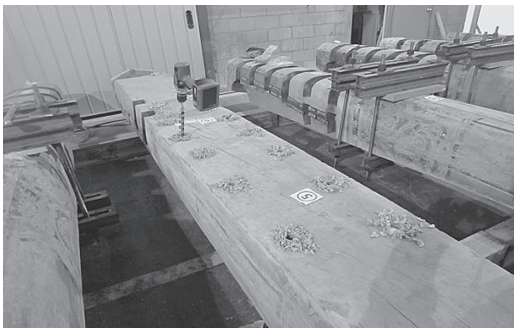
After this treatment, most of the deteriorated wooden members can be reused, without replacing them with new ones[20]. In addition, T-shape iron fittings are fixed onto the upper part of the beams in order to increase the proof stress thereof to bear the upper load.

Furthermore, in order to solve a problem that a horizontal head-penetrating tie beam and the top plate of the head-penetrating tie beam were sagging due to upper load and aging, carbon fiber was fitted onto the bottom surface of the top plate of the head-penetrating tie beam for increasing its proof stress[21]. This method enabled the reuse and reappearance of the existing original members, without the occurrence of change in size of the members such as the expansion of cross-sectional area. Through this method using modern scientific techniques, even decrepit and corroded wooden members can be continuously used without replacement. This enables maintenance of original form, retaining authenticity as a cultural heritage.

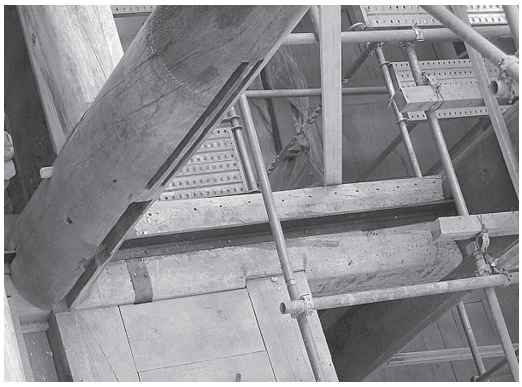
[20] The hybrid restoration method has the advantage that damaged or deteriorated construction members can continue to be used without replacing them with new ones by using both the adhesion method and the iron fitting reinforcement method. This method enables highly reliable reinforcement of the members, and secures durability as well as strength performance of the reinforced members, based on engineering.

[21] Dirt, dust, and impurities are first removed. Then, surface-hardening treatment is undertaken using epoxy resin, the carbon fiber is fitted and, lastly, an epoxy resin coat is again applied as the finish coat.

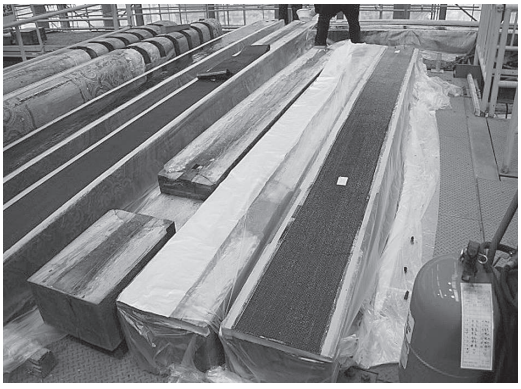
Reinforcement of cracks of the 1st floor girders by using special epoxy resin



Reinforcement/compression pressing of cracks and then making holes for bolting work of the 1st floor girders



A girder repaired/reinforced using the hybrid restoration method with a T-shape iron fitting, on which a column stands
(Photographed on Mar. 27, 2012)



Bottom surface of the top plate of the head-penetrating tie beams (1st FL) onto which carbon fiber has been fitted
(Photographed on Mar. 6, 2012)

Top plate of the head-penetrating tie beam to which carbon fiber was fitted and the lower horizontal head penetrating tie beam
(Photographed on Apr. 10, 2012)

Top plate of the head-penetrating tie beam to which carbon fiber was fitted and the lower horizontal head penetrating tie beam
(Photographed on Dec. 10, 2012)

4. Conclusion

Unlike stone-built architectural heritages, wooden architectural heritages are vulnerable to termites and fungi. In general, if a vertical construction member such as pillars is infested with insects, etc., only the damaged part is removed, and patched with new materials, while retaining the old materials to the greatest degree possible for the maintenance of authenticity.

Although restoration methods for wooden architectural heritages like this may basically appear to be similar each other, depending on the preservation policy, natural environment, etc. of each country, significant differences may exist, which are closely connected with authenticity of a cultural heritage.

In the case of Korea, related laws and guidelines require strict maintenance of the original form to maintain the value and authenticity of cultural heritages. The restoration example of the Paldalmun Gate of the Suwon Hwaseong Fortress demonstrates this.

Since conditions vary depending on country, interpretation of authenticity may require successive international discussions. Nonetheless, this example of the restoration of the Paldalmun Gate of the Suwon Hwaseong Fortress of Korea is an important exemplar that well indicates the possibility of strict preservation of original form in wooden heritage.

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The Handing on of the Wooden Architectural Culture in Japan and the International Conservation Principles

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Fig.1 Ise Shrine Geku. The empty site of the previous buildings with the newly rebuilt shrine to the left

1. Cultural diversity and heritage diversity in relation to Japanese wooden architecture

The diversity of cultural values is a phenomenon that concerns not only different regions across the world but also different cultural expressions within the same country. In the context of Japanese wooden architecture, two distinct, and in certain aspects opposed systems of cultural values coexist until now. These two systems are embodied in the different conservation processes of Horyu-ji and Ise Shrine.

The Buddhist temple of Horyu-ji, built in the late 7th century in Nara prefecture is the result of a

building technology that was developed in the continent and came to Japan through the Korean Peninsula. Timber pillars are raised on top of foundation stones, structural members have large sections and the roofs are covered with tiles, resulting in a very durable construction. In fact, the buildings of Horyu-ji are considered the oldest timber buildings in the world. The religious and symbolic significance of the temple is deeply associated to the figure of its founder, Prince Shotoku, who was one of the promoters of the introduction of Buddhism to Japan. Through its more than 1300 years of history, the temple has been regularly maintained and repaired. The last large scale repair was carried out between 1935 and 1955. However, a tragic accident occurred in 1949, when a large proportion of the wooden members of the first story of the Main Hall burned in a fire. The second story was dismantled and stored at the time and suffered no damage. The cultural significance of Horyu-ji is associated to a great extent to the presence of original material. Thus, burned members of the first story are conserved in a storage facility inside the temple precincts. When the temple was inscribed in the World Heritage List in 1993, the burned elements were included as one of the constitutive elements of the property.

The traditional conservation process of Horyu-ji can be modernly reinterpreted as the conservation of an architectural monument, with emphasis on the preservation of material authenticity.

Fig. 2 Thatched roof buildings of Ise Shrine; 20 year old building to the right and newly rebuilt building to the left

On the other hand, the buildings of Ise Shrine have earthfast pillars and thatched roofs, which have an intrinsically limited durability. Ise Shrine belongs to the Japanese native Shinto religion, which features a multitude of natural and familiar gods. Buildings with similar construction techniques can be found in other countries throughout the South Pacific region, hinting at an architectural tradition different from that of the continent. At Ise, a ritual rebuilding with completely new material takes place every twenty years, when a copy of the old buildings is erected in an adjoining site. Similar ritual rebuilding traditions were held in other major shrines in Japan, although now only that of Ise Shrine remains. The cultural significance of the Shrine relies on the process of the rebuilding itself, together with the system consisting of the necessary techniques, the whole precincts of the shrine and the forests that supply the timber. In this case, material authenticity is not a suitable indicator of the relevance of the site. Is also difficult to reinterpret Ise Shrine as an architectural monument, and the heritage category of cultural landscape seems more appropriate to describe the site.

These differences between heritage values within the same country and the same material showcase the difficulties of establishing common principles for the protection of wooden architectural heritage. However, at the same time, a common framework is needed at regional an international levels in order to be able to communicate the values of our heritage and make them understandable. The efforts to create such framework have been leaded, until now, mainly by western European countries.

2. The development of a theory for the preservation of architectural wooden heritage

Efforts to draw up an internationally agreed document for the preservation of cultural heritage started with the Madrid Conference (1904) and were followed by the Athens Charter (1931) and the Venice Charter (1964). Since then, a large number of charters and other doctrinal documents have been produced by different national and international organizations aiming at adapting these principles to various kinds of heritage and diverse cultural contexts.

The most widely accepted methodology for architectural preservation as described in these documents is the "conservation approach", which is based on three fundamental principles: minimal intervention, maximum retention of material and reversibility. This approach can be already traced to the writings of John Ruskin in the middle of the 19th century and Alois Riegl in 1903, but the three principles were clearly summarized for the first time by Bernard Feilden in his 1979 booklet *Introduction to Conservation*. The philosophy behind this approach is that interventions on a building, though necessary to preserve it for the future, involve some loss of its value; therefore interventions are essentially negative and should be kept to a minimum. Intervention is thus understood as an external measure, foreign to the nature of the building and consequently it is desired that it should be reversible. Further, this approach emphasizes the value of the architectural heritage in relation to the presence of authentic material.

The ideal conservation process, according to this model, would be to extend as much as possible the life of the building through careful minimal interventions throughout time. These interventions, while causing a momentary loss of value, would have the effect of decreasing the rate of decay, thus effectively extending the building's lifespan.

Can we directly apply this approach to the preservation of wooden architectural heritage?

The task of establishing an internationally agreed set of principles for the conservation of wooden architecture has been undertaken by the ICOMOS International Wood Committee since its foundation as a scientific committee in 1975.

In 1979, the same year his *Introduction to Conservation* was published, Feilden presented A *Possible Ethic for the Conservation of Timber Structures* in the second symposium of the Wood Committee, held in Troyes, France. Although both documents share the same approach and set forth the same basic principles, two specific considerations are made in relation to timber structures. First, especially in the case of timber-framed buildings, the importance of the structural integrity is stressed. The load-bearing

Fig. 3 Timber-to-timber repair of wooden beams (Palacio del Condestable, Spain)

Fig. 4 Repair of wooden posts with traditional woodwork joints (Japan)

capacity of a timber-framed structure is more vulnerable to the decay of its individual members and joints than in the case of a masonry structure, therefore, "due to the nature of the material in the conservation of timber structures, the ethic imposed by considerations of structural integrity, stability and durability generally takes precedence over other values". Second, in the case of timber structures it is recommended that "traditional methods should be used wherever possible". The skill of craftsmen is therefore considered highly valuable, however there is a warning that "craftsmen prefer to use their skill in renewing rather than repairing and this is dangerous".

