### Training Course on Preservation and Restoration of Cultural Heritage in the Asia - Pacific Region 2005

# Preservation and Restoration of Wooden Structures

27 September – 28 October, 2005, Nara, Japan

Cultural Heritage Protection Cooperation Office, Asia/Pacific Cultural Centre for UNESCO (ACCU)

Agency for Cultural Affairs, Japan

**National Research Institute for Cultural Properties** 

International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM)

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### Preface

The Cultural Heritage Protection Cooperation Office, Asia/Pacific Cultural Centre for UNESCO (ACCU) was established in Nara in 1999 with cooperation of the Agency for Cultural Affairs, Japan (*Bunkacho*) Nara Prefectural Government, and the Municipal Government of Nara, with the purpose being to serve as a domestic centre for promoting cooperation in cultural heritage protection throughout the Asia-Pacific region.

Since then, our office has been engaged in the protection and study of cultural resources through training courses, international conferences, the training of young leaders in cultural heritage protection, the production of databases, our website and newsletters, and public relations.

The ACCU Nara training courses have comprised a significant part of the work of heritage protection and research, and this was the sixth such course we have held. The theme of this year's course was "Conservation and Restoration of Wooden Structures," and was held in cooperation with the National Research Institute for Cultural Properties and the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM), from September 27 to October 28, 2005. Fifteen participants from across the vast Asia-Pacific region gathered in Nara to conduct their training.

The objective of this training course was to provide specialists in charge of the conservation and restoration of wooden structures in Asia and the Pacific with a series of lectures and practical sessions on concrete information and know-how regarding the conservation, restoration, management and utilization of wooden structures.

Many historic wooden structures remain in the Asia-Pacific region, reflecting the long traditions and cultures of individual countries. To maintain these structures, respective cultures in this region have developed unique preservation/restoration techniques. Today, however, adequate preservation of historic structures has become a pressing issue, calling for the increasing application for these preservation/restoration techniques. Since the 8th century A.D., when many wooden structures were built in Japan, many of these structures have been preserved and repaired time and time again. The wealth of knowledge and techniques thus accumulated in Japan should be shared with other parts of the Asia-Pacific region.

In Japan, 10 sites have been inscribed on the UNESCO World Cultural Heritage List, among which the Historic Monuments of Ancient Nara were added in 1998. It is widely recognized that the techniques used for the restoration and preservation of wooden structures in Nara have attained among the highest standards in the world.

I believe that the discussions and lectures in this course were also a good opportunity for the exchange of ideas and knowledge between the participants, all of whom come from different

cultural backgrounds. I hope that in the future every participant will be able to utilize the results of the course and the networks that were built at that time, in their own countries.

We would like to express our deep gratitude to the prominent international experts who kindly delivered lectures, and to the organizations that provided generous support in organizing the course. We would also like to express our appreciation to the participants, who actively took part in the discussions and whose eager efforts made the course more efficient and successful.

We hope that this report will benefit those who are making strenuous efforts in this field throughout Asia and the Pacific.

YAMAMOYO Tadanao Director Cultural Heritage Protection Cooperation Office, Asia/Pacific Cultural Centre for UNESCO (ACCU), Nara

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### **1. General Information**

## Training Course on the Preservation and Restoration of Cultural Heritage in the Asia - Pacific Region 2005

# -Preservation and Restoration of Wooden Structures-(27 September – 28 October, 2005, Nara)

### 1. Organizers

Jointly organized by: *Bunkacho* (Agency for Cultural Affairs, Japan); The Asia/Pacific Cultural Centre for UNESCO (ACCU); the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM); and the National Research Institute for Cultural Properties

In cooperation with Japan's Ministry of Foreign Affairs; the Japanese Commission for UNESCO; Nara Prefectural Government; Nara Municipal Government and the Japanese Association for Conservation of Architectural Monuments (JACAM)

### 2. Background

Japan possesses many surviving wooden structures built as early as the 8th century and later. As these structures have continuously been restored throughout the centuries, the accumulation of various philosophies and techniques for preservation and restoration have refined the conservation system to a high degree. Based on this accumulated system of practical preservation and restoration, Japan has been expected to contribute to the development of human resources that are necessary for preserving similar kinds of cultural properties in various Asia-Pacific countries. One important way to accomplish this task is by providing training in the methods used to investigate wooden structures. This training also includes the conservation and restoration philosophy and technology for personnel responsible for restoration in each Asia-Pacific country.

The idea of holding training courses in Nara, Japan's ancient capital was proposed in a meeting of experts, held in March 2000, to discuss cultural heritage preservation in the Asia-Pacific region under the joint auspices of ACCU's Cultural Heritage Protection Cooperation Office of the Asia/Pacific Cultural Centre for UNESCO (ACCU) and the Agency for Cultural Affairs, Japan. In response to this idea, the ACCU, the Agency for Cultural Affairs, and the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM), officially decided to conduct the training courses with the theme of the preservation and restoration of cultural heritage in the Asia/Pacific region. It was also decided to that the courses should fit within the broad framework of UNESCO's activities.

Similar training programmes implemented in 2003 included 14 participants from 14 countries. As many Asia-Pacific countries urgently need to preserve and restore wooden structures, the same kinds of training will be continuously carried out for the current year (2005). This programme aims to expand and diffuse a variety of conservation and restoration technologies across the Asia-Pacific region for long-term benefits.

### 3. Dates and Venues

Course dates and duration: September 27 (Tuesday) to October 28 (Friday), 2005 Venues: ACCU--Cultural Heritage Protection Cooperation Office, (Nara Prefectural Government "Horen" Office, 757 Horen-cho, Nara City); Additional venues: Facilities of cooperating organizations; sites undergoing preservation and restoration, etc.

### 4. Objectives of the Training Course

Nara Prefecture is a unique region possessing many of the oldest wooden structures in the world with a deep history of accumulated techniques and technology for their preservation and restoration. The result of this history is that heritage restoration has reached an advanced technical level. Moreover, the philosophy of preservation was established based on the specific requirements of these historic structures. Due to Nara's historic preservation history and environment many institutions and specialists are based in the area. The course will take advantage of this by utilizing specialists' expertise to help participants master the following areas: methods of investigating wooden structures, seminal ideas and concepts regarding preservation and restoration, the technology/techniques of restoration, and other topics to be conducted by personnel in charge of preservation and restoration of various wooden structures on-site. In other words, the purpose of this program is to foster a high level of training of personnel enabling them to learn how to utilize the methods and concepts learned and apply them similar cultural properties in their own country.

An additional, and essential, advantage of the training course is that participants in charge of similar roles in different regions and disciplinary specialties have the opportunity to assemble, learn, and discuss similar themes, as well as to exchange information in order to establish future heritage preservation and conservation networks.

#### **5. Training Curriculum**

Lectures

- Introduction to Architecture
- Introduction to Asian Architecture
- Treaties and Charters relating to Cultural Heritage
- Survey Methods on Conservation of Vernacular Houses and Historic Towns
- Theories of Preservation and Maintenance
- Design and Supervision, Construction
- Management and Utilization of Structures
- Risk Preparation Management for Cultural Heritage
- Others

Practical Training and On-site Lectures

- Practical Training on Old (historic) Wooden Structure Conservation Project Sites
- On-site Lectures at the Facility for Wood Conservation
- Case Study on Conservation, Restoration and Utilization (4-day study tour)
- Other works relating to the preservation and restoration of architectural structures

Presentations and Discussion

- Presentations on the present status of preservation in each countries world and cultural heritage resources, and exchange of views
- Recapitulation of the Training Session
- Additional presentation and discussions will also be included in the agenda

### 6. Participants in the Training Course

(1) The training course is offered to the following 37 signatory countries listed in the UNESCO World Heritage Convention (see below). For application, UNESCO National Commissions or UNESCO liaison offices need to submit the following documents required for those individuals nominated <u>no later than 24 June, 2005</u>: letters of recommendation written by the head of the organization to which a nominee belongs; a profile of the nominee; a report on his/her major achievements.

### \*A total of 15 people will be selected from the nominees as participants in the training course.

Afghanistan, Australia, Bangladesh, Bhutan, Cambodia, China, Fiji, India, Indonesia, Iran, Kazakhstan, Kiribati, Kyrgyz, Lao P.D.R., Malaysia, Maldives, Marshall Islands, Micronesia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Palau, Papua New Guinea, Philippines, Rep. of Korea, Samoa, Solomon Islands, Sri Lanka, Tajikistan, Thailand, Tonga ,Turkmenistan, Uzbekistan, Vanuatu, and Vietnam

### (2) Qualification Requirements

Applicants should be:

- experts or equivalent, aged 45 years or younger, who are engaged in the preservation, restoration or management of wooden buildings, and the preservation, restoration, and/or development of architectural remains, and who can make effective use of the results of the Training Session upon returning to his or her home country.
- 2) those <u>who have a good command of English</u>, the working language for all lectures, so that they can deliver presentations and write reports from the Training Session;
- 3) those who can attend the entire training programme;
- 4) those <u>who can submit all of the required documents</u> (i.e. a recommendation by NATCOM, and reports) within the deadlines outlined;
- 5) those who can continue exchanging information and interacting with ACCU after returning to their home countries;
- 6) those who were not previous participants in training courses organized by ACCU;

### 7. Notification of Screening Results

After consideration with the other organizers, ACCU will select 15 people (one person per nation only) around <u>mid-August</u> from among all applicants. After selection, the UNESCO National Commissions from each country and successful applicants will be informed of the screening results.

### 8. Certificate of Completion

Each trainee will be awarded a certificate upon completion of the course.

### 9. Language of the Training Session

English will be the working language throughout the course.

### **10. Documents for Application**

- (1) <u>Application Form</u> (Form 1)
- (2) Report Relating to Cultural Heritage Preservation.

The report should be written by the applicant and should be mention present and previous work engaged in by the applicant. This report will be weighted during selection of the participants.

- (3) Letter of Recommendation by NATCOM
- (4) Letter of Recommendation by the Attending Chief Official (Annex 1)
- (5) Documentation Indicating English Proficiency (if obtained)

### 11. Expenses

Expenses during the Training Course shall be borne by the ACCU, as follows:

(1) Travelling expenses:

Each of the participants (except those from Australia, Republic of Korea and New Zealand) shall be provided with an economy-class return air ticket from the nearest international airport from their residence to Kansai International Airport, and transportation fees between Kansai International Airport and Nara.

(2) Living expenses:

Participants shall be provided the basic living expenses incurred during the training course from September 27 (Tuesday) to October 28 (Friday), 2005. Arrangements for accommodations will be made by the Cultural Heritage Protection Cooperation Office, Asia/Pacific Cultural Centre for UNESCO (ACCU Nara).

### 12. Secretariat

Cultural Heritage Protection Cooperation Office, Asia/Pacific Cultural Centre for UNESCO (ACCU Nara Office) Nara Prefectural Government "Horen" Office, 757 Horen-cho, Nara City, Nara Prefecture 630-8113 Tel: +81-(0)742-20-5001 Fax: +81-(0)742-20-5701 E-mail: nara@accu.or.jp

# 2. Programme Schedule

	Date	Morning (0930-1230) (Lecturer / Venue)	Afternoon (1340-1640) (Lecturer / Venue)		
	26 (Mon)	Arr	ival		
September	27 (Tue)	Opening Ceremony Introduction to World Heritage in the Nara Ci	ity Area, Orientation Session (ACCU)		
	28 (Wed)	Introduction to the Cultural Heritage Protection	on System in Japan (Yamato /ACCU)		
	29 (Thu)	Introduction to Architecture (Yamato /ACCU)	Conservation of Wooden Architectural Heritage (Yamato /ACCU)		
	30 (Fri)	On-site Lecture: Restoration of Building of Recent Period, Restoration of Wall Paint (Staff/ Doshisha Univ., Nijo-jo Castle, K			
	1 (Sat)				
	2 (Sun)				
October	3 (Mon)	Wooden Architectural Heritage in the Asia-Pacific region (Myklebust /NRICPN)	Design for the Reconstruction of Ancient Buildings in Nara Palace Site (Shimada/NRICPN)		
	4 (Tue)	Participants' Presentations and Discussions I : Case Studies on Practical Wooden Architectural Heritage Conservation in Asia and the Pacific (Inaba & Myklebust / ACCU)			
	5 (Wed)	Participants' Presentations and Discussions II : Case Studies on Practical Wooden Architectural Heritage Conservation in Asia and the Pacific (Inaba & Myklebust / ACCU)			
	6 (Thu)	Comparative Study on Theory of Conservation and Restoration in East Asian Countries (Shimizu /ACCU)	Preparation for the Practical Training (Kubodera /ACCU)		
	7 (Fri)	Practical Training: Jibutsu-do, Todai-ji Temple (Kubodera /Todai-ji Temple)			
	8 (Sat)				
	9 (Sun)				
	10 (Mon)	National Holiday			
-	11 (Tue)	System and Project Planning for Restoration of Important Cultural Properties (Murakami / ACCU)	Overall Process of Conservation in Japan (Nishioka / ACCU)		
	12 (Wed)	Practical Trainning: Toshodai-ji Temple	(Staff/Toshodai-ji Temple)		
	13 (Thu)	Practical Trainning: Toshodai-ji Temple	(Staff/Toshodai-ji Temple)		
	14 (Fri)	Practical Trainning: Toshodai-ji Temple	(Staff/Toshodai-ji Temple)		

15 (Sat)			
16 (Sun)			
17 (Mon)	Policy and Problems regarding the Conservation of Historic Districts in Japan (Nakajima /NRICPN)	Landscaping and Management of the Sites (Yoshioka / NRICPN)	
18 (Tue)	On-site Lecture: Hida-Takayama, Gifu Pref.	(Shimada & Staff / Takayama City)	
19 (Wed)	On-site Lecture: Shirakawa-go, Gifu Pref.	(Shimada & Staff / Sirakawa Village)	
20 (Thu)	On-site Lecture: Kanazawa, Ishikawa Pref.	(Shimada & Staff / Kanazawa City)	
21 (Fri)	On-site Lecture: Ichijo-dani Site, Fukui Pref.	(Yoshioka, Mizuno & Staff / Fukui City)	
22 (Sat)			
23 (Sun)			
24 (Mon)	Cultural Heritage Preservation and Restoration (Nagao / ACCU)	Protection of Traditional Techniques and Materials for Sustainable Conservation (Takeuchi / ACCU)	
25 (Tue)	An Introduction to the Conservation Science for Wooden Architecture (Kawanobe / NRICPN)	Dendrochronology in Japan and its Application (Mitsutani / NRICPN)	
26 (Wed)	Future Tasks in the Preservation of Cultural Heritage I (Nishi / ACCU)		
27 (Thu)	Future Tasks in the Preservation of Cultural Heritage II (Nishi / ACCU)		
28 (Fri)	Evaluation (ACCU)	Closing Ceremony (ACCU)	
29 (Sat)	Depa	urture	

### 1. **Opening Ceremony**

The opening ceremony of the 2005 training course was held on September 27<sup>th</sup> 2005 at the Kasugano-so reception hall in Nara City, with fifteen course participants and honorable guests from the Agency for Cultural Affairs, Japan (*Bunkacho*), the National Research Institute for Cultural Properties, Nara Prefectural Government, Nara Municipal Government, and the Japanese Association for Conservation of Architectural Monuments (JACAM).

The opening addresses were given by Mr. NAKANISHI Director-General, ACCU; Mr. Koji. YAMAMOTO Tadanao, Director, ACCU Nara Office; Mr. MORIMITSU Toshihiko, Head, Centre for Archaeological Operations, National Research Institute for Cultural Properties; Mr. ASANO Atsuyuki, Head, Office for International Cooperation on Cultural Properties, Cultural Properties Department, Bunkacho; Mr. KIMURA Koji, Deputy Director, Kansai Science City Cooperation Division, Nara Prefectural Government; and Mr. TANIMURA Masaru, Chief, Cultural Assets Division, Board of Education, Nara City. In the above mentioned speeches, organizers and guests extended warm greetings to the participants and stressed the success of the training course. Following the speeches, another honorable guest, Mr. NOZUMI Tetsuo from JACAM was introduced to the participants. At the end of the ceremony, the participants and an observer introduced themselves and a group photo was taken with staff and guests.

Finally, the participants proceeded to the Nara Prefectural Office. They were ushered to the roof floor of the building, where many historical monuments designated World Heritage can be observed. Unfortunately, the sight was not clear, but participants were given the explanation of those monuments seen from there. After this stop, the participants met the Deputy Governor of Nara Prefecture,



Mr. Nakanishi, Director-General of ACCU, giving the opening address



Mr. Yamamoto, Director of ACCU Nara Office giving opening address in his traditional attire



Mr. Asano, from the Bunkacho, (Agency for Cultural Affairs, Japan)



Dr. Morimitsu, from the National Research Institute for Cultural Properties



Mr. Kimura from the Nara Prefectural Government



Mr. Tanimura from the Nara Municipal Government

Mr. NISHIO Tetsuo. He greeted participants and introduced Nara Prefecture. The participants also asked the Deputy Governor about the prefecture.

Following this schedule, the participants visited Kofuku-ji Temple, a World Heritage site located next to the Prefectural Government Office.

In the afternoon, the participants and ACCU staff met in the ACCU meeting room whereupon each member introduced themselves. After that, an introduction to the training course was given regarding the course theme, objectives, logistics, and requirements. Following this, presentation about daily life in Japan for visitors was made, followed by an open question period.



Meeting with the Deputy Governor of Nara Prefecture, Mr. NISHIO

### 2. Summary of Lectures

Various experts delivered a series of lectures during this Training Course. The following is a complete list of the lectures with a brief description of their contents.

Introduction to the Cultural Heritage Protection System in Japan (28 Sept.) YAMATO Satoshi (Agency for Cultural Affairs)

"History of Protection and the Concept of Cultural Properties in Japan"

- Historic overview of the development of conservation systems and laws in Japan as an example of the conservation system for historical monuments.
- An introduction to aspects of the law and various classifications of cultural properties and designation system of cultural properties including its criteria, subsidies and tax exemption systems.
- Description of the structural system of Japanese wooden architecture and traditional carpentry techniques including sophisticated joint system, design technique such as Kiku and Kiwari, as indispensable traditional skill for a kinds of intangible heritage as well as conservation technique for Cultural Properties.

### Introduction to Architecture (28 Sept.) YAMATO Satoshi

"The Tradition of Wooden Architecture in Japan and its problems"

- Brief history of Japanese architecture and its characteristics, typology of Japanese wooden architecture, including roofing system.
- Description of some characteristic problems of wooden architecture, especially Bio-deterioration such as fungus and lichens.



protecting

architectural

of

"Process of Repair and Restoration of wooden architecture in system cultural properties Japan"

- A theoretical outline of common restoration procedures.
- An overview of the regulatory bodies and experts involved in the conservation of architectural monuments, including the specialized role of conservation architects in Japan.

#### Conservation Wooden Architectural Heritage (28 Sept.) YAMATO Satoshi

"Conservation and restoration, preservation works of wooden Architecture in Japan"

- An introduction to some examples of restoration, repair and rehabilitation works of wooden

architecture.

- Description of some examples of disaster prevention system for wooden architecture including fire prevention system, earthquake registered engineering, environment control, daily precautions and Emergency drills.
- Approaches for conservation of wooden architecture using traditional techniques and newly developed scientific approaches such as dendrochronology, structural mechanics analysis using computers.

# Wooden Architectural Heritage in the Asia-Pacific region (3 Oct.) Dag MYKLEBUST (Directorate for Cultural Heritage, Norway)



Mr. Myklebust





After Mr. Shimada's lecture (above), participants toured the reconstruction site of the Daigokuden, Heijo Palace Site (World Heritage), and observed the new technologies applied on the reconstruction.

"Concept and Philosophy of the Conservation of Cultural Heritage"

- Introductive discussion of the concept of 'history' and 'monument'.
- Pragmatic and ethical issues related to conservation, illustrated in European examples and the restoration works in Norway.
- The concept of 'sustainable development'.
- The 'Value Analysis Chart' elucidating the purposes and methods of conservation.
- The concept of the conservation activities as 'story -telling', which sometimes conflicts with the value of 'authenticity'.
- Design for the Reconstruction of Ancient Buildings in Nara Palace Site (3 Oct.)

SHIMADA Toshio (National Research Institute for Cultural Properties (NRICP), Nara)

IMANISHI Yasuyoshi (National Research Institute for Cultural Properties (NRICP), Nara)

- "Concept and process of the Conservation works in Japan"
- Method and concept of conservation and restoration works in Japan, including the issue of the 'reconstruction' as an effective measure of the conservation.
- The process of the conservation work involved in a reconstruction project: investigation, research, design, and construction.
- Difficulties in extrapolating missing information from existing physical remains on sites.

- Various types of resources used in researching for reconstruction designs and their limitations.

After the lecture of Mr. Simada, participants visited the reconstruction site of the Daigokuden (main hall) of the Heijo Palace Site, and observed the anti-seismic techniques and current reconstruction works with the guidance of Mr Imanishi.

### Participants' Presentations and Discussions I, II: Case Studies on Practical Wooden Architectural Heritage Conservation in Asia and the Pacific (4-5 Oct.) Facilitator: INABA Nobuko (NRICP, Tokyo) Guest: Dag MYKLEBUST

Each participant delivered a 30 minutes presentation about the cultural heritage in their country, and aspects of conservation work in their country. The presentations generated discussions on the merits of conservation activities in different countries, as well as comparisons of the different approaches.

### Comparative Study on Theory of Conservation in East Asian Countries (6 Oct.) SHIMIZU Shigeatsu (NRICP, Nara)

"A view of the Comparative Study on the Theory of Architectural Preservation in East Asia"

- Introduction to the comparative studies on the architectural preservation: Subjects of comparison on preservation system and ways of analysis.
- Comparative studies between South Korea and Japan on the restoration works, causes of difference in the way of restoration works.
- The history and forming process of the restoration theory in Modern Japan, including controversy on restoration policy Presentation by Mr. Tuitupou and characteristic problems on the restoration in Japan.
- Some issues toward re-theorization on preservation and restoration in East Asia.



Discussion after the presentation



Presentation by Ms. Beisembayeva



Presentation by Mr. Flavell





Lecture by Mr. Shimizu

### Preparation for the Practical Training (6 Oct.) Kubodera Shigeru (NRICP, Nara)



Lecture by Mr. Kubodera

"Study for the Establishment of Restoration Principle of Painting of Architectural Monuments"

- Introduction to the paintings for architecture and the necessity to establish the principles for restoration of paintings.
- Role of paintings for religious architecture as a way of visualization of the religious characteristics as well as protection for the surface of architectural members against weathering.
- Method and various types of restoration works for paintings such as repair to maintain the present state, partial repainting and complete repainting.
- Description on the cultural value of painting from the aspect of style and techniques.
- Some important principles for restoration of paintings.
- Systems and Project Planning for Restoration of Important Cultural Properties (11 Oct.) MURAKAMI Jin'ichi (Executive Director of the Japanese Association for Conservation of Architectural Monuments (JACAM))



Lecture by Mr. Murakami

"Framework and Work Plan for a Restoration and Conservation Project of Buildings designated as a Cultural Property in Japan"

- Introduction to the principal works of JACAM (The Japanese Association for Conservation of Architectural Monuments) on restoration works, project management and training for preservation of historic sites and buildings.

- Framework and contents of restoration and conservation

project for the protection of important cultural properties.

- Roles of conservation architects and organization for the repair of important cultural properties.
- Brief explanation on the process of planning and operations for the conservation project.



Lecture by Mr. Nishioka

### Overall Process of Conservation in Japan (11 Oct.) NISHIOKA Satoshi (Architect of JACAM)

"Main House, Reception Building (Shoin) and Main Gate (Omotemon) of the Seki Family Residence, an Important Cultural Property Designated by the Japansese Government"

- Summary of the Building and description on designation.
- Outline of the restoration policy. Major works involving repairs for alteration of present features and complete dismantlement for main house, and partial dismantlement

for reception building.

- The process of work of the contractor and conservation architect: preparation, dismantlement and survey, decision-making, assembling work and completion.
- History and Present State of Maintenance of the "Heijo Palace Site" (17.Oct.) NAKAJIMA Yoshiharu (NRICP, Nara)
- Overview of Heijo Palace Site, from its historical background to contents.
- History of the maintenance activities at Heijo Palace Site
- Conservation and maintenance for the remains in Heijo Palace Site
- Concept of museum for ruins, and problems of application

After the lecture, Mr. Nakajima took the participants to the museum, and then to the palace site to have an actual look at the various presentation methods shown there.

- Structure Reconstruction in Historic Site Development (17.Oct.) YOSHIOKA Yasuhide (Educational Board, Fukui Prefecture)
- Structure reconstruction based on materials from archaeological excavations; an effective methodological approach to historical site development, showing specific images of sites
- Detailed research and examination necessary; investigating primary (structural elements) and secondary materials (unearthed artefacts, social backgrounds, reference materials etc.) integrally
- Overview of the reconstruction development project of Ichijo-dani Asakura Family Site.
- Historical Background of the site: Asakura Family and its castle town
- Investigations for reconstruction, landscaping and management; examining the house types and design
- Importance of a joint work between architectural historians and archaeologists
- Reconstruction as a record of investigations and its preservation and presentation maintained by the public understanding and support
- Guideline for Drawing a Conservation Master Plan for Important Cultural Property Buildings (24.Oct.) NAGAO Mitsuru (Agency for Cultural Affairs)
- Purpose of drawing a "conservation master plan" and its importance



Lecture at the Heijo Palace Museum, by Mr. Nakajima



Lecture by Mr. Yoshioka



Lecture by Mr. Nagao on "Conservation Master Plan"

- Outline of preparing plans concerning the conservation of important cultural property buildings
  - Conservation management plan
  - Environmental preservation plan: classification of zones for conservation
  - Risk preparedness management plan: protection from fire, earthquakes, human crimes etc.
  - Utilisation plan: presentation of property values corresponding to social needs, facilities with universal

design

• Legal procedures: notification and permission required by applicable laws and regulations -Financial supports for fire protection and environmental preservation

Protection of Traditional Techniques and Materials for Sustainable Conservation (24.Oct.)
TAKEUCHI Masakazu (Agency for Cultural Affairs)



Mr. Takeuchi showing the smaller-scale wooden models to introduce the traditional techniques

- Conservation techniques for cultural properties in Japan
- Background and purpose of the protection of conservation techniques for buildings
- Standards for selecting and recognising selected conservation techniques
- Training of craftsmen for architectural monuments; carpenters, painters, plasterers, smiths etc.
  - Activities concerning the conservation of traditional techniques, from public education projects to the proposal of "Forest for Heritage"

Mr. Takeuchi introduced the traditional joint techniques in Japan, using smaller-scale wooden models produced by skillful craftsmen.

### An Introduction to the Conservation Science for Wooden Architecture (25.Oct.)

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Lecture by Dr. Kawanobe

KAWANOBE Wataru (NRICP, Tokyo)

- Modern conservation techniques using modern materials, such as synthetic resins
- Changes of modern techniques and materials used in conservation repair
- Removal of surface protection and peeling of painting
- Introduction of remarkable examples, where modern materials are used in repair practice to reinforce the

structures; carbon fibre etc.

- Importance of recording modern techniques used for future interventions
- Dendrochronology in Japan and its Application (25.Oct.)

MITSUTANI Takumi (NRICP, Nara) and OKO'OCHI Takayuki (NRICP, Nara)

- Identification of wood species used for ancient buildings, and their ages
- History of the study on dendrochronology
- Accomplishment of investigating wooden members in historic architectural monuments
- Procedures for dendrochronology; how to make a "master chronology"; in Japan, 12 softwood and 2 hardwood species already drawn a chart.
- Presentation of the year charts for 'Cypress' and 'Cedar' in Japan,
- Introduction of several methods of *measuring* year-rings, actually used in the practices by Mr. Oko'ochi at the laboratories in the research institute.
- Future Tasks in the Preservation of Cultural Heritage (26-27 Oct.) NISHI Kazuhiko (ICCROM)
- Major international / regional guidelines concerning the conservation of architectural monuments; from Athens Charter to Nara Document on Authenticity.
- International organisations for the conservation of cultural such international heritage. as NGOs. private organizations, universities and national institutions
- Works and activities carried out by ICCROM
- Future Tasks: current changes and various challenges for Classifying the words with discussing the future generation.
- Every participant wrote few words what they consider important on preservation of cultural heritage and then classified them with similarity. Through this work, participants discussed and shared what is important for preservation and conservation of cultural heritage monuments.

Mr. Nishi emphasised that we need international guidelines interpreted by each region with its own cultural context.



Dr. Mitsutani showing "master chronology"



Laboratory of dendrochronology study





### 2. Workshops

### <u>7 Oct.</u>

### Practical Training: Jibutsu-do, Todai-ji Temple KUBODERA Shigeru (NRICP, Nara)

"Practical Training for Survey on Painting and draw up Plan for Painting Restoration"

A practical training was held at the Jibutu-do, Todai-ji Temple. Under the instruction of by Mr. Kubodera, participants worked for some tasks about the on-site research for the restoration planning as follows;

- 1. Investigate the present state of the façade painting where was assigned. Then record all the information which could be received from the investigation and reconstruct it.
- 2. Recite the detail of researches that required for the restoration of painting, and describe the necessity of each research.



Whole view of the Jibutsu-do



Giving the instruction before the practical training



Investigating the present state



Investigating the present state



Recording the information after the investigation



Making a plan for the restoration



Presentation of restoration plan



Presentation of restoration plan



Overall comment by Mr. Kubodera

3. Make a plan for the restoration of the paintings and show the necessity of the restoration work.

4. Observe the reason and intention of each restoration plan.

After the individual works, participants discussed actively on the restoration policy and method based on the various experiences in each countries.

### <u>12 – 14 Oct.</u>

### Workshops at Toshodai-ji Temple

HATANO Tsuneo (JACAM), UEDA Tetsuji, HOTTA Yujiro and TOUNOUCHI Yasushi (Toshodai-ji Office of Cultural Properties Preservation, Nara Pref.), HAYASHI Yoshihiko (Nara Prefectural Board of Education)

A series of practical workshops were held at the Toshodai-ji Temple restoration site. Chief conservation architect Mr UEDA delivered an on-site lecture outlining the history and progress of the restoration project. This project exemplifies the unique Japanese method of *'kaitai shuri'* –restoration with complete dismantlement, which is generally carried out every 300 to 400 years in the repair of traditional wooden structures.

Due to the presence of significant structural deformation at the Toshodai-ji Temple, major restoration work was initiated in 1998. The completion of this project is scheduled in 2010. After the description of the process of each stages of the restoration project by Mr. UEDA, the purpose and the details of the each activity of the workshop has given.

### Workshop 1- Restoration Plan Proposal

- **Purpose:** To critically examine the present conditions of a dilapidated historic structure, and to determine an appropriate restoration plan.
- Activity: Participants visually examines and recorded the conditions of a small shrine building (the *Benten-sha*), which is located on the temple grounds. In particular, they were asked to observe evidence of previous restoration work, the age of the different parts of the structure, as well as the location, causes and extent of damages in the present structure. After a consideration of these data, each participant proposed an outline restoration plan.



Each participant made their own restoration plan and discussed over on them and examined the building again to check the condition. Workshop 1 was conducted by Mr. Hatano

It was interesting for the participants to compare their restoration plans and note the differences in opinion and approach. Many participants thought that this was a valuable exercise for them to experience the process and apply the principles of conservation, which they have learnt during the lectures in this training course.

#### Workshop 2 – Drawings and Measuring of Structure

Purpose:To gain an understanding of the structural principles of traditional Japanese wooden<br/>buildings, and to produce various types of drawing as records.

Activities: Part1 – Since the Toshodai-ji main hall has now been reconstructing, the participants studied at the restoration site of the temple in order to figure out how to build up the structure. Participants prepared a sectional sketch of the structure, in order to understand the logic of the structural assembly.

Part2 – Participants prepared a drawing of some bracket sets based on measurements and sketches of the restoration site.

Most participants have found that through careful observation and sketching they were able to derive a clearer understanding of the structure of traditional wooden buildings, as well as the original design intentions.



Drawings and Measuring of Structure: after drawing structures, add the size of each members based on the measurements





Drawing and small-scale model of structure, Toshodai-ji Temple by Dean Flavell, NZ

#### Workshop 3 – Techniques of Recordings Data (The takuhon method)

- **Purpose:** To practice the techniques of dry rubbing and wet rubbing, which are applied in making records of building components.
- Activity: Part 1, Dry-rubbing Participants covered the surface of a timber structural member with a sheet of special tracing paper. Rubbing it with carbon paper then made an imprint of the timber grains on the face of the member. This enables surface defects to be clearly identified. The participants learned how to prepare an accurate, scaled drawing of the irregular-shaped member from the outline of the trace.

Part 2, Wet rubbing – An imprint of the patterns on the face of terracotta roof tiles were made by overlaying the tile with a piece of wet tracing paper. The paper was gently pressed and moulded into the contours of the tile. It was then stamped with an ink-soaked pad in order to obtain an imprint of the patterns on the tile.

These techniques were new to most participants, who had found them economical and useful ways of recording information about historic building components. Many participants commented that they intend to introduce these methods in their work back in their own countries.



Dry-rubbing: rubbing structural member with carbon paper, drawing the scaled drawing of irregular-shaped member



*kaerumata*, one of the structural member, drawn with the above method by Mr. Chamorn Porapakpralai, Thailand



Wet-rubbing: recording method of the information of roof tiles

# 3. On-site Lectures

### ■ Restoration of Building Recent Period, Restoration of Wall Paintings(29 Sept,)



On-site lecture at the Clark Memorial Hall



Tour of the Nijo-jo Castle



Conservation laboratory for the wall paintings of the Nijo-jo Castle



Takayama Museum of Local History

# Restoration site of Clark Memorial Hall at Doshisha University, Kyoto City

TSURUOKA Noriyoshi, (Cultural Properties Preservation Division, Kyoto Prefectural Board of Education)

Mr. Tsuruoka gave an overview of the restoration concept and method of their restoration work for the Clark Memorial Hall built in the 19<sup>th</sup> century. After his lecture about the works up to now, the participants toured the working areas on the scaffolding, and observed their current restoration works for wooden truss structure and brick wall.

### The Nijo-jo Castle and restoration works of wall Paintings

SAKAI Kiyoshi (Nijo-jo Castle), NUMATA Osamu (Conservation laboratory for paintings at Nijo-jo Castle) and KUBODERA (NRICP Nara)

Mr. Sakai gave a brief history and back ground of the Nijo-jo Castle, and Mr. Kubodera gave interpretations of some characteristic decorations of the castle. After the tour of the inside of the castle, the participants visited the conservation laboratory for the wall paintings of the Castle. Mr. Numata explained an overview of the concept of their reproductive work of the wall paintings, and traditional methods, techniques and materials of the wall paintings in Japan.

 Preservation, Restoration and Utilization of Historic Area (18 – 21 Oct.)

SHIMADA Toshio 18 Oct. – Takayama City, Gifu Pref.

Takayama Museum of Local History

**Takayama Preservation District for Historic Building Group** Yoshijima Heritage House

TANAKA Akira (Takayama Museum of Local History) and OZAKI Keisuke (Educational Board of Takayama)

At the Museum, the special exhibition on the craftsmen of Hida District was under the preparation. Mr. Tanaka gave lecture on the exhibited items and the museum itself. After, visiting the museum, Mr. Ozaki guided a lecture tour around the historic districts of Takayama, designated as an Important Preservation District for Groups of Historic Buildings.

There is a solid collection of fire prevention, such as storehouses, water-tank facilities and fire-detection systems. The participants must have learnt that a historic town and its tradition can be conserved with the active efforts of the local people.

#### 19 Oct. - Shirakawa-go, Gifu Pref.

KONDOH Hisayoshi (Educational Board of Shirakawa) and MATSUMOTO Keita (Shirakawa-go Gassho-style Conservation Foundation)

### Gassho-zukuri Folklore Park

### <u>Wada Family Residence (Important Cultural Property)</u> <u>Hachiman-jinja shrine</u>

Mr Kondoh gave an overview of the history and present situation of the World Heritage site, and Mr Matsumoto an overview of the *Gassho* Style houses at the town office.

In Ogi-machi, the participants visited the open air museum to learn the structure of *Gassho*-style from inside the house, and then walked around the village. Detailed explanations were given for a reconstruction work at Wada-family house, the water-gun system etc.

# 20 Oct. - Kanazawa, Ishikawa Pref.

### Kanazawa Institute of Traditional Crafts

SENBO Tetsuo (Lecturer of Kanazawa Institute of Traditional Crafts) and TOISHI Hisanori (General Manager of Kanazawa Institute of Traditional Crafts)

Kanazawa City is carrying out a remarkable project concerning "training of craftsmen for historic wooden houses in Kanazawa". Having learnt the background of establishing such a college, the participants looked around the practice rooms.



Mr. Ozaki showing the fire prevention system in the preservation district



Mr. Matsumoto explaining the structure of the Gassho Style



Fire prevention system of Shirakawa-go: water-gun



In front of the practical training room of the *tatami* mat, Mr. Senbo showing the differences of *tatami* mat



At Higashiyama Higashi, brief explanation on the district was given by Mr. Ookura.



PH-P

Edo Mura: residence under dismantled work (upper) and another residence after the transfer (below)



Each room of Yokokan has its unique characteristics. Mr. Yoshioka explained the *suki* style seen in the Yokokan.



Mr. Mizuno giving lecture as the Excavated site of Asakura residence

### <u>Higashiyama-higashi Historic District</u>

ISHIURA Yuji (Educational Board of Kanazawa City) and OOKURA Yasuo (Educational Board of Kanazawa City) The historic district keeps a number of important historic elements in a calm atmosphere.

### <u>Edo Mura</u>

### ISHIURA Yuji and OOKURA Yasuo

A new Edo Mura is now under construction, because the former site has an unfavourable condition of land. The buildings are to be dismantled and transferred. Visited the old land of Edo Mura and observe the dismantlement work of former Ishikura family residence. Participants visited the transferred residences in new Edo Mura land, next (former Matsusita residence and thatched roof houses).

### 21 Oct. - Fukui, Ichijo-dani Site, Fukui Pref. Yokokan Garden, Fukui

YOSHIOKA Yasuhide (Educational Board, Fukui Prefecture)

Yokokan was a villa with a garden originally built by the feudal lord and rebuilt in 1980's. Mr. Yoshioka, who took part of Yokokan reconstruction, gave lecture on Yokokan and its unique characteristics.

# <u>Ichijodani Asakura Family Historical Meseum</u> <u>Ichijo-dani, the Asakura Clan Historical Site</u>

### MIZUNO Kazuo (Deputy Director, <u>Ichijodani Asakura Family</u> <u>Historical Meseum</u>)

Ichijo-dani is an important example of a castle town of the Warring State Period. Given a lecture on the history of the site at the museum, the participants visited the Ichijo-dani site. Mr Mizuno gave a detailed explanation about the reconstruction project (how to reconstruct buildings from the archaeological features), looking at the reconstructed houses and gardens.

### Bangladesh

### **Firoz AHMED**

*Estimator (Conservator),* Department of Archaeology Ministry of Cultural Affairs

### I. Country Overview:

Bangladesh is an independent and sovereign country known as "The People's Republic of Bangladesh". It has a parliamentary form of Government.

Once upon a time, the Indian subcontinent was under Muslim rule along with present day India and Pakistan for about five and a half centuries, and thereafter under British rule from AD 1757. In August 1947, the Indian subcontinent gained independence from British rule along with the rest of India, and formed two individual countries- India & Pakistan. At that time Pakistan had two parts- East Pakistan and West Pakistan. The erstwhile East Pakistan emerged as an independent country on March 26, 1971, and was renamed Bangladesh, through a liberation war. The war of liberation ended on December 16, 1971 with the victorious Bangladesh forces accepting the surrender of the occupying Army.

#### Bangladesh at a glance:

1. Location:

- North: India (W. Bengal and Meghalaya)
- West: India (W. Bengal)
- East: India (Tripura and Assam) and Myanmar
- South: Bay of Bengal
- 2. Area: 143,998 square km. (Territorial waters: 12 nautical miles.)
- 3. Capital: Dhaka
- 4. Population: 140 million
- 5. Religious groups:
  - Muslim (88.3 %)
  - Hindus (10.5 %)
  - Buddhists (0.6%)
  - Christians (0.3%)
  - Tribals (0.1%)

#### 6. Administrative units:

Division:	06	Upazilla:	492
District:	64	Union Parishad:	4472
City Corporation:	06	Village:	68000
Municipality:	166		

7. Language:

95% speak Bangladeshi and 5% other languages. English is widely spoken as second language.

### Administrative Set-up of the Bangladesh Government:

There are 38 ministries and 56 self-contained divisions. Each ministry/division has its own separate charter of duties. The Cabinet division headed by the Prime Minister performs the coordinating role among the ministries. Almost every ministry has computers and Internet access and some of the ministries have website facilities. The address of the website of the Bangladesh Government is: www.bangladesh.gov.bd

### **II.** Cultural Heritage and the Present Situation:

Bangladesh is heir to a rich cultural legacy. Over two thousands or more years of prolific history, many famous dynasties of kings and sultans have ruled and disappeared, and have left their mark of intellect in the shape of splendid cities and monuments, the barren ruins of which are still evident in many places throughout the country.

Landmarks of antiquity in Bangladesh range from the 3rd century B.C to the 19th AD, before our independence. In East Pakistan, the total inventory of our protected monuments amounted to 152, now it has increased to 330, including two UNESCO World Heritage sites. These sites include Paharpur (an 8th century A.D Buddhist monument) and a group of monuments at Bagerhat (a 15th century A.D mosque). We also have innumerable movable antiquities, that are increasing gradually as a result of an increasing number of archaeological excavations every year.

Several dynasties ruled over this land and left their diversified cultural marks. These include:

- 1. Mouryas (3rd century B.C.)
- 2. Guptas (4th 6th century A.D.)
- 3. Palas (8th 12th century A.D.)
- 4. Sens (11th -12th century A.D.)
- 5. Muslim (12th -18th century A.D.)
- 6. British (18th-19th century A.D.)

The progress of Bengal was observed in every dynasty. Bengal was primarily a rich province of the Mughal Empire, but in 1757 it was occupied by the British Empire who ruled them until 1947. From 1947 to 1971 the area was it was referred to as East Pakistan, where the eastern part of the country of Pakistan was separated from India in 1947.

There are many ancient monuments like victory towers, mosque, mausoleums, prosperous cities, fortified palaces, Buddhist monasteries and temples in our country.

#### **III. My Organization:**

The Department of Archaeology is my organization. It is a sister organization of Ministry of Cultural Affairs of the Govt. of Bangladesh. The Department of Archaeology is the only government agency of Bangladesh that bears the main responsibilities for preservation, restoration and excavation of cultural heritage in the country. Taking care of those cultural sites is the prime function of the organization.

There are four sections in the Department of Archaeology. These are:

- 1. Conservation section
- 2. Excavation and exploration section
- 3. Chemical section and
- 4. Publication section

*Conservation Section:* This section controls the conservation, restoration and preservation of all protected monuments under the Department. They also estimate the cost of conservation and documentation of monuments that are recorded through detailed drawing and design.

*Excavation and exploration section:* The responsibilities of this branch are to explore and excavate undiscovered monuments.

*Chemical section:* This section does the chemical treatment of plant and fungus growth on the wall surfaces and salinity of standing monuments found in excavations.

*Publication section:* This section publishes books and journals on the basis of information found from survey and excavation. It also operates a library to aid research in the relevant fields.

#### IV. My Part in the Conservation of Our Monuments:

I have been working as conservator in the Department of Archaeology for long time. During this lengthy period, I have worked on the conservation of monuments from almost every period of Bangladeshi history. The core characteristic of our monuments is that the monuments of Mauryas, Gupta and Sultani (and earlier) have no plaster, but rather are made with lime surki, lime sand, or cement sand plaster. These materials are also observed in Muslim monuments and later periods.

#### **Paharpur:**

Paharpur is a Buddhist monastery in the Noegaon district in the Rajshahi Division. This site occupies roughly 7.87 hectares of land. It was built by Dharmapala of Pala dynasty between 770 - 810 A.D. It is a symmetrically planned and massively built single unit Buddhist monastery that is considered to be the second biggest among its kind ever built in the southern region of the Himalayas.

The rectangular plan is roughly 281X280 m. Each of its four wings has walls 4.8m thick. Throughout the whole length there are a series of monastic cells numbering 177 excluding those in the central part of each wing.

More than 2000 terracotta plaques decorate the faces of the central temple of the monastery. No regular sequential arrangement has been followed in fixing those plaques in the wall. The size of these plaques varies in different sections of the walls. Some are unusually big measuring 40cm x 30cm x 6cm and some are manufactured to a specially designed size about 18cm square.

Since 1973, the Bangladesh government has been making an appeal to UNESCO for assistance in safeguarding the ruins of Paharpur Vihara. Consequently a master plan was prepared by national and international experts in 1983 and the site was inscribed on the World Heritage list in 1985.

I have conserved its decaying cells and it's bulged out wall with traditional methods using dressed brick, surki and lime mortar. Water logging causes salinity and vegetal (i.e. fungal) growth since the land on the site is lower than the surrounding lands.

#### Mohastan Garh:

These monuments are situated on the bank of "Korotoa" river about 12 kilometers north of Bogra town, and represent the earliest city site in Bengal. The name Mohastan means a "Great Place". These monuments are within a landmark of 1524.39 m long and 1371m broad with an average height of 4.5 m from the surrounding paddy fields.

A plain masonry grave, occupying the south eastern high mound within the citadel is found. During excavations in 1928-34 and 1960-66 the earliest tapering mud rampart of the citadel was found to be superimposed by the Pala defense wall. It was strengthened with a brick-wall core with watch towers and bastions at certain intervals.

The relics of Mahastan have been identified with the ancient city of 'Pundra Nagar' familiar with Maurya, Gupta, Pala and Sena dynasties.

I have done the conservation work with the brick and lime-surki mortar during 1990-91.

The monument is being damaged by trespassers such as humans and birds because there are no boundary walls to protect.

#### Vasu Bihara:

Sir Alexander Cunninghum identified the ruined sites of Vasu Bihara which lie 10km west of Mahastan Garh situated on the western bank of the 'Nagar 'river.

This site is a Buddhist monastery. The ancient ruins of Vasu-Bihara measure 243.90m x 228.65 m. and rise about 9.14 m. above ground level. It consists of five mounds, three large and two small. Excavation at the three large mounds on the North West part of Vasu Bihara began in 1970. A large number of excellently sculptured terracotta plaques were recovered from the excavation.

I have conserved its architectural and ornamental aspects through traditional methods with dressed brick and lime surki mortar. Due to the lack of a boundary wall and a dearth of manpower, it has become difficult to protect the monument.

#### Imamabad:

This site is situated in Mirjapur Thana in the Panchagar district. It is a single domed monument shaped like a heap. The monument was made totally visible as the heap was completely excavated. The monument was totally restored through drawing its design. In the middle of the monument there is a room measuring 9.10m x 9.10 m that is surrounded by a 1.00m wide veranda with an arch-opening. (Fig.1-4)

#### Kaniadighi Mosque:

This mosque is a rather small. It is situated between two large tanks one of which is called Baliadighi and other Kaniadighi. The people of Gour called it Roybibi mosque. The size of its inside room is  $10m \ge 9.10$  m and the veranda is  $9.10m \ge 3$  m. There is no inscription to determine its construction time but it is assumed that it might be made in around 1480 AD from its stylist ground. The entire structure is highly decorated with terracotta ornamentation.

During my conservation period I removed lime concrete and damaged terracotta from the wall surface of the saline affected dome. After manufacturing the terracotta, I replaced it properly.



Fig.1 Imamabad, Before excavation



Fig.2 After excavation



Fig.3 Middle of conservation



Fig.4 After conservation

#### Sheliedaha Kuthibadi of Rabindranath Tagore:

Sheliedaha kutibari is just 10 km off from Kustia town, situated on the bank of the river Padma. It is associated with the celebrated poet Rabindranath Tagore who is the only one noble winning Bengali poet. It is a two storied building called "Kutibari" where the poet composed many of his famous poetic works. It was built in the first part of 19th century. The wall plaster and wooden beams/ rafters doors and windows are dilapidated. I replaced them with new structures. Almost all the roof asbestos sheets ware broken. They were replaced properly by me.

#### **V. Present Activities**

Although the department has some problems and drawbacks, it has undergone some commendable conservation and restoration work. Some of which are as follows:

**Dhaniachak Mosque:** This mosque is the part of the Gour group of monuments situated at Shibganj in Chapai Nowabganj. It is a notable monument of the sultani era. The time period of this monument could not be determined by any stone inscription or hearsay but it can be inferred from its construction style and decorated terracotta that can be dated to the 15th century AD. (Fig.5-6)

*Structural condition:* The mosque was on the verge of demolition. The outer measurement of the mosque is 10.6m x 8.6m and the measurement of the dome height straight to the springing line is 6.40m from the floor. The inner height of the dome from the springing line is 2.15m. The mosque has two standing stone pillars at the mid point. It is assumed that it existed with six domes of two lines to north-south and three from east-west. The mosque has seven arch opening measurements which are on average 1.67 and 3.75m. The breadth of the wall is 1.82m.



Fig.5 Dhaniachak Mosque: Before conservation work



Fig.6 Dhaniachak Mosque: Middle of conservation work

**Documentation:** The north south wall of the mosque was damaged but the south and east wall are straight at the ground level. By following the cornice, panel, and the arch door opening of north wall, the architectural design was revealed. Then through photography and detailed drawing, documentation commenced. The mosque has four octagonal corner turrets in its four corners. The sides of which, are decorated with floral terracotta and ornamented dressed brick.

**Restoration method:** As the mosque had two load bearing walls straight to ground level, the structural design of the foundation was made before restoring these two walls. Additionally, after testing the load bearing capacity of the middle pillar the restoration work commenced. Terracotta design and springing line remains were in the relic of the dome in the southwest

corner. The height and design were easily revealed from these remains.

*Materials:* Almost all of the monuments in our country were built with brick structures, thus, we traditionally used lime surki and bricks in construction.

• *Brick:* We generally use brick that are available on the market. We dress these normal bricks into the sizes that suit each monument structure and then we use them. In Bangladesh we use hand tools to dress the bricks.

• *Lime:* Stone lime is usually used as binding material in restoration work. Lime and surki should be mixed proportionately, kept drenched for 6 to 7 days, and then it is used.

• *Surki (Brick dust):* This is used as fine material in the restoration of the Dhaniachak mosque. Surki is divided into two parts by filtering it through a net; one is fine and another is thick. Fine surki is used proportionately while face brick and thick surki are used in the core wall.

*Arch restoration:* Five arch openings have been built on the shape of the north arch of the mosque. The measurement of such is 3.35m height and 1.7m wide. The texture of the arch is done by cantering and shattering before construction.

**Dome:** This is found by studying the structural design of the mosque that has six domes. The height of each of was 8.53m from the floor level, and the diameter was 3.04m. The shape of the dome is restored by cantering and shattering in the traditional method and the dome is constructed with a dressed brick texture.

*Corner turret:* The mosque has four octagonal corner turrets of which there are four ornamental bands in lower portion, two in the middle and three in the upper portion.

*Terracotta:* The inner and outer screen walls were decorated with floral terracotta of different sizes. Some remains of which were present on the northern wall. Terracotta is made with sticky soil without chemical elements and salt through a traditional process. Terracotta is dried in sunlight and burned in Kent after properly smoothening by hand and then replaced with mortar of lime and surki.

*Ornamental brick:* Ornamental brick is used in the different parts of the mosque such as cornice band etc. General bricks are brought into required size and shape by dressing and then placed into position.

*Problems of restoration:* The mosque is in a remote location outside the boundaries of any electricity supply areas. Unfortunately, transportation problems and electrical equipment (that would have helped smooth restoration work) hampered the restoration activities. A dearth of manpower is acute. Salinity is a threat to terracotta and design work. The monument can be damaged due to a lack of regular care. Additionally, it can be fall prey to vandalism.

Dhaniachak is a notable monument of the ancient capital of Bengal "Gour". After the six domes of the mosque and the south east wall were restored, it has become a scenic beauty for viewers.

This mosque represents an example of the restoration of a sultani monument due to the maintenance of its original quirk.

### **VI.** Problems

As an incumbent of the restoration and conservation of the cultural heritage of Bangladesh, I feel that the Archaeological Department faces a diverse range of problems in its field. I would classify them into four types:

- 1. Organizational
- 2. Environmental
- 3. Technical
- 4. Financial and Manpower

### Organizational problems:

Bangladesh bears a prolific cultural heritage. We have still yet to discover them all. We are unaware about the exact number of relics or sites as archaeological site surveys have not yet been completed, and only two administrative divisions have been surveyed. The present organizational strength is inadequate to efficiently conduct thorough surveys. Thus, the organization has to be reengineered to enhance and elaborate its surveys in order to identify sites. Due a lack of attention regarding the planning and carrying out of survey projects, many sites may be altered or lost due preservation problems (i.e. erosion, natural degradation).

### Environmental problems:

By enforcing the Antiquity Act in Bangladesh some sites are declared as protected. Preservation work has yet to be started there. In order to ensure proper preservation, the necessary lands around the sites have not yet been sold to private developers. Interest groups in these areas are unaware of the national treasures in their own country, but rather seek to enhance their own interests. They often destroy buried relics by removing bricks and selling them for their personal benefit. Though it is forbidden under the Antiquity Act, it becomes difficult to apply because of some practical reasons. These are the worst cases of unprotected mounds. Without protecting the mounds that still survive, and acquiring the land around those it is impossible to protect sites against vandalism. Unauthorized occupation in urban area is also a typical problem because of the very high acquisition value. The occupants do not intend to vacate those mounds. Bara Katra and Choto Katra are examples that are still suffering from such problems. For this reason the department is still fumbling to protect the precinct of the mounders.

Illicit trafficking is a major problem in this country as well. Valuable movable objects are being trafficked. A significant number of small antiquities were reported to have been sold in some places by the dwellers of local areas of different monuments. Ancient sites are facing the problem of urbanization

and industrialization in each nearby area. These large constructions seriously destroy the site environment. Smoke emitting from industries blacken the walls and roofs of monuments. Lalbag of Dhaka is a typical example of this problem. So pollution especially in urban areas damages the monuments. Vibration for the plying of heavy vehicles near the monuments is also damaging. Chotosona mosque is an example of this problem. Apart from the environmental problems, there others those also create technical problems. I will now discuss these technical problems below.

#### **Technical Problem:**

Seasonal aggressive monsoons lead to rapid forest growth in this region. The vegetation galvanizes surprising vitality, and once an ancient monument falls into neglect and needs repair, it becomes mantled by vegetation. Other scrub buries the monument quickly under its foliage. Large numbers of unprotected monuments have unfortunately disappeared. The pre-Muslim monuments are vulnerable against vegetation. These buildings were constructed with brick laid in mud mortars that are less resistant to heavy rain. Rain washes away its mud padded outer plaster coating with a proportion of cow dung and hush. The edifice crumbles quickly into pieces and eventually vegetation takes charge. It is indeed a great problem to preserve these pre-Muslim monuments in their original shapes and quirks. Experiments like 'Paharpur' which is included on the UNESCO World Heritage list, appear not satisfactory. Problems regarding chemical preservation vary in materials and kinds of objects. Some important images cannot be treated properly. Sandstone and black basalt used in "Vajrasatva" are steadily decaying and need urgent attention, however, very little has been done so far. Condensation in the monuments of the southern region damages the upper level of the internal walls. The Ranvijoypur mosque is an example of this problem. Salinity is a severe problem in the preservation of monuments including "Paharpur". Monuments in southern regions nearer to the sea coast are under the threat of salinity. The germination of moss, lichen, and other plant material, coupled with the slow process caused by the effects of salinity, gradually creates changes in the original colours as well as causing the materials to crumble into dust.

#### Financial and Manpower problems:

Financial constraints are an acute problem for the department. There is no significant allotment of funds in annual budgets for this purpose. The available budget allocation is not enough for smooth maintenance of the work.

A dearth of skilled people is also a problem. For not having competent manpower, many unprotected sites are being neglected. If they are not being taken proper care of they will be demolished and lost forever.

#### **VII. Suggestions**

In the above discussion I have suggested some ways for immediate progress of the conservation and
restoration situation in Bangladesh. These can be summarized in the following list:

- Adequate budget allocation is to be provided in the annual budget.
- As our economy is not that much capable of providing adequate funding for conservation, the government may use foreign assistance.
- Adequate funding should be placed for research in order to improve conservation and restoration techniques.
- Required manpower with relevant skills should be gradually recruited.
- To improve the quality of the present workforce,, top level training in Bangladesh and abroad should be provided. Assistance from expert organizations like ICCROM and ACCU can be sought at the national level.
- Present organizations have to be reengineered in order to make them capable of doing the job as expected.

# **VIII.** Conclusion

Since becoming a sovereign state in 1971 after its War of Independence, the art and architecture of Bangladesh has re-emerged as a result of an attentive effort by both scholars and administrators to create a solid cultural identity for its people. As part of this process I personally feel a constant desire to developing my skills and knowledge in order to contribute to this field. Affluent organizations like ACCU play a pivotal role in this field. It is a great opportunity for me to have been involved with this organization for some time. ACCU has a proven record of imparting appropriate training to concerned specialists who play a vital role in improving the process of conservation and restoration of historic monuments in Bangladesh and other countries. It is my firm conviction that ACCU will provide me with some golden keys for which I will be able to unlock some doors to enter into the world of various types of expertise. And as such, I will also be able to contribute to discover and conserve the national treasure of monuments of Bangladesh.

# The Kingdom of Bhutan

## Dorji YANGKI

Architect Division for Conservation of Architectural Heritage, Department of Culture, Ministry of Home and Cultural Affairs,

# PROBLEMS AND NEEDS IN ARCHITECTURAL HERITAGE CONSERVATION AND PROTECTION

# Introduction

Bhutan, a tiny Buddhist Kingdom, lies in the folds of the great Eastern Himalayan ranges sandwiched between the giant nations of India to the South and China to the North. Bhutan consists of an area of 38,394 square km and a population estimated at 734,340. Even though in terms of population and land area Bhutan is small, it has been recognised as one of the ten hot biodiversity spots on earth and the Kingdom is home to one of the world's richest natural environments and a virtually untouched vibrant Buddhist culture that has thrived for many centuries.



Bhutan remains mainly a rural country with the majority of the people involved in rural farming. Never having been colonised, Bhutanese people are fiercely independent and proud of their history, culture, and traditions. Unlike many other countries, the arts, traditions, ceremonies and festivals in the Kingdom are not remnants of a bygone age, and are still celebrated as they have been done for centuries because they still continue to have cultural and spiritual significance in the everyday lives of the Bhutanese people. For Bhutan, the aspiration has always been to bridge the gap between modern development with the treasures of its cultural heritage traditions and values.

In spite of a small population, the culture of Bhutan is a rich mosaic of different sub-cultures, traditions, life styles, ethnic groups, languages and belief systems. However, the Bhutanese socio-cultural fabric is well interlaced and harmonious due mainly to the common threads of simple but strong social, communal and spiritual values that the people share. Bhutan is the last surviving independent country in the world that practises the Mahayana form of Buddhist culture. Buddhism, with its simple values of peace, compassion and harmony among all sentient beings, has such a vast and strong influence in Bhutan that it has virtually shaped all institutions including arts, drama, music, literature, architecture, social principles and traditions and the relationships between people and the natural environment they live in.

## The Significance of Cultural Heritage in Bhutan:

For a small nation like Bhutan, located between two large neighbours, China and India, the cultural heritage of the country is considered the foundation upon which the identity of the Bhutanese people and the Kingdom of Bhutan as a sovereign, independent nation is built. The cultural heritage of Bhutan is so intricately woven into practically all aspects of the lives of the Bhutanese, that the overall sustainable development of the country would be virtually impossible without the promotion, preservation and development of its cultural heritage side by side with development in other sectors.

The country's modern economic, social and technological development has been planned so that it does not impair its traditional and cultural values. No other endorsement is more significant or embraces the development of the spiritual and cultural wealth of the country, than the support of His Majesty, the King. In the words of His Majesty, the King: "Gross National Happiness is more important than Gross National Product". Under this guiding principle, cultural heritage is considered one of the four pillars of development.

To meet the challenges of incorporating traditional Bhutanese cultural values and practices in the holistic development of the country, His Majesty, the King, through a royal decree, in 1985, established the Special Commission for Cultural Affairs (now the Department of Culture under the Ministry of Home and Cultural Affairs) to manage the conservation and development of Bhutan's rich cultural and historical heritage. Although the Department of Culture is the central Government organisation, the conservation and protection of the heritage of the country is considered to be a shared responsibility between all bodies, institutions, districts, local communities and the individual citizens of the country. With the initiation of the decentralisation policies of the Royal Government, the Bhutanese people are the key players in the conservation, development and promotion of our country's rich architectural heritage.

Even though Bhutan gives great significance to the preservation and promotion of its cultural heritage, this does not imply that Bhutan intends to remain stagnant. The wish for the development of the country has always been to connect the gap between modern development with the treasures of the country's cultural traditions and values.

"If culture is to survive and flourish, to continue to serve as a source of inspiration, and to give spiritual, moral and psychological content and guidance to the Kingdom's future process of development, it must be understood in dynamic terms, and we must seek to ensure that it retains its value and relevance to a society in transformation. Without such efforts, our rich legacy could lose part of its value and ultimately become an unintended hindrance to change rather than a positive force and a source of inspiration, especially for our young people. This requires us to look forward as well as backward in formulating future strategies."

# Architectural Heritage of Bhutan

Architectural heritage in Bhutan includes not just the tangible qualities found in its beautiful structures but also the intangible qualities found in its architectural systems and traditions that have been handed down through many generations.

# Intangible Architectural Heritage of Bhutan:

Intangible heritage in Bhutan found in the ancient is traditional knowledge, skills and practices of zows (carpenters), dozops (stone masons), parps (carvers), lhadrips (painters) and in the traditional systems of master craftsmen and apprentices followed that were for centuries in the country. Intangible architectural heritage in Bhutan is also found in the ancient rituals, traditions and communal gatherings followed during construction projects. Intangible architectural heritage in Bhutan is still largely intact and very widely practised.



Traditional rituals and communal ceremonies associated with architecture in Bhutan



Intangible Heritage – Traditional Techniques

#### **Tangible Architectural Heritage in Bhutan:**

The majority of the heritage buildings in Bhutan date back to the 17th and 18th centuries, but many have their roots as far back as the 7th century. Bhutan's architectural heritage are not only structural achievements but are also considered treasure houses possessing beautiful murals, sculptures, carvings, wood and metal works, textiles and manuscripts.

With very little recorded history before the 17th Century, architectural heritage in Bhutan may hold a wealth of important information of great historical, cultural, religious and architectural significance. Architectural heritage sites are also focal areas for communal festivals, rituals and traditions, thus fostering the conservation and promotion of other aspects of culture like dance and music. However, for a tiny country like Bhutan, above all, architectural heritage is more than just a matter of material remains from the past but is considered to be central to its identity, unity and continuity.

