Report

Training Course on Conservation of Wooden Structures in Asia and the Pacific

16 October - 14 November 2002, Nara, Japan

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

Agency for Cultural Affairs, Japan

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

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Preface

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 of these preservation/restoration techniques. Since the 8th century, when many wooden structures were built in Japan, many of these structures have been preserved and repaired time and again. The wealth of knowledge and techniques thus accumulated in Japan should be shared with other parts of the Asia-Pacific region.

In Japan, 11 sites inscribed in the World Cultural Heritage List, among which Historic Monuments of Ancient Nara was added in 1998. It is widely recognized that the techniques used for restoration and preservation of wooden structures in Nara reach the highest standards in the world.

Against this background, ACCU Nara Office, the Agency for Cultural Affairs, Japan, and the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) in Rome, jointly organised the "Training Course on Conservation of Wooden Structures in Asia and the Pacific" in Nara from 16 October to 14 November 2002, with 14 participants from 14 countries of the Asia and Pacific region. This programme was supported by UNESCO, the Japanese Ministry of Foreign Affairs, the Nara Prefectural Government, and the Nara Municipal Government.

The objective of this training course was to provide persons 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 conservation, restoration, management and utilization of wooden structures.

We would like to express our deep gratitude to the prominent international experts who kindly delivered lectures, and to the organisations that provided generous support in organising 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 most efficient and successful.

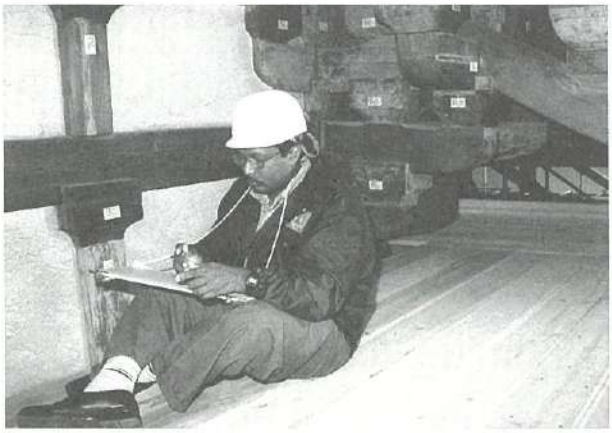
We hope that this report will benefit those who are making strenuous efforts in this field in Asia and the Pacific.

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

Group Photo

Inauguration Ceremony

Presentation of Country Report



Practical Training at Toshodai-ji Temple
(Sketching of the Main Hall)

Practical Training at Toshodai-ji Temple
(Surihon)

Practical Training at Toshodai-ji Temple
(Devising Renovation Policy of the Bentensha)

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1. Introduction

Training Course on Conservation of Wooden Structures in Asia and the Pacific was jointly organised by Cultural Heritage Protection Cooperation Office, Asia/Pacific Cultural Centre for UNESCO (ACCU), Agency for Cultural Affairs, Japan, and International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) from 16 October to 14 November 2002, Nara, Japan.

The objectives of the Course were to provide a participants with a series of lectures, topics of which included on introduction of Japanese architectural heritage and planning, design and construction management, and practical sessions on methods of investigation for vernacular houses and historic towns by visiting wood conservation facilities, thereby contributing to the promotion of the cultural heritage protection of each country in the region.

14 experts from 14 countries of the Asia and the Pacific region participated in the Course.

2. Proceedings

Opening

On 16 October, the inauguration ceremony was held at 9:30 at Kasuganoso with the attendance of the participants, organisers and honourable guests from National Research Institute for Cultural Properties, Nara Prefectural Government and Nara Municipal Government.

First, on behalf of the organizers Prof. KANASEKI Hiroshi, Director, ACCU Nara Office gave a heartfelt welcome address to participants, introduced the history and activities of ACCU Nara Office, and Mr. SUZUKI Norio, Councilor on Cultural Protection of the Agency for Cultural Affairs, Japan and Ms. OHNUKI Misako, Director of Culture Division of ACCU welcomed participants and wished a fruitful training course.

Then, on behalf of the supporting organization, Mr. UEHARA Atsushi, Deputy Director of the Planning Department of Nara Prefecture delivered his welcome speech.

After self-introductions by the participants and group photos, all the participants made a courtesy call on Mr. MASUI Isao, the Vice-Governor of Nara.

In the afternoon, the programme orientation by Mr. KURAKU Yoshiyuki and the Introduction of ACCU's Activities by Ms. OHNUKI Misako was held.

Presentation of Country Report in Each Country

Prior to the course, each participant was asked to submit a country report. The theme was problems and needs on cultural heritage protection activities in his/her country (mainly about architectures, buildings).

Copies were distributed to all the participants for reference. Two days (21 and 22 October) were allocated for the presentations of the respective countries. The presentation was chaired by Ms. INABA Nobuko of National Research Institute for Cultural Properties, Tokyo. Using Power-Point, OHP, and slide, participants presented on their country reports.

After each presentation, question-and-answer session was done. The following issues were mentioned.

- Problems and Laws regarding Cultural Properties Protection
- Traditional Supply of Trees
- Fire Prevention
- Conservation of Intangible Cultural Assets
- Public Relations

Lectures

During the programme, the following 14 lectures were given by specialists and researchers.

- "Introduction to the Cultural Heritage Protection Systems in Japan" by Dr. SAITO Hidetoshi (National Research Institute for Cultural Properties, Tokyo)

Dr. SAITO outlined the policies in Japan for preserving cultural properties and explained the Cultural Properties Law.

- "Introduction to Japanese Architectural Heritage and Conservation" by Dr. SAITO Hidetoshi (National Research Institute for Cultural Properties, Tokyo)

Dr. SAITO first outlined organisations and programmes for the preservation of cultural properties in Japan including historical districts, and then took up the Katsura Imperial Villa as an example of a historical complex of wooden structures, presenting the history of its buildings and gardens.