The need for international guidelines was felt once again during the Wood Committee meeting in Kathmandu in 1992, where different countries were carrying out cooperation projects to preserve wooden buildings. On the basis of Feilden's document, the first draft for a Charter of the Wood Committee was redacted in 1994 by current President Nils Marstein and Secretary General Knut Einar Larsen. This document further emphasized the importance of using traditional techniques in the repair of timber, as well as advocating the establishment of historical forest reserves. The draft underwent several revisions until its final adoption in 1999 under the title *Principles for the Conservation of Historic Timber Structures*. The final document expanded on the concept of traditional techniques, recommending that traditional woodwork joints be used to replace the damaged parts of damaged members, that dressing tools correspond with those used originally, and that nails and other secondary materials duplicate the originals. We can assume that Marstein and Larsen draw from their own experience in the conservation of wooden architecture in Norway, but also from the Japanese practice; both had previously visited Japan, and Larsen's study *Architectural Preservation in Japan* (Tapir,

1994) remains the most comprehensive study on the subject written in English.

However, reaching an international consensus on the principles for the conservation of wooden structures proves a difficult task, and the 1999 charter is now under further revision. In the current proposal, the recommendations regarding the use of traditional woodwork joints and duplication of nails and secondary materials are missing.

3. Traditional techniques in the preservation of wooden architectural heritage

Exposed timber elements are vulnerable to decay by fungi and insects; and different methods to repair, replace or reinforce the damaged parts of structural members have been developed historically in all countries. Traditional timber repair and building techniques have survived until modern times in several countries, especially in Northern Europe and Asia. These techniques are by themselves an important part of the cultural heritage. However, the term "traditional" is also ambiguous and often applied without clear criteria. Criticism of the use of traditional techniques in conservation includes the unsuitability to meet the requirements of maximum retention of material and minimum intervention, the danger of "invented traditions", and the dismissal of traditional techniques as an imitative antiquarian practice. There is an urgent need for a clear identification and assessment of the cultural significance of traditional techniques in relation to the repair of wooden buildings.

3.1 Modern versus traditional timber repair methods

In the repair of damaged timber members, generally there is not a single answer but a wide range of solutions. The choice of a repair methodology depends on several factors, including the possibility of retaining original material, the preference for in situ repair methods, the requirement of reversibility, and the existence of relevant traditional repair techniques.

Firstly, we can first distinguish between repairs with materials other than timber and timber-to-timber repairs. Repairs with metallic members can be reversible and allow for the retaining of original material, although compatibility problems can appear between the two materials. From the 1970s, repairs using resin based mortars with glass fiber rods were extensively used in Europe. This method is relatively easy to implement in situ, though it is not reversible. On the other hand, timber-to-timber repairs aim to restore the structural capacity of damaged members substituting the decayed part with new timber. They allow keeping the original behavior of the structure, although they are not reversible. Furthermore, not all timber-to-timber repairs should be regarded as traditional. Some timber-to-timber repairs are not based on woodwork joints, but instead rely mainly on the structural capacity of adhesives. Even in the case of timber repairs based on woodwork joints and carpentry techniques, the balancing between the traditional approach and the conservation of original material can change from one cultural context to another. In the Japanese approach, carpentry techniques are used to execute multiple complex repairs in a single decayed member, making possible to reuse timbers that traditionally would probably have been entirely replaced.

In any case, having access to a variety of choices is necessary to ensure the quality of the repair.

Repair manuals presenting timber repair techniques have been published in several countries, and can be a useful tool for conservation architects as well as an effective way of sharing information between countries (see bibliography).

3.2 The protection of Conservation Techniques in Japan

The legal framework of "Selected Conservation Techniques" was introduced in Japan through the 1975 amendment of the Law for the Protection of Cultural Properties. Through this system, techniques that are considered necessary for the preservation of Cultural Properties are selected, and the individuals and organizations that hold them are certified as custodians of these techniques. Selected techniques related to the preservation of wooden architecture include carpentry, different roofing techniques (thatch, tiles, cypress bark), plastering, traditional painting and lacquering, and metalworking. In addition, design techniques such as the traditional *kiku* technique, and techniques for the elaboration of tools and the harvesting of raw materials such as cypress bark or raw lacquer are also selected. A total of 71 Conservation Techniques are selected; 57 individuals and 31 organizations are certified as custodians (as of July, 2014). Custodian organizations hold training courses with governmental subsidies, and individuals receive annual subsidies for training and handing on of their techniques.

Fig. 5 Roofing with cypress bark, a "Selected Conservation Technique"

Fig. 6 Dressing a wooden member with a *yariganna* spear plane, a recovered tool

3.3 Recovery of lost techniques

The effort to identify the techniques used in the construction of historic timber buildings can in certain cases make possible to recover traditional tools and techniques that had already been lost. These discoveries have a scientific and cultural value of their own, and contribute to enrich our understanding of the architectural heritage.

An example of such recovered technique in Japan is the spear- plane *yariganna*. This kind of plane, with a leaf-shaped blade mounted on a shaft, fell out of use after the medieval era when it was substituted by the base-mounted plane. However, during the repair of Horyu-ji in the second half of the 20th century, master carpenter Tsunekazu Nishioka was able to reconstruct the tool and the planning technique through the examination of traces left in old members and the study of documents depicting its use.

Similar results have been achieved also in Norway, where the northern European *sprett-telgjing* technique used until the 14th century to finish the surface of exposed logs with an adze was revived in the 1990s after being lost for centuries.

3.4 Traditional conservation processes

The Japanese approach to the conservation of wooden monuments, which developed in the early 20th century from the combination of traditional repair techniques and the modern notion of cultural heritage, presents also differences from the “minimal intervention - maximum retention of material - reversibility” approach. Rather than simply decreasing the rate of decay, the Japanese approach aims

Fig. 7 Japanese cypress and cedar forest in Yoshino, Nara Prefecture.

at recovering the full load-bearing capacity and the structural behavior of the building, correcting leanings and deformations. This sometimes requires thorough interventions, including partial or complete dismantling of the frame. Instead of the consolidation of the present state and the addition of reinforcements, restoring the structural function of each member through repair or replacement is normally preferred, recovering the structural integrity at the expense of a certain amount of material loss.

Apart from the modern conservation of wooden monuments, other traditional processes of conservation or handing on of wooden architecture are present in Japan since the pre-modern era. Examples of these processes include the already discussed periodical rebuilding of shrines, the reconstruction of wooden structures reusing salvaged timbers, the copying and/or moving of tea rooms, or the use of protective shelters for certain shrines or temples like the Chuson-ji Konjikido. These practices form a complex cultural background associated to the transmission of wooden architecture that extends its influence to the present.

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Historic Wooden Structures in Southeast Asia: Issues Related to Authenticity

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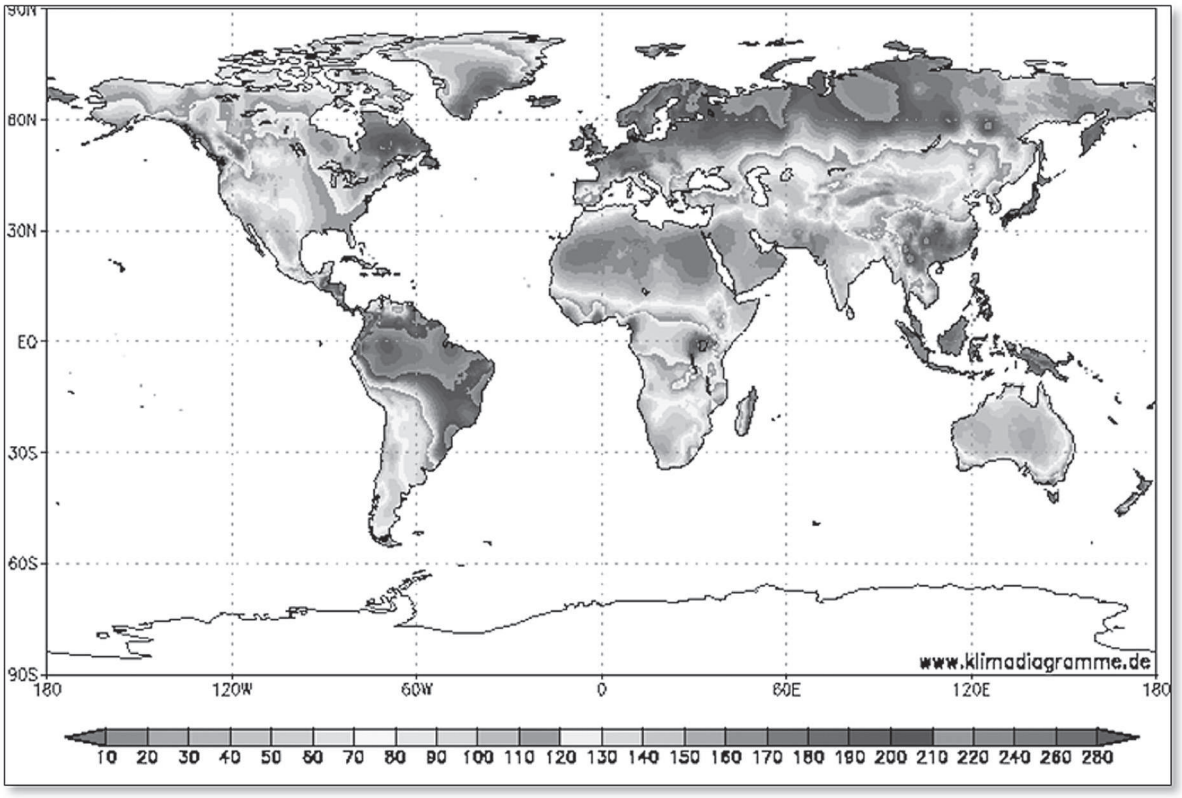
Introduction

It is significant that this meeting on the concept of Authenticity of wooden structures is held in Nara, Japan, not only because it was the location of the birth of the Nara Document on Authenticity of 1994, but it is also the location of important wooden structures such as Todaiji and Horyuji sites inscribed on the World Heritage list. A revisit of the Nara Document after 20 years, also took place here recently and the resulting "Nara +20" document called for a comprehensive discussion on the value of wooden structures and the concept of Authenticity. Hence, this meeting, for which I was asked to discuss the value of wooden structures and the concept of authenticity in Malaysia and Southeast Asia.

Structures that are completely made of wood form less than 2% of World Heritage sites. None of these sites are from Southeast Asia, although one could say that wooden structures have been historically an integral part of Southeast Asian culture, perhaps as nowhere else in the world.



World Average Rainfall (1961–1990)

The geography and climate of Southeast Asia are key elements in the conservation of wooden structures here. While the forests provide timber for building wooden structures, the climate certainly is unfriendly towards wood conservation. Generally in the tropical or equatorial zone, Southeast Asia experiences the highest rainfall in the world. The Amazon region also has a similar climate but it is not an area known for historic wooden buildings. Thus Southeast Asia is the only region where historic wooden structures are indigenous to the culture and if they are not preserved and protected then future generations will never know human ingenuity in the construction of houses that have been adapted to the environment.