Bhutan has over two thousand ancient Buddhist temples, and monasteries, over twenty nine very large fortresses, and over ten thousand Buddhist Stupas scattered in every corner of the Kingdom. There is not a single village without an ancient temple or monastery and on average each District has approximately one hundred ancient temples within its locality. Besides the main monuments, traditional timber bridges, many beautiful traditional farmhouses, vernacular structures, and entire ancient villages, some dating back to many hundreds of years, are also still intact and still in use in Bhutan. Thus every Bhutanese live their daily lives among this architectural heritage backdrop providing them with constant links to their heritage.

Traditional architecture in Bhutan has developed over many centuries with adaptations to suit the local environment, climatic conditions, availability of local materials, local construction technology, and most importantly, cultural traditions, religious beliefs and inherent domestic situations. Traditional architecture in Bhutan is characterised by the use of natural and local materials such as earth, bamboo, local timbers, and stones. Walls were mainly constructed of rammed earth or stone masonry.

Timber, which is found abundantly in Bhutan, is used for almost all other structural elements. Timber is used lavishly in windows, doors, stairs, balconies, columns, beams, floors, ceilings, roofs and for elaborate decorative elements. Wooden shingles held down with the help of small boulders form the main roofing material. It is this elegant use of timber in indigenous Bhutanese architecture that is mainly responsible for its very elegant and unique appearance and character.

## **Examples of architectural heritage structures in Bhutan:**

Large fortresses (called Dzongs), temples (Lhakhangs), monasteries (Goenpas), stupas (Chortens),

palaces (Phodrangs), bridges (zams) and vernacular housing (Yue Chim) that dot the countryside, form diverse but harmonious architectural expressions of the cultural heritage and living traditions of the people of Bhutan.

## **Dzongs (fortresses):**

Among the architectural masterpieces in Bhutan, the large fortresses known as Dzongs are by far the most impressive. Dzongs dominate almost every region with their massive towering stone walls, wide open courtyards and intricate decorated timber elements. With its primary objective of defence, the site selected for a Dzong was usually a commanding one, generally on a strategic mountain overlooking the entrance to a valley.

In terms of historical importance, Dzongs are the most significant symbols of the history and culture of Bhutan. Dzongs were the seats of powerful leaders and often great historical battles and events took place in or around a Dzong. They thus played vital roles in establishing the identity and independence of the Bhutanese. A particularly important association that Dzongs epitomise is the historic dual system of governance and power shared harmoniously between a secular leader and a religious leader that still exists today.

Unlike many heritage fortresses around the world that stand today as museums for tourists, Dzongs in Bhutan are still used as they were for many centuries. Each main Dzong in a District houses the offices of the local Government and residences of the local monastic body. Some of the best examples of Bhutanese artistic achievements and craftsmanship are found in the Dzongs. Dzongs are treasure houses of magnificent murals, carvings,



The Punakha Dzong



Paro Dzong



Trongsa Dzong



Gantey Buddhist Temple (16<sup>th</sup> Century A.D.)



Paro Taktshang Monastery (origins in 7th Century)

sculptures, ancient hand printed manuscripts, rare artefacts, and textiles. As the most prominent building in a region, Dzongs were, and continue to be architectural trendsetters for other buildings in Bhutan.

# Lhakhangs and Goenpas (Temples and Monasteries):

With over two thousand Lhakhangs and Goenpas in Bhutan, they can be found in almost every village and on almost every mountaintop in the country. Although they do not match the soaring proportions of the Dzongs, many Buddhist Lhakhangs (temples) and Goenpas (monasteries) are older than the Dzongs, with some dating as far back as the 7th century. The Lhakhangs are the most prominent building in a village due to their rich architectural details. Besides being religious centres, they also have important social and cultural functions as almost all village cultural events are held there.



Chortens (Buddhist Stupas):

With over ten thousand Chortens located (stupas) mainly on high mountain passes, on roads, on approaches to important locations, and on bridges, they are the most common heritage structures found in Bhutan. Chortens range from as small as 2 metres high to heights of over 10 metres. Chortens are sometimes linked by long thick walls called mani (prayer) walls, which are inscribed with religious paintings and prayers. Chortens are built mainly of stone and mud mortar.

Examples of Buddhist Stupas in Bhutan

# **Traditional Houses:**

Secular architecture finds its main form in traditional farmhouses that form small clusters in tiny villages. A Bhutanese home is not only a residential unit but also a social, economic and religious unit. Apart from providing a home for the family and shelter for domestic livestock it is also an extension of the religious space of a temple. Although normal indigenous houses of farmers were two stories high, an ideal house was one that had three main floors and an attic, with each level having distinctive functions. Unlike the main monuments, farmhouses have yet to be designated as heritage properties. However, significance of the



Examples of traditional villages in Bhutan





Examples of traditional Bhutanese Houses

Traditional Farm House

vernacular architecture is slowly being recognised and steps are being taken to protect it.

# **Palaces:**

Very few palaces exist in Bhutan. The main ones that exist today were built by the present monarchy in the 19th century. These palaces were often built like Dzongs with stone masonry walls and richly decorated timber elements.



Wangdue Choling Palace (Built by the 1st King of present Monarchy - 100 years)



Wangdue Choling Palace (Built by the 1st King of present Monarchy - 100 years)

# **Traditional Timber Bridges:**

Traditional bridges built over gushing mountain rivers and streams are one of the most elegant examples of traditional architectural heritage. Bridges range from simple logs, long spanning iron chain suspension bridges, to beautiful timber covered bridges. Almost all the major bridges in Bhutan were built by great religious or historical figures and are of particular religious and cultural significance to the Bhutanese. Often many colourful legends are associated with these bridges while the stone towers built to support the span of the bridges are usually consecrated as a sacred structure. Traditional bridges are still in use today.



Examples of Traditional Bridges in Bhutan

# Main Problems in the Conservation of Architectural Heritage in Bhutan:

Although there are many diverse problems related to the conservation of heritage in Bhutan, the main ones are the following:

# i. Lack of awareness of the appropriate concepts and values of conservation of architectural heritage.

Conservation understood in the international sense is a fairly new concept in Bhutan. In the past buildings were often renewed and replaced according to changing needs. Today, although the efforts are sincere, many ancient and valuable structures are often being dismantled and replaced without any efforts to conserve the valuable heritage fabric, thus causing whole treasure houses of irreplaceable heritage to be lost forever. Often changes are made simply because the structure is old without realising the various values of the fabric itself. Further, replacements are often made using entirely new designs and built with new modern materials and techniques.

## ii. Shortage of skilled trained manpower in the field of Conservation:

Shortage of skilled manpower trained in the field of conservation is a major obstacle in Bhutan, and is resulting in the loss of irreplaceable heritage. Often, significant architectural elements that can be saved are simply replaced or destroyed due to the fact that people who work on them have no training in conservation techniques that can be used to save these heritage elements. Presently there are no architects or any other professionally trained people in the field of conservation in any of the District offices. The Central office (Department of Culture) also has less than ten professionals trained in the field of conservation of architectural heritage. Many of these people have only received very short term training. The formulation and implementation of a long-term human resource development plan for the cultural sector is thus an urgent requirement.

With regard to traditional skills, the majority of the experts belong mainly to an older generation and therefore if these skills are not passed on to the younger generation, it could result in the gradual loss of traditional architectural knowledge and traditions. Thus it is very important that such traditional skills and knowledge are passed on to the younger generation. It is also necessary to ensure that such skills are promoted in the mainstream so that these skills are sustained.

## iii. Lack of appropriate legislation and guidelines:

Although there are plans and policies currently in place, proper legislation with regard to the protection of architectural heritage does not exist. This has been a major stumbling block during actual implementation of conservation projects because without relevant legal support and guidance, many efforts become ineffective.

## iv. Slow eradication of communal sentiments and responsibility:

Traditional sentiments of responsibility by local communities that has existed for many centuries towards heritage has recently started to eradicate and is slowly resulting in constraints in the management and maintenance of heritage. In earlier times, the local village community contributed towards maintaining their communal village properties and activities. Today, due to issues like commercialism and urban migration, some village communities have started handing over such responsibilities to the central government, resulting in the gradual loss of ownership, responsibility and pride for communal properties and activities.

## v. Collisions of heritage with external influences and modern development:

For many centuries largely due to very little external influence, architectural heritage was always automatically protected and conserved in the local traditions and with local materials and techniques. Today, external influences and modern development aspirations are slowly but surely leading to the replacement of traditional architectural designs and techniques. Architecture that is unique, environmentally friendly, and built from local materials is being replaced by concrete structures that are out of context in the regions of Bhutan and often are constructed clumsily due to inexperience and lack of skills. Traditional houses are starting to be looked on as being representative of 'peasantry', and are under threat of slowly being replaced with modern buildings.

## vi. Insufficient funds:

Bhutan is one of the least economically developed countries in the world. To ensure the sustainable pace of development, Bhutan is determined not to compromise its rich natural resources for making immediate economic gains that may lead to disastrous consequences in the future. The current level of monetization of the Bhutanese economy is thus very low, and therefore the limited and scarce resources of the Government have to meet many other pressing demands. With many historical monuments in Bhutan showing signs of accelerated deterioration and in need of urgent conservation (often many of the sites are very large and thus require huge sums of funds for conservation), the Government is often unable to immediately allocate sufficient funds to cover the immense number of requirements under the cultural sector.

## vii. Remote location of heritage structures:

Many heritage sites in Bhutan are located in very remote and isolated areas in the Himalayan Mountains. Therefore, it is difficult to provide appropriate provisions for their maintenance and protection. Effort and assistance often do not reach in time to be effective in these remote areas. Additionally, the remote and isolated locations have resulted in the desecration of many isolated Stupas and temples by robbers in search of heritage artefacts.

# Present Bodies for the Conservation of Architectural Heritage in Bhutan

The need for policies and bodies to manage and protect heritage was previously never viewed as a necessity. The recent need and development of specific policies and bodies for the conservation of architectural heritage is thus, also an element of recent development aspirations and challenges. The Department of Culture, under the Ministry of Home and Cultural Affairs remains the central agency in the country responsible for the conservation and development of Bhutan's ancient heritage. Under the Department of Culture, the Division for Conservation of Architectural Heritage (DCAH) is the key office that is responsible for the conservation, promotion and development of the architectural heritage of Bhutan.

# Functions of the Division for Conservation of Architectural Heritage:

- Formulation of policies, and regulations for the protection of architectural heritage in the country.
- The National Inventory of all the historical and cultural monuments and sites in the country.
- Appraisal, approval and monitoring of projects concerning cultural and historical monuments and sites that are implemented in the country.
- Provision of technical and administrative assistance to the Districts with regard to historical and cultural monuments and sites in the country.
- Management and implementation of projects concerning National Monuments.
- Co-ordination with other organisations with regard to plans and projects concerning conservation of Bhutan's architectural heritage.
- Co-ordination with foreign donors with regard to projects concerning Bhutan's architectural heritage.
- Organisation of workshops and small training sessions for the protection and promotion of architectural heritage in the country.
- Besides conservation work, the Division (with its Architects and Engineers) is also responsible for the establishment of new structures or sites for cultural activities.
- The Division also provides technical assistance for the maintenance, repair and development of all existing buildings of the Department of Culture. This includes the Paro National Museum, the National Library, the Textile Museum, the Folk Heritage Museum, and the Royal Academy of Performing Arts.

# Role and Responsibilities of the District Office:

Although the Department of Culture is the main organisation, the protection and preservation of the heritage of the country is considered to be a shared responsibility between all bodies, institutions, the Districts (Dzongkhags), the local communities and each individual.

The District offices and the grass root level communal offices are key players in the protection of our architectural heritage, and in keeping with the national policy of decentralization the respective District Office has the following functions:

- To enforce all rules and regulations with regard to the protection and promotion of architectural heritage in the country in the District.
- To establish, operate and encourage facilities for the conservation of cultural and historical structures and sites.
- To create awareness among the local communities of the significance of architectural heritage.
- To care for and carry out the conservation, maintenance and support of historic and cultural monuments and sites and their respective functions.
- To identify and select the monument or site to be conserved in their District.
- To manage conservation Projects in their District.

# **Future Steps for the Conservation of Architectural Heritage in Bhutan:**

In comparison to many countries in the world, Bhutan is fortunate to still have its beautiful ancient architectural heritage largely intact. Thus Bhutan still stands in a unique and wonderful position to be still able to make choices and choose a good path for the conservation of this heritage.

However, as Bhutan heads towards modern development, change and evolution of cultural traditions and values attached to them cannot be ignored. Traditional architectural systems are now suddenly challenged by new values, the introduction of new materials and external architectural systems. Consequently, this emerging threat means that traditional architectural heritage is now in need of protection.

Bhutan is keen not to make the mistakes that many other developing and developed countries have made, where architectural heritage has often been sacrificed in the name of progress and has been pushed into the fringes of society. However, there are no ready-made standard formulae for Bhutan to pick from for the conservation of its architectural heritage. The conservation of architectural heritage in Bhutan means choosing a path, which cannot be just based just on past values even if the origin of this architectural heritage sprang from those values. It can only be based on the present understanding of those past values and also on future values that the present values strive to predict and influence.

An important step in the conservation of architectural heritage in Bhutan would be the consideration of the development of strong legislation for its protection. Currently the Division for

Conservation of Architectural Heritage is working on research to formulate a Legal Act for the protection of Architectural Heritage in Bhutan. Examples of Acts from around the world are being studied in order to generate ideas to put together a Legal Act that will benefit Bhutan and its own particular context.

However, one of the most significant steps that could be taken for the conservation of architectural heritage in Bhutan would be to create awareness and appreciation among the local public and craftspeople of the values of their heritage and traditions. It means building pride in heritage now so that this is not left too late in future. The Division for Conservation of Architectural Heritage has taken initial simple steps to create awareness among the public. Essay competitions were organised between different schools and the general public in the last three years to facilitate discussions on the value of architectural heritage. The Division is also planning to bring out supplemental papers on architectural heritage in Bhutan's national paper to help create awareness of architectural heritage values and its conservation concepts. However these are just initial steps and there is still much to be done.

An importance aspect in the conservation of architectural heritage in Bhutan is the fact that almost all architectural heritage structures are still in use for various activities. Architectural traditions are still practised in Bhutan. Old buildings were simply 'renewed' according to needs and changing requirements of the people. Thus a 'living' tradition continued. Clearly as architectural heritage in Bhutan is conceived and utilised in a context that is different to 'western contexts', one cannot help but raise new conservation issues.

However, if one totally accepts and applies only the values inherent in the acceptance of change in the context of architectural heritage, then one has to accept that within the near future, architectural heritage in Bhutan, in its current form, will no longer exist as these values justify its replacement by new modern materials and designs. This also means that even the intangible heritage found in architectural systems that have survived for hundreds of years may not exist, as the acceptance of values of total change may also justify its replacement by modern architectural systems. This means that Bhutan would follow a similar pattern of heritage as seen in the West where any traditions that exist are relegated to societal fringes and the 'past' is rendered as the 'past'.

The future of Bhutan's heritage thus rests mainly upon on the understanding of it, the appropriate values attached to it, and consequently actions taken to conserve and promote these values. Only through awareness and understanding of their heritage can people feel motivated to safeguard it. Thus the people themselves become the best custodians of their own heritage. This understanding and affection towards their heritage is in itself, in the long term, a cultural asset. Therefore, understanding the values of architectural heritage in Bhutan and taking appropriate steps towards its conservation, development and promotion are of immense importance.

Conservation in Bhutan thus could mean choosing a middle path that lies in the balance of living traditions and consequent changes balanced with the values of the total preservation of architectural heritage fabric itself in its authentic static state. The path that Bhutan must choose for the conservation of architectural heritage lies in the reconciliation of these two extremes.

The path has to be based on the balance of the inherent Buddhist values from which architecture in Bhutan derives its essence from with the new values and requirements that emerge from Bhutan's modern development process. One has to acknowledge that this is not considered an easy task. The balance of values is never straightforward. There is a constant balance to be struck between the competing and changing practical, political, resource and economic circumstances affecting the cultural heritage and the best ways to deal with these issues. Therefore, the guidance needed today for the care and future of architectural heritage in Bhutan usually falls somewhere in the middle between outright conservation philosophy on the one hand, and the replacement philosophy on the other.

In the end 'judgement is everything. However, appropriate judgement demands skill, knowledge, training and practical coordination. The most appropriate and sound solutions are thus based on detailed study and analysis of accurate information. This means that it is imperative that thorough research, analysis and documentation of the architectural heritage in Bhutan are carried out and the young are educated in the field of conservation.

The investigation and the understanding of a heritage site: its significance, history, materials, methods of construction, intended use, current use, along with its present context, are therefore, the essential key to the successful process of conservation where architectural heritage buildings in Bhutan are concerned. Although changes cannot be avoided during conservation, whatever changes are carried out on historical sites need not compromise the significance of that heritage.

Unlike economic goals that are often defined and predicted by numbers, cultural goals are extremely complicated and difficult to predict. The future for Bhutan's architectural heritage is, thus, also unpredictable but one can be assured that it will have a bright future as long as Bhutan continues to follow its current development philosophy that is guided by the country's concept of 'Gross National Happiness' (rather than the achievement of high levels of Gross National Income), under which cultural heritage is given equal, if not more significance than just economic and material advancement.

# Cambodia

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# COUNTRY REPORT FOR THE TRAINING COURSE ON THE PRESERVATION AND RESTORATION OF CULTURAL HERITAGE IN THE ASIA – PACIFIC REGION 2005

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# I. Introduction

It is with great honour and delight that one of the members of the Department of Monuments and Archaeology from the APSARA Authority and the Kingdom of Cambodia was selected by the ACCU Nara office in cooperation with ICCROM and UNESCO to attend the 2005 training course on the conservation of wooden heritage in Nara, Japan.

Among of the many countries in the Asia Pacific region, Cambodia is one rich in cultural heritage, particularly, in the region of Angkor, Siem Reap province, Angkor Borei in Takeo province, Sambor Prei Kuk Complex in Kampong Thom province, the group of Koh Ker in Preah Vihear Province, and other heritage places in various provinces.

The cultural heritage of the sacred land of Angkor has been inscribed on the UNESCO World Heritage list since 1993, but was actually given official status in 1995.

During this time the Royal Government of Cambodia created the National Authority to Protect and Manage Cultural Heritage Sites, to work closely with UNESCO and collaborate with other International Institutes. Thus, in regard to the great opportunity of attending the ACCU Nara training course, I have prepared one report dealing with the topic of the conservation of wooden heritage, with the aim of addressing the topic of human resource development for the preservation and restoration of cultural heritage in Cambodia.

# **II. Cambodian Geography**

The Kingdom of Cambodia is located in Southeast Asia between 10 o north of the equator to 15 o Northern latitude and 102 o longitude to 108 o Eastern latitude. Cambodia borders three countries:

- The East and the South border Vietnam
- The North borders Laos
- The West and the North border Thailand
- The Southwest borders to the Gulf of Thailand

The territory of Cambodia is roughly square in shape. The distance from East to West represents 560 km, and 440 km from North to South, with a surface of area of 181,035 km<sup>2</sup>. The population is approximately 12, 492, 014 (according to the 2004 Ministry of Interior census). The Capital is Phnom Penh.

Cambodia is half the size of Vietnam and Thailand and almost two-thirds the size of Laos, and has 300 km of shoreline along the Gulf of Thailand. It consists of 21 province and 3cities with its central at Kampong Thom Province.

Cambodia's longest river is the Mekong, which flows across China, Laos Thailand, Cambodia and Vietnam. It takes its source from Tibet in China and is 4,200 km long. The Mekong is divided into four branches at Phnom Penh directly in front of the Royal Palace, where the King presently lives, and is called Tunle Chakdumouk (the four sided river).

The biggest lake in Cambodia is called Boeung Tonle Sap (which means, fresh water lake), and is 150 km long and 32 km wide during the summer. Cambodia also possesses a multitude of



Map of Cambodian Indochina

temples among which is Angkor Wat Temple, considered to be the 7th wonder of the ancient world.

There are 3 main domains comprising Cambodia's national economic stability, these are the following:

- Agricultural domain
- Tourism domain
- Garment industry

# III. Brief History of Ancient Khmer Wooden Heritage

There are many archaeological remains in Cambodia, such as, monuments, bridges, habitats, inscriptions, sculptures, Buddhist monasteries, Buddha statues, and other objects.

All of them are mostly made of sandstone, laterite, bricks and metal. Due to their age of a hundred years ago, they were regarded as very important antiquities in Cambodian national heritage, and some antiquities were inscribed on the UNESCO World Heritage list. Beside these objects made of stone, brick or metal, some other heritage properties are made of valuable wood that still remain visible today.

Through the bas-reliefs of Bayon and Angkor Wat temple, carvings of wooden houses and other tools used in daily life made of wood are depicted, for



Ox-cart in bas-reliefs at Bayon Temple



Boat in bas-reliefs at Bayon Temple

instance, ox-carts, boats, and other items. Therefore, we might say that the Khmer people had their own cultural ideas for using wood for dwellings, religious buildings (i.e. Buddhist monasteries), statues, and daily tools since ancient times.

Research and excavation at the Royal Palace in the Phimean Akas temple compound by Jacques Gaucher from 1996-1997 yielded fragment of roof tiles, parts of wooden columns, wooden



Excavation at the Royal palace in the Phimean Akas Compound by Mr Jacques Gaucher, who found part of a wooden building in historic sediments (Depth: 2.5m to 3m).

planks and other wooden architectural accessories. Gaucher concluded that the Royal Palace was constructed from A.D. 1169 to 1171. Today, some items of this wooden heritage were reburied while others were kept in the EFEO warehouse.

In the Northern Khleang Temple, located in the Angkor Thom compound, researchers found wooden beams still in their original location in 2 places on the doorway of the central temple towerI. The function of the beams are used for supporting the stone on the doorway. According to several researchers, the age of the beams are perhaps several hundred years old. Presently, they are in bad condition, and decaying steadily. They have neither been repaired nor conserved.

At the TA KAV gateway and dead gateway of the great city (Angkor Thom City), a wooden beam remains on the top of it, and right now it's almost completely decayed. However, it has also never been restored or conserved. Furthermore, each of the four gateways at Angkor Thom City have some traces on the stone for wooden door frames. Traces of door frames and door and



Northern Kheang Temple, built in the 10th century A.D.



Wooden beam found in situ at Northern Kheang Temple



Traces of dead gateway at Angkor Thom city



Wooden beam



Traces at dead gateway of Angkor Thom city.



Wooden door



Wooden door



Angkor Wat (12<sup>th</sup>-century)



Wooden ceiling



Wooden door

ceiling frames made of wood still remain at the central tower of the Angkor Wat temple, and all of these frames are very old and in bad condition.

There are over 300 wooden Buddha statues at the gallery of the thousand Buddha at Angkor Wat Temple. These statues are kept in the warehouse of the Angkor Conservation office in Siem Reap Province. They are believed to have been created during the middle Khmer period













Wooden Buddha Statues (14<sup>th</sup> – 17<sup>th</sup> century A.D.)





Wooden V column



Wooden Naga head



Wooden furniture (1917)



Wooden construction accessories



Wooden habitat in Siem Reap (1917)



Wooden habitat in Battambang

around the14th to 17th centuries A.D.

All of these wooden statues now are in very risky conditions, and there is a lack of specialists for required for conservation and repair.

Beyond the value of the wooden heritage properties themselves, also lie the value of ancient Khmer identity and history itself, as described above. There is more wooden heritage left at ancient pagodas in the old villages, made by local people, for example, carvings on the Vihara's pediment, architectural decorative elements, Khmer habitats, and other construction accessories. Some of these have been collected and are being kept in the Angkor Conservation office while others are kept in the ancient pagodas and the old villages, for now, as we do not yet have a specialist to repair and conserve this wooden heritage.

## **IV. Traditional Khmer Housing Architecture**

Places where people live that are built out of wood, bamboo, brick, or cement-are called "houses". There are several types of houses in Cambodia that have different appearances. Some people make small houses, some make large houses, while some make long or short houses. Different kinds of houses in Cambodia have many different names but the ordinary names by which they are most remembered are: the Roong Daul house, the Keng house, the Khmer house, the Bet house, the Kondaing house, and the Bôtel house. My discussion of houses touches on the following points:

- 1. The form of the house
- 2. The house in time
- 3. Lweng or interior space in the house
- 4. Decorative additions to the house
- 5. Habitat and location of the main house and the kitchen
- 6. The raising of a house (house construction)
- 7. The ceremony for entering a new house

## 1. The form of the house

a) <u>The Roong Daul house</u>: This type of house is long with a V-shaped roof running lengthwise. Dai sna, or triangular supports, are added to the sides of the roof so that it doesn't sag. The ends of the roof are closed off by a vertical section called the how jeang, that drops to join a projecting awning, called the hob. Houses with these projecting roof awnings in the front and the back are called roong daul. If the house only has a projecting awning in the front, then the house is called a "house with the back hob cut off". Why are there smaller houses with the hob cut off? This is because people who lack equipment, materials or possessions build such houses. In the countryside these smaller houses with the hob left off the back are also called roong daul houses. The roong daul house with a front and back hob is built with three interior columns; the resulting house will have four lweng or interior spaces. Others build roong daul houses with four interior columns, that result in five lweng. The columns of the house are dug into the ground, but stones or cement are rarely used as a foundation.



The roong daul house

b) <u>The Keng house</u>: the purpose of this type of house is to serve as lodging for monks and has a multi-level roof. We can think of the upper roof as having two levels and the lower jutting roof sections as having two levels as well. The high walls are attached to the roof just at the

point where it beings to slant outwards much more quickly. Outside, a level walkway, usually slightly lower then the inside space, is enclosed by a balustrade. People do not generally live in keng houses; this type of house is usually found in vat where it is know as the kut keng.



The keng house

c) <u>The Khmer house</u>: This type of house generally has four rows of columns with horizontal supporting beams called them connecting the columns. A vertical beam rises straight up from the centre of the beam, supporting the top of the very pointed v-shape roof. Both ends of this roof are closed off by large how jeang (or vertical v-shaped closures, sometimes also called the fronton). The front of the house has a projecting awning or hob while the back of the house ends in a straight vertical. This type of structure has traditionally been called a Khmer house. The Khmer has two levels of floors. The entrance porch, or section of space under the

protruding hob, is slightly lower than the interior living space into which it leads. The Khmer house is usually quite small (about 4 meters wide and 6 meters long). This type of house is often found in vats where it is used to lodge monks and known as kut Khmer.



The Khmer house

d) The Bet house: the bet house is built with no crossbeams supporting the roof. The main columns of the house support all the roof beams. The bet house is not as long as the roong daul house. It usually measures 6 meters wide and 9 meters long. Some bet houses are built using wood columns dug into the ground, sometimes with a cement base. The space under the bet house can be filled in to make a cement wall space as well. The floor of the upper



The Bet house

interior space can be tiled as well. Some bet houses have only interior columns and thus three lweng or interior spaces. Other bet houses have three interior columns and thus four lweng while still others have four interior columns and thus five lweng or interior spaces.

e) <u>The Kantaing house</u>: this type of house has a simple long hall with a v-shaped roof that has no hob. Sometimes this house is built with three columns along its long axis; the house usually measures 1 meter in length and 6 meters wide. The kantaing house can also only have two columns along its long axis in which case it is usually about 6 meters long and 4 meters wide. Under the rule of King Reacheanukauod (1704-1727 C.E.), kantaing houses were almost exclusively built by Chinese and Vietnamese businessmen. Since the kantaing house was originally built on the ground, rather than raised above it, it was a good structure from which to sell goods or offer food and drinks for sale. From the reign of King Monivong (1927-1941) onwards, the kantaing house became popular with Khmer people as well. Some have kept it as a simple ground level structure, while others have built kantaing houses on stilts, even adding several stories to them. The kantaing house can have additions and variation by which, for example, a hob or protruding awning is added to the front and back of the house. In this case it is called a kantaing klay or "changed" kantaing house. The kantaing house can also have an altered roofline if they cut off the ends of the long axis of the roof, leaving a slanting triangle at the each end, that has a beak-like shape. A house with this type of roof alteration is sometimes called the kantaing bak nok or goose kantaing house



The kantaing house

meters long.

(the word bak nok is probably Thai). The type of kantaing house, that is most commonly built today, is a house

on stilts about 6 meters wide and 10

f) <u>The Bôtel house</u>: The bôtel house is not made of bamboo or wood. Instead it is made of cement, metal, gravel, sand, lime and bricks. The bôtel house can have one, two, three or more stories. Some are square others are rectangular according to the wishes of the owner. The bôtel house has walls made of brick. Its roof has none of the crossbeams and rafters of wooden houses since the roof of the bôtel house is flat. This roof is not tiled but rather is built by laying down a metal mesh and pouring concrete on it. People in the Cambodian countryside do not usually build the bôtel house. It is in Phnom Penh that many of the houses are now being built, following the models provided by the Royal Family who were the first to build bôtel houses.

## 2. Time and the House

From the age of Angkor through the reign of King Suramarit (1955-1960), the Khmer people preferred to build houses of the roong daul, and Khmer type. They built these houses following the path of the sun across the sky. The front of the house faced East in honour of the sun, because for a long time the Khmer people believed that the sun (Preah Attet, as the Khmer usually refer to it) is Suryarit, the son of the goddess, sent to give light to the world. During the traditional Khmer wedding ceremony, before the groom enters the house to meet his bride, he kneels and pays homage to the East where the sun has just risen. They call this ritual sopheah preah attet or homage to the sun. Locating a house to face the East is also giving homage to the sun (this tradition and the belief it embodies. long ago the Khmer liked to build the roong daul type of house, and they have been built continuously up to the present as we can see, for example in khum kleng Sbaik and Khum Chraing Chomreh. In more recent times, and during the present day, Khmer have also begun to build the bet and kantaing type of house. Today some people build their houses lengthwise, following the course of the sun, while others build their houses with the long axis cutting across the course of the sun.

## 3. Lweng or Interior Space in the House

From all the houses listed above, except for the kantaing house, if the house has two interior columns, there are three lweng or interior spaces. If the house has three interior columns there will be four lweng, and if the house has four interior columns there will be five lweng. The middle lweng, or the heart of the interior space, is called the lweng chan and is the space for sleeping. The sleeping space is reached by traversing the first lweng, the front porch that traditionally faces east and is covered by the front hob. The lweng at the back of the house face west and traditionally has several purposes. On the southern end of the interior space, a small space is reserved for the virgin girls of the family to sleep. It is here also that trunks of clothing would be stored. On the northern end of this back lweng, a cooking stove, plates, and jars are kept. This kitchen space, as well as the



Interior space in traditional houses

rice storage space, is only included in the interior of the house if there is separate space for cooking and storing.

The keng and Khmer type of house have two levels: the interior is one level, while the front porch reception and relaxation area are dropped slightly lower and considered another level. As the for the kantaing house, if it has two supporting columns, then it only has one lweng or interior space. If the kantaing has

three columns, it has two lweng, and a four-column kantaing house has three lweng. The kantaing house has many additions and variation as we have noted above.

## 4. Decorative Additions to the House

Despite the distinctive roof types described above, it seems that some people make additions and decorations to their houses according to their wishes. For example, they make only large living spaces but then add two roofs or Pi Kong (in Khmer). Sometimes a part of the house is left open without walls, and other times roofs, balconies, verandas, awning extensions, and stairways are added.

## 5. Context and Location of the Main House and the Kitchen

In Svay Rieng for example, the main house is built in the middle of the lot and all the accompanying structures are then arranged in particular directions. Thus, the kitchen is in the eastern section of the lot, the rice storage area is to the North, the hut for the cow is to the South, while the buffalo shed is placed to the East (either on the lot or outside of the lot). The well is outside the lot in the northeast or the southeast corner. The bathroom is to the East of the main house.

## 6. The Raising of a House (house construction)

First the house is raised above the ground within the area of the building lot and levelled. Then all the necessary equipment and construction material for building the house are acquired. An auspicious day for raising the house is then chosen after looking at the calendar. Traditionally, Khmer raised their houses during the periods roughly equivalent to December, March, and May (the calendar used by farmers follows the moon and differs from the Western calendar). The rainy season occurs during the seventh and ninth months so houses are not usually raised then. As for the day on which to raise a house, the best days are Wednesday, Thursday, Friday and Saturday. Long

ago, Khmer never raised their houses on a Sunday or Monday because of an old proverb that warns: "Sunday and Monday, stop what you are doing and be careful". If people still persisted in building houses on those days, they had to be careful since there were often building accidents. Thus, houses are not often raised on Sundays and Mondays. As for Tuesday, you can raise a house on that day but it will not get finished. They believed that if you raise a house on a Tuesday, you would have to use mats for walls since the house will not get finished. So, in general Sunday, Monday, and Tuesday are avoided. If you raise a house on the other four days, it will go well and everyone will be happy.

Before beginning work, Sla toa (an offering of banana stalks with incense and betel arranged on them) are placed on the side of the building. Incense is lit and prayers are made to the spirit of the land, asking for the right to build on the land. The building area is then measured and the locations for the columns are marked in straight rows, using a snung to mark the ground. This process is called "girding" or marking the lot. When holes are dug for the columns, care is taken so that no garbage falls into them because if it does, this means that the house will have an excess of guests.

When the columns are set in the ground, a red cloth is tied at the top of the central column. A length of sugar cane with the root still on it is tied to the central post at a height higher than the human heart. Offerings are given to the spirits, such as a boiled pig's head, a chicken, and two cups of tea. Sometimes there is a bottle of an alcoholic beverage, four pieces of fruit, money, as well as white sompot (length of cloth used for a skirt) and a shirt. A basin of perfumed water is sprinkled on the tools of the mai jeang (chief of the construction team) and placed with the offerings. Then the achar, a layperson who leads ceremonies, chants prayers and sprinkles the perfumed water on the column. The mai jeang (chief of the construction team) recites prayers to the bisnakar (the architect of the heavens), and then the achar beats a gong three times and the workers quickly raise the columns of the house. They take the red cloth from the column and draw magical designs in the shape of the eyes of a quail, attaching this cloth to the top beam at the centre of the rafters of the house in order protect the house from fire. This is a tradition of the people in the region of Svay Rieng, who believe that it will bring them happiness and prosperity.

# 7. The Ceremony for Entering a New House

When the house has been completed, the calendar is once again consulted to choose an auspicious day for the ceremony to enter the house. Proper adherence to these customs ensures happiness and health to the occupants of the house.

In some areas of the countryside, like Svay Rieng for example, extended family and all the neighbours are invited to come. At dusk, around 7:00 in the evening, four monks are invited to come and chant prayers of protection. One must go and ask the head monk respectfully to send monks who know "the prayers for entering a new house", so that the monks who come will know the special prayers used for the ceremony to enter the new house. When the monks are saying the prayers, the husband and wife who live in the new house kneel in an attitude of respect in front of the monks. The monks sprinkle them with sacred water.

When the monks have completed their sprayers, the achar (the lay leader of the ceremony) wishes the husband and wife happiness in the house and tells them that the front porch is called the lweng of happiness; the middle lweng is the lweng chan for sleeping, and the back lweng is the space for keeping possessions. Using a chisel and a large wood block, the achar beats the central column of the house three times and then talks to the column saying: "Central column! You were once a tree, a Koki tree, a Kakoh tree, a Pjek tree... Now you are to be a column! Please, honourable column, protect this husband and wife who are the masters of this house, as well as their children, so that from this day onwards, they will only have happiness and prosperity". Some people end the ceremony with this blessing while others invite the monks to come back for a meal the next morning.

In some area, like Kampong Cham Province for example, the columns are raised and the floor of the house laid in the morning, and the entering ceremony is held in the late afternoon so that the family can sleep in the new house that same evening. A day does not pass from the construction to the time that the family can sleep in the house. In order to do this, everything for the basic structure of the house must be prepared in advance. At least fifty or sixty extended family, friends, and neighbours are called to come and join in the work and the ceremony. In the evening, when the house has been raised and the ceremony performed, the family sleeps on the floor of the new house. Or during the ceremony to enter the new house, in order to have happiness and prosperity, the family should assemble various objects and elements and arrange them in the house according to the nine directions as follows:

- 1. The East one should put a cooking stove.
- 2. The Southeast one should put an umbrella.
- 3. The South one should put rice and pots.
- 4. The Southwest the monks should chant here.
- 5. The West one should put plants for marking rope.
- 6. The Northwest one should put ivory and metal items.
- 7. The North one should put stored rice and baskets.
- 8. The Northeast a pregnant women should sit here and a cat as well. This is the place for storing silver and items made of brass.
- 9. The Middle mats cushions, and weapons to defend oneself (a knife or gun) are laid out here.

When a house is arranged like this during its opening ceremony, then the master of the house will be happy living in it. The items that must be arranged according to the descriptions above do not have to always be kept in these places. They are just arranged for the time in which the ceremony for entering the house is performed. Later on, items can be moved around and stored in different places without any ill effects.

# V. Characteristics of Khmer Temple Architecture

To gain a proper understanding of what a Khmer temple was, it should first be recalled that it was not a meeting place for the faithful, but rather the palace of a god, who was enshrined there to allow him to bestow his beneficence on the founder and his familiars. There was, thus, the need to build the finest possible residence for him, to be sure, although as he was there in the form of a statue there was little need for a large space. One of the largest is the central shrine of Angkor Wat, and his cellar has internal dimensions of 4.6 metres by 4.7; the pedestal of the statue being approximately the width of the door, that would have been 1.6 metres square. Thus, a great temple would not be a vast palace for single god but a grouping of multiple shrines with a main divinity in the centre. Prah Khan temple, for example, was originally conceived to house more then 400 deities, and many others were to be added subsequently. The shrines could be linked or surrounded by galleries, which usually had doors and also housed certain divinities. In any case they were in no way intended to provide passage for great processions as has too often been asserted; such processions would have been greatly impeded and rendered impossible by the presence of doors and their disproportionately large thresholds. Some are not even accessible on foot, for example Ta Keo which, it seems, was not even a provision for doorways. As the residence of a god, or gods, the sacred territory in which the temple is situated is an image of the universe, where the gods sit on Mount Meru, the centre of the world, surrounded by the primordial ocean. This is the image which the sacred compound of the state temple in the Khmer country offer us, in which the prasat, the sanctuary tower, usually represents Mount Meru and can be flanked by four further prasat; the various enclosures being the mounting surrounding it, and the moat being the ocean.

This world image was to impose a rigorous order of construction on Khmer architecture, from the simple building to the most complex monumental groups. This characteristic applies of course to the temple as originally conceived. In reality, as might be expected as long as a temple remained an active place of worship, the Khmer added smaller or greater numbers of extra shrines to the original coherent group-especially from the reign of Jayavarman VII onward. This is particularly evident at Prah Khan, and the practice can result in an impression of chaos to the modern eye. It is not too difficult, however, to ascertain the original layout.

From Sombor Prei Kuk at the beginning of the seventh century to Angkor Wat in the twelfth century, the temples are designed in enclosures of quadrangular shapes that centre on the main shrine, or on the central group of shrines, and laid out according to precise methods.

Geometrical rules, which probably varied according to the type of shrine, determine the sitting and dimensions of each subsidiary group in relation to the centre of the temple and sanctuary. But in the absence of written documents, there is no alternative but to retrace the original design a posteriori.

The order is marked too by the hierarchy of elements of the overall plan, the central prasat is dominant, at least through its height, although not always its overall area, and the other elements are distributed around according to their size and volume, so as to grant its full significance as to the exact centre of the temple. The primacy of the central shrine is also emphasized by the elevation on a terrace of variable size, or in the case of the state temple, on a stepped pyramid. Hierarchical consideration also dictated the type and positioning of the decorative work. It is more profuse and richer on the central shrine, which is sometimes covered entirely, and diminishes progressively in scope as it recedes from the centre. The most obvious example is Banteay Srei, where the three main shrines are richly decorated over their whole surface, whit dvarapala cared on the central tower and devada on the north and south towers, whilst the preceding hall, with a screen or newel, is adorned with a patchwork of small squares in alternate patterns. The "libraries "feature fine decoration on the main East and West face, and have pediments that count among the most beautiful in Khmer art, but their sides are undecorated. The decoration becomes less profuse as it reaches the gate-lodges and ancillary buildings, up to the entry pavilion to the so-called fourth enclosures. An alternative explanation might be possible, namely that the original intention was to cover the whole temple with decorative carvings, beginning traditionally with the central shrine, and moving progressively outwards. Counter-examples would however be easy to adduce, and the reality is that, for one reason or another, not a single Khmer temple was actually "completed".

There are other conventions governing the design of Khmer monuments. In the case of the sanctuary towers, the superposition on the central mass, and abode of the gods. In the "temple mountain" design, however, the pyramid is itself an image of Mount Meru, through the ascending concentric universes of its superstructure, echoing those of the sanctuary towers. The elements which form the towers and the levels of the pyramid diminish progressively in size, producing the effect of "vertical soaring: a genuine optical illusion, a trick of perspective, which enhances the actual height".

These steadily diminishing proportions are also present in the miniature buildings nestling in the corners of each scaled-down level of the pyramid, like elements of an acroterium. An outstanding example, illustrating reduction in both scale and imagery can be seen in the northern group of monuments at Sambor Prei Kuk. On the east side of the central shrine's South face, there is ' flying palace'-a kind of picture of a facade sculpted in brick. Every detail is present: the frame, the colonnettes, and the lintel with its makaras, the pilasters and the pediment. The sculpted panel is about two meters high. At the top of the carved picture, in the tympanum of the pediment, is a miniature of the same 'flying palace', also sculpted in brick. The temple thus "Decorates itself in its own likeness.

The inscriptions often mention the date, and sometimes the precise moment, at which a statue was 'brought to life' (the text speaks of 'opening a statues eyes'), which was the crucial instant in the life of the temple. There was no solemn ceremony for the inauguration of a temple on its completion (which would have been difficult to determine exactly) nor one for laying the first stone. We know, however, that the Indian Shastras which laid down the rule of architecture, emphasized the extreme importance of the initial ceremonies for a building, and this is well attested by the presence of various ' foundation offerings' deposited beneath the actual foundation of the shrine, and also beneath the pedestals of the statues (which is why they have all been overturned by thieves), or even at the summit of the towers. The offering was deposited in a square flagstone with various cavities, some of which were marked by letters and covered with a lid. In these cavities, precious stones, thin gold leaves, or even strands of hair or nail-clippings from the donor's body, were placed.

One final point is that the deity was not always a statue at the centre of the shrine, especially in the case of Siva who, as supreme god, was most often represented by the linga, or phallus. Inserted in the pedestal, the linga in Khmer sculpture comprises three sections, and is a symbol of the Brahman trinity. Only the cylindrical top third was visible, sometimes ending in an ovoid shape, and representing Visnu, while the bottom third was a square stone slab with a central hole and a spout to allow the lustral water to run off and be collected by the faithful. When the linga is a central feature, this slab is called a yoni, a 'womb', which is a symbol of fertility and, by extension, prosperity.

# V-1 The main constructive element

Khmer temples are based on a symmetric conception of space, which involves the repetition of typical elements:

- 1. . The enclosure walls and ground
- 2. . The libraries
- 3. . The terraces
- 4. . The galleries
- 5. . The towers

The following is a brief examination of these elements.

## V-1-1 The enclosure walls and ground

The enclosure walls were usually built of dry stone blocks of laterite or, very occasionally, in sandstone (Banteay Srei); they are very thick (80-100cm) and about 4.0-5.0m high.

The Khmer builders took great care in placing the horizontal layers, but overlapping between the blocks was often inadequate or totally absent, creating potential vertical joints.

Ponds were often created outside the first tier of enclosure walls; the water levels vary with the seasons causing settlement and subsidence of the soil, which have caused parts of the walls to lean or collapse.

In the middle of each wall there is the entrance, or "gopuras", whose cruciform plan interrupts the geometry of the wall.

In the earlier temples the gopuras were made of brick and the doors had sandstone lintels supported by pillars; the connection between these elements is the same as for the wooden constructions and equally ineffective. A load-bearing corbelled arch transmits the weight of the overhanging wall and the lateral structures.

In the earliest temples the gopuras were made of brick and the doors had sandstone lintels supported by pillars; the connection between these elements is the same as for the wooden constructions and equally ineffective. A load-bearing corbelled arch transmits the weight of the overhanging wall to the lateral structures.

In the eleventh century these kinds of construction were built of sandstone blocks, following the same methods as above. It was at this time that the construction of temples began to evolve: enclosure walls were replaced by galleries and the composition of the gopuras became more complex, resembling towers joining the axes of the enclosure gallery and entrance.

## V-1-2 The libraries

The libraries were usually placed on the east side of the temples inside the first enclosure and symmetrically to the main axis. The role of these buildings is not yet clear; they were probably some kind of sacred site where holy books or cult objects were kept.

In the earliest temples, such as Pre Rup, the libraries were built from bricks. They were rectangular and tower-like in plan.

In the later constructions the height of the overhanging structure was reduced, the walls were not so thick and the use of more resistant sandstone blocks made it possible to make openings, such as balustrade windows, in the walls and porches.

## V-1-3 The terraces

These massive structures were created in order to raise the base of mountain temples, symbolizing Meru, the magical mountain home of the gods.

Where there were no natural hills (as there was in Phnom Bakheng) artificial mounds were formed with retaining walls of laterite often covered with sandstone blocks and filled with earth. The average slope was about 70 degrees on the horizontal plane.

Many of the retaining walls are affected by large deformations or displacements between the blocks as in Pre Rup and others; this is related to the load induced by the fill and towers and to the action of rainwater, that runs along the joints, creating supplementary pressure on the retaining walls.

## V-1-4 The galleries

The galleries were built from the eleventh century to connect the towers and other buildings. They are made from sandstone or laterite blocks, built as corbelled arches and make continuous vaults.

The earliest temple of this type of structure, and made entirely of sandstone, is in the Phimeanakas temple; it has a small span and the roof is an upturned U composed of three blocks and two joints on strong supports.

The development of building techniques and improved knowledge of new materials enabled the Khmer builders to build real corbelled vaults, where the upper blocks provide the necessary thrust to the equilibrium; often the arrangement of the blocks in the interior was not precise and the vault was closed by a ceiling.

It is possible to distinguish different types of galleries by their supports. The earliest structures had continuous walls, with one or two rows of balustrade windows.

Later, in Angkor Wat, the galleries were built on discontinuous pillars and flanked by lateral wings.

Stone lintels ensured the connections between the lateral and main structures; the low bending residence of these lintels means that they are very sensitive to any displacement of the foundations.

Thee right-angled intersections of the galleries form cross-shaped porches.

## V-1-5 The Towers

The towers are the shrines containing the idol. They represent the fundamental element of Khmer architecture.

The towers were square or cross-shaped with a small east-facing hall in front of the entrance. False doors, usually made from sandstone blocks, were set into the other sides. The towers rise in a number of concentric rings of decreasing diameter, for which the corbelling technique was used; the structural aspects and the causes of damage will be analyzed in section 6. The towers were usually built on a stone pedestal, with the floor on a lower level than the entrance.

In the earliest constructions the towers and their bases were made entirely in brickwork (Lolei and Bakhong temple); later laterite was used for the pedestals (Pre Rup). In their stone block constructions the Khmer make small grooves on the horizontal layers of the blocks in order to ensure a better connection. Sometimes towers were built at the corners of the galleries, on top of the vault intersection.

## **V-2 Building Techniques**

Used in different proportions across the centuries, brick, sandstone, and laterite were the three materials used by Khmer builders in their temples. Domestic structures and even palaces were in wood and as such, have not survived. The earliest temples were in brick, because it was the easiest to use, while stone, which demanded more manpower and greater skills, made a gradual appearance, beginning with secondary use as doorframes and only later being used for basic construction. Laterite, easy to work but always rough in its finished appearance, was throughout a favorite choice for foundations and other massive elements. Of the three, sandstone was the most expensive and would be used in its entirety only for the important temple, except, of course, where there was a good local source.

## V-2-1 Brick

Khmer bricks varied in size with the largest and oldest being about 30 x 15 x7 cm. Experience enabled the builders to use them to great effect, both structurally and in appearance. They were bonded with a vegetable compound rather than mortar, and the result was great strength and an almost invisible joint. The facade was sometimes directly carved, as displayed at its best at Prasat Kravan. More normally, however, decoration was in stucco, as at Phreah Kô and Lolei, both at Roluos. Often there is only a sketch on the bricks of what has to be applied in stucco.

Bricks and arkoses were used together in the construction of the sanctuaries and prasat of the pre Angkor period and were often decorated with stucco relief (from Preah Kô to Pre Rup).

Bricks were used mainly in the construction of towers and gopuras (the entrance structure) during the ninth and tenth centuries; the bricks were made especially in the first period; their size varies, even in individual construction, from  $22 \times 12 \times 4$  cm to  $31 \times 16 \times 8.5$  cm [1].

Brick masonry is made without mortar, probably using vegetable glue composed of lime

and palm or liana sap. This method of construction makes it possible to obtain masonry without visible joints. The bed joints were usually horizontal and the head joints not aligned. The thickness of the masonry was often filled with broken pottery, rocks, and earth.

Brick masonry exposed for many centuries to weathering and the growth of fungi and vegetation, is often ruined. However, the main cause of deterioration in bricks is the formation inside the pores of crystals produced by soluble salts as the moisture produced by rainwater or rising damp evaporates. The extent of this phenomenon depends on the porosity, which in turn depends on the composition of the bricks and the procedures used in baking them.

## V-2-2 Sandstone

The stone used exclusively by Khmer builders was sandstone, and at Angkor the source was the Kulen Mountains. Its weight and the distances over which it needed to be hauled added to the structural problems that the architects had to face. These included finding designs for structures that would not collapse under their own considerable weight, and it was not until the end of the 10th century at Angkor that the Khmer had the confidence to build more or less exclusively in stone. The first large sandstone temple was Ta Keo. Khmer temples were not places of congregation, thus, there was no real need for vaulting or creating large interior spaces, as in European cathedrals at the time. One of the problems with sandstone, derived from its geological structure, was that when used for upright supports (in other words against the way it was laid down) it had a tendency to flake. For their purposes the device known as corbelling was sufficient and simple to execute with no need for scaffolding. Each higher stone course projects a little over the one below, until the sides finally meet at the top. Gravity prevents collapse as the sides of the gallery roof press in on each other. One of the great of advantages of sandstone was fine carving details, and from the beginning door surrounds and lintels were elaborately carved. The evolving decorative styles on these elements provide a fascinating and useful method for dating Khmer temples. The decorative use of sandstone reached its apogee at Angkor Wat, with its nearly 2,000 square meters of bas-relief panels, not to mention apsaras, lintels, pediments and friezes.

# V-2-3 Laterite

Laterite is Aeolian clay formed in topical conditions by the weathering of igneous; it is usually of a basic composition, consisting chiefly of hydroxides of iron and aluminums; the latter may be present in varying quantities until bauxite is formed.

Laterite is reddish brown in colors and can be classified in two types: porous and pisolitic.

Porous laterite has large pores of a few centimeters in diameter. The pores were probably originally filled with Kaolin, which was washed away by rainwater. Pisolitic laterite consists

mainly of pisolitic, of 10 to 20 mm in diameter, and is more homogeneous than porous laterite [2].

Both types of laterite were used in Khmer constructions: porous laterite was used for instance in the towers of Prasat Suor Prat, the foundations of Angkor Wat and part of the buildings and pavement of Banteay Srei. Pisolitia laterite was for the base of Ta Keo, the wall of Phnom Krom and other monuments.

Laterite is not strong; it is easily broken by a hammer and has bending strength. In the Preah Khan temple, where laterite was the principal material used, preliminary tests have shown the following strength: compressive strength = 108 MPa; bending strength =2.65 MPa; and bulk density = 2327kg/m3 [3].

Blocks of laterite are a fairly good material for foundations and enclosure walls, but create huge problems when used in the bases of structures an they are sensitive to decay caused by water, and present a kind of viscous behavior that amplifies the deformations, mainly rotations, over time.

Blocks of laterite used in masonry usually vary in size from 60cm x 30cm x 40cm to 80cm x 50cm x 45cm, but some blocks (bridges) are much longer (up to 200 cm [1].

Laterite is susceptible to alteration in a humid environment; tests reveal the effects of softening or swelling of its components. Its durability differs depending on where it was quarried: laterite with high mud content, or that is, more porous, is more susceptible to decay. Like bricks, blocks of laterite that have absorbed water (especially water that has been chemically transformed by combining with minerals) lose their original resistance.

## V-2-4 Wood

Wood was probably used in the construction of the earliest buildings. During the pre-Angkor period, it was used to make beams in joinery.

The wood used in the buildings and palaces of Angkor has been completely lost. Only in a few temples can fragments still be found of wood beam and planks used as lintels over door frames, as is the case in Bakong, Lolei and Prasat Sour Prat.

Often the wooden beams were placed inside blocks of stone, carefully carved in a "U" shape. In these cases the wood has been destroyed by termites or rotted, with the consequent collapse of the weakened lintels. Where the wooden beams were placed outside, under a stone lintel, they are still in good condition.

Wood was also used for palaces, houses, and monks' dwellings. It was also used in temples for certain roofs, ceilings and temporary structures such as pavilions. At Angkor small pieces of the wooden ceiling to Heaven and Hell have been found. Exterior wooden roofs would have been tiles and remains of these have been found. Recently lead tiles have been discovered. Interestingly, Zhou Daguan noted that the Royal palace was roofed with lead.

Although wooden structures have virtually disappeared we can gain a good idea of Khmer techniques from observing stone doorways and false door and balusters carved in imitation wood. In particular the joints of doors and windows are those of the wood carver, not the stonemason.

# **V-2-5** Painting

It is often not appreciated today that the surfaces of Khmer temples were painted. Traces of paint have been found at Preah Khan, Neak Pean and Angkor Wat. Although in the latter case, the painting could have been added later or reapplied in renovation work.

# VI. Previous Responsible Work and Current Work

# VI-1 Management of erosion from temporal destruction in the Temple

- Control and follow any damage in the temples caused by erosion of the sandstone, Laterites, some blocks of the temple collapse.
- Establish the risk map.
- Prepare technical documents in order to make restoration proposals.
- Emergency interventions in the weak places of the temples according to the risk map.



Research and Establishment of the Risk map (Tanei Temple)



Emergency Intervention (Taprom Temple)





COUPE A.A (étaiement C)
# VI-2 Management of the Trees that Threaten the Temples

- Control and follow damage caused by trees
- Establish the risk map
- Emergency interventions



Cutting trees that threatens a temple



Banteay srei Temple



Establish the risk map (Taprom Temple)



Banteay kdei Temple





Srash srang



Taprom Temple

**Emergency Intervention** 

# VI-3 Management of the Ant-hill and Bats in the Temple Compound

- Daily check for any damages caused by termites and bats
- Establish the risk map and remove the ant-hills.
- Daily clearing of bat excrement and termites.





Termites and Bats in Taprom Temple

### VI-4 Management of the Maintenance and Sanitation of the Temple Complex

- Daily cleaning around the temple.
- Daily maintenance of the infrastructure in the temple complex.
- Management of the small merchant stalls and parking surrounding the temple.
- Management of the tourist itineraries in the Angkor Park.
- Management of the Environment in the temple complex.



Daily cleaning



Traffic and parking problems



Maintenance infrastructure



Religious ceremony at the Temple



Merchants' stalls



Illegal excavation in the Angkor Park

# VII. History and Organization of APSARA Authority

### V-1 Organization at the International Level

After Angkor was inscribed on the World Heritage List, it was necessary to establish working mechanisms to promote national and international collaboration.

At the first Intergovernmental Conference on the Safeguarding and Development of the Historic Site of Angkor, held in Tokyo in October 1993, an International Coordinating Committee

for the Safeguarding and Development of the Historic Site of Angkor (ICC) was created. This Committee is co-chaired by France and Japan with UNESCO as acting secretariat. Its inaugural meeting in December 1993, assembling representatives of more than twenty countries and organizations, marked the first high-level international discussions on Angkor ever to be held in Cambodia itself.

The subsequent creation of a sub-committee responsible for holding discussions and making decisions on technical issues regarding Angkor (the Technical Committee) reinforced structures for effective management of international efforts at the site. The Committee holds plenary sessions in Phnom Penh or Siem Reap twice a year. All national and international projects concerning Angkor must be submitted to the ICC via its Technical Committee, for discussion. In 1997, the Committee decided to create the Ad Hoc group of experts, responsible for advising APSARA on technical solutions to precise problems (such as the collapse of Angkor Vat's western moat step) as well as broad questions related to the safeguarding of Angkor.

These mechanisms allow APSARA to collaborate directly with international governmental and non-governmental agencies, to coordinate actions undertaken in many domains, and to strengthen national technical capacities.

# **VII-2 Organization at the National Level**

A Royal Decree created APSARA in 1995. A second additional Royal Decree reinforced its authority in January 1999. Today, APSARA is placed under the double supervision of the Presidency of the Council of Ministers (technical supervision) and the Ministry of Economy and Finance (financial supervision). APSARA's Director General is President of the Administrative Board, assisted by several Deputy Directors General. APSARA, in collaboration with other governmental agencies, is responsible for:

- Protecting, maintaining, conserving and improving the value of the archaeological park, the culture, the environment and the history of the Angkor region as defined on the World Heritage List.
- Refining and applying the master plan on tourist development according to the five zones, defined in 1994 in the Royal Decree on the protection and management of Siem Reap-Angkor and taking action against deforestation, illegal territory occupation as well as anarchy activities in Siem Reap-Angkor.
- Finding financial sources and investments.
- Participating in the policy of cutting down poverty of the Royal Government in Siem Reap Angkor
- Cooperating with the Cambodian Development Council on the investments of all the projects

that are involved with APSARA Authority's mission.

- Cooperating with ministries, institutions, funds, national and international communities as well as international governmental institutions and non-governmental organization on all projects related to the APSARA Authority.

The territorial authority of APSARA is clearly specified in Article 5 of the Law on the Protection of Cultural Heritage promulgated in 1996. The term "Siem Reap-Angkor" is defined in the Royal Decree establishing Protected Cultural Zones, with five degrees of protection in the region. Backed by these legal tools, APSARA is mandated to represent the Royal Government before all international partners concerned with cultural, urban and tourist development of this region. The Authority thus presides the Cambodian delegation to the International Coordinating Committee (ICC), and it's Technical Committee.

# **VII-3 Internal Organization**

The Director General presides over the APSARA Authority. The directors of the departments second him as follows:

- 1. Department of Personal Staff, Finance and Communications
- 2. Department of Monument and Archaeology 1
- 3. Department of Monument and Archaeology 2
- 4. Department of Angkor Tourism Development
- 5. Department of Urbanization and Development in Siem Reap Angkor Region
- 6. Department of Demography and Development
- 7. Department of Water and Forest
- 8. Intervention unit for cracking down on deforestation, illegal territory occupation and taking action against anarchy activities in Siem Reap Angkor.

The APSARA Authority has two office locations:

- Siem Reap, where it acts directly in the field, with its national and international partners. APSARA is based inside the Angkor Conservation Compound, at the northern end of Siem Reap town.
- Phnom Penh, where it is in constant rapport with its supervisory ministry. The APSARA offices are located in building #187, Pasture Street, Sangkat Chaktomouk, Khan Don Penh.

# Angkor-Archaeology Fund

The fund was created as a special account called the "Angkor-Archaeology Fund" to collect and receive donations from national and international communities for improving Angkor. The

Angkor-Archaeology Fund is under the direct control of the APSARA Authority.

# **VIII.** Conclusion

On behalf of the APSARA Authority and all Cambodians, I would like to say, thank you very much indeed to ACCU Nara and the government of Japan for giving me the chance to join and learn from this program. This is a extremely valuable, useful, and brilliant service for cultural heritage conservation.

Lastly, I would like to convey my best wishes to the ACCU (Nara office), the government of Japan, and to all the people who love cultural heritage. All the best from the bottom of my heart.

Thank you!

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# Indonesia

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# CULTURAL HERITAGE PRESERVATION AND TOURISM DEVELOPMENT IN INDONESIA

A Case study from Alor Regency, East Nusa Tenggara

# Introduction

The concept of cultural property in Indonesia is as recent as Cultural Property Act No. 5/1992, that refers to the former act created during the Dutch colonial period, called the Monumenten Ordonantie No. 238/1931. According to the 1992 Indonesian Cultural Property Act, cultural property, or benda cagar budaya (in Indonesian), is identified by the following dual definitions:

- Man-made objects that are movable or immovable, as a whole unit, parts, or remains, with a minimum age of 50 years, or that represent a unique style within a 50 year period, and have significant value for history, science, and culture.
- Natural objects that have significant value for history, science, and culture.

There are three actions concerning the preservation and restoration of cultural property, namely protection, preservation, and new development. Recently, the justification of benda cagar budaya has not been satisfactory for the community, stakeholders, and practitioners in the field of preservation activities. They assumed that the definition itself has limitations as it protects only single objects from structures of known ages. Thus it can also be interpreted that the man-made heritage is separate from its environment.

With the theme "Celebrating Diversity", Indonesia Heritage Year in 2003 was one of the milestones of heritage preservation in Indonesia. Indonesia Heritage Networks and the International Council on Monuments and Sites (ICOMOS) Indonesia initiated the Indonesia Heritage Charter. The rationale of this charter is to reinterpret the cultural concept, from that of benda cagar budaya (or cultural property/object) to pusaka saujana (or cultural landscape), thus allowing a broader view of cultural heritage. The term of pusaka can be understood as a value or object handed down from generation to generation. Pusaka saujana means to have a sense that the

preservation and restoration activities in the future should merge with the environmental context rather than focusing on a single cultural object. Moreover, this charter focuses more attention on the preservation and restoration of vernacular architecture and traditional environments, and also presents opportunities to initiate community-based approaches and tourism-driven heritage preservation.

### Some Issues on Cultural Heritage Preservation in Indonesia

The problems and needs in preserving cultural heritage in Indonesia today are closely related to the decentralization era, that arised since 1999. Autonomy Act No. 22/1999 justified the affairs that should be managed at the local (municipality or city) and provincial levels. Other levels of government services included within the Act are urban planning, trade, transportation, and tourism. In the past these affairs were administered solely by the national government. Though cultural heritage preservation has not been stated clearly in the Autonomy Act, in my opinion, some issues raised relating to cultural heritage preservation and decentralization are of immediate concern, such as cultural heritage preservation in urban planning contexts, the necessity for a local identity, and cultural tourism issues.

The spatial master plan defines the previously conserved and the functional zones relating to urban and regional planning. Apparently, it has been perceived that the preservation of cultural heritage is an activity that is performed in a conserved area. As we know, cultural properties are not always located in a conserved area. The functional area, i.e. educational facilities, housing, also have the value that should be preserved and restored. Consequently, the value of cultural heritage that was formulated in the restoration plan should be merged with the spatial master plan. The concept of zoning can be noticed as a support to preservation, but on the other hand this will be a limitation on the concept and practices of preservation.

Although the decentralization era brought lots of problems for Indonesia, it can also be seen as a raise for finding a hidden cultural identity. The local government and community are reformed and simultaneously they seek a symbol derived from their cultural heritage. It can be tangible, intangible, or both tangible and intangible heritage that will shape their new identity. The necessity of cultural identity in local level can be observed from the discourses about the protection of ethnic character and language, folk tradition, traditional and vernacular architecture, and listed monuments and buildings that are done by the local government.