- "Theory and Practice of Conservation" by Mr. Dag MYKLEBUST (Norwegian Directorate of Cultural Heritage)

Mr. MYKELBUST addressed the trainees with the question, "Why do we conserve cultural heritage?" and led a discussion on the definition of a historical monument and the meaning of preservation activities. He also presented examples of restoration in Norway and China, and discussed value analysis and authenticity.

- "Conservation of Wooden Architectural Heritage in the Asia-Pacific Region" by Dr. Gamini WIJESURIYA (ICOMOS Expert)

Dr. WIJESURIYA offered general remarks on the conservation of wooden architectural heritage and on the conservation process. He explained conservation as an essential part of the "storytelling" of each country's distinctive principles, and spoke on the effectiveness of international rules and charters.

- "Design for the Reconstruction of Ancient Buildings in Nara Palace Site" by Mr. SHIMIZU Shigeatsu (National Research Institute for Cultural Properties, Nara)

Mr. SHIMIZU lectured on the process of reconstructing a building at the Nara Palace site, focusing on the difficulties of a basic reconstruction policy and the potentials for comprehending ancient architecture. After his lecture, the participants visited Nara Palace Site.

- "Conservation of Timber Buildings" by Mr. YAMATO Satoshi (Agency for Cultural Affairs, Japan)

Mr. YAMATO gave a lecture which connected the programmes of this week and the practice of

the following week.

- "Systems and Project Planning for Restoration of Important Cultural Properties" by Mr. FUKUMOTO Kuniharu (Japanese Association for Conservation of Architectural Monuments)
Mr. FUKUMOTO described the specific construction systems and planning processes involved in architectural restoration.

- "Overall Process of Conservation" by Mr. KIMURA Tsutomu (Japanese Association for Conservation of Architectural Monuments)
Mr. KIMURA spoke about the processes of architectural preservation and restoration, and issues pertaining to the use of restored buildings and the regulation of surrounding environments.

- "Policy and Problems regarding the Conservation of Historic Districts in Japan" by Prof. UENO Kunikazu (Nara Women's University)
Prof. UENO spoke on the look of Japanese townhouses (machinami), focusing on legal measures and problems in preservation planning, and on their characteristics and policies for their restoration.

- "An Introduction to the Conservation Science of Archaeological Relics" by Mr. KOHDZUMA Yohsei (National Research Institute for Cultural Properties, Nara)
Mr. KOHDZUMA spoke on specific conservation science treatments and restoration methods for wood, and described the scientific processes used in the reconstruction of an ancient building

- "Architectural Development of the Japanese House and Wood Species Used for Construction" by Prof. ITOH Takao (Kyoto University)
Prof. ITOH lectured on the kinds of trees used for wooden architecture in Japan, the features, and history of such architecture.

- "Dendrochronology in Japan and its Application" by Dr. MITSUTANI Takumi (National Research Institute for Cultural Properties, Nara)
Dr. MITSUTANI outlined procedures for determining the age of wood from annual rings, with examples from actual projects. After his lecture, participants visited his laboratory.

- "Protection of Traditional Techniques and Materials for Sustainable Conservation" by Mr. MURATA Kenichi (Agency for Cultural Affairs, Japan)
Mr. MURATA used the restoration of the Tegaimon gate of the Todai-ji temple as an example for exploring contemporary concepts, techniques, materials and systems for restoration. His lecture also covered other aspects of the restoration process, including clerical procedures, reports and their history, and the maintenance and inheritance of traditional techniques.

- "Cultural Heritage Preservation and Restoration"by Dr. SHIMIZU Shinichi (National Research Institute for Cultural Properties, Nara)
Dr. SHIMIZU spoke on the routine maintenance and repair of cultural properties in Japan, and on measures for mitigating natural disasters and preventing fires.

Practical Training

From 30 October to 1 November, the trainees split into three groups and rotated through three one-day workshops at the Toshodai-ji temple on 1) Restoration policy for the Bentensha Shrine on the temple grounds, 2) Sketching and measuring the roof support structure of the Main Hall, and 3) Carpentry techniques, and prints (Surihon) and rubbings (Takuhon) of tiles and structural members. The participants made measurements and sketches of the roof structure of the Toshodai-ji Main Hall, in an exercise led by Mr. YAMADA of the Cultural Properties Preservation Office, Nara Prefectural Board of Education which was designed to provide practice in identifying the key points of a structure upon initial examination. Each participant made elevation and sectional sketches in his own style. At a meeting that evening, the sketches were presented for mutual feedback and criticism. Mr. YAMADA explained that it is most important to begin by identifying the elements that are structurally critical, and then consider their relation to other elements in evaluating the building as a whole. He also noted the importance of appreciating the special characteristics of each old building element.

Each trainee devised a renovation policy for the seriously deteriorated Bentensya shrine on the Toshodai-ji temple grounds, after making careful observations and measurements and consulting with the lecturer and tutor.

To prepare to practice with prints and rubbings, the participants made pressing tools by stuffing cotton into silk cases, and heard an explanation of the variations in the size, shape and weight of roof tiles through the ages. Each participant made rubbings of plain and convex tiles, and then made prints of ceiling boards in the Main Hall, including members from the ancient, medieval and modern ages.

On 2 November, following the three days of workshops at Toshodai-ji temple, each trainee made a five-minute presentation on the Bentensya shrine restoration policy at the ACCU office, and received comments from Mr. KONDOH Mitsuo of the Japanese Association for Conservation of Architectural Monuments.