In an attempt to bring out the special nature of historic wooden structures in Southeast Asia, an area that is climatically unfriendly to conservation, for consideration in the Nara+20 document, this paper will analyse the cultural, historical and geographical influences that have shaped and affected these wooden structures. These factors may impact on the concept of Authenticity.

Types of Historic Wooden Structures in Southeast Asia: Shared Values and Beliefs

Wooden structures in Southeast Asia are either only partially made of wood and partially bricks or completely made of wood. We will, however, focus on those completely made of wood, bamboo and plant products as these structures are a major part of the cultural legacy of Southeast Asia.

The wooden structures in the different parts of Southeast Asia are of a variety of architectural designs and functions. We will examine the various forms and functions in order to identify the shared values and beliefs among the people of Southeast Asia with regard to wooden structures.

The traditional structures are made of wood and also of bamboo, with roofs of wood, palm fronds, and tiles. In Southeast Asia the largest architectural variety is seen in houses whose roof shape, and floor plan and decorative elements vary according to place and function. Before we go into the cultural, historical and geographical aspects of these wooden structures, I would like to show you the wooden structures under discussion. This is important because in order to understand the local concept of Authenticity, it is important to examine all the structures from simple houses to palaces to places of worship. From these "objects" you will observe the role of intangibles or the "subject" – the link between man and environment, bearing in mind cultural and religious influences.

Rumah Kelantan – 12 pillar house has 3 roofs for main house, middle and kitchen. The roof is usually made of singgora tiles. Note the house is raised on a partially concrete pillar

Rumah Perak – Rumah Kutai has large sloping roof and the walls are partially or completely of woven bamboo, and low concrete stumps support the pillars that raise the house above ground

Mosque – Kg Dal mosque (L) and Meru mosque (R). Ventilation an important architectural feature in the hot tropics is seen here through woven bamboo walls of Kg Dal mosque. Often layered roof as in Meru mosque and structures on stilts provide ventilation

Totem Pole – another form of wooden structure to house an important burial. Called Klirieng in Sarawak, it is a ceremonial tomb pole made from ironwood tree trunks which holds bones of important elders

Palace – Istana Kenangan no nails, woven bamboo walls, aerial view like a sword in its sheath

Common Features:

1) **Beliefs** – symbolism in the number of pillars and rituals when constructing pillars; stilts and columns hold up the structure that is raised above the earth; decorative and symbolic motifs; cosmology and rituals before, during and after construction; structural orientation related to spiritual world.

2) **Design** – open high pitched roof for airflow and good ventilation in a hot and humid climate, elevation of buildings on stilts avoids dampness, floods, protection from wildlife, open verandahs, public space is about 60%, sparce furniture; extension according to need is a norm.

3) **Materials** – utilisation of equatorial forest products and local plants – a variety of woods, bamboo, palm fronds, grass and straw, as well as traditional tiles. These have a short life.

4) **Structural Mobility or "Moving House"** – Houses can be carried and moved to another place. Villagers gather together to help in the "house move" and in the Philippines it is called 'Bayanihan' while in Malaysia it is called 'gotong-royong'. There is no permanence attached to Site. Village cooperation and rituals related to house moving are important intangible aspects of culture and heritage

Moving House – A house is 'portable' as it is carried by the villagers to move it from one place to another

Thus, the wooden structures in Southeast Asia reflect a strong foundation in a shared geography, climate, materials as well as shared cultural practices and spiritual beliefs. Therefore, a discussion on Authenticity has to take into account the region's peculiarities. Southeast Asia possibly has the largest number of wooden structures per square mile in the world, and ironically, not one is on the World Heritage List.

Conservation Issues and Authenticity

In Southeast Asia, wooden structures can be burnt down, can be termite infested, and wood can decay or collapse due to the climate. Pagaruyung Palace, in Sumatra, Indonesia, was destroyed and rebuilt 3 times since 1804. In short, wood is a very precarious building material especially in monsoon Southeast Asia. In a region where since prehistoric times Man has lived comfortably adapting to his environment, using materials locally available, the perishability of these materials is an important conservation issue in any discussion on Authenticity.

Unlike bricks and masonry, wood does not as easily survive time. This is especially true for the tropics. In Southeast Asia wooden structures are a major part of its cultural legacy, but they perish easily. Conservation efforts face the problems of inavailability of original materials, lack of skilled craftsmanship and high cost of timber.

A plan for overcoming some of these issues began when we had to manage the World Heritage Site of Melaka and George Town. A total of almost 2,000 shophouses were being conserved and among the materials needed were wooden shop windows to replicate the original. Since the demand was

relatively big, such a business soon developed. This is not viable where the demand is small and one-off as in the case of the Singgora roof tiles of Masjid Mulong, but it was still done at high cost as it was an important heritage element of the building. We also replaced the walls of Masjid Kampung Dal with locally woven bamboo instead of the cheaper imported woven bamboo panels. There is just one lady who weaves these bamboo panels and we hope to interest others in this craft so as to keep it alive. Discussions with relevant govt agencies on growing this industry continue.

Vanishing forests, uncontrolled development and an ever hungry demand for timber have raised timber prices and given rise to the development of artificial timber. Replacement of timber flooring is another very expensive item not just because timber is costly but also because historic buildings use broad pieces of timber that now have to be specially ordered.

The perishability of timber especially in humid monsoonal tropics, where open fires are not uncommon, where termites live a healthy life, all add up to a shorter lifespan of timber buildings here compared to other climates.

Thus, in Southeast Asia, timber buildings are built, repaired, rebuilt, and extended, continuously by the people. If it decays, we repair it or we build another. The primary interest is on the people and its function, less so on the building.

There is this notion of impermanence – a notion influenced by an understanding of the perishability of the natural materials used as well as a worldview. Perhaps, the spiritual influence emanating from religion has affected the concept of impermanence. In Southeast Asia, it may not be wrong to state that the people seem to place greater importance on intangible heritage than on tangible heritage of a building. Religion – be it Islam, Buddhism, or Hinduism – is at the centre of cultural practices, a focus for family and community. Life in this world is impermanent and importance is placed on the afterlife which has a presence in this life in the form of spiritual beliefs, an intangible heritage.

However, with modernization, rituals related to construction are diminishing. In Thailand, for instance people believe that domestic sanctification or rituals associated with construction can be double edged for fear that if wrongly done it can be worse and lead to disaster. Other impacts of modernization are on construction materials, housing plans and lifestyle. There is a distinct preference for modern materials – bricks and mortar, glass and steel – due to lower cost, easier maintenance and longer life.

This change in values will deplete the wooden assets of heritage value that will be handed down to future generations. Thus, it is important that we protect whatever has been handed down to us. The urgency of this was seen in Myanmar, a country noted for its teakwood, when in 1983, UNESCO recorded 23 timber monasteries worthy of preservation. In a country with about 500 monuments recorded in 1916, only a small number of wooden monuments remain.

Any effort to conserve and protect Southeast Asian historic wooden structures that could contribute

towards World Heritage, would require some modifications in the evaluation of Authenticity. As has been discussed above, there are cultural and geographical peculiarities that have to be factored in.

Cultural and Geographical Considerations for Authenticity

1) Perishability of materials due to it being of plant origin and utilized in a tropical monsoonal climate – constant repair is needed and often there is a problem in obtaining the original material. If not constantly repaired it will be dilapidated and not habitable.

2) Extensions are an accepted feature of growth especially in religious buildings but these extensions have to be in harmony with the original.

3) Reconstructions or exact replicas after fires have to be recognised or else all is lost.

4) Site is not significant as "house moving" is an accepted tradition. They are made so they can also be dismantled and moved – for example Masjid Kg Laut, in Kelantan, Malaysia, that was moved from a flood prone area to a better protected area. The site move did not reduce its significance in anyway.

Masjid Kg Laut – this mosque is among the oldest in the country and it was moved from its original site on the river bank to a better protected area

5) Intangible culture, reflecting the people's spiritual beliefs and worldview as seen in the construction, architectural design and decorative motifs have to be maintained as they are an important part of the people's intangible culture, and an integral part of the building.

The Future of Historic Timber Structures in Tropical Southeast Asia

Let us look at some of the timber structures that have been inscribed on the World Heritage list, where the Outstanding Universal Value or OUV is based on the building itself. So in the case of Europe I have not included sites like Bryygen nor Paramaribo in Suriname as their OUV is based on the historic cities.

- Japan has significant sites (Todaiji and Horyuji)
- Europe – timber buildings (Kizhi church in Russia, Urnes Stave church wooden church in Norway)
- South America – wooden church , Chiloe in Chile

There are no wooden structures in Southeast Asia that have made it to the World Heritage List. We know that inscription is a means of protection. I would like to show some historic wooden buildings in Southeast Asia that are significant culturally and historically but may never make it to the World Heritage List as they may not fulfill the current definition of Authenticity. Some of these wooden structures – palaces, monasteries, mosques – were reconstructed after being burnt, or have been moved from its original location, or have had parts replaced with more lasting material. These examples include Shwenandaw Monastry and Nat Taung Kyaung Monastry in Myanmar, Sri Menanti Palace, and Kayangan Palace and Kampong Laut Mosque in Malaysia, Vivanmek Mansion or King Rama V Palace , Thailand, and Pagaruyung Palace, Indonesia.

This list is certainly not exhaustive as I have focused on completely timber structures but if we were to include timber and masonry in Southeast Asia, then there would be many more significant buildings to show. For a region where timber buildings predominated and probably has seen the largest number of timber structures in the world, these that remain relatively unprotected have to be urgently examined against the current Operational Guidelines para 82 on the conditions of Authenticity. If they do not fulfill the Authenticity requirements, but if they do have OUV then modifications should be made via Nara+20.

If we ponder what this century has, for it to hand down to future generations in terms of all wood structures from Southeast Asia the answer is probably "very little", if what little there is is not protected as World Heritage. All the more we have to reconsider the concept of Authenticity in order to protect the timber structures handed down to us as these will be the only examples of timber heritage in Southeast Asia that future generations will see. Otherwise, what they will see will be faux timber as seen in current buildings.

Wooden buildings are very expensive to construct, difficult to get skilled people to build, they need high maintenance, and are subject to fires, termite infestation and have a shorter lifespan than buildings of bricks and mortar. There are few if any important wooden structures nowadays, thus giving rise to a dearth of wooden buildings from our generation to be handed down to future generations. This underscores the importance of protecting and conserving whatever has been handed down to us. I refer especially to the magnificent wooden monasteries and palaces in Myanmar that we saw earlier.