The third issue is tourism-driven heritage preservation. The necessity of tourism development in Indonesia is perceived as an agent of change to a better quality of life. New concepts of tourism namely ecotourism and cultural tourism have promising opportunities to drive the preservation of cultural heritage. The latest campaign by the Ministry of Culture and Tourism Republic of Indonesia: "Ayo tamasya jelajahi nusantara" or "Let's go adventuring to the

archipelago" is not intended for foreign tourists but puts heavy attention towards the domestic tourists needs. The campaign is succeeding in developing the community's pride towards their cultural heritage. Even though such pride can lead to a spirit of preservation and restoration, this is debatable if the preservation is done for the sake of the tourists rather than the needs of the community.

Considering these issues, the decentralization system clearly has a strong impact, possibly creating a new model of preservation. Some questions raised and have not been responded either in national/central or local policies, such as why the cultural preservation should or must be preserved? Whose heritage is it? Who will manage? At the end, the benefits for local people which are often assumed to be an economic benefit should be considered both in national and local practices.

# Tourism Development in Eastern Indonesia: Alor Regency, East Nusatenggara as a Case Study

The concept of planning and managing tourism at the destination level as explained in Guidelines in formulating tourism master plan from Ministry of Culture and Tourism Republic of Indonesia (2001) that tourism planning should pay attention to a spatial master plan. At the destination level, the government bodies in charge of formulating the spatial master plan are the planning bureau, while the tourism master plan can be prepared by both the planning bureau and tourism office.

In this paper, Alor Regency which is located in Eastern Indonesia is chosen as a case study. This represents the eastern part of Indonesia, that is famous for cultural diversity, and underwater heritage but on the contrary this area is categorized as a less developed area. It is also important to take notice that this area is combined with Austronesian and Polynesian Cultures. Up until now, the western part of Indonesia has rarely been researched by Indonesian scholars, both in tourism and cultural heritage preservation.

Alor was culturally influenced by the Majapahit Kingdom, the Ternate Sultanate, the Portuguese Period, and the Dutch Period (late 1950s). These influences can be seen from the cultural heritage such as the Dutch-Colonial



Fig.1 Map of Indonesia



Fig. 2 Map of East Nusatenggara Province

Building, Portuguese Movable Heritage and Vernacular Architecture. Tourism stakeholder in Alor Regency among others are community, tourism association, hotels and restaurants, travel agents, government or public sector such as culture and tourism office, planning board, transportation office, educational institutes, non governmental organizations, and the private sector.

From the demand side, tourists visiting Alor can be categorized as backpacker tourists, business tourist, and special-interest tourist. The backpacker tourists mostly arrange trips by themselves and relay the information using travel books and the internet. Most backpacker tourists are from other countries. The second type, the business tourist arrange their trip through their office or travel agent. Surprisingly, business tourists are mostly domestic tourists coming from Surabaya, Bali, Makassar, and Kupang. The special-interest tourists can be differentiated from their motivation or activities, there are two main motivations such as diving or mountain climbing and the second is for study or research, mainly in anthropology and ethnic language subjects. The tourists came to Alor by airplane, ship, and cruise ships.

From our observations, the strength of Alor tourism development is the uniqueness, authenticity, and the diversity of natural and cultural heritage. Additionally, Alor has international scale tourist attractions, namely diving spots in Pantar Straits and Takpala Village. The weakness is the lack of transportation facilities and infrastructure. While the opportunity is there are special interest tourism needs or trends for international and domestic tourist market especially from Bali and other places in Nusa Tenggara. The challenges for this area are its location in a disaster-prone area, that includes earthquakes, tsunamis, and it is quite far from the main tourism market gates.

Considering the supply and demand side, initial policies of Alor tourism development are that (1) Tourism development should reveal the local value of Alor, (2) Tourism development should sustain the community and environment, (3) Transportation and infrastructure development should be implemented in stages, (4) The quality of tourism and its human resources should be enhanced, and (5) Tourism promotion should be directed towards the target market. These initial policies should be directing tourism development over the next 10 years.

### Notes on Wooden Structures and Cultural Heritage Preservation in Alor Regency

The wooden structures in Alor Regency that we found during our observations were built during the 17-18th century. The main structure of the building posts and beams were made from wood and bamboo, while the roof material was made from coconut leaves. The function of the buildings ranged from houses, ceremonial places, and current use as displays for tourists. Some of the buildings are still inhabited by the community and some of them are temporarily used for ceremonial events.

The community maintains the building structures as living architecture. They fix and change the broken parts or members and repaint the carved columns and beams using traditional

techniques. Although these structures have not yet been restored, the documentation and investigations completed here highlight some of the findings of the wooden architecture from this region.

The documentation of the wooden structures in Alor Regency is shown in Table 1 and Figure 3 to Figure 9.

Name of village/place	Building function/use	Building structure	Ornaments
a. Bampalola	Ceremonial place	2 storey	Carved column, painting in: black, white, red
b. Takpala	House and ceremonial place	2 and 3storey	Wall painting in black, white, red, yellow
c. Lembur	House, display for tourist	3 storey	Carved beam, painting in black
d. Monbang Kopidil	House	3 storey	No carved column, no painting
e. Kepa homestay	Homestay	2 storey	No carved column, no painting

Table 1 Wooden structures in Alor villages







Fig.5 Place of worship in TakpalaVillage



Fig.6 Facade of Takpala House, showing painted wall and door (red, white, black, yellow)



Fig. 7 Detail of Lembur House showing painted beams



Fig.8 Roof detail of Monbang Kopidil House

Fig.9 Kepa Homestay

Lessons learned from the observation of vernacular architecture include a respect for spiritual and historic places and cultural practices. Indigenous South-East Asian religions generally do not make use of separate temples or places of worship. From this case, Alor people as an Eastern Indonesian society also make use of ancestral stones for worship. The place of worship now becomes a "tourist attraction" and daily cultural activity become cultural performances.

The relationship between tourism activities and cultural heritage preservation in Alor Regency can be sum up as follows:

- The tourism activities become important as a major priority, so that there are mutual benefits regarding cultural heritage preservation and development.
- These activities also call for the management of the relationship of the host and guest in historic areas.
- Cultural heritage preservation and tourism should be planned as small-scale tourism development.
- Tourism planning and heritage preservation of small islands should be merged with risk management.

# The Problems and Special Needs for Preserving Cultural Heritage in Indonesia

Considering the main issues of preservation in Indonesia and the case study presented above, the problems and needs for cultural heritage preservation, among other, are:

# 1. Lack of the concept of cultural heritage

The concept of cultural heritage in Indonesia is well-known as benda cagar budaya (cultural object) rather than pusaka saujana (cultural landscape). Although this concept has been developing since the 1990s, it has problems concerning the ownership of cultural heritage. Whether the cultural heritage is owned by privately or publicly, in what ways must the public or government protect it. In otherwords, taking over somebody's cultural heritage has now become one of the

remarkable issues throughout Indonesia. This calls for the interpretation of cultural heritage rooted within our traditions, and the dissemination of the cultural landscape concept to the community.

## 2. Lack of community awareness

Relating to point number 1, when we faced with cultural heritage preservation, the community always ask some questions like why protection or preservation should be done and for what reason? In my point of view, most people in Indonesia have a low appreciation for heritage preservation. The community realizes that old buildings or structures exist but still doubt that they have values that can generate social and economic benefits. The public campaign should be done by pointing towards the reason for the preservation work and the benefits for the community.

## 3. The need for legislation and a preservation planning system

As mentioned in the introduction to this paper, Indonesia requires new legislation for cultural heritage preservation. The national policy should be pointing towards the cultural landscape concept and giving clear job description/responsibilities for provinces and at the local levels. This can include ideas as simple as who is responsible for certain kinds of preservation. The preservation planning system is also essential for us since we have listed buildings but suffer from a lack of preservation actions.

### 4. The needs for preservation techniques and craftsmanship

Indonesia has a vast diversity of vernacular architecture in wooden structures but lacks the knowledge of methods for its preservation and restoration. This calls for the preservation of traditional techniques not only for the architect but also the carpenter. It is related to point no. 3 that wooden building techniques and craftsmanship can be preserved through the support of the legislation and planning system, and the university curricula.

### 5. The need for risk management in cultural heritage areas

I regret to say that the risk management efforts in cultural heritage areas in Indonesia have been abandoned despite the urgent need for them since Indonesia lies in a disaster sensitive area. Volcanic and seismic activities, like earthquakes and tsunami occur frequently in the archipelago. Furthermore, the risk management and preparedness regarding the safeguarding of cultural heritage should be merged with public awareness initiatives in order to protect cultural heritage.

I will close this report with my objectives for participating in the ACCU (Asia Pacific Cultural Centre for UNESCO) Training Course on the Preservation and Restoration of Cultural Heritage in the Asia/Pacific Region, 2005, as to learn, 1) the legal aspects of preservation and restoration, 2) wooden structure preservation technology, and 3) risk preparedness in cultural heritage management. Since Japan has advanced experience and a long history in protecting and managing

their wooden architecture, I believe this training will present many excellent techniques and methods. I really hope that I can share my knowledge of cultural heritage preservation and restoration with other participants from the Asia/Pacific Region. Moreover, experiencing Nara as a unique region that possesses the oldest wooden structures will be a valuable experience in expanding my career in the field of cultural heritage preservation.

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# Iran

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# THE HISTORY AND PROCESS OF CONSERVATION IN IRAN

Before discussing the main preservation problems in Iranian cultural heritage, it is necessary to briefly mention some background information on the different periods of conservation and restoration of historic properties specific to Iran. A review such as this is important because some of the present problems appear as the result of inaccurate decisions and problematic activities due to a variety of reasons. We can divide the activities concerning the protection and preservation of heritage objects, archaeological sites, historical monuments, and the urban texture in Iran into four particular periods, that are discussed below.

# First Period (1928-1800)

This period coincides with the discovery of archaeological traces and marks the first official government efforts to preserve cultural heritage properties, particularly archaeological objects. During this era, there was a serious lack of control regarding the illegal removal of heritage properties and antiquities despite the existence of clear regulations and procedures. The result was that important objects recovered from archaeological excavations found their way into personal collections and foreign museums, especially in Western countries. In 1272 A.H., a French group who acquired permission from the government of Naser Al Din Shah Qajar began archaeological excavations in Iran.

Permission was granted to a French team when the Qajar era government was in debt for a huge sum of money to the French government. After the conclusion of the official agreement, a French team with the project title, "Delegation en Perse", monopolized all of the archaeological excavations, research, and antiquities in the entire country. Furthermore, the team launched archaeological excavations without any Iranian government control nor the authorization to conduct exploration and excavation from other foreign governments.

# Second Period (1928-1960)

This period can be considered the beginning of practical activities in the field of conservation and preservation in Iran. Its starting point coincided with the Propagation Act of Antiquities in autumn,

1928. This act was approved in 1930, at the same time that the first efforts at listing moveable and immovable cultural heritage and antiquities were undertaken. The motivation for this legislation was to provide active support for all heritage objects.

Currently in Iran, within the scope of archaeology and cultural heritage, under which is subsumed the field of Iranian art and architecture, cohesive research deals with the recognition and introduction of traces (i.e. artefacts or movable cultural heritage) and monuments established by previous cultures. Additionally, the main purpose and philosophy of museums in Iran is to protect cultural heritage that has accumulated as a result of years of research.

This era coincides with the first Pahlavi government and with public renovation in the Iran. The necessary situation for establishing administration unit for archaeology was provided in 1928, and followed the announcement of the Antique Act in 1930. Part of this mandate was to provide suitable space for its activities of 1932.

One of the first Iranian international cooperation projects with a foreign institution was the with the "ISMEO" Instate, an Italian institution working on research in the Near and Far East that conducted research in 1955 in the Sistan Province. Among the most important restoration work that the archaeology administration completed after World War II, was the restoration of "Mozafarieh" school and the end part of Nezam-Almolk Dome in the Jame Mosque in Isfahan. This was undertaken in 1935 after World War II. From 1945 to 1960, it is possible to enumerate dozen more field cases.

The restoration activities in this era concentrated mostly on the reconstruction of parts of structures, and observations on the repair of brick ornaments and tiles. Strengthening the restoration of arch and domical vault structures was conducted by using metal bars or concrete reinforced loop and doughnut. Coinciding with the restoration of the entrance of Jameh Mosque in Yazd, a new street was opened in front of it that featured an extensive passageway or boulevard, lined with trees. Unfortunately this directly to the demolition of the immediate surroundings and the historical context of the Mosque environs that included traditional houses surrounding the mosque on all sides.

Thus, in Iran even the preservation of traces and monuments seems so difficult. In addition, ornaments are very good sources for the antique seller's trade and transaction because merchants of antiques and collections were interested in implanter works, hewn stones, and ancient tiles as they were easily transported and reloaded. During this time, the only solution presented by the archaeological administration for the prevention of these incidents was the separation of ornaments from monuments, and transferring them to the Iran Ancient Museum in Tehran or consigning them to the nearest affiliated administration of the Culture and Art Ministry.

The affairs during this period seem to be a suitable way to prevent the stealing of

ornament parts, but on the other hard, we must mention the bad conclusion of these acts. In the best situation, the pieces and objects mentioned above remain unknown and unavailable in the warehouses of museums. In some cases they became damaged and disintegrated or ruined because of a lack of conservation methods that could have stabilized the artefact. On the other hand, the value of every historical monument to the uniqueness of the building, including its natural environment, historical environment, and ornaments are related to its architecture.

Separating the ornaments and transferring them to another place decreased the value of the monuments. This does not, however, include cases where there is no other way to preserve them.

### **Third Period (1960-1977)**

This was a period when specialists tried to establish a protective organization. The working method of this organization consisted of the separation of different parts for preservation and the establishment of proportional centres and institutions for doing related executive affairs. But the provision of executive and managing staff for these institutions was also the main purpose of these affairs. One of the implications is that foreign people could be replaced by Iranian researchers and technicians in over the long term.

Based on the activities of the general archaeology office in this period, the case of preservation and protection of the central historical context must also be mentioned. Although this subject was not considered a prime aspect of work, and only a few of these ancient urban centres were influenced. On the other hand, the method of study and ways of getting close to the subject during that time were disputable topics. Although similar to the documents that indicated the sensitivity of the attendants of that period, it is important in the case of Iranian central historical cities.

Suggestions only had an inactive aspect and could mostly be used in relation to the study of architectural history and urbanism. Practical suggestions in this case consisted of the right-of-way for ancient urban spaces and distance assignment for preservation. In this period, the introduction of the historical scope and acceptable scales of research projects was not determined. Additionally, the introduction of monuments that lacked appropriate historical context was witnessed.

The most important counsellors of this organization in those years were Italian, and two cases in particular can be mentioned during these thirteen years by "ISMEO" in Iran. First the archaeological sites of Persepolis and Pasargadae, second Isfahan and its suburbs. The case of Persepolis involved the recognition of scientific reparation of various parts by the anastylosis method. Completion of this task occurred by repeated use of the historical pieces that were found in different excavation in 1930.

The prices were chosen by research and through the study of recovered parts. The national preservation of archaeological traces could also profit from this experience and also from the work of experienced masters at other sites. The results of the professional "ISMEO" group's work at Isfahan was first faced with many difficulties; one of them consisted of comparing the related theories to the basis of reparation methods with Isfahan historical monuments that had native materials and building techniques. Therefore, using methods that could benefit by the combination of modern methods for reparation and traditional structural methods, required specific studies and research. Because of choosing this flexible method in fulfillment of the practical theories, the foundation of western reparation methods at Isfahan was an unavoidable affair.

#### **Fourth Period (1977 – 1987)**

This was the era before the Islamic Revolution that involved different affairs and problems related that will be mentioned later during the session dealing with the current period.

# **Tradition in Architecture**

Iranian traditional masons in the 20th century, do not have an academic background, rather they work under the method of master and student (apprenticeship). The master's best section although that is considered art, technical and practical experiences reach back from generation to generation and increases the experiences based on newly discovered artefacts. In addition, it gradually becomes more productive from generation to generation. There is always the danger of oral history on native arts (i.e. traditional architecture) disappearing. The, teachers and students have a more fluid relationship in comparison with the modern teaching system. The people in change of art and traditional architecture whether they are managers, architects or supervisors of different art fields, (i.e. technical, ornament, gardening and irrigation) were masters or authorities on those works. And almost all of these teachers had experience in all of the fields. In addition, they found their own methods and came to agreements. Miners, mineralogists, and architects, and their audiences (the public) are all related with a common language. Everyone respected his own limits and those others. All took part in the creation of an architectural trace and honoured the acquaintances of the details of the work, even if the trace was registered and identified for only one person.

This unsuitable replacement of new engineers was the result of a rejection of the old architecture, and gradually caused more inaction and rupturing of traditional architecture to the extent that today, except for a few people, nothing remained from the hidden group of traditional architecture. Furthermore, there was nobody to sustain and develop this exterminated system of traditional architecture. Thus, traditional lifestyles and all of its authenticity obsolesced. This was also combined with the social behaviour of none-native patterns. This was also destroyed and shown to be relative to the ability of each specialist. We can see its extensive reflection informing the appearance of today's architectural cities, in that it substituted traditional architectural within

its city context, and separated it.

#### **Restoration and Restorers of Historic Buildings**

Conservators that have graduated from university have a chance to co-operate with laboratories or research or art teams related to the field of reparation and have a liability to their national culture. However, in Iran there is a long way to go before the organization, management, and planning of cultural heritage is reaches a high level. We cannot expect to become equipped like other western regions and to compensate for one step of this backwardness.

Another way includes reparation by traditional methods. Conservators eagerly did their best and were humbled in front of their masters to learn what they did not know. With the help of traditional masters that had their experience from the current oral culture in the society, they proceeded to the reparation protection and introduction of cultural traces. They were responsible for the important experience of this affair. It seems that with the existence of many damages and also the wave of renovation in large amounts, that they were not bounded in the protection of systems and cultural values and the importance of the historical construction experiences, thus they damaged them. Despite the conservator's regard to the architecture and native urbanism authenticity, there is no communal language between the manager and the public, and each of them uses their own words from their own positions, hence the other side had contradictory understanding.

Conservators lost the familiar language related to traditional construction; oral traditions and experimental architecture are the creators of historical masterpieces and also not equipped to the related system of progressive culture. In addition, they had no initiative, and were waiting for guidelines for conclusion of an agreement with the private sector without any clear form of the problems, nor did they have the opportunity to teach or supervise.

The subject of service descriptions is still ambiguous. It has uncounted subjects, and at the end of the financial year the accomplished affair along with arbitration and signatures was handed in, without any evaluation of the work done. Conservators and architects have no other way of understanding the nature of monuments and sites except for decoding the identification of past traces by dissolving adjacent layers. Comparisons of their correspondent parts and dating can also provide more exact results.

It is apparent that the public in this region, views archaeology as a non-native science that belongs to foreigners. It is clear, at least, that most people are not familiar with that the methods and goals of archaeology. In this situation, a conservator without any acquaintance with the unwritten philosophy of reparation, and also the unwritten philosophy of architecture, history and art, should not do the type of work required by someone acquainted with native art, anthropology and native archaeology. The reason for this is that the science is still not developed and the noble history of this region is still unwritten.

The trained conservator has learned reparation techniques developed in other countries based on another language (other than those of Iran). In addition, conservators know that they have encountered traditional monuments but still have no knowledge and experience about their complex contents. Furthermore, they have no support despite thousands of years of experience and there is no background of experimental architecture and traditional art supporting them.

# **Other Reparation Problems in Iran**

In addition, the previously mentioned problems, and the most important ones, are related to one of the basic problems concerning the reparation and preservation of historical traces in Iran. This is the decreasing number of traditional masters and no students that can replace them. It is necessary to mention other cases that cause many problems in the process of the prevention and reparation of cultural properties in Iran. The following is a synopsis of these problems:

- The lack of appropriate coordination between different government and non-governmental organizations and administrations with the Iranian Cultural Heritage and Tourism Organization in constructing projects during the conservation activities such as dam construction, the passing of electricity lines, oil and gas pipelines, the foundation and widening of streets in historical cities and villages, to name a few. In spite of many enactments and circulars in high levels of the country, in accordance with the necessity of these co-ordinations, we can, unfortunately, still witness these kinds of development activities threatening cultural properties.
- Unqualified (new) managers with unrelated specializations and backgrounds do not have any former responsibilities in the area of cultural heritage. Despite the activities of expert organizations who try to help them to better understand the situations, problems, solutions and the ways of facing the relevant work, as we observed before, the problems is going on, hence facing these acts we need to have the specific knowledge of the history and appropriate professional experiences.
- The wrong policy about and lack of coordination in different related sections in recent years are repetitive changes that have occurred in management policies of the Iranian Cultural Heritage and Tourism Organization. This causes decentralization and establishes some Technical Committees in the provinces despite the lack of enough experienced staff. This could culminate in some incorrect decisions and consequently, some damage to the historical monuments during the restoration process.
- The lack of Long term planning for prevention and reparation of historical traces and undetermined targets for reparation affairs in some cases culminate in sectional reparation

termination. This also causes incomplete work, and a lack of comprehensive plans for the historical property. This is one of the reasons why some different and numerous problems and damages occur to cultural traces. Thus, in some cases, the time of reparation for cultural properties takes a long period, and the personal inclination of different managers is also affected in this process. In many cases, the results of the works are contradictory to international reparation standards. Also we can observe many uncompleted reparation plans in an unexpected time period, which in some cases, it happens is the result of a lack of allocated budgets in a certain period of time.

- Iran is a wide country with a large number of cultural properties scattered in every part of the country, furthermore, there are a wide range of historical and prehistoric periods with various construction styles and masonries such as: stone constructions, wooden structures, brick constructions and the like. Also, there are different climates and subsequently, different environmental affects. As a result, we need a wide range of various experts with specialized knowledge as well specific equipment to help support all kinds of cultural properties.
- The Iranian Cultural Heritage and Tourism Organization is a research-executive organization and in some cases these two are do not encounter each other. Due to considerations of the special executive quality of the activities in the field of cultural heritage various encounters have to take place based on necessary studies and research. Time is a parameter that has not been the main rule based on the importance in the Organization's activities in comparison with other organizations and administrations in the country; this is due to the nature of these particular kinds of duties. Unfortunately, in some cases that take place with a lack of coordination or delay in informing the Iranian Cultural Heritage and Tourism Organization, and this causes inevitable rescue operations. In preparing documentation on historical properties that are in danger (e.g. drowning historical monuments in order to get a water supply for dams in many regions). It seems difficult or sometimes even impossible to document the monuments due to such reasons, leaving no time for sufficient study and research. Therefore, many mistakes are made and data lost.
- The reparation and reconstruction of some historical monuments in past historic periods proves that Iranians have an interest in cultural heritage and their past. Despite this interest, because of some ignorance of current prevention and reparation methods for historical monuments, sometimes we observe work done on historic monuments by non-specialists that are, in some cases, irreparable. When we consider the size of Iran, and existence of a huge number of historical and cultural monuments, the best way to avoid such problems is by increasing public awareness concerning the protection of their own cultural properties.

If we examine the situation with an overall view, most of the pre-historic and historic settlements in Iran were discovered for two reasons, 1) because of the lack of water sources in most parts of Iran, and 2) the presence of modern villages besides rivers and springs. As a result, most of the historic sites are located among or beside contemporary settlements. New construction projects and urban development could damage the historical identity of the cities and villages, which is why we must pay more attention to the control of these developments and share in monitoring them, especially those projects and activities that can damage our monuments.

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Other factors that have had more effect on the process of preservation and reparation of historical monuments in recent years are decreasing expertise and relationships with other developed countries and their own specialized methods and experiences in the case of the preservation, restoration and protection of cultural heritage. This is due in part because of the pace of the progress in technology and access to more up to date information in several specific cases. It is necessary to properly harness the potential of this international collaboration and expertise. By using these ideas and approaches, we can increase our knowledge in a shorter time and have more accurate and confident methods. This will never happen unless we train the young generation of experts who work in these fields through international training courses, seminars, restoration workshops, and keep them in touch through communication on the internet. On the other hand, young foreign experts can increase their skills by conducting fieldwork in Iran, since it is one of the richest countries in the field of cultural heritage. This desire to open Iran to further research and cooperation in cultural heritage preservation is based on my personal opinion that cultural heritage belongs to the whole world.

# Kazakhstan

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# PROBLEMS AND NEEDS FOR THE CONSERVATION AND RESTORATION OF WOODEN STRUCTURES AND HISTORIC BUILDINGS IN KAZAKHSTAN

The history of conservation and restoration of historic buildings in Kazakhstan is not a long one. In fact, it started in the 1940's with the repair work at the 14 century Mausoleum of Khoja Ahmed Yasawi. This is the most important architectural monument in Kazakhstan, and has recently been inscribed on the UNESCO World Heritage List. The limited conservation work is targeted at strengthening the threatened parts of the building. Conservation was continuously implemented in 1945, 1951-54 and in 1956-58.

The next major restoration work was undertaken during the 1970's and lasted about 10 years. During the same period, the system of agencies and organizations, devoted to historic preservation, started to form, with their final establishment in the early 1980s, along with the creation of our institute.

Starting in 1980, about 20 000 monuments and sites were detected in Kazakhstan by the expeditions of the Institute, and registered on the inventory documentation. In collaboration with other public agencies, the Institute carried out multidisciplinary studies and surveys and Protection Zoning Plans for all the historic cities and towns of Kazakhstan, as well as for rehabilitation projects and the adaptive re-use of some districts of historic cities.

The Scientific Experimental Laboratory of the Institute carried out tests and analyses on materials, cases of deterioration, and conservation technologies. It elaborated a number of intervention methodologies and techniques. More than 400 projects for conservation, restoration and the adaptive re-use of architectural monuments and historic buildings have been elaborated and implemented.

Nevertheless, in spite of 25 years of experience, we still face a number of problems, including those related to conservation techniques and materials. Although the historic building materials in Kazakhstan are mainly represented by earth, fire brick and stone, we have a number of wooden structures as well. These structures are mostly related to the early 19th and 20th centuries.

The most interesting wooden building I have ever seen is the Zharkent Mosque, dating to

the late 19th century. It is situated in South-East Kazakhstan in, the town of Zharkent close to the Chinese border. According to a local legend, it was built by a Chinese carpenter who was the same builders from Bukhara and Samarkand. This structure is unique in Kazakhstan, as it represents a combination of Islamic traditions with Southeast-Asian design and construction techniques. The load-bearing wooden framework of walls is filled with mud-bricks, the wooden minaret looks like a Buddhist pagoda, and the wooden roof resembles the shape of the roof of a Buddhist temples.

The architectural decision of the complex concerns the type of domestic mosques. The building of a mosque settles down in the middle of a courtyard enclosed within a wall. Within the same fencing are located, other buildings and the constructions combine different architectural styles, various building receptions and materials.

Construction includes wooden parts, mud and fired bricks, covering materials and– ghanch (a kind of local gyps plaster). In addition, clay plaster and paintings were used. Decoration of a monument is presented by decorative paintings and carved ghanch.

The basic construction of the complex is the building of a mosque in an original Chinese form. The mosque is based on the idea of piling it up, and paved by special fired brick. The basis represents an embankment from a cobble-stone with the clay, imposed by large earthen blocks. The top of the blocks are covered with fire bricks with square and rectangular forms.

In a body of basis there are special ventilating channels. The building of a mosque is supported by one hundred twenty two columns, they are connected with each other by longitudinal and cross beams. External columns have height of 3.2 meters and diameter in the basis of 0.3 meters, they form a gallery around the entire mosque (fifty two pieces). The following line of columns has a height of 5.6 m and a diameter of 0.4 m and they are basically a skeleton of walls. (forty eight pieces) The walls of a mosque are made from mud bricks. The outer side of walls is riveted with fired bricks and inside with plaster panels. An average of two lines of columns has a height of 9.3 m and diameter in the basis of 0.55 m. These columns carry the weight of a roof (22 pieces.). All columns are covered with a waterproofing layer and are painted red.

The basis of each column represents a circle drum from silicate masses stacked on the strong solid pieces of fundament - sandstone. Columns do not have any capitals; this is peculiar to Chinese architecture. The system of longitudinal and cross beams is located on the top of columns together with special wooden brackets. It gives stability to the columns in the gallery and allocates loading of the roof on the beams and columns.

The roof on the edges has formed the characteristic windings by a system of beams and brackets. The bright decorations and carvings give considerable elegance to the cornice.

The cornice consists of many bars, consoles and boards, and is collected by means of various cuttings without any metal fastenings, as well as many sites in the building. Colouring is

created by bright paints mixed with water.

The interior of the mosque is represented by a spacious hall, divided by two lines of columns into three naves. In the western part of the hall the middle nave is separated from the general hall by a decorative wooden lattice. There is a michrab (bay for worship).

The michrab has a deep bay that is decorated with gyps stalactites. There is a two-stored minaret above the michrab (A vertical tower of a mosque from which the muezzin calls worshippers to prayer). The entrance of a tower is through galleries that are located in the hall of the mosque above the extended naves.

The ladder leads to the second floor. Four columns in the michrab form the basis of the tower. They rise up to the second floor of the tower. The interior of the tower contains flower drawings in high jugs. These drawings are made by chalky paints, from the eaves of the mosque.

Ten doors and 28 windows are in the mosque. The second object of the complex is the portal with a tower-like pagoda.

The portal is executed in the typical architecture of Central Asia. Its height is 12m. In the middle of the portal there is a big lancet arch 2,4m in depth. A front gate conducts through a room towards the territory of the complex. The facade of the portal is divided into rectangular bays that are colourfully painted with vegetative ornaments and Arabic writing (quotations from the Koran and names of the builders).

The corners of entrance portals are three-quartered columns covered with carved ornaments. On both sides of an entrance portal there are two rooms of 50 square meters covered with domes. The southern room was used as a storehouse. Except for these constructions, the complex of "Zharkent mosque" includes a Medresseh (a higher Islamic ecclesiastic school), a prayer house, a pool, and a garden. There are also additional gates.

This complex has undergone several restoration episodes resulting in the replacement of roof tiles with metal sheets, and also in the renovation of painted ornamentations of the wooden beams and ceiling.

In general the building is in good condition. The absence of rotting of wood is very important after the replacement of some elements during the previous restoration.

The soundings of colourful layers of columns revealed two kinds of layers:

- 1. First coating; gunny; second coating: drying oil; a red paint; a brown paint;
- 2. First coating; gunny; second coating; a brown.

In the first case the initial layers are kept, and the new paint is covered over with old paint, in the second - there is only a restoration of a colourful layer. The colouring of columns was similarly made with the previous paintings, and probably, a glutinous structure with the addition of gyps was applied to the basic coating.

Wooden elements also have other kinds of damages, such as trees with shrinkage cracks and numerous traces of insect damage to dry wood.

Insects' holes range from 2 to 7 mm and are oval in shape. From some holes mouldering dust pours out. Especially the 5th column to the right of an entrance and a beam above a ladder.

Measures of struggle with insects should be determined by experts from Institute of protection of plants.

In the previous restoration many cracks were found and closed with wooden inserts or filled by mastic. Now the majority of the filled cracks require restoration.

It is necessary to note the damage to the paint of the wooden elements of eaves. The eaves suffered extensive damage from doves because of their droppings that spoil and damage the decorative surfaces of wooden beams and eaves. As a measure of protection from this damage, grids were employed or the use of a frightening sound was emitted inside the mosque. The wooden constructions are also damaged by bats. The floor was painted in 2002, and in some places the paint has now swollen or faded from bat urine.

I hope the training course in Nara will help my colleagues and I to answer many questions related to the conservation of Zharkent Mosque, as well other historic wooden buildings.

# Malaysia

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# CONSERVATION OF COLONIAL HERITAGE BUILDINGS IN MALAYSIA: ISSUES AND CHALLENGES

# I. Introduction

In Malaysia, the reigning of the Portuguese (1511-1641), Dutch (1641-1795) and British (1795-1957) colonial powers for over 300 years have bared their marks distinctively on the country's town planning, commerce and administrative patterns. These unique colonial architectural styles have also played a major role in the creation of heritage cities throughout Malaysia including the cities of Malacca, Georgetown, Ipoh, Taiping, Kuala Lumpur and Kuching. Recognising the importance of these heritage assets, many local authorities have designated heritage zones within their city limits in an effort to boost heritage tourism and generate foreign exchange. Several colonial heritage buildings, ranging from mansions and churches to railway stations and government offices, have since been conserved and adapted into new uses to improve economic gains as well as promote heritage tourism in the country (Fig. 1). By the same token, the indigenous traditional buildings, mainly that of the Malay vernacular architecture, have also been recognised for their architectural and historical values which are worthy for conservation (Fig. 2).

Forty-eight years have elapsed since Malaysia's independence in 1957 and seventeen years



Fig.1 Examples of the colonial buildings in Malaysia that have been conserved and adapted to new uses to boost heritage tourism



Fig. 2 Examples of the Malay vernacular buildings that are worthy for of conservation.

have passed since Malaysia adopted the World Heritage Convention in 1988. Apparently, the future of colonial heritage buildings in Malaysia has remained uncertain. It is an irony that Malaysia had since managed to list only 52 colonial heritage buildings to be protected under the Antiquities Act of 1976. The rest of the colonial heritage buildings, mainly those of the British architecture, have been poorly maintained, dilapidated and even abandoned by the public and private owners. It is imperative that the crucial issues of building disrepair be addressed promptly and effectively if Malaysia aims to propagate heritage tourism and stand to nominate other heritage sites for the UNESCO World Heritage List. Two of Malaysia's natural treasures, the Kinabalu Park in Sabah and the Gunung Mulu National Park in Sarawak, have already been included oin the World Heritage List (in 2000).

This report discusses several key issues and challenges that confront the future of Malaysia's colonial heritage buildings, particularly in the light of insufficient legislations and enforcement, uncontrolled urban development pressures, changing lifestyles and consumption patterns of city dwellers, tourist expectations, lack of technical skills, technological factor, and lack of public awareness in building and urban conservation. It also focuses on initiatives and measures undertaken by the government and other agencies to conserve the colonial heritage buildings in Malaysia.

# II. Colonial Architecture in Malaysia

From historical accounts, the spread of Islam became most prominent in the Malay Peninsular in the 15th Century during the reign of the Malay Sultanate of Malacca. Owing to its strategic location and good governance, Malacca had flourished as a port city specialising in the trading of spice, an item highly most sought for after by the Europeans. However, the glory of the Malay Sultanate of Malacca was short-lived when the Portuguese invaded the city in 1511. Successions of colonial powers then ruled over the Malay Peninsular: the Portuguese (1511-1641), Dutch (1641-1795) and British (1795-1957).

### 1. Portuguese and Dutch Architecture

As a country that has been colonized several times in its history, the remains of the its colonial architecture could still found in most major cities in Malaysia. The Portuguese and Dutch



Fig.3 The Portuguese architecture in Malacca including the Porta de Santiago Gate (left) built in1511 and St. Paul's Church (right) built in 1590.

architecture are found mostly in Malacca. Some examples of the Portuguese architecture in Malacca include the Porta de Santiago Gate (1511) and St. Paul's Church (1590) (Fig.3). Unfortunately, during the Dutch occupation both buildings were destroyed and were left in ruins. The Dutch Stadthuys building, built between 1641 and 1660 for the Dutch Governor, has undergone many stages of restoration before it was finally converted into a museum. Another



Figure 4: The Dutch Stadthuys building (left) built in1641-1660 and the Christ Church (right) built in 1753 in Malacca.

example of the Dutch architecture found in Malacca is the Christ Church (1753), claimed to be the oldest Protestant church in Southeast Asia (Fig.4).

## 2. British Architecture

Many colonial buildings were also built during the 160 years of British occupation in Malaysia. These buildings were found in Georgetown, the first British colonial settlement in Southeast Asia, as well as in Kuala Lumpur, Ipoh, Taiping, Seremban, Johor Bahru and Kuching. These colonial buildings range from mosques, Anglican churches and official residences to railway stations and other public buildings. Aesthetically, the British colonial buildings built in Malaysia are essentially hybrids. They can be categorised into four major architectural styles as follows:

### i. Moorish influence

The Moorish influence can be seen in many historic buildings the heart of Kuala Lumpur including

government offices, railway stations and mosques. To portray the Islamic faith of the Malays, the British architects responsible during the colonial period had adopted the Mogul architecture and Italianate styles for inspiration. Onion-shaped domes, turrets, impressive colonnade



Fig.5 Moorish influence at the Sultan Abdul Samad Building (left) built in 1897 and the Old Railway Station (right) built in 1911 in Kuala Lumpur.

walkways and decorative Islamic patterns are some of the features that portray the Moorish influence. For examples, the Old General Post Office (1894), Sultan Abdul Samad Building (1897), Old Railway Station (1911), Railway Administration Headquarters (1917); and the Jamek Mosque (1909) in Kuala Lumpur (Fig.5).

## ii. Tudor

The Tudor architectural style mainly features exposed wooden beams and frames in half-timbered walls that are usually painted in black and white. The style is a typical model for some earliest social club buildings, hill station bungalows and guesthouses in the country. For examples, the



Royal Selangor Club (1884) in Kuala Lumpur and the Old Smokehouse in Cameron Highlands (1930's) (Fig.6).

Fig.6 The Tudor architectural style of the Royal Selangor Club (left) built 1884 in Kuala Lumpur and the Old Smokehouse (right) built in 1930's in Cameron Highlands.

### iii. Neo-Classical

The Neo-Classical style has become synonymous to most British colonial buildings and monuments throughout the country. Like most old buildings in the West, the Neo-classical buildings in Malaysia are symmetrical with central porte-cochere, elaborated pediments with



Fig.7 The Neo-Classical style of the Old City Hall Building (left) built in 1879 in Georgetown and the Town Council Offices (right) built in 1910 in Klang.

classically proportioned columns and plaster, using Doric, Ionian or Corinthian capitals to create majestic structures. For examples, the Old City Hall Building in Georgetown (1879), the Town Council Offices in Klang (1910) and the Seremban State Library (1912) (Fig.7).

### iv. Neo-Gothic



Fig.8 The Neo-Gothic of the Holy Rosary Church (left) built in 1903 in Kuala Lumpur and the Wesley Church (right) built in 1896 in Ipoh.

There are a few colonial buildings built in the Neo-Gothic style in the country. Most of the Neo-Gothic buildings can be seen in old churches portraying stained-glass windows, spire towers, pinnacles, rose windows and buttresses. For examples, the Holy Rosary Church (1903) in Kuala Lumpur and the Wesley Church (1896) in Ipoh (Fig.8).

### III. Conservation of Heritage Buildings in Malaysia

Despite the relatively large array of heritage buildings scattered throughout Malaysia, for many years heritage building conservation has been considered as a new practice oin the local architectural scene. Up until recently, the public attitude towards local heritage building conservation has remained rather dismal. Dictated by the market forces, many buildings,

monuments and sites of historical importance have been demolished in the name of profit and progress. Apparently, many developers have eved aimed to develop for modern, high-rise buildings rather than for the revitalization of old premises. As the idea of heritage conservation and preservation is Malaysia, for fairly new in instance most building owners may not readily realised the advantages economy of а two-storey shop house over a 50-storey building. Some critics have even accused heritage building conservation as being an inappropriate of act neocolonialisation.



Central Market, Kuala Lumpur



Fort Cornwallis, Georgetown, Penang



Syed Al Attas Mansion, Tourism Information Centre, Kuala Georgetown, Penang Lumpur

Fig.9 Conservation projects that have triggered public awareness on the significance of protecting heritage buildings in Malaysia.

Despite all the predicaments, the eye-opener for the local heritage building conservation came with the adaptive re-use of the Central Market in Kuala Lumpur during the early 1980s. In accordance with the basic conservation principles of minimum intervention, this wet market built in the 1930s Art-Deco style was successful converted into a colourful handicraft and cultural centre. Central Market is now one of the popular tourist destinations in the capital city. Other highly publicised conservation projects including the restoration of the Fort Cornwallis and the Syed Al Attas Mansion in Georgetown and the Malaysian Tourism Information Centre building (MATIC) in Kuala Lumpur have further heightened public awareness on the significance of protecting heritage buildings (Fig.9).

The Government, through the Department of Museums and Antiquities, Ministry of Works and other related agencies has taken several initiatives to protect and conserve the Malaysian heritage buildings and monuments. Under the Malaysian Antiquities Act of 1976, a historic building or monument aged at least 100 years old can be listed or gazetted by the Government through the Department of Museums and Antiquities to provide protection and encouragement for preservation and conservation. Till Until this date, some 137 buildings and monuments have been gazetted under this Act. However, only 52 of those gazetted (38%) fall under the category of colonial architecture. The remaining hundreds of colonial heritage buildings in Malaysia, either public or privately owned, have yet to be recognised and gazetted for their immense architectural and historical values. The delay in this process may be due to the inappropriate system adopted for discovering and recording the colonial heritage buildings in the country, apart from the cost considerations.

The Conservation of heritage buildings requires in-depth knowledge and expertise on building structures and materials, as well as its defects and causes. This is important in orders to ensure the authenticity of the building structures and fabric while protecting their historical and architectural significance of the building. In Malaysia, several conservation projects have incorporated dilapidation surveys, scientific studies and systematic documentation in an attempt to establish a framework for good practices in building conservation. Such procedures are briefly discussed as follows:

# 1. Dilapidation Surveys

Dilapidation survey is a practice of securing information on building conditions and defects prior to any conservation works. It is a procedure of identifying and recording building defects through photographic and digital documentation. The dilapidation surveys, that, which are is usually carried out by building conservators and other professionals, requires in-depth analyses of the building defects, their probable causes and the proposed methods and techniques of building conservation. Normally, data and information obtained from the dilapidation survey are analysed and documented in a technical report. This important report serves as a basis for preparing related project briefs, building specifications and the Bill of Quantity (BQ). Generally, the dilapidation surveys are instrumental in regard to the following aspects:

- i Understanding the state of defects
- ii Determining the causes of defects
- iii Identifying appropriate methods and techniques of building conservation
- iv Providing reference materials to clients, consultants and project contractors
- v Providing a vital resource for conducting the Historical Architectural Building Survey (HABS)

## 2. Scientific Studies and Laboratory Tests

In Malaysia, some conservation projects require the building contractors to conduct both scientific studies and laboratory tests during conservation works. This is important as the studies and tests provide vital information in identifying and solving building defects and problems. It also serves as inputs in making decisions during the conservation works, particularly in selecting building materials, identifying appropriate methods and techniques of repair; and in structural modifications. Such scientific studies include archaeological excavation, microbiology, roof clay tiles, termite

infestation, salt contamination, local temperature, relative humidity, rising dampness, timber species and paint colour scheme. Whilst, the laboratory tests include the identification of salt content in building structures, the component elements of building materials such as lime plaster, mortar joints and concrete; and the compressive strength of red clay bricks as well as new lime plaster.

# 3. Documentation of Building Conditions in Stages

A methodological system of documenting and recording the building conditions before, during and after restoration through the Historical Architectural Building Survey (HABS) has been practiced in most conservation projects. Practically, all walls, windows and doors of a building are fixed with yellow strings to form small grids of 1m2. Each grid is then coded systematically, photographed and stored in a computer database. Recognised as a requirement by the Department of Museums and Antiquities Malaysia, such system records all information on the building conditions, conservation techniques, grid locations and photographs in a standardised format before they are stored in a database for future references and final documentation.

# **IV. Importance of Colonial Heritage Buildings**

Colonial heritage buildings in Malaysia are valuable assets to the country's development. The conservation of colonial heritage buildings in the country has been considered very important for the following reasons:

# 1. Historical & Architectural Values

The unique colonial architectural styles in Malaysia have played a major role in the creation of heritage cities throughout the country such as the cities of Georgetown, Ipoh, Malacca, Taiping, Kuala Lumpur and Kuching. Colonial heritage buildings usually provide a distinctive character and flavour to a city. They build a lucid image and a unique identity of the heritage city which differentiates it from cities elsewhere.

# 2. Protection against Economic Pressures

Sometimes colonial heritage buildings have been conserved to protect them against economic and political pressures. Heritage buildings, especially those located in the central business districts, have often been under threats of demolition from the public and private developers seeking more lucrative project ventures. It is imperative that the local authorities, conservation bodies and concerned citizens keep watch on possible abuse of old buildings in their jurisdictions. Proposals for infill and new development in the conservation areas should be reviewed thoroughly to safeguard the interests of heritage.

### 3. Sensitivity Towards the Past

Colonial heritage buildings are often adorned with building elements that are remarkable and unique. Nonetheless as these buildings aged, they are prone to building defects and deterioration, which may lead to complete destruction or removal if improperly maintained. These buildings should therefore be handled with great sensitivity and skills in order to preserve the rare qualities of the buildings materials, architecture and craftsmanship. Continuous community involvement in related events such as heritage seminars, forums, exhibitions, heritage trails and workshops are also crucial to garner threshold support for heritage. Aspects of heritage should be taught early in schools to instill greater heritage understanding and appreciation amongst the younger generations.

### 4. Continuity & Stability of Physical Environment

From the urban design viewpoint, colonial heritage buildings have been conserved in groups or rows of buildings because they usually complement and strengthen each other, whilst maintaining the continuity and stability of the physical environment. The scales and proportions of these colonial heritage buildings have often portrayed and exuded a well-defined sense of place and harmony within the area. Even buildings of a less outstanding architectural quality are sometimes conserved for the very reason that they represent a special class or type of building when viewed from a broader perspective.

#### 5. Assets to Tourism Industry

Colonial heritage buildings have also been increasingly conserved for the benefits of the tourism industry. These heritage buildings usually demonstrate interesting aspects of a country's history and its evolving culture. People and tourists, in particular are often attracted to buildings that are of high historical value and are architecturally outstanding. Some colonial heritage buildings in Malaysia have been converted into new uses including hotels, museums, restaurants, entertainment centres, art galleries and cafés to promote local tourism and to generate income. Restoration and adaptive re-use of heritage buildings have been a common practice found in many heritage cities in Europe including York, Bath, Cambridge and Oxford in England; Paris in France; Venice, Pisa and Florence in Italy; and Amsterdam in Holland.

# V. Issues and Challenges of Colonial Heritage Buildings in Malaysia

Several key issues and challenges are outstanding in the conservation of the colonial heritage buildings in Malaysia. The issues and challenges are discussed as follows:

#### 1. Insufficient Legislations & Enforcement

There are presently six acts and enactments relating to heritage building conservation in Malaysia.

They are the Antiquities Act 1976 (Act 168); Town and Country Planning Act 1976 (Act 172); Federal Territory Act 1982 (Act 267); Urban Development Corporation Act 1971 (Act 46); the Malacca Enactment No. 6 1988; and the Johore Enactment No. 7 1988. Critics have highlighted the shortcomings in these acts and enactments to address sufficiently the various aspects of building conservation in an integrated manner. The destruction of the historic Metropole Hotel (1900) in Georgetown in 1993 is a classic example of the inadequacies of these laws to effectively protect heritage buildings. In recent years, controversies over building height allowances and the repeal of the Rent Control Act in the Georgetown conservation zones have further staggered private sector investments in the city.

### 2. Uncontrolled Urban Development Pressures

In a city growth dynamics, an attractive city blessed with unique historical heritage may easily attract in-migration of new residents and visitors, as well as new businesses and investments. However, the influx of people and capital should be moderated and gauged to avoid excess and successive problems. The designation of conservation zones in inner city Georgetown, Malacca and Kota Bharu, for instance, has provided a haven for heritage conservation (Fig.10). The respective local authorities have demonstrated their true conscience over the heritage issues. However, other localities should also be considered for protection from real estate speculations and potential encroachments, including the Fort Cornwallis and the Esplanade in Georgetown, the Lake Garden and Bukit Larut (Maxwell Hill) in Taiping and the Bukit Bendera (Penang Hill) in Penang. Conservation approaches including adaptive re-use, restoration and urban infill should be fostered and encouraged to maintain the authentic structure and fabric of these heritage buildings and sites.

# 3. Changing Lifestyles and **Consumption Patterns of City Dwellers**

Most heritage cities in Malaysia have been blessed with a vibrant social life and lively cultural events. including religious ceremonies, multicultural fests and festivals. The city lifestyles as a whole may well be considered as a part of the cultural heritage that should be treasured for the future generations. However, factors









Kota Bharu

Kuching

Malacca

Fig.10 The designation of conservation zones in inner city Georgetown, Malacca, Kota Bharu and Kuching has provided a haven for heritage conservation.

of urban demographic changes, over-consumerism, changing lifestyles and consumption patterns amongst the urbanites have somewhat affected the way of life in cities. Many young urban professionals had now preferred condominium living with air-conditioning, rather than stay in heritage buildings with air well ventilation. They also went for Starbucks's coffee rather than the



Figure 11: Tourists now prefer to feel, learn and experience the sense of place and energy in arts and cultures, rather than observe them in museums and galleries



Fig.12 Malaysia still lacks technical experts and skilled workers in conducting the conservation work in orders to repair and maintain the historic buildings.

traditional coffee shops. Wet markets and neighbourhood stores are fast losing customers to hypermarkets. All these changes of modern living have affected the economic values and social functions of colonial heritage buildings in the urban areas.

### 4. Changing Expectations of Tourists

Literature has argued that the present tourists have different travelling behaviours. Travelling used to be an escapism for many people, but today, the idea of travelling has changed to the enrichment of knowledge. Tourists now no longer visit for the sake of visiting, but they demand much more. Tourists now prefer to feel, learn and experience the sense of place and energy in arts and cultures, rather than observe them in museums and galleries (Fig.11). However, conserving the authentic qualities of colonial heritage buildings and cultures as demanded by these tourists may be rather costly.

### 5. Lack of Technical Skills

Building conservation is a multi-disciplinary field, which involves inputs from various professionals including architects, engineers, historians, archaeologists, geologists, chemists, environmentalists, and other experts. Overall, Malaysia still lacks technical experts and skilled workers in conducting the conservation works to repair and maintain the historic buildings (Fig.12). In accordance with the conservation principle, the practice of building conservation should maintain as much as possible the original building structure and fabric. Good practice of building conservation may further enhance heritage tourism.

#### 6. Technological Factor

Colonial heritage buildings in Malaysia have often been noted for their unique architectural properties, which allow for natural ventilation. These elements include high ceilings, air wells, fanlights, verandahs, canopy, overhangs and other shading devises, which provide for indoor thermal comfort. However in vogue with the modern technologies, several colonial heritage buildings in Malaysia, especially those converted into business uses, have been installed with air-conditioning units. At times, improper installation of air-conditioning units onto the building façade has affected the aesthetic values of colonial heritage buildings for tourist appreciation.

### 7. Lack of Public Awareness

In Malaysia, public awareness and support for colonial heritage buildings have generally been lukewarm. Colonial heritage buildings have been perceived as a reflection of a dark period in the Malaysian history and as a new type of colonialism. Such views have somewhat hurt the conservation efforts somewhat. Moreover, there has been an overall lack of drive and rigour by the government to educate the public at large on the values of heritage buildings. Most heritage cities by virtue of their glorious past life usually have some historical, cultural and political assets, which that could support a change in leadership and vision. However, leaderships in Malaysian heritage cities have yet to rally full grassroots supports through improved public participation and awareness of heritage matters.

# **VI.** Initiatives and Measures

Several initiatives and measures have been put forth to address the pending issues and challenges of colonial heritage buildings in the country. They are discussed as follows:

#### **1. Sufficient Legislations and Enforcement**

Sufficient and effective laws and legislations pertaining to heritage and urban conservation are considered the most crucial for heritage survival. Policy makers, town planners, urban designers, architects and other professionals directly involved in the development of the heritage cities should have a great sensitivity and understanding of heritage and urban conservation. While sufficient laws and legislations are important, their effective enforcement is equally critical. In the past, heritage buildings in Malaysia have been threatened by demolitions, incompatible extensions and other insecurities. This phenomenon has reflected negatively on the law enforcement by the relevant authorities.

# 2. System of Discovering and Recording of Colonial Heritage Buildings

It is most unfortunate that Malaysia has not been able to document all her colonial heritage
buildings in the country after seventeen years of adherence to the World Heritage Convention. It is a tragedy that some of these heritage buildings might have been demolished before they were even discovered and listed for protection under the Antiquities Act 1976. The Department of Museums and Antiquities as a major actor in this endeavour should play a more proactive role in ensuring that all local authorities are aware of heritage buildings and sites within their administrative limits. Seminars, workshops and field visits should be conducted at regular intervals to train and re-train the local taskforce on heritage building documentations.

## 3. Conservation and Design Guidelines for Heritage Zones

Appropriate conservation and design guidelines usually serve as an important tool for the planning and development control of the heritage areas, particularly the colonial heritage buildings. The Penang Municipal Council and the Kuala Lumpur City Hall, for instance, have gazetted heritage zones in their inner city areas with specific design guidelines and allowance for building height control, façade treatment, signage, parking space and landscaping to control future development as well as enhance heritage tourism. Proposals for re-development of heritage buildings, in particular would have to comply with various planning legislations, building by-laws and safety requirements. Some of these requirements include providing wide corridors, water sprinklers, emergency staircases, fire doors, signage and access for emergency vehicles.

#### 4. Local Involvement in Heritage Conservation

Heritage cities constitute not only the physical structure, but also the living and working communities. Ideally, the preparation of conservation and design guidelines for heritage areas should involve not only the local authorities and conservation bodies, but all concerned citizens in the spirit of enhancing public participation and public consensus over the future of a common heritage. The Penang State Government, for instance, has taken measures to ensure the city populace continue to appreciate and value their heritage. Several NGOs including the Penang Heritage Trust have encouraged active public participation in heritage seminars, visits and workshops. More concerted efforts should be undertaken by all sectors to educate the people about heritage conservation.

#### 5. Provisions of Grants and Incentives

The government through various agencies should provide more grants and financial incentives to the owners of colonial heritage premises. Without a decent financial backup, private building owners would be unable to maintain their buildings regularly. In the long run, they might be forced to abandon their dilapidated buildings or move elsewhere. In Georgetown, the abolishment of the Rent Control Act has left many building owners without the means to maintain and upgrade their buildings. The sight of heritage buildings in a state of disrepair is an eyesore to both tourists and

the local peoples alike.

#### VI. Marketing Strategies & Heritage Tourism Promotion

All heritage and tourism activities should be managed effectively to enhance the development of the heritage cities. These efforts include authentic product development and presentation, information dissemination, provision of facilities for tourists and the local community, financial management, and heritage marketing strategies. Updated information on heritage and tourism products should be provided effectively through various channels, including websites, mass media and advertisements. Effective management of heritage would improve the quality of the tourist experience at heritage sites. Good marketing strategies and effective tourism promotion on heritage products would benefit many including city dwellers, traders and tour guides.

## **VII.** Conclusions

This report has discussed the challenges facing the colonial heritage buildings in Malaysia. Since her independence in 1957 Malaysia has inherited hundreds of heritage buildings from the colonial era apart from the indigenous traditional buildings. Most of these heritage buildings are boasting of significant architectural, historical and cultural values, which arguably should be treasured for the next generations. However, Malaysia's track record on the efforts to conserve these colonial heritage buildings has been far from satisfactory. Till this date, only 52 colonial heritage buildings have yet remained to be discovered and listed for protection against demolition as well as other economic threats.

Several policy recommendations are have been put forward in support of the future of colonial heritage buildings in Malaysia. It is a high priority for the relevant ministries, particularly the new Ministry of Culture, Arts and Heritage, the Ministry of Tourism and the Ministry of Housing and Local Government, as well as other agencies to fully recognise the colonial heritage buildings as valuable assets to the country's development, apart from being marketable tourism products. Placing the colonial heritage buildings under the auspices of these ministries would allow for a more extensive promotion of the Malaysian heritage treasures throughout the world. The Department of Museums and Antiquities Malaysia should be in the forefront in documenting the colonial heritage buildings for future references and maintenance purposes.

In addition, the provisioning of financial incentives, technical advice and tax exemptions to owners of colonial heritage buildings and private developers are also crucial for encouraging the flow of private investments for building maintenance and upgrades. Also high on the agenda is the continued efforts to increase the public awareness on the values of conserving heritage property to posterity. More conservation bodies, which that champion the cause of colonial heritage buildings should be on the front line in order to propagate and promote the conservation of these buildings. Educating the masses about the significance of colonial heritage should be a prime agenda for all citizens concerned with reviving the past for the future.

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## Mongolia

## **Batbaymba LUTKHUU**

Architect Restorator Suld-Uul Co. Ltd.

## **CULTURAL HERITAGE PRESERVATION IN MONGOLIA**

Mongolia is located in Central Asia and plays a leading role in the history of the world's nomadic cultures and civilizations. As Mongolia has thousands years of history based on a nomadic lifestyle, she is rich in her historical and cultural heritage.

Not only her territory, but also under its soil, Mongolia is rich in unique historical and cultural heritage including the skeletons of huge dinosaurs, that existed millions of years ago, rock and cave paintings, graves, derr-stones, stone statues of men, various architectural monuments: monasteries, remnants of ancient cities, settlements, and sites and places connected with historical events and individuals.

According to architectural surveys, findings, documents and historic manuscripts, there were at least some 300 cities and settlements, more than 4000 temples, and about 770 monasteries in Mongolia.

The Mongolian people have a long history of preserving their historical and cultural heritage. Even during the Hun's period the Mongolian government used to preserve and protect mountains, rivers, and wild animals as sacred things. During the period of the Great Mongolian Empire (the time of the reign of Chinghis Khan's) protected zones were officially established under the Law called "Ikh Zasag".

The first written regulation for the preservation of ancient heritage was issued in 1925. In 1937-1938 when the communist regime was very ferocious, hundreds of monasteries and historical and cultural monuments were destroyed. But since 1944, restoration of historical and cultural heritage such as Erdene Zuu and Amarbaysgalant monasteries and other monuments commenced under state supervision. The Law of the Protection of Cultural Monuments was issued in 1970.

Because of Mongolia's transition into a market economy in 1990, public attitudes toward historical and cultural heritage changed, and the government required the regulation of all issues related to the protection of historical and cultural properties. Therefore, in 1994, the Law for the "Protection of Items of Historical and Cultural Values" was amended. The purpose of this law is to regulate, the classification, evaluation, restoration, preservation, ownership, possession and usage of items and sites of historical and cultural value.

In 2001, the Law for the "Protection of Items of Historical and Cultural Values" was further amended and the "Law on Protection of Cultural Heritage" was newly adopted. This new law regulates issues of both tangible and intangible heritage.

The National Program for the Preservation and Restoration of immovable Historical and Cultural Monuments for the period of 1999-2005 was adopted in 1998, and the Fund for the Protection of Historical and Cultural Monuments was established in 1995. The purpose of the latter was to fund important activities aimed at preserving unique historical and cultural sites.

Established in 1973, the "Historical and Cultural Heritage Restoration Organization" had developed projects and restored more than 30 historical and cultural heritage sites or buildings, including Erden Zuu, Amarbaysgalant and Gandan monasteries, the complex of Zaya monasteries, Green Palace Bogd Khaan, Choijin Lama's temple, Tsetsen Khann Palace, and others, from 1976-1995. In 1995, this organization was privatized and now the private companies of "Tuukh Soyol" and "Suld Uul" are running businesses centred on the restoration of historical and cultural heritage.

"Suld Uul" Co. Ltd, my employer, specializes in the restoration of historical and cultural memorials was established in 1996 and the restored the temples, topes and wall of Baruun Zuu, Erdene Zuu, the Mausoleum of Avtai Khaan and Tusheet Khaan Gombodorj.

"Suld Uul" has been carrying out its restoration activities according to the National Program on Preservation and Restoration of the Immovable Historical and Cultural Monuments approved by the Government of Mongolia. Among the monuments restored by our company and accepted by the state are the Main temple of the Shankh monastery (1999), Laviran temple, Great Gate, the Wall of Dambadarjaa monastery (2000), the complex of buildings and construction of the Tuvkhun monastery (2001), the three temples of the Faithful Nomun Khan Monastery (2002), the Palace of Khanddorj, the Golden Stupas of Erdene Zuu (2003), the Library Temple of Bogd Khan's Palace Museum, and the Central Zuu temple of the Erdene Zuu monastery (2004; see photographs 1-10)

Among the above mentioned undertakings, the most interesting, and difficult, was the restoration of the Central Zuu Temple of the Erdene Zuu monastery. Erdene Zuu, the first big monastery representing the Mongolian Buddhist religion was established in 1586.

The Erdene Zuu had 62 temples headed by the Central, Right and Left Zuu temples, over 500 construction and wall fence with four great gates, 108 stupas and consisted of a total inside area of 400×400m<sup>2</sup>. Over 10 000 monks and the successive reincarnated Tsorjs all lived within the wall. The monastery was destroyed during the persecutions of 1937-1938, and remains of the wall with 18 temples and stupas were placed under the protection of the state and rearranged as museums for the public. Restoration of the remaining temple walls and stupas of the Erdene Zuu

monastery were made in 1945-1946, 1961-1965, 1968-1998 (see photographs 11 and 12).

The construction of the Central Zuu temple, one of the first temples at Erdene Zuu, commenced in 1956. Maintenance overhauls of the Central Zuu temple were completed in 1940 and 1960.

The Central Zuu temple at Erdene Zuu monastery was designated unfit for further use in 2003 as it had suffered serious damage and breaks such that it had an 10 cm incline to the right due to subsidence. In addition, the wooden parts were decayed, and the main beams were deflected. Therefore, it was dismantled and rebuilt in 2004. Along with the restoration of the Central Zuu the following activities were performed: razing and rebuilding of the wall, replacement of decayed beams and columns with new ones, and renewal of the paintings (see photographs 13-16)

The roofing tiles used in the restoration of the temples done by Suld Uul are supplied by the roofing tile plant of Khukh Khot city in China. We use natural earth colour paints and dry wooden materials for at least 2-3 years in their natural conditions, thus eliminating moisture and resins.

## Myanmar

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# PROBLEMS AND NEEDS FOR CULTURAL HERITAGE PROTECTION AND RESTORATION ACTIVITIES IN MYANMAR

#### I. Introduction

Myanmar is a Theravada Buddhism country in South-east Asia. The historical period in Myanmar began from Pyu period (before the 1st century A.D to the 10th century A.D). The Pyu period was followed by the Bagan period from AD 108 to A.D. 1369. After the Bagan period, the Pinya - Inwa period began (from the 14th to the 17th century A.D.), followed by the Taung-gu-Nyaung-yan period (from the 16th century A.D to 18th century A.D) and the Kon - Baung period (from the 1st century A.D).

A Large number of religious monuments such as pagodas, temples, stupas and monasteries, tazaungs, pyatthats, palaces, zayats, and dwelling houses have been built throughout the country since the Pyu period. These monuments are made of stone, brick and wood depending on the availability of the material. Among these buildings, ancient monasteries are one of the most interesting religious monuments. They are mostly made of wood, which is in abundance especially in upper Myanmar, in hot regions, like Mandalay, Bagan, Innwa, Sa-Le, Sa-Lin. and Pakhan-gyi.

As all of you know, Myanmar is in the tropical zone, and the climate is hot and humidity is high all year, especially in the rainy season. This means that most of the monuments have deteriorated somewhat.

In my paper, I would like to deal mainly with the preservation of wooden monasteries and the problems faced in our department.