Each participant presented his renovation policy for the Bentensya shrine, after conferring with Mr. KONDHO to identify the values that were emphasized, so the presentation could be keyed to them. Among the policy proposals were using resin to prevent further erosion, using chemicals, rain-proofing, termite-proofing, and partial dismantling for repairs. Mr. KONDOH then summarized the principles for drawing up a restoration plan, as follows: Start with thorough observation to determine the condition of each of the structural members. Retain as many of the main members as possible. Partial dismantling may be needed to ascertain conditions and determine the best reinforcement method. Finally, he noted that the conservation of cultural properties involves a balance between the retention of the actual structure, and the maintenance of traditional carpentry techniques

Site Visit

On 18 October the participants examined actual old wooden buildings on visits to the Horyu-ji temple which contains the world's oldest wooden buildings, the Nara Prefectural Museum of Ethnology, and the Yakushi-ji temple where the Lecture Hall (Kodoh) is under renovation. At Horyu-ji temple, Prof. UENO Kunikazu of Nara Women's University explained about Japanese traditional

architectural styles while pointing to examples on site. At Yakushi-ji temple, they received the explanation about renovation of the Lecture Hall.

On 29 October the participants observed renovation work on the cloister at Kasuga-Taisha shrine during the morning, and in the afternoon visited the Toshodai-ji temple for an explanation of the ongoing restoration work of the Main Hall (Kondo). At Kasuga-Taisha shrine Mr. TACHI Toshihide of the Cultural Properties Preservation Office explained a current restoration site. At Toshodai-ji temple, Mr. UEDA Tetsushi of the Cultural Properties Preservation Office explained about the process of restoration and survey and the procedure of practical training.

On the afternoon of 5 November the trainees traveled to Kashihara city, where they toured old homes and townhouses in the Imai-cho Traditional Buildings Historical District. Mr. HAYASHI Seizaburo of the Councilor of Kashihara Muncipal Board of Education showed the participants around some private houses.

On the afternoon of 12 November the trainees visited the Kawarau Kogyo (Tile Works) where they learned about the history and technology of Japanese roof tiles and observed the fabrication of tiles.

Study Tour

From 6 to 9 November, the participants made a four-day study tour in Hiroshima Prefecture, Okayama Prefecture and Hyogo Prefecture. They visited the Itsukushima Shinto Shrine, the Kokuzen-ji Temple, the Hiroshima Prefectural Museum of History, the Kurashiki City Conservation Area, the Himeji Castle, Kobe Kitano Conservation Area, and the Takenaka Carpentry Tools Museum. Mr. MATSUMOTO Shuji of National Research Institute for Cultural Properties, Nara accompanied the participants and lectured in each visit place from 6 to 8 November.

Conclusions and Evaluations of the Course

On the afternoon of 13 November, discussion was held. The discussion was comprised of two sessions.

In the first part of the discussion, led by Mr. DELUMEN of the Philippines, the participants offered their impressions and suggestions on this training.

The following are their comments:

- Had a very good experience at Toshodai-ji restoration site. "Takuhon" transcription was a totally new and good experience. Enjoyed drawing a sketch of bracket complex. In "Bentensha" restoration planning, it was exciting to hear the different findings of the other participants.
- The arrangements for the study trip were well planned and systematic.
- Learned a lot of things through the lectures by well-experienced experts
- Understood that the marvelous situation of Japan comes not from money but from mind of its people.
- Had some difficulties in explaining the situation of my own country in English.
- Learned the architectural history of Asia-Pacific region, especially its historical relation among the countries.

- This was my first training in a foreign country and I had a lot of technical and cultural learning.
- Hope to have more conservation training for some other materials.
- Learned various aspects of Japan including its history, culture, society, people etc.
- Came with pragmatic expectation. Hope to have more practical training.
- Good to learn the Japanese history of preservation. "Preservation of the Historic District" is one of the greatest achievements.
- Legislation analysis was beneficial and it may be applicable. The idea of tradition-based legislation was new and useful information for me.
- Needed more hands-on practical work including wood analysis.
- Needed more practical work than lecture. what is important is how to implement the theory to protect our heritage.
- Wanted to learn more about conservation technique.
- "Kawaru Kogyo" was a very interesting place to visit
- Nara Document and ICOMOS Charter of Wood Conservation were important information. I am going to get it translated into our language and share the information with workers in restoration field.
- The respect for traditional knowledge was impressive.
- Felt difference in the scale of time. (History of well over one thousand years)
- Misunderstanding of the tradition was corrected. Had thought that Japanese tradition of periodical restoration replaces all of the material and only the style is passed on.
- Practical training was interesting. "Takuhon" is a good method of documentation.
- Would like to have materials put into diskettes.
- Conservation system is very similar to my own country. Got many ideas for the improvement of our current practice.
- Not enough free time to enjoy Japanese culture.
- Needed more practical session including timber analysis.
- Wanted to know the computer application in conservation or structure analysis.
- Learned many things about Japan such as culture, beauty, history etc.
- Museum visit, especially during study trip, was impressive.
- "Kawarau Kogyo" was an excellent place to visit.
- Wanted to meet a craftsman in woodcarving.
- All the lectures were helpful.
- Restoration work of Toshodai-ji was interesting, and practical experiences there were valuable.
- Needed more conservation technique for implementation.

In the end of the discussion, all the participants confirmed they would continue the communication among themselves and ACCU for the benefit of cultural heritage conservation in their respective countries.

In the second part, led by Mr. KURAKU of ACCU Nara Office, the participants presented their ideas on the organisation, content and timing of future trainings.

ACCU Nara Office organized training courses on "Archaeology" (2000, 2001) and "Wood Conservation" (2002). Upon the request from ACCU, participants suggested the themes for future

training programme as follows.

- Conservation Science
- Wood Science
- Disaster Prevention
  (especially Fire Prevention)

At the midterm and the end of the training course, each participant was required to fill in the questionnaire and its supplement and submit them to the secretariat. The evaluation will be utilized to improve future programmes on the training course.

Closing

On 14 November, the closing ceremony was held at 10:00 at Kasuganoso with the attendance of the participants, organisers and honourable guests from National Research Institute for Cultural Properties, Nara Prefectural Government and Nara Municipal Government.

After the closing remarks of Prof. KANASEKI Hiroshi, Director of ACCU Nara Office, Ms. OHNUKI Misako, Director of Culture Division of ACCU and Ms. OHNO Kimiyo, Head of Kansai Science City Cooperation Division of Nara Prefectural Government, each participant received a certificate for completing the training course. Lastly, on behalf of the participants, Ms. Yelena KHOROSH, Kazakhstan expressed their gratitude to the lectures and staff, and suggested that participants should utilize the experience and knowledge acquired from this training course.