Currently, there is effort to preserve craftsmanship and symbolic motifs. This is expressed in small structures like a resting hut or wakaf or in the addition of wooden decorative motifs to a brick house. Sometimes the motifs are kept alive in another medium – in clay – and used to decorate a bricks and

mortar building to give it an ethnic character. Most new buildings in Malaysia are encouraged to incorporate elements from traditional wooden structures.

I would like to end this with an interesting all timber building – The Sanctuary of Truth, in Pattayya Thailand, an effort to preserve wood craftsmanship, cultural symbolism and history. It has taken 20 years to build and needs another 20 years to complete ….A little like the Sagrada Familia in Barcelona?

Acknowledgement

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Wooden Architectural Heritage and Authenticity in South Asia
Colonial legacy and the dilemma of conserving living heritage

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Figure 1: Damaged Hanuman Dhoka Palace Museum, Kathmandu, Nepal © K. Weise

1.Introduction

Though wooden artefacts have been found that are several hundred thousand years old, depending on the environment and exposure, wood in general is not known to be extremely durable. Wood can burn, rot, weather or deteriorate due to pest infestation. The classic understanding of a monument would therefore hardly be a wooden architectural structure, but much more one of stone or brick. It is only living cultural heritage and the creation of the less prominent sections of society that used wood. It is only with the changing understanding of cultural heritage, which includes representations of the normal and the standard, that interest has developed for the non-monumental.

In South Asia there is a lack of prioritized wooden architectural heritage. This could be that the material itself has historically been less used or has been stepwise replaced with brick and stone.

The lack of importance could also be due to the fact that archaeological research until recently has only focused on stone and brick remains of lost cultures. In most cases, the continuous existence of a living cultural heritage is necessary for wooden architectural structures to persist. Such cultures might be found in places like Japan, Scandinavia and Russia. If a culture however disappears, its wooden architecture also slowly deteriorates with it. It could of course also be due to the fact that wood is such a precious and versatile material that it is constantly reused or might even end up as fuel wood.

This paper discusses the dearth of wooden architectural heritage particularly in South Asia, which however might be changing as our understanding of heritage becomes more inclusive. Considering that the wooden architectural heritage is closely linked to living heritage, the test of authenticity can be slightly problematic. This means that we might need to find a different approach to applying authenticity to wooden architectural heritage. The paper will recommend that authenticity of cultural heritage be understood as the truthful or credible expression of value. This differentiation between "being truthful" and "being credible" in defining authenticity is key to be able to accommodate inclusive cultural heritage such as historic wooden architecture with their numerous stakeholders and caretakers that require a participatory management approach.

2. History of conservation of cultural heritage in South Asia

2.1 The colonial legacy and rediscovering the past

Most of South Asia[i] has a colonial legacy of being part of the British Empire or at least being greatly influenced by the British colonial power. The entire sub-continent what today comprises of Bangladesh, India and Pakistan as well as the islands of Sri Lanka and the Maldives came under British dominion in the eighteenth or nineteenth century. Only after the Second World War did these states gained their independence. It was only the Himalayan kingdoms of Nepal, Bhutan and Sikkim[ii] that remained quasi independent. During this period, the British showed great interest in studying the cultural and natural heritage of these domains. These studies were supported by the British government primarily to gain better understanding of economic opportunities and for military intelligence. However there were also those civil servants who were genuine attracted to this alien culture.

In Europe, with the Enlightenment came a great interest in the neo-classical and the antics. This same motivation could be found in the early European administrators and migrants to South Asia who delved into the study of the orient. Those who showed an interest in the study of oriental languages or culture often as a pastime to their main carriers termed themselves Orientalists. Romantic notions of lost civilizations and adventure of treasure hunting were imbibed in the young minds of administrators and soldiers that were sent off to the colonies. The inquisitive soldiers in the field would investigate the stone slab with unintelligible inscriptions or pieces of stone sculptures scattered in the jungle. There were also those assigned by the government to survey parts

Figure 2: Sanchi archaelogical site, India © K. Weise

of the colonies which lead to officers like Colonel Colin Machenzie discovering sites like Amaravati in1813 while securing artefacts for his private collection. The great Buddhists site of Sanchi was rediscovered by officers including Captain Edward Fell in 1819. It was lieutenant James Alexander who came upon the caves of Ajanta.[iii] The history of the lost culture of early Buddhism in South Asia was pieced together by interpreting stone inscriptions, archaeological sites of ruined monuments and coins. Initially it was not even clear who this curly haired person was who was depicted throughout the length and breadth of the subcontinent. The puzzle was resolved only after decades of research that required the records of Greek emissaries and Chinese pilgrims to be translated.

It was the works of great scholars such as William Jones who founded the Asiatic Society in 1784. He was followed by such illustrious researchers as James Prinsep who deciphered the Brahmi script in 1837. Alexander Cunningham spent half a century surveying and excavating sites throughout the subcontinent. It was only in 1861 that he was able to institutionalize "a permanent body to oversee archaeological excavations and the conservation of Indian monuments", the Archaeological Survey of India. It was the efforts of these amateur archaeologists experimenting on the vast monumental remains in South Asia that ultimately defined the conservation approaches to cultural heritage.

John Marshall, a professor of classical studies at Cambridge who became Director General of the Archaeological Survey of India in 1902. He not only got the organization function, coordinated the discovery of sites like those of the Indus Valley Civilization at Harappa and Mohenjodaro in 1921, but also began systematizing archaeological and conservation procedures. John Marshall published a conservation manual in 1923 which was considered "an authoritative text on monument preservation in colonial India".[iv] After independence, this same organization was split up between the respective institutions in Myanmar, Bangladesh, Sri Lanka and Pakistan. In 2014 the Archaeological Survey of India prepared a new conservation policy which continued to focus on in-situ conservation of monuments as they are, following the guidelines set by John Marshall.

2.2 From community to state responsibility

Figure 3: Dharmarajika Stupa, Taxila, Pakistan © K. Weise

As in most parts of the world, there is a major rift between approaches of dealing with living heritage and with the non-living or dead heritage. It was out of the romantic notions of preserving the ruined remains of past golden periods of history that led to the establishment of the first theories of conservation. The categorization of "non-living" or "dead" heritage would be the tangible heritage that might have lost its original function and be testimony to a culture or civilization that has vanished. [v] Stringent regulations were established

on how to deal with such monuments which did not necessarily need to carry out any further function than to exist. Such monuments were possibly never wooden structures.

Heritage can be defined as something that has been inherited from the past, is of value and worthy of preservation for future generations. The definition itself requires heritage to be preserved. Over the past decades, the understanding of what all should be considered within this category of heritage has changed dramatically, however the approach to conservation and dealing with heritage has not adapted.

In South Asia, as probably in many other parts of the world, the responsibility for the conservation of heritage has been legally assigned to the state. This was based originally with the understanding of heritage being ruins, archaeological remains and obsolete monuments that have lost all links to the community that created them. In many cases they don't have any community caring for them. The responsibility of conserving the remains of an archaeological site of a lost civilization would be with the government or even the world community. These are the wonderful remains of stone and brick structures that have managed to survive over numerous centuries, in some cases even millennia.

Conflicts have however been observed when this same approach has been imposed on living heritage. A tragic situation was created for example when the community based guthi system of maintenance and upkeep of monuments in Nepal was nationalization. The nationalized guthis have stopped functioning without the involvement of the community. Similar circumstances can be seen in many living heritage sites that are designated as national heritage - or even World Heritage - and government agencies take over the responsibility for its upkeep. This has led to for example temples being cordoned off and devotees not being allowed in. Depending on the typology of the temple and especially the construction materials such as wood, the daily use, monitoring and maintenance is essential and can only be ensured by community participation.

Figure 4 / 5: Seto Macchendranath Chariot, Kathmandu © K.Weise

2.3 World Heritage in South Asia - lack of wooden structures

The list of World Heritage properties might not give a perfect image of all the finest heritage properties but does represent the cultural heritage considered to be of greatest significance by the State Parties. Of the seven State Parties considered to be in the South Asia sub-region, two have not nominated any property: Bhutan and Maldives. Of the remaining four State Parties the number of cultural properties that are presently inscribed are: Bangladesh 2, India 25, Nepal 2, Pakistan 6 and Sri Lanka 6.

It is rather an interesting exercise analyzing the types of properties considered to be of greatest significance so as to inscribe them on the List of World Heritage. The list of cultural World Heritage properties in South Asia represent mainly religious and commemorative architecture.[iv] The sites represent periods of history spanning over two millennia (with only one pre-historic site), however they generally represent the predominant cultures of the region. For example in India there are a long list of properties representing the early Buddhist sites, followed by the Hindu Kingdoms and then Mughal Empire. The Sri Lankan sites are predominantly represent the Buddhist history.

Figure 6: Galle, Sri Lanka © K.Weise

Most of the sites in South Asia would consist of stone architecture (35), followed by brick (11). There are only few sites with structures of materials considered less permanent such as earth (4) and wood (3). Of the 41 cultural World Heritage properties in South Asia, only three are considered to include significant wooden architecture: the Churches and Convents of Goa (India), the Kathmandu Valley (Nepal) and Old Town of Galle and its Fortifications (Sri Lanka). There might be a few more that have structures that contain wood, but these were not found to be significant by the site managers. Considering the understanding of heritage and the lack of permanence of wood in certain climatic conditions, there are very few World Heritage properties consisting of wooden structures in South Asia.

3. Overview of wooden architectural heritage in South Asia

3.1 Archaeological findings of early timber structures

The heritage sites of ancient civilizations that are lost have till recent times been considered to consist of only of stone and brick remains. Whether it is the Harappan sites along the Indus or the early Buddhist sites in the Gangetic plains, these have been presented mainly in respect to their monumental attributes. This has probably been due to the fact that archaeological techniques and investigations focused purely on brick and stone. This limitation defined both the time frame within which we understood history as well as extending generally to the main monuments which were the forts, palaces, religious structures and other such structures of importance.

In South Asia, only recently has research with the most advanced methods and technology led to discoveries of the structures that existed in important sites before the use of stone and brick. Two such sites that have been investigated since 2010 are Lumbini and Tilaurakot in Gautama Buddha's nativity in Nepal. An archaeological team from Durham University in the UK, funded through the UNESCO Japanese Funds in Trust carried out investigations with the aim of identifying the earliest layers of human habitation and activity in the region.