## **II. Major Laws Concerning the Preservation of Cultural Heritage**

In Myanmar cultural heritage, ancient monuments, and antiquities have been protected since 1957 by passing "The Burma Antiquities Act" on the 1st of April, 1957. Later in 1962, the Government of the union of Burma amended this Act. A new law entitled "The Protection and Preservation of Cultural Region Law" was promulgated on September 1998. It consists of nine chapters namely (1) Title and Definition (2) Objectives (3) Determining Cultural Heritage Region (4) Function and Duties of Ministry of Culture (5) Protecting and Preserving the Cultural Heritage Region (6) Applying for Prior Permission Scrutinizing and Issuing (7) Prohibition (8) Offence and Penalties and (9) Miscellaneous.

## **III. Organization Responsible for Preservation**

In Myanmar; the government organization responsible for the preservation, restoration and reconstruction of cultural heritage monuments is the Department of Archaeology. There are six archaeology branch offices in six historical cities. These offices are the following:

- 1. Mandalay archaeology Divisional Office
- 2. Bagan Archaeology Branch Office
- 3. Innwa Archaeology Branch Office
- 4. Pyaay Archaeology Branch Office
- 5. Bago Archaeology Branch Office
- 6. Myauk-U Archaeology Branch Office

## IV. Wooden Architecture in Myanmar

- Wood has been the prevalent material for the construction of all residential buildings, from the makeshift huts of the lowliest commoner to the sumptuous gilded palaces of the kings of Myanmar.
- The majority of Buddhist monasteries were also built of teak wood. Unlike their masonry counterparts, the wooden edifices of Myanmar owe more to an indigenous domestic architectural tradition. Traditional buildings in Myanmar were only one storey. Due to the sacred nature of the human head, Myanmar people did not like the idea of others living above them.

To erect a house in Myanmar was a relatively simple affair. Building materials, such as palm, bamboo, and wood were readily available. Professional architects and carpenters were not required, for house-building was a skill passed down from generation to generation. With the help of relatives and neighbours, a simple, four-roomed dwelling made of bamboo and matting and consisting of a shrine-parlour, bedroom, kitchen, and store room could be built within a day or so. The average life of such a house was not more than ten years since hazards such as insects, fire, flood, and war, did not encourage the construction of structures of a more permanent nature.

The well-to-do, however, preferred something more substantial and permanent. They would contract a master carpenter who would have his journeyman build a larger, but basically similar style of house, using teak posts and plank partitions instead of bamboo house-buildings. However, this was subject to sumptuary laws. Carving, gilding, and elaborate roofing systems were limited to monasteries and the homes of nobles and high officials.

For the building of a monastery (hpongyi-kyaung), a contingent of carpenters and woodcarvers would be contacted by the donor, who would specify the length and breadth of the desired edifice. The master carpenter would then be able to calculate the dimensions of the various component parts comprising the image room (pyathat-hsaung) in the east, followed by the room for the chief monk or Sayadaw (a sanu hsaung), the reception hall/ school-room or dormitory for monks (hsaung- ma- gyi) at the back, and the surround veranda (zinggyan). He would base his calculations on the traditional Myanmar system of measurement that used the approximate dimensions of various parts of the body.

Once the carpenters had assembled the basic post and lintel skeleton, the carvers would begin the arduous work of carving hundreds of decorative details for the doorways, windows, balustrades, and multiple roots from planks and blocks of well-seasoned wood. Decorations were carved section by section and assembled later. They were attached to the building by tenons and nails. A large monastery might take from three to ten years to complete. Artisans were usually paid in silver and received food and lodging for the duration of the project.

## V. Purpose of the built wooden structures

The period of the Konbaung dynasty (1752-1885) left examples of different traditional wooden buildings. Zayats, tazaungs, pyathats, monasteries (pongyi kyaung), royal palaces (nandaw)- all these buildings are represented in various versions, differing from each other both in volumetric composition and in type of decoration.



Fig.1 The second most common building in Myanmar is a Zayat. This one is situated on a long road

#### Zayat

The Zayat is the most common building in Myanmar after the dwelling house. Generally the zayat is a very simple structure, looking like a roof on posts. Zayats are well known under different names in many oriental tropical and sub-tropical countries. Each country developed its own type made of different materials, with different proportions and decorations. Myanmar zayat are nearly always built of wood. The entire structure of the simplest zayat is defined

by a roof supported with log posts and a wooden floor lifted slightly above the ground.

One can find such structures in every village, monastery, at all the sacred compounds and, the most simple along the roadsides. The main purpose of the zayat is to serves as a place for resting and lodging. In the most worshipped sacred places zayats are almost the predominant structures, being rest houses for pilgrims. At the same time zayats are also used for some religious ceremonies, for preaching or simply as meeting places in villages.

Sometimes zayats are built for a special purpose, particularly for ecclesiastical examinations. Buddhist Singh organise such examinations regularly to test the level of learning reached by the monks. Zayats built especially for the Buddhist examinations are called tudhamma zayats. They have two-staged roofs and wall panels richly decorated with woodcarvings.

The rest form a thoroughfare leading to the foot of the hill. A magnificent ensemble of 33 tudhamma zayats were built at the foot of the Mandalay hill in 1862 by an order of the King Mindon before the Fifth Great Synod of Buddhism to house the 10,000 invited monks.

Nearly half of the zayats are stretched in a straight line of about 450 m along the North moat of the Mandalay Royal City.

Nowadays Tudhamma zayat have lost many of their original details. Beautiful woodcarving of roofs has virtually disappeared. Lifting walls, clearly visible on the century-old photos, do not exist anymore. In spite of all the losses, these building in their rhythmic like rows still express monumental unity.

## Tazaung

Tazaung is another type of wooden structure widespread in Myanmar. In the broad sense Tazaung is a temple. Placed at the foot of a pagoda they shelter statues of the Lord Buddha under their roofs, in front of which people pray and meditate.

## Pyathat

The most widely used roofing of the Myanmar tazaung is a pyathat, a very specific Myanmar architectural form with an original pyramidal shape, pyathat consist of an odd number of square

roofs, decreasing upwards. Roofs with small decorative gables in the centre of each pitch are most common. Roofs are nearly always richly decorated, usually with woodcarvings. The crowning part of a pyathat resembles an onion shaped body elongated upwards and square in plan. It is a conventional image of a hnepyobu - banana bud which is requisite to complete each Myanmar pagoda and pyathat. An iron hti (umbrella) crowns the hnepyobu. Significant pyathats often had a gilt covering.

Myanmar pyathat look intricate, but in fact have a simple and logical structure. A wooden skeleton is formed by a number of three-dimensional frames narrowing upward. Over the bottom frame lie two strong beams, crossing in the centre of the pyathat. The support pole is considered the spire of the pyathat skeleton. The pole ends with a hti (umbrella) and other crowing elements. A system of internal diagonals ensures the strength and stability of the structure. The frames are faced with boards. Decorations of elaborate carved elements hang on the pyathat's frames. Even without this suspended adornment the shape of a pyathat looks clear-cut and expressive.

The roofing levels of a pyathat were not allowed to exceed



Fig. 2 A Tazaung, a common wooden temple in Myanmar



Fig. 3 Pyathat with typical layered roofs

nine in number. Usually there were three, five or seven roofs (see photo above), the number depending on the significance of the tazaung. Pyathat with three roofs bore the name yahma with five-thuba; and seven - thuyahma. The silhouette of a pyatthat is common is common for Myanmar scenery just as the silhouette of a pagoda is in China. Pyattha over the tazaungs crowning gates and towers of the Mandalay Royal City are among the most significant examples. Their refined and fragile shapes tower over mighty brick walls and form an impressive composition based on their sharp visual contrast. Some of the Mandalay tazaungs are considered old, although they belong to the middle of the 19th century.

## Palaces

In Myanmar, palaces were built throughout the historical periods. The historical period in Myanmar began from the Pyu period (before the 1st century AD to the 10th century A.D). The Pyu period was followed by the Bagan period (from A.D 108 to A.D 1369), Pinya-Inwa period (from 14th to 17th century A.D), Toung-gu-Nyaung-yan period (from 16th century A.D to 18th century A.D); and Kon-baung period (from 18th century A.D to 19th century A.D) followed respectively.

During the Pyu period many Pyu ancient cities were found in Pyay (Sriksetra) in the south, Beikthan in the centre of the country, and Hanlin in the north. Each Pyu ancient city has fortified city walls. Beikthano Pyu city wall is square in shape whereas the city wall of Sriksetra is oval and



Fig. 4.Typical example of a palace in Myanmar

the city wall of Hanlin is rectangular in shape. At every Pyu ancient city, the palace site was found to be located in the centre of the city. The palace site was usually fortified by a massive brick wall and a wide moat was again surrounded outside. Archaeological excavations could reveal the location and the remaining brick platforms of the palace. All of the palace super structures were totally damaged due to fire, weather, and other effects, thus they have been under reconstruction since 1989 by the government.

## **Monasteries**

Monasteries occupy a very important place among traditional wooden buildings in Myanmar. They are called kyaung or pongyi kyaung. Kyaung also means school, and pongyi means monk. Monasteries and schools bear the same name because during the feudal period only monasteries functioned as schools.

A Myanmar Buddhist monastery may consist of one or several buildings that look like ordinary dwelling houses. The monastery, surrounded with a fence (serves more of a symbolic function than for real protection), can be seen anywhere, such as among dwellings, on the territory of sacred compound, in a picturesque grove, on the riverside, or near a pond. The number and composition of monastery buildings depend on their significance, size and wealth.

Among many monasteries one can single out examples built according to the regular plan, which are sometimes genuine pieces of folk wooden architecture. How, and when the classical composition of a Myanmar wooden monastery building developed, is not certain. However, by the end of the 18th century these were well established.



Fig.5. Kyaung or monastery

A classical Myanmar wooden monastery is generally divided into two areas. An official area for visitors occupies the eastern side of the building with the residential area on the western, private side. This scheme resembles that of the Bagan monasteries, where the official public hall with a Buddha statue built of wood adjoins a brick dwelling building. This similarity in the overall general planning concept is the only common feature to the Bagan and wooden monastery buildings of the 18-19th centuries. The latter are known only in the form of fully developed examples, that have no analogues in India, China or in any other neighbouring country.

A Myanmar wooden monastery is, as a rule, symmetrical along the East-West axis. Its floor is elevated for 2.5-3m over the ground. The building is surrounded by an open gallery accessed by several massive brick plastered stairs. Every monastery room is covered with a separate roof. Shweinbin Kyaung in Mandalay, erected at the end of the 19th century, is a definitive example of traditional monastery composition. The main entrance is the Eastern one. The King and the abbot were the only persons who had the right to use the Eastern stairway. The first entrance hall formerly enclosed one or several images Buddha and is crowned with a pyathat, hence its name pyatthat saung. The next small room sanu saung (intermediate room), is sometimes considered the abbots residence, and was also used by him for talks with visitors, and for receiving presents and donations to the monastery.

The sanu saung leads into the maraphin saung (saung magyi), a large hall-like room divided with a partition into western and eastern parts. The name of the hall originates from this partition because maraphin in Myanmar means 'partition, or dividing a hall into two parts'. It is always the largest room in a kyaung, covered by a separated three-tiered roof, clearly distinct in the composition of the building in the eastern section of the maraphin, near the centre of the partition, stands a throne with an image of Buddha. The floor in the middle of the maraphin is always elevated for two to three steps, with a low fence usually surrounding this elevated area. This is the scene for various activities. A monk sitting on the elevated floor delivers sermons, teaches novices and monastery school pupils, who take their place on the lower level. At the western part of the maraphin is a private room, closed from strangers. Monks used to sleep on the bamboo-mats along the walls in the different pats of the maraphin. Boga saung or anau saung (Western room) on the main monastery axis is separate from the maraphin house novices and pupils, and it may also be

used as a store-room.

## VI. Preserved Monasteries of Upper Myanmar

In upper Myanmar, there are over 50 ancient wooden monasteries. Among them the following have been preserved by the Myanmar Department of Archaeology, in line with budgetary considerations. The following is a selected list of some preserved monasteries:

- 1. Shwe-Nan-Daw wooden monastery (kyaung), Mandalay
- 2. Shwe-In-Bin wooden monastery, Mandalay
- 3. Thin-Gazar wooden monastery, Mandalay
- 4. Thaka-Wun wooden monastery, Mandalay
- 5. Bagaya wooden monastery, Innwa
- 6. Lei-Zin wooden monastery, Salin
- 7. Maha-Mindin wooden monastery, Mandalay

## 1. Shwe-Nan-Daw wooden monastery (kyaung), Mandalay

The Shwe-Nan-Daw wooden monastery (or kyaung) in Mandalay was originally the northern chamber of the Glass Palace. This building is of great historical importance, for it is the only apartment of the former nineteenth century Kon-baung palace complex left to posterity. It was refurbished from 1878-83 as an act of filial piety by the last king of Myanmar in order to gain merit for his father, King Mindon. No expense was spared in its construction.

The monastery consists of a 35m by 21m main hall (saung ma gyi) surrounded on all sides by a 2.5m wide veranda. A total of 150 teak pillars (15 rows from east to west and 10 from north to south) support the monastery which is constructed on a platform built nearly 2m above the ground. The pillars, set in lotus petal shaped rock, are made of sagyin- marble, and have been anchored into concrete foundations added sometime during the 1960s by the Department of Archaeology in an effort to preserve the building. Outward-facing effigies of rearing dragons that appear in triplicate at the corners guard the foundation pillars around the perimeter. Curtains of batwing (lin-no-daung) ornament in subdued relief span the interior spaces between the pillars below the veranda and serve as a foil to the writhing vertically oriented reptilian forms. A low 70m high surrounding fence of



Fig. 6 Shwe-Nan-Daw wooden monastery (or kyaung) in Mandalay

club-shaped, stucco-coated sein- daung ornaments keeps stray animals away from the building.

The monastery was refurbished in 1996. It was leaning badly towards the south side and the veranda flooring was disintegrating in some areas. Under the auspices of the Department of Archaeology, the flooring was renewed, the leaning problem corrected, and missing carvings have been replaced with new ones.

#### 2. Shwe-In-Bin Wooden Monastery, Mandalay

The Shwe- In- Bin monastery was built in 1895 by a wealthy Chinese merchant U set Shwin and his wife Daw Bwa. Although constructed a decade after British annexation, the monastery is remarkable for its classic proportions and its elaborate well-preserved relief-carvings of scenes from Myanmar and Buddhist folklore. This monastery is built on a nearly 2m high platform and supported by a total of 167 sturdy oiled teak pillars. It is dominated in the east by a seven-tiered, 9 by 9m cruciform-shaped image room (pyathat-hsaung) with projecting gables in three directions. Light enters this room through small porthole windows which are also the focus for the diagonally arranged planking comprising the walls of the pyathat spire. This apartment adjoins an approximately 14m by 5m, tiered ein-daw roofed former chief monk's room (sanu hsaung) which up until 1996 had served as a library for the monastery's manuscripts that are housed in gilded boxes (sadaik) and cupboards.

The largest apartment, the reception hall (hsaung -ma-gyi) over 32 m long, which is marked externally by a series of three classic (zei-ta-wun) roofs is divided into two parts by a partition wall. The western section of the reception hall which serves as a dormitory for monks is connected to the storeroom (baw-ga-hsaung) by an interesting architectural feature in the form of a covered arched hallway or kon- hsaung surmounted by a small tiered roof. This area is used for gatherings of monks and may also serve as a place to stay when the usual dormitory is full. The 11m by 5m storeroom is marked externally by three triple zei- ta- wun roofs which are lower than those of the sanu- hsaung to the east but higher than those of the covered kon -saung hallway to the west. A total of eight masonry staircases, three on both the north and south sides and a further one each at the east and west ends.

## 3. Thin-Gazar wooden monastery, Mandalay

Built sometime during the reign of King Min-don (1853-1878), this monastery is supported on an approximately 2 m high, 40 m long platform. The shrine room (pyathat-hsaung) intermediate area (sanu-hsaung), main hall (saung-ma-gyi), and storeroom (bawga-saung) apartments, are surrounded by a corridor following the typical Kon-baung axial layout from east to west. The main hall has been partitioned into a reception room and sleeping quarters. Extra apartments on the left and right sides (ya-hsaung and we-hsaung) have been added to the wings on the north and south sides. Access is by way of a pair of mango bud' masonry staircases on the north side and single staircases on the east and south sides. There is a masonry ordination hall on the south side.

The Department of Archaeology undertook the preservation of this monastery in 2000.

## 4. Thaka-Wun wooden monastery, Mandalay

This monastery was built in A.D-1879 by U Kaung, Kin-wun Min-gyi, a senior minister during the

reigns of Min-don and Thi-baw.

This four-storied monastery measuring over 26 m east to west and 19 m north to south is supported by 108 nearly 3 m high, square fluted columns set in blocks of concrete on a brick platform. To provide for extra storage, the central portion of the ground floor under the monastery has been enclosed by trellis-work.





Β.

Fig. 7 Plan view of Thin-Gazar wooden monastery in Mandalay (A) with a photo (B).



First floor of Thaka-Wun Monastry



Fig. 8. Front view of Thaka-Wun

Access to the first floor is by way of masonry staircases on the north, east, and west sides. A large, central, stucco-decorated European-style staircase on the north side opens onto a 2.5m corridor enclosed by a European-style balustrade which extends the length of the building. Above on the east and west facades are pediments each featuring a European carved eagle with outspread wings, while a row of circular carpentry motifs, is discernable above the central entryway.

Access from the corridor to the former reception area (hsaing-ma-gyi) is via a series of imposing arch-shaped doors separated by fluted Ionic columns. The doors are distinguished by their finely carved flora open - work surmounted by semi- circular fan - lights which offer little brightness to the interior. Two sets of doors at the back of the reception area open into corridors that offer access to a

possible former shrine (hpaya - hsaung) and abbot's (hsaya - daw's) rooms on the east side and dormitories on the west side. The corridors also open into the side entrances accessed by a small flight of stairs. These enamel-painted rooms with their fluted columns, shutter windows, Chinese-inspired fret moulding, and European door panelling surmounted by open-work carving, are overwhelmingly Western in spirit.

The upper storey where the main shrine was originally located may be reached via a spiral staircase located in the north-west corner of the first storey. The focal point of this room is a 3.5m wide Italian-inspired rotunda that originally housed the main image and was later used as a library.

When the Monastery was first built there was a prayer room in the loft.

## 5. Bagaya Wooden Monastery, Innwa

The Bagaya Kyaung measuring approximately 31m from north to south and 56m from east to west has been built from a total of 276 teak posts, the largest of which is 18m high and nearly 3m in circumference. Access to the two meter-high platform is via five 'mango'voloute masonry staircases, three of which are located on the north side while the remaining two have been situated on the eastern and southern sides. The cruciform-shaped shrine room at the eastern end is in the form of an open-sided pavilion and is marked externally by a gabled pyathat spire. The section that follows is a plain, unpretentious apartment covered by a single style of roof, that is dwarfed by the large towering apartment of the triple-tiered roofed reception hall (hsaung-ma-gyi). There is no separate apartment for a storeroom.



Fig.9.Plan of Bagaya Monastry



Fig.9. Front view of Bagaya Monastry

The image room (pyathat-hsaunng) leaning badly towards different directions and hand rail and floorings were disintegrating in some parts. The leaning problem has been corrected by the Department of Archaeology in 2000.

## 6. Lei-Zin Wooden Monastery, Salin

Situated in Salin, this approximately 30m long by 15m wide monastery rests on a 3m high platform supported by 245 posts. It was donated to the order in 1889 by a Daw May Bu, whose family had built other monasteries within the compound. The building, surrounded on all side by a veranda, is of classic proportions consisting of a seven-tiered cruciform shrine room (pyathat-hsaung), a narrow intermediate apartment (sanu-hsaung) and a main room (hsaung-ma-gyi) subdivided into two apartments.

There is no storeroom. Access is by way of six brick and stucco staircases on the north and south sides. An earthquake in 1975 damaged the structure. Because of crumbling masonry and encroaching vegetation, only two staircases are currently usable. The special charm of this monastery lies in its fine proportions and its well-appointed



Plan of Lei-Zin Monastery



Fig.10 Front view of Lei-Zin Monastery



Plan of Maha-Mindin Monastery



Fig. 11 The condition of Maha-Mindin Monastery before conservation

under-roof ventilation in the form of boldly carved screens of open-work under the eaves. The panelling on the exterior of the shrine room is also worthy of note, as are fragments of crisply carved floral balustrades which, unfortunately, are in the process of being devoured by invasive creepers. There are still a few examples of competently carved smaller dragons in relief tenoned to the top of some of the outer foundation posts below the floor of the building. The Department of Archaeology preserved this monastery in 2003.

## **VII.** Conservation Measures

As I am an architectural engineer as well as assistant director in the Department of Archaeology, Upper Myanmar. I have the responsibility for the conservation of the ancient monuments in upper Myanmar. I would now like to mention a brief account of the conservation measures that I recently carried out at Maha Mindin wooden monastery in Mandalay in 2004.

## Maha-Mindin wooden monastery, Mandalay Background History

This monastery, built at the behest of Mindin, Minister of Elephants during the reign of King Min-don, was originally constructed at Innwa. With the changing of the capital, it was moved to Amarapura and Mandalay, and re-sited not far from the present day Mogaung monastery complex, in a previously existing kyaung-taik along with a number of other monasteries. With the passage of time, most of the other buildings, with the exception of a pagoda and an ordination hall (thein) have disintegrated. To preserve what was left of the Mindin monastery, that was initially one of three wooden buildings, it was rebuilt on a smaller scale.

The original monastery, which was about 6m larger, was a very grand affair. It was supported by some 350 pillars, and was accessed by six staircases. Today it consists of a single, triple tiered zei-ta-wun roofed structure over an approximately30m long apartment. Set on an approximately 2m high platform, the edifice is supported by some 260 pillars held in place by traditional tenon and mortise joints.

Access is by way of four crumbling stairways placed at either end on the north and south sides of the platform. Originally of masonry, some have been replaced by flights of wooden stairs. Picket fencing has replaced the original balustrades. The large veranda overhang is supported at regular intervals on the north and south sides by slender graceful pillars some of which still show trace of red lacquer, and the remnants of fine open-work carving around the architraves. The

apartment may be entered either through the upward opening kela windows or via splendid classic Kon-baung style doors.

The interior is divided into two virtually identical sections by a partition wall. Both rooms are paneled and are dominated by large imposing central thrones demarcated in front by a boldly carved railing replete with lively figures framing well-turned bulbous balusters. There are also small relief carvings of floral work and double-bodied lions (manok-thi-ha) at the base of the side pillars. Fine open-work carving may be seen in the architraves linking the pillars surrounding the shrines that may be approached via central staircases. Parallel rows of vegetal carving in low relief adorn the molding (maung-ma- lei) around the base of the shrine, while concentric rings of carved lotus add interest to the ceiling.

## The conditions of the monastery before conservation

I will now discuss the Maha Mindin monastery that was recently preserved in 2004. It would be still be in danger, and we would lose this precious cultural heritage building if we did not have a chance to preserve it.

According to our traditional building methods, all of the monasteries were built by digging holes for wood pillars. Thus, the parts of the wood pillars in the ground were ruined several years later. Following this, the upper part of the monastery leaned in different directions and eventually collapsed into a heap of wood.

In this part, we had a chance to preserve the reception hall (hsaung-ma-gyi), but unfortunately, we missed a chance to redo the image room (pyathat-hsaung), the room for the chief monks (sa-nu-hsaung), and the storeroom (baw-ga-hsaung). Therefore, these rooms totally disappeared over the last decade.





Fig. 12 The condition of the Maha-Mindin Monastery before conservation

As a result, our Department tried our best to save the remaining parts of hsaung-ma-gyi.

After thoroughly examining the causes of deterioration, the following damage has been noted:

- (a) Rainwater leaks through drains, windows and roofs so that some parts are badly deteriorated.
- (b) During the rainy season there is water accumulation around the monastery that stays the whole year round, and therefore some supporting pillars under the monastery sink and are fragile.
- (c) Due to water accumulation another problems is that the whole building is leaning approximately 20 degrees towards the east side and in different directions so that it is dangerous for the monks who live there.

(d) The sculptures and carvings outside are decayed and eroded due to prolonged exposure to weather.

#### Process of onservation work carried out

Before starting the conservation work, a photographic record was taken from each and every corner. The process of conservation work was carried out as follow:

- (a) First, the water accumulating under and around the monastery was pumped out by using a water pump.
- (b) Each of the pillars was dug out at the foundation in a square shape.
- (c) Some portions of the structure such as a projecting corrugated iron sheet roof at the side of the monastery, roofs of the main structures, and side windows etc. were dismantled temporarily in order to reduce the heavy weight of the whole structure as far as possible.
- (d) Then the whole was pulled back and straightened upright by workers and then supported with long wooden posts from the side that was leaning.
- (e) When the whole structure was straighter up vertically all the basement of the Pillars were filled up with reinforced cement concrete in an octagonal shape in order to reinforce the



Fig. 13 The conservation work for foundation of Maha-Mindin Monastery

whole structure.

- (f) The ground level under and surrounding area of the monastery was positioned slightly higher by elevating the base with soil and constructing a slope so that water is not allowed to stagnate around the base again.
- (g) Some decayed wooden pillars, floor planks and iron sheet roofs were removed and replaced with new ones.
- (h) Portions temporarily dismantled were replaced.
- (i) All the missing portions of the brick staircase were repaired to get the original shape and design.
- (j) All the pillars and exposed parts of the building were applied with thick crude oil in order to protect them from the effects of weather.
- (k) All the zinc sheets were applied with red oxide external paint in order to protect them from rainwater.

# Problems faced during the preservation work

Problems facing during the preservation work are listed as follows:

- (a) Due to lack of sufficient funding the work was not completed in time as expected.
- (b) Up to date facilities, such as construction equipment, like cranes and derricks have not been used so that more money has been unnecessarily spent for labour charges during the operation.
- (c) Additionally, there have not been enough skilled workers, and more are required.
- (d) As teak wood is very expensive and not readily available, and other kinds of wood only have to be used and replaced, wood is not durable in the long run.
- (e) Although the conservation work conservation for monasteries has been completed, the annual maintenance fund is still required.



Fig. 14 The condition of Maha-Mindin Monastery after conservation

(f) In terms of further conservation work, advanced methods of conservation are required There are a few well-trained technical assistants in my department and it is difficult to cope with a large quantity of ancient monuments.

## VIII. Benefits from the Training Course

After attending the 2005 ACCU training course, I believe that I will be able to undertake further preservation and restoration of historic wooden buildings in my country. I will apply the useful techniques and methods of preservation of wooden monuments that I studied in Japan to my restoration and presentation work in Myanmar. I will also share my experiences with younger conservators.

Thank you.

## New Zealand / Aotearoa

**Tere-kaunuku Dean FLAVELL** *Curator* Tauranga Museum

## PRESERVING CULTURAL IDENTITY

#### A tangible depiction of the intangible aspects of Maori Architecture

#### Introduction

The purpose of this report is to identify the tangible and intangible aspects within Mäori architecture and how these concepts can be catered for through the practising of conservation and preservation methods, techniques and treatment. I hope the content of this report may assist and give insights to conservation architects who wish to understand Mäori cultural knowledge (mätauranga) and customs (tikanga).

As the Tauranga Museum's Poutiaki Taonga Mäori Curator, I am grateful to have been selected as the New Zealand representative to attend this course in the preservation and restoration of wooden buildings in Nara, Japan. The knowledge from this month-long course, organised by UNESCO's Asia/Pacific Cultural Centre (ACCU) and the associated Rome-based International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) is an invaluable opportunity to learn and exchange information and experiences from other cultures.

As Mäori Curator I am responsible for the management of the Mäori and Pacific collection of artefacts. This includes the preservation and conservation treatment of 102 surviving wooden pieces. These wooden artefacts are the remaining pieces from two traditional ancestral meeting houses c1800, which are currently stored in the Tauranga Museum. It is envisioned that these surviving pieces after treatment will become a major part of future exhibitions.

New Zealand museums are seeking to be more active in promoting care, management and understanding of indigenous collections. An estimated 45% of this collection is wood based. To enable Maori to participate at a more comprehensive level of care and protection in regards to conservation and preservation of these objects, there needs to be greater effort in promoting the importance of having more Mäori properly trained in conservation techniques.

## Preserving cultural identity

## " A tangible depiction of the intangible aspects of Maori Architecture"

In my capacity as a master carver and practitioner of traditional customs, I have worked on various buildings and structures throughout New Zealand. My interest in the traditions of Mäori culture has

generally been in the field of preserving traditional knowledge and skills, with a particular interest in wood carving and traditional architecture, including canoe building. This is best described in the Mäori language as whakairo-rakau (whaka to create, iro to beautify and rakau wood).

There is no formal qualification in New Zealand that recognises the meaning of Tohunga whakairo (master carver & architect) as this title is sanctioned and bestowed upon a person by the respective tribe. Secondly the range of knowledge and skill required is extensive in every aspect of understanding terrestrial and celestial lore as these concepts govern the design and order of the traditional ancestral house.

In ancient times this discipline was handed down from father to son, however with the arrival of Europeans and the adoption of Christianity the old lores were challenged and change eventuated. After World War II there was a surge to revive traditional skills and record traditional knowledge systems associated to the construction of ancestral houses.

## Maori Architecture found in oral traditions

The whare-kura or whare-wänanga (house of learning) was an extremely sacred institution. Tribal experts have managed to preserve the principal names from the original homeland including names derived from mythology and tribal traditions. The following list is a chronology of important houses and temples of cultural importance to Mäori. This record firstly illustrates our migrations, journeys and settlements over a vast period of time and distance and secondly highlights the fundamental purpose of why such buildings were created.

- Matangi-reia was the original of all the whare-kura, and formed the pattern from which subsequent houses of learning were built, and from whence came all knowledge, brought from the twelfth heaven Te Toi-o-nga-rangi by the god Täne-matua; this was the temple of the Supreme God Io. It is said to have been situated in the Sun's path in the heavens, the name itself having that meaning. This style of house is called matarua.
- Rangi-atea was another temple in the twelfth heaven where the whatu-kura being the personification of the sacred stones connected with teaching also had custodianship of the male and female guardian spirits of their domain which is what we call the marae.
- Tawhiri-rangi was the temple in which the spirits of mankind, who were deemed worthy to ascend to the presence of Io, the Supreme God in the twelfth heaven, were purified before their admittance into that heaven. It was situated below the summit in the first heaven.
- Whakamoe-ariki was a sacred house where dwelt the minor gods, Rua-tau, Aitu-pawa, Rehua, and the spiritual beings named Te Tini-o-Pono-aua who were the servants to the messengers of the gods. The first three named were the guardians of the heavenly treasures.
- Tangi-te-wiwini was another temple situated in the ancient fatherland of Irihia, at

Tawhiti-pamamao, at Te Hono-i-wairua. It is also said another temple, named Te Rangi-tapu, at Kaupeka nui, was built in the ancient fatherland of Irihia, or Hawaiki-nui.

- Wharau-rangi was another temple built in Irihia; the sage was Māui-mua it is believed that if Māui-mua was the priest, it is probable that this temple was built after the first migration of the people from the fatherland, the name Irihia probably covering more than one country.
- Takapau-rangi, this house was under the command of Taka-waerangi and others, but it is not stated where it was situated, however it is mentioned in prayers and gives probability to the lands resided for less lengthy periods on their migrations from Irihia Hawaiki-nui, to the islands of the Pacific.
- Te Mahu-rangi, was the house of Uenuku-rangi who was the principal teacher unfortunately no locality is stated, but Uenuku-rangi flourished about thirty seven generations ago therefore in accordance with tribal lore our ancestors were then in the Hawaiian Islands.
- Te Kau-whanga-nui house stood at Tahiti and Te Pae-whenua was the chief also there was another house called Te Hauhunga-roa and Timu-whakairihia was the teacher, he lived in Tahiti or the adjacent islands. According to genealogical tables we can safely say that this house was in use about the twelfth or thirteenth century.
- Te Kohu-rau was the house of Te Rongo-patahi, Rua-wharo, and Tupai, under these three priests the sacred stones, emblems of the gods, the sacred axes, and other paraphernalia pertaining to the temple, were brought to New Zealand circa A.D. 1350 in the Takitimu canoe.
- Te Rawheoro was the house built at Uawa Hinganga-roa was the teacher and architect. It is from the teachings of this house that dominate the art of carving and architecture throughout the eastern parts of New Zealand. This house was visited by Captain James



Photographs of the sacred house Ruatepupuke, Chicago Museum

Cook on his first voyage to New Zealand circa1700s it remained in use up to the middle of the nineteenth century.

Te whare whakairo o Ruatepupuke, stories associated to this house are found in esoteric lore and can be recalled in legend associated to the origins of carving and architecture constructed in New Zealand today. A carved house currently in the Field Museum of Natural History, Chicago was originally constructed to commemorate this ancestor.

#### Design of whare-tupuna / Ancestral houses

The traditional ancestral house is based on the personification of a prominent ancestor, the entire structure is centred on the human form and expression is given to traditional Maori cultural references to ancestors in the physical and spatial structure of the ancestral house for example the facade of the house represents the head (koruru - face mask), arms (maihi - barge boards), legs (amo - upright supports) and the interior takes its form from the internal parts of the body such as the backbone (tahuhu - central beam) and ribs (heke - supporting rafters). This type of practice gives reverence to the structure for it is then considered to literally be the living embodiment of a founding ancestor. Within the structure is established the genealogical connections to other prominent ancestral figures including tribal events and history.

There are three main disciplines related to the decorating of an ancestral house these are whakairo rakau or carved images of ancestral figures, tukutuku or lattice work which records celestial knowledge of star compositions and lastly kowhaiwhai or painted panels which depict the significance of terrestrial knowledge of the natural environment.

It is the responsibility of the Tohunga whakairo (master architect) to ensure that all these elements are catered for in the development of the structure.

#### Traditional ancestral house of great significance

This house is an example of when an object of cultural property is placed outside the protection of traditional expertise. Hinemihi was built in 1881 and stood in the village of Te Wairoa in New Zealand's central North Island, in a district of hot volcanic lakes. On June 10, 1886, Mount Tarawera erupted, destroying the village and killing 153 of its inhabitants. Hinemihi was one of the few buildings remaining, and had provided shelter to numerous people during the eruption. Te Wairoa was abandoned and Hinemihi stood empty for six years. She was purchased by the fourth Earl of Onslow, who was Governor of New Zealand from 1889 to 1892. The house was dismantled and shipped, with instructions for reassembly in England 1892. Since that date she has stood within

the grounds of the Onslows' seat, Clandon Park in Surrey, which became a National Trust property in 1956.

Hinemihi was presumably reassembled by Lord Onslow's estate labourers. At some point during dismantling and reassembling (Hinemihi has stood at two sites at Clandon) the building was shortened and some of the carved elements were reaffixed incorrectly.



Hinemihi

Whilst Clandon Park remained in the ownership of the Onslow family, Hinemihi was an important reminder of the fourth Earl and his family's links with New Zealand. Clearly, in being removed from Te Wairoa Hinemihi has lost her original cultural purpose. However, during World War One she was cared for by recuperating Maori New Zealand soldiers and over the last 15 years or so Hinemihi has increasingly become a focus of Maori culture in the United Kingdom.

## Conservation

The roof of Hinemihi is failing and there will be discussions as to which material will be most appropriate, traditional reed or totara wood shingles. The excellent photographic and documentary records of Hinemihi mean that the form of the roof can be accurately reconstructed.

Twenty-five years have passed since the last major repair work on the house, and the English climate has taken its toll. The insect-infested birch bark saplings that form the internal roof covering may need to be replaced or repaired. The front of the building which is the most decorative elevation has twin carved supports amo. These have been raised on concrete bases to protect them from damp ground conditions.

However, these plinths retain their original grey colour, impacting on the look of the building, especially in contrast to the painted red ochre of the carved supports. A proposal to paint these in an appropriate colour so that they are visually toned down may be put forward following further research and consultation.

There is a need to protect the building from rain in the entrance way, as well as insect, plant and animal damage. One of the most notable defects, especially to the rear of Hinemihi, is the decaying elm planking, rotting from the ground up. The appearance of salts on the interior would suggest that this is due to ground moisture. This has, in turn, caused the traditional lattice-work hung on the interior walls to discolour and deteriorate. In many places this planking may need to be replaced with appropriate timbers.

A damp course was inserted in the 1970s but this no longer seems to be wholly effective and the ground levels will therefore need to be investigated. Boards are also being affected by rusting nails, which are failing and causing staining. Appropriate alternatives will need to be investigated.

## Conclusion

Hinemihi has immense cultural significance and historic importance owing to her rarity. Though she has received conservation & restoration work in the past, the National Trust is again planning another programme of conservation repair to address mistakes made in earlier restorations and to ensure her long-term future.

Again, the importance of the cross-disciplinary approach will be a key to the success of

this project, which will involve input from the Property Manager, the Building Team, and the Curatorial, Conservator and Archaeology Sections. Consultation with the Maori community is crucial to ensure the cultural significance of any work is fully appreciated, and involvement by Maori artists and craftsmen will also be essential.

Hinemihi is unique, not only to the National Trust but also as the only Maori ancestral house in the United Kingdom, and one of the few to be found outside New Zealand. The huge significance makes it important that she is conserved and restored to the highest possible standard, so that she may continue to be enjoyed by visitors and to fulfil her role in the ancestral traditions of the Maori people.

## Conserving and preserving Mäori architecture in New Zealand / Aotearoa

New Zealand's Mäori built heritage is an important taonga (treasure) to preserve for the future. The New Zealand Historic Places Trust actively assists whänau, hapü and iwi initiatives to preserve taonga through the Mäori Buildings Conservation Programme. Caring for these taonga is often a challenge requiring specialist knowledge in both traditional and modern preservation techniques.

## **Conservation Workshops**

The Trust has some capacity to provide conservation training workshops to assist whänau, hapü and iwi in developing skills to carry out project work. Workshops can be provided on the conservation of whakairo, painted artwork, tukutuku and traditional linings. Workshops are marae-based and practical sessions cover conservation techniques, materials, safety and on-going maintenance work.

## **Funding Support**

The Trust can also provide written support to funding applications and can assist in the planning work for applications to the New Zealand Lottery Grants Board and other funding agencies.

## **Conservation Assessments**

Conservation reports serve as a basis for assessing the condition of a building and planning a conservation project. They are generally prepared by specialist conservation professionals such as conservation architects, conservators, and engineers, to ensure that quality advice is provided for project work planning. Funding for these reports is also available through the Lottery Grants Board Marae Heritage and Facilities Committee.

## Nga Kaupapa - Projects

Projects for inclusion to this report will be given as examples ranging from full restoration, partial restoration and feasibility and assessment reports.

## Full restoration programme 1999 - 2005

Full restoration and conservation planning workshops were organised for the tribal group Upokorehe of Whakatohea focussing on their ancestral house Tamaterangi. This request to formulise a conservation plan for the protection and maintenance of their ancestral house is recommended. The marae committee have opted to have an assessment conducted every five years. The first assessment for conservation work was carried out earlier this year in the following manner.

- Met with the elders and the Marae committee.
- Preservation & Conservation measures treatment required.
- Weighing up the project identifying cost.
- Alternatives consideration of options to replace or conserve.
- Research the project including historical background and traditional skills and knowledge.
- Start and finish dates for project with consideration to stages of preservation.
- Five year monitoring plan assess condition, identify causes of any adverse effects, education work shop on remedial methods of conservation, evaluate.
- Identification of risk factors was the proximity to state highway, natural disasters (storms/ flooding), temperature fluctuation, fire, vandalism.
- Preventive systems installed were no smoking zone, new fire sprinkler system including fire alarms.

## Partial restoration project 2000 - 2001

Partial restoration and conservation of a meeting house at Whangaehu Marae called Rangitahuahua. For many years the Ngati Apa people had built their houses in the ordinary fashion of a simple structure without carved or painted images that depict their history. In 1983, under the direction of the Whangaehu Marae committee they completed the fully carved meeting house Rangitahuahua. I re-visited this building and its people in 1993, to do remedial conservation work mainly on the exterior carvings, which were showing areas of deterioration due to climatic conditions and its close proximity to a coastal region. This project required local people to participate, which also lead to the development of an annual condition assessment plan for the monitoring of any further damage that may occur in the future.

## **Conservation Technical Advice**

Historic Places Trust Mäori Built Heritage Regional Advisers can assist throughout the process and

help coordinate appropriate specialists to work with marae committees.

The Trust has its own in-house specialist conservator who can advise on conserving whakairo, tukutuku and painted artwork and assist directly with project work.

Marae wanting to apply for funding to the Ministry of Culture and Heritage through the lottery commission, will be required to have a feasibility report done by a registered conservation architect this assessment will accompany the application for funding. If the application is successful the grant could range from full subsidy to 2/3 of the over all cost this would be dependent on a variety of conditions.

#### Natural material management / Te taiao – Natural environment

For the past twenty years I have been involved in the building and restoration of carved house structures with particular interest in reviving traditional knowledge systems and techniques associated to their construction. I have found an essential part of the conservation process, is the early assessment of traditional building materials and the availability of such resources within the local region. This can help to determine what measures are required for preserving or restoring any damaged sections of the house. In most areas of New Zealand there are good natural resources available, however some traditional materials are becoming harder to source and there is a need to replenish these resources for future usage. Over the past few years I have been advocating the planting of various plant species, such as a varieties of kiekie (cortaderia fulvida) and a native plant species called pingao (desmoschoenus spiralis) both species are valuable in the construction of traditional houses.

In July 1989, Paneke Incorporated made application to the Environmental grants scheme to investigate and research both species in the Manawatu region of New Zealand.

#### **Objectives**

- Locate and record their existence within a set boundary
- Record seasonal growth patterns including identification of any detrimental environmental effects
- Determine the degree of usage
- Record any restrictions that may cause non usage by Maori to practice traditional crafts
- Maori perspective of the plant harvesting, preparation, and practical usage, included stories and oral traditions.
- Determine any medicinal characteristics

## Sustainable environment for kiekie

Kiekie (Freycinetia baueriana) (sub-species banksii) is a climbing shrub found in New Zealand



native bush areas. It has many uses the most predominant use is as a weaving material. The demand on kiekie has increased recently with the increase of traditional Maori arts and crafts being practiced; the harvesting has become even more difficult, with the decrease of native bush areas.

Kiekie (freycinetia baueriana) (sub-species banksii) is a member of the Pandanaceae family. Plant species from this family are well known for their fibre and as a food source. EG; the Australian aboriginal eats the leaf buds and the fruit, the pandanus utitis is a pacific island species and valued for its edible fruit and strong fibre.

Most varieties of Freycinetia genus can be described as

climbers which have long aerial roots. There are over 60 varieties found in the pacific region, Kiekie being the most southern species and the only native species found in New Zealand. Kiekie has a tendency to grow over or on other trees utilizing its aerial roots to cling to the outer bark of the host tree or alternatively forms a tangled mass on the ground.

The flower of the kiekie appears in October and is the largest of the NZ flora, the male and female flowers occur on separate plants. The Maori terms are Ureure and tawhara both edible and popular with bush rats and opossums. Often yellow spots appear on the leaves of the kiekie plant; this usually occurs in the spring and summer and could be related to the effects of the sun.

## Sustainable harvesting of Pingao

Pingao (desmoschoenus spiralis) has a strong cultural, spiritual and traditional significance to Maori. It has legends associated with it and is highly prized as a weaving material. The renaissance in Maori culture has served pingao well as it has meant that attention has been drawn to its plight and attempts to re-establish it to provide a sustainable source of weaving material has assisted in its conservation.

There is a proverb describing the physical appearance of this plant "Manaakitia nga tukemata o Täne" translated it means "Caring for the eyebrows of Tane".



Pingao

The traditional pingao harvest is conducted in autumn and the technique employed was to remove the head from the leaves and at the same time remove a side shoot from the plant and transplant it deep in the sand next to the parent plant. This was to ensure the pingao survived, and was also a means to thank Tane Mahuta for his abundance. In the 1980's an increase demand was experienced for a supply of pingao for weaving. This occurred at a time after pingao had experienced a decline in abundance and this prompted Forest Research Institute to conduct an investigation examining what method of harvest was the most sustainable. The effect of three harvesting methods clipping of leaves, cutting of whole shoots and wrenching of the middle leaves were investigated, measuring factors such as plant survival, number of shoots, number of flower heads, differing harvest seasons (summer or autumn), and fibre yield.

They found that clipping resulted in the least adverse effects to the plant (survival and mean number of shoots were comparable to unharvested plants), this method was also the most effective (greater number of leaves harvested) and most efficient, as only desirable leaves were selected for clipping so there is minimal wastage as a result of discarded leaves. Both the other methods resulted in damage to the growth shoot causing severe mortality and would inevitably result in some wastage.

Clipping has been recommended as the most desirable harvesting method that will promote a sustainable supply of fibre. Cutting and wrenching should be discouraged as these methods not only damage the growth shoot causing significant mortality, but are also wasteful. It has also been suggested that sustained cutting or wrenching to a pingao plant may also contribute to fore-dune instability due to a reduction in vegetation cover.

#### Use of kiekie and pingao as an important resource in Maori architecture

Kiekie and pingao are rated as the most used natural fibres for the decorative quality they bring in the construction of traditional ancestral houses. It is widely used in tukutuku and whariki and is highly prized as the proper material for interior wall panels and mats of the traditional ancestral houses. The myths and legends associated to these plants originate from the earliest known traditions and therefore bring great prestige to houses that exhibit such panels.

Their value is also in the ability to readily absorb dyes this enables variation in pattern formations. The traditional techniques for dying fibre are still practiced using iron oxides, various tree barks and berries however even these resources are increasingly under threat. So when preserving traditional skills the conservator needs to consider the entire process of preparing tradition materials for the refurbishment of older ancestral houses.

#### Creating sustainable resources for traditional use

Conservation schemes to re introduce native species such as kiekie and pingao have been proactive especially in regards to pingao as part of coastal planning to decrease erosion of sand dunes. However the natural environment for the kiekie is decreasing and its availability for harvesting has become difficult because accessibility to areas is usually difficult.

With the introduction of the Resource Management Act and amendments 2003, local authorities now needs to recognise and protect historic heritage sites this amendment is placed along side section (6e) which requires authorities to consult with Mäori and their cultural traditions with their lands, water, sites of significance, wahi tapu and other taonga (treasures). This piece of legislation has enabled Mäori to participate in the planning of future developments within their respected regions.

One such project that we are currently involved with is the development of a business park venture that requires storm water reticulation and filtering prior to entering natural water-ways. The most common approach is to create a wetland / swamp area that holds water creating a sustainable environment for ecological restoration planting. The planting of native species will help to sustain the availability and rejuvenation of traditional natural resources for future use in the restoration of traditional house structures.

#### **Closing statement**

In conclusion, buildings and the natural materials used in their construction are subject to a wide variety of problems and require constant attention. Preventative measures can help alleviate many of these problems by careful planning, regular inspection, continuous maintenance and good house-keeping that can greatly extend the life of a building.

Written and photographic records provide valuable information for scheduling maintenance and improvements which are helpful for long term planning. Relationships and continued communication with owners or committees responsible for historic buildings is essential for conservators.

In considering the where the needs of Mäori conservation and preservation currently lie, it is clear that more technical training would assist in alleviating the work load of the few practitioners in this sector. Tangible aspects of preservation and conservation can be measured in one form or another. The intangible aspects of cultural customs, methods and knowledge associated with the preservation of buildings are sometimes best dealt with continuously throughout the entire process. This helps to ensure the process concurs with the original purpose of the building.

The sharing of knowledge is the foundation to a successful outcome. I would like to thank all who have been involved in providing this opportunity to attend the ACCU training programme, and I end my report with a proverbial saying that can sometimes be sufficient to encourage the sharing of resources.

"Tena koutou katoa e tetahi korero, nau te rourou, naku te rourou ka ora nga tangata".

"With your food basket and my food basket we will have enough"

# **Republic of Korea**

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# Problems and Needs for Cultural Heritage Protection and Restoration Activities in Korea SAFETY INVESTIGATIONS OF TRADITIONAL ARCHITECTURE IN KOREA

## I. Introduction

There are many architectural cultural properties in Korea. There are about 250 wooden structures and about 530 stone structures designated by the national government as heritage properties. In this designation of architectural cultural properties, we can subdivide these into treasures and national treasures. Additionally, in general these cultural properties can be divided into function. Important categories of wooden architecture include palaces, temples, architecture for ceremony to ancestors, buildings for Confucianism, domestic houses, and others. In terms of stone architecture, there are stupas, stone storage structures, caves, bridges, and other structures.

Since cultural heritage continues for many years and is passed on from one generation to another, they become antiquated and structurally weak. There are many causes of damage to wooden architecture, for instance, biological deterioration, termite, decaying of members, and declination. However, when we decide to dismantle an architectural cultural property, it means that the property has serious problems in its structural integrity. Eventually, structural integrity is a very important aspect for conservation and preservation.



Fig.1 Gyeongbokgung geunjeongjeon

Fig.2 Hwaeomsa

Fig.3 Cheomseongdae

## II. Safety Inspection of Cultural Heritage

When serious problems occur in the structural integrity of cultural heritage properties, we should decide whether or not they really need to be repaired or dismantled, and if so to decide the proper time and methods.

In Korea, we have a process for this decision. As a first step, we do safety inspections of important cultural properties. Safety inspections have been done by the National Research Institute of Cultural Heritage (NRICH) since 1981. The selection of the objects can be made mostly through two ways. One way is to make requests by the national government or cultural heritage administration, and the other is requesting at the municipality level. When NRICH is asked to conduct a safety inspection of cultural property, we roughly examine information pertaining to the property such as drawings, documentation, previous restoration and so on. These records help to do the work. Then we visit the actual site. We investigate the property using various equipment and investigate the, surrounding circumstances. After that we analyze the investigation data and judge the follow-up measures. If we judge that the site needs further investigation, we decide on which properties to do periodic safety inspections. If more serious problems occur, we do the inspection over many years. But, if our periodical measurement data reveals that the site is in danger of being destroyed, we suggest more precise safety recommendations to the Cultural Heritage Administration or Municipality.

As a result of these precise safety recommendations, a more detailed investigation is done, and we can assume the reason for the structural problems and then establish the proper restoration methods. The precise safety diagnosis is done by specialists of structural analysis or academic conservation institutes. In a few case, if the result of safety inspection reveals that the cultural property is in danger, we suggest that it should be dismantled and restored. The restoration plan is established by conservation architects. In Korea, the contract is open to all conservation architects that are registered to the Cultural Heritage Administration.

Usually the NRICH does periodical safety inspections of twenty cultural properties every year while some properties are done twice and others once a year. Inspections are conducted especially for two specific cultural properties; Sungryemun (the South gate of Seoul, national treasure No.1) and Heunginjimun (the East gate of Seoul, treasure No.1), NRICH does continuous



Fig.4 System and process for safety inspections in Korea

monitoring safety of inspections. I will now discuss how safety inspections are conducted

The first thing to do is to observe it with the naked eye. This is done by observing by considering structural aspects such as the inclination of structural members, or their droop and twist. In addition to we look into the surrounding



Fig.5 Deformation Fig.6 Declination



Fig.8 Crack and weathering Fig.9. Discoloration

Fig.10 Scaling and weathering

circumstances like traffic conditions or drainage systems. We also investigate biological deterioration and a certain extent of weathering. Through these observations the experts can not only judge what are the structural property problems, but can also consider related situations. Thus, it can be said that this is the most basic and important step.

After this observation we can decide what equipment can be applied to a safety inspection. At NRICH, in order to keep pace with the tendency toward being scientific and high-tech, the Research and Development project for safety inspection systems was initiated in 2000. One of the aims of the project is to introduce and to develop high-tech inspection equipment and more effective methods.

We developed non-destructive investigation equipment such as ultrasonic CT for wooden members and radar systems for stone. In the case of ultrasonic CT, its development was started for the investigation of the termite damage. But owing to the development of this equipment, we can investigate whole inner conditions of the column members that have deep cracks or have are rotting. The principle of ultrasonic CT is as follows. If the wooden member doesn't have any defaults and is in good condition, the ultrasonic waves will pass through the member without any diffraction.

If there is condition of the wooden beam is poor then the ultrasonic waves should diffract. We can find the defaults of the member in use of the length of diffraction.

Radar systems can be usually applied to stone stupas. The stone stupa is a very important architectural cultural heritage, as well as wooden cultural heritage. Usually, the stupa is 3 or 5 stories high. Stupas consist of three parts; 'gidanbu' (a foundation part for a building or structure), 'tapsinbu' (the roof and body stones of the stupa), and 'sangnyunbu' (the finial of the stupa). The important structure parts are the gidanbu and the 1st story of the tapsinbu, as they are made up of several stone members and are filled with soil and small stones. The soil and small stones can be swept away because of the inflow of rain or gaps between members. Using the radar system we can investigate the inner condition without dismantling or destroying any property. The principle of radar systems are similar to GPR systems used in archaeology.



Fig.11 Ultrasonic CT (1<sup>st</sup> development )



Fig.14 Crack of the column





Fig.12 Investigation by ultrasonic Fig.13 Ultrasonic CT censor CT



Fig.15 Ultrasonic CT data



Fig.16 Image column section



Fig.17 Radar equipment for stone heritage



Fig.20 Gidanbu figure of the stone Fig.21 Microscope survey stupa



Fig.18 Image of the members



Fig.19 Image of inner condition



Fig.22 Photo of inner condition

During safety inspections, it is very important to judge if the inclination, cracks, and gaps are progressive or not. For investigations of displacement in the whole structure, we use a theodolite. We stick targets to some points that can be checked from the base point. Then we periodically measure the horizontal and vertical distance from the base point to the measuring points for many years. If our measurement data have increased out of



observational errors,, we can judge whether or not the structural problems of the cultural property will be more serious later on. In this case, we suggest that precise safety diagnosis of the property should be done.

## **III. New Classification of the Structural System**

It is very important to investigate cultural properties with non-destructive equipment, and at the same time it is necessary to understand the whole structure and analyze it. Even though we investigate if a member is displaced in the wooden architecture, it is useless if we don't know what will be happening or why this has happened. From 2002 to 2003, the NRICH developed a structural analysis program for traditional wooden architecture. But the project made the framework only. This was intended to change the parameter of the program used for analysis of modern architecture and applying it to the wooden architecture more easily. We knew many studies and experiments for structural analysis were needed for the completion of this project.

In 2004, NRICH established a long time plan for this work and has chose professors specializing in structures to work on this study. The subject of the 1st year study was the "classification of traditional wooden architecture in structure and structural experiment in cross section".

One classification is possible to divide structures according to differences in the composition of the members, especially 'gidung' (column) and 'bo' (girder) in the upper part of the building. This can be said to be done by differences in load transmitting from roof to support. So the criteria are as follows;



Fig.24 Safety diagnosis programme



Fig.25 Safety diagnosis programme




- Is it a statically determinant structure or indeterminant?
- Are there any differences in the bending moment occurring on a 'bo' (girder)?
- Is there any regularity in the use of the 'toetbo' (additional girder)?

First, I would like to explain the division of structures according to differences in the composition of the members. We knew that there are only a few buildings that have a statically indeterminant structure. Therefore, only statically determinant structures are dealt with.

The first type is composed of two columns, one beam and one dondjaju (short post). There are two types of variations to be presented. These will be shown in the diagrams below. One is the type that has additional girders in the front and rear. The other has secondary additional girders, and short posts on the first. These types can be said to be statically indeterminant structures because bending moments have a tendency to concentrate in the middle of the girder.



The second type has major members of the building structure comprised of two columns, two girders and two short posts on the girder. Two short posts are erected one-third to one-quarter from both sides and the upper girder diminishes the bending moments by about 50 percent in comparison with one support. The load to four supports is that between a bracket and a short post 'jungdori' (middle beam). So, in this structure the numbers of concentration supports on the girder are 4. The type load to two supports of 'jungcheung' (in Korea this word used in case that it looks like a 2 storied exterior, instead of a 1 story interior) which can be seen usually in gate architecture. The load to two supports of an additional girder at the front and/or rear is in case a 'toetkan' (additional bay) is added



Fig.30 Gwanryongsa Yaksajeon

Fig.31 Milyang Youngnamru

Fig.32 Pihyangjeong

The third type is composed of three columns, two girders and two short posts. It can be called a load to two supports reaction. The length of the girder is longer than that of the 1st and 2nd types. Thus, in addition to one column with more inner space, it would support the loads of the girder. Usually the inside column is composed below one of the two short posts, and in this area the points of the longer and shorter girder are linked. Therefore, the length of the girder is reduced and eventually loads from the top can be diminished. The variations are similar to the diagrams below.



Fig.33 Gyeongbokgung geunjeongjeon

Fig.34 Hwaeomsa Gakwhangjeon Fig.35 Bongjeongsa Daewungjeon

In Korea most wooden architecture is statically determinant. The three basic types can be divided into cross section structural systems. Among these types, the second two- columns, one girder and two supports holds by 50.8%. There are 17% of the first type and 32.2% of the third type.

classification	basic	variation		rate (%)
load to one support	basic	-	3	2.54
	variation	front-rear additional girder		14.40
load to two supports	basic	-	31	26.27
	variation	load to four points		0.85
		look like 2 storied		0.85
		front and rear additional girder		21.19
		front or rear additional girder		1.69
load and reaction to two supports	basic	-	15	12.71
	variation	front and rear additional girder		4.24
		two moved supports		2.54
		all in one	15	12.71

Table 1. Statically determinant structure



In actuality, the classification is taken from the style of the structure. The important thing in the former classification is the position of the bracket. We divided this into three types: 'jusimpo' (brackets only on the column), 'dapo' (brackets on the column and between columns) and 'ikgong' (brackets only on the column, but different jusimpo). Another was defined according to the number of beams and columns. However, we couldn't analyze the difference of the structure according to types.

The new classification is derived according to the different composition on the part of the 'gongpo' (similar to a bracket). The bracket is regarded as the support to transmit loads from the roof.

It is said to be divided according to the transmitting factor of the load, the number of supports to the bracket, and the position and number of the supports to the girder.

bracket type by		basic concept			the type of		
		route	number of points		transmitting load	Case	rate
transmitt	ing load	transmitting load	bracket	girder	from the top	ouoo	Tato
concentrated	two points	soro	2	2		6	5.36

classification according to bracket

concentrated uniform load	two points	soro contact	2	2		7	6.25
uniform load th	one point	contact	1	1		16	14.29
	two points	contact	2	1	i I	17	15.18
		contact	2	2		31	27.68
		contact	2	2		6	5.36
	three points	contact	3	2		17	15.18
		contact	3	3		11	9.82
	slope	contact	-	-	I	1	0.89

After this classification was completed, the structural experiments were done. These dealt with the deformation and destruction to the lateral and concentrative loads in cross- section. The first experiment was about the deformation of the bracket to the lateral loads in cross-section. The second was to the column and girder. And the third was the adding load and destruction experiment to one bay in cross-section. Thus, it was possible to gather information about transmitting and deformation of traditional wooden architecture. Of course, this is just the starting point because the experiments were done for only one type of structural component of traditional architecture. However, studies like this will be done for a long time. Eventually, we will understand traditional wooden architecture, and when safety inspections are conducted, we can judge or decide the direction of conservation or restoration of cultural heritage.



Fig.41 Drawing of part of bracket



Fig.43 Drawing of part of frame



Fig.42 Part of bracket model



Fig.44 Part of frame model

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# Sri Lanka

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# PROBLEMS AND NEEDS FOR CULTURAL HERITAGE PROTECTION AND RESTORATION ACTIVITIES IN SRI LANKA

# Introduction

Sri Lanka is an island surrounded by the Indian Ocean and located at the Southern tip of India. It covers an area of 65,000 Sq. km. and has a population of over 19 million people. The major ethnic group is Sinhalese accounting for 74% of the population while Tamils, Muslims and Burgers constitute the balance of twenty-six percent. Buddhism is the major religion with 70% of the population practicing Buddhism, Christianity, Hindu and Muslim are the other religions practiced in Sri Lanka. Cultural diversity is a feature of the Sri Lankan society as each ethnic group practices their own set of rituals and customs, more or less connected with their religious beliefs.

The Island civilization extends as far back as the 5th century B.C. with the settlement of the Ariyans, who migrated from India. The early settlement on the banks of river Malvatuoya was based on Agriculture. The reason for selecting the river valleys for early settlements is because the river valleys which possessed fertile soil and water provided basic resources required for the Agrarian society.

Island culture changed dramatically with the introduction of Buddhism in the 3rd century B.C. from India. Soon after its introduction, Buddhism spread the length and breadth of the country. All spheres of Sri Lankan society, such as arts and architecture, sculpture, customs and beliefs, have been subjected to the influence of Buddhism, which resulted in a unique and glorious civilization.

Buddhism became the state religion soon after its introduction. All Sinhalese kings patronized the religion by establishing large monastery complexes with gigantic stupas and colossal image houses, Bo-tree shrines, monks' residences etc. The Tooth Relic of Lord Buddha was the most sacred object and every king had to make sure that sacred Tooth Relic was very well protected. The custodian of the Tooth relic became the king and he had to ensure its protection and continuity.

The Sinhalese kingship was started with King Pandukabhaya in the 4th century B.C. Thereafter, the tradition of having a king as a ruler continued through the centuries although it had

certain setbacks during times of various invasions. The Chola invasions in the 7th century resulted in holding the power by Chola kings from India for a brief period of time. But Sri Lanka kingship was re-established again in the 11th century A.D. by King Vijayabahu I.

The Sinhalese kingdom and Buddhism as the state religion continued until the 18th century in which the country lost its sovereignty and fell into the hands of colonial rule. The country regained its independence in 1948 and presently has a democratic socialist republic form of Government.

# **Legislation for Cultural Protection:**

Sri Lanka has several legislations ensuring the protection of its cultural properties. The following legislations are currently in force:

- (1) Antiquities Ordinance (1940)
- (2) Central Cultural Fund Act (1980)
- (3) Galle Heritage Foundation Act (1992)
- (4) Cultural Property Act (1998)

# (1) Antiquities Ordinance:

The Antiquities Ordinance which is the principal enactment was first introduced in 1940. But later on, this Ordinance was amended on several occasions to accommodate the subsequent needs relating to the protection of cultural heritage. Its final revision was in 1998.

Although the Act is called the antiquities ordinance, its proper title is an ordinance to provide for better preservation of the antiquities of Sri Lanka and of sites and buildings of historical and archaeological importance in Sri Lanka.

The Antiquities Ordinance consists of 8 sections dealing with the following:

PART I	- Property in Antiquities
PART II	- Excavation
PART III	- Ancient Monuments
PART IV	- Archaeological Reserves
PART V	- Export of Antiquities
PART VI	- Power and duties of the archaeological commissioner
PART VII	- Miscellaneous
PART VII	- Interpretations

**Part I:** This section of the Sri Lankan Antiquities Ordinance describes antiquities properties. Artefacts, whether found on private land or crown land, are deemed to be the property of the archaeological commissioner. Any person who finds and retains an artefact on his possession

without informing the archaeological commissioner of such findings could be prosecuted under the Antiquities Ordinance.

According to the provisions of the act, no person shall undertake excavations with the intention of finding antiquities. The commissioner of archaeology is empowered to issue a license for excavation to individuals or companies subject to that the archaeological commissioner is satisfied with the objective of such excavations, skills and qualifications of such companies or individuals.

All antiquities found during any excavations should be brought to the notice of the Archaeological Commissioner without delay.