II Lecturer's Paper

1. Introduction to the Cultural Heritage Protection Systems in Japan
   Dr. SAITO Hidetoshi
2. Architectural Development of the Japanese House and Wood Species Used for Construction
   Prof. ITOH Takao
3. Concepts and Philosophy of Conservation
   Mr. Dag MYKLEBUST
4. Conservation of Wooden Architectural Heritage in the Asia-Pacific Region
   Dr. Gamini WIJESURIYA

1. Introduction to the Cultural Heritage Protection Systems in Japan

Dr. SAITO Hidetoshi
Director
Japan Centre for International Cooperation in Conservation
National Research Institute for Cultural Properties, Tokyo

I. Organisations for the Protection of Cultural Properties based on the Law for the Protection of Cultural Properties

1. National Level Organisations

1.1. Bunka-cho, the Agency for Cultural Affairs

Agency for Cultural Affairs, namely Bunka-cho in Japanese, hereinafter Bunka-cho, is the national organisation authorized with the management of the Law for the Protection of Cultural Properties, hereafter the Law, and entrusted with administrative matters associated with the preservation and utilization of "cultural properties" defined in Article 2, Paragraph 1 of the Law.

Bunka-cho is in charge of (1) promotion of cultural affairs, (2) promotion of international cultural exchange, and (3) administration of matters associated with religion. Matters related with the protection and utilization of cultural properties are included in the first two categories.

For the fulfillment of the above-mentioned three charges, Bunka-cho has the three departments under Commissioner for Cultural Affairs, hereinafter the Commissioner. They are namely Secretariat to Commissioner, Department of Cultural Affairs, and Department of Cultural Properties. In addition, Bunka-cho has Japan Art Academy, Council for Cultural Affairs, and Council for Religious Juridical Persons. It also administers one special corporation and four independent administrative institutions.

Bunka-cho is an extra-ministerial bureau of the Ministry of Education, Culture, Sports, Science and Technology, hereinafter the Ministry. Commissioner is not a minister and thus does not constitute Cabinet. He is appointed by the Minister of Education, Culture, Sports, Science and Technology, hereinafter the Minister, to serve him. The first Commissioner was a well-known author, and the present Commissioner is also a well-known psychologist. However, most of the Commissioners have been appointed out of career officers of the Ministry since the former Ministry of Education.

Department of Cultural Properties is in charge of the protection and utilization of cultural properties. It approximately has 120 staffs and the four divisions: Division of Traditional Culture with the Planning Office of Cultural Properties Protection, Division of Fine Arts including the Office for Art and History Museum, Division of Monuments and Sites, and Division of Architecture and Other Structures. These divisions respectively manage the type of cultural properties and matters thereof.

To speak exactly, Division of Traditional Culture is in charge of "Intangible Cultural Properties", "Folk-Cultural Properties", and "conservation techniques for cultural properties"; Division of Fine Arts in charge of "Tangible Cultural Properties" except buildings and other structures, and in charge of art museums and historical museums; Division of Monuments and Sites in charge of "kinen-butst" and "buried cultural properties"; Division of Architecture and Other Structures in charge of buildings and other structure with in "Tangible Cultural Properties" and "Groups of Historic Buildings".

In addition to regular administrative staff such as director-general of department, director of division and section chief, the Councilor on Cultural Properties is set in Department of Cultural Properties whose position is equivalent to that of director-general. Moreover, chief senior specialists for cultural properties, senior specialists for cultural properties, specialists for cultural properties, who are regarded as researchers, are assigned to each division.

Research staff in the Department of Cultural Properties is composed of various specialist in such fields as history, art history, history of architecture, urban conservation, archaeology, landscape gardening, history of performing arts, folklore, plants, animals, etc. About 60 specialists are working in the four divisions. They are approximately a half of the total staff. No other ministries or agencies in the central government have such a high rate of researches among staff. It means that special knowledge is highly required in the administration of cultural properties protection.

Although "language" is not considered as a cultural property under the Law, "language" would be included herein in a broad sense. At Bunka-cho, Division of Japanese Language in the Department of Cultural Affairs is in charge of Japanese as the national language and "Ainu-go" as a language of a minority group Ainu in Japan. The Council for Cultural Affairs has a subdivision on the national language. In addition, there is the National Institutes for Japanese Language as an independent administrative institution which conducts deliberations and researches on Japanese. The main purpose of these organisations, however, is improvement and pervasion of Japanese and as well as its education for foreigners. Preservation of research on language as a cultural property is out of range.

Although "religion" is not considered as a cultural property in the Law, "religion" would be included herein in a broad sense. At Bunka-cho, Division of Religious Affairs in the Department of Cultural Affairs with the Office of Religious Juridical Persons and the Council for Religious Juridical Persons are in charge for religion-related matters. The main purpose of these organisations, however, is establishment and dissolution of a religious juridical persons as well as collection of religion -related information. Protection or promotion of religion as a cultural property is out of range.

1.2 The Council for Cultural Affairs

Article 84 of the Law prescribes that the Minister shall in advance consult with the Council for Cultural Affairs about designating, selecting, and registering cultural properties or about dissolving and annulling thereof. It further prescribes that the Commissioner shall in advance consult with the Council for Cultural Affairs about necessary measures for the management of designated cultural properties and the integrity of their surroundings and also about giving permission for alteration of the existing state of them, etc.

The Council is composed of the members appointed by the Minister. The four subdivisions are set in the Council: those on national language, on copyright, on cultural properties and on selection of cultural awardees. The Subdivision on Cultural Properties manages investigation and deliberation of important matters relating with the preservation and utilization of cultural properties and deliberation of questions consulted by the Minister and the Commissioner under Article 84 of the Law.