The excavations within the Mayadevi Temple in Lumbini led to finds that questioned the dates of when Gautama Buddha actually lived. Though it was clear that the earliest known period of activity at Lumbini was pre-Mauryan, based on the presence of North Black Polished Ware from a period between the sixth to the third centuries BCE, the only known structure was the brick temple from the Mauryan period. The visit of Asoka in 249 BCE started the first major period of construction consisting of a vihara, the Asoka Pillar, the (first) two phases of the Maya Devi temple and numerous stupas. According to the most recent investigation reports this has changed and "the first evidence of structural activity at the Mayadevi Temple occurred in the middle of the sixth century BCE with the cutting of a straight line of post holes defining the centre of the mound. Soil micromorphology indicates that the central area of the temple, defined by wooden fence or railing, was void of structures and the stratigraphy and soil sections suggest the presence of substantial roots, perhaps indicative of a tree."[vii] It is of course interesting to note that the remains of the wooden structures are the negative imprints: the post holes. The wood itself was not preserved.

Figure 7: Earliest recorded structure as post holes, Lumbini, Nepal © Durham University

Similar results can be found in the archaeological investigations of Tilaurkakot, the archaeological site which is considered to be Kapilvastu, the city where Prince Siddhartha grew up before becoming the enlightened Gautama Buddha. The investigations carried out by Durham University and funded by the UNESCO Japanese Funds in Trust re-excavated Debela Mitra's 1962 trench through the northern rampart. Here, under the brick and earthen ramparts, the existence of earlier timber barricades were identified by excavating the post holes.[viii] Here again we see that the earliest protective structures were timber structures.

3.2 Reinterpretation in stone architecture

Figure 8: Ajanta Caves (India) © whc.unesco.org/en/list/

Many of the earliest wooden structures are known to have been gutted by fire. Often there are tales of grand palaces and magnificent cities that were destroyed by fire. It is said that even during the life of Gautam Buddha ancient Kapilvastu was sacked by Vidudhabha, the ruler of neighbouring Kosala, massacring the Sakya inhabitants and setting fire to the city. In the Kathmandu Valley, the Licchavis supposedly built a seven storey palace in the sixth century around Bishalnagar which burnt down. The

Mallas, learning from this lesson started using burnt brick to reduce the chance of their monuments being destroyed by fire.

In the South Asian sub-region, there are clearly earlier endeavours of moving away from building important monuments in wood. An interesting example is the early Buddhist cave temple. These were shrines and monasteries carved out of stone cliffs, allowing for grand rooms to be created even before developing the engineering skills required to construct similar free standing structure. The earliest example are the Barabar Caves from the Mauryan Period (fourth to second century BCE). It is interesting to observe that the detailing and ornamentation of the carved stone resembled structures built in wood. Structural elements that would have been required for a free standing timber structure were imitated in stone. The ornate carvings not only copied motives of wooden elements but even the texture and grain. This development led to some superb examples of stone carving based on earlier wooden structures that would have been considered less permanent by being susceptible to fire and decay.[ix] Well known examples are the Ajanta and the Ellora caves, both inscribed on the World Heritage List in 1983.

The Sun Temple at Konârak Orissa, another World Heritage property, was built in the thirteenth century in the shape of a gigantic chariot with elaborately carved stone wheels. Even though the temple has various standard components of a Hindu temple including the principle sanctuary and various halls, it is associated with the ancient chariots that would have been constructed of wood. It is therefore not surprising that the biggest chariot festival is the rath *jatra* of Puri, also in the state of Orissa. The culture of pulling wooden chariots has also been continued in the cities of the Kathmandu Valley. The chariots are constructed every year to carry a deity during a particular festival around the city while being pulled by hundreds of devotees. Once the celebrations are over which might last a day or even up to a month, the chariots are dismantled and the parts are stored away for the following year. The Sun Temple at Konârak has literally petrified this process which otherwise would be closely linked to living cultural heritage.

Figure 9: Sun Temple at Konârak Orissa (India) © whc. unesco.org

3.3 Wooden architectural heritage in South Asia today

There seems to be a general lack of priority given to wooden architectural heritage in South Asia. As an indicator, we could look at the cultural properties on the tentative list of World Heritage.[x] This however does not provide us with a promising image of wooden architectural heritage in South Asia. The island states of South Asia do not have any wooden architectural heritage on the tentative list. The two tentative cultural sites of Sri Lanka are a Vihara and an ancient pilgrim route. The Maldives has a coral stone mosque.

Even on the main subcontinent there is a general lack of or at least lack of interest in wooden architectural heritage. In Bangladesh the five listed sites are either early Buddhist archaeology or a seventeenth century Mughal fort. In India there are 37 properties on the tentative list (and two mixed properties). Of the cultural properties there are 8 modern or colonial, 11 monumental, 4 urban sites, 2 ancient routes, 4 of tribal culture, 2 economic village culture, 2 Harappan, 2 early Buddhist, 1 Neolithic and 1 Mughal garden. Of all these only one monumental property deals with a wooden structure: the sixteenth century Padmanabhpuram Palace in Kerala. In Pakistan of the 18 sites on the tentative list there are 4 archaeological, 9 mosques or tombs, 2 rock edicts, 2 forts and a medieval port. Of this list probably the only one that could be considered to contain wooden architecture would be Baltit Fort in North Pakistan.

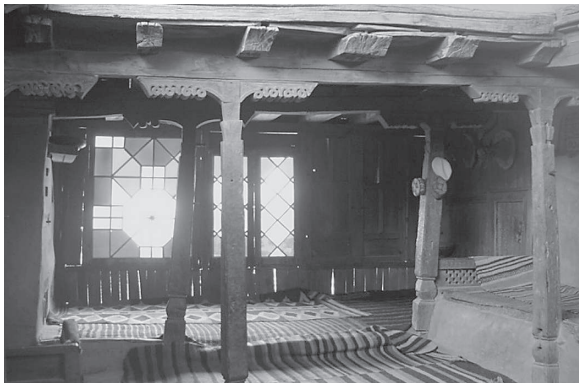
Figure 10: Baltit Fort (Pakistan) © K.Weise

The tentative list however shows some promise along the Himalayas. Nepal has 15 tentative cultural properties of which 4 are archaeological sites, 3 are religious sites with stone or brick, 1 site with earthen walls integrating wooden structures while the remaining 7 sites are linked to the highly evolved Newari architecture combining brick and wood. Bhutan has 4 tentative cultural properties (and 1 mixed) closely linked to the Dzongs and monasteries. Bhutan clearly has a culture of wooden architecture which is closely linked to their living traditions. The sites along the Himalayas, though they might be using stone and brick, integrate a highly evolved culture in timber construction.


Figure 11: Trongsa Dzong (Bhutan) © K.Weise

Whatever remains of the wooden architectural heritage of South Asia is however being lost to neglect and natural disasters. On 5th August 2003 the Pratappur temple caught fire, cracked and two weeks later collapsed. It was reconstructed but was again damaged by lightening on 15th February 2011. Fire ravaged the 374 year old Wangduephodrang Dzong in Bhutan on June 24 2012. Recent earthquakes have devastated hundreds of monuments in Nepal.

4. Post 2015 earthquake response and wooden architecture

4.1 Impact of the earthquake

The early settlements and monuments within the Kathmandu Valley of the Licchavi Period between the third and eight century CE are said to have been of wood. These structures which might have been adapted to the recurring earthquakes were vulnerable to fire. In the early part of the second millennium CE the traditional buildings in Kathmandu responded to fire hazards by introducing a

system of brick fire walls that stopped the spread of fires from one building to the next. These brick and timber buildings were then phase wise adapted to withstand earthquakes by inserting wooden ties and pegs to dampen the seismic forces. Innovative solutions were used to ensure structural stability against earthquakes for example by building square timber temples laced with wooden bands on high stepped plinths that functioned as base isolation. Nevertheless there is evidence that during each larger earthquake structures have collapsed. Though the buildings would have been rebuilt over the centuries and none are from much earlier than the seventeenth or eighteenth century, some of the reused wooden elements could date back to several centuries earlier.

On Saturday 25 April 2015 just before noon a 7.8 magnitude earthquake struck Nepal. The epicentre was 15 kilometres under the village of Barpark in Gorkha district, some 80 kilometres northwest of Kathmandu. It was an earthquake that seemed to specifically damage vernacular buildings and historical monuments. Villages in 39 districts were affected with about half a million houses collapsing and a further quarter million being severely damaged. The most badly affected were eleven districts within the area spanning between Gorkha and Dolakha. Listed monuments were affected in 20 districts with 190 being recorded as having collapsed and 663 having been partially damaged.

Figure 12 / 13: MajuDega Temple before and after the earthquake, Kathmandu Nepal © K.Weise

4.2 Immediate response and the value of materials

The phenomenon we could observe in most heritage sites in the Kathmandu Valley was that people seemed to instinctively contribute to salvaging and safeguarding the components of the collapsed and damaged monuments. The main construction materials such as wood, bricks and stone along with the artefacts and ornaments which were lying in piles of rubble from collapsed structures were salvaged and stored away. This was followed by more formal procedures carried out by the Department of Archaeology (DOA) in coordination with the armed forces. Musultas or agreements were signed between the DOA, the community members and the police defining the artefacts that were salvaged and where they were stored.

Many monuments that contributed in providing the significance of a World Heritage property were

ended up being heaps of wooden elements, bricks and earth. There were also the metal artefacts such as the *gajur* (the pinnacle) and the statues of the deities or their symbolic representation usually in stone. The discussion on what constituted valuable material and what was debris took place too late. There was a frenzied drive to clear the sites and what was considered debris was quickly removed using excavators and trucks. The debris was generally comprised of brickbats, rotten and broken pieces of wood and the mud from the mortar which were all once part of a World Heritage monument.

Figure 14: Salvaged wooden element, Hanuman Dhoka, Kathmandu, Nepal © K.Weise

What had been lost in this deconstruction of the monument? The material parts did not have the same value as the constructed and consecrated whole. Where does the heritage value of the monuments and historical buildings lie? For religious buildings the value lies in the consecrated statue of the deity. The value of most structures of the Kathmandu Valley however lies in the wooden elements that play a prominent role in both the structure as well as the ornamentation. It is not only the material, but also how the material has been used, crafted and assembled into a structure. The significance also lies with the people who created, maintained, utilized and gave life to the monument.

4.3 Rehabilitation: bringing the heritage sites and monuments back to life

To bring the sites and the individual monuments back to life will take numerous years. With so many collapsed monuments, the discussion on material conservation and reuse has became central. The reuse of salvaged materials in rehabilitating the monuments has been done regularly in the past and would be considered standard practices. Most structures that were reconstructed after the previous major earthquake in 1934 seemed to have been done quite haphazardly. Only those given highest priority were rebuilt ensuring correct iconography however often with additional embellishment. The wonderful historic ensembles will need to be re-establish based on the highest of standards using the salvaged material along with the will, motivation and craftsmanship of the community.