**Monuments:** Buildings or structures that date back, or are believed to date back, to before the 2nd of March, 1815, and having archaeological value, are considered to be monuments under the provision of the Antiquities Ordinance.

Monuments in Sri Lanka fall into two groups:

- (a) Archaeological Reserves
- (b) Protected Monuments

Archaeological Reserves: Buildings or structures situated on crown land that qualify as monuments under the criteria laid out in the Antiquities Ordinance are declared as an archaeological reserve by a gazette notification.

After the notifications, the conservation, maintenance and management of that site or property will be the responsibility of the Department of Archaeology.

**Protected Monuments:** Buildings which are of archaeological importance, but located on private lands are declared as protected monuments.

Protected monuments can continue to be under private ownership subject to the condition that any conservation, restoration or alternation of such property should be executed only after written approval is obtained from the Director General of Archaeology for such works.

#### Power of the Archaeological Commissioner

The archaeological commissioner is empowered to carry out the following tasks:

- (a) to prepare a list of ancient monuments.
- (b) to conserve, maintain, repair and restore all ancient monuments on crown lands and protected monuments.
- (c) to purchase valuable antiquities.
- (d) to carry out archaeological excavation.

#### (2) Central Cultural Fund Act (1980)

The Central Cultural Fund Act was enacted in 1980 for the purpose of preserving cultural heritage in Sri Lanka. The Central Cultural Fund, that was established under act No. 57 in 1980, is empowered to collect and disburse funds for cultural activities.

Policy matters and the approval of projects and budgets thereof are done by the Board of Governors which meet regularly once a month. The Prime Minister of Sri Lanka is the chairman of the Board and several other Ministers holding the portfolios of Culture, Finance, Education and Tourism are ex- officio members of the Board.

The Act clearly spells out the objectives of the fund. The main objectives for which funds can be utilized are development of cultural monuments, provision of religious activities within Sri Lanka or abroad, and the advancement of religion. The funds collected are disbursed with the approval of the Board of Governors in order to meet the goals of the specific projects mentioned in the Act itself or any other related activities that the Board may consider appropriate.

#### (3) Cultural Property Act (1998):

The cultural property act was introduced in 1998. The objective of introducing this act was to curb the illegal exportation of the cultural heritage and property of Sri Lanka.

The act deals with movable cultural property and spells out in detail the procedures to be adhered on exporting cultural property, penalties imposed on illegal exports, registration of cultural property, and other issues.

#### (4) Galle Heritage Foundation Act (1992):

Several departments and institutions that fall under the rubric of various Government Ministries are presently handling activities related to conservation at the UNESCO World Heritage city of Galle Fort. Preservation activities are not properly coordinated and monitored due to the difficulty of coordinating the many institutions and departments responsible for the protection of the Fort.

Therefore, the current feeling on the part of many is the need for an umbrella organization to properly coordinate the activities of all stakeholders involved in the World Heritage Site of Galle Fort. The Galle Heritage Foundation was established to fulfil this need. The Galle Heritage Foundation Act was introduced in 1992 for the effective coordination and management of heritage activities in the World Heritage City of Galle.

# Institutions responsible for the preservation and management of Cultural Heritage in Sri Lanka

The following institutions are directly responsible for the cultural heritage activities in Sri Lanka.

- (a) Ministry of Cultural Affairs and National Heritage
- (b) Department of Archaeology
- (c) Central Cultural Fund

#### (a) Ministry of Cultural Affairs and National Heritage

The Ministry formulates the policies and guidelines relating to the preservation, conservation and management of cultural heritage in Sri Lanka.

All the Department and institutions engaged in cultural heritage preservation come under the purview of the Ministry.

Each Department and institution prepares a work plan and budget inline with the broad cultural policy of the country in order to achieve specific objectives of that Department or institution and submit them to the Ministry for approval and allocation of funds for implementation of those plans.

In the annual budget, the government treasury will allocate funds for all the Ministries for implementation of the planned work. The Sri Lankan treasury is always in short of required funds, and thus evaluates all the plans submitted by the Ministries whereupon they allocate funds on the basis of priority. Unfortunately, cultural heritage and culture in general always receives a low priority in the agenda of the treasury. The reason for this is that they treat culture as a bottomless pit where there is no return for the investment. This attitude is fast changing due to the emergence of Cultural Tourism, and thus the cultural sector is gradually getting its due recognition from the treasury and other planning and development institutions.

After making the relevant funds available, the Ministry will supervise and coordinate the activities of all Departments and institutions and conduct regular meetings in order to review the progress against the annual work plan and time targets.

#### (b) Department of Archaeology

The Department of Archaeology is the legal custodian of all the antiquities in Sri Lanka.

The Department was established in 1890. There are well over 100,000 cultural sites scattered throughout the Island, and the conservation, management and maintenance of which falls under the purview of the Department. It is a daunting task to even maintain these sites, let alone conduct research, as the Department presently lacks the necessary financial and human resources.

#### (c) Central Cultural Fund

The Central Cultural Fund, where I work, was established under the Central Cultural Fund Act No. 57 in 1980.

The major project implemented under the Central Cultural Fund from 1980-1998 was the UNESCO- Sri Lanka Cultural Triangle Project. The Cultural Triangle Project was the largest heritage project ever implemented in the country, due to the very kind patronage of UNESCO.

The project generated considerable direct employment opportunities as well as several other indirect avenues of employment for the rural populations living in close proximity to these heritage sites.

The influx of tourists to Sri Lanka could be attributed to the addition of new dimensions to the cultural sites through the research, excavation, conservation, maintenance, preservation work of the Cultural Triangle project.

Mechanisms that generate income are placed back into the site itself, and will ensure the sustainability of this unique heritage of mankind.

The Cultural Triangle was formed by linking the three major cultural heritage sites in Sri Lanka, namely Anuradhapura, Polonnaruva and Kandy. The excavation, conservation and development of these major cultural heritage sites and two other sites, Dambulla and Sigiriya that fall inside the Triangle have been executed under the UNESCO–Sri Lanka Cultural Triangle Project.

The unique feature of this project was that the required budget for the planned work was generated from the project itself in the form of the entrance fees for tourists visiting the various sites.

Presently the annual budget of the institution is around 400 million Rupees (Rs.). This amount is generated through the sale of tourist tickets without depending on the treasury. The Cultural Triangle thus changed the age-old attitude of the policy makers that culture is a bottomless pit. They now understand the vast income generating capacity of the cultural sites and the role that the cultural sector could play in achieving the goal of sustainable development.

The unique feature of the Fund is that unlike the Archaeology Department, which has to credit all of its fund collection to the consolidated fund, it is empowered to utilize the generated fund for the conservation and development of these sites.

UNESCO has identified the fund-generating mechanism of the Central Cultural Fund as a model for other developing countries where the allocation of the funds for heritage conservation is in the hands of the financial controllers of the treasury. However, the problem lies in the fact that the controllers in other developing countries know very little about the value and importance of the conservation and maintenance of these valuable heritage sites.

The Central Cultural Fund presently conserves, develops and manages the following UNESCO World Heritage Sites, in addition to several other sites:

(1) Ancient city of Anuradhapura

- (2) Medieval capital of Polonnaruwa
- (3) Rock fortress of Sigiriya
- (4) Painted caves of Dambulla
- (5) Sacred city of Kandy
- (6) Fortified city of Galle

The Central Cultural Fund has a professional staff dedicated to conservation, preservation, and management, and has a workforce of approximately 3000 skilled and unskilled labourers. These skill labourers have been an asset to the country as they have gained a wide range of experience in the field of heritage preservation over the last twenty years.

# **UNESCO World Heritage Sites in Sri Lanka**

Sri Lanka is proud to have the following six major cultural sites on the prestigious UNESCO World Heritage list. In addition to the six Cultural Sites there is one Natural Site, the Sinharaja Rainforest.

# (1) The Ancient City of Anuradhapura:

Anuradhapura was the first capital city of Sri Lanka. The history of the city dates back to the 4th century B.C. when the written chronicle recorded that king Pandukabhaya built a walled palace complex during that time.

However, the city developed in a much more organized scale with the introduction of Buddhism in the 3rd century B.C.

The city comprises a city centre, well laid out monastic complexes, an intricate system of colossal man-made reservoirs and other engineering and architectural features. The urban landscape of the city is dominated by its great monasteries consisting of colossal stupas, gigantic image houses, Bodhi tree shrines, chapter houses, refectories, and monks residences. The stupas are of considerable proportions and height, and occupy the central space in the monastic layout. The other buildings (described above) are arranged around the stupa.

The following sites are presently handled by the Central Cultural Fund.

#### The Abayagiriya Monastic Complex

The Abayagiriya monastic complex is spread over an area of 200 hectares and once sheltered more than 5000 monks. The excavations carried out under the Cultural Triangle Project proved that it was a well organized Buddhist education centre as for back as the 5th century A.D., and contained all the buildings and facilities needed for such a centre for the



Fig.1 Layout of Abayagiriya monastic complex

dissemination of knowledge not only in Sri Lanka but also among other Asian countries.

The presence of the Chinese monk Fa-hien in the 5th century A.D. bears witness to the fact that it was a great centre of Buddhist education. His writings throw much light on the scale of this massive complex and the role it played in propagating Buddhism.

The Abayagiriya stupa is a monument of gigantic proportions rising to the height of 116 meters. The stupa is still proudly standing at the centre of the complex in its original form although subject to deterioration due to exposure to weathering elements over several centuries. (Fig. 1)

The conservation of this massive stupa is one of the most daunting tasks undertaken by the Central Cultural Fund.

#### The Jetavana Monastic Complex

Jetavana is also a well planned monastic complex in Anuradhapura, although not as large as the Abayagiriya monastic complex.

The Jetavana stupa is still the tallest brick edifice in the world rising 120m above the stone terrace. The Jetavana is only second to the two stone built pyramids at Giza in Egypt in height. Like in Abayagiriya, the other religious buildings were arranged around the central stupa. (Fig. 2)

The monks' residences at Jetavana also have a unique layout. This layout, popularly known as "Panchavasa", has been the feature of the monastic layouts in ancient Sri Lanka. The residential



Fig.2-Jetavana stupa, Anuradhapura

units of the monks are laid out in a court surrounded by a boundary wall. One such unit consists of 5 residential units. The largest unit, setout at the centre of the court, is the residence of the senior monks while the other four units are located at the four corners of the court. The teaching of Dhamma and other subjects to the pupils took place at the central unit occupied by the senior monk.

#### The Mahavihara Monastic Complex

The Mahavihara is also a major monastic complex in Anuradhapura. The layout of Mahavihara is similar to the other major monastic complexes in Anuradhapura that were described earlier.

The "Sri Maha Bodhi" or Bodhi-tree Shrine that was bought to Sri Lanka in the 3rd century B.C. is the oldest recorded authenticated tree in the world.

The Ruwanveli stupa, the 3rd tallest stupa in the World. It has been completely restored and white washed in 1930's, and has been a subject of great discussion among the conservators and religious authorities since these two parties have different views on the complete restoration and white washing of ancient stupas.

The Dakkina stupa and Mirisavetiya stupa were the other two major monastic complexes in Anuradhapura.

The city also has two groups of monasteries that surround the major monastic complexes known as "Pabbata Viharas" and forest monasteries. Forest monasteries with the absence of religious buildings are very different from the other two groups of monasteries. The unique feature of these monasteries is that it has a very simple layout. In most cases it was a brilliant adaptation of natural elements to form a habitat where monks can practice meditation without any disturbances in the midst of the natural forest.

#### (2) The Medieval City of Polonnaruwa

With the fall of the Anuradhapura Kingdom, the capital of Sri Lanka was shifted to Polonnaruwa. Before Polonnaruwa became the capital of Sri Lanka, it was an important Provincial City even during the Anuradhapura Period. It was used as a camp city or "Kandavuru Nuvara" where garrisons of the Sinhalese kings were kept during the internal strife between the kings of Anuradhapura in the North and Magama in the South.

King Vijayabahu I reestablished the Sri Lankan kingdom in the 10th century A.D. defeating the Cholas of India. A number of Hindu shrines that exist in Polonnaruwa, symbolize the Hindu influence in arts and architecture during the Polonnaruwa period.

The reign of the King Parakramabahu I was the golden era of Polonnaruwa. The King built the largest man made tank in the country in Polonnaruwa with the aim of developing agriculture which was the backbone of the economy of that society. The tank "Parakrama Samudraya" or Sea of Parakrama was the main tank which fed the set of small tanks at lower elevations through a carefully designed net work of irrigation channels.

During this period Sri Lanka was also known as the granary of Asia. This lable was entirely plausible due largely to the untiring efforts of King Parakramabahu I.

The gigantic image houses, colossal stupas and stupas of modest scale, chapter houses and monks residences bear witness to the patronage of the Sinhalese rulers for the improvement of Buddhism in the country.

The large palace complexes, audience halls, and royal baths symbolize the grandness of the Sinhalese rulers during the Polonnaruva period.

City Planning: The Polonnaruva city has a citadel surrounded by the city walls with gates at four cardinal points. It consists of a Royal Palace, Council Chamber, gardens, royal baths and other secular buildings.

The royal palace of the King Parakramabahu was said to be seven stories high, although the remnants of the three bottom floors are all that is left at present.



Fig.3-Lankathilaka Image House, Polonnaruva

The inner city is surrounded by the outer city with city walls and gates. The Sacred Quadrangle located within the outer city contains the two Temples of Sacred Tooth Relic of King Vijayabahu I and Nissankamalla, and the Vatadage or circular stupa house, the Thuparama Image House, and the Sathmahal Prasada are also located in the Sacred Quadrangle.

During the Polonnaruwa Period, the image house became the prominent monument unlike the Anuradhapura Period, where the stupa occupied the central place of the great monastic complexes.

Brick- built image houses of colossal scale are the most impressive among the monuments in Polonnaruwa. These image

houses have a mandapa in front and the sanctum where a Buddha statue of huge scale is kept. There is also a circumambulation path around the sanctum of these image houses. (Fig. 3)

The mandapa in front has corbelled and circular vaults on top while the inner chamber was roofed with a corbelled and circular dome built entirely of bricks.

The stucco work of the models of the Hindu vimama' decorates the outer face of these massive brick walls.

The Galvihara or "Uttararama", which is the most visited place in Polonnaruwa, bear witness to the stone carving ability of the Sri Lankan craftsmen. The four Buddha statues carved out of living rock display the finest quality of stone carvings during the Polonnaruwa period. The facial expressions and excellent proportions of the images bring the visitor to a state of contemplation.

### (3) The Rock Fortress of Sigiriya:



Fig.4 Rock Fortress, Sigiriya

Sigiriya rock fortress was built by King Kasyapa in the 5th century A.D. The palace on the summit of the rock and well laid out garden with water ponds of different proportions and designs is located on the Western precinct of the rock. This garden is one of the finest examples of Asian landscape architecture, that reached its apogee during this period and extends as far back as the 5th century A.D. (Fig.4)

Sigiriya also witnessed a classic hydraulic agricultural system. Water is brought down from the top through a well laid out terra-cotta pipe network and feeds the series of ponds located below the rock.

Sigiriya is also world famous for the "Apsara" paintings on its Western face. It is believed that the entire Western face of the rock was once covered with these paintings, although fragments of which are presently left in the niches of Western face of the rock. The reason for their survival could have been the low exposure to the weathering elements compared to other parts of the rock.

The mirror wall is also a notable feature of Sigiriya. Visitors to Sigiriya from the 7th century onwards, impressed by



Fig.5 Painted caves of Dambulla

the Apsara paintings have inscribed their experience in poetical verses on the very shiny plaster of the mirror wall located just below the fresco pocket. These verses popularly known as "Sigiriya Kurutugee" graffiti throws much light on the states of Sigiriya and the evolution of the language of the region from the 7th century onwards.

# (4) The Painted Caves of Dambulla:

Dambulla is a rock cave where five caves of different size and appearance stood in a row. Dambulla is world famous for its rock paintings. The entire cave surface is plastered and painted without leaving a single square inch unpainted. The cave has more than 2,000 sq meters of paintings and belongs to the different periods of Sri Lankan history. Most of the early paintings were under the painted layers of later periods. (Fig. 5)

Most of the paintings belong to the 18th century Kandyan Style as this techniques of painting was popular during the Kandyan Period. (17th –18th century).

#### (5) The Sacred City of Kandy:

Kandy is the last kingdom of Sri Lanka before the country fell under British rule.

Kandy still holds the title of "the most sacred city" in Sri Lanka. The Tooth Relic of Lord Buddha, the most sacred object in the Buddhist religion in Sri Lanka is enshrined in a casket kept at the inner chamber of the Temple of Tooth Relic located in Kandy. (Fig. 6)

As such the special temple was built to enshrine the Tooth Relic which was brought to Sri Lanka in the 4th century A.D. A new temple was built for the Tooth Relic every time a kingdom was shifted. The tradition of building a Tooth Relic temple continued until the relic was finally housed in the temple of the Tooth Relic in Kandy, the last kingdom of Sri Lanka.



Fig.6 Sacred city of Kandy

Kandy is still the centre of Buddhism. The two headquarters of the Buddhist Chapters, The Asgiriya and Malwatta monastic complexes are in Kandy. Kandy also contains four devalas shrines dedicated to the gods of Natha, Pattini, Vishnu and Kataragama. In Natha Devala, the Buddhist image house is also located very close to the Devala that shows the coexistence of Buddhism and Hinduism during the Gampola and Kandyan periods.

## (6) The Fortified City of Galle:

Galle is the best preserved fortified city built by the Europeans, particularly the Dutch in all of South and South East Asia.

Galle witnessed the adaptation of European design concepts to the local climate. The architecture that was created was a continuation of Sri Lankan building traditions in different forms due largely to the fact that these houses were built by local craftsman using local building materials and technology.

This dual parentage created a unique architectural style popularly known as "Dutch Architecture". Galle was first fortified by the Portuguese, but later the Dutch developed the fort in a more organized way by building ramparts and bastions that follow the irregular coast line to create a perfect fortress well protected from both the land and sea sides. After the Dutch fort was



Fig.7 Fortified city of Galle

conquered by the British and used as their administrative centre, the Galle Fort assumed its traditional functional role yet again. (Fig. 7)

The Bay of Galle is also very important from a maritime archaeological point of view. The ancient Galle Port holds about 20 ship wrecks dating from the 9th century A.D. to modern times. This valuable maritime heritage adds a new dimension to the heritage values of the Galle Fort.

# Wooden Heritage and Timber Buildings in Sri Lanka

Timber was a very common material used in the construction of buildings in very ancient times. The first evidence of timber construction in Sri Lanka was evident in the 3rd century B.C.

The Lovamahapaya of which only the stone pillars of the ground floor are left was originally a nine story building built of stone and timber. The timber beams rested on the stone pillars on the ground floor laid out in a grid pattern. The width of this square building is gradually receding when it goes up? The building had a square roof at the top floor, and the roofs on the other floors were arranged in a cascading form giving the building a spectacular appearance. The radiating rafters of the roof at the top floor met at the central timber log, popularly known as the "madol kurupava" or "boss gediya".

The "madol kurupava" which was above the centre of the building is held in position by the radiating rafters. The tiles that were found during the excavation were bronze. The charred timber found during the excavations was dated and proved to be material from the 3rd century B.C.

**VATADAGE:** Another type of wooden building is a circular stupa house or "chetiyaghara". The building consists of a stupa of modest scale and four Buddha statues placed facing the four cardinal directions. The building has several rings of stone circular columns of which a timber ring beam was placed. The series of timber beams were interlocked to form a perfect timber ring beam which

demonstrated the high-skill of the Sri Lankan craftsmen at that time. Rafters were laid in a radial form and all of which came to gather at the timber log placed at the centre of the roof.

The finest examples of this built form were found in Anuradhapura, Medirigiriya, and Polonnaruva. The decorative round circular columns which once supported the roof are still intact. (Fig. 8)

**TAMPITA VIHARA:** Another unique type of timber construction is called building on pillars or "Tampita Vihara". These buildings were constructed on a set of stone pillars that had a height of about 2' to 3' ft normally. The set of timber beams were laid on these columns in both ways. The timber columns of the super structure rested on these timber beams. The reason for having a building on pillars is to protect the timber structure from termite attack which is a primary agent

responsible for the deterioration of timber in tropical climate. (Fig. 9)

The inner chamber of the building was built from wattle and daub construction. The Buddha statue was placed in an inner chamber, and the exterior walls of which were plastered and painted with Jataka stories related to the previous births of Lord Buddha.

There is a colonnaded verandah built around the inner chamber. The verandah has two functions. The columns of the verandah supported the overhanging roof of the inner chamber which protects the painted walls from the elements (i.e. wind, rain, humidity). The outer verandah also acts as a circumambulation path for the devotees.

**AUDIENCE HALL AND EMBEKKE DEVALA:** The Audience Hall and Embekke Devala in Kandy are built entirely of wood and bear witness to the heights achieved in timber construction by the local craftsmen. The form of the building is simple but perfectly suited to the hot humid climate of the country.





Fig.8 Vatadage, Polonnaruva

Fig.9 Tampita Vihara



Fig.10-Audience hall, Kandy



Fig.11 Timber carvings at Ambekke

The building has four rows of timber columns of equal size and shape. These columns were very elegantly carved with the motif of flowers, drummers, dancers, swans etc. The set of timber beams are placed one on top of the other placed on the timber columns. These beams ends were projected out and highly decorated with carvings. (Fig. 10, 11)

The roof is made of double pitch. The lower portion of the roof has a fairly low angle while the upper portion of the roof is very steep. The high angle of the roof is a direct response to the climatic need as this region very often experiences torrential rains.

The rafter edges jutting out from the support are very intricately carved. This carving has a rectangular hole at the centre of the carving of the rafter edges through which a timber pole popularly known as "heen leeya" is inserted, tying the edges of the all the rafters together. The skill of the craftsman is tested based on the straightness of the timber pole.

# Problems and Needs for Cultural Heritage Protection and Restoration

Problems and needs for cultural heritage protection could either be general or specific to the monument it self. The problems that are more or less common to most heritage sites are discussed below.

# (a) The Absence of a regular monitoring programme due to a lack of facilities for a scientific monitoring system.

Cultural sites are often attractive for local and foreign visitors. As a result, cultural sites draws a lot of local and foreign visitors.

Therefore, it is very important to keep records on the number of visitors on a daily, weekly, monthly and annual basis, and to have a closer look at visitor movements and their impact on the sites.

The Sigiriya rock fortress which is the most visited site in Sri Lanka has been subjected to excessive wear and tear due to the presence of large number of foreign and local visitors throughout the year.

The palace complex located at the summit of the rock can be reached through a very steep pathway and a flight of steps built of limestone and bricks. (Fig. 4)

The limestone, although a reasonably a hard material, has been worn off due to the

excessive visitor movement on these steps.

The bricks, out of which the other steps were built, have experienced the same problem. Although this problem of excessive use has been evident for a long time, adequate measures to arrest this kind of deterioration have not yet been introduced.

Dambulla painted cave is another classic example of the same problem. Dambulla painted cave is visited by a large number of devotees and foreign visitors throughout the year. The Buddhist devotees flock in large numbers especially on the full moon poya days to pay their homage to the lord Buddha. The front wall was built enclosing the natural cave and the tiny doorway on the wall provided access to the cave. The humidity inside the cave is fairly high as the space inside the cave does not get enough ventilation due to the absence of an opening except the tiny door placed on the front wall. Therefore, the presence of a large number of visitors especially on Full Moon poya days contributed to the sudden rise of the humidity inside the cave. On a Vesak Poya Day about two years back, the plaster on the rock surface on the historic paintings collapsed as a result of the increased humidity.

Therefore, regular monitoring of the temperature and humidity variation inside the cave together with the fluctuation of visitor traffic is absolutely vital for the sustainability of these invaluable cultural properties.

The other object often subject to excessive wear is the "Sandakada Pahana" or moonstone, which is placed at the entrance to the sacred buildings. This is a highly decorative object with the motifs of animals, swans (?) and flowered designs. The motifs which were carved into the stone display the finest stone carvings. Most of the carvings are worn off due to visitors' treading directly on these fine carvings.

Therefore, it is very import to monitor the rate of wear of these invaluable sculptures.

All of the above factors very clearly prove, that if the heritage sites are not managed properly, taking into consideration the carring capacity of the site, these valuable heritage sites might be in danger of loosing their authentic value.

# (b) Insufficient research on the factors of deterioration, traditional technologies and building materials

In most of the Sri Lankan monuments especially those at Anuradhapura and Polonnaruva, the historic plaster fragments are still left. Although these plasters have been exposed to weathering factors over several centuries, some of these plasters are still in good shape.

Most of these plasters are lime based. But lime plasters which are produced today are not compatible with the plasters left on the ancient monuments. Most of the lime plasters produced recently take a very large time for setting and sometimes it might not set at all under very damp conditions. In order to overcome this problem of setting, Portland cement is added. Cement solves this problem, but it creates several problems at the same time. Adding cement will create the following problems.

- (1) Colour of the cement plaster may not be compatible with that of lime.
- (2) The strength of the cement plaster is high compared to that of lime plaster
- (3) Cement plaster may add soluble salts to the historic structures.
- (4) The strength of the cement plaster is high and not compatible with the ancient lime plaster.
- (5) Adding a more hard material obviously creates pressure on the low strength lime plaster leading to more deterioration of the lime plaster.

Therefore it is necessary to carry out more research on the ancient lime mortar and develop a lime mortar and plaster that is compatible with the properties of the historic lime plaster.

In the conservation of the Abayagiriya stupa, which is a brick built structure using mud as a mortar, it was decided not to use cement, as the use of cement creates long term problems.

The Central Cultural Fund in collaboration with the National Building Research Organization in Sri Lanka has developed a mortar for the following proportions and presently this mortar is used in the conservation of the Abayagiriya stupa.

- Lime 1
- Ant hill clay 2
- Tile power 2
- Paddy husk 1

This mortar is slightly slow in setting under damp conditions and takes a fairly long time to reach full strength. Therefore more research on this mortar is necessary in order to develop a motor that eliminates these draw backs.

# (c) Deterioration of Bricks:

Most of the monuments built during the Polonnaruwa period are brick built structures. The gigantic brick image houses of Lankathilaka and Thivanka Pilimage are presently in danger due to the rapid deterioration of bricks. Although several preliminary research studies have been carried out to find out the exact causes of deterioration, more systematic scientific research on this problem is still to be undertaken. It is understood that the deterioration of the bricks are a result of several deterioration factors acting on the bricks at the same time.

The one of the cause of deterioration is sand blasting. The heavy wind blowing across the monument brings a lot of sand and dust particles with it and these particles hit the bricks walls with intense pressure. Frequent occurrence of this phenomenon finally leads to the disintegration of the homogeneous particles of the bricks.

Another factor responsible for the deterioration could be identified as subffloracence. Ground water contains salt and rises through the wall due to capillary action, bringing a soluble salt with it. The presence of high winds at the location evaporates the water forming salt crystals beneath the surface of the bricks. These crystals formed beneath the surface exert pressure on the surface leading to the disintegration of surface particles. (Fig. 12, 13)

Due to this deterioration, cavities are formed in the brick wall. The wind which starts rotating in the cavities accelerates water evaporation leading to more rapid deterioration of the bricks.

Therefore, it is necessary to analyze the factors of deterioration and decide upon the best method of intervention.



Fig.12 Deterioration of plaster



## (d) Deterioration of timber monuments

Fig.13 Formation of salt crystals

Timber is a very widely used building material in Sri Lanka. Most of the monuments built in the Gampola and Kandiyan period are of timber.

Deterioration of timber members due to the actions of several deterioration factors are one of the challenges that conservators are often faced with. Biological deterioration has been a major cause of deterioration over the last centuries.

The large carpenter beetle (Hymenoptera) always attacks the sound as well as the deteriorated wood by drilling holes in to the wood. The drilled holes are of varying size, and can often be observed in the timber monuments in Kandy. Carpenter beetles create their nests inside the wood. The larva in the nests feed on the wood creating large cavities inside the wood. This process goes on inside the wood and is not visible from the outside. The accumulation of timber dust on the floor and the bodies of dead beetles are evidence of this problem.

Termites, also known as white ants are also major causes of deterioration of wood. Termites which are present in large numbers, feed on wood and in a relatively short period of time they can eat out the entire timber member.

This problem of termites is more common in the timber structures which are in contact with the ground. Therefore timber structures were built on raised platforms as evident in the Tampita Vihara construction, in order to eliminate this menace.

#### (e) Scarecity of timber

The timber members, especially those used as structural members are very large cross sections and fairly long. When these members deteriorate, it is very difficult to find a timber section similar to that of the original. The reason is that the species used for those constructions are now very scarce.

The species commonly used in ancient timber constructions were Gammalu (Ptero carpas), Jak, Halmilla, Teak, Mee, and others.

"Gammalu", the variety widely used for decorative columns is not available today. When timber members are replaced, it is a standard practice to use similar species and to keep the dimensions exactly similar to the one being replaced. The structural beam at the Wijesundararamaya chapter house in Kandy has a cross section of 14"x12" and a length of 20ft'. It is a massive timber structural timber beam. This is very badly deteriorated especially the lower section, and had to be replaced. Although every attempt was made over a period of six months to find a timber beam similar to the one to be replaced, they were not successful.

Therefore an alternate method had to be found instead of replacing the original one. The existing beam was analysed to identify the strength of the beam and the type of load it had to bear. This analysis showed that although the bottom section was badly deteriorated, the top sections were in fairly better condition. The analysis of forces on the timber member revealed that the bottom section was no longer capable of bearing the tensile stress although the top section still could carry the compressive strength. Therefore member had to be improved against the tensile strength. The U channel was carved in the bottom section and an iron "I" section was inserted that could take the tensile strength. Finally this "I" section was concealed with the timber casing to keep the appearance as it was before the intervention.

## (f) Scarcity of trained craftsman

The most of the structural and non structural timber members used in ancient timber construction was either very finely carved or painted. The timber members in absence of decorations or carvings can be replaced more liberally in conservation than those carved or decorated.

When the conservation of the Natha Devala drumming hall in Kandy was undertaken, there



Fig.14-Introdution of new timber in place of deterioration

were only 9 very finely decorative timber columns left out of the total 24. The timber columns were replaced with the masonry columns in previous interventions obscuring the appearance of this unique monument. The reason for introducing the masonry columns in place of the timber column would have been the enormous cost and time needed for the reproduction of the columns similar to the original. The 9 columns which were left of the time of the restoration were also very badly deteriorated.

When the restoration was undertaken under the UNESCO-Sri Lanka Cultural Triangle Project, the decision was taken to reproduce the columns despite the enormous skill and

time required. (Fig. 14)

Although about 40 skilled carpenters were working under the Cultural Triangle Kandy project, only two of them were able to reproduce the carving similar to the original. There were 15 timber columns to be carved and it was a massive task due to the unavailability of skilled craftsmen. One craftsman took more than six months to finish one column. In fact, the entire restoration took a period of one year. (Fig. 15)

Thus, a notice was printed and circulated inviting craftsmen throughout the Island. Carpentry teams responded to the notice and they were given a trade test to decide on whether they had the required skills.



Fig.15 Reproducing columns

The carpentry team came from Ambekke village, known to be a craft village, and were able to produce the carving more or less similar to the original within a reasonable time. They were given the contract and it was accomplished to the satisfaction of the institution.

This conservation effort clearly rings the alarm on the scarcity of skilled craftsmen. Families that were engaged in wood carving for ages tend to find other employment for better income.

The sustainability of these craft industries are now under threat and could jeopardise future conservation work. Therefore the training of skilled craftsmen is vital for sustaining these traditional crafts and technologies.

#### (g) Use of synthetic resin in conservation:

The growing of weeds and small plants on the conserved brick monuments has been a threat to the conserved monuments (Fig. 16). This has been a subject of continuous discussion over the past

decades among the professionals engaged in the field of conservation. The application of a layer of epoxy resin has been in the experimental stages over the last two decades. The same experts are against the use of synthetic resin while some are for it. Two main reasons have been quoted by the conservators who do agree with the use of synthetic resin. One reason is that the application of synthetic resins form a thin impermeable layer on the face of bricks that completely suffocate the monument. The other reason is that the synthetic resins have not been directly tested on the ancient material and it is unknown what impact they would have. These materials have not been time proven as



Fig.16-Biological deterioration

they are materials of recent origin.

The synthetic resin was once applied to the conserved Rankoth Vehera at Polonnaruwa. After a few years of such application, tiny cracks were visible on the brick dome of the stupa. Some argued that cracks were the results of the increase of volume due to the blocking of evaporation of water by the synthetic impermeable layer.

Filling of cavities of the wood members with synthetic resin is also practiced in conservation of timber buildings. In cases where areas to be filled are large enough to insert a piece of timber of the same species, the use of a synthetic resin could be avoided. But instances where tiny holes are to be filled, the sawdust mixed with synthetic resin has been in practice.

In both cases, the new materials introduced should behave the same way as the original with the fluctuation of temperature and humidity. The properties of the materials introduced should be compatible with that of the original. The new material should harmonize with the old in colour and texture

If the two materials do not expand and contract same way, two problems can occur. If the



original material expands more than the filled material, the filled material could fall out. In the other way, more contraction of the old piece could result in cracking due to the restriction of the forces.

#### expansion

contraction

#### (h) Deterioration of timber columns

Deterioration of timber monuments has drawn the attention of conservators over a long period of time. Deterioration of the base of the timber columns due to termites and the presence of moisture was evident in many timber monuments. Therefore, various methods have been tried in order to



Fig.17 Introduction of a copper plate

overcome this often visible problem with timber monuments.

The introduction of a stone base and copper plate as a termite shield has been the method employed in the conservation of timber columns over the last few decades. (Fig. 17)

The bottom portion of most of the decorative timber columns are often found in a very deteriorated condition.

In the conservation of timber monuments, every effort is made to retain the timber components that have carvings or painted layers on them. The replacement of these members is done only in instances where the existing member is deteriorated beyond repair.

The deteriorated bottom portions of columns are replaced with a new timber component from the same species. In cases where the same species is not available, the species that has similar properties as that of the original are used. The similar species is permitted only after every effort in finding the same species has failed. (Fig. 18, 19, 20)

#### (i) Vandalism

Vandalism is a problem not only in Sri Lanka, but it has become a global problem also. Those responsible for vandalism do it intentionally sometimes. But in most cases, the vandalism is not intentional. Whether it is done intentionally, or unintentionally, it completely ruins the appearance of the whole monument and sometimes distorts valuable information.

The mirror wall at the Sigiriya World Heritage site which contains "graffiti" written by the visitors to Sigiriya around the 7th century is under threat of vandalism. The graffiti throws light on the Sinhalese alphabet of that era and provides invaluable information on the history of Sigiriya. This graffiti also reveals the artistic ability and sensitivity of the people of the 7th century.

During the recent past, some visitors have inscribed

their names on the mirror wall on top of the "graffiti" at Sigiriya. Therefore, it was decided that some sort of protection in the form of a barrier should be introduced to keep visitors away from the mirror wall. It was further agreed that intervention should be conducted in such a way that the aesthetic beauty of the site should not be affected in any way.

The encasing of a mirror wall with a transparent glass is one suggestion under discussion. The mirror wall should not be completely encased with a transplanted glass box as it may create a microclimate inside that might have a negative impact on the plaster of the mirror wall.

# Conclusions

The problems regarding the conservation of monuments and sites described in detail in the previous pages clearly shows that if appropriate actions are not taken now, our valuable heritage



Fig.18 Deteriorated base of the original replaced



Fig.19 Joints exactly copied and reproduced



Fig.20 Fixing detail on top

could be in danger. If we allow the deterioration of monuments to continue without intervening to conserve them, it will be detrimental to their existence and to the sites of which they are a part.

Therefore it is clear that there must be well thought out master and management plans for all monuments and sites, the implementation of which should ensure their sustainability.

The development of a conservation charter for the Asian region could lay the foundation for the systematic and more scientific approach for conservation within the region. The manuals should be developed using modern documentation techniques and how these accurate modern techniques, can be adapted to places where traditional techniques are used as they consume more time as well as resources. The countries in this large region could prepare their own manuals specific to their monuments and contexts within broad guidelines provided in the Asian Charter.

Research on traditional building materials and technologies must be encouraged as much as possible since knowledge on the production of traditional materials is fast disappearing. The establishment of a centre for research on traditional materials and technology with complete facilities and equipment may would be appropriate in this regard. Professionals and technicians should be given opportunities to develop their knowledge and skills through national and international training, and on the use of modern equipment and how this equipment could be used in analyzing the materials used in the ancient monuments.

Although Sri Lanka has well over 100,000 monuments and sites, a comprehensive data base has not yet been prepared. Studies of database preparation practiced in other countries would be appropriate in order to develop a system that will fit our requirements. On-site workshops by the experts are to be organized with a view towards imparting this knowledge to all those responsible.

Preparation of comprehensive maintenance plans after conservation is also vital and must be the final phase of the conservation process. If the conserved sites do not have a proper maintenance plan, all the efforts of conservation and resources put therein could be in vain.

The preparation of comprehensive plans and capacity building of personnel responsible for their implementation will ensure the sustainability of monuments and sites in order to preserve the heritage of mankind for the generations yet to be born.

# Thailand

# **Chamorn PORAPAKPRALAI**

Architect Monuments Conservation Group Office of Archaeology The Fine Arts Department

# PROBLEMS AND NEEDS FOR CULTURAL MONUMENTS PROTECTION AND RESTORATION ACTIVITIES IN THAILAND

# I. Introduction

Thailand is one of several nations situated in the region known as Southeast Asia. The Chao Phraya River, the main river in Thailand, flows from Northern Thailand to the Gulf of Thailand. Thai people prefer living close to rivers, especially people from central Thailand. Many of the ancient cities in Thailand were established near the Chao Phraya. As same as more Country around South –East Asia, the ancient age of the area called Thailand were the consist of many States in the same time, they were established, grew and fell.

Before discussing monument protection and restoration, a presentation of the background of Thai history is necessary.

# **II. A Rough history of Thai Architecture:**

#### A) Dvaravati (12th-16th Buddhist century)

More evidences have been found from the central part of the Country to Pattani province on the Southern peninsula. There were states around these areas from the Dvaravati or Sri-vijaya age.

#### **Town of Dravati**

- 1. Central part of the Country: The centre was Nakara-Jaisri
- 2. Southern parts of the Country: The centre was Jaiya

## Architecture of Dvaravati

More architectural ruins were found under hillocks, especially Buddhist Stupas. These Stupas consisted of masonry architecture. Raw clay bricks were used and the mortar was very small because of the use of special techniques such as glue that was used to hold bricks together.

Today in the southern parts of the country many Dvaravati Buddhist ruins were found in the middle

of rubber gardens occupied by Muslim people.

#### B) Khmer influence (12th-18th Buddhist century)

The influence of Khmer culture is distributed all around the country, from the central, north-eastern, western, and northern parts. There was more evidence such as objects and architecture, like the Prang sam Yod in Lopburi district, and the Sadok-kok Thom in the Sakaew district.

#### C) Sukhothai (19th-20th Buddhist century)

Around 1200, a state called Sukhothai was established in the lower northern part of Thailand by King Sri-indra-ditaya. He gathered Thai citizens, built the ancient city of Sukhothai and founded the Pra-ruang Dynasty at Sukhothai. His son and other kings developed the Sukhothai into a powerful state, and increased more area. They established Sri-sajanalai city and Kampang-petch city under Sukhothai power. Today Sukhothai city, Sri-sajanalai city and Kampang-petch are UNESCO World Heritage sites.

Sukhothai was the ideal image of a free society with the liberty of Thai citizens, commercialization, and the centre of Buddhism.

Between rulings of King Li-dai is the grate age of Buddhism. He sent some monks to many town, especially Sri-Lanka, and received new idea to developed the stupas form. This design idea would later be passed to Ayutthaya arts.

Sukhothai was ruled by one dynasty, and between the reigns of King Boropan the 10th dynasty king. The Sukhothai state merged to be a part of the Ayutthaya state.

#### Sukhothai Architecture

Sukhothai city is a formal city. It was a rectangular city, surrounded by city walls and ditches. In Sukhothai city there is a lot of Buddhist architecture spread all over the area .Most of this architecture was brick architecture with wood and laterite. Sometime Khmer architecture was found inside the Sukhothai architecture such as at Wat Mahathat monastery, and sometimes the influence of the Ayutthaya arts was found.

#### Wat Mahathat monastery

The most importance monastery of the city, placed in the middle of the city. The Composition of elements such as Main hall minor halls and group of stupas of this monastery presented the principle of Thai Cosmos. The centre Stupa was defied as Sumeru Mountain surrounded by seven satellite mountains and four continents. The principle of the Cosmos was found later at Ayutthaya and in the Ratana-Kosinda architecture.

#### Wat Mahathat monastery at Bhisanu-Loka:

The Sukhothai living monument remains today, and without doubt elements of the monastery proclaim the principle of Cosmos. This place used to have roof structures and decorated elements of the main hall, minor hall and corridors. The Ayutthaya influence can be found on the main Stupa form, and on the hall elements.

#### D) Ayutthaya (19th-23rd Buddhist century)

A state was established in the central part of the Country at the same time as Sukhothai. It was the Ayutthaya state, King Rama the 1st, who leaded his people from an unknown location to establish a new city here. First it was founded in the southern part, in the area of the Wat Buddi-Sawan monastery, and then moved to the upper area in the region of Ayutthaya..

Ayutthaya state grew to be a powerful state. It was ruled many cities in the central part of the country such as Supanburi, Lopburi, Jaya-nath, Petchaburi and others. Sukhothai state become a part of Ayutthaya and then received more ideas from Sukhothai such as the Cosmos. At the same time it received ideas from other states and developed everything, such as Hindu's Deva-king. The good factor of Ayutthaya's development was the influence of foreign influences; certainly this was true about the Architecture

Over more than 400 years of Ayutthaya rule, there were five Dynasties and 33 Kings.

The name of great Kings come from this era\* King Rama the 1st, King Naresuan, King Songdham, King Prasat-Thong, and King Narai.

#### Ayutthaya city and its Architecture

Ayutthaya architecture can be divided into three periods: the initial, middle and final periods.

Ayutthaya city was surrounded by two rivers. The shape of the city looks like a ship facing to the East. Ayutthaya people built city walls and forts next to the river to protect the city. The ancient city of Ayutthaya is now a UNESCO World Heritage site.

#### **The Ancient Palace**

The ancient palace was placed on the Northern part of Ayutthaya city. It was the Palace for the 33 kings of Ayutthaya. Today many ruined monuments have been looked after by the Fine Arts Department and have been reserved for a long time since the time of King Chulalongkorn and on to today.

#### Wat Buddi-Sawan monastery

The situation of this monastery was on the Ayutthaya 1st.palace site. There was a grand Stupas on the centre surrounded by a corridor, and other elements, certainly it presented the idea of Sumeru

Mountain.

Here there was architecture with wood roof structures. They lived a long time to be witnesses of Ayutthaya Architecture.

Wat naprameru: is a living monument and a good example of Ayutthaya Achitecture, and wood craft

#### E) Ratanakosin (Bangkok, 1782-present)

King Rama the 1st established a new city on the east side of the Chao Phraya River in the area of Bangkok. He established the Chakri Dynasty that has continued to the 9Th King.

Between the reign of King Mongkut the 4th King, Siam was declared to be the name of Thailand. This time Colonialism influences came, and Siam began changing everything, commercialization began, army, education, city planning, and architecture all changed. The influence continued to the reign of King Chulalongkorn. Experts from Western countries came, and were involved in everything including Architecture.

During the reign of King Vajiravuth (the 6th king) the Fine Arts Department was founded in order to protect every type of Thai Culture Heritage.

Between the reign of King Prajadipok (the 7th king), the 1st National Museum was founded.

Around 1933, the government revolution took place and the democracy system was installed in place of the Monarchy.

The new government wanted to develop the country, and change the name from Siam to Thailand. The influence of this modern movement eventually changed everything.

#### Architecture of Bangkok Period: The Wat Chetubhon Monastery

King Rama the 1st founded a monastery near the Palace. He took many Buddha images from Ayutthaya City and Sukhothai City to the corridor, and minor halls. Planning was based on the continuity of the cosmos concept from Sukhothai, Ayutthaya and Bangkok. Today, this is an important and great monastery with many monuments that are in need of restoration.

# III. Problems and Needs for Cultural Monument Protection and Restoration in Thailand

The conservation, protection and restoration of Cultural heritage in Thailand are the main priority of The Fine Arts Department.

For cultural monuments there is a group of conservators who work under the Office of Archaeology. The monuments, ancient object, and museum law was declared in 1957. Some parts

of it are devoted to the control and protection of cultural monuments. There are presently many problems and needs regarding the conservation of cultural monuments in Thailand.

## A) Social

Presently, there are invasions upon monument areas, whether they are registered areas or not. A landowner had submitted to the building of 4 floor massive buildings on the ditch of the ancient city of Supanburi. Additionally somebody wanted to build a godown near the ditch of the ancient city of U-Thong near Supanburi. Why did they want to do that? Possibly because of the city was growing from an agricultural area into a commercial area, and the growing population raised the cost of living.

#### **B)** Worth

An abbott wanted to have a larger area for Buddhist learning, and thus built a big building on the space next to a monument or in the vicinity of the monument.

An abbot wanted to demolish an old, monument in order to build a new building for receiving Buddhists followers.

The preference for new things is the main idea that lies at the roots of many people who create and live in built cultural heritage and monuments.

#### C) Law

The Monument Law does not control the area near monument areas, and the Environmental Law does not discuss Cultural Environments, thus many big buildings have been built next to many monuments.

#### **D)** Materials:

Some occupiers want to restore some monuments, but they did not use original materials. Some people want to change the roof decoration from wood to precast concrete because concrete cement is not maintained, but the monument may damaged later because of the rigidity of the cement and the salt in the cement.

#### E) Moisture and salt damage:

Many of the monuments are situated near rivers, and most of the monuments were wall-bearing buildings with their foundations still in mud, clay and water, thus moisture from rivers could damage many more, monuments. There is more salt in water and earth, thus walls suck salt through them, which damages the bricks and the wall finishing.

Rain is always a factor, as traditional clay roof tiles were used on many of monuments, these tiles were out of quality control between production. Rain came into the monuments and damaged the ceiling, roof structure, upper wall and also mural paintings. Sometime rain leaks inside through small cracks between walls or roofs.

## F) Structural collapse

Some wall bearing monuments collapsed because of ground subsidence.

# **G)** National development

Sometimes government projects were factors that damaged monuments, for example a new railway project might come too close to monuments in Nontaburi province, and a new leveled road might cover an historic canal.

# H) Stealing

# I) Budget

In conclusion, it is time to protect and restore the monuments in Thailand. We have to resolve many favours and establish the anxiousness to cultural heritage regarding government parts and individual parts, and to identify ourselves through our cultural heritage.

# The Kingdom of Tonga

## Isileli Vea TUITUPOU

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# **CONSERVATION OF WOODEN HISTORIC BUILDINGS** Problems and Needs for Cultural Heritage Protection and Restoration Tongan Fale House form a Cultural Heritage Property: Evolution and Rationale

# Background

This paper is written for the requirement of a training course on Preservation and Restoration of Cultural heritage in the Asia – Pacific Region 2005 in Nara, Japan.

Tonga, a group of tiny Polynesian islands in the South Pacific Ocean spreads throughout vast sea area of about 362,500 square kilometre between latitude 15 and 23 degrees South, longitude 173 and 177 degrees West. As a result of this location, Tonga is proud to lay claim to the first nation to welcome the sunrise each day.

The government of Tonga has been ruled by a Constitutional Monarchy for nearly 3 centuries. The population of Tonga is believed to exceed 120,000 people, inclusive of overseas migrants. Tonga experiences a moderate temperature and climate throughout the year with a cooler period in March to September and a warmer period from November to February. During the warmer periods, tropical cyclones frequently occur and a national is disaster is declared. Furthermore historical statistics reveal a 20 year cycle that causes the worst devastation to the Kingdom. Disaster preparedness is monitored at the national level, in addition to cyclones and earthquakes. Tonga lies along Southwest Belt of Fire, and is, hence, subjective to seismic activities of the zone B tectonic plate.

# **Migration Theory**

Tonga vernacular dwelling houses are known as Fale. They have been chosen as study cases here because of their direct relevance to the adoption of a conservation program for Tongan cultural/architectural heritage.

Evolution of the Fale house form and shape is seen to be directly related to the migration theory of its dwellers. Oral historical accounts stipulate that Tongan ancestors were seafarers who made a long-distance journey in large kalia or canoes, from Southeast Asia 1200 years ago.

Archaeological evidence has led to the definition of a prehistoric cultural period known as the Lapita Pottery Culture that supports this theory. The primary line of evidence has been the excavation of several sites that represented early settlements at coastal areas on the main island of Tongatapu. Sketch drawings by early European explorers show a curved roof dwelling perched on large canoes lending further support to the idea that the starting point of early settlements used the general Fale shape. More recently as 1960's photos of curved thatched roofs were found along the coast south of Papua New Guinea and East Timor.

#### Fale: Transitional Forms and Shapes

Archaeological evidence indicates that the two sides of the curved roof shapes were shifted inland from the kalia and erected on coastal lands where they were later elevated to perch upon four supporting poles and lashed to hold them down.

It was customary practice that during hurricane warnings the family members would unlash the post to bearer junctions, then lower the roof structure to the ground for shelter during the storm. It would then be replaced after the cyclone passed.

It is believed that the rounded end structures were added at later stage after a long trial and error period that proved that the curved mid-section was an effective cyclone resistance design shape and structure (please refer to the floor plan, section and elevation drawings presented in this report).

#### Fale House Form: A Natural Disaster Resistance Design

Several explanations based on the results of engineering studies indicate that a curved thatched roof shape has been proven effective for hurricane resistance. This is particularly true with cane leaf thatching or coconut leaf thatching. Wind pressure lands and infiltrates inward into the dwelling thus reducing internal pressure that would avoid potential uplift. The balance of severe pressure is dissipated onto the roof structure where is it absorbed by allowable movements at lashed junctions i.e roof battens to strutting members and beam to poles connections.

Similar behaviour is said to occur at seismic ground movements. The lashed connections



Transition of fale (drawn by the participant)

absorb the forces of shake by allowing rhythmic movement in respond.

At later stage when metal straps and nails were introduced to replace the kafa lashing. Tragic damages were to occur at previous lashed junctions particularly when original wood members were aging.

#### **Cultural and Social Influences**

It is vital to note the social influence over the changing shape of Fale form. The high vaulted dome roof was no doubt offer symbol of power and success at political and social arenas. Big chiefs would acquire the fale form to celebrate his social status in the community. At arrival of early missionaries in mid 17th century Fale form was to grow larger scale i.e from four support poles to eight and to house 100 people for worship.

#### **Architectural Enhancement Periods**

Further reference to imperialist and civil war period in 16th century, Tongan chief and war lords declared battles with its neighbours Samoa and Fiji in later years. Tonga sovereignity was spread to settle Samoa. Fale shape was built for Samoan chiefs and to become Samoan house form to this day. On the same period onwards specialized family builders and craftsmen were assigned for the construction of fale. What were to follow were refinements to structural connection detailing, decorative lashings adopted. Such lashings were to become artistic that add symbolic values and meanings to fales owners status and builders reputation as well.

## **Christian Influence**

Fale shape continues its changing to introduction and employ of imported steel roofing and glass pane windows the befitted with timber joinery pulpit. Construction process was to become a community affair where skilled craftsmen contributed voluntarily. Again more joinery detail decorations, wider range of lashing patterns were introduced for the sake of glorifying Christian belief.

#### **Today Commercialisation**

# **Restoration and Reconstruction of Architectural Cultural Heritage**

I discussed earlier the introduction of imported materials as against the structural mechanism of traditional fale roof structure. Sudden fatality was evident when traditional structure was to wipe out rapidly by series of cyclones of 1961, 1981 Issac, and 2001 Waka i.e. 20 years mentioned earlier. Included in the destruction of major earthquake in 1972 was Saione Motua the largest scale church in fale shape but was documented, dismantled and stored away. Follow on were series of
reconstruction in fale shape and form but in concrete and steel replica.

Commercial functions was starting to emerge employing fale shape. A symbol of Tongan traditional community environment with its complex roof structure and scale offer meaning to sustainable goodwill business venture, the very reason for Eco tourism market.

Christian churches continue to construct fale shape in order of maintain a stronghold belief but above all is to symbolize identity.

Schools continue to construct fale shape to mark success of schools achievement in academic, sports, and to mark 50th anniversary.

#### Fale an Architectural Heritage for Tonga

Original fale shape and form are as rapidly diminished in unmonitored level. Part restoration work to some are seen very costly. Continuous protection of remaining vernacular fale through preservation program is possible. Continuous reconstruction of fale shape in original structure, replica, is a potential trend as far as current interest of churches sector and tourism industry. Such a conservation program shall need government sectors support.

Ministry of Works has continued documentation and filing of large scale destructed fale. Design data to roof curvature in proportion to floor and walls scale has been computerized. Design proposals to upcoming government complex such as new parliament house would be an excellent opportunity for promoting of fale form and shape as preservation of architectural heritage.

Current reconstruction projects of chapels in fale form should be seen as good sign to start enacting guidelines to protection of cultural heritage. Such guideline shall pave way to enactment of law to preservation of fale form and shape – a symbol of success of our ancestors, the very basic meaning of Tonga architectural heritage – a qualified designated property.

Arigato Gozaimasu

Malo Aupito.

# Vietnam

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# SOME EXPERIENCES ON THE RESTORATION AND PRESERVATION OF HOI AN ANCIENT TOWN

# 1 Outline of Hoi An Ancient Town:

1.1. Hoi An Ancient town is located in the centre of Hoi An town, Quang Nam province. It is 30 km from Da Nang city in the Southeast and 58km from Tam Ky township in the North. The total area encompassed by Hoi An is 6084 Hectares with a population of 83, 186.

1.2. Hoi An Ancient town includes 1,268 architectural and art relics with many kinds and styles. In addition, there are many buried artefacts.

1.3.

- Hoi An is one of the places where Christianity and Buddhism were propagandized early in Dang Trong (the Central area of Viet Nam). The "Quoc Ngu" (the national language of Vietnam using alphabetic characters) was created in the 17th century.
- Festivals were held year-round. There are many traditional craft villages and many special dishes, abundant folklore, and friendly people.

1.4. Hoi An Ancient town was recognized as a UNESCO World Heritage site based on 2 criteria:

- Criterion II: Hoi An is an outstanding material manifestation of the fusion of cultures over time in an international commercial port.
- Criterion V: Hoi An is an exceptionally well preserved example of a traditional Asian trading port.

# 2. Orientations and Measures for Hoi An Ancient Town Preservation:

2.1. Preservation situation:

- During hundreds of years, the Hoi An people have maintained, protected and promoted the values of their ancestors cultural heritage.
- Hoi An Ancient town was recognized as a national heritage town by the Vietnamese Ministry of Culture and Information on March 19, 1985.

- Hoi An Ancient town was recognized as a world cultural heritage town by UNESCO on December 4, 1999.
- Hoi An authority and people have carried out many policies and measures for better preserving and promoting the Hoi An Ancient town's values:
  - Cooperation in the organization of many scientific symposiums
  - Establishing many specialized management offices.
  - Investing tens of millions of Vietnamese dollars for restoring hundreds of seriously damaged monuments requiring urgent conservation.
  - Restoring, preserving and promoting the values of intangible culture.
- Despite all of these efforts, it is still necessary to resolve many additional problems in Hoi An Ancient town:
  - The complex of architectural monuments in Hoi An ancient town is mainly made of wood originally built hundreds of years ago. Time and the tropical environment have caused extensive damage quickly to these houses.
  - The lay-out of space of the wooden houses in the 19th century has caused many obstructions to residents who live in these houses in the 21st century.
  - 82.8% of the monuments in Hoi An ancient town belong to private owners. Their awareness and profits have never been unified with preservation principles.
  - In general, the Hoi An authority and people are still poor, so it is difficult to invest the budget for restoring and embellishing its monuments.
  - There is considerable pressure from development from the eco-human environment (especially the high speed of economic tourism development that is quickly increasing in numbers.)
  - There is also a lack of professional staff and limited ability.

# 2.2. Orientation of Hoi An ancient town preservation:

- Objectives of preservation:
  - To prove the creation of Hoi An people during the historical period through an economic cultural exchange process.
  - To express the gratefulness of contemporary people to their ancestors and to educate younger generations in the traditions of the culture
  - To promote economic and social development, especially tourism, services.
  - To implement the international legal regulations that Viet Nam has signed and taken

part.

- Principles of preservation:
- Each wooden house preservation with the preservation of the whole complex of architectural monuments of ancient town has to be closely connected.
- We have to preserve maximum of the original elements of traditional architecture and to meet the living demands of contemporary people.
- To carry out only the restoration and reconstruction of wooden houses when really necessary, and have enough scientific evidence and sufficient conditions for restoration.
- It is necessary to base restoration on the historical characteristics and the economic social conditions of local and central governments when preservating wooden houses.
- We have to solve the harmonious relationship between the responsibilities of wooden house preservation with profits brought from their exploration and promotion.
- The responsibility of wooden house preservation first belongs to each owner of the monuments of Hoi An.

# 2.3. Measures of Hoi An ancient town preservation:

# 2.3.1. Management:

- Continue to speed up the scientific researching activities on Hoi An.
- Strengthening management and preservation of Ancient town:
  - Enhancing effective legal documents.
  - Supplying means: equipment for preventing and extinguishing fires; and enhancing the consciousness of people for preventing and extinguishing fires in the Ancient Town.
  - Restraining means of communication in the Ancient Town.
  - Moving and ending activities causing pollution in the Ancient Town.
  - Staving off and restraining impacts of storms and floods.
  - Training staff, co-ordinating with related offices
- Promoting movement and education of people so that they love, respect and enhance the consciousness of preserving the heritage of their ancestors.
- Building new surrounding residential areas to decrease population density in the Ancient Town.
- Implementing investment projects of relic restoration authentically combined with termite treatment.

- Supporting finance, advising techniques and guiding procedures for homeowners to restore themselves.
- Harmonizing relations between preservation of heritage and the life of the people.
  - Preserving original elements of traditional architecture.
  - Meeting the daily life demand of people.
  - Making convenient conditions so that homeowners develop economy and improve life to promote the value of heritage.
  - Harmonizing relations of interests of government and people.
- Supporting materials and local traditional technique for restoring relics.
- Promoting propagation and broadcasting the value of Hoi An Ancient Town.

# 2.3.2. Restoration:

The restored buildings are divided into many kinds depending on the damage to buildings. One of the many restoration methods can be used, such as: restoring one part, all of parts, or only repairing the roof (the roof is an important architectural part that aids in determining the age of the building). In general, the implementation of steps is done as follows:

# 2.3.2.1. Research before restoration:

- Surveying, drawing and documenting the existing state of the building.
- Surveying the vestiges of buildings (on the wall or under the ground), checking photos, old files or listening to stories of witnesses to restore buildings that have collapsed completely.
- Drafting restoring plans, consulting the ideas of professionals and completing design documents.
- Choosing professional and suitable contractors.

# **2.3.2.2. Research during the restoration process:**

- Research is usually implemented during the dismantlement process. Research is done in order to check the dimension and design measures that were implemented during former design documents; check damage parts, material structures and methods of grafting mortise. From this information, we can decide official design document.

# 2.3.2.3. Restoration:

- -First preparations of the restoration plan are carried out. Before restoring, a building

must be guarded and steel scaffolding installed with a roof to protect and restrain the building from the impact of weather. However, in Hoi An, the guarding of buildings is very difficult because surrounding areas are limited, if it has it is only one guarded façade, it may decrease breakdowns.

- The second step is the work of marking structures (wooden structures). Wooden structures are marked to define their position by painting a small wood and pin into the structure position.
- The third step is the work of dismantling buildings. The dismantlement is implemented by a compulsory process, that is, to dismantle complementary structures first after the main structures.
- The forth step is the work of classifying structure quality. The structures can be reinforced or changed. The reinforcement must ensure its strength.
- Adjusting the height and the location of stonebases. (Because the heights of stonebases are different and their location is displaced due to the impact of the users and the time).
- Installing the whole workframe. Before installing, , conservators often put the leaden peace of 3-5 mm under the end of pillars to insulate the damp wood, or at the location where wood is put next to the wall or inside the wall, they sweep up a coat of tar or other suitable materials against damp and mould.
- Scaling off and plastering the whole work, consolidating the cracked parts of the wall and the foundation. If the wall is seriously damaged, they will dismantle a part or the whole work to renew it. The material for plastering is cement mortar # 100 with traditional lime.
  Depending on each work, they can implement this step after dismantling wooden structures or after installing the main wooden structures.
- Installing purlins and rafters in their former places. Damaged purlins and rafters can be replaced.
- Reconstructing the gable, covering Yin Yang rooftile. The number of row of new Yin Yang rooftile can be built much more than the number of row of old Yin Yang rooftile but they must be odd. The mortar for building the rooftile must be traditional one (other ones can not be used for building Yin Yang rooftiles).
- Completely covering the floor. Before covering, people always dig some small ditchs and use drugs against termites.
- Cleaning and polishing the whole wooden structure.
- Whitewashing the whole work (using traditional lime) as the original colour. People often use saffron blue.

# 2.3.2.4 Making the archives after restoration, including:

- Design documents-the legal documents relating to the work.
- Work diary, pictures, documentary films during the restoration process.
- Some valuable records of the origin of architectural styles and scientific basics through each historical period.

# 3. Conclusion:

The architectural complex of Hoi An ancient town Hoi An is an outstanding material manifestation of the fusion of cultures over time in an international commercial port, including almost all ancient architectural styles in Vietnam, a gathering of traditional art elements, and it is also rich in the contribution of foreign art.

From these important values, we have to preserve and take care of Hoi An ancient town using suitable measures so that preservation yields the best results: Not only preserving the maximum of original elements of traditional architecture, but in meeting the living demands of contemporary people.

In recent years, because of many difficulties, the Hoi An authorities and its people have effectively managed, preserved and promoted the values of Hoi An ancient town with their love and effort. However, there are still many tasks remaining, and we are looking forward to receiving the support and assistance from international friends in order that Hoi An ancient town remains a world cultural heritage site forever.

# Annex: Photos of Monuments Restoration in Hoi An





























# Restoration of Painting of Architectural Monuments - Text for ACCU Training Course

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# 1. Introduction

In conservation of architectural monuments, restoration is necessary to maintain the structure. Painting on the outside of monuments tends to deteriorate due to the effects of sunlight, wind, and rain. In Japan, restoration of paintings has been implemented for many years to preserve our cultural properties. However, repainting hides the original and in the worst cases can even destroy it. In other words, restoration of painting that involves complete repainting leads to the loss of original painting that had been maintained as historical heritage/cultural heritage. Restoration is an act that affects what historical heritage is. We need to first recognize this point.

Many architectural monuments have been repainted in the past. The current painting restoration in Japan gives us an impression that the basic principles of painting restoration have not yet been fully established. This paper describes the methods of painting restoration currently applied in Japan and examines future directions of painting restoration.

# 2. Role of Painting for Religious Architecture

Many wooden structures in East Asia, including Japan, are painted in some way, particularly religious architecture. What was the role of painting in religious architecture? It can be broadly divided into two roles.