The Subdivision on Cultural Properties is composed of persons with an administration background, experts in history, art history, architectural history, and other persons engaged in academic or

artistic career.

The five special committees are installed under the Subdivision on Cultural Properties. Each special committee is assigned as follows.

Expert Investigating Committee 1:
Matters related with "Tangible Cultural Properties" except buildings and other structures
Expert Investigating Committee 2:
Matters related with buildings and other structures with in "Tangible Cultural Properties" and "Groups of Historic Buildings".
Expert Investigating Committee 3:
Matters related with "kinen-butst" and "buried cultural properties"
Expert Investigating Committee 4:
Matters related with "Intangible Cultural Properties" and "conservation techniques for cultural properties"
Expert Investigating Committee 5:
Matters related with "Folklore-Cultural Properties"

Each investigating committee is composed of 10 to 15 members. Eligible for selection as a committee are researchers and experts in history, art history, history of architecture, urban conservation, archaeology, landscape gardening, history of performing arts, folklore, plants, animals, etc., relating with a special field of each committee. Most of them belong to universities.

1.3 Independent Administrative Institution, The National Research Institute for Cultural Properties

An independent administrative institution has been set to certainly perform and accomplish projects and affairs for the public interest which does not on the contrary require a direct engagement of the government. It can minimize governmental involvement and control, and it can flexibly and freely act itself. At the same time, however, the information on contents and results of its activities should always keep open to the public.

National Research Institute for Cultural Properties, National Museum, and National Museum of Art, closely associated with the protective administration of cultural properties, were once government organisations. They became independent administrative institutions in April 2001, separated from the central government institutions as a result of a measure to slim down the governmental structure. Lands, facilities, and possessions such as cultural properties that had been managed by these organisations were transferred from the government to each independent administrative institution in the form of the government investment. As to funds needed to manage these institutions, they rely upon subsidy from the government, but they can respectively finance themselves if they find other resources available.

The National Research Institute for Cultural Properties as an independent administrative institution, hereinafter NRICP, was established to promote the preservation and utilization of cultural properties, by means of investigation and research relating with cultural properties, collecting information and resource materials of them and training for experts. The total number of its staff is approximately

130.

NRICP consists of the two offices under the headquarters: the National Research Institute for Cultural Properties in Tokyo, hereinafter the NRICP Tokyo, and the National Research Institute for Cultural Properties in Nara, hereinafter the NRICP Nara.

The NRICP Tokyo is engaged in research related with Japanese and Eastern art as well as performing arts, scientific research related with the preservation of cultural properties, research related with the development of restoration materials and techniques, and international cooperation related with investigation, preservation and restoration of cultural properties. Researchers at the NRICP Tokyo are experts in history, art history, history of architecture, history of performing arts, ethnology, archaeology, chemistry, geology, biology and other fields.

The NRICP Nara is engaged in researches on historic sites, buildings and historic materials, excavation and investigation of ancient palace sites located in Nara Prefecture as well as the exhibition of materials thereof. It also gives advice and guidance concerning excavation, investigation and management of historic sites throughout the nation, and sponsors training for specialists in excavation and investigation. Because of those activities, the majority of researchers at the NRICP Nara are experts in archaeology;others are experts in history, art history, landscape gardening, chemistry and other fields.

1.4 Independent Administrative Institution, The National Museum

The National Museum as an independent administrative institution was established in order to foster the preservation and utilization of cultural properties by means of setting up museums, collecting and storing "Tangible Cultural Properties", displaying them to the public, investigation and research on "Tangible Cultural Properties" collected by and stored in these museums, and conducting projects of their education and pervasion to the public. The total number of staff is approximately 220.

Under the headquarters of the National Museum as an independent administrative institution exists the three museums: namely, Tokyo National Museum, Kyoto National Museum and Nara National Museum. In addition, a plan setting up a new museum in Fukuoka Prefecture is now under way.

Tokyo National Museum, Kyoto National Museum, and Nara National Museum respectively collects, stores and exhibits "Tangible Cultural Properties" of Japan and the Orient region, "Tangible Cultural Properties" related with the culture of Kyoto from the Heian Period to the Edo Period, and "Tangible Cultural Properties" related with Buddhism. Cultural Properties Conservation Studio is placed at Kyoto National Museum in order to repair, conserve, and replicate "National Treasures" and "Important cultural properties".

In addition to these museums installed under the National Museum as an independent administrative institution, the Ministry manages the National Museum of Ethnology in Osaka and the National Museum of History and Folklore in Chiba. They are considered as the organisations for research and education and thus are not included in the administration for the protection of cultural properties.

1.5 Independent Administrative Institution, The National Museum of Art

The National Museum of Art as an independent administrative institution was established in order to promote arts and other forms, by means of setting up museums of art, collecting and storing works and materials related with art, displaying them to the public, investigation and research on works of art and other materials collected and stored in these museums, conducting projects of education and pervasion to the public. The total number of staff is approximately 120.

Although the preservation or utilization of cultural properties is not the direct purpose of the National Museum of Art as it is that of NRICP and the National Museum, it plays a role in the protective activity of cultural properties through collecting and storing works of art.

The four museums are under the headquarters of the National Museum of Art: namely, Tokyo National Museum of Modern Art, Kyoto National Museum of Modern Art, National Museum of Western Art in Tokyo and National Museum of Art in Osaka.

Tokyo National Museum of Modern Art, Kyoto National Museum of Art, National Museum of Western Art, National Museum of Art respectively collects, stores and exhibits the works of modern art, motion picture films and materials related with motion picture, the works of modern art with focus on ceramics and textiles, the works of modern European art, and the works that show the relationship between Japanese art and arts of the world.

1.6 Special Corporation, The Japan Arts Council

The Japan Arts Council is a special corporation established by a special law for the purpose of providing support for activities conducted by artists and groups of artists, preservation and promotion of traditional performing arts, and promotion and pervasion of contemporary theatrical art. Management of this corporation relies upon funds invested by the government, donated from the private sector, and annual subsidy from the government.