The ongoing activities for the rehabilitation of Hanuman Dhoka Durbar Square in Kathmandu includes the sorting, identifying and labelling of wooden elements from twelve monuments that were salvaged and stored in nineteen piles in different locations. The project undertaken by ICOMOS Nepal together with the Department of Archaeology and with funding from UNESCO has started sorting out the salvaged wooden elements with experts in iconography helping identify the origins of the

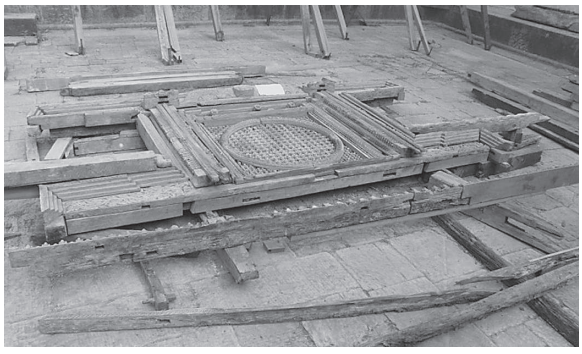

Figure 15: Reassembling and resotring wooden windows at Hanuman Dhoka, Kathmandu, Nepal © K.Weise

various element. The army is helping with carrying and guarding the elements. These elements will need to be stored until the monuments are reconstructed, which could be anything from 1 to 5 years. A detailed inventory is being prepared to easily identify the pieces that will be numbered and tagged. There are ongoing discussions on how best to clean and protect the wooden elements from insect infestation. The elements will then be stored upright in sheds to protect from weathering.

The initial phase of rehabilitation has been planned for six years. A strategic rehabilitation plan is presently constituted of five approaches which are the establishment legal provisions, carrying out research, rehabilitation planning, putting in place practical procedures and ensuring information management.[xi] Once the approach and principles of restoration have been finalized, the guidelines will need to be supported by clearly defined and planned procedures. Each monument would need to be documented and further research would need to be carried out. Traditional rituals and ceremonies will have to be performed during restoration, such as the chhema puja or the asking for forgiveness. The quality of materials and craftsmanship will need to be guaranteed through stringent supervision and training provided by the local masters. This means that skills training will need to become a central theme which will also ensure cultural continuity and resilience.

5. The relevance of authenticity

5.1 Authenticity and the changing understanding of heritage [xii]

The definition of heritage has drastically changed over the past decades as we move away from focusing purely on the monuments, the exclusive. We have come to accept the importance of the context, the common people and that which creates the cultural landscapes and living urban heritage. The dwellings that make up the urban fabric are as important as the palaces and temples. The terraced paddy fields are as important as the pleasure gardens of the emperors. There is a change in mindset from the exclusive to the inclusive. This transformation can be observed for example in politics which in most places is diverging from autocratic systems to democratic ones which promote inclusiveness. A similar track change can be observed in managing heritage. Authorities that enforce strict laws on conservation have managed to safeguard individual monuments. The changing scale and the enormous range of different attributes that make up heritage today require an inclusive management system that promotes the involvement of the community and other stakeholders.

Figure 16: Street scene in Patan, Kathmandu Valley World Heritage property © K.Weise

In respect to authenticity the Operational Guidelines points out in article 82: “Depending on the type of cultural heritage, and its cultural context, properties may be understood to meet the conditions of authenticity if their cultural values (as recognized in the nomination criteria proposed) are truthfully and credibly expressed through a variety of attributes.” So authenticity would be understood as being the truthful and credible expression of value. The Nara Document on Authenticity mentions in article 12 “the credibility and truthfulness of related information sources” while in article 9 refers to

"information sources about these values may be understood as credible or truthful." The indiscriminate use of "and" and "or" when referring to truthful and credible might be something requiring further discussion.

Without getting caught up in philosophical discourses, it might be acceptable to say that a "truth" is something absolute. Even though different people might perceive different truths, each of these would be considered the one and only for the particular person. To enforce the idea of a single truth would therefore require an authority that makes the ultimate decision. This would also require the object that is to be tested for its truthfulness to be of a certain character, that of exclusivity. On the other hand the word "credible" could be understanding as having reached a compromise between various observers as justified and acceptable. "Credibility" would imply that various stakeholders have agreed upon the validity of the expression of a given object, which would then be considered to be inclusive.

This could logically lead to the understanding that exclusive cultural heritage properties can be managed by authoritarian systems and its authenticity be tested as the truthful expression of the property's value. Inclusive heritage properties would however require a management system allowing stakeholder and community participation and authenticity would be tested as the credible expression of the property's value. This would therefore require the amendment of the operational guidelines article 82 to read as "Depending on the type of cultural heritage, and its cultural context, properties may be understood to meet the conditions of authenticity if their cultural values (as recognized in the nomination criteria proposed) are truthfully or credibly expressed through a variety of attributes".[xiii]

5.2 Authenticity and living cultural heritage

Living Cultural Heritage is usually considered to be interchangeable with Intangible Cultural Heritage. This however poses a problem since Intangible Cultural Heritage or ICH in short is linked to the definitions and standards set by the 2003 UNESCO convention on Safeguarding of the Intangible Cultural Heritage. This then conflicts with the understanding of that which keeps cultural heritage site, monuments and objects "alive". Though similar, it might be prudent to make a distinction for practical purposes as Living Cultural Heritage being human activities in a given place, while Intangible Cultural Heritage focuses on human skills and knowledge that is not necessarily bound to any location. With this slight distinction, it might be possible to discuss these terms in respect to authenticity.

Figure 17: Seto Macchendranath chariot festival at Hanuman Dhoka, Kathmandu, Nepal © K.Weise

The absence of differentiation between the concept of intangible cultural heritage and living cultural heritage has caused confusion. The 2003 ICH convention does not consider authenticity as relevant. However the definition of tangible cultural heritage properties has expanded to include not only the exclusive but also the inclusive. This has

particular relevance in places that are of significance due to particular human activities. These activities can be festivals, community events, social activities or even individual pursuits.

The type and extent of human activity would be that which differentiates the "living" from the "dead" or "abandoned" heritage properties. In other words, this could also refer to the function and use of the particular heritage property. The "dead" or "abandoned" heritage properties would be retained purely as a testimony to a past civilization or culture. These could be seen as objects of learning, veneration, commemoration or even recreation and entertainment. The condition of such heritage properties would depend on their history between when they was originally abandoned and when they was adopted for contemporary means of conservation. Abandoned heritage properties quickly deteriorate leaving the structures in ruins with only durable materials as remains. On the other hand "living" cultural heritage would normally assume continuity in significance, function and related human activity. This continuity allows for structures and artefacts of less durable material such as wood to be maintained over time.

Figure 18 / 19: Indra Jatra festival at Hanuman Dhoka, Kathmandu, Nepal and after earthquake © K.Weise

6. Conclusions and recommendation

In South Asia there is a lack of importance given to wooden architectural heritage. This can be explained by the colonial legacy of the Archaeological Survey of India. The main focus of the Orientalists and the early expert members of the Survey was the lost Buddhist culture on the subcontinent. This was defined by brick monuments and Asokan edicts carved in stone. Even in the early period of history, timber was replaced by stone and brick when constructing important structures such as the Buddhist rock cut temples and stone chariot of Konârak. The disregard shown toward timber structures has however changed. Even in archaeology more advance techniques have allowed for the remains to early timber structures to be identified such as post holes of the pre-Mauryan temples at Lumbini.

Wooden architectural heritage requires ongoing maintenance and upkeep. This means that such structures can only persist when linked to a continuous living culture. Living cultural heritage however also prerequisites change and adaptation. Living cultural heritage has persisted and become increasingly more resilient through the lesson learnt over time. The close link between the community and the environment has allowed for this system of cyclical renewal to take place. As long as the

community can maintain and safeguard the heritage, there is a reason for its continued existence. The cycle of destruction and renewal has taken place throughout history and must be accepted as an integral characteristic of the heritage. The value therefore does not lie purely in the material. As long as the community has the capacity and the will, their cultural heritage will be rebuilt. The constant renewal of the heritage ensures continuity.

This close link between wooden architectural heritage and living heritage necessitates an adapted understanding of conservation. As our understanding of monuments change from being exclusive masterpieces of high culture to components of a broader and more inclusive setting, the intangible or human dimension has to be given importance. This means that the value of a monument or historical structure also lies with the community or stakeholders. Wooden structures require constant maintenance and renewal and therefore the value does not only lie in the material but also in the skills and knowledge to ensure renewal. Authenticity of wooden architectural heritage would therefore require consensus from all those involved in management and maintenance. It would therefore be recommended that authenticity of cultural heritage be understood as the truthful or credible expression of value. Authenticity would need to be truthful in respect to the exclusive monuments that are maintained by authoritarian managers. For the inclusive monuments with numerous stakeholders and caretakers, authenticity would need to be credible. It is through the credibility of such monuments that cultural continuity will be assured.

Figure 20 / 21: The salvaged wooden elements to be used to revive monuments © K.Weise

[i] South Asia has been considered as defined by UNESCO as a sub-region under Asia and the Pacific. This would comprise of Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. The cultural sphere of influence would clearly extend beyond these boarders into Myanmar to the east, China (Autonomous Region of Tibet) to the north and Afghanistan to the west.

[ii] Sikkim was an independent kingdom until it merger with the Republic of India in 1975.

[iii] The story of how the lost Buddhist history in Northern India was unraveled is presented in a book by: Allen, C. 2002. *The Buddha and the Sahibs, The Men who Discovered India's Lost Religion*, published Murray, 2002

[iv] Sengupta, I. 2010. *A Conservation Code for the Colony: John Marshall's Conservation Manual and Monument Preservation Between India and Europe, in* M. Falser and M. Juneja (eds.), 'Archaeologizing' Heritage?, Transcultural Research – Heidelberg Studies on Asia and Europe in a Global Context, DOI 10.1007/978-3-642-35870-8_2, # Springer-Verlag Berlin Heidelberg 2013

[v] This would refer to criteria iii as defined in the Operational Guidelines for the Implementation of the World Heritage Convention.

[vi] The categorization of the World Heritage properties was undertaken as part of the Second Cycle of Periodic Reporting and the outcome was published in UNESCO World Heritage papers series #35: Understanding World Heritage in Asia and the Pacific, The Second Cycle of Periodic Reporting 2010-2012. An attached DVD provided a search engine linked to information on all individual properties along with their major characteristics, categories and threats.

[vii] The reports of this investigation have been published. The first published account of this investigation can be found in the UNESCO Publication: Weise, K. (ed) 2013. The Sacred Garden of Lumbni, Perceptions of Buddha's birthplace, UNESCO under the chapter "Perception Three. Re-discovering Lumbini. Archaeology and site interpretation" pp. 61-96. The overall report of the investigation was published in Antiquities:, R.A.E. Coningham et al. 2013. *The earliest Buddhist shrine: excavating the birthplace of the Buddha, Lumbini (Nepal)*, Antiquity / Volume 87 / Issue 338 / December 2013, pp 1104-1123, Copyright © Antiquity Publications Ltd 2013.