Fig.1 The *torii* gateway at the entrance to a Shinto Shrine



Fig.2 The main building of a Shinto Shrine

The primary role was to protect the surface of the structure from weathering. Paint coats and effectively protects the wooden base. In case of wooden architectures, painting is extremely effective for protecting the wood's surface.

The second role was to announce the functions and roles of the structure by converting religious characteristics to visual information of colors and shapes, or to enhance its religious authority. Many types of religious architecture are extensively decorated by paintings that play this role so as to secure their solemnity. A variety of painting methods are used for this purpose, including the method of directly drawing Buddhas on pillars and board walls, and the method of translating religious themes into symbolic colors and patterns.

#### 3. Method adopted for Restoration of Paintings in Japan

First, let's look briefly at how painting restoration has been conducted with the aim of preserving and restoring cultural monuments in Japan.

In Japan, the restoration of cultural properties started in 1897. The restoration of paintings from 1897 to 1928 was implemented based on the following rules.

(1) If a painting is conserved relatively well, only exfoliation-preventive measures are taken and no colors are added.

(2) New replacement wooden parts are painted to look old so that they cannot be immediately distinguished from the original parts.

(3) Except for Nikko Mausoleum, exterior lacquer is mainly re-applied, and colors are also repainted in the original colors.

(4) If an original pattern is identified through minute study, even if it is badly exfoliated, some parts may be restored to their original colors.

(5) Reproductions and sketches of wall paintings and decorative patterns are created to retain records of the original state.

Not all practical restorations are conducted in the above ways. However, they were the principles behind painting restoration at that time.

Since then, painting restoration involving repainting has become more common, while holding to the above concept, and this trend has continued up to the present.

The concept of protection of cultural properties, i.e., its governing principle, is connected to social attitudes. Historical development of charters on the protection of cultural properties, including the Athens Charter in 1931, the Venice Charter in 1964, and the so-called Nara document in 1994 are evidence of this connection. Next, methods applied to actual painting restoration in Japan are described.

#### **Type I: Repair to maintain the Present State**

A method adopted when the painting is in good condition, and when the values of the painting contents are artistically and culturally high. This case is mainly seen on the painting of the interior parts of the building. In this case, no restoration is applied to the actual painting. The surface is cleaned, and treatment to prevent exfoliation is applied if its present condition, such as detachment of the painted layer from the base material, has a detrimental effect on conservation.

#### **Type** : Partial Repainting (Partial Repair)

A method of maintaining the present state, but at the same time, supplementary painting is conducted on parts where exfoliation has occurred and the wooden base is exposed. A treatment for preventing exfoliation may be applied to a part where deterioration of painting is noticeable. Even though the wooden substrate has not yet been exposed, repainting may be carried out in limited areas where deterioration is progressing.

This restoration method is often applied when the deteriorated portion on the painting is small, or for maintenance restoration needed after a complete repainting has been undertaken for restoration (described next).

#### **Type : Complete Repainting**

A method adopted mainly when an entire painting is exfoliated and has deteriorated. The repainting area is limited to the exterior or extends to the interior. In some cases, the current painting is totally scratched off and repainted. In other cases, items in good condition are conserved and repainted. Even in this complete repainting restoration, some parts may be preserved in their present state.

The majority of restoration and conservation projects adopt this complete repainting method. However, in the light of the fact that the painting itself is a part of the cultural heritage, this is the most controversial method.

Painting restoration in Japan takes place based on the above three methods. In fact, since deterioration of architectural painting is not uniform, these methods are combined in practice.

I have mentioned that complete repainting has been conducted on both interior and exterior of architecture for restoration of many cultural properties in Japan. I also mentioned at the beginning of this paper that painting is likely to deteriorate due to weathering. I have also pointed out that the principles of painting restoration have not been firmly established in practical painting restoration in Japan. Taking into account the fact that cultural heritage is often completely repainted and that painting itself is a part of the cultural heritage, we need to urgently re-establish guiding principles to govern painting restoration. What concept should it be based on?

In tackling this challenge, I will first confirm the positioning of painting itself in the historical relics, and then examine what form restoration should take in the future.

#### 4. The Cultural Value of Painting



Fig.3 Painting inside the pagoda

When preserving and protecting cultural properties, what should we keep and pass down to following generations? In considering this issue, it is important to gain an accurate grasp of the historical and cultural values of each target relic selected to be preserved. I have already described the roles and functions of architectural painting in historical monuments. Here, I will discuss further the value of painting as cultural heritage.

From the past days, colors have been effectively used for enhancing the solemnity of religious architectures. What do colors in architectural monuments tell us in the present day? Investigation of this point leads the understanding of the value of painting as cultural heritage. Colors are examined next

with respect to their design and techniques to study this point.

#### 4-1. Cultural Value of Painting from the aspect of Style

When we enter a colored religious monument, we sometimes experience an extraordinary feeling that space and time, in its religious form, envelops the monument.

The primary intention of coloring religious monuments is to convey suitable religious messages while giving it a magnificent and dignified appearance. Accordingly, the paintings appear to be based on religious doctrines and ethnic beliefs. We can thus understand that colored monuments play the role of conveying religious faith directly to people.

Paintings have two ways of fulfilling this role. One approach is to create pictures such as Buddhist paintings based on subjects that directly represent religious doctrines. The other is to express the same subject, but converted into patterns and designs. Colors are also one form of expression. In other words, the coloring of religious monuments is not just for decorative purposes: it is another way of expressing the essence of religious and ethnic beliefs.

On the other hand, the importance of the coloring of historical relics with respect to

design is related to the interest of those observing the relics. The positioning of coloring already described is directly linked to the transmission of religious messages to the population. However, the importance of coloring in relics tends to be in proportion to the interest of the viewers. More specifically, it is possible to make comparative studies of religious and cultural aspects in East Asia through coloring in addition to coloring as a specific religious message. We can also study the aesthetic differences among countries.

In this way, diverse academic studies can be developed through painting, and thus painting as design has a variety of useful values as a cultural property. Next, the value of painting as a cultural property is studied with respect to techniques.

#### 4-2. Value of Painting as Cultural Property from the aspect of Techniques

There are several methods of classifying coloring techniques. One is to focus on the colored surface. In Japan, one method is to classify coloring by drawing style. For example, this includes *hira saishiki* and *okiage saishiki*. Another approach is to classify techniques by differences in coloration methods and finishes. All of these techniques affect the colored surface, and the techniques used are characteristic of particular historical eras.

Next, another approach is to classify coloring techniques by the process of painting

itself, and to identify the techniques applied in each process. This is briefly described below by process, referring to research tasks that arise.

The coloring process is roughly divided into the steps of design planning, base coating, pattern transcription, and coloration.

Design planning involves thinking and examining what to draw by making a preliminary sketch. It is rare for the sketch to be kept. However, if the preliminary sketch for a particular work were to be found, it would represent a major academic advance in the study of art and art history.

Base coating is the step of coloring the base material for the first time. The rest of the coloring is applied to this base-coated surface. Accordingly, under normal conditions, the base coating does not appear anywhere on the



Fig.4 Painting by hira zaishiki techniques



Fig.5 Painting by okiage zaishiki techniques

surface. The research focus with respect to base coating is thus a study of the materials used for base coating.

Pattern transcription is the step of transferring previously sketched designs and patterns onto the target surface. One research issue in this step is to investigate what kind of materials and tools are used for transcription, such as a *nenshi* (a sheet of paper on which outlines of images and patterns are drawn) and pattern paper. Transcription methods can often be read from remains on the base coating.

Coloration is the final step. This may be divided into two steps: the first coat and top coat. Similar to investigation of paints used for base coating, paints (pigments, etc.) used in this step have been more actively studied in the pursuit of materials science, with the participation of numerous researchers in the fields of history of art and conservation science.

The researches into each step of coloring lead to a better understanding of the techniques used in the past, and thus the immense value of paintings as cultural records can be assumed in view of the techniques used.

However, these techniques can only be studied if coloring as an object, i.e., the actual painting layer, exists. All depends on the presence of the original painting layers. In particular, attention to the techniques in each step, described above, is related to making provisions on techniques for restoration, and is thus very important.

Furthermore, in Japan, the study of techniques used in original painting has the potential to lead to academic achievements extending over much broader areas: the history of technology, culture, and so on, since painting techniques in Japan were mostly introduced from China.

In general, technologies and techniques are handed down practically and specifically from person to person over centuries. At the same time, however, we must not forget that information is also handed down in the form of physical objects. Original paintings are of crucial importance as an information source on painting technology and techniques that are transmitted to us through physical objects.

#### **5.** Principles for Restoration of Painting

As described above, when we recognize the value of painting in architectural monuments as a cultural property, we realize the gravity of the problem of painting restoration in accordance with the policy of complete repainting. Next, I will discuss what form painting restoration should take in the future. To examine this issue, I will first present three problems.

First is related to the essential role of painting in architecture: how we should interpret the presence of painting as a protective covering of a wooden base.

Second is how we should interpret the actual painted objects, which are defined here as

religious monuments, and how we should interpret architecture, which is also part of our historical heritage. In other words, religious architecture continues to live spiritually as places for practicing religious activities. Naturally, the paintings applied to such architecture cannot be simply regarded as "cultural heritage-type physical objects".

Third is how we should protect and preserve painting itself as part of our historical heritage in line with the problems mentioned in 1 and 2.

When examining future painting restoration by comprehensively interpreting the above three points, I believe that the principle of protecting cultural properties can gain broad social support. This may not be easy, but I wish to envision a future image of painting restoration.

Firstly, I will discuss the first problem. Painting applied to wooden architecture can easily experience damage due to weathering, as I mentioned at the beginning. In case of lacquer, the urushiol in raw lacquer, which is tree sap, suffers significant deterioration when exposed to ultraviolet rays. The animal glue used as a conglutinating agent for the coloring is weakened by the effects of ultraviolet rays, humidity, etc. When this kind of painting which protects the wooden base is lost, the wooden base is completely exposed, and its surface rapidly deteriorates.

From this viewpoint, this is not just a problem of painting but is also a danger to the survival of the wooden structure itself. Horyu-ji Temple, a wooden structure, has survived for a long period but still only one thousand and several hundred years. Protecting these structures, made of organic materials, far into the future, is a major challenge. It is important for countries that have wooden architecture to examine the principles of restoration from this viewpoint when considering future painting restoration. It will be necessary to carefully examine restoration technology and work methods in line with restoration principles.

Next is the second problem. To what extent can today's Japanese truly understand the religious nature of historical sacred architecture? Japan has progressed far economically, and people now pay less attention to religious issues in their lives. Although registered as cultural properties, religious structures are also definitely sacred sites.

In the contemporary world of faith, it is believed that the role of painting, to give solemnity to a religious architecture, must be contemporary and not antique (this expression may not be appropriate, though). In other words, it is quite possible that painting which has lost its original effect may be repainted from this standpoint. Those involved in restoration are required, therefore, to have a respectful attitude toward the owner of the cultural architecture. I believe it is important to understand what kind of restoration the owner requests, after which it is necessary to examine the restoration policy in accordance with the principle of preservation of historical heritage.

Lastly, the third problem. How we should examine the principles of painting

restoration? I hope to consider the significance of historical heritage not only for us living today but also for people living in the far future.

For example, in a study of the culture, social climate, or aesthetic feelings of any country, their historical heritage contains valuable information. In that case, it is important for full-size historical heritage items to exist. At the same time, one must obviously have a certain knowledge on which to base one's study, not to mention a good imagination. This is because an architectural heritage item you see in front of you cannot reveal its original appearance. Architecture changes with the passage of time. In this sense, restoration of cultural properties also involves studying how to preserve their appearance in an appropriate way as historical heritage.

Since restoration is unavoidable in the preservation and protection of historical heritage, we must determine the principle of painting restoration as an urgent task so as to adopt better painting restoration early.

#### 6. Principles for restoration of painting – author's proposal

First, a protective treatment needs to be applied to interior painting of architecture to maintain its present state.

This is because interior painting is not directly exposed to ultraviolet rays, which is a major factor in painting deterioration, and thus paintings in many cases remain in good condition. Accordingly, I believe it is necessary to preserve these paintings' condition as long as possible. In wooden structures, however, lacquer and coloring are not physically integrated with their wooden base. Therefore, parts which may suffer exfoliation due to a deteriorated painting layer need to be treated to prevent exfoliation.

Second, there should be no repainting, not even supplementary painting of paintings inside wooden structures.



Fig.6 Working for preventing exfoliation

Even if exfoliation advances, and the wooden base is exposed, I believe interior painting should not be repainted unless absolutely necessary. This is because my understanding is that surviving painted pieces have value as a cultural property, and a trace of painting, even a faint trace, remaining on a wooden base has more significant value in terms of historical heritage.

Third, it is necessary to conduct protective treatment (treatment to prevent

exfoliation) to conserve the present condition of the remaining painting on the exterior of the structure.

Also, for exterior painting, a restoration policy of maintaining paintings should be considered for those that have remained in relatively good condition. I think it is necessary to avoid restoration based on repainting just because it is exterior painting.

Fourth, for parts of paintings where the wooden base is exposed, protective treatment should be applied and repainted in principle using the same paint. Before taking this step, one should seek the opinions of several experts before making any decision.

In wooden architecture, in particular, it has been proved that painting has, historically, contributed significantly to the protection of wooden surfaces. Accordingly, from this viewpoint, parts where the wooden base is exposed in exterior painting should, as a general rule, be repainted.

Fifth, repainting should be conducted in strict conformance to authenticity of historical heritage, and using original materials and techniques.

The use of original materials and techniques for restoration also means handing down traditional technology to future generations. It is important to conserve each individual cultural characteristic, and thus careless introduction of modern materials must be avoided when possible.

Sixth, traces of paintings in their best condition should be sketched. Also, to keep a record of their present state, images of both interior and exterior paintings should be captured using a medium with good retention qualities.

It is a strict rule in restoration of cultural properties to keep records of their state before restoration. Recorded data should be retained permanently. Accordingly, it is necessary to consider the best place to retain these records for management.

Seventh, deterioration of both interior and exterior paintings does in fact progress. Therefore, regular inspections should be conducted by conservation experts to conserve

existing paintings for the future. If their state of preservation is judged to have deteriorated, appropriate protective measures should be taken immediately.

Cultural properties need to be restored at the right time. This is also reasonable with respect to restoration expenses. Irresponsible neglect of damage leads to waste of national treasures.



Fig.7 Draw the trace of painting to keep a record its present state

#### 7. Conclusion

In this brief study, I have examined the future restoration of painting in cultural properties, and have given my views on the principles that should govern the restoration of painting. I have not touched on reconstruction accompanying painting restoration. Problems related to reconstruction are a remaining task. I hope to examine them on another occasion.

I chiefly stress the need for conserving original painting by preventing exfoliation. Treatments for preventing exfoliation have been conscientiously applied and experimented on, but there are still several problems as to materials used and techniques. In some cases, a protective treatment ultimately had a detrimental effect. The specification of materials to be used and the development of restoration technology are tasks to be faced before it will be possible to carry out appropriate restoration.

# Structure Reconstruction in Historical Site Development - An Example from the Ichijodani Asakura Family Site-

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# 1. Introduction

- Objectives of preservation and utilization of historical sites
- Notes of importance in preparing plans
- Methods of historical site development

# 2. Structure Reconstruction Based on Materials from Archaeological Excavations as an Approach to Historical Site Development

- Historic sites in Japan predominantly constructed using wooden architecture
- Difficulty in perceiving daily lifestyles during historic periods
- \* Structure reconstruction from materials unearthed by (archaeological) historic sites
- Primary materials
  - A) Structural members: Foundation stones (or traces where they are laid), mortises, continuous plinth courses, filling stones, platforms, paving stones, pounded earth floors, flooring, joists (or traces), pots, ovens, fireplaces, wells, etc.
  - B) Artefacts: Structural members (Pillars, beams, doorsills, walls, fixtures, fittings, tiles, etc.)
- Secondary materials
  - C) Overall geology, arrangement of structures, groundwork, etc.
  - D) Excavated artefacts
- Reference materials

Structures from the same period, paintings, etc.

# 3. Development Project for the Ichijodani Asakura Family Site

- \* Ichijodani Asakura Family Site (278 ha. Has been designated a historical site and scenic location)
  - Ruins of seat of government of Asakura Warlords during the age of civil wars (15-16C)
- Flat area: High-density concentration of structures
- Hillside area: Castle and towers dotting the forested slope
- Zoning and development method: Building and floor plan reconstruction, landscape preservation, and protection and development of forest vegetation.
- System of organization: Shared between Fukui Prefecture and Fukui City
- Over 10 ha. studied and developed since start of study (1972) until now (2005).
- Cityscape reconstruction project: Reproduced approximately 200m of cityscape.

#### 4. Summary: What Is Required of Future Building Reconstructions?

- A) Participation of architectural historian from start of site investigations.
- B) Cataloguing and corroboration of materials unearthed from archaeological excavations.
- C) Importance of secondary materials.
- D) Reports and corroboration.

#### 1. Introduction

The preservation and development of historical sites are viewed in the Law for the Protection of Cultural Properties as the physical means for preserving and utilizing cultural assets. The fundamental objective is to protect and preserve ancient sites and structures. In addition to this, the goal is to utilize these properties as focal points for scholastic education and life-long learning, host sites for citizen activities, and a core for community development by bringing out and opening to the public the hidden values of these sites, and to help protect the environment that surrounds us.

In planning these objectives, it is necessary to accurately assess the site, set clear development objectives and targets, express the site in an accurate and easy-to-understand manner, ensure the sincerity of restoration work, and strive to protect the harmony with the surrounding area. Additionally, the opinions of residents must be reflected in the plans, and consideration must be shown for management and operation methods.

There are an increasing number of examples of historical site development projects in Japan in recent years, and the approaches they take are broad in nature. These approaches include those that aim to maintain the current state of the site, those that aggressively seek to express the original state of a structure by rebuilding it, and those that take diversified ways of utilization into perspective. The main issue is how to convey information on buried structures to visitors as it has been a struggle exploring ways to restore the original state of lost or damaged structures.

The term *reconstruction* can have a broad meaning, and the effects of reconstruction are equally as extensive. The problems of the easy approach have been pointed out.

# 2. Structure Reconstruction Based on Materials from Archaeological Excavations as a Methodological Approach to Historical Site Development

In Japan, where wooden structures predominate, there are few superstructures remaining today to recount the situation of the past. Indeed, most sites consist of building foundations buried in the ground. It is difficult for the average person to imagine how the structure looked in its original state by observing only the unearthed foundation stones.

In this respect, it is very effective to directly convey the culture and technology of the times to

visitors, in order to reconstruct and to exhibit structures that no longer remain.

This paper discusses the basic concepts of rebuilding historic structures from remains unearthed at archaeological excavations.

The materials excavated in archaeological digs that are important towards the reconstruction of a structure can be roughly divided into those that are directly related to the structure (hereinafter, referred to as "primary materials") and those that are indirectly important towards inferring how the structure looked (hereafter, referred to as "secondary materials").

#### • Primary Materials

Primary materials are categorized into structural elements that maintain their position such as foundation stones (or their traces), mortises, continuous plinth courses, filling stones, platforms, paving stones, pounded earth floors, flooring, joists (or traces), pots, ovens, fireplaces and wells, and structural members recognized as having some sort of movement such as pillars, beams, doorsills, walls, fixtures, fittings and tiles. These structural elements generally demarcate the floor plan or basic structure (stone base pillars vs. dug-in pillars) and sometimes floor structures such as earth floors and joists. In fact, the location of street gutters often indicates the projection of roof eaves. Furthermore, the size of pillars and structures themselves can basically be inferred to some extent from foundations and mortises, although they are considered more an indicator of the floor plan. In contrast, remains such as structural members, although normally a part of the whole structure, can determine details such as specific architectural styles and dimensions. Needless to say, in cases that a collapsed structure still remains at the site, the materials can best indicate the style of a structure.

#### Secondary Materials

To begin with, the overall geology, arrangement of structures, and groundwork are essential for inferring the use of a particular structure. They are important materials for studying floor plans. It should also be reiterated that the diversity of artefacts and their distribution are materials for inferring the function of the structure, the class of people who used it or lived in it, and the social background of the technologies and culture. Building a structure involves not only carpenters but other numerous craftsmen such as roofers, plasterers (for walls), paperhangers and metal fitters, thus secondary materials can be thought of as the embodiment of the technologies and cultures of the society as a whole.

There are many people who think about only primary materials, however, secondary materials are just as important in the reconstruction of a structure and deserve attention. It must be understood that the reconstruction of a structure is not possible without using both primary and secondary materials in order to determine the overall period, such as spatial features.

During the actual research, prior to the reconstruction of a structure, reference materials such

as other cultural assets belonging to the same period (including paintings) should be added to materials unearthed from archaeological sites in order to complete the designs.

#### 3. Development Project for the Ichijodani Asakura Family Site

#### • Ichijodani Asakura Family Site

The Ichijodani Asakura Family Site was the seat of government of the Asakura Warlords during Japan's age of civil wars from A.D. 1471 when the first generation head, Asakura Takakage established control until 1573 when the fifth generation head, Asakura Yoshikage lost a battle to Oda Nobunaga, who was trying to unite Japan into one nation, and subsequently the structures were burned to the ground.

A project aimed at converting the site into a park is underway according to the vision that was crafted in 1972 with basic plans drawn up in 1974. The site is roughly divided into a flat area where there is a high density of buildings concentrated within a localized area, and a hillside area where structures such as a castle and towers dotted the forested slope. The flat area was further zoned by the type of buildings that consisted of a labyrinth of apartments and gardens belonging to the Asakura family. The buildings were systematically arranged and comparatively large residences for senior individuals and also included some temples and a district of small townhouses. Around the complex area is a wondrous natural environment with splendid landscapes. In order to utilize these structures and the landscape, it was decided to zone the site, reconstruct buildings and floor plans, preserve the landscape, and protect and develop the vegetation of the forest. Also, in addition to the aforementioned, an infrastructure necessary for a historical site park is being sequentially built, including a visitor centre with conveniences for tourists, a museum and a research centre for exhibiting research results and unearthed artefacts, a park management office, parking space for visitors and paths and walkways.

Because the designated site area is a vast 278 hectares, the project is being implemented by Fukui Prefecture and Fukui City. To conduct studies and built structures, Fukui Prefecture created the Ichijodani Asakura Family Site Research Institute (currently a museum), while Fukui City created the Ichijodani Asakura Family Site Administration Office as the management organization for operating services including land acquisition. Moreover, local residents formed the Ichijodani Asakura Family Site Preservation Society, which maintains the grounds and manages a restaurant and gift shop. The project has received high praise from many arenas thanks to the way the local area has come together to preserve this historical site, The Ichijodani Asakura Family Site Research Institute (renamed the Ichijodani Asakura Family Site Museum in 1981) that Fukui Prefecture created to study and build the park has researchers in the fields of archaeology, ancient literature, landscaping and architecture, and continues to conduct interdisciplinary studies and research. In the thirty years since the start of the investigations, an area of over 10 hectares has been excavated, studied and developed as a park.

Studies have produced several structural elements that were preserved in extremely good condition and more than 1.5 million artefacts of significance. The research has provided a window on

the history of this area, the most significant discovery of which was that Ichijodani was a city systematically built directly by the Asakura family.

To physically represent these findings and build a historical site park as a place where people could experience history, a project to rebuild the cityscape by reproducing the site in 3-dimensions according to the results of digs was started in April 1991 and lasted four years. Within the approximate 200 m of cityscape with samurai homes found in  $1982 \sim 1983$ , the gates and earthen walls (total length of approx. 250 m) of 8 samurai homes and 10 townhouses were reconstructed as accurately as possible in terms of materials and techniques based on research findings, and the interiors were created to match the lifestyle that was inferred from the unearthed artefacts. One foot inside, a visitor is transported back in time where he/she can experience Japan's age of civil wars.

#### • Reconstruction Concepts

Since the Ichijodani Asakura Family Site received special designation as a historical site in 1972, an exclusive organization has been studying and developing the site based on an overall vision. As a result, an understanding of the entire site has been gained and the zoning into districts has come to light, while characteristics and uses of most of the structures targeted for rebuilding have been identified. Moreover, reconstruction work was made a specific part of the development project that was aimed at preserving and using the site, therefore designs were scrupulously prepared and buildings were built. The details of the reconstruction work at the Ichijodani Asakura Family Site are reported in project documents (Development Report of Ichijodani Asakura Family Site II: Reconstruction of Samurai Homes and III: Reconstruction of Townhouses).

The concepts of reconstruction design specifically identify the relationship of the aforementioned unearthed materials and structure reconstruction. As an example, let us look at the gates. The gates targeted for reconstruction consisted either of four foundation stones or two dug-in pillars. The residences of this former gate are comparatively larger than those of the latter leading one to think that the owners were of different social status. The structural elements directly relating to the gates include the foundation stones, mortises and the filling stones in between. In addition, also important for the overall structure of the gate are the foundation pieces of the fences on both sides of the gate and the stone steps descending from the front. The construction of each gate must be studied from these elements. The unearthed artefacts included the bolt box fittings, round-headed studs and decorative fixtures of the door panel.

Some examples of gates with four foundation stones that we see everyday are Yakui-mon style gate and Korai-mon style gate, while two examples of gates having dug-in pillars are Muna-mon gate and Kabuki-mon gate. All of the structural elements can be considered. The style exhibited in Yakui-mon gate and Muna-mon gate was selected after viewing paintings from the same period. Also, after examining details of the two uncovered dug-in pillars, it was decided to space pillars 8 *shaku* (2.42m) apart and shape the pillars almost 8 *sun* (0.24m) square for the gate's reconstruction. Moreover,

from the positional relationship of the road to the front, the gutters and the fences on both sides of the gates, it was decided to project the eaves of the gate roof outward about 4 *shaku* (1.21m). From actual gates of the late Muromachi Period and dimensional calculations recorded in carpenter's notes, the foundation was found to be proportional to the spacing between pillars and the thickness of the pillars. The actual dimensions were determined based on this. For what regards the roof style, which is a big factor in determining how a structure looks, it was surmised from the facts that no earthen tiles were discovered at the site, wood panels that could have functioned as roof shingles were found here and there at the site, and shingles appear in paintings, that long split panels were used.

Let us next look at an example of a structure that could have been a townhouse.

This district revealed a continuous row of lots approx. 6 m across by approx. 15 m deep, facing the street. The building foundations almost filled the breath of the lot as they touched the gutter stones on the adjacent boundaries. Moreover, from the foundation layout, it became clear that bearing pillars were spaced 1 ken 6.2 shaku (1.88 m) apart and were 2.5 ken (4.92m) at the front and 3.5 ken (6.89m) to the rear. Also, small stones that could have served as spacers between pillars in-between the foundation stones were found. What was conspicuous about these foundation stones was that there was a full size larger stone positioned at the centre of the front and rear planes. They were positioned halfway between the 2.5 ken (4.92m) spacing and were slightly larger than other stones. Because they were positioned at the centre of the front and rear planes, it was logical to think that there stood the pillars that supported the ridgeline. In paintings such as the Rakuchu Rakugai Zu Screen (screen with painting of scenes in and around Kyoto), townhouses are constructed with this kind of structural post rising all the way to the ridgeline where meeting with ridgepoles, so this hypothesis was backed up. Additionally, it is common that a moat demarcates this kind of small lot of home within the site and gutters were rarely discovered, therefore a vernacular style with gable ends was thought appropriate. Also, about halfway to the rear inside the home, a buried pot was found and assumed to have served for the trade of the owner. Thinkable trades that would use such items as buried pots were those of fabric dyeing and sake brewing, but the house was small and, during the age of civil wars, fabric dyeing was the most widespread trade, and that looked like a set, so it was felt that there was a strong possibility that it was the home of a dyer. That supposition was thus put forth. Moreover, since the area with the buried pot and well could be considered an earth floor room and a pillar stood from a single foundation stone positioned in an independent location inside, which made it strongly seem like an internal partition, the building's floor plan was imagined. The size of the building's pillars could not be directly known from the structure found there. However, from the evidence of the foundation stones and unearthed pillar fragments, and the fact that the 4 sun square was conceivably common, this size was adopted. For the structural style, the aforementioned vernacular style with gable ends and ridge posts in the front and rear plane was chosen. Home structures of the Muromachi Period were researched and, on this pretext, this was presumed to be the basic style. Paintings and shingles were commonly used with townhouses and gutters, and were logically used as boundaries between adjacent lots, but if a thatched roof was used, there would only be about 3 *shaku* (0.91m) between adjacent buildings, and that was hard to accept, therefore the same split panel shingles used for the gate were selected. Also, after referring to paintings, logs, planks and, where necessary, stones were used as retainers.

Besides the roofing materials, pillars and fittings mentioned before, some other primary materials that specifically told us how the building looked were uncovered such as doorsills, tatami mats and wall mortar. From the pillar fragments, not only were the dimensions learned but also that 1/10 chamfering, planes and hatchets were used to finish the pillars. Also, the pillars finished with a plane were cypress while those finished with a hatchet were either pine or chestnut. Furthermore, from the depth, width and arrangement of the doorsill gutter, it was discovered that sliding wooden or shoji paper doors were used as well as how to bolt them. From the thickness of the wall materials and pillars, it was learned that there are half-timbered walls, straw lath framework was used and a diversity of plastered walls were finished with a first layer of mud, a middle layer of plaster and a sand and paste topcoat, as were cases of techniques with cloth dressing. Other than that, there was a wide range of hinges, locks, handles and worked metal decorations. Moreover, tatami mat fragments were found and it was learned that they were common at that time. However, what was found to be more important than anything else after years of studying these houses was that the reference distance between pillars was almost a standard 1 ken 6.2 shaku, suggesting that they were constructed by a team of engineers. As an overall assessment, it was evident that the level of building technology of this city was very high. Add to that the fact that many, many daily utensils, tea utensils, writing implements and tools were unearthed, and it tells us that a high level of culture existed in the city and suggests the spread of Cha no Yu. It was not possible to put the individual structural members into a complete structure without taking into consideration the entire social environment that surrounded the structure.

Needless to say, existing structures served as verification of the uncovered archaeological materials. Through this kind of approach, specific dimensions are determined, designs drawn, construction techniques chosen and the building ultimately reconstructed.

#### 4. Summary: What Is Required of Future Building Reconstruction

Lastly, I would like to raise a few topics concerning the future of cultural property reconstruction.

First of all, what must be pointed out is the participation of someone knowledgeable of architectural history in site investigations. This paper has laid out the thinking behind the Ichijodani Asakura Family Site, but to arrive at actual reconstruction, I was engaged in digging right from the very beginning and I was constantly thinking about the superstructure throughout the whole process. This was an extremely important point. In general, an archaeologist does the site investigation; there are very few cases in which an architectural historian is involved. After a structure has been found, the architectural historian is usually asked for his/her comment. However, if you consider the fact that many sites consist of structural members, it seems obvious that an architectural expert would be needed during the dig and even more so in site development if reconstructive development is being studied. In

many reconstruction projects, the architectural expert does not come onboard until the digging is complete. For this reason, all determinations regarding reconstruction must unavoidably be made from excavation results alone. The following example is given of this situation: it could be determined that there is no evidence of pillars in a particular ruin. Depending on whether this is interpreted to mean that pillars never existed or that they were simply undetected for some reason or another (overlooked in scraping or studies), the reconstruction concepts can differ greatly. Completely opposite results will be produced depending on whether it is decided to do a "structure without pillars" or "accept the possibility that pillars existed". If this is kept well enough in mind during the study process, the issue can be resolved.

Secondly, there are a vast number of foundations for building reconstruction because of the astonishing increase in archaeological excavations, but preliminary work is necessary in order to utilize these materials for research on the architectural history of a building. For example, the materials need to be catalogued and corroborated. In terms of ruins, structural members mainly serve to interpret the floor plan of the structure as mentioned, therefore it is necessary to understand the peculiarities such as the use of the structure. The standard for collecting and studying accumulated materials should be that case studies have a wide scope, and at the core should be studies that enable determinations and corroborations of spatial characteristics and other variables. Moreover, setting apart the high-end structures such as palaces and governmental buildings, there is a big difference between dug-in pillars and base stone pillars. It is necessary to decide how to examine this aspect of a structure. The situation today is such that architectural historians do not sufficiently realize how many materials have been unearthed from archaeological excavations. Of these, those structural members that are directly related to the structure are important. A single artefact reveals a tremendous amount of information about materials and techniques, and is essential for learning about the social environment such as the technology behind the structure. At the same time, the tools used to wield this technology and the marks of their usage are, like the artefacts themselves, valuable materials that show the degree of technological attainment, regional discrepancies and more. It can also be pointed out that this work has the potential for changing common sense ideas in architectural history.

Third, it should be pointed out that secondary materials are also important. They are essential towards understanding the spatial features of a structure. Someone may point to a particular structure and ask what kind of structure it was, but they may be at a loss for an answer. Without studying the basic position that the structure played within the whole, it is not possible to think about the character of the structure or provide a proposal for reconstruction. Unless the entire makeup of the home (grounds) is understood, its function cannot be pinpointed from plans of the structure only. Accordingly, reconstruction is also a difficult subject. To understand the spatial characteristics, it is absolutely essential to understand the makeup of the whole home. As pointed out with the reconstruction of the Ichijodani Asakura Family Site, secondary materials were important towards understanding space, studying the floor plan, and starting the reconstruction of the superstructure. The bottom line is that a

structure is a reflection of the social environment that surrounds it. The differences in technology and materials must be presumed from the class, area, and other variables. This need is predominant with structures from periods prior to the Middle Ages, therefore attention should be given to the regional differences in technology. Moreover, it must be recognized that there are significant differences between capital and other cities, urban areas and rural areas. At Ichijodani, buildings basically employ a foundation stone construction because of the city's role as the seat of government of a warlord during Japan's age of civil wars. However, it is well known that the use of dug-in pillars was common in rural villages from the same period. Furthermore, both the environment and culture of the site targeted for reconstruction are very important.

On a final note, it should be known that the publication of reports is a necessary element of reconstruction projects. There are cases in which a brief overview has not even been published, however, in order for the reconstruction of a building to have any sort of significance from the perspective of architectural history, those studies must be publicized and widely corroborated.

Historical sites are valuable cultural assets for the public, thus without their understanding, preservation will be more difficult to undertake. It cannot be denied that before the emphasis of historical sites was placed on preservation, findings from studies remained only within research circles.

Today, thousands of residents crowd archaeological sites under excavation in order to hear explanations about historical properties. There is increasing recognition of the value of the site as a direct record of how people lived long ago.

The development and restoration of historical sites can deepen an understanding of its associated structures and draw out their value and charm. Cultural properties can be truly protected by preserving and utilizing them in keeping with the Law for Protection of Cultural Properties. This is perhaps the reason for the growing importance of conserving and restoring historical sites.













Reconstructed town of Ichijo-dani (Photo by ACCU Staff)



Training Course on the Preservation and Restoration of Cultural Heritage in the Asia-Pacific Region 2005 - Preservation and Restoration of Wooden Structures

# Future Tasks in the Preservation of Cultural Heritage + International actors/guidelines

Report on the lecture presented by: Kazuhiko NISHI ICCROM

#### 1. Introduction

During the Training Course on the Preservation and Restoration of Cultural Heritage in the Asia - Pacific Region 2005, "Preservation and Restoration of Wooden Structures", held in Nara from 27 September to 28 October 2005, an ICCROM staff member gave a presentation and facilitated a discussion at the end of the course. His presentation consisted of two parts, international framework for conservation and "our future tasks".

The first part aimed at introducing international organizations for heritage conservation as well as various guidelines, including charters, declarations, recommendations and conventions. The second part was focused on more general issues, changing situation and consequent new challenges. These presentations took a whole day, followed by a half day discussion on the second issue with all the participants. This extensive discussion aimed to get a rough consensus on the future direction of conservation in Asia and the Pacific region, especially for wooden architecture. Since each country has their own context (conservation, economy, social system, awareness for heritage, etc.), it was not intended to have a clear single direction. The discussion was carefully designed for the participants to realize that. While there are various tasks based upon each respective social context, some basic ideas could be shared through the region.



# 2. Presentation

# 2-1. Introduction

First of all, the whole structure of this presentation was explained. It consisted of three parts.

International and regional guidelines

• International organizations for heritage conservation

• "Our future tasks", in other words, future direction of heritage conservation in Asia and the Pacific region

# 2-2. International and regional guidelines

This part was intended to introduce various text (charters, declarations, recommendations, conventions, etc.) to participants, in order to share basic idea of the foundations of conservation these days. At the beginning of this part, differences between various type of texts were explained.

• Declarations: moral or political commitment, linking States on the basis of good faith.

• Recommendations: invitation to one or more States to follow certain actions or conduct.

• Conventions: international treaty, that needs to be ratified by the government of each country. Legal commitment involved.

Charters (from Oxford American Dic.)

Then several important text were mentioned chronologically, with some movements related to heritage conservation.

1931: Athens Charter

• Recomposition of international organizations after WWII.

• 1954: UNESCO convention on the protection of cultural property in the event of armed conflict (1954 Hague Convention)

• 1956: UNESCO recommendation on International principles applicable to archaeological excavations

- 1959: Creation of ICCROM
- 1964: Venice Charters

• 1964: UNESCO recommendation on the means of prohibiting and preventing the illicit export, import and transfer of ownership of cultural property

1965: Creation of ICOMOS



• 1970: UENSCO convention on the means of prohibiting and preventing the illicit import, export and transfer of ownership of cultural property

• 1972: UNESCO: recommendation concerning the protection, at national level, of the cultural and natural heritage

• 1972: UNESCO convention concerning the protection of the World Cultural and Natural Heritage

1979: Burra Charter

1994: Nara document on authenticity

2000: China principles

• 2000: ASEAN Declaration On Cultural Heritage(1)

• 2001: UNESCO convention on the protection of the underwater cultural heritage

• 2003: UNESCO convention for the safeguarding of the intangible cultural heritage

• 2003: The Hoi An declaration on conservation of historic districts of Asia

It was highlighted that, especially after late-70's, more emphasis was put on regional specific texts. Since these guidelines are not templates or recipes, it is important to understand these international standard based upon each context.

(1) Although this declaration was not mentioned in the presentation, a participant kindly suggested to include this since this is another important text in the region.

# 2-3. International organizations

Then some important "actors" for conservation of cultural heritage were presented. This part was intended to explain not only various organization themselves but also their difference in their types, aims and systems.

a) Intergovernmental organizations

- UNESCO
- ICCROM

b) Non governmental organizations (international)

- ICOMOS
- ICOM

c) Other organizations related to heritage conservation

The Getty Conservation Institute



- World Monuments Fund
- Universities
- National / Regional organizations

ICCROM's official introductory DVD was shown to the participants.

# 2-4. "Our future tasks"

Then, the presentation went into the main part of this session. At first, he mentioned the importance of understanding current (changing) situation, in order to take a "right" direction in conservation works, or efficient prioritization in everyday work of participants. It was highlighted that not only principles of conservation, but also various social/economic factors should be considered in heritage protection.

He presented four factors as important aspect of changes in conservation filed.

Meaning or range of cultural heritage

• Views and approaches to heritage preservation

- Treats to cultural heritage
- Potentials of cultural heritage

As an example of expansion of the definition of cultural heritage, several pictures were shown, for instance,

From...

•

- Castles
- Villas
- Temples

#### plus...

•

- Early modern age housing
- Architecture in EUR, Rome
- Station in International Style
  - Factories
  - Coal mine
  - Various "fusion" buildings
- Machines
- Indigenous heritage
- Sacred places (based upon its sacredness)



Then, other changes in the management of cultural heritage were discussed, especially on such themes as;

• Importance of setting, surroundings, contexts of cultural heritage.

• Importance of understanding each cultural heritage as a system, rather than individual buildings or structures.

• Integrated management

For the first and second issues, he explained some case studies based on his experience in Japan. For instance, he showed several photographs of the *Moroto house* in Mie prefecture, and mentioned the importance of protecting its whole system, including buildings, gardens, canals, and also including the unspectacular house for billiards, since it is a testimony of wealthy class' way of life in the modernization period in Japan.

For "integrated management" issue, he raised two aspects related to this, cultural landscape and intangible values of cultural heritage. The definition of the cultural landscape was discussed. He also mentioned his experience in the pilot project of Living Heritage Sites Programme in Phrae, Thailand, where some "authentic" ceremonies on religious customs have been continued.

The views and approaches to heritage preservation are also changing. Now various aspects of conservation approaches are considered.

- Values / significance based conservation
- Diversity of cultures, and heritage
- Cultural context of Authenticity

In this area, taking some case studies, he explained the importance of balancing user needs and conservation needs.

• Restoration of *Sho-bo-ji temple*: since the temple situated in the heavy-snow area, structural reinforcement was needed. Although these reinforcement pillars and beams would have visual impact on the building, it was decided to insert them, based upon the understanding that, otherwise, it would be abandoned.

• the same time, Shirakawa-go WH area: after registration on the World Heritage List,



tourism pressure was considerably raised. At the same time, without doubt, the sustainability of conservation of this remote place have been raised. With some pictures, possible "balance" were extensively discussed.

Another major area of the present situation in conservation is natural disasters and man-made threats. Risk preparedness has become one of the most important aspect in protecting cultural heritage. Issues raised were;

- Natural Disaster
- Earthquake
- Fire
- Tsunami
- Flooding
- Man-made threats
- Economic pressure
- development
- illegal destruction
- illegal trading
- Armed Conflict

• Inappropriate recovery process of natural disaster

- lack of management
- lack of resources
- human resources
- budget

Finally, the potentials of cultural heritage was discussed. Cultural heritage itself or conservation process could be beneficial to people's life, economy, pride, identity etc. Various aspect of potentials were raised, such as;

Development of areas linking heritage places

• Heritage conservation as a means of poverty alleviation

• Benefits to the society through tourism activities

• Self generated funding from heritage sites, which could lead to strong sustainability

• Awareness for the importance of people's own place, their own pride, their own identity.

Conservation process could be a "bridge" across generations.

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Again, it was highlighted that these potentials should be understood based on respective context. As an example of broad possibilities of cultural heritage, a DVD on the AFRICA2009 programme was shown.

Understanding current situations surrounding cultural heritage mentioned above, possible directions for conservation specialists in Asia and the Pacific region were suggested. It was not meant not to present guidelines, but to suggest hints for participants in order to think by themselves, based upon their own context.

At first, he stressed the importance of thinking preservation as a part of broader perspective, as a part of the social systems. Since cultural heritage, especially for structures made by wood, is deeply connected to social systems, it is crucial to take these relationship into account in restoration process or everyday management. For example, even small nails could be a challenge in restoration due to changes of the construction economy. We have to recognize the relationship between conservation and laws (not only for protection of cultural heritage, but rather for construction, city planning etc.).

The importance of recognition of various time spans in conservation was also mentioned. Considering sustainability and establishing a sufficient management plan, which consider short-, medium-, and long-term objectives, is crucial. In order to transmit our heritage to the next generations, recording and documentation is our basic task. It is also important to establish efficient cycle of conservation process, where consists of monitoring - evaluating - decision making (modification).

Another important direction is cooperation with outside specialists. For the sake of this, international / regional network, such as Asian Academy for Heritage Management initiated by ICCROM and UNSCO Bangkok, could be very useful. While, personal network based on individual relationship is also important, since specialist could turn experiences of others into their own through personal networks.


# 3. Discussion

A half-day session for discussion was held on the issue of future direction of conservation specialist in Asia and the Pacific region. In order to visualize the points of discussion, at the beginning of the session, all participants were given three cards and asked to write down their respective important key points, maximum three words on a card. Then the facilitator, with the help of two participants, put all the card on the whiteboard. Then, through re-organizing, grouping and positioning of the cards, extensive discussion were made on various aspect of their future (immediate and mid-term) tasks. Keywords raised by the participants were as follows;

# **Group1 (General policy)**

- Money
- Politics

# Group2 (Strategy)

- Mission, Goal, Strategies
- Master Plan
- Management and Restoration
- Organization & Management
- Mapping Wider Concepts
- Proper Administration Structure
- Well Management
- Risk
- Maintenance
- Presentation
- Design and Supervise

# **Group3 (Tactics)**

- Dissemination, Application, Training
- Independent Courses, Visit Monuments, Visit Restoration
- Training Courses, (Master) Plan
- Education People
- Awareness (Understanding of Heritage
- Values and Potential)
- Awareness of Intangible / Tangible

- Community Awareness
- Conversation
- Conservation Principles / Techniques (Awareness and Implementation)
- Intangible / Tangible

# **Group4** (Restoration)

- Define Presentation Perspectives
- Restoration and Preservation
- Conservation and Restoration
- Preservation, Conservation and Restoration
- Preservation of Wood Structure

• A lot of Ruins in Khmer TemplePreservation & Restoration of Ancient Monument

• Need Preservation / Restoration

# **Group5** (Cooperation)

- International Cooperation
- Level Countries Restoration
- Networking
- Archaeology Architect City Planning

# **Group6 (Sustainability)**

- Sustainable City
- Economic Sustainability of Host Community
- Tourism

# Group7 (legislative matters)

- Historic District Proposals
- Legislation and Policies / Planning
- Laws / Planning System
- Designate

# Group8 (Techniques)

- Technique of Restoration
- Traditional Techniques
- Shirakawa-go

# Group9 (Storage)

- Well Storage
- Scientific Storage

# Group10 (Research)

- Research
- Module
- Research of Traditional Structure
- Technology research
- Study of Modern Architecture
- Research, Restoration, Respect
- New Idea, Method
- Survey and Research
- Survey and Planning

# **Other Considerations**

• (Living Heritage) Community

Participation Heritage Conservation

- Cultural Spirit
- Recognition
- Documentation for Future Generation

- Presentation
- The Tree that regarded as Heritage but Threaten the Temple

# A View for the Comparative Study on the Theory of Architectural Preservation in East Asia

## SHIMIZU Shigeatsu

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# 1. Introduction: Significance of Comparative Analysis of Conservation of Historical Buildings in East Asia

The restoration of historic buildings is conducted according to different methods, depending on the characteristics of the buildings as well as the cultural accumulation in the respective country and region. The Venice Charter, which prescribes the principles of preservation and restoration, was formed with the features of Western architectural structures made mostly of stone, and with their history. Therefore, it bases itself on a different set of principles from that for wood-based architecture in East Asian country. When the Venice Charter is applied to East Asia, it is a matter of course, that some cases of discrepancy or non-conformance to the principles are generated. However, it is true that there is no uniform theoretical principle in the East Asian region comparable to the Venice Charter yet. With ever increasing international exchange activities in the area of cultural property protection, it should be considered an impending task to start considering a separate theory for conservation and restoration of wooden buildings within the framework of East Asia.

Below are some points for international comparative study on the wooden architectural conservation and restoration in East Asia, which are considered relevant in the analysis.

- a. Conservation system
- b. Restoration work
  - Theoretical background
  - Organization
  - Principle: Philosophy for reconstruction and restoration
  - Method: Dismantling repair, replacement of members, method of colour restoration, structural reinforcement

Among the elements outlined above, the study of the history of conservation and restoration systems, and comparative analyses among them is relatively advanced (See Plate 1). Conservation and restoration activities commenced in Asian countries after the latter half of the 19th Century. Their formation process started with the introduction of Western conservation and restoration theories, but the course each country followed thereafter was quite diverse. Considering

	发展阶段	日本	中国	韩国	台湾地区
	品	1871年古器旧物 保存方法	1916年保护古物暂行办法 1925年故宫博物院临时大纲	1910年乡校财产 管理规程(日本殖 民地时期)	e.
建筑	和名胜	1897年古社寺保 护法;1919年史 迹名胜天然纪念 物保存法	1928年寺庙登记条例;1928年名 胜古迹古物保存条例;1929年内 政部北平坛庙管理所规则	1911年寺刹令(日 本殖民地时期); 1916年古迹及遗物 保存规划(日本殖 民地时期)	1930 年史迹 名胜天然纪 念物保存法 (日本殖民地 时期)
法律	的健全	1897年古社寺保 护法; 1919年史 迹名胜天然纪念 物保存法; 1929 年国宝保存法; 1950年文化财保 护法(1954年, 1968年, 1975年, 1996年重要改 正); 1996年导人 登录制度	1930年古物保存法; 1931年保护 城垣办法; 1935年暂定古物的范 围及种类大纲; 1936年非常时期 的古物保管方法; 1940年保存名 胜古迹暂行条例; 1961年文物保 护暂行条例; 1961年指定全国重 点文物保护单位(1982年第二次, 1988年第三次); 1979年中华人民 共和国环境保护法(试行); 1982年 中华人民共和国文物保护法(1991 年第一次修改); 1982年指定全国 重点风景名胜区(1988年第二次 指定); 1984年风景名胜区管理暂 行条例	1933 年宝物古迹 名胜天然纪念物 保存令(日本殖民 地时期);1949 年 文化保护法;1962 年文化财保护法 (1982 全面改正)	1982 年文化 资产保存法 (1992 修正 草案);1984 年传统建造 物保存法
点到面保护	古都与传统 建造物街区	1966 年古都保存 法,1975 年传统 建造物群保存地 区制度创设	1982年指定第一批国家历史文化 名城(1986年第二批,1994年第三 批),1983年关于加强历史文化名 城规划的通知	1974年民俗资料 保护区域指定, 1984年传统建造 物保存法	1991 年 指 雾 好 东 好 求 子 子 去 天 不 去 不 去 不 去 不 去 不 去 不 去 不 去 不 去 不 去
	与城市规划 相联系	1966年与城市规 划法一体化	1991 年城市规划编制办法	1981 年都市规划法 决定历史环境保 护,居民参加韩屋 保存地区的指定、 保存,1986 年汉城 韩屋地区都市设计	1992 年都市 规划法"古迹 保存区"变为 "保存区"
种类丰富	近代建筑	1933 年指定重要 文化财大浦天主 堂; 1975 年近现 代建筑,近代化遗 产探讨; 1994 年 近代文化遗产保 存活用调查研究 协力者协会	1988 年关于优秀近代建筑调查保 护的通知;1991 年指定 96 件优秀 近代建筑	1963 年指定史迹 近代建筑独立门; 1976 年指定史迹 旧大韩医院本馆; 1977 年指定史迹 7 件; 1981 年指定 史迹 17 件 1987 指定史迹 1 件; 1988 年指定史迹 1 件	1991 年指定 台南地方法 院、劝业银行 旧厦为第二、 三级古迹
	保存技术的 保护制度	1975年保存技术 的保护制度	无	无	无

Fig 1 Comparison of preservation system in China, South Korea and Japan (ZHOU Suwu, 1999) (徐蘇武「東亜州建築文化遺産保護之比較研究」『建築史論文集』第 11 輯、より) the fact, it can be presumed that the peculiar characteristics of the conservation and restoration technique of each country was generated in line with: (1) the peculiar characteristics of the local wooden structure, (2) the respective traditional conservation and restoration method, and (3) historical context of when and how methodology of Western origin were adopted in the modern times.

That is to say, comparison of the restoration method in each East Asian country will enable clarification of the following three points: factoring out of the restoration methods in East Asia before the modern period, difference in the respective westernizing process in the modern period, and the status of conflation of Asia and West in the respective country.

As an introduction to this issue, comparison between South Korea and Japan will be featured, with a special focus on the issues of restoration. It will provide the comparison between South Korea and Japan in terms restoration methods and the theorization of restoration in the modern Japan.

# A Comparative Study Between South Korea and Japan Restoration Works in South Korea and Japan

The restoration of historic buildings in East Asian countries resemble one another in part, and peculiar characteristics of each country is quite difficult to extract by mere summarizing of the concept involved within the respective country. Through comparative study, the essential



Fig. 2: Architectural preservation methods in Korea Upper Left: Daejeokgwangjeon Hall of Gwisinsa Temple, Lower Left: Gangneunggaeksamun, Right: Gangneunggaeksamun

difference of each country, albeit faintly, can be attained. Following are the differences observed in a comparison between Korean buildings under restoration work in 2004, namely, Daeungjeon Hall of Beopjusa Temple, Daejeokgwangjeon Hall of Gwisinsa Temple, Gangneunggaeksamun (Gate to an official inn in Gangneung), and Japanese restoration cases.

#### Changing damaged members to new ones

The Japanese practice is intended to limit the replacement of material to the very minimum, such as by reusing a wooden member by trimming its damaged part. On the other hand, in South Korea, a total replacement of wooden components especially around the roof is the common practice, and changing of damaged wooden members with new ones can be observed more frequently than in Japan.

#### Structural Reinforcement

In Japan, there are many cases, where structural reinforcement involves use of steel beams and reinforcing bars, in addition to wooden members. In South Korea, the restoration by structural



reinforcement using metal is few and far between, though there is a method of wrapping iron bands around wooden members in the Koryo Period. The structural reinforcement using wood is in the mainstream.

## Traditional repair work

For the repair work of wooden members, both countries apply their traditional method of repair work, such as joining (tsugite), angled joining (shiguchi), and splicing at the base (netsugi). However, in terms of reinforcement, Japan is more active in introducing the modern technology, whereas South Korea uses more of updated traditional reinforcement method instead.

Fig.3 A Repair Technique of Frame Structure In China (QI Yingtao, 1993)

Restoration of wooden members with use of synthetic resins

In Japan, restoration of wooden members with synthetic resins is getting out of mode in the recent years. On the other hand, Koreans reuse wooden members a lot by treating them with synthetic resin, mainly at the skeletal framework of the building. This is said to be the influence of the Korean system of cultural property repairs based on contract work system.

The differences outlined above should be considered not as a marker of progressiveness, but as characteristics that were formed through the years against the country-unique cultural backdrop. In comparison of Japanese and South Korean concepts of building restoration, the following three observations can be made as Korean-unique.

- a. The basis of the wooden structure restoration lies in restoring the health of the structure by the use of wooden component as a traditional material. The use of non-traditional material such as iron is best avoided.
- b. The emphasis is placed on the structurally important main members serving as the skeletal framework, though attention is also paid on ancient wooden members.
- c. The traditional repairs are strictly observed, with the notion that the original construction technology and today's technology are virtually close.

These policies imply that the Koreans intend to pass down to the future generation the historic architectures as a whole, together with the technology of preserving them. This is done by recognizing a certain level of historic consistency in the construction technology of wooden buildings, and by promoting the preservation of buildings with the utmost utilization of wood and traditional technology.

On the contrary, the construction technology in Japan has been disconnected over time, with some continuity flowing through the antiquity, medieval and pre-modern times. Recovery of structural health is thus realized through utmost restoration of the wooden members of the building, and on top of wood as the most preferred reinforcement material, other materials are also used as thought fit, and use of modern technology is encouraged. Thanks to this practice, it seems, the restored building also serves to encapsulate the technology and preserve it.

In addition to the restoration techniques of South Korea and Japan, the building restoration in China should be also briefly mentioned. The texts on restoration in China reveal the fact that it is basically conducted to maintain the current status of the building. A total dismantling is the last resort to be used in absolutely inevitable cases due to severe damage, although China does also implement dismantling repairs as in Japan and South Korea. Also, reference to the way of restoration works is made with an emphasis on restoration without disassembly, such as repairs by jack-up. It gives an impression that China is a legitimate heir of the traditional technology before the pre-modern period.

## 2.2 Causes of Difference in the Way of Restoration Works

Surely, the building restoration varies among Japan, South Korea and China, even though they also have some commonalities. Some factors behind such disparity should be discussed, which the comparison of South Korea and Japan suggests.

## Peculiar Characteristics of Historic Buildings in Each Country

The difference in the way of restoration works depends, for one, on the characteristics of the historic buildings in the respective country themselves. This section focuses on the relations between the characteristics of the building and way of restoration works, as indicated by a comparative study of South Korea and Japan.

## • Existence of freestanding support (*nogoya*)

The roof structure of Japanese wooden buildings in the antiquity was faithful to that in China or Korean Peninsula. Since Kamakura Period (1192-1333), in order to accommodate the humid Japanese climate, the pitch of the roof was made more acute and an architectural structure called *nogoya* with double corner rafters was established. As a result of invention of *nogoya*, a large hidden space under the roof came into existence. This space enabled independence of the roof structure from the skeletal framework, hence insertion of many reinforcing members.

It must have been a matter of course, that the concept of structural reinforcement by insertion of reinforcing members in the hidden area of the building was applied to the Japanese building



Fig. 4 Comparison of Japanese Ancient Temple Architecture and Korean Temple Architecture

restoration, reflecting the structurally separated skeletal framework and roof, plus existence of *nogoya*.

• Composition of Corner Rafters

Japanese design of the corner rafter at each corner of the roof is different from Chinese and South Korean. China and South Korea feature the fan-shape corner rafters, while Japan places them in parallel since the ancient time. At the corners of the roof, curvature of the eaves is accommodated. On the one hand, the fan-shaped design attains the curve by allocation of corner rafters to fit the curve of the horizontal beams laid parallel to the ridge (*keta*) to that effect. On the other hand, the parallel design necessitates quite an intricate composition for accommodating corner rafters and hip rafters precisely. This of logically composing the roof structure is called *kiku*, or exact plan to the actual size of parts of a structure, at which the Japanese repair experts make a great effort. On the contrary, South Koreans seem to be less interested in *kiku* than the Japanese, probably due to their fan-shaped design of corner rafters.

The sophistication in composition is an imperative in Japan, because of the significance of *kiku*. The roof as a whole should not have any distortion, in order to arrange all the related components in place. It is considered that orientation toward reconstruction is required for this purpose.



륌 9-27 선자서까래 나누기법(세안)







Fig.5 Composition of corners of the eaves (Left: Korean architecture; Right: Japanese architecture (Main Hall of Shin Yakushiji Temple)

## • Issues of Species of Wooden Members

In Japan, high-quality, easy-to-process tree types, such as Japanese cypress and cedar are used as the main construction material, and warped but highly tensile tree like pine is arranged in hidden areas. In South Korea, on the other hand, pine tree is the main construction material, and wooden members should not necessarily be homogeneous. The use of tree type must have something to do with the drastic replacement of wooden members in the Korean building restoration, especially around the roof.

As has been discussed thus far, the features of building are considered to define the way of restoration works to a certain degree. In other words, the act of restoration is inseparable with the value of the building itself.

#### Difference in Introducing Process of Western Restoration Theory in the Modern Period

Since the latter half of 19th Century, East Asian countries adopted Western restoration theories. However, the disparity was generated among them, depending on how such theories were historically embraced, and which phase of the Western theory was implemented, and from which country.

The Meiji Japan started to conserve and restore buildings in the modernized way by introducing the 19th Century European concept. However, it remained thereafter loyal to it for an extended period of time without active information exchange with European countries thereafter, resulting in mere fragmented reflection of the subsequent development of theories in Europe. Especially in the area of restoration, Japan modernized its traditional way of restoration works based on the theory of stylized restoration, which swept through Europe back in 19th Century. This way of restoration works was engraved at its core with its strong inclination toward reconstruction.

Meanwhile, in South Korea, the cultural protection was conducted by Japan before World War II, and its course was partially retained and partially disconnected under the new system of government in the post-war period, as new methods were sought. In China, the method rooted in the West was fully implemented between the prewar and postwar period. Against this backdrop, the Western concepts kept flowing in through USA and USSR, including the critique on the stylistic restoration and other theories that followed it. In that process, a framework for the system of cultural protection was formed quite differently from the other East Asian countries, which is symbolized with the system of national unit for prioritized cultural protection established in 1961.

## 3. The Formation Process of the Restoration Theory in Modern Japan

Now, taking Japan a case study, the formation process of building restoration theory since the latter half of 19th Century will be explored. Japan consolidated its building restoration method in Meiji Era by applying new concept and technology from the West to the traditional way of restoration works, and updated it. In that process, various discussions on the restoration policy took place. Among them, the topic of reconstruction was kept on focus. The concept of confining reconstruction to a very minimum is also becoming popular in Japan nowadays, but until 1970, the overall view was pro-reconstruction. The formation of the restoration theory in the modern Japan shall be discussed below, cantered on the problems of reconstruction.

# **3.1** The History of the Restoration Theory in Modern Japan: Restoration or Anti-restoration?

In the history of building restoration in Japan, there were three major discussion starters on reconstruction.

#### **Occurrence of the Theory of Restoration: 1894 - 1897**

The building restoration by the state commenced around the enactment of Law for the Preservation of Ancient Shrines and Temples in 1897, when restoration works were conducted under the supervision of Japanese architects, who had studied at the Imperial University (Tokyo University today). The prototype of theory for restoration was put forth in 1894 by NAGANO Uheiji, who conducted a survey for restoration of ancient shrines and temples in Nara Prefecture, prior to the enactment of the said law. In his written opinion on temple restoration in Nara in 1894, he asserted that the reconstruction should remain royal to the current appearance of the ancient temple architecture, because it takes from the ancient structural design, even if they have been reconstructed in between. He also emphasized that one should pay attention to the structural reinforcement, stating that ancient buildings are structurally immature.

After Law for the Preservation of Ancient Shrines and Temples came into effect in 1897, Main Halls of Shin Yakushiji Temple and Toshodaiji Temple in Nara Prefecture went through repair work under the supervision of an architect, SEKINO Tadashi. Faced with the ancient architecture, Sekino set up the principles of repairs indicated below.

- 1 Affirmation of the act of reconstruction
- 2 Exclusion of extrapolation in reconstruction
- 3 Reconstruction at visible parts, and reinforcement at invisible parts
- 4 Respect to ancient timbers and patina

It is clear that all the elements of the basic principle of today's building repair work in Japan are already pointed out here.

#### The Controversy on Restoration and the Fixation of Intension to Restoration: 1899 - 1901

Sekino conducted a drastic reconstruction at the Main Hall of Shin Yakushiji Temple, the first restoration project he was in charge, by removing the added eaves and ceiling from Kamakura Period. In his second project at Main Hall of Toshodaiji Temple, he inserted a Western truss structure inside the roof framework, by which he sensationally posed a question of the way of

reconstruction to the society. His policy brought about a flood of response, and triggered a controversy regarding reconstruction.

In 1899, TAKAYAMA Rinjiro (Reigyu), a thinker pointed out that the extent of reconstruction is unique in each building, and reconstruction policy behind it is not evident. He asserted in his thorough pro-reconstruction theory, that since architecture is an art of style, it should be reconstructed with the same style as the original in the ultimate sense. In the following year, MIZUTANI Senji remonstrated with an anti-reconstruction theory that allowed no act of reconstruction, arguing that every renovation in every era possesses a historical value. Against these two extreme opinions, TSUJI Zen'nosuke, a historian, spoke for Sekino and Nagano in 1901, and summarized the repair policy indicated above. There, he took the position of justifying the act of reconstruction itself, while stating that the policy for each repair work should be modified on a case-by-case basis, depending on the clarity of its ground for reconstruction.

This controversy invited the two extreme opinions on the act of reconstruction in restoration work, and expanded the horizon of the topic. This marked an opportunity for the people involved to keenly recognize the clarification of ground for reconstruction, while it also bolstered the tendency for reconstruction as a result. After this dispute, this reconstruction-based repair policy was carried on throughout the effect of Law for the Preservation of Ancient Shrines and Temples.

#### **Restriction on Alterations to The Existing State by National Treasure Preservation Act: 1929**

In 1929, National Treasure Preservation Act replaced Law for the Preservation of Ancient Shrines and Temples. Under this new legislation, restriction on alteration to the existing state of the designated building was stipulated, putting harness to reconstruction to a certain extent. However, the law did not forbid reconstruction itself, and left a room for reconstruction works with a clear ground, specifying a procedure to be followed for altering the existing state. It was based on the concept that reconstruction is an act of recovering the health of the building.