Activities of the Japan Arts Council are mainly categorized into the following two.

1) Support related to activities conducted by artists and others;
   a. Support is given to artists, groups of artists, cultural groups and organisations that have cultural facilities in order to assist them with funds necessary for such activities as creation, performance, and exhibition.
   b. Support is given to activities related with the preservation and utilization of cultural properties in order to promote regional culture.
   c. Support is given to training of successors of traditional applied art skills and "Conservation Techniques for cultural property".
2) Presentation of performances and training of human resources conducted by the Japan Arts Council itself
   a. To establish theatres, to exhibit traditional performing arts, and to play performances of contemporary theatrical art;
   b. To train successors of traditional performing arts, and to provide training for performers of contemporary theatrical art and others persons thereof;
   c. To investigate, research, and collect materials on traditional performing arts and contemporary theatrical art, and to open them to the public utilization

The five facilities are under the Japan Arts Council: National Theatre-Main Theatre and Performing Arts Archives in Tokyo, National Noh Theatre in Tokyo, National Bunraku Theatre in Osaka, and New National Theatre in Tokyo.

The Main Theatre and Performing Arts Archives presents to the public traditional performing arts (gagaku, bunraku, kabuki, Japanese music, Japanese dance, folk performing arts, public entertainment etc.). It also trains successors, collects, investigates, and researches materials related with traditional performing arts. The National Noh Theatre presents noh to the public and trains successors, collects, investigates, and researches materials thereof. The National Bunraku Theatre presents bunraku to the public, trains successors, collects, investigates, and researches materials thereof. The New National Theatre presents to the public contemporary theatrical arts such as opera, ballet, contemporary dance, and contemporary drama.

In addition to these theatres, establishment of a new theatre in Okinawa is being planned for the purpose of preservation and promotion of traditional performing arts of Okinawa.

2 Local Level Organisations and their Activities

2.1 Boards of Education in Local Governments

The administration of protecting cultural properties executed by local governments have two phases. In order to protect cultural properties of high value within their jurisdiction, excluding those designated or registered by the national government, local governments may establish their own regulations to designate, preserve, and utilize these cultural properties, based on the rule prescribed by the Law.

The other is to play a role in the administration of protecting cultural properties conducted by the national government. In other words, it is to conduct works related with investigation, management, repair, exhibition and others of cultural properties designated by the national government and "buried cultural properties", those entrusted by the Commissioner based on rules prescribed by the Law.

Boards of education in local governments are in charge of such administration. Many boards of education have divisions or sections exclusively engaged in the administration of protecting cultural properties.

Today, all the 47 prefectures and approximately 3,100 municipalities, occupying about 96% of the municipalities in the country, have their own regulations for the protection of cultural properties, and the number of many cultural properties has been designated. The Council for the protection of cultural properties consisting of experts in fields related with cultural properties is established attached to the board of education in a local government which made a regulation for the protection of cultural properties.

Municipalities intending to preserve "Groups of Historic Buildings" which are located within their jurisdiction, shall establish a regulation in accordance with the Law, and may determine the preservation districts and the preservation plans for them. Fifty-five municipalities, as of August 2001, have made such regulations. In many municipalities, boards of education are in charge of preservation districts for groups of historic buildings, while some municipalities assign these works to the departments or divisions such as charging of planning, tourism, construction or urban management.

2.2 Organisations for the Investigation and Preservation of "Buried Cultural Properties"

The economic growth since the 1960s led to the nationwide infrastructure such as construction of highways and super-express railroads, and large-scale development projects by private enterprises. Naturally they necessitated a large number of excavations and investigations of "buried cultural properties" throughout the country. Then, with the revision of the Law in 1975, the responsibility of excavations and investigations of "buried cultural properties" accompanying development was mainly put to local governments.

In order to meet such responsibility, local governments has increased the number of expert staff engaged in the excavation of and investigation into "buried cultural properties" and in recording them. More than 7,000 staffs are working today in this field in Japan. Organisations, engaged in excavation of and investigation into "buried cultural properties," vary from an organisation directly affiliated with a board of education to a public organisation or foundation separate from boards of education.

2.3 Advisors for the Protection of Cultural Properties

According to the Law, boards of education in prefectures may have advisors for the protection of cultural properties working part-time. Advisors oversee cultural properties within their region, give guidance and advice to owners of cultural properties and other related persons, and promote a community to understand the importance of protecting cultural properties. Today approximately 1,400 advisors are working in each prefecture.

Approximately 920 municipalities have a system equivalent to such advisors for the protection of cultural properties, although it is not prescribed in the Law. About 5,300 staffs are engaged in such a task.

2.4 Museums, Art Museums, History and Folklore Museums

There are many museums, art museums, history and folklore museums established by prefectures and municipalities. These facilities generally store and exhibit cultural properties closely associated with their respective regions such as archaeological objects excavated from local sites, tools and equipments related with daily lives of the people and products of their regions, and works by artists from their regions.

In addition to these ordinary facilities for the exhibition and pervasion of cultural properties, some facilities have such functions as excavation, investigation and research, especially in areas where important sites are located. There are also open-air museums exhibiting local vernacular houses or collections of vernacular houses brought from different parts of Japan.

II Operation System for the Protection of Cultural Properties in accordance with the Law for the Protection of Cultural Properties

1 Protection of "Tangible Cultural Properties"

1.1 "National Treasures" and "Important Cultural Properties"

1.1.1 Procedures for Designation

The Minister has authority to designate "Tangible Cultural Properties" as "National Treasures" and "Important Cultural Properties" (Article 27). The Minister shall in advance consult with the Council for Cultural Affairs on designation (Article 84).

Matters brought to the Council by the Minister for consultation are committed to the Subdivision on Cultural Properties. They are then deliberated by Expert Investigating Committee 1 or 2, which actually investigates and deliberates these matters.

Drafts of deliberation for designations are prepared by respective divisions in charge (Division of Architecture and Other Structures, or Division of Fine Arts). Preparation of materials related with those to be selected as designated objects as well as explanations provided to the Subdivision on Cultural Properties and the Expert Committee are conducted mainly by research staff of a division in charge.