[viii] The results of the ongoing excavations at Tilaurakot have not been published. The information here is from the presentation by the archaeological team leader Professor Robin Coningham of Durham University at the International Scientific Steering Committee Meetings in August 2014 and January 2015 of the UNESCO Japanese Funds in Trust project.

[ix] There are various papers and books on this theme. One important publication is: Lannoy, R. 1974. *The Speaking Tree: A Study of Indian Culture and Society*, Oxford University Press; Reprint edition (April 25, 1974)

[x] The tentative list for World Heritage which can be viewed on the website of the World Heritage Centre can be considered to provide a glimpse of the properties considered to be of greatest importance to the state party. It also provides us with a understanding of what the State Party might consider cultural heritage to be.

[xi] This stategic approach was detailed out in the report submitted by Kai Weise, to the UNESCO Kathmandu Office on 31 October 2015 entitled "Nepal Post-Earthquake Rehabilitation of Cultural Heritage Phase 2: Planning and Research"

[xii] This concept has been defined in Weise, K. Part One: Discourse, Revisiting Kathmandu symposium

on safeguarding living urban heritage, Summary and Commentary in Weise, K. (ed.) Revisiting Kathmandu, The proceedings of an international symposium that took place in the Kathmandu Valley from 25 to 29 November 2013, UNESCO

[xiii] This was the topic of research carried out during a fellowship by the author at the Institute of Advanced Studies, Durham University in February and March 2015 under the theme of "Emergence". The paper was never finalized and submitted due to the earthquake that struck Nepal before its submission.

III. Conclusions

Conclusions of the International Conference 2015
"Revisiting the Philosophy of Preserving Wooden Structures: The Value of Wooden Structures in Asia and the Concept of Authenticity"
16-17 December 2015

The international conference 2015 " Revisiting the Philosophy of Preserving Wooden Structures: The Value of Wooden Structures in Asia and the Concept of Authenticity" was held as a part of the consecutive three-year conference project to discuss the philosophy of preservation of wooden heritage in Asia, and it was the concluding discussion. This document is to be read together with the documents developed in the former conferences held in 2013 and 2014 that are also attached to this document. The themes of each year's conference were the following.

"Revisiting the Philosophy of Preserving Wooden Structures"

2013: Restoration Method for Wooden Structures and Its Philosophy

2014: Cultural Landscape with Wooden Structures and Local Communities

2015: The Value of Wooden Structures in Asia and the Concept of Authenticity

Wooden heritage in Asia

Wooden structures make up the major share of heritage structures in Asia more than in any other regions of the world, going beyond not only vernacular architecture but also including historic monumental buildings in areas blessed by rich forestry nature. In some countries in Asia, most of the traditional buildings are of wooden construction, comprising most or all of their structural components, and their systems of maintenance and repair have been developed to a high degree and are regarded as part of the most important work of the national heritage protection authorities.

Beyond the very basic nature of the wood itself, which is of course more vulnerable to environmental impact than non-organic materials such as stone or brick, the region is also characterized by an inherently high degree of vulnerability due to the tropical and semi-tropical climates of the region which foster natural decay of the wooden structures, and which are vulnerable to natural disasters, thus magnifying the difficulty of their material conservation.

Such vulnerable wooden structures, in particular those in the South East Asian region that are essential components of their cultural landscapes and cultural identity, should not be excluded by our universal system of recognition of precious heritage typologies even though it is difficult for them to meet the established standards of material conservation. It is important to note that due to limitations posed by the existing criteria of authenticity in the operational guidelines of the World Heritage Convention, no wooden heritage structures from South East Asian region have made their way onto the World Heritage list.

Considering these challenges, our task is to establish a common understanding of the value and the authenticity of all types of wooden structures in our region, from buildings of historic significance to other structures that make up the historic urban fabric and the rural architecture as inherent parts of the

cultural landscapes, taking into consideration the structural, material, visual and social issues related to authenticity and integrity.

Principles of the preservation of wooden heritage

The presence of original material, the structural system and the architectural design are all equally important factors that determine the cultural significance of the wooden architectural heritage of Asia. The authenticity of these structures should therefore be recognized on the basis of the necessary interventions that are aimed at preserving the original structural system and retaining the original material fabric to the greatest extent possible.

These interventions may also aim at recovering the structural role of each member, correcting overall deformations and misalignments, and reinstating the condition of the original load-bearing capacity of the structure. At the same time, as much as possible, the extant material should be retained to preserve the scientific value and historical context.

The carpentry techniques and other traditional skills used to build and maintain these buildings are inherent part of their significance, and should be given proper recognition as methods of repair.
Where needed, the rescue and storage of old materials and the training systems for artisans and craftsmen who carry on the traditions of this conservation system should be encouraged.

Wooden heritage in tropical and semi-tropical regions

Considering the perishable nature of wooden heritage located in the tropical and sub-tropical regions of South Asia and South East Asia and the significance of the particular cultural practices and spiritual beliefs in each area, such heritage should be protected through periodic maintenance and renewal by recognizing the cultural and geographical considerations regarding the authenticity of associated traditional skills, knowledge, intangible practices and management systems. Efforts should be made to promote their transmission to present and future generations and, where necessary, to support their evolution for addressing changing needs, new economic and environmental considerations and the reduction of disaster vulnerability and by supporting the livelihoods of traditional craftsmen and maintaining the quality of their craftsmanship.

National governments with the support of organizations such as UNESCO should protect important examples of such heritage as a living legacy of traditional architectural styles and preservation techniques, and further raise awareness about these issues among the various stakeholders.

Considering the increasing vulnerability of wooden cultural heritage to natural disasters such as earthquakes in these regions, recovery processes such as in the case of Nepal may have to be strengthened to ensure the continuity of the life cycle of these traditional buildings through a system of cyclical renewal for protection of the life of the buildings as well as the continuity of traditional building systems.

Wood culture in Asia

Community beliefs and associated intangible dimensions should be explored and respected for conserving the living communities and the religious wooden heritage in Asia.

The transmission of wooden architectural heritage, whether they are important monuments or whether they are simply traditional village buildings, requires the continuity of the local knowledge that includes the management of forest reserve systems and their utilisation for repair of historic wooden buildings. Traditional societies held the belief that forests housed the gods of nature and trees had their own spirit. This system of beliefs meant that the collection, transportation, processing and assembly of timbers had to show respect for the spirits of nature, and made possible a sustainable management of the forest and environmental resources by local communities.

While most modern societies have already lost this system of beliefs, management systems of forest resources based on traditional knowledge implemented in some countries in Asia such as the Furusato no Mori (hometown forests) in Japan and the Jun-gyung-meyo (pine forest reserves) in Korea are essential for the preservation of wooden architectural culture.

The beauty and perfume of fresh, newly processed timber is a characteristic of the material of wooden architecture. In some cases, traditional communities build new structures as a religious ritual to celebrate the renewal of life. Some Japanese shrines, such as the Ise Shrine, have a tradition of complete or partial ritual rebuilding with new materials every twenty years that has continued for over one thousand years. Together with the cultural landscape of the forests that surround them, they constitute one invaluable example of the diversity of wooden cultural heritage. In these examples, after the ritual rebuilding, the old dismantled members are reused in other religious buildings, and the recycling of timber resources is an integral part of traditional knowledge.

Reference

Conclusion of the International Conference 2013
"Revisiting the Philosophy of Preserving Wooden Structures: Restoration Method for Wooden Structures and Its Philosophy"
17-19 December 2013

Preface

The International Conference on "Revisiting the Philosophy of Preserving Wooden Structures: Restoration Method for Wooden Structures and Its Philosophy" was co-organised by the Cultural Heritage Protection Cooperation Office, Asia-Pacific Cultural Centre for UNESCO (ACCU Nara) and World Heritage Institute of Training and Research for the Asia and the Pacific Region under the auspices of UNESCO (WHITRAP Shanghai). The scope of the conference was to look into the developments in conservation policies particularly concerning wooden heritage structures over the two decades since the Nara Conference on Authenticity in 1994. It was the first of three conferences that are to be organized over a three year period, and it took place in Nara from 17 to 19 December 2013.

Eighteen invited experts, and several observers, attended the conference representing WHITRAP, ACCU, and ICCROM, as well as governmental and research institutions from Bhutan, China, Indonesia, India, Japan, Nepal, Sri Lanka, and Vietnam. On 17 December, guided visits were organized to examine conservation work in Shonen-ji Temple (Imai cho), and in Hōryū-ji Temple. During subsequent two days (18 and 19 December), a special lecture on conservation philosophy, two Keynote Speeches, and seven Case Study Reports were presented.

The participants appreciated the hospitality, sponsorship, and excellent organization by ACCU and WHITRAP. They commended this collaborative initiative aimed at addressing conservation philosophy and methodologies in the light of contemporary challenges and discourses, and adopted the following recommendations.

Conclusions and Recommendations

Regarding the issue of authenticity, it was recognized that, together with the concept of cultural landscape, the 1994 Nara Conference on Authenticity marked a significant paradigm shift in conservation policies. The pre-Nara emphasis on material authenticity in heritage evaluation has now broadened to include intangible aspects of heritage, and recognition of diversity. These concepts have been further elaborated and specified in UNESCO´s international doctrine, including the 2003 convention on intangible heritage, the 2005 convention on heritage diversity, and the 2011 recommendation concerning the Historic Urban Landscape, showing an increasing broadening from exceptional to common heritage.

While recognizing the continuously evolving heritage policies, the participants sustained that the 1994 Nara Document on Authenticity be maintained as a historic reference, similar to the 1964 Venice Charter. The emerging needs for relevant policies should be interpreted in new documents and with reference to the 1994 Document.

Regarding operational interpretation of authenticity in conservation practice, the participants observed that the pre-Nara emphasis on material authenticity and minimum intervention continues to prevail in public policies on conservation of State protected built heritage. However, in the broader context of cultural landscape and urban conservation, such policies are not strictly attained to and may actually need reconsideration. A gap is recognized between the on-going international debate on heritage policies, and the national and local interpretation of authenticity. Challenges are encountered in local interpretation due to inconsistent use of specific technical terms in different languages. A more holistic view that takes into consideration local context and sources of information is desirable for defining the significance of the property.

The concepts and principles of the 1994 Nara Document should be elaborated as practical guidelines for undertaking conservation interventions, illustrated with select case studies. The guidelines could start as an informal document, but once consolidated could be proposed for adoption and publication by relevant institutions. The guidelines should be made multi-lingual with a recommended glossary of terms.