In this context, the subsequent restoration works made a great leap in clarification of the ground for reconstruction by improving the accuracy of examination associated with dismantling. In particular, the extensive repair of Horyuji Temple started in 1934, in which the national government established the Horyuji National Treasure Restoration Work Office to restore major buildings in the temple premise intensively. Consequently, it led to establishment of an examination method for restoration.

To summarize, the following can be pointed out.

- 1. The aspiration for reconstruction was originally an idea, which was conceived in the European architectural viewpoint.
- 2. The history of argument on repairs of architecture, and history of restoration since Meiji Era were directed toward justification of restoration.

3. Restoration was regarded an improving alteration to the existing state. The development of the Japanese restoration theory was directed toward expansion in reconstruction methods, but not toward questions of what cultural properties are, or what restoration means.

## 3.2 The Core of the Controversy on Restoration and Anti-restoration

The controversy on pros and cons of restoration in Japan erupted repeatedly, but each time ended in a pro-construction conclusion by the same logic. The core of the issue can be extracted from a representative dispute in the 1970s, where criticisms on reconstruction were confronted with counter arguments. (OOTA Hirotaro, "Reconstruction and Restoration" in Juyobunkazai ((Important Cultural Property)), Appendix 12, Mainichi Shimbun, 1974.) Following are the criticisms on reconstruction and counter arguments against them.

## Criticism 1: "Later-added elements and alteration are also part of its history."

Counter Argument 1: The designation of the structure as a cultural property is made by appraising its architectural value as from a specific period. Restored or altered structure cannot evoke the original design of the building when it was first built. Also, as an art object best represents the uniqueness of the artist in its original form, and its value is diminished if altered, so does architectural structure. Later addition and alteration are in most cases an act of degradation, thus their historical value is relatively lower than the original. Therefore, reconstruction is the best way to enhance the value of the building.

# Criticism 2: Query to the evidences for restoration: absolute reliance on the method of examination and analysis

Counter Argument 2: After the extensive repairs of Horyuji Temple in the early Showa Era (1934-55), the accuracy of examination associated with restoration showed marked improvement. The architectural historical methodology in critical study of building as a historical record was firmly established, providing a firm ground for reconstruction.

## **Criticism 3: Loss of age value**

Counter Argument 3: It is merely a temporary sense of incongruity.

In the background of such counter arguments lies the following concepts.

# Absolute trust in the methods of examination and determination of historical authenticity of the reconstruction

Behind this concept is an idea that it is good to restore the structure back to the state discovered in the examination. However, even though such methods are established, they cannot be effective, when evidences have been lost. In the reality, the policy is determined on each individual case with meticulous deliberation.

# The ultimate goal of designation of cultural property is to show the culture from one historic period.

A historical period is considered a pure independent stratum, irrespective of the feature of the other periods. The orientation toward reconstruction is inseparably entwined with the cultural property protection system of Japan. However, limiting the concept of time frame of the architecture to the moment of its construction is too narrow. Even if it is a viable theory in the context of cultural protection, it is not necessarily an elixir of historical evaluation that covers architecture in general.

## 3.3 Restoration Problems Peculiar to Wooden Buildings

Then, why were so many arguments in Japan inclined toward pro-reconstruction? It seems to be important to understand, they stem in the peculiarity of the Japanese climate, as well as of its wooden buildings.

#### The architecture put together on the structural balance of wooden members

Wooden structure by the pillar and beam method cannot be viable as a building without keeping their structural balance. The recovery from damage or distortion is usually not a fundamental but a patch-up type of restoration work, which is sometimes called 'stopgap restoration.' In many a case, such restoration works demand recovery of structural balance. Similarly, remodelling of the building is often limited to relocation of partitions or architectural elements with an interior finish within a bay, and does not affect the building frame. It is said that not all remodelling or restoration are of historic or aesthetic value.

## Perishability of wooden members

It is no surprise that the wood is a flammable material. In addition, some wooden members and joints require periodical replacement by nature. Even though the wooden members are expected to remain in use for an extended period, they are not intended to last perpetually. The perishability of material gives a sense that the existence of buildings is also frail, which in turn increases the paucity value of ancient buildings. Thus, the sense of the value is reinforced in part: the older the buildings are, the more valuable they become.

#### **Technique of dismantling repairs**

Due to the characteristics of buildings outlined above, periodical dismantling repairs are absolutely necessary. At the time of dismantling repairs, the reconstruction to restore the structural balance and the reconstruction is conducted based on detailed discovery of the architectural technique and the process of past repairs.

To put it differently, restoration can be characterized by the inherent nature of the wood

itself; from periodical restorations and replacement of wooden members, and from the structural point of view. In that sense, it can be said that Japanese buildings and their restoration characteristics had an affinity for the reconstruction-oriented theory of the 19th Century Europe, which led to its total adoption.

There are three perspectives in the positioning of reconstruction in the restoration work; aesthetic, historical, and structural. In general, restoration theories are formed on the reconciliation of elements and . On the contrary, is considered to have played a major role in Japan.

## 4. Toward Re-theorizing of Preservation and Restoration in East Asia

Finally, some outlook toward theorization of conservation and restoration in East Asia should be mentioned.

## Relations between the value of cultural properties and restoration

According to the European system of thought, restoration is defined as an act of interfering with a building that exists as a whole. It is believed in the restoration that the degree of such interference should be kept to a minimum. Possibly, the practice of applying the Western system of thought to the East Asian wooden building may be posing an impediment to the development of argument on reconstruction in Japan.

So that they can remain intact, wooden buildings require periodical restoration works. In that respect, the act of restoration can be considered as a part of the existence value of the buildings themselves.

## Restoration work as an action to sustain a building as a structural body

The structural viewpoint is essential in determining the authenticity of wooden buildings. It is also true that the act of reconstruction is an inevitable element for consideration in this issue. The method of restoration should be theorized as an act of maintaining the building as a structural body, based on the way of restoration works accumulated throughout the years.

## Comparison of restoration and modern architectural history in East Asia

Comparison of restoration reflects the westernizing process steps of each East Asian country. In other words, the history of restoration poses the problems of modern architectural history. It should not necessarily be discussed apart from the general architectural history. It is strongly desirable, that the examination of repair work and restoration in each country in East Asia will be further advanced.

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# Bangladesh

## **Firoz AHMED**

# Introduction

I would like to thank ACCU for providing me with the splendid opportunity for participating in this precious training course. I would also like to thank my Government for nominating me to enjoy this opportunity. This is a rare chance for anyone who is concerned with conservation, restoration, and archaeology, to come to the Asia Pacific Cultural Centre (ACCU) that has a proven record of imparting relevant training to concerned people and exerting the potential in this field. Many conservators from different part of the world have had this training and they have been using the knowledge in improving the restoration, conservation and protection of cultural heritage in their respective countries.

Japan is one of those countries, that is well equipped with modern technology and technical knowledge. It has modern computerized technical tools and a robust economy to conduct the management of the conservation, restoration and preservation of cultural heritage. It has strong legislative measures to control and monitor the multifarious facets of this highly delicate and technical job.

I would like to thank ACCU for making room for all of us without which we would not be able to gather in Japan to watch and observe the abundance of cultural heritage and technical aspects of protection and preservation

## **Bangladesh Perspective**

As I mentioned in my country report, a specific conservation policy to protect cultural heritage has yet to be formulated in Bangladesh. Since its inception in 1971 as an independent state, the Department of Archaeology has been shouldering the responsibility for the restoration, conservation and preservation of cultural heritage. It is the only department under the Ministry of Cultural Affairs performing this gigantic task. In spite of multifarious impediments such as a shortage of adequate funds, a dearth of adequate skilled manpower, and the absence of appropriate modern technology, the Department has performed stupendously. It has already conserved and preserved 322 monuments by doing appropriate and innovative maintenance. There are many declared protected sites that need immediate care and have yet to be taken under the management of the Department of Archaeology, Because of an inadequate allotment of funds and a shortage of required manpower, hardly any progress has been made so far. Apart from these problems, there is also a lack of opportunity for using equipment and technical knowledge in the process of conservation in Bangladesh.

The Government of Bangladesh is trying to ameliorate the situation by making the Department more effective. In this regard reengineering at a certain level is going on. As a result some remarkable projects have been implemented, such as Paharpur.

In Bangladesh, timber buildings are limited but almost all monuments have wooden parts. Different varieties of timber have been used in different buildings such as beams, rafters, in the roof and ceiling, ornamental doors and windows, partitions and screen walls. There are some colourful wooden pagodas, temple and Buddhist monasteries in the eastern part of Bangladesh. Some of them are damaged or destroyed and have been badly repaired. These must be taken care of with appropriate technical knowledge to keep them in their original condition.

## My experience at ACCU

The training course began in the last week of September 2005 and finished at the end of November 2005. It took place at the National Research Institute for Cultural Properties Nara and the ACCU office. During the month long course, there were lectures, practical training activities, and onsite lectures.

In the first week we had a very good introduction to the law for the protection of cultural properties in Japan, the history of protection of buildings, and the system of designation for cultural properties.

The second week was mainly concerned with participant presentations. This gave us an opportunity to get an understanding of the different types of historic buildings in the Asia/Pacific region, and the methodology of conservation followed by each country. These presentations provided us with an opportunity to exchange ideas and evaluate the system of conservation methods in each country.

The third week was concerned with a practical training exercise at Toshodai-ji temple. We visited the temple and observed the actual restoration site. Through the exercise on wet rubbing and dry rubbing, we learned two techniques that can be used to get the exact form of the carvings on timber as well as roof tiles. These two techniques learned can be adopted for conservation work in Bangladesh. The exercise on the drawing of the bracket detail was excellent. Through this exercise we learned the components of the brackets and how these components are fixed with each other.

Through the study of a small shrine at Toshodai-ji temple we learned how the historic buildings should be analysed in terms of interventions during different periods.

Bangladesh has rich cultural properties, but unfortunately there is no modern equipment. This type of exercise would be very useful for me and easy to utilize in my country.

During the fourth week we visited several important historic buildings and sites. During

my visit I observed preservation districts that have been designated by local municipalities. This is a unique concept in that the preservation district's character and the harmony of the buildings are very well preserved. These local municipalities have a very good rapport with the community.

The communities understand the value of their heritage and the local communities also very closely work with the authorities for the preservation of their heritage. The provision of subsidies for the owner is also a very positive thing in order to build up a good rapport with the owner. The government and local authorities cover the cost of repair up to a maximum of eighty percent. The provisioning of subsidies certainly encourages the owner to undertake restoration work

# Conclusion

During my study at ACCU I gathered valuable knowledge that will help to contribute in improving the situation in my country. This course was a tremendous combination of theoretical and practical approaches in training. My knowledge had been improved in such a way regarding my profession that I can see a new light in thinking about my field of experience. My stay at ACCU helped me exchange views with the participants from different countries that enriched me a lot. This riveting memory will show me a new track for the future regarding my work.

## Acknowledgements

I would like to thank the Cultural Heritage Protection Cooperation Office Asia/Pacific Cultural Centre for UNESCO Nara, The National Research Institute for Cultural Properties, the Ministry of Foreign Affairs of Japan, the Japanese National Commission for UNESCO, the Nara Prefectural Government and the Municipal Government of Nara, and the International Centre for the study of the Preservation and Restoration of Cultural Properties ICCROM. I also wish to thank Mr. Yamamoto Tadanao, Dr. Yasushi Nishimura, Ms. Chiyako Hata, Ms. Kayoko Ishii Mr. Mark Diab, Ms. Yuri Nakamura, and Ms. Mayu Iwade for the outstanding coordination. Finally I would like to thank The Ministry of Cultural Affairs and Department of Archaeology in Bangladesh for nominating me to participate in this training course.

# Bhutan

# Dorji YANGKI

# **Evaluation Report on the 2005 ACCU Training Course** Week 1: 27th September – 30th September

The introduction to Japan's cultural heritage protection system and general presentation of the conservation of wooden architectural heritage in Japan by Mr. Yamato was very useful for an overall understanding of the general history and current status of cultural heritage properties in Japan. In addition, it was important to appreciate the various systems in Japan that are set up for heritage protection, and the principles and practices of the conservation of wooden architectural heritage as practised in Japan. All this general information laid a good foundation for the rest of the course.

# Information of particular value and usefulness to my current and future projects in Bhutan:

- The information on the definition and criteria of the different categories of cultural properties and the various steps used for the designation of cultural properties in Japan was particularly useful and very informative. In Bhutan, we have yet to legally designate or categorise architectural heritage. This is something that my office is presently considering undertaking in the near future. Therefore, this information presented me with many different ideas on how to perhaps create a system to categorise and designate architectural heritage properties in Bhutan.
- Bhutan is yet to carry out proper academic research on the different periods of architectural history and heritage in Bhutan. Therefore, the presentation on the different periods of architectural history in Japan and how the different styles that appear to be similar but are recognised as being from different periods from careful observation of subtle differences (joints, design, colour, etc.) was very useful. My office is currently carrying out inventory research work on architectural heritage in Bhutan and this information will allow me to be more observant about subtle differences in different periods of architectural development in Bhutan.
- Even though I would have liked to have had more time to observe things, the short visit to the Nijo-jo castle in Kyoto was nonetheless very beneficial. Bhutan has many old fortress castles from the 17th and 18th Centuries. The majority of heritage castles in Bhutan are not presented as museums (as it seems to be the case in Japan and many economically developed countries) but are used as 'living' places (often with functions that have remained unchanged for centuries). Although there are many measures to continue these

living heritage traditions, there are currently two projects in the pipeline in my office to present some sections of two castles in Bhutan (The Semtokha Dzong for which I am the project co-ordinator and the Trongsa Ta Dzong) to visitors as exhibition spaces. Therefore, the visit to the Nijo-jo castle presented me with many very simple but effective ideas on how to deal with visiting public and with various ideas how to present heritage spaces to visitors while still conserving the important heritage elements.

# Week 2: 3rd October – 7th October

The presentations from the participants from different countries around the Asia- Pacific region illustrated how the rich and diverse heritage in each country. The presentations also illustrated how there are also many similarities shared by each country, especially in terms of the problems faced in the conservation of architectural heritage. This presentation from the participants was extremely helpful to learn about the overall Asia- Pacific region and it greatly increased my appreciation for the rich heritage in the region and the efforts by different Governments, groups and individuals to conserve this heritage. The presentation by Dr. Myklebust from Norway broke away from the region and gave us a brief glance into the universal problems faced in the analysis and juggling of various values attached to heritage.

## Information of particular value and usefulness to current and future projects in Bhutan:

- The session by Dr. Shimada on the various principals and issues attached to reconstruction of historic sites was very constructive and gave me new insights into the reconstruction of historic sites. This is a subject that I have read about but one that I have never been very confident of. His presentation on the various approaches to interpretation of historic sites and the intense and different types and methods of research carried out for such projects was particularly interesting. The methods of research and various approaches used in the reconstruction of historic sites and the presentation of such sites will be useful for the Drapham Dzong historic site project in Bhutan. This will be the first archaeological project proposed for implementation in Bhutan. My office is considering various approaches to presenting the historic site which presently consists of a few stone foundation remains. Therefore, the presentation by Dr. Shimada regarding site reconstruction was particularly informative.
- The comparative study on conservation between Korea and Japan by Dr. Shimizu was very useful information. This is because the presentation gave me many ideas on how to compare and analyse different architectural heritage structures in different areas in Bhutan. His presentation of the 'subjects of comparison', 'the ways of analysing' and 'viewpoints of comparison' are definitely methods that I will be using in my comparative studies of buildings in Bhutan.

This presentation also made me more aware of how to rationalise why different methods of conservation are carried out. Often this may not be very clear in the beginning where buildings appear to be similar in style but he illustrated how after careful examination of the subtle differences in elements such as aesthetic design and structural arrangements, one can then understand how different types of conservation principles or methods develop. Therefore, it is not possible to judge conservation of architectural heritage with a single standard.

• The most interesting part of the week was the presentation on painting conservation principles and methods by Mr. Kubodera followed by the practical training with him on surveying methods of paintings and preparation of restoration plans for paintings at the Jibutsu-do shrine at the Todai-ji Temple complex. Although paintings are often an important and integral part of timber heritage, this was the first time I had participated in such practical training on paintings and it taught me many things. This practical training will definitely prove useful for all my current and future projects since almost all timber architectural heritage elements in Bhutan have paintings on them.

I also really appreciated the frank sharing by Mr. Kubodera of the mistakes he made in the methods he has used in the past, and the lessons he has learned from these methods. This will allow me not to repeat the same mistakes in projects in Bhutan, thus insuring that important cultural properties in Bhutan (at least those that I work on) are conserved as appropriately as possible.

## Week 3: 11th October – 14th October

- As a person working in the central agency for culture in the Government of Bhutan, the system and project planning for the restoration of important cultural properties by Dr. Murakami was extremely enlightening. His step by step presentation on the classification of restoration practices ('major repair' and 'partial repair') was of particular usefulness and will also be a classification method that will be applicable to the classification of conservation work on timber elements in Bhutan.
- Dr Nishioka's lecture on the Seki Family residence in Kanagawa Prefecture presented me with a very practical example on how to carry out conservation of a vernacular house that is still used partly by the owner and is at the same time open to visitors. This example is very useful because presently my office is trying to attempt to save many vernacular heritage buildings in Bhutan. Using this example, Dr. Nishioka very effectively demonstrated the various different processes of conservation in Japan. Using a real example that he has worked on (and not one he has read or learned about) made the presentation even more authentic and allowed us to relate more intimately to all the various

issues that one has to go through while conserving a heritage house in use.

- The practical training at Toshodai-ji temple was definitely one of the most enjoyable and useful parts of the course where I learned so many constructive things that were not only fun to work on but also very practical and essential for conservation.
- Although all the other practical training days were really informative, the 'rubbing' methods to record architectural heritage were new to me. I found the methods to not only be very useful that provide very accurate documentation but also an easy and enjoyable way to carry out documentation of cultural properties. This is definitely a technique I intend to use in Bhutan in my projects and perhaps if I am able to, I will even teach this technique to the District Engineers/Architects in the next national training workshop that my office will be organising next year.

# Week 4: 17th October – 21st October

Travelling to other prefectures and to actual cultural properties around central Japan was definitely a very exciting and a good way to learn about heritage on actual sites. It was also very helpful to meet people who have worked on these places. Each place presented its own set of unique issues and it was interesting to learn about how each place has been conserved or presented to the public.

## Information of particular value and usefulness to current and future projects in Bhutan:

- Historic Districts do not exist in Bhutan so visiting historic districts during the excursion and learning about how these sites were conserved was especially interesting. My office may consider putting forward proposals to the Government to designate some places in Bhutan as Historic Districts in the next few years. Therefore, learning about how Historic Districts are designated, the issues connected to these Historic Districts and also seeing first hand such districts (Takayama) and meeting actual people who are working on the conservation of such sites was very useful for me.
- Many ancient villages in Bhutan are still being used as they were for many centuries and could be considered as cultural heritage sites in the near future. Therefore visiting the beautiful village of Shirakawa was a highlight of the excursion. The communal cooperation for the conservation of the village was very encouraging. The central Government in Bhutan intends to decentralise all works on cultural properties in the future and learning about communal grass root participation will prove very useful for future projects in Bhutan. The problems with increases in the number of tourists and how this is affecting the local people and area was also very interesting and will provide a good example to gain ideas from for similar future projects in Bhutan. Although presently in Bhutan, the protection of the locals is considered far more important than tourism and often sites are

not open to tourists, this may change slowly in the future. Therefore, the example of Shirakawa village will provide my office with many good solutions and perhaps even with some examples of what not to do in a 'living' heritage village.

• So far Bhutan has not allowed any archaeological projects in Bhutan (for various reasons) but my country is planning to undertake its first archaeological project (the Drapham fortress site) in the very near future. My office has just completed a brief proposal report for the first phase of this project and presently we are waiting for funding. Although the site in Bhutan is in a completely different context, there are many similarities between the site in Bhutan and the Ichijo-dani historic site. The visit to the Ichijo-dani site was very useful and provided me with many ideas for the project in Bhutan. How the issues of reconstruction and presentation to the general public have been handled in Ichijo-dani was particularly interesting.

# Week 5: 24th October- 28th October

The lecture by Mr. Nagao on the conservation and management of cultural heritage and the lecture on traditional techniques by Mr. Takeuchi were both extremely useful. Dendrochronology is not a system that is used in Bhutan or may be used in Bhutan in the near future due to financial issues but it was nonetheless very interesting.

# Information of particular value and usefulness to current and future projects in Bhutan:

- Fire is a big cause of destruction of heritage properties in Bhutan as timber is used extensively in many parts of heritage buildings. My office is still struggling with providing fire protection systems at heritage building sites so the information on the various fire protection systems and devices used in Japan was very essential information for me. The annual fire drill practised every January in Japan could be a system that Bhutan should follow too, as it is not enough just to install equipment.
- Bhutan considers the protection, conservation and development of traditional architectural techniques and skills very important and is taking many steps to continue such traditions. Such traditional skills are still very much part of the mainstream construction industry in Bhutan. However, they are slowly starting to face many problems from the introduction of modern techniques and materials. The information on such traditional techniques in Japan and the measures taken in Japan for the conservation of such traditional techniques was thus interesting and informative.
- My office in the Department of Culture in Bhutan has recently been facing issues in terms of procuring the appropriate types of timber for heritage building conservation projects. There are plans for my office to have a big meeting with the Department of Forestry in the

next few months to solve such issues. Therefore the information (even though it was short) on the issues of procurement of materials, the creation of heritage forests and also the measures to cooperate with the Forest offices in Japan will prove invaluable. I can perhaps present the examples from Japan during the meeting in Bhutan between my office and the Department of Forestry of Bhutan as good measures taken in heritage conservation and perhaps those that Bhutan can learn from and adapt to advantage in Bhutan.

- There are thousands of paintings in Bhutan painted directly on mud plasters. They are often hundreds (or perhaps even over thousands) of years old and are in dire need of conservation. Presently, Bhutan does not have any fully trained local conservators who are good with the conservation of such paintings. Our office has thus faced many problems with such projects. Although perhaps what I learned here in this course is not enough, the information on the conservation of paintings on earth plaster was informative and very useful for me as it gave me a general idea on how these paintings could be saved. The example shown by Dr. Kawanobe will be a good example that I can perhaps use to try to convince the Government that there are very effective but fairly simple methods to save these heritage paintings on earth plaster and thus people need to be trained for such tasks.
- The small samples of the different carpentry joinery techniques used in Japan (shown by Mr. Takeuchi) to conserve timber sections in buildings illustrated several very useful ideas that perhaps can also be used in Bhutan to save some sections of heritage timber columns and beams rather than total replacement with new material. In Bhutan, traditional carpenters often replace timber columns and beams that have deteriorated only partly with totally new material and therefore, this is definitely a method that I will experiment with among the traditional carpenters in Bhutan. These methods will be useful as they are simple but effective techniques and they also still maintain the overall structural strength of the members.
- There is a recent tendency in Bhutan where people often think that new materials are better than old ones. This has become a problem that my office is starting to face in many projects. Therefore, the presentation by Mr. Kawanobe of examples of the use of such materials (such as epoxy resins), with often negative consequences in the long term, and his presentation on how there is now an emerging trend to return to the use of natural organic materials in conservation practices presented me with good examples. These are examples that I can use in Bhutan to convince people to keep the use of traditional materials and techniques rather than use untested new materials.

# **Overall Comments:**

This course was one of the best courses that I have ever attended. I learned so many things in a very short time that will prove extremely valuable to my projects. At the same time, the course also highlighted many areas that I still have to learn more about!

I also enjoyed sharing the course with participants from 15 different countries. This allowed me to learn many things about the rest of the Asia- Pacific region and I am sure the friendships formed with the participants from different countries will prove invaluable in the future.

The best parts of the course were the practical training activities and the visits to actual cultural property sites. As a person who works in the field, the presentations by professionals who actually have hands-on experience and have worked on actual projects (rather than those who have just read or learned about them from others) made the presentations extra informative, useful and believable, thus allowing one to relate more intimately to the issues presented on the conservation of heritage.

## .....

I would like to extend my very deep appreciation to the sponsors and the course organisation team who not only arranged an excellent course but also looked after all the participants very well during our stay in Japan!

# Cambodia

## Sim THAN

# Introduction

The training course on the Preservation and Restoration of Cultural Heritage in the Asia-Pacific Region (27 September – 28 October 2005) presented information and significance on the Conservation of wooden heritage and analytical methods of ancient time in Japan and many Asia-Pacific countries.

Cultural Heritage is an issue of great national and historical pride for every nation and for its future generations. Each nation has a cultural heritage that consists of historic buildings, ancient monuments and ruins. Among the many countries in the Asia-Pacific region, Cambodia is one that is rich in Cultural heritage, particularly, in the region of Angkor. The cultural heritage of the sacred land of Angkor was subscribed on the UNESCO World Heritage list in 1993. The Angkor monuments, and the origin of the Khmer culture amaze us by their magnificent scale and structural beauty, but they are in urgent need of preservation and restoration. In 1989, the Japanese government established the UNESCO/Japan trust fund for the preservation of world cultural heritage. In order to cooperate worldwide for safeguarding Angkor, the JSA was organized in 1994 to carry out a concrete project concerning the Angkor monuments.

Attended by representatives of 15 different countries, it provided an opportunity for the study of the preservation and restoration of cultural heritage methods employed in Japan and for comparisons to be made by the participating Asia-Pacific Countries. Organized by the cultural Heritage Protection Cooperation Office, Asia/Pacific Centre for UNESCO (ACCU), the course enabled participants to learn from Japanese heritage professionals and to have their own experiences.

## My impression after the training course

The training Course focused on the Preservation and Restoration of Wooden Structure, a particularly famous type of cultural heritage in Japan. Wooden Structures in Japan are modest, but very strong and endowed with a firm book of rules and principles. Very interesting points can be seen in the structure of the wooden temples in Japan that have ordinary round columns, and on the top of each round column are supported many of the principle members of the structure. This can be admired very much.

During the course each participant from the Asia-Pacific region gave a presentation about conservation and cultural heritage in their country. I think that in some countries such as Kazakhstan, Korea and Mongolia there are wooden architectural structures (specifically part of the

roofs) that are similar, but not identical to wooden architectural structures in Japan. I observed some points between Japanese Cultural Heritage and Cambodian Cultural Heritage. I think that, In Japan, there are rich wooden architectural structures (wooden temples) that are famous cultural heritage sites. In Cambodia, there are rich architectural structures made by sandstone, brick and laterite, that are also very famous Cultural Heritage sites. In Japan many temples are lit up but in Cambodia we do not allow the use of electricity in any temples. In Japan most of the temples are restored, but in Cambodia a few temples are being restored and a lot of damaged temples are not yet restored. In Japan some temples have been destroyed by time and earthquakes (i.e. nature) but there are no earthquakes in Cambodia.

The Government of Japan and ACCU Nara are making a great contribution to the promotion of cultural heritage protection in the Asia-Pacific region by conducting these kinds of training programs for officials in charge of cultural heritage so that they may enhance their knowledge of the conservation and restoration of cultural properties. During this training course I had an opportunity to view historical wooden structures in Japan and study methods of restoration and conservation activities. I was very much impressed with the Historic Sites of Nara Park such as Kofuku-ji Temple, Todai-ji Temple, many other shrines, gardens, and landscapes surrounded by steep of mountains. In addition, I visited Nijo-jo Castle located in the ancient city of Kyoto. This cultural property is carefully managed and falls under the highest protection laws in Japan. I was very much impressed with the Historic Villages of Takayama, Shirakawa, Kanazawa and Fukui. The cultural property management systems of these sites provided me with a lot of experience and showed me the best methods in the field of preservation and restoration of wooden historic sites. I was also very much impressed by other activities during the training course, such as the lectures in the classroom, on-site lectures, study trip, sites visits, practical on-sites workshops, and discussions. All of these activities help to promote an understanding of the history and culture of the Asia-Pacific region, particularly, in Japan.

## The Causes of Damage to Khmer Monuments

## Kaleidoscope of crises, Decision, Quests and Emotion...

The main causes of ruins in Khmer temples are many and each case differs. Examples include:

- 1. Agedness of temple (the Angkor site dates from the 6th century to the present),
- 2. Abandonment (due to wars) has led to a lack of preservation.
- 3. Differential settlement of the structures.
- 4. Tropical climate (hot and humid).
- 5. Destruction by trees.
- 6. Human activity such as looting.
- 7. Insects (termite, bats).

## The Management System of Cultural Heritage In Cambodia

In the past, the Kingdom of Cambodia was a large country and was spread widely over most of Indochina. It had its own arts, culture and traditional customs. It had a glorious civilization in the region of Southeast Asia. It progressed from the Pre-Angkorean to the Angkorean period (from the 6th Century to the 14th Century). As we see today, there were many historical remains left throughout the country, such as: stone temples, sculptures, inscriptions and the area of historical sites and regions that are the most important and useful in the field of archaeology, anthropology, religion, traditional custom, and local people's lifestyles in the region of Angkor in Siem Reap province. Since Cambodia is rich in Cultural heritage like this, a brilliant idea thought of by King Narodom Shihanuk and the government of Kingdom of Cambodia was to appeal to UNESCO to come to the rescue, and manage the heritage in Cambodia. A special request was made to put Angkor on the UNESCO World Heritage list.

## Heritage Management in Cambodia was divided into two parts:

- Other heritage sites are located in other provinces and cities that are not inscribed in the World Heritage list yet, they are under the authority of the Ministry of Culture and Fine Arts, and under the direct responsibility of the Department of Heritage and Techniques.
- The heritage that is registered on the UNESCO World Heritage list already, such as the region of Angkor, are protected and Managed by National authorities. In the case of Angkor it is called the APSARA Authority (Authority for the Protection of the Site and Management in the Region of Angkor). This authority is directly under the ministry of the council of ministers, and its duty is to manage and protect the whole region of Angkor, and to coordinate and cooperate with international institutes for all temple restoration and development in all Angkor park projects. All these works must fall under the decision of the International Coordinate Committee (ICC), with Japan and France as co-chairs. This committee arranges meetings twice per year every year, with the aim of following up and controlling all conservation and restoration projects in the region of Angkor.

## To establish the protected cultural heritage zones for Management Purposes

The Angkor region is divided into five different protection zones:

- Zone 1: Monumental sites.
- Zone 2: Protected archaeological reserves.
- Zone 3: Protected cultural landscapes.
- Zone 4: Sites of archaeological, anthropological or historical interest
- Zone 5: The socio-economic and cultural development zone

# Conclusion

The 2005 ACCU training course in Nara city offered many methods on its course menu and created more interest for conducting the preservation and restoration of cultural heritage work in the all of the Asia-Pacific countries, particularly, in the Kingdom of Cambodia. In conclusion I can say that this training program was very fruitful for me, and I also believe the same holds for all participants. The experience that I have gained during this training program is, in most cases, applicable in my country.

Finally I am sincerely grateful to the ACCU Nara Office for inviting me to Japan and providing me with the opportunity to be involved in this training course. I believe that in the future all participants of these training courses will continue communication between themselves in order to share their experience for the benefit of cultural heritage protection promotion in their respective countries.

I would like to express my gratitude to the government of Japan and other institutions in Japan for the financial support provided for my stay in Japan. I would like to express my thanks to the Director of the ACCU Nara office, all lecturers, and the ACCU staff for the excellent and wonderful organization during the whole period of the training course. I am deeply grateful to all of the participants for helping me during the training course.

# Indonesia

## **Rina PRIYANI**

# 1. Introduction

This final report has been prepared for the Training Course on the Preservation and Restoration of Cultural Heritage in the Asia-Pacific Region 2005: Preservation and Restoration of Wooden Structures. The training was held in Nara, Japan from September 27 until October 28. It was jointly organized by *Bunkacho*, the Asia/Pacific Cultural Centre for UNESCO (ACCU), the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM), and the National Research Institute for Cultural Properties.

This report mainly discusses the initial plan on how to apply the knowledge from the training course with considerations of the problems and needs for the preservation and restoration of wooden structures in Indonesia.

#### 2. Problems and needs for the preservation and restoration of wooden structures in Indonesia

As one of the largest archipelago countries, Indonesia has a heterogenic culture as it originated from Austronesian and Polynesian cultures while Hindu, Buddhism, Islam, and the Colonial Period (Dutch, English, and Portuguese) also had influences all over the islands. These cultural mixtures can be observed through vernacular architecture which mainly used wooden structures, e.g. Malay houses and palaces in Sumatra and Kalimantan that represent Austronesian; Tongkonan house in Toraja Village, South Sulawesi and Nias Village in North Sumatra that represent both Austronesian and Polynesian; and boat/ship-like buildings in Flores, Sumba, Timor, and other islands in East Nusa Tenggara that represent Polynesian culture.

From these facts, we can conclude that Indonesia has a vast diversity of vernacular architecture in wooden structures. The function of the buildings range from houses and communal buildings, rice-paddy barns, places of worships (mosques, churches, Chinese temples, etc.) to palaces. Most of the buildings apply the post and beam structures with raised pillars; thatched or wooden shingle roofs; a combination of bamboo, wood, or rammed earth for walls, fences, and platforms. Decoration techniques of paintings and carvings are also applied in some parts of the structure members, that put more emphasis on the main structures and entrance area.

The preservation laws in Indonesia are as recent as Cultural Property Act No. 5/1992, which refers to the former act during the Dutch Period, Monumenten Ordonantie No. 238/1931. Current practices show that the laws generally encourage the preservation of colonial architecture and do not specifically cover vernacular architecture. Above all, urban planning and building regulations are heavy on regulating the concrete and steel structures/buildings than wooden ones.

This situation clearly shows that wooden structure preservation has not been an important agenda in Indonesia. I regret to say that it will cause the loss of vernacular wooden structures together with their traditional techniques and craftsmanship.

Another problem in the preservation of wooden structures in Indonesia is the lack of community awareness of the meaning and significance of cultural heritage. The community realizes that historic buildings or structures exist but still doubt that preservation activities can generate social and economic benefits.

# 3. Application of the training course to my research practices

The application of the knowledge from the training course will be explained in selected topics, comparing the situation in Japan and Indonesia, and ending with the initial future task and main actors involved in the preservation and restoration fields. These topics are based on a subjective interpretation, related to my research practices, i.e. architectural history, cultural heritage planning and tourism development.

The observation of cultural heritage preservation in Japan was made during a short time, during the 5 week training course in class and on-site/practical training. The Indonesia situation is presented based on previous research and practices. For that reason this discussion needs further research and development before application to the real condition. However, there are five main topics which need to be considered in any future tasks for cultural heritage preservation in Indonesia, as follows:

- 1. the concept of cultural heritage preservation
- 2. planning system and legal aspects of cultural heritage
- 3. wooden structures technology and craftsmanship
- 4. risk preparedness of wooden structures
- 5. presentation and interpretation of cultural heritage to the public

The first and second topics are mainly about the software or the concept of cultural heritage and Japanese way of preservation that can be applied in Indonesia. The application activities among others are to reinterpret the cultural heritage concept and definition, combine the western and eastern concept, and investigate the preservation concept that is rooted in Indonesian culture. The leading actors involved are the national government together with the university and/or research centre.

The specific wooden structure topics focused on in this training are presented in the third and fourth topics. I will highlight the fact that the preservation of wooden structures is not about conserving the building itself but also the construction techniques and skills. Community awareness about the preservation of wooden structures in Indonesia has to be built together with

starting up a preservation institute, and any associations relating to cultural heritage preservation.

The fifth topic is the presentation and interpretation of cultural heritage to the public. The application of this topic will put more emphasize on preservation as a tool for a better quality of life. This is also related to the reconstruction activities and tourism impacts. Detailed explanation about how to apply the knowledge are presented in Table 1, entitled the application of the preservation and restoration of wooden structures training course, as shown below.

# 4. Conclusion

From my point of view, the ACCU training course on the Preservation and Restoration of Wooden Structures gave me valuable knowledge particularly in how the Japanese deal with cultural heritage preservation, restoration, and reconstruction in their unique approaches supported by enormous resources. Though the duration of the training was relatively short (four weeks), the information and know-how was presented in an effective way. The programme enabled the participants to enrich their theoretical and practical knowledge related to cultural heritage preservation both in class and through the on-site/practical training.

Finally, I found that answering the question on how to apply the knowledge of this training course in Indonesia is neither a simple task nor a direct one. The future tasks as stated previously need to be considered within a broader view. The significant difference between Indonesia and the Japanese situation is that the Japanese have a strong-rooted spirit in preserving their cultural heritage. This is a key point since the community has already become attached to their cultural heritage. The homogeneity of Japanese culture (compared to the diversity of Indonesian culture) also supports this factor. One important thing about Japan is that it has sufficient resources in preservation fields, such as competent human resources, advanced techniques and craftsmanship, and a huge government budget for preservation.

## 5. Acknowledgements

I would particularly like to thank the ACCU Cultural Heritage Protection Cooperation Office, Dr. Yamamoto Tadanao and Dr. Nishimura for the sincere attention to the participants during the training course and our daily life in Nara. Many thanks to Ishii Kayoko, Mark Diab, Hata Chiyako, Yuri Nakamura and Mayu Iwade for their kind and great help, attention, and friendship.

On the Indonesia side, I would like to thank the following institutions and persons for their supports and kindness:

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- The Centre for Research on Tourism Institut Teknologi Bandung; Dr. Rini Raksadjaya who supported me to do the investigation of wooden structures within tourism development issues in the eastern region of Indonesia.
- The Ph.D. Programme in Urban Planning, School of Architecture, Planning and Policy Development Institut Teknologi Bandung; many thanks to Prof. Djoko Santoso Sujarto, Dr. Roos Akbar, Dr. Haryo Winarso, Dr. Benedictus Kombaitan and Dr. Myra P. Gunawan.

Last but not least, I would like to thank all of the participants, for sharing the experiences in preservation and restoration fields and also for the friendship that made my stay in Japan more enjoyable. Domo arigato gozaimashita.

Main actor(s)		Government (national); University; Research centre		Government (national, local); University; Research	centre			Government (national,	Research centre;	Non-Governmental	Organization/NGO					
he application/future tasks for	IUUIICSIA	Reinterpret the cultural heritage concept and definition using in laws and ordinances Combine the western-eastern concept	and theory of preservation Investigate the preservation concept rooted from Indonesian culture	Reinterpret the Indonesia cultural heritage preservation laws and	ordinances Carry out in-depth learning in preservation planning system i.e. from	Japan and the Netherlands Set up the planning system of	preservation (national and local)	Introduce the essential of wooden	fields (lessons learned from Japan)	Build the community awareness of	Indonesia traditional wooden structure	Set up the preservation	institute/association dealing with	wooden structures preservation		
ituation 1	III IIIU0IIESIA I	Consist of natural and man-made objects (the concept has been developed since 1992)	Apply western concept of preservation	Indonesia is in the process of setting up the preservation	planning system by/under the Ministry of Culture and Tourism	Lack of cultural heritage laws and ordinances		Wooden structures	preservation nas not occir a significant agenda							
Existing si	ш ларап	Range from single building to group of historic buildings (the concept has been developed since 1897)	Apply eastern/Japanese concept of preservation and restoration: <i>kaitai shuri</i>	The preservation planning system has set up and run well	by Bunkacho, Tobunken/Nabunken, JACAM and other institutions	Sufficient of cultural heritage laws and ordinances		Apply a sustainable	Inherit traditional wooden	structures construction	techniques and skills	Preserve the traditional tools	and materials	Provide a promising career	path for conservation	architects and carpenters
ic/issue(s) from the	IIG COULSES	ncept of cultural ritage preservation		anning system and gal aspects				ooden structures	aftsmanship		1					

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The applicati
Table 1

Topi	c/issue(s) from the	Existing s	situation	The	application/future tasks for	Main actor(s)
train	ning courses	in Japan	in Indonesia	Indo	nesia	
4.	Risk preparedness of	Risk management has carried	Lack of community awareness	•	Introduce the essential of risk	University;
-	wooden structures	out by involving the	and practices in disaster/risk		preparedness of wooden structures	Research centre;
		community	management	•	Disseminate the urgency and practices	NGO;
					of risk preparedness	Government (national, local)
				•	Set up the risk preparedness system	
					for preservation	
5.	<b>Presentation and</b>	A detailed documentation of	Lack of documentation of	•	Introduce the essential of the	Government (national,
	interpretation of	the preservation process has	preservation process		documentation of preservation process	local); University; Research
5	cultural heritage	always been made using			and reconstruction of cultural heritage	centre;
		certain rules			in Japan	NGO; Private sectors
		Reconstruction is viewed as a	Reconstruction of cultural	٠	Disseminate the urgency and practices	
		best way to present and	heritage in huge scale has not		of the documentation of preservation	
		interpret the cultural heritage	been applied		process	
		to the public		•	Balance the needs of preservation	
		Reconstruction of cultural			within tourism development	
		heritage in a huge scale has				
		become a debate in Japan				
		preservation discourses				
		Tourism impact on cultural	Having the same situation			
		heritage, esp. the community	with Japan			
# Iran

# **Mehrdad JAVADI**

# Introduction

As a general rule one of the best ways to educate beginners in the artistic and technical sciences is to give them expert knowledge through the organization of training courses. In the case of the restoration of historical monuments, and especially of cultural heritage buildings, education courses are very important since, in terms of restoration, they not only need technical knowledge, but they also need to use art, taste and creative power. Without all of these factors, imperfection will invariably be the result. Additionally, when education and training courses are international in scope, scholars and trainees from several countries can meet and exchange their expertise. They can also learn methods related to that expert knowledge and they have the opportunity to get acquainted with many kinds of cultures, customs and traditional ceremonies. In fact these things have a direct relationship with the conservation and restoration of historical-cultural effects. They can also learn other technology and experiences, with attention to similarities in design and function from other cultures.

Therefore, the training course on the preservation and restoration of cultural heritage in the Asia-Pacific region, especially the preservation of wooden structures, organized by the ACCU Nara office in Japan, was suitable and effective. This training course involved Japanese professors and specialists and was also very useful for all of the trainees.

Some of the important results of this course during the one month of lectures and site visits are the following:

- 1. A general acquaintance with Japanese people culture, customs and beliefs.
- 2. An acquaintance with Japanese professors and specialists for the restoration and preservation of wooden structures.
- 3. An acquaintance with the restoration of cultural effects rules and laws.
- 4. An acquaintance with wooden structures and restoration technology of these structures.
- 5. Organization of presentations by trainees.
- 6. Comparison of Japanese architecture and South Korea's architecture.
- 7. Acquaintance with methods of restoration for decorations, especially paintings on wood and the practical instruction of the effects of weathering and age.
- 8. Organization of practical instruction courses in an on-site restoration context (Toshodai-ji temple).

#### General Acquaintance with Japanese People Culture, Customs and Beliefs

Becoming acquainted with Japanese people culture, customs and beliefs in the past and nowadays is very important for recognizing cultural attributes. Certainly, cultural beliefs have an effect on the method and restoration of cultural structures and without relative advice regarding such things, correct decisions for the restoration of settlements and religious buildings is impossible or very difficult. I think, for each restoration activity during each historical period (and today), the harmony of the restoration regarding its consequences for human life is necessary. If we abide by this rule, historical buildings can continue to live for the future.

# Acquaintance with Japanese Professors and Specialists in the Restoration and Preservation of Wooden Structures

When the natural world of Japan is considered, we can understand why the architecture of this country is based on wood because there are so many forests. In fact, the correct and best use of wood is an important skill for Japanese carpenters. Undoubtedly, they learned that skill during several centuries. Not only did they know the real value of wood, but they also found the best methods and technologies for resisting earthquakes. These skills were passed down by the ancient Japanese specialists to the new carpentry offspring in Japan. The preservation of wooden buildings and especially rebuilding of old temples is very well done.

In this course, we had the opportunity to meet many professors and to see their work directly. For example, the rebuilding of the Nara Palace main hall and new technology for earthquake resistant buildings was very interesting for me.

#### Acquaintance with the Restoration of Cultural Effects, Theories, and Laws in Japan

The quality of the cultural effects of the restoration of monuments in each country is different, and proportional with geographical, historical and cultural conditions. However, in some cases they are similar in all countries, and every country must act in accordance with the general rules of restoration charters.

In Japan they also have some special laws. Many things seem so different from West Asian and European restoration laws, but in fact, formalities and customs, climatic conditions and also building materials are different from each other. Certainly, in the case of restoration, and many others items, there are diversity of opinions.

The Japanese system for restoring destroyed buildings (the most common reason for destruction is fire), is changing the destroyed part and using the old safe part of the building, even if those safe parts are a small parts of pillars or other things. However, an interesting aspect for me was the quality of restoration for that kind of building, and especially the location of the building despite its total destruction. In this case, Japanese restoration includes rebuilding every part of an

old building using traditional materials and new methods. The theory of restoration for this kind of structure in other countries is completely different, for example in Iran, restoration includes only documentation and the present condition of ancient buildings. The restoration of completely destroyed building is not usually done in Iran. I believe that rebuilding of this kind should be undertaken only with recourse to historical documents otherwise a new and modern building without any real historical identity is created.

# Acquaintance with Wooden Structures, Their Construction and Restoration Technology

During our one month stay in Japan, we visited many restoration workshops and cultural-historical sites, for example: Todai-ji Temple, Toshodai-ji Temple, Nijo-jo castle, Doshisha University, Nara historical sites and others. Visits to these sites were a valuable opportunity for more acquaintance with the quality of preservation, and it introduced the historical effects of conservation in Japan. In addition, it also allowed us to learn about the system of workshop mobilization and doing everything before and during restoration operations. Education for the public and visitors in this case is very important, and I feel that other countries should adopt a similar approach.

Other good chance for us was to visit some sites currently under restoration in Nara. This was useful to acquaint us with all steps of the Japanese restoration operation.

## **Presentations by Trainees**

The presentations by every trainee in this course was not only useful for learning about wooden structures of other countries, but we also got considerable information about culture, costumes and traditional ceremonies, clothing and other cultural things. That was so important for me because I am living in the west part of Asia and quite far from other trainees' countries. In this course I became acquainted with restoration and the quality of methods for preservation. Additionally, I was able to make comparisons with the restoration activities of my country.

Other interesting and important things in this course for me were the explanations by Dr. Myklebust of Norway and Dr. Inaba of Japan.

#### **Comparison of Japanese and South Korean Architecture**

The cultural similarities between Japan and South Korea and the comparison of their architecture were very interesting for me. I was able to understand the details of the conservation and restoration activities, and the form of wooden structures. I did not have much previous information about the kinds of wooden structures found in these two nations and the differences in architectural methods from Iran appeared quite challenging to me.

# Acquaintance with Methods for Restoration of Painting (specifically painted wood) and Practical Instruction

Methods for restoring decorations, especially painted wood and practical instruction, was another important part of this course. We visited many historic sites with decorated wooden parts and structures. For instance, the painting restoration workshop at Nijo-jo castle in Kyoto was very interesting for all trainees since the Japanese paint restoration lecture introduced to us to how copies can be made from old paintings and the material used to make colours. Frequently, painting conservators use natural materials such as minerals from various coloured stones. For instance, the one-day workshop with Mr. Kubodera, gave us the opportunity to try drawing and colour-blending from the design remains on the external surfaces of Jibutsu-Do Temple. On that day, we also had an interesting discussion between trainees and Mr. Kubodera about the damage of the designs, and critical arguments about past restoration in Japan.

# Practical Instruction: Restoration Workshop at Toshodai-ji Temple

This part of our course took place over a three day period with three separate activities:

- 1. Damage and presentation of a restoration plan for a small shrine.
- 2. Tracing and measurement for part of Toshodai-ji Temple's structure.
- 3. Topography, tracing, and rubbing of the design of ceramic roof tiles to preserve their design styles.

In this part of the course, trainees were divided into three groups (5 or 6 people per group) and each group rotated for one of three activities.

It is incumbent upon me to mention that during this condensed course, the activities and visits to many wooden structures, and the enthusiasm, energy, hard work, and expertise of all the trainees was rounded out my feelings of satisfaction regarding my experiences. In addition, all of this would not have been possible if it were not for the work and planning of our hosts. Finally, the effort, help, and education of the trainees by all professors, scholars and workshop directors was very useful and worthy of my sincere appreciation.

# Acknowledgements

I feel that the one month training course at the ACCU office in Nara Japan reached a successful conclusion. I would like to thank the Director of the ACCU Nara office and all the staff members of ACCU Nara who helped us in every way. Heartfelt thanks go to Dr. Tadanao Yamamoto, Dr. Yasushi Nishimura, Ms. Kayoko Ishii and Mr. Mark Diab.

## Kazakhstan

## Lazzat BEISEMBAYEVA

I started my work in the field of cultural heritage preservation in 1991, after a degree in civil engineering and three years of employment in the Municipal Architectural Department of the city of Turkestan, South Kazakhstan. Working since 1991 at NIPIPMK, I participated in several projects for the conservation and restoration of architectural monuments, ranging from the 12th to the 20th century – mosques, Moslem mausoleums, public buildings, and traditional dwellings. I also participated in some projects on the conservation of archaeological sites, including the UNESCO/Japanese Trust Fund Project on the Preservation and Restoration of Otrar Tobe, South Kazakhstan and the UNESCO/Japanese Trust Fund Project on the Preservation of the Silk Roads in the Upper Chui Valley in Kyrgyzstan

During my training course at ACCU, I learned about the Japanese conservation system for cultural heritage. The training programme was very important and relevant to me because it supplied me with me with a lot of information relating to the preservation and restoration of wooden structures, and the reconstruction of historical sites.

Japan has a rich experience in the preservation of cultural heritage for more than 100 years. During this period the law for the protection of cultural heritage was enhanced and further developed.

I have learned a lot of things about the organization of the restoration process. The Japanese government gives financial support, and invests a lot of money in the protection of cultural properties and research management every year. The administrative structure provides active participation of both national and local agencies, and organizes the management of conservation projects, the use of traditional techniques and advanced technology, scientific research for the implementation of conservation and restoration projects, and for the protection and preservation of cultural heritage in Japan.

The most important thing for me was the Japanese approach to the preservation of wooden structures, based on ancient traditions and scientific research of historic structures. The restoration of wooden structures in Japan is characterized by the careful selection of wood and its preparation for the replacement of damaged parts, aiming to achieve a full compatibility of new parts with the old material. The protection and preservation in Japan of traditional techniques of the construction and the traditional craftsmanship of Japanese carpenters are unique in the world The very fact that the historical records not only of the construction, but also of restorations of architectural monuments, are available in the archives and museums proves that restoration is an essential part of the history of Japanese architecture.

Complicated joints and construction systems used for the building of temples, vernacular houses and other wooden structures in Japanese historic architecture, with its 'module' system of proportions, shows a combination of perfect engineering and aesthetic quality. The knowledge of 'module' systems of proportions helps to better understand the project of the construction, and also the principles of the work of wooden elements in the different parts of structures.

My scientific work on the research of Muslim mausoleums consists of a search for the general modular system for some monuments built during various periods (12th-16th centuries). Unfortunately, during last centuries the modular system used in construction by ancient builders of Muslim mausoleums was lost.

To the best of my knowledge, I find that the ancient builders used the modular system of proportions in the construction of ancient temples in Japan. For these builders, the length of one unit was equal 30.3 cm. In the 14th century Mausoleum of Khoja Ahmed Yasawi, an historic building in Kazakhstan, the module was also represented as 30.3x2=60.6 cm.

The use of the modular system of proportions and the traditional techniques for construction is an important point in the reconstruction of heritage sites.

In my opinion, I think that reconstruction of historical site is necessary for helping people to understand ancient structures. However, reconstructions demand large financial expenses and a profound knowledge of historical heritage.

A significant impression was on me when we visited the village of Shirakawa-Go. In addition to the preserved groups of historic buildings and their historic surroundings, it is also important to preserve and to pass on to future generations the lifestyle, and traditional techniques of building construction.

This course has created a favourable condition for participants from 15 countries around the Asia-Pacific region as it allowed an opportunity to exchange experiences about the preservation and restoration of cultural heritage. Cooperation with foreign organizations in the research and restoration of culture heritage is of great importance for Kazakhstan.

I want to use the knowledge received in this training course in my practical work. I will also share what I have learned with other colleagues working in the field of preservation and restoration, and disseminate, through publications in local and national newspapers, the information of the Japanese system for the protection and conservation of cultural heritage. Additionally, I will also give my impressions of my one month stay in Japan.

I would like to thank ACCU for the informative training programme and highly professional organization of the training process.

# Malaysia

## A Ghafar bin AHMAD

#### 1. Introduction

The training course on the Preservation and Restoration of Cultural Heritage in the Asia-Pacific Region (27 September to 28 October 2005, Nara, Japan) focused on important information related to the preservation and restoration of Japanese wooden structures. The course was jointly organized by Japan's Agency for Cultural Affairs (*Bunkacho*), the Asia-Pacific Cultural Centre for UNESCO (ACCU), the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM); and the National Research Institute for Cultural Properties, Japan. The course was attended by representatives of 15 different countries within the Asia-Pacific region. The aim of the course was to introduce concepts and methods of the preservation and restoration of various wooden structures with reference to Japan's Important Cultural Properties. It provided a platform for all participants as well as the Japanese heritage professionals and specialists to share and learn methods of investigating wooden structures, ideas and concepts, applied technologies, and documentation in the preservation and restoration of wooden structures.

This report, prepared as the requirement of the course, evaluates and comments on the training course mainly on its curriculum that included lectures, hands-on training, on-site lectures as well as participants' presentations and discussions. It also discusses a few important issues that Malaysia can learn from Japan in preserving and restoring important cultural properties mainly for wooden structures. The report concludes with some suggestions that the organizers may wish to consider in conducting similar training courses in the future.

## 2. Training Curriculum

Over the course period of 30 days, the training was structured into three main curricula that included a series of lectures conducted at the ACCU office and the National Research Institute for Cultural Properties, Nara (NRICPN), practical training and on-site lectures including a 3-day study tour outside Nara Prefecture, and participants' presentations and discussions. Personally, I think the training course was well structured and covered many important aspects of preservation and restoration of cultural properties mainly on the wooden structures of Japan. The course was very informative allowing me a great opportunity to polish my knowledge in the field of the preservation and restoration of important cultural properties not only in Japan but from other participants representing different countries. I learned a tremendous amount from the experiences of this training course. I will, of course, share and utilize such knowledge and experiences for my future lectures and restoration projects in Malaysia. In the following pages, I present brief evaluations and comments on the content of the training curriculum.

#### 2.1 Lectures at ACCU and NNRICP Offices

All lectures given at the ACCU and NRICPN offices were adequate and relevant to the preservation and restoration of important cultural properties. The lectures, mainly focusing on the Japanese experiences, including the legal system, the tradition of wooden architecture, scientific applications, as well as some case studies of historical sites and buildings were important to all participants. It is appropriate to have these lectures delivered at the beginning of the training course as participants could relate the information during the hands-on training and site visits set in the second and third weeks.

Credit should be given to Dr. Yamato, Senior Specialist for Cultural Properties from *Bunkacho*, for his two excellent lectures on "The Tradition of Wooden Architecture in Japan: "Outline and Protection of Cultural Property Buildings: History of Protection of Buildings" and "The Investigation, Designation and Registration of Buildings". The lectures were very informative and also relevant to the training course as the participants acquired an in-depth knowledge of Japan's tradition and legal system for the preservation and restoration of wooden structures. The supplementary handouts given out to the participants during the lectures were sufficient and valuable.

A lecture given by Dr. Myklebust, a senior advisor, Directorate for Cultural Heritage, Norway on "Wooden Architectural Heritage in the Asia-Pacific Region" was mainly focused on the concepts and philosophy of cultural heritage in which the aspects of history, interpretation and maintenance were considered in the analysis of cultural values. The lecture contents seemed relevant to the general theme of the training course but unfortunately most study cases shown in the slide presentation did not relate to the title of the lecture as outlined in the program schedules. The lecture only showed examples of European cultural properties but not wooden architectural heritage from the Asia-Pacific region.

#### 2.2 Practical Training and On-site Lectures

All practical training and on-site lectures were relevant to the theme of the training course. Such practical training and on-site lectures gave the participants a great opportunity to apply the knowledge gathered from the lectures given at both ACCU and the NRICPN. This included the two hands-on practical training activities that included the one-day "Survey on Painting and Restoration Planning" at the Jibutsu-do, Todai-ji Temple conducted by Mr. Kubodera, Head of the Architectural History Section, NRICPN; and a three-day practical training at Toshodai-ji Temple. Both temples were located in Nara Prefecture. The latter practical training was a lot more interesting as participants were given three different tasks to be carried out at the temple structures including scaled drawing of wooden beams and brackets of the main temple hall, wet rubbing techniques of the roof tiles; and the survey of damages on an old shrine. In general, both practical training activities were very challenging as they required technical skills from the participants. All

participants learned a great deal from this practical training.

Apart from these hands-on practical training activities, participants were also given the opportunity to visit Japan's Important Cultural Properties outside of Nara. A 4 day visit to Gifu, Ishikawa and Fukui Prefectures in the third week was considered the highlight of the training course. Participants were given on-site lectures at various interesting heritage sites including the Takayama Local History Museum, Sanmachi preservation districts for groups of historic buildings, World Heritage Site of Shirakawa Village, Kanazawa School for Craftsmen (*Shokunin Daigaku*), Kenroku-en Garden, Higashiyama Higashi preservation district for groups of historic buildings, Edo Mura Village, and the Ichijo-dani site. All site visits were guided by experts and officials from various heritage agencies of the respective Prefectures. Sufficient lecture handouts and reading materials were also given to all participants for reference purposes during the visits. Even though the visits were packed with lectures and guided walking tours within the designated heritage areas, the participants really enjoyed themselves, particularly with every new discovery they made during the site visits.

#### 2.3 Participants' Presentations and Discussions

Two days were allocated during the training course for all participants to present the status of preservation and restoration of their own country's cultural properties. The presentation sessions were coordinated by Dr. Inaba, Head of Project Planning/Conservation Systems Section, NRICP, Tokyo; and Dr. Myklebust. Each participant presented about 20 minutes on problems and needs for cultural heritage protection and restoration activities in his/her respective country followed by short discussions. The participant's presentations were seen to be very encouraging because they allowed all participants to share ideas and comments on issues pertaining to his/her country's efforts to preserve and restore important cultural properties. Credits should be given to Dr. Inaba for her constructive comments and ideas during the two-day participants' presentations. Her expertise and experience on issues related to the cultural properties in the Asia-Pacific region made the discussions stimulating.

#### 3. Lessons from Japan

In Japan, cultural properties including both tangible and intangible properties have been considered as important cultural assets that have been handed down to the present generation. Japan's long history of preserving and restoring important cultural properties such as wooden structures of temples, historic castles, archaeological remains and groups of historic buildings have gained worldwide recognition. Many of these important cultural properties have been inscribed on the UNESCO World Heritage List. Despite many differences between Japan and Malaysia in terms of historical, architectural, economic, political and social background, there are a few aspects that Malaysia can learn from Japan in terms of preserving and restoring important cultural properties. The following lessons that Malaysia can learn from Japan are presented below.

# **3.1 Standard Criteria for Recognizing Tangible Cultural Properties as Important Cultural Properties and National Treasures**

Like Japan, Malaysia also has various kinds of tangible cultural properties. However, Malaysia needs to have a set of standard criteria for recognizing these tangible cultural properties. In Japan, tangible cultural properties can be recognized as Important Cultural Properties as well as National Treasures. On the contrary, the Malaysian legal system, under its Antiquities Act of 1976, recognizes National Treasures based on the age of cultural properties that are more than 100 years old. This criterion is considered insufficient as some of the cultural properties are unique in many aspects even though they are less than 100 years old of age. In Japan, tangible cultural properties are defined into three major types as follows:

- 1. Buildings (for examples homes, business offices, factories, shrines, temples and public structures etc.)
- 2. Civil engineering works (for examples bridges, tunnels, floodgates, dams etc.)
- 3. Other structures (for examples smokestacks, fences, tower etc.)

As Japan recognizes different types of tangible cultural properties, any architectural monuments and structures that fulfil one of the following criteria and that represent their constructed era may be considered as an Important Cultural Property:

- 1. Superior in design
- 2. Superior in technique
- 3. Having high historic value
- 4. Having high academic value
- 5. A remarkable monument among its school or local characteristic

As such, these Important Cultural Properties may then be considered as National Treasures if they pose special high values and cultural meanings to Japan. The country's present law for the Protection of Cultural Properties, Article 27-2, regulates that National Treasures shall be designated from among Important Cultural Properties "which are of especially high value from the viewpoint of world culture and which are unique treasures of the nation". As a result, a total of 2,250 buildings throughout Japan have been designated as Important Cultural Properties (as of May 2004), of which 2,050 are classified as traditional buildings and 200 are modern buildings. Such standards using these criteria within this legal system may also be suitable for Malaysia.

# 3.2 Preservation and Management of Groups of Historic Buildings

In Japan, groups of historic buildings are considered as Important Cultural Property. Some of which have been designated as National Treasures and a few have been inscribed on the UNESCO

World Heritage List. This may include post towns, castle towns, port towns, old districts, and farming and fishing villages that have heritage values both architecturally and historically. There are more than 60 groups of historic buildings or preservation districts designated as Important Cultural Properties in Japan. Examples of groups of historic buildings in Japan are Sanmachi, Takayama; Higashiyama Higashi, Kanazawa; and Shirakawa Village (on the World Heritage List). Once these groups of historic buildings have been recognized as Important Cultural Properties; various aspects have been considered in protecting and preserving their structures and surrounding areas. Continuous management of the sites is very important in maintaining the authenticity and originality of the areas. In Japan, the following aspects have been looked into when it comes to the preservation and management of groups of historic buildings or preservation districts that Malaysia may consider in its own policy regarding heritage conservation:

- 1. Restoration of structures
- 2. Conservation of landscape
- 3. Design guidelines for new structures
- 4. Disaster prevention facilities
- 5. Community involvement and commitment
- 6. Financial support from the Government
- 7. Tax incentive for land and building owners
- 8. Tourism promotion

## 3.3 Inheritance of Traditional Techniques and Skills

In Japan, traditional techniques for building construction have been passed on from one generation to another. Construction skills such as carpentry, roof fixing, painting, wood carving and wall plastering are taught by master builders to younger generations. To ensure such traditional techniques continuously survive in Japan, several initiatives have been taken by both the Japanese Government and conservation associations. Several courses have been subsidized by the government to offer training courses on traditional techniques and skills to conservation architects, carpenters and building experts. For instance, the Japanese Association for Conservation of Architectural Monuments (JACAM) is presently taking the lead to offer various courses on traditional techniques and skills to its members. Such courses include traditional techniques for tile roofing, wood processing, timber ink-marking, structural painting, tatami production and ornamental metal fitting. Another example is the Shokunin Daigaku established by the city of Kanazawa (Ishikawa Prefecture) in 1996. The School offers various courses on traditional techniques and skills, mainly to the citizens of Kanazawa. The School offers courses include carpentry, wall plastering, roof fixing, moulding copper plates for rainwater goods and tatami production. Japan's efforts in protecting its traditional techniques and skills through the traditional courses is a good example that Malaysia may want to consider.