In case of buildings and other structures, deliberation by the Expert Committee as to whether designation of an object is appropriate or not is based on the investigation of documents thereof, including drawings and photographs, and on explanations provided by staff in charge. Wherever necessary, members of the Expert Committee may conduct an on-site investigation. In case of fine and applied art objects, deliberation is normally based on documents thereof, explanations provided by staff in charge, and investigation of actual objects.

The result of deliberation by the Committee is reported to the Subdivision on Cultural Properties and then to the Council for Cultural Affairs which gives a final report to the Minister. Designation of cases considered appropriate is announced in the Official Gazette and notified to the owner thereof (Article 28). Certificates of designation are also issued to the owner.

To designate cultural properties as "National Treasures" or "Important Cultural Properties", an agreement by the owner or occupants thereof, is not required by the law, but the owner is consulted and their agreement is obtained prior to designation because the owner's cooperationa is necessary to maintain and manage designated cultural properties.

Annulment of designation of "National Treasures" or "Important Cultural Properties" is made in the same procedure as that of designation.

1.1.2 Investigation for Designation and Criteria for Designation

In selecting objects for designation as "Important Cultural properties", including "National Treasures" unless otherwise noted hereafter, a medium-range policy for designation specified a type and period is made, upon which investigation is based. Selection is done either through a well-planned research project based on a result of such investigation or by considering a particular case.

A well-planned research project is conducted either directly by Bunka-cho with cooperation of local governments and/or related academic associations or by prefectures as a government-subsidized project, such as investigation of vernacular houses and modern structures of civil-engineering.

Designation in a particular case is made either when a new import value of an object is found through academic researches or investigations, or when an important object is found, or when an emergency measure is taken to protect an object which is in danger from a possible demolition etc.

Designation of objects as "Important Cultural Properties" shall follow the criterion of designation prescribed in each field. In case of buildings and other structures, for example, they should be representative of each period or type and regarded as (1) outstanding from a viewpoint of design, (2) outstanding from a viewpoint of technique, (3) valuable from a viewpoint of history, (4) valuable for resources of academic study, or (5) distinguished from a viewpoint of a particular school or region.

In case of paintings and sculptures, they should be (1) excellent and valuable works from a viewpoint of the history of Japanese culture: (2) specially significant from a viewpoint of the history of Japanese paintings and sculpture: (3) remarkably peculiar from a viewpoint of theme, quality, form, technique, and so on: (4) a typical example of a remarkable creator, school, or local-style: (5) imported objects with specially significant from a viewpoint of the history of Japanese. The similar criterion of designation is prescribed for applied art works and historic materials.

These criteria of designation merely provide outlines for the historic, artistic and scientific values of objects to be designated so that a wide range of interpretation is possible. It would be appropriate because detailed criteria of designation would be just an obstacle to flexible administration of protection for cultural properties.

1.1.3 Protection of "Important Cultural Properties"

As measures to protect "Important Cultural properties" the Law prescribes (1) management responsibility of the owner, (2) restriction on alterations of its status quo and on activities that may affect its preservation, (3) prohibition of exportation, (4) integrity of surroundings, (5) restrictions on an onerous assignment or transfer.

The owner of "Important Cultural Properties" is responsible for their appropriate management in accordance with orders of the Commissioner (Act 31, etc). An appropriate management means such measures as conducting necessary maintenance and repair, and providing preventive measures against damage or loss caused by disasters such as fire or earthquakes, theft, and vandalism.

In a special case where an owner lives abroad or is highly aged, or in any other special case, the owner may appoint another person as a responsible manager. If an owner is unknown or if he is clearly found ineligible to be a manager, the Commissioner may designate a local government or another juridical person as a management body and entrust it with a necessary management

The cardinal principal of protection under the Law is to maintain "Important Cultural Properties" itself and its preservative surroundings as they are. Therefore, any activity that might alter the status

quo and might affect its preservation shall be done under the permission of the Commissioner (Article 43). (A part of the authority of the Commissioner is entrusted to boards of education in local governments.) Granting the permission of the Commissioner shall be based on deliberations by the Council for Cultural Affairs (Article 84) and follow the same procedures as designation.

Alteration of the status quo means change of the form of "Important Cultural Properties" or replacement of materials. Permission is not necessary for maintenance measures, or emergency measures taken at the time of disaster. Thus, disassembling buildings or sculptures for repair and replacing some deteriorated parts are not considered as alteration of the status quo. Notification shall be made to the Commissioner in case of repair (Article 43, paragraph 2). Relocating a building or other structures is considered as alteration of the status quo. Relocating a fine/applied art object is not an alteration of the status quo, but it should be notified to the Commissioner (Article 34).

Activities that may affect preservation mean such activities as to somehow change surroundings but not to alter an "Important Cultural Property" itself. If the affection is very little, the permission is not necessary. Activities that may affect the preservation of a building mean such activities as to dig a land and construct in an adjoining land, to construct a temporary building, or to install a facility connected to such building. In case of fine/applied art objects, such activities are to expose an object to a strong light for a long time to be photographed, to take molds for replicas, or to make rubbings etc.

Exporting an "Important Cultural Property" is forbidden (Article 44). However, it is possible in such cases as to temporarily export it for overseas exhibitions with a special permission of the Commissioner for international cultural exchanges and other reasons.

To preserve an "Important Cultural Property", it is also important to properly maintain its surroundings and landscape. To this end, the Commissioner may, when it is considered necessary, restrict or prohibit certain activities within a specified region and order installation of necessary facilities (Article 45). But this article has never been applied.

Assignment or transfer of ownership of "Important Cultural Properties" shall be notified to the Commissioner, but the permission is not required (Article 32). In case of an onerous assignment or transfer, however, an owner shall first file an offer of sale to the Government (Article 46). This article is to ensure an opportunity for the Government to get priority in acquiring "Important Cultural Properties". Many fine/applied art objects designated as "Important Cultural Properties" have been bought and owned by the Government in accordance with this system or with a similar system that allows the Government to buy objects, the sales of which were offered.