There appears to be some confusion regarding the relationship between Integrity and Authenticity. According to the WH Operational Guidelines, integrity refers to the process of identification of all the elements that together define the significance of the property. Authenticity instead refers to the qualification of such elements in terms of their truthfulness and credibility. It can be observed that, in certain cases, part of the material authenticity of a property may be lost due to repairs or partial reconstruction, while the architectural integrity gets re-established at the same time. In other cases, the formal integrity may have been lost in ruined structures, while material authenticity of the remaining fragments still exists.

The illustrated guidelines proposed above should discuss the different aspects of authenticity, e.g. in relation to creative cultural expressions, historical material, and the social-cultural context of the decision-making processes. Furthermore, discussion should extend to the conditions of integrity, e.g. the identification and the cultural, functional, or symbolic relationship of elements that contribute to the significance of a place in its context, and its state of conservation.

Further, the participants observed certain differences in current relationship between on-going practices and traditional continuity. While there do exist genuine traditions inculcated over generations, modern practices in conservation may easily cause changes if not properly controlled when excessive resources are made available, e.g. from international tourism and/or globalized trade. These practices may augment vulnerability of heritage due to increased pressure and lead to interventions such as the 19th-century idea of ´period restoration´ that unfortunately continues to be an option for tourism promotion.

Research institutions are therefore encouraged to undertake research projects on the history, the recognition and treatment of human creative expressions in their context. Such research should also take note of the evolution of the international doctrinal frameworks for conservation.

Regarding hierarchy of priorities, there is urgent need to clarify the significance of heritage resources and how this relates to judgements on values. While authenticity is basically related to the significance of the property, value judgements, instead, are the result of learning processes. ***These concerns should be integrated into relevant capacity building programmes.***

Conclusion of the International Conference 2014
"Revisiting the Philosophy of Preserving Wooden Structures: Cultural Landscape with Wooden Structures and Local Communities"
16-18 December 2014

1. The year 2014 marks the 50th and 20th anniversaries of Venice Charter and Nara document on Authenticity respectively, two important documents used by the international community to guide the safeguarding of cultural heritage. However, recognizing the complexity and increasing challenges on one hand and the need to respect cultural, regional, geographical and typological diversity on the other hand, 'revisiting' some of the existing ideas and developing more guidance and tools for effective conservation and management of our heritage is considered timely. The participants congratulated WHITRAP-Shanghai and ACCU Nara for organizing the International conference 'Revisiting the Philosophy of Preserving Wooden Structures: Cultural Landscape with Wooden Structures and Local Communities' held in Shanghai from 16 to 18 December 2014.

2. The participants highlighted the need to conceptualize and characterize wooden heritage in a more holistic manner. By recognizing wooden heritage as cultural products exemplifying the combined works of humans & nature often defined by spiritual relationships, which also signal the inherent processes of continuity & change and interaction among communities, participants viewed them as cultural landscapes. This holistic approach for wooden heritage extends beyond currently used definitions.

3. Considering the regular repair, maintenance and replacement as key ingredients which necessitate persistent engagement, application of knowledge and utilisation of natural resources through collective efforts, participants agreed that consistent community presence as empowered stakeholders in decision making be considered 'sine qua non' (essential) for the sustainability of wooden heritage.

4. Participants further agreed that the communities have mastered the knowledge, skills and techniques required for interaction with nature in utilising the available resources and providing contextual, sustainable and disaster resilient solutions for maintenance and development of wooden heritage. These important intangible aspects of wooden heritage were well established and time tested but either disappeared or got neglected in many countries. However, presentations revealed that they are still extant or recoverable particularly in the East Asian countries, where wood is a dominant feature of cultural heritage.

5. Distinctive character of each cultural landscape and its wooden heritage depends much on its own indigenous designs and techniques. In the process of maintaining or enhancing such built elements of a cultural landscape, more attention should be paid to keep the diversity and uniqueness of knowledge inherited by the local community, in particular the skilled craftsmen.

6. Proactive planning using heritage legislations as well as other planning instruments are required to capture physical, social, economic and ecological dimensions of cultural heritage; both as tangible and intangible products as well as dynamic processes that are related to livelihoods and social activities and to promote their utilisation to ensure their continuity for the benefit of contemporary users

7. The reference to communities also highlighted the need to place due emphasis on providing livelihood opportunities for the local communities thereby ensuring the proactive role of heritage towards sustainable development. It is recognized that reciprocal benefits to both heritage and communities should be the aim and final outcome of all heritage management processes. Conservation or repair techniques should provide practical, economical and sustainable solutions for those engaged in care of their own places which are part of or within the domains of cultural landscape

   The participants revisited wooden heritage and suggested conceptualizing it as cultural landscapes and based on this approach, recommended the following proposals for further documentation, research and outreach :-

   a) Contemporary principles and approaches developed by the countries including critical review of them to understand shortcomings if any in the region

   b) Traditional and established knowledge, skills and techniques including a critical review of their applicability in a changing and globalizing society.

   c) Existing and creative approaches to improvement of livelihood of communities linked to wooden heritage

   d) Management systems, both formal and traditional, for the protection of wooden heritage as cultural landscape and introducing and strengthening them where needed.

IV. Appendix

1. General Information on the Conference

International Conference 2015
"Revisiting the Philosophy of Preserving Wooden Structures:
Value of Wooden Structures in Asia and the Concept of Authenticity"
(15 – 17 December 2015, Nara, Japan)

1. Organisers

This conference is jointly organised by the Agency for Cultural Affairs, Japan (*Bunkacho*); Asia-Pacific Cultural Centre for UNESCO; National Institutes for Cultural Heritage, National Research Institute for Cultural Properties, Nara and Tokyo; and WHITRAP Shanghai under the auspices of UNESCO in co-operation with the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM), the JAPAN ICOMOS National Committee, the Japanese Association for Conservation of Architectural Monuments (JACAM), Nara Prefectural Government and Nara City Government.

2. Background and Objective

The International Conference 2015 is the third and last in a series, which began in January 2013, under the general theme of "Revisiting the Philosophy of Preserving Wooden Structures".

We held conferences to discuss the subthemes of "Restoration Method for Wooden Structures and Its Philosophy" in December 2013 in Nara and "Cultural Landscape with Wooden Structures and Local Communities" in December 2014 in Shanghai.

In the meantime, the "Meeting on the 20th Anniversary of the Nara Document on Authenticity" was held in Nara, Japan, in October 2014, jointly organised by the Agency for Cultural Affairs, Japan (*Bunkacho*), Nara Prefectural Government and Nara City Government in co-operation with the Asia-Pacific Cultural Centre for UNESCO. The effects of the Nara Document over the last 20 years and prospects for the future were discussed. "Nara+20", the outcome document of the meeting, was adopted. This document identifies five key issues and priority actions to be developed and expanded from the concept of authenticity in order to improve the practice of conservation of cultural heritage.

At the last conference, to be held this year, based on the outcome of the past two conferences and the meeting on the 20th Anniversary of the Nara Document, the value of wooden structures in Asia and the concept of authenticity will be discussed comprehensively and we will attempt to reach a conclusion.

3. Dates and Venues

Dates: 15 to 17 December 2015
Venue: Hotel Nikko Nara (8-1 Sanjo-Hommachi, Nara City)

4. Schedule

Day 1 Tuesday, 15 December
14:00-18:00 Pre-meeting

Day 2 Wednesday, 16 December

09:30- Opening Session
10:00- Keynote Speech
11:15- Keynote Reports I- III

Day 3 Thursday, 17 December

09:30- Case Study Reports IV-V
13:00- General Discussion/Recommendation
15:30- Closing Session

5. Working Language

The working language of the conference is English. Simultaneous interpretation between English, Chinese and Japanese will be provided when necessary.

6. Financial Arrangements

The organisers will provide each of the participants with:

1) Travel Expenses: A round trip air ticket (economy class) between the international airport nearest to the participant's residence and Osaka (Kansai) International Airport.
2) Daily Subsistence Allowance (DSA): A fixed DSA from 15 to 18 December to cover the participant's meals; and hotel accommodation (including breakfast), which will be arranged by the organisers.

7. Correspondence

All enquiries and correspondence concerning the Conference should be addressed to

❖ ACCU Nara Office
Cultural Heritage Protection Cooperation Office,
Asia-Pacific Cultural Centre for UNESCO (ACCU)
Nara Pref. Nara Branch Office
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❖ WHITRAP Shanghai
World Heritage Institute of Training and Research for the Asia and
the Pacific Region under the Auspices of UNESCO (Shanghai)
3F Wen Yuan Building, Tongji University
No. 1239 Siping Road, Shanghai 200092 P.R. CHINA
Tel & Fax: (+86) 21 6598 7687
e-mail: whapshanghai@gmail.com

2. Schedule of the Conference

Day 1 (Tuesday, 15 December)

14:00-18:00 Pre Meeting

Day 2 (Wednesday, 16 December)

09:30-10:00 Opening Session
Welcome addresses by organisers: Mr KUMAMOTO Tatsuya, Director of Cultural Properties Department, Agency for Cultural Affairs, Japan; Mr NISHIMURA Yasushi, Director, ACCU Nara Office and Ms LU Wei, Executive deputy director, WHITRAP Shanghai.
Introduction of Guests of Honor: YONEDA Takeshi, Assistant Director, Cultural Resource Utilisation Division, Regional Development Department, Nara Prefectural Government and TATEISHI Kenji, Section Chief, Cultural Properties Section, Nara City Board of Education

10:00-11:00 Keynote Speech: Sjur Mehlum (Norway)
"Revisiting the Philosophy of Preserving Wooden Structures"
11:15-12:45 Keynote Report 1: ZHU Guangya (China)
"On the Authenticity of Timber Structure Conservation Influenced by Chinese Culture"
14:00-15:00 Keynote Report 2: KIM Seong-Do (Korea)
"Restoration principles and example of maintaining authenticity of Korean architectural wooden heritage"
15:15-16:15 Keynote Report 3: MASUDA Kanefusa/Alejandro MARTINEZ (Japan)
"The Handing on of the Wooden Architectural Culture in Japan and the International Conservation Principles"
18:00-19:30 Reception

Day 3 (Thursday, 17 December)

09:30-10:30 Keynote Report 4: Zuraina Majid (Malaysia)
"Historic Wooden Structures in Southeast Asia: Issues Related to Authenticity"
10:30-11:30 Keynote Report 5: Kai Weise (Nepal)
"Wooden Architectural Heritage and Authenticity in South Asia: Colonial Legacy and the Dilemma of Conserving Living Heritage"
13:00-14:00 General Discussion: All participants
"Revisiting the Philosophy of Preserving Wooden Structures: Value of Wooden Structures in Asia and the Concept of Authenticity"
15:30 Closing Session

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