#### 4. Conclusions

Overall, the training course on the Preservation and Restoration of Cultural Heritage in the Asia-Pacific Region (27 September to 28 October 2005, Nara, Japan) was very informative and educational. Many new methods and techniques for preserving and restoring wooden structures can be learned from the Japanese experience. The course has furnished all participants with comprehensive knowledge in various aspects of preserving important cultural properties of Japan. I have gained a lot of knowledge and experience from the training course. Such knowledge and experience may be shared with my students, colleagues and conservation architects in Malaysia. There is so much that needs to be done in order to improve the current situation of preservation of important cultural properties in Malaysia.

However, there are a few suggestions that the organizers may want to consider when conducting a similar training course in the future. This includes allowing more on-site lectures and hands-on training to participants, mainly at heritage buildings and historical sites. Participants should be given more tasks during the site visits either in groups or individuals, followed by short presentations and discussions. It is important to acknowledge that most of the participants attending the training course came to Japan for the first time. Some participants were not accustomed to Japanese culture. Therefore, it would a good idea to let them experience the Japanese culture throughout their stay in Japan, for example, attending basic Japanese language lessons during weekends, staying with a host family for a short period of time, as well as experiencing Japanese culture such as the tea ceremony and flower arrangement. It is a good experience for participants to spend some of their free time socializing with local people as this would encourage cultural exchange between them.

#### 5. Acknowledgements

I would like to thank Japan's Agency for Cultural Affairs, ACCU Nara Office, ICCROM, and the National Research Institute for Cultural Properties for giving me this great opportunity to attend the training course on the Preservation and Restoration of Cultural Heritage in the Asia-Pacific Region 2005: Preservation and Restoration of Wooden Structures. My special thanks to Mr. Tadanao Yamamoto, Director of the ACCU, Nara office, Dr. Yasushi Nishimura, Ms. Kayoko Ishii, Mr. Mark Diab, Ms. Chiyako Hata, Ms. Yuri Nakamura and Ms. Mayu Iwade for their support and excellent coordination throughout the training course. I would also like to express my sincere gratitude to all the lecturers of the training course including on-site lecturers and facilitators who have provided vital information on the important cultural properties of Japan. Finally, many thanks to the National Commission for UNESCO of Malaysia and the Universiti Sains Malaysia, Penang for giving me the opportunity to represent Malaysia in this training course. Terima kasih.

# Mongolia

# Batbyamba LUTKHUU

# Introduction

I have been an architect-restorator since 1996, and I work for Suld uul Co. Ltd based in Mongolia. I have participated in restoration projects on a number of temples in Mongolia, such as:

- Khar-Khorin, Erdene zuu (1996)
- Dambadarjaa (1998)
- Shankh (2000)
- Khar khorin, Erdene zuu (2003-2004)
- Bogd Khan's Palace Museum

# Problems and Needs for Cultural Heritage Protection Activities in Mongolia

## **Traditional Architectural Materials and Techniques**

Recently, a variety of modern materials have been used in restoration work due to matters of cost performance and circulation. Traditional materials and technique are necessary for actual restoration work. There are many cases where the use of modern materials actually creates more problems for historical buildings.

# Lack of Professional Restorers

Mongolia is currently suffering from a lack of many kinds of qualified restorers, including restorer-architects, painters, craftsmen, carpenters, and others. Most of the current restorers are not trained and there isn't any training course available for them to improve their skills. Therefore, local craftsmen should be further trained in restoration work according to internationally accepted standards.

The ACCU training programme was very important and relevant to me because it supplied me with a lot of information relating to methods for the protection of cultural heritage suffering from various causes of damage. In addition, I became familiarized with restoration and reconstruction techniques for historical buildings.

# Some Impressions and Thoughts

I would like to express my sincere gratitude to the Cultural Heritage Protection Cooperation Office, Asia/Pacific Cultural Centre for UNESCO (ACCU) for inviting me to participate in this training course on the Conservation of Wooden Structures in Asia and the Pacific, 2005.

During the training course in Nara, I had an opportunity to visit many ancient cultural heritage sites consisting of wooden structures.

During this training course, I have also fixed in my memory the conservation techniques and methodologies applied by Japanese professional architects and conservators for the restoration and conservation of cultural heritage.

The knowledge I have learned in this training course will be applied to the present work undertaken by our office and will be disseminated to other people in order to educate them about the conservation of cultural heritage. I hope that the ACCU office will continue to provide such training course to help other countries do better in the conservation of wooden structures.

The training course was attended by fifteen participants and two observers. All participants may have come here because they would like to learn about Japanese conservation and preservation techniques for wooden architecture, and to become aware of the application of advanced technology for current practice.

I found the training course helpful in allowing all of the participants to share information about other countries' traditional and modern conservation practices for all types of buildings or constructions, wholly or partially made of wood.

The training course included classroom and on-site lectures, and onsite practical training that acquainted the participants with the fundamentals about the conservation of Japanese wooden architecture. It also gave participants a chance to discuss our ideas about the diversity of regional wooden structures as well as the customs, beliefs, spiritual development, and aesthetic thinking of different people and different nationalities.

This training course has been an invaluable opportunity to receive knowledge about the cultural heritage of Japan and Asia Pacific region. Although it was mainly concerned with the conservation of wooden structures, it covered a vast area and other related topics.

We benefited not only from the lectures, but also from the arranged site visits, practical work, and lectures. For the free weekends, we were provided with the necessary travel information so that we could to see more things in Japan.

I felt that the interesting point about the practical training at Toshodai-ji Temple was the discussion concerning issues on restoration work and a workshop that allowed me to experience restoration work procedures for an historic wooden structure. I also learned about the restoration technique of joining new materials to damaged parts, and methods of fixing wooden pillars onto base stones.

I hope that these techniques will be useful for restoration work in all of our countries. This

training course has also allowed me to gain knowledge about how we can preserve historic districts and townscapes.

The best method for conservation is to protect an historic building from the causes of damages; I had never thought about conservation in this way. I learned a lot concerning routine conservation, methods used to protect cultural heritage from various causes of damage and how we can prevent damages. This function involves not only conservators but also the public and community.

The study tour and site visits demonstrated the success of conservation work in Japan. Communities and cultural properties can exist harmoniously. This is the result of suitable policies, the cultural heritage protection system, and effective conservation practices. Communities and professionals are able to preserve these places in good condition and use them in a modern context.

During this training course I have learned about the protection of cultural property buildings, the history of conservation, and the investigation, designation and registration of all cultural properties. Finally, I have learned about different wood species used in traditional Japanese wooden architecture.

## Impressions on the System of Conservation in Japan

I learned about the Japanese restoration and preservation methods for Cultural Heritage, such as:

- Holding regular training program for craftsmen to develop their skills as well as their knowledge of history and culture.
- Providing the owner with the knowledge for routine maintenance and repair and providing financial support and technical assistance.
- Prompt damage control through maintenance and repair to take measures to prevent the damage from worsening or spreading.
- Precautions for natural disasters.

# Acknowledgements

I am sincerely grateful to the Government of Japan and the ACCU Nara Office for inviting me to Japan and providing me with this training course. Finally, I have to give special thanks to Dr. Yasushi Nishimura, Ms. Kayoko Ishii, and Mr. Mark Diab and to all of the ACCU staff.

Thank you very much

# Myanmar

## Daw Lwin Mar Oo

## 1. Introduction

The Cultural Heritage Protection Cooperation Office, Asia/Pacific Culture Centre for UNESCO (ACCU) in Nara, Japan organized the training course on the Preservation and Restoration of Cultural Heritage in the Asia-Pacific Region 2005, entitled "Preservation and Restoration of Wooden Structure". This course lasted about one month from 27 September 2005 to 28 October 2005. It was very comprehensive and consisted of very useful topics. There are 15 participants from different countries in the Asia-Pacific region.

I am an assistant director of the Department of Archaeology, upper Myanmar. I have the responsibility for the conservation of ancient monuments in upper Myanmar. These monuments are made of stone, brick and wood. Due to disasters, most of the cultural properties all over the world are faced with the danger of deterioration day by day. It is necessary to take immediate and effective measures for the restoration and preservation of those cultural properties. Nowadays, every country is trying to protect and preserve the cultural properties long time by various ways. Myanmar is also trying to protect and preserve our cultural properties.

#### 2. About the Training Course

All of the lectures were quite interesting and furnished me with much information about the tradition of wooden architecture in Japan and protection of buildings designated cultural properties.

Japan has a long history of protection of its cultural heritage through legislation and other means. Those are protected by the Law for Protection of Cultural Properties. And I learned that the government grants subsidies for the national treasures and provides other forms of support for the preservation and restoration of designated cultural properties. In my country, cultural properties have been also protected by the law for protection and preservation of cultural heritage regions since 1998.

Japanese architecture is shaped by circumstances of climate, geography and customs. In Japan, with its high humidity, seasonal change and plentiful forest, wood has been the traditional building material. Traditional Japanese architecture has good foundation, ventilation, airy rooms, slanted roof, long overhangs and *tatami* mat-covered floors.

In the traditional Japanese architecture, *tatami* mat is one of the important elements. Its fixed size that is different depend on region determines the building size.

We also observed Buddhist architecture, castle architecture, residences and Western-style architecture. Japanese wooden buildings use two types of wooden construction methods, i.e., masonry construction and frame construction. Although masonry construction has existed in Japan since ancient times, for climate or other reasons, it was not continuously practiced and was used only for storehouse buildings. Frame construction has also been widely used for wooden building since ancient times. Most of Japanese wooden buildings use the frame structures with posts that bear the structural load.

In the three-day practical training at Toshodai-ji Temple, I learned about the restoration of wooden buildings as follows:

Use the same type of wood as in the original construction, and follow the original forms and methods.

Replacement is only permitted to heavily rotten or damaged elements.

Replacement may be done on elements that were changed under previous restoration works.

All restoration works and changes made must be fully documented.

One of the most important aspects I learned is the use of traditional materials and techniques in the restoration of historic wooden buildings. Most of the wooden buildings in Japan are more than 500 years old, employing different method and tools in construction, as compared to modern buildings. In the restoration of wooden structure, depending on the extent of damage, wooden member may be reused after being repaired with traditional method that uses plug, joint or graft. Sometimes weakened members may be reinforced by filling gaps with artificial wood, synthetic resins such as epoxy and Araldite. However, this is avoided as much as possible, as synthetic resin also faces problems of discolouration, cracking and peeling.

Temple buildings differ in shape depending on their functions as gate, main hall, or pagoda. There are one-storied and two-storied gates, which have only two posts with either four props or eight props respectively. Almost all the Japanese historical structures are made primarily of wood with paper screens, straw for mats, plaster and clay for mixed walls, and bark shingles or planks or tiles for roofs. Stone was largely avoided. We observed Todai-ji Temple, Kofuku-ji Temple, Nijo-jo Castle, Toshodai-ji Temple, Sanmachi (Takayama), Higashiyama Higashi (Ishikawa) and Ichijo-dani site (Fukui Prefecture).

Another important aspect of cultural asset preservation and restoration in Japan is the disaster preparedness plan. One of the greatest threats to historic wooden buildings is fire, as the outbreak of fire will destroy everything. It is no exaggeration that the history of preserving wooden structures in Japan is in fact the fight against fire disaster. Japan has installed modern and sophisticated physical equipment in most historic wooden buildings. It was what I learned at Sanmachi groups of Historic buildings (Takayama), Shirakawa Village and Higashiyama Higashi

(Ishikawa).

In Japan, such landscapes as historical gardens are seen as a part of the cultural assets and given due recognition, as most of these gardens were created in association with temples and shrines. Today, these gardens have become tourist attractions to the local and foreign visitors alike. I am very grateful to have been given the opportunity to visit some gardens including Kenroku-en Garden (Ishikawa Pref.), Ichijo-dani stone garden (Fukui Pref.) and Nijo-jo Castle garden.

# 3. Conclusion

Japan is one of the most advanced countries of the world, which has achieved great success in scientific and technological fields. Of course, preservation and restoration of cultural properties are better done than in other countries. Through this training course, I have gained new ideas, new advanced knowledge and improved my current technical skill, which world help to develop my country in the field of preservation and restoration of cultural properties. During this training course, observations of the sites at different places gave me more new light on both traditional and modern techniques of preservation and restoration of cultural properties, including site management. In all, this training course benefits me and Department of Archaeology in Myanmar where I belong.

# 4. Acknowledgement

There are many things I leaned during this one month course, but time and space do not permit me to cover all. I would like to express my since gratitude to ACCU (Nara Office) for giving me this rare opportunity to further enhance my knowledge on the preservation and restoration of cultural assets, particularly historical wooden building. Thanks to Mr. YAMAMOTO Tadanao, Director of the Cultural Heritage Protection Cooperation Office UNESCO (ACCU), my training coordinators Mr. NISHIMURA Yasushi, Ms. HATA Chiyako and Ms. ISHII Kayoko. They made all the efforts to ensure that the course run smoothly as scheduled as well as translate for us, as most of the subjects were delivered in Japanese. I will apply the useful techniques and methods of preservation of wooden monuments, which I learned in Japan in doing preservation works in Myanmar. I will share my experiences with young conservators in my country. Thank you very much.

# **New Zealand**

## Tere-kaunuku Dean FLAVELL

The 2005 ACCU training course has been very stimulating and has provided a lot of subject matter to consider in the field of restoration and preservation of wooden architecture. From the outset of the training programme, all participants were privileged to have had lecturers of high quality, sharing their experiences, expertise and assistance in their various fields and professions.

I would like to express my gratitude to the following lecturers: Mr. Yamato Satoshi for the introductory lesson in the history of protected buildings in Japan, and for explaining the system of designation and registration of buildings. Also the explanation of traditions associated with wooden architecture found in Japan. Our visit to the Ninomaru Palace, Nijo-jo, where we got to meet Mr. Numata Osamu a lecturer and painter based within the palace grounds, spoke to us about the process of reproducing traditional artwork as a means of preserving original artwork. Mr. Kubodera Shigeru gave us a workshop in the preservation and restoration of painted work. First, we had a lecture at the ACCU classroom, and then at the Jibutsu–do at Todai-ji temple we participated in a practical workshop on painting and planning for paint restoration.

Prior to this lecture we attended a presentation from Dr. Myklebust of Norway, conservator, who gave a very philosophical view of world cultural heritage and cultural values centred on western views of culture heritage.

Dr. Myklebust and Dr. Inaba attended country presentations and gave comprehensive comments about the issues facing various situations that confront each of our countries, and also gave comparisons on how Japan deals with similar issues of the cultural protection of wooden structures and heritage in general.

I also found the lecture from Mr. Murakami Jin'ichi the Executive Director of the Japanese Association for Conservation of Architectural Monuments (JACAM) interesting. He gave an overall view of JACAM's roll in Japanese restoration systems and the project planning of important cultural properties. This was followed by an insight into the restoration project of the Seki Family residence, presented by Mr. Nishioka Satoshi, also a member of JACAM. I think it would be beneficial for New Zealand professionals in this sector to have some form of ongoing relationship with JACAM.

The application of dendrochronology in Japan was delivered by Dr. Mitsutani from the Nara National Institute for Cultural Properties, who gave a lecture comparing the Japanese restoration methods with the Korean house. This mainly focussed on the differences found from Dr. Mitsutani's observations in his fieldwork. The practice of dendrochronology as an identification system is informally used in New Zealand and could be utilised better in determining aspects of

timber strengths, age and species.

The second practical workshop proved to be the most valuable as we were privileged to be able to work on-site under the guidance of the Toshodai-ji restoration staff; we participated in three occupations essential to restoration procedures associated with gathering information. First, sketching and measuring joints, connecting members and supporting brackets (toshi-hijiki, maki-to, hiji-ki, Dai-to); these are only a few that I have mentioned. Secondly, the transfer of patterns through two processes: wet rubbing to record tile decorative images, and dry rubbing to extract information from wooden members. Third, the assessment of the Benten-sha shrine located within Toshodai-ji Temple, this workshop was directed by Mr. Hatano Tsuneo who shared his knowledge and expertise of how to analyse and develop pre-restoration information.

The lecture and site visit to Heijo Palace, (the Nara site museum) by Mr. Nakajima (NRICPN) and Mr. Yoshioka specified the importance of managing the preservation of archaeological evidence also the process of obtaining relevant information in regards to the historic dimensions and style of the architecture. Mr. Yoshioka gave an example from the work he had being involved with from the Ichijo-dani, Asakura family site re-construction in the Fukui Prefecture which we visited on the last day of our second series of on-site lectures and observations. The area I appreciated most was firstly the management of archaeological findings into two categories. Primary materials directly linked to elements of past structural evidence and secondary materials to determine the society and the overall period in which the city, town or palace existed. This combination of evidence can also help ascertain the layout of a site as seen in the Ichijodani example. Secondly and probably the more important is the application of educating the public and this is where the basis of having interpretation centres on-site is valuable in the significance of displaying authenticity. The other obvious benefits of reconstructing such ancient sites are the practical attainments and preservation of traditional skills and knowledge. Which have lead to such initiatives as the Kanazawa Institute of Traditional Crafts, this in turn has created an opportunity to facilitate employment and secure future protection from loss of traditional skills.

The Shirakawa-go village and Kanazawa historic buildings sites were the highlights. It was here that architecture, culture and identity blended together, and allowed me to gain an appreciation of in situ architecture and environment.

The street markets and businesses of the Kanazawa historic buildings site displayed architecture that was preserved and maintained, while providing for contemporary usage. Bustling with tourists and Japanese visitors, who were there to experience the ambience of a traditional merchant streetscape, whether they realised it or not the visitor is sub-consciously observing the architecture that provides the background environment.

I found the Shirakawa-go village to be the most compatible with traditional Mäori structures. The *gassho* style house structure and method of construction is very similar to the

methods used to create Mäori traditional houses from New Zealand. Commencing with the physical appearance such as the high gabled roof structures with roof thatching to the lashing methods used to secure the internal structural rafters, post members and roofing materials. The method of using smoke for timber preservation against pest infestation is also a technique that was utilised. Other similarities are the large open interior spaces that create an aura of serenity. The earth rammed floors which have been evident throughout all Japanese styled houses is another technique found in traditional Mäori houses although the components differ.

Similarities can also be found in the context of house architecture including storage structures positioned in their natural environment, the proximity to mountains, rivers and valley areas utilised for horticultural purposes, and historically close to natural resources that the village community relied upon for their survival. The other consideration is the climatic change of seasons and the influence this has on architectural design and customary practice such as winter storage. Shirakawa-go, Ogimachi and Gokayama village people are situated within their original landscape, continuing to practice their unique lifestyle this has proven to have its advantages and disadvantages. However the inspiration that they provide and share with all who visit is an exceptional example of community spirit and commitment to preserve their customary traditions and history.

#### **Course Summary**

I found the site visits very valuable in understanding the reasons why Japan implements full restoration and partial restoration techniques of historical buildings. We were told that this practice sometimes raises areas of criticism about whether this is a truthful or proper method in maintaining historic buildings.

My assessment of this practice after having an insight into these projects has given me confidence that this method is appropriate in regards to:

Assessing cultural values and the decisions made to accommodate change that isn't adversive to cultural needs.

- Preserving the integrity of cultural identity.
- Assisting in the preservation of historical evidence to sustain cultural history.
- The practise assists in the preservation of traditional knowledge systems and skills associated with traditional craftsmanship.

#### **Suggestion for Future Training Programmes**

• Possible introduction of a one page evaluation form to be completed at the end of specific tasks or workshops to encourage comments. I think some people are not used to speaking

publicly or in front of large groups possibly due to shyness. Thus, in order to accommodate their thoughts this could be an option; *e.g. Toshodai-Ji practical training workshop could have questions for each of the three topics briefly asking;* 

- 1. What were the most valuable skills learned from these topics
- 2. Do you have similar methods in your own country for extracting designs?
- 3. Would you apply this method in your own work?
- 4. How do you feel about this particular workshop overall?
- 5. What was your favourite area during the workshop activities, and why?

The theoretical and practical delivery of the training programme was well balanced. The combination endorsed a solid comprehension of techniques and provided an insight into the work of the conservation architects and carpenters.

Throughout this month we have visited many historical sites. I have been intrigued at the number of Japanese people who travel to such places as Nara, Kyoto and Shirakawa-go to experience and learn their culture. This is an important factor in fostering a sense of identity which in turn will promote national pride. Therefore the practise of restoring ones cultural identity appears to have immense support by the Japanese public.

The economic advantages of restoring cultural identity and heritage are also elements for consideration. Tourists visiting Japan have an expectation to be able to view the many temples, shrines and ancient cities whether promoted through tour packages, or visited by the low budget back-packer, all want the same experience. The restoration of historical buildings including the scenic beauty of their surrounding environment contributes largely to this market.

Japanese history could be likened to a fabric or tapestry woven into the natural landscape. The Japanese culture is encompassing, its foundation stable. It accommodates and considers every aspect of its past history, through science, professional research and traditional practice this is very prominent throughout the areas we visited. In New Zealand the Mäori (indigenous people) have a term "Turangawaewae" meaning "The land on which one can rightfully stand". Japanese people are the people of this land, proud and yet humble as a nation. In my humble opinion it is your history, your culture and therefore the responsibility is yours to safeguard your own heritage.

## **Course overview**

As the Tauranga Museum's Poutiaki Taonga Mäori Curator, and practicing Tohunga Whakairo (Master Carver and Architect) I am grateful to have been selected as the New Zealand representative to attend this course on the preservation and restoration of wooden buildings in Nara, Japan. The knowledge from this month long course organised by the Asia/Pacific Cultural Centre for UNESCO (ACCU) and in associated with the Rome-based International Centre for the Study of

the Preservation and Restoration of Cultural Property (ICCROM) has been an invaluable opportunity to learn and exchange information and experiences from other cultures.

The occupation of heritage protection and preservation is an enormous responsibility worldwide and there are many aspects within this context. However this course has focussed on the preservation of wooden structures, which in my opinion is the most important in regards to material usage in architecture. Wood as a material is prone to numerous conditions which can affect its long term stability as a building material. This is evident in the lack of ancient wooden structures that have survived in comparison to stone or brick architectural structures. Therefore if we understand that wood is a perishable material then consideration needs to be given to how to extend its durability and longevity. This, I think, is what the Japanese are practicing.

As already indicated there are many aspects considered when dealing with the preservation of wooden architecture here in Japan. Application of the training I have received over the last month will greatly increase the extent in how I approach my own work in the future. The level of detail that can be extracted from observation conducted in a systemic manner assists when considering the best approach to conserve the integrity of a structure and its components.

The traditional craftsmanship of the carpenters combined with the guidance of the conservation architect and archaeologists are areas that I will endeavour to promote and practice when providing project feasibility assessment reports.

The degree of restoration practice opposed to complete replacement is also up for deliberation as the cultural attitude still remains in most areas of New Zealand, that the structure has a natural lifespan and there is no regard given to preserving the old. This way of thinking is characterised in a proverbial saying "To cast aside the old net and prepare the new". The challenge here is educating our people about the wider perspective towards the preservation of cultural identity. This has been strongly reflected throughout the course.

To date archaeological evidence has been digitally recorded some with the addition of computerised imagery, however nobody has successfully challenged the concept of reconstructing on an original site. This I feel is mainly due to land ownership issues and the influence that the practice of archaeology has in preserving an undisturbed site.

However, the basis of most significant archaeological sites in New Zealand are of Mäori origin and range from fortified Pa sites, defensive ditches, terracing with palisading to extensive gardening sites, and subterranean storage pits, as well as post holes and earth floors that indicate house positions and sizes. Thus, in this regard it is relevant that Mäori begin to consider how we want to manage our heritage.

New Zealand doesn't currently have any architecture of world heritage status and it would be unlikely that any traditional Mäori structures would gain such acknowledgement in the near future. I have however witnessed what a small dedicated agricultural community (Shirakawa-go) can achieve. This is stimulating and has created a possibility for future aspirations in regards to the interpretation of Mäori history in Aotearoa / New Zealand.

# Acknowledgments

I would like to acknowledge all our lecturers and onsite presenters from the various institutes, agencies and restoration work sites that provided their valuable time and expertise, which I believe were very beneficial contributions to the success of this training programme. It has enhanced my understanding and personal knowledge of techniques and management systems for the preservation, restoration and conservation practiced here in Japan.

I would like to also commend our host staff from Nara ACCU, our course coordinator Nishimura san and staff Ishii san (organiser), Mark Diab (course assistant), Hata Chiyako (interpreter), Yuri Nakamura (support), and thank you for your support and guidance throughout the entire programme.

Arigatou gozaimashita

# **Republic of Korea**

# **CHO Eun Kyung**

# 1. Introduction

The role of the ACCU Nara Office is mainly to help promote cultural heritage protection activities in the Asia-Pacific region, thus it conducts a wide range of programs, with three primary functions, acting as an "Information Centre" and engaging in "Cooperation" and "Exchange". This training course belongs to the "Cooperation" part, especially 'Group Training Courses'. The objective of group training courses is to provide opportunities to learn the latest knowledge and techniques regarding the investigation of archaeological sites, preservation/conservation science, and preservation/restoration of historic buildings, all with reference to the characteristics of Japanese archaeological sites and historic buildings.

Under these themes the ACCU Nara office prepared various programs. The programs for the 2005 training course can be classified according to its contents. And based on this classification I was able to give my opinions.

# 2. Development Possibilities According to the Composition of the Training Course

In my opinion, the composition of the training course is as follows:

- principles of conservation for cultural heritage
  - The presentation by Dr. Myklebust
  - Future tasks in the preservation of cultural heritage

First, I want to have common sense for the conservation of cultural heritage in the Asia-Pacific countries because many concepts and ideas of have been developed in Europe. It is difficult to apply these concepts to Asia-Pacific countries. But, I came to realize that the principles can be applied anywhere. We should make efforts to find and perceive the values of our cultural heritage. Through these efforts we can identify our nation, our people, and so on. Occasionally we forget why we should preserve our cultural heritage. Without principles we may misunderstand the values and forgot to preserve them. This forgetfulness can result in serious problems. We should hand down our cultural heritages to future generation. Also we should regard them as common property. The important thing is not to forget these principles at all times. The methods and applications can be changed according to our own countries, but the principles cannot be changed.

- The Japanese system of conservation for cultural heritage
  - Introduction to the cultural heritage protection system in Japan

System and project planning for restoration of important cultural properties Policy and problems regarding the conservation of Historic Districts in Japan Cultural heritage preservation and restoration

I think the introduction of the Japanese system and the process of conservation is very useful to many participants. Actually, many countries in the Asia-Pacific region do not have a system for the conservation of cultural heritage yet. We can use the Japanese system as reference data.

Actually, there are a lot of similarities in between the conservation system of Japan and Korea. However, through the training course I could understand the Japanese system as a whole. In my opinion, there are some characteristics of the Japanese system that are different from Korea.

First, it is impressive to me that the technical specialist, that is to say, the conservation architects from JACAM can control the whole repair or restoration work. I think it is very important that the division of contractors and the conservation architects who have a lot of practical experience still take training courses. Based on this system the restoration work can be of higher quality in terms of the meaning of techniques, and the result is the conservation of cultural heritage in the true sense of the word. Also it is very interesting there is another system especially in historical area like Kyoto, Nara and Shiga prefectures that have their own conservation architects. We have very important areas in history and they are designated as 'ancient cities'. These cities do not have so many historic buildings remaining. But, I think it will be possible to apply this system because there are many districts to be preserved in addition to their historic scenery. We have many problems, most notably a lack of specialists to design and plan historic sites.

Second, whenever they need conservation architects, they can have advice from the professionals from the Agency for Cultural Affairs or the National Research Institute. Conservation work needs many various professionals like conservation science and architectural research. It is necessary to have a close relationship between these other parts. Of course administrative support is also very important.

The concept and methods of the application of the Japanese system

Design for the reconstruction of ancient buildings on the Nara Palace site Comparative study on the theory of conservation and restoration in East Asian countries Overall process of conservation in Japan Landscaping and management of the sites Protection of traditional techniques and materials for sustainable conservation An introduction to the conservation science of wooden architecture Dendrochronology in Japan and its applications These sessions showed us how they could apply their system in many other parts. I think the emphasis of techniques and materials is the main characteristic in this training course. This is the strong point in Japan. In many countries they have a tendency to overlook the importance of materials and techniques. They consider only the result of their works. But without the conservation of primary resources, we cannot achieve sustainable conservation.

The comparative study was especially good for me. Most of the sessions were introductions of the Japanese methods and ideas but I think it needs comparison and exchange with other countries. All the countries in the Asia-Pacific region have already started the conservation activities with perception of the importance of their own cultural heritage and many countries have experienced for many years with their own specialists. In addition to there are various characteristics in other countries. Maybe the problems of complex wooden structure may exist only in a few countries as like Korea, Japan and China. Eventually it's time to exchange our own experience rather than to get handed down. In this viewpoint, the comparative study is very good trial. For this session I could think about the Korean way of conservation.

actualizing of the concept and way : on-site observation
Clark memorial hall restoration in Doshisha university
Reproduction of paintings in Nijo-jo castle
Hida-Takayama
Shirakawa-go
Kanazawa

Ichijo-dani site

We could see the concrete actualization of Japanese conservation methods from these on-site observations. The observations of various sites like the institute for craftsmen, the dismantlement site in Kanazawa, the preservation of historic buildings in some cities and reconstruction districts are very interesting and useful. Especially it was very impressive to see the close relationship and cooperation between municipality and local people. Actually this is a very difficult and serious problem to actualize. But the cities achieved to the successful cooperation and their community. In Korea the laws for the preservation of the historic buildings failed. I think one of the causes was that the national government and municipality depended only on the legal force. On the other hand, local people considered only their economic profit. Only through the continuous negotiation and taking a broad view positively will be able to be resulted in the conservation and development.

Experience of Japanese practical work
Investigation and restoration plan of painting in Todai-ji temple
Investigation and restoration plan of shrine in Toshodai-ji temple

Precise measurement in Toshodai-ji temple Rubbing in Toshodai-ji temple

For these sessions we had technical training in Japanese methods. It was impressive that in Japan they regarded the traditional techniques as a part of their tradition and artwork. Because of the development of equipments and tools so many changes are done in many fields nowadays. But we know the importance of the traditional techniques. So the succession can be only the education and training. In the field we could understand their will.

participant's presentations: conservation for cultural heritage in many countries

As I said previously, exchange with other countries is very important. In spite of differences in each country we have possibilities to get our common sense regarding the conservation for cultural heritage. We have common principles and experiences. Many countries in the Asia-Pacific region have cultural heritage based on the same materials, religion, and historical backgrounds. Owing to these aspects we will be able to go forward using common sense. I came to understand this through the presentations of the participants.

# 3. Conclusion

From the training course I received knowledge about the conservation for cultural heritage. The various sessions and practical trainings will be helpful to my work. I could compare the systems, concepts and ways between two countries. I think there should be further cooperation in research and administration between Korea and Japan. Of course this cooperation is being done already. But more continuous and long-term plans are needed. Our cooperation will be useful to other countries. We have more possibilities.

In addition to I could make important contacts with many other countries in the Asia-Pacific region. But, above all the most important thing for me is to recognize what is conservation. I will always consider what we should do, why we should do it, and how we should do it. These are most valuable lessons that I learned from this training course.

# Sri Lanka

## Hemantha Kumara BALACHANDRA

#### Introduction

The objective of this report is to indicate the knowledge gained from the ACCU training course and how that newly acquired knowledge is applied to the preservation and restoration activities that I am handling at present. Additionally, this report will evaluate the relevance of the course to cultural heritage protection in Sri Lanka.

The training course, which had duration of five weeks consisted of lectures, discussions, practical workshops, excursions and on-site lectures. The course dealt with the regulatory framework for the protection of Cultural Properties, the methodology of conservation, implementation and the management of heritage sites in Japan.

#### Law for the Protection of Cultural Properties

Cultural Properties in Japan have been categorized into three Groups. The first two groups which are National Treasures/Important Cultural Properties and Registered Cultural Properties are included in the Antiquities Ordinance, this latter is the present law for the protection of Cultural Properties in Sri Lanka. However, the third category which is the Preservation Districts for Groups of Historic Buildings, decided by the Municipalities, is a system that has not been covered in the present law in Sri Lanka. This system can be considered as a system of decentralization and the responsibility for preserving heritage is in the hands of the Municipality and the local residents. The preservation Districts for Groups of Historic Buildings at Takayama-shi Sanmachi and Higashiyama Higashi and Kazuemachi at Kanazawa city are perfect examples of the effectiveness of this system. The two preservation districts have a group of buildings with a unique character and harmony. The two municipalities have very good cooperation with the community who owns the heritage, and the families living in the community also have a very strong relation ship. Therefore, both the municipality and the community are well aware of the value of their own heritage, a fact that ensures its protection.

Sri Lanka also has groups of buildings in municipalities. However, the municipality has no responsibility towards the preservation of its own cultural heritage. All the designation and activities for the preservation of their heritage operate only at the national level. Sri Lanka already has more than 100,000 designated sites, and the Department of Archaeology, which is the national body for the protection of cultural heritage, is not in a position to manage all of these sites. Therefore, introducing a concept similar to the one presently operating in Japan for the Protection of Groups of Buildings at the Regional or Municipal level would be a good starting point for the protection of heritage at the regional level.

#### **Methodology of Conservation**

#### **Repair with Total Dismantlement**

The conservation system operating in Japan is based on the unique system of repair with total dismantlement. When the monument is in a deteriorated condition especially in the case of structural deterioration, the system adopted is that of total dismantlement, repair of members and reassembly. In the case where the roof covering material has deteriorated, the method followed is partial dismantlement. The system of total dismantlement is a totally new concept that has not been in operation in Sri Lanka.

The three day workshop at Toshodai-ji Temple which belongs to the Nara Period A.D. 710 -794 provided us with the perfect opportunity to study this system in detail. At the time of inspection, the reassembly process was in operation and we were able to observe and understand the bracket system that is a distinctive feature of wooden architecture in Japan. The exercise on the preparation of the drawing of the bracket was immensely useful for understanding the structural system, the geometry of the members, and the method for fixing them.

The introduction of hidden steel or timber members as method of reinforcement for the purpose of structural stability against earthquakes and other destructive forces is also unique. These reinforcements are also introduced after the careful analysis of all of the forces and stresses to which the monuments could be subjected in the case of earthquakes and other disasters. This approach shows the application of modern technology and scientific methods in the process of restoration. These methods are really applicable to countries like Japan as Japan experiences the earthquakes more often.

Total dismantlement as a method of repair for historic buildings is not practiced in Sri Lanka. The reason for not practicing such a system is that the preservation of the authenticity of the structure and the materials are very important considerations in making decisions with regard to the degree of conservation. Therefore, every attempt is made to repair the deteriorated members without dismantling the structure. In critical cases where the structural members are in a deteriorated condition to the extent that the structure is in a verge of collapse, partial dismantlement and reassembly are carried out.

#### Structural Reconstruction in Historical Site Development

Structural reconstruction as a method of historic site development is also a distinctive system adopted in Japan. This system of site development was observed in the reconstruction of ancient buildings at the Nara Palace and the Ichijo-dani Asakura family site in Fukui Prefecture. The site visits to these two sites provided an opportunity to have a very close observation of this system. The site is first excavated and the material evidence of the buildings or structures was found. As Japan has the tradition of making wooden buildings, in most cases only the base stone of the wooden columns are found. Based on this material evidence and the knowledge of timber building

traditions of Japan, reconstruction is carried out. As the buildings are reconstructed, the visitor is able to get a clear and more distinctive picture of the historic site and its associated structures. The project of reconstruction, especially the reconstruction of the Heijo Palace Site is on a huge scale and requires an unprecedented cost.

In Sri Lanka, the reconstruction of archaeological sites is not carried out for historical site development. Structures which are found from excavations are conserved and presented to the visitor as they have been excavated. In Sri Lanka, most of the excavations reveal the foundations and two or three layers of the original brick layers. In such cases only two layers made of bricks of the same size are added to the structure and presented. However, in using this method a visitor is not able to comprehend the overall form of the structure and cannot perceive the three dimensional aspect of the site.

Although the unique approaches to preservation and historical site development in Japan that I learned during the course may not be not directly applicable to the our context as mentioned above, the valuable in-depth knowledge gained from these approaches will definitely be useful in addressing future challenges in the field of cultural heritage protection in Sri Lanka.

#### **Conservation of Vernacular Settlements**

The site visit to the World Heritage Site of the historic Village of Shirakawa provided an opportunity to learn the concepts adopted towards the preservation of this unique village. The *Gassho* Style houses and their distinctive feature of the thatched gable roof are in an excellent state of preservation. The concepts that the community have been given, which is to take the leading role for the preservation of their own heritage is indeed appreciable. The formation of the Preservation Board by the inhabitants themselves is a very appropriate method in preserving vernacular heritage. Through this process, the community understands and appreciates the value of their own heritage. The importance of community participation in the process of conservation is evident in this settlement and result of this process is remarkable.

Sri Lanka also has unique vernacular settlements, however not enough attention has been made towards their preservation and these unique settlements are fast disappearing. Therefore, the approaches learned in the protection of vernacular settlements in Japan is of utmost value.

## **Management and Presentation of Historic Sites**

Presentation of the historic sites in Japan through the site museums, information Centres, site brochures, site maps, signage are highly useful for a visitor to get a broader understanding of the historic sites. Open air museum at the Shirakawa site and the site museum at Ichijo-dani site provided the opportunity to obtain the valuable information related to the history of the site and its development before visiting the historic sites.

As the most of the conservation activities of the five World Cultural Heritage Sites under

the Cultural Triangle Project in Sri Lanka is nearing completion, presently more emphasis is on the presentation of those historic sites. Therefore methods and techniques learned in the presentation and management of historic sites is really appropriate at this juncture for the preparation of more comprehensive site presentation and Management System.

# **Provision of Financial Assistance**

Japan also has a system of providing subsidies for the conservation of Cultural properties. In some cases, these subsidies cover the cost of repair of the cultural property up to the extent of 80%. The provision of subsidies encourages the owner of the cultural properties to undertake the repair or restoration. The repair or restoration of cultural property requires a huge amount of resources in the form of both human and financial, unlike the repair of contemporary buildings. The repair of the historic building needs the skill of a craftsmen who is experienced in traditional technology and methods, and traditional tools and materials that have properties similar to the materials used in historic structures. Therefore, the intervention of the restoration project, as in most cases, the owner could not bear the enormous cost of repair.

This method of providing subsidies is very applicable to the World Heritage City of Galle in Sri Lanka. The world Heritage City of Galle has a unique set of Buildings creating a distinctive streetscape. These buildings have timber colonnaded verandas and the façade walls contain very broad timer windows and doors of unique character. Although the Archaeology Department has introduced a set of guide lines, residents started changing the facades, especially replacing the historic doors and windows with aluminium partitions or other widows that can be produced with readily available materials from the market at a low cost. This practice destroys the character of the streets. The reason for the introduction of aluminium is that the reparation and maintenance of timer doors requires continuous attention and more financial resources. If the Department of Archaeology in Sri Lanka intervenes and provides subsidies as practiced in Japan, the introducing of aluminium partitions in place of timber doors and windows could be avoided. But, unfortunately the Department is not in a position to provide financial subsidies due to a lack of financial resources.

# **Training of Craftsmen**

Knowledge of traditional techniques and methods is fast disappearing. The skilled craftsmen experienced in traditional techniques are a prerequisite for the successful implementation of cultural heritage protection projects.

Therefore, the establishment of a centre for the training of craftsmen in traditional methods and techniques is very timely action taken by the Mayor of Kanazawa city. The training of craftsmen will keep traditional methods and techniques alive that will, in turn, make possible the development of cultural heritage protection projects.

Sri Lanka also has the problem of a lack of skilled craftsmen experienced in traditional methods and techniques of construction. Therefore, the craftsmen training college is a perfect way to preserve traditional methods and techniques that are on the verge of extinction.

# Conclusion

The ACCU training course provided me with in-depth knowledge of Japanese historic structures and the unique methods for preserving them. The concepts and methods, and their application, studied during the five week course will definitely equip me to meet future challenges in the field of restoration of cultural properties in Sri Lanka (as explained above). As far as the structure of the course is concerned, it can be divided into two main categories consisting of three weeks of lectures at the ACCU/NRICPN and two weeks of practical workshops at temples, sites, historic site visits, and on-site lectures. If we had had two weeks of lectures and three weeks of practical workshops and on site lectures, it would have been more appropriate since conservation is a science that has to be learned directly on the site, and experiencing the actual restoration work on site.

The contents of the course were very appropriate and the coordination of the course admirable. The distribution of the notes before the lectures was very useful so that we were able to better prepare for the lectures. This should not be the end of the training course as conservation is a continuous learning process. The problems to be addressed in this sector can either be unique to particular contexts or the country, or common to the Asia-Pacific region or world. Therefore, the exchange of information and dialogue that was initiated at the beginning of the course should continue in the future between the ACCU Nara office and participants, and among the participants themselves.

## Acknowledgements

I would like to express my gratitude to the Japanese Government and the ACCU Office for giving me an opportunity to participate in this valuable course on the restoration of cultural property. I would like express my heartfelt thanks to the Director of the ACCU Nara office, Dr. Yamamoto, and also to Dr. Yasushi Nishimura, Ms. Ishii, Mr. Mark Diab and all of the staff of the ACCU office for their excellent handling of the course from its inception to completion, providing all the guidance and necessary information. I also thank Ms. Hata for very skilful translation of the lectures and other relevant information. My thanks also go to all the lecturers for their expert work on the lectures. I also thank Ms. Yuri and Ms. Mayu for their assistance extended during the lectures and especially during the site visits.

# Tonga

## Ishileli Vea TUITUPOU

## Introduction

This paper is written according to in the requirements for the training course on the Preservation and Restoration of Cultural Heritage in the Asia – Pacific Region, 2005 held in Nara Japan on 27th September to 28th October.

This paper shall attempt to gather relevant information offered by the training course relevant to the Tongan situation. At present Tonga has drifted silently in a preservation and restoration program which is administered by the Tradition Committee under the auspices of the Palace Office and His Majesty. Other sectors like churches and schools launch their own programs with their own funds or sponsors based on attaining symbolic value or merely preserving cultural heritage in order to reinforce its identity and traditional line of interest.

The Ministry of Works in Tonga is responsible for the administration of Government building facilities in which Royal Palace official command has been part of its assignment in the maintenance of palaces and associated facilities.

This training is relevant and timely as far as the Tongan situation is concerned since we have been conscious of the preservation of architectural heritage. However Tonga is still needs to set up a formidable administration structure, proper guidelines or policies to regulate work procedures, ad hence, the enactment of laws to police such a conservation programme.

Tonga has to run preservation work with different concepts and ideas for the future. Perhaps what is missing is nationwide attention to what is defined as preservation. This training course has offered more than what is needed at this early stage in Tonga's cultural heritage protection plans. At least there are tools to lead the way and the rest of technical know how should be simultaneously tested as time and budgets permit.

#### **Lessons Learned**

First, Tonga should attempt to define what conservation is in its overall perspective nationwide for its own interest. Second, a mission statement should be drawn up that defines its goal for the preservation and restoration of cultural/architectural heritage. Third, an action and strategy plan defining the magnitude, quality and quantity of its journey through at least the next five years. Japanese lessons could be a guide.

A governing body is to set up to discuss and decide on:

Overview of certain characteristics of tangible and intangible cultural heritage to be qualified

for preservation or restoration programs.

Conservation practices considered suitable.

Extend the type of traditional techniques and materials for each type of preservation work.

The scope of preservation work to be done.

Discuss issues which may confront the preservation program.

Ministry of Works, Ministry of Education, and Palace Offices auspices have the appropriate expertise to share the responsibility in setting up this office.

## **Enactment of Laws**

The plan mentioned above must acquire the support of a proper administrative structure in order to monitor and regulate procedures and protect the interests of the people concerned with the conservation of cultural heritage.

This law shall cover:

Designated cultural properties Define and register important cultural properties Monitor classification and qualification of important cultural properties

The Japanese guidelines for selection are important. i.e.:

Aesthetic value Historic value Technical value Academic value Locality

The same administrative body will be responsible for offering incentives; Tonga shall be tax exempt, lower development taxes, and any other subsidies should be applied.

In Tonga it would be feasible to classify important cultural properties by:

building type and architectural value type of accommodation construction type and historic value (e.g. fale construction) groups of historic sites Monuments

Japanese preservation and restoration ideologies could be guides for Tonga. Shrines and Temples are true architectural heritage for Japan and so is the Tongan fale (or traditional house). However, in order for the fale to be restored in an authentic way, training of traditional builders and craftsmen should be revived.

## **Restoration Work – Toshodai-ji Temple**

Japanese restoration work is authentic. Tonga may follow their ideas except the selection of builders must be through the most transparent method of competitive bidding and the engagement of conservation architects must be reputable.

Traditional tools are available, however, training would be needed as surviving traditional skills are about to disappear.

Important lessons to learn from the Japanese work are based on the investigation work that needs to be done. Decision making, as what to part to replace or to simply improve is done at early stage before dismantling. One can feel the reluctance to do an entire replacement mainly for maintaining authenticity. This is a good moral lesson for Tonga.

Conservation architects are obliged to make decisions on what to replace, and what connections to make during the dismantling stage. They must also explain the degree of expertise that they possess.

A vast detailing option displayed on many sites again adds a lot of value to the degree of authenticity that the contractor must fulfil, hence the conceptual message for the entire restoration team is clear.

The original design is very complex but would lead to an oneness theme that elevates the glory of Buddha, holiness, and eternal life. I personally feel the contactors attitude to the work should be one of humility, respect, gentleness, diligence, and meticulous attention to detail. The use of traditional tools orchestrated the whole show.

I believe that architectural expressions displayed in the vast detailing in the bracket system, pillar size, beam and the rafters exaggerated shape has done an adequate celebration to the interior ceremonial space itself.

Another good moral lesson for contractors in Tonga is to perform a good spiritual work for the restoration of a temple if it is meant that temples are for people seeking salvation.

Careful recording of painting, decoration, and reviving work must complete the restoration finishing touch because this is where the meaning of building functions come from. Maintaining original traditional pigments is a difficult task, however, its present equivalent in local sources still tells the story of authenticity. Only that timely recording of design could be attended before its change by the ravages of nature. Tonga should undertake the accurate pre-recording of lashing patterns before fales disappear.
## *Gassho* Houses and Group Historic Sites Takayama, Shirakawa, Fukui Prefecture

**Takayama** offered great lessons on town restoration in wood construction. The functions of a community village are reflected in the improvement work. I wish to note that the scale and method of monitoring the preservation work would be an ideal practice for Tonga,

I observed that refurbishment work coinciding with a revitalization of community functions as explained in the tour. It is such a brilliant idea for the restoration of important cultural property with the improvement of people's inner life.

The scale of preservation work has done well to gradually enhance the community with the budget that it has. Incorporating the architectural façade improvement, sun shading features, weather resistance features, and security features as well as the articulated restoration of cultural heritage property. I believe this is an additional dimension to conservation in Japan.

**Shirakawa-go** offered broader techniques for preservation in Japanese traditional vernacular houses. This is a good lesson for Tonga during the inception stage as far as budgets allow for a try out period. Initiation of a proper infrastructure especially fire fighting services should restore confidence within the village and visitors alike. Water storage reservoirs in many strategic locations also give reserves in case of any droughts in the future.

I observed the logic of centrally located fire places, thus allowing a rising up at the open vaulted roof space. Two major obvious reasons were to warm up the living areas and to keep termites and insects away from the roofing. Not to mention that a beautiful dark red stain will coat the wood structure over the long life of the house.

It was significant to note that the wood structure arrangement, size of members, and quantity of wood revealed the social status of the owner and the abundance of wood at Shirakawa.

As explained, the roof thatching method of tying roof battens is similar to the Tongan fale coconut leaf thatching. I think the history of this village is well told in a bold manner.

### Kanazawa

The aim of establishing the institute for craftsman is logical. The training program allows the maintenance of traditional skills as long as the Restoration and Preservation program survives within the district and in Japan. New techniques and research on new materials offers a bright future to any challenges that the restoration work may face.

**Restoration work at the Edo Mura Village site** allows a good observation of wood structures during the dismantling stage. Recording and documentation processes were done in an orderly

manner. My most exciting moment was viewing a structural pillar at the mid-upper floor. It was erected on a grid at ground level and curved toward the roof space to support roof joists at an incline of the roof plane off of the grid. This pillar member was one long run log. This work of architectural art and engineering occurred in the central bedroom, and is brilliantly displayed. It is an important cultural property worth keeping.

### Fukui Historical Sites – Yokokan, Ichijodani

The observation of a *Samurai* settlement is a lively story for me to contemplate during my lifetime. It represents the unfolding of a real story. The architecture, layout planning, the scale, security features, waterways and materials do explain the power and heroism of a warrior. It also reveals the commitment, services and loyalty of the warlord to his master. The relics in the museum tell that these warriors were simply human who had a lot of responsibility.

## **General Overview of the Training Course**

The ACCU training program had a good logical order starting from day 1 in terms of the introduction to conservation and preservation. Lectures, theories, and concepts were well demonstrated during the on-site practical training and observations.

However there were little things that may need revising, such as,

- It would be more helpful for understanding the course content to provide definitions or interpretations of some frequently used terminology relating to the conservation and its application to Japanese cultural heritage.
- Preservation: to explain its scale of work in Japan
- Restoration: to explain that it differs from preservation and part replacement.
- Technical words such as pillar as opposed to poles or posts.

Finally I found this training course very resourceful and informative indeed. Above all I had such a great time in Nara with its mild weather in October.

My deepest gratitude go to all of the staff at the ACCU office, especially to Nishimura San, Ishii San, Mark San, Hata San, and Yuri San for your help, care and patience during the five long weeks of my stay in Japan. This poem is dedicated for you all ACCU, Cultural Heritage Protection Cooperation Office

Arriving, thrilling at Kix Konichiwa offer me opportunity to be rigid Ohayo gozaimasu ACCU, I replied with a shaky speech Hai, Tonga is here for cultural heritage to fix I plead

Hai, its commitmentHai, its loyalty and humblenessHai, has echoed in work of your architectsJapan you have great reason to preserveSuch a rich cultural heritage

Participants it's a lesson to learn Asia – Pacific it's a fortune to take and earn For Tonga will be first to action a plan Where time begins, Tonga gets up and do something about your eroded Cultural Heritage.

## Arigato Gozaimasu

Malo Aupito, Nofo a

From participant of The Kingdom of Tonga

#### Farewell Song

Alu a ko e Mo ke fiemalie x malie Kuo ke motuhi mai au Keu tau moe ofa mamahi

Sing sayonara to you So sad to leave ACCU x aacu Nara temples with garden of beauty Will ponder my memory for good

## Thailand

## **Chamorn PORAPAKPRALAI**

## I. What I Have Seen?

## 1. To Share

The first thing I found here is to Share, To share Experience, To share Friendship, Brotherhood and Sisterhood, To share Difference, To share Information, To share Ideas To share Equality

## 2. The Spirit of Nationality

In this Land the Culture seem to have been deep rooted in the souls of the Japanese people. They try to reserve witnesses of their nationality. They declare the existence of the Japanese people in the mind of globalization current in the West and America. They appreciate the aesthetics of their national culture, and define it as the most precious matter. So, they are proud of what they have been, what they are, and what they will be.

#### 3. Develop Ourselves

Everyday, I have to develop my mind by myself, ready for new fresh matters.

One of the Buddhist teachings is that every one has a seed of Buddha's soul and may grow up to be the final state of the human soul. The only thing to do is to develop ourselves everyday through training. This can be appreciated from the following Zen poem:

## Word of each day;

Each day in life is training	Training for myself
Though failure is possible	Living each moment
Equal to anything	Ready for everything
I am alive, I am this moment	my future is here and now
For if I can not endure today	When and where will I?
By Soen OZEKI, Disen-in	

## 4. Simple is the Best

I have seen museums in Nara, Kofuku-ji temple, Toshodai-ji temple, and the Nara Palace Site. I

hoped to see high technology instruments for presentation in exhibition rooms, but I found only a guide and a simple way to show materials. Everyone can understand and appreciate these methods of presentation. I realized that there is no need to use high technological tools for these purposes.

I was surprised to see many examples of empty rooms, no need for furniture, nothing inside the rooms, and only a place to see the gardens outside.

I was also astonished when I went to Kyoto by myself to see an empty garden in a Zen temple, there was nothing to see over there but many things to think about.

#### 5. Complexity and Contradiction

Japanese Architecture is always based on a rectangular, simple plan, and simple form, but it has a complicated roof structure inside and shows some parts of eaves and support members as if they were decorated members.

At the same time, the traditional style of architecture is based on a modern style of life.

We have always seen many reinforced concrete buildings and bridges made of wood. They beg the question: are they made of concrete or wood?

To keep the image of traditional agricultural villages, sometimes inhabitants have to stop the demands of their modern, such as a having new cars, a new room, a new house, even if they can support it or not. It looks like the socialist way.

Expensive high technological shelters for village houses or any site are sometimes made.

## **II. Similarity and Difference**

### **1.** Cultural Property Definition

Japanese divide cultural property into two parts, on the one hand they have tangible property and another is intangible property. Craftsmanship and Carpenter Skills are also included as Intangible property.

In Thailand, we have at least two types of Craftsman and Carpenters, one for high class craftsmen, and another for normal craftsmen. The high class Craftsmen means craftsmen who are skilful at high traditional arts to serve religion and royal court work such as mirror work, lacquer and golden leaf, wooden carving, traditional painting, and stucco. However, certainly it does not include normal carpenters who work on village houses or vernacular houses even though they may be skilled carpenters.

For tangible cultural property, we define groups of historical building as cultural property but we never include vernacular houses.

### 2. Designate

Recently we just started System of Designation of Cultural monuments. We have 2 Main Definitions for our monuments: The National Class and Regional Class. We separate the National Class into 4 levels:

Very Important Cultural Monuments Important Cultural Monuments Cultural Monuments Cultural Inheritance

We just started but we have many problems. The important problem is to understand the problem, and classification, confusion, and equipment, laws, rights, management and any research needed for support.

The Japanese system may be a good example that we can apply to our system, but it may take a long time to be a practical system for the designation of Thai cultural monuments.

#### 3. Organization

Mr. Murakami from JACAM gave a lecture on the 11th of October. He introduced us to the role of JACAM. It taught me about a new way to create an excellent organization, free from general official practices, and also to use good methods for monument management, such as for classification systems, owners of monuments, architects, techniques, and times.

#### 4. Policy

The policy of prefectures to control towns and city systems is an interesting science. Nara prefecture is a good sample for the benefit of cultural monuments, such as Nara Palace, Toshodai-ji temple, and other sites.

#### • Laws

In 1868 Japan started to enforce The Law for Preservation of Ancient Shrines and Temples. Another law came into effect later such as the,

-National Treasure Protection Law in 1929

-Law for protection of Cultural property

Then after 1996, Japanese administrators created laws to covers all types of cultural heritage, including historical group buildings, vernacular buildings, and technical skills.

However, in Thailand we have only one Law for Cultural Monuments. It is called them "Monuments, Ancient Object and Museum Law" and was created in 1957, and revised twice. Some parts of it are devoted to controlling and protecting cultural monuments, but the definition of Thai monuments seems narrower than that for Japanese monuments.

### • Budgets

In Japan, much more money is spent for the preservation, protection, conservation, restoration, and reconstruction of cultural heritage. Sometimes budgets for shelters exceeded our budget for the conservation of Thai cultural monuments. Certainly, the budget for Japanese cultural monuments is very high for equipment and risk prevention such as fire protection systems, seismic protection, and others. It seems to be a habit for the Japanese government to pay a lot of money for these systems.

## Tax incentives

These ways are very interesting for me. It seems fair for everyone who works with cultural monuments to pay only some part of the maintenance and conservation costs of their monuments. And it is also better to have some money from the government to subsidize the costs. We have not begun to start this type of program in Thailand yet.

## • Conservation Methods and Decisions

There are many decide to be made regarding the conservation of cultural monuments, such as whether or not to dismantle some parts, engage in reconstruction, protect and preserve, and others. It makes me realize that we should select only the right way to conserve cultural heritage. In addition, we need procedures and strategies for managing this way to succeed.

## • Training

## Training for Risk preparation and Training for equipment

Training always takes place everywhere in Japan. The discipline of Japanese people may be stricter than Thai people. More and more they understand the way to train for risk preparation. And they are also ready to pay for this training. This training may be hard to do in Thailand.

### **Recording and Documentation**

A very good way to save precious data is to have many copies and keep them in different places. I have seen this method during the training course.

## Construction

When I visited the Nara offices and institutes I realized that both Thai architects and Japanese architects use similar methods to create accurate architectural drawings. The main method is to draw in true size (or scale).

#### 5. Architectural Monuments

From Sukhothai and Ayutthaya, to Bangkok, we do not have the same scale wooden architecture as in Japan, especially regarding the architecture in Nara city. We have large buildings but they always have brick-bearing walls and wooden roof structures. Our widest span for wooden roof structures may be at the Emerald Buddha Hall. It is around 15-18 metres, however, it may be a child compared with the *Daibutsu* Hall at Todai-ji Temple.

I was so astonished to know later, that Nara city was the capital city of Japan for only 84 years. This is such a short time for a big scale city full of giant architecture. It has been a heavy duty for the Japanese government to protect and reconstruct many of its precious architectures. Some projects took 10 years, and thus we have to buy a 500 yen ticket everywhere we visited to see inside or pray--sometime to see only only one room.

Complicated roof structures were always used in Japanese architecture, but they are so hard to understand, and it is especially hard to understand that these beautiful structures will be covered by ceilings later. This way of covering roof structures may be a similar idea to ours, but in many case we frequently show roof structures.

Cypress wood is always used for all members of architecture. Cypress wood is softwood. Because of this reason we usually have structures for beams and columns.

## III. Adaptation for Thai Cultural Heritage

### 1. Practice for Cultural Monuments

The following may be some ways that I should adapt precious Thai cultural heritage:

- Don't hurry to do anything on cultural heritage sites.
- Don't let anybody decide to do anything on our heritages, until we study every bit of information, such as,
  - Excavation, evidence, archives, photographs, and public reactions
  - Investigation and examination,
  - Brainstorm and discussion,
  - Study sites as much as possible
- Keep the originality as much as we can.
- Heritage conservation has to have:
  - The right time and space
  - The right management methods and strategies,
  - The right people and organizations,
  - The right understanding and intentions,

But every item will be worth nothing, if we don't have the spirit of conservation.

I have received this spirit of conservation in the Japanese way, and I have a duty to distribute it to other people.

## 2. Laws and Organizations

Thailand needs to improve its monument and tax laws in order to cover all types of cultural heritage to match the standards as Japanese laws. Thailand also needs to create policies to induce the cultural monument owners to coordinate with government organizations.

At the same time, Thailand needs to develop the organization involved in cultural heritage roles in order to be free from general office practices, such as annual budget systems, budget investigation systems, ordinary contractor employment systems, and ordinary official management in general.

I wish to thank every staff member at the ACCU Nara office, all researchers and institutes, and every course participant.

## Vietnam

## **VO Dang Phong**

## Preamble

I would like to acknowledge my sincere gratitude to the Vietnamese National Commission for UNESCO, Quang Nam Provincial People's Committee, Hoi An People's Committee, Hoi An Centre for Monuments Management and preservation, and especially to ACCU who facilitated the good chance and helped me to attend this training course. I would also like to thank wholeheartedly all of the ACCU officers for the assistance during our stay in Japan. In addition, I would like to thank all of the professors, managers, and researchers who kindly helped and guided us during the training course.

It was a good opportunity to understand more about Japanese architecture as well as the relic management, restoration measures, project building methods and heritage conservation for the future. However, we also had a chance to exchange our opinions and work together (15 participants from 15 countries) about restoration measures and the management of each kind of property in many countries.

Once again, I give my kind thanks to ACCU and their officers who gave us a good opportunity in order that we can learn more on the conservation principals of Japan. The knowledge will help me and also all participants in our work.

## **The Training Course Content**

During the one month of this training course, which was not too short and also not too long, we have learned many matters on the management, preservation and restoration of architectural monuments as well as how to preserve each kind of monument. We have also learned much on the preservation methods for all kinds of architecture, and the materials used in relics (especially for wooden architectural relics). The experiences in the restoration, management, and steps in the restoration process during the lectures and on-site work will be very useful to us. In addition, we also directly implemented some stages of restoration work in order to understand more about the carefulness of restoration.

#### **Comments on Japanese Traditional Architecture**

Through the class lectures, reference documents at the ACCU office library, the practical workshops site visits, surveying some restoration sites as well as restored properties, I realized that Japanese traditional architecture is very human. Despite these thorough course components, I have not fully understood Japanese traditional architecture. It is closely mixed with its nature. The

architectural buildings are rather harmonious with their existing landscape. Depending on the climate of each area, the former inhabitants built many architectural buildings (such as houses) suitable to the climatic conditions (for example: houses with thatched – roofs or shingle-roofs). Japanese traditional architecture is not only attached to important natural landscape, and has external ornamentation, but also it has internal ornamentation, especially gardens in courtyards (gardens in houses have a unique style in Japan). Some structures like bancon, console and main doors also fully show the Japanese culture and behaviour regarding the cold climate.

### **Restoration in Japan**

Before attending the training course on architectural building restoration in Japan held by ACCU, I had many opportunities to research Japanese architecture from JICA experts who carried out historical house restoration at Hoi An. Part of my training included consulting documents and books of many domestic and foreign specialists on restoration experiences in Japan. But, this was only theoretical work. However, after attending this training course with its practical workshops, I release that Japan is interested in all kinds of architectural buildings and carries out careful, authentic architecture (based on archaeological results, historical documents and photos). Restoration measures are also implemented methodically. The restoration materials are also chosen carefully. Apart from the use of modern machines (in some stages for saving money and labour), Japanese researchers and administrators have fully observed their restoration principals. In particular, they use traditional tools for the maximum protection of the authenticity of relics.

## Comparing Vietnamese Restoration Measures, Especially Hoi An, to Japan

The conservation process includes policies and principles from UNESCO and belongs to the existing conditions of each region and country. Viet Nam in general and Hoi An in particular also have conservation measures similar to the knowledge I learned in Japan. However, there are some differences in tools, materials, and architectural building categories. Another feature is adaptation after restoration (especially traditional houses).

Hoi An is like a "living museum" where many generations also live in one house. So, the complete implementation of restoration measures is very difficult. The conservators in Hoi An, myself included, always try to keep the authenticity of ancient towns but also try to meet the demands of modern life. Until this time, I would like to say that Hoi An people have had successful results in preserving the ancient town by creating a high level of awareness and through the kind participation of many communities.

In Japan, the state owners' relic preservation system does not face any difficulties. The conservation here seems to be carried out very well. However, for private relics, there are few inhabitants living in the house. Gradually, the traditional activities will be lost. Thus, apart from

the tangible conservation, Japanese people should also protect their intangible culture.

## Conclusion

Historic architectural building preservation, especially the preservation of UNESCO world cultural heritage sites is difficult work not only because of the lack of experience of people who directly preserve heritage, but also due to the complex government policies, differing points of view, economics, and culture. In addition, cultural heritage preservation is also influenced by existing living conditions, the awareness of local inhabitants, tourism, and even war.

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