Anyone who has exported "Important Cultural Properties" without permission of the Commissioner, damaged, destroyed, discarded or concealed it, failed to follow procedures prescribed by the Law, failed to follow orders given by the Commissioner, or in any other way breached the Law shall be sentenced or fined (Articles 106～11). The heaviest penalty of all is imposed in case of export without permission. This indicates that the greatest emphasis is laid on to prevent "Important Cultural Properties" from flowing overseas among all protection measures.

1.1.4 Subsidy and Preferential Tax Measures

While the Law sets various regulations to protect "Important Cultural Properties," it prescribes some subsidies by the Government. For instance, subsidy is granted to the owner in order to support him with expenses required for repair or required for a proper management such as providing a facility to protect it against fire and other facilities to preserve it (Article 35). Subsidy is also granted to a local government or other juridical persons as a management body in order to cover a part of such expenses as required for the purchase of "Important Cultural properties" including a designated land constituting a part of the entire value (Article 46 bis.). These subsidizing measures are taken with the budget of Bunka-cho.

In addition to these subsidizing measures by Bunka-cho, various preferential tax measures are taken for an owner et al. as follows.

Buildings and lands designated as "Important Cultural Properties" are exempted from fixed property tax, special tax for land possession, city planning and zoning tax, and land tax.

In case an individual obtains income as a result of assignment or transfer of "Important Cultural Properties" to the Government or a local government, he will be exempted from income tax. In case an owner or a juridical person obtains income as a result of assignment or transfer of land designated as "Important Cultural Properties" to the Government or a local government, he will be given a special reduction from income tax, or a special case of pecuniary loss inclusion up to ¥20,000,000.

Inheritance tax imposed on a vernacular house, which is designated as "Important Cultural Properties" and inhabited by its owner, is calculated at the rate of 40% of the original appraised value. As a result, the amount of inheritance tax is greatly reduced.

Salaries for staff in charge of the protection of cultural properties and expenses of the council for cultural properties of local governments are included in the computation base for regular tax money allocated to local governments. In addition, special tax money allocate to local governments in accordance with the number of "Important Cultural Properties" within the area of their jurisdiction.

1.1.5 Utilization of "Important Cultural Properties"

The opening of "Important Cultural Properties" to the public is considered as one of the basic means to utilize them, providing an opportunity to enjoy their historic, artistic and scientific values through sufficiently appreciating them.

The opening of "Important Cultural Properties" to the public is to be done, in principle, by its owner or management body, hereinafter an owner et al. (Article 47, paragraph 2). The Commissioner may advise or order an owner et al. to open them to the public (Article 51). In order to promote an owner et al. to open them to the public, the Government may bear all or a part of expenses thereof (Article 51).

The Commissioner, on the other hand, may advise or order an owner et al. to display "Important Cultural Properties" at an exhibition sponsored by the Commissioner himself (Article 48).

With a view to promoting their opening to the public by parties other than the owners, such as museums in a region, Bunka-cho has established standards and guidelines for an appropriate opening, introduced a system of "Approved Facilities for Opening" to simplify necessary procedures, and conducted a promotion project for opening.

For the further promotion of the opening to the public of fine/applied art objects, "Law Concerning Public Display of Art at Museums" (1988) prescribes a system of "Registered Works of Art". By drawing a contract between an owner and a museum on the opening to the public of works of art designated as "Important Cultural Properties" or of works of art of an equal value thereto, possessed by an individual or a juridical person, such works of art may be regarded as "Registered Works of Art". In case of "Registered Works of Art", an owner has the priority to be given the merit of a special measure to make a payment in kind for the inheritance tax.

With regard to buildings and other structures designated as "Important Cultural Properties", in addition to their opening to the public at an open-air museum, the opening of the interior of them owned by an individual or a local government is also greatly promoted. In case of buildings and other structures, their active utilization, in addition to their opening, will increase their value as assets. Utilization will also provide good conditions in terms of maintenance and management. Furthermore, the public will also have an opportunity to enjoy their traditional and artistic spaces.

For the re-use of historic buildings, partial improvement, additional construction, or installation of facilities and equipments to meet new purposes may be necessary. Alterations of the status quo in case of re-use are actively promoted, in harmonizing with the preservation of value as a cultural property. Many buildings designated as "Important Cultural Properties" are being re-used as museums or archives. In other cases some of them are re-used as members clubs, restaurants, or coffee shops etc. Another case is that a theater of the Edo period was revived as a theater again.

2. Architectural Development of the Japanese House and Wood Species Used for Construction

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1. Jomon Period (Pit Dwellings)

During the Jomon period, between 8000 and 300 BCE, the people of the Japanese archipelago hunted and fished with tools of stone or bone, and gathered wild millet and other plants. They lived in groups on sites near rivers, in pit dwellings.

The pit dwelling had an earthen floor dug approximately 30 centimeters below ground level, and covered with straw or leaves where people sat or lay on the floor. It was round with a diameter of five to ten meters, or rectangular, and set up as a single undivided space with a hearth at the centre. The post holes at pit dwelling sites indicate that the roof was supported by four posts. The roof consisted of pieces of wood laid in a radial pattern with grass spread over them, with an opening to serve as a chimney.

2. Yayoi Period (Raised-floor Houses)

The Yayoi period, from the 3rd century BCE to the 5th century CE, saw the arrival of rice cultivation and the development of raised-floor houses as a means for storing rice where mice or other animals could not enter. The floor was made of boards. During the Asuka period (6th and 7th centuries), wood was used for about two thirds of the floor, with the remainder being earthen.

3. Nara Period (Large Palace and Temple Buildings)

Excavations at the Nara Palace site in Nara have so far uncovered more than 500 base sections of structural posts. In random samples of post bases from this and other sites dating from the Nara period (8th century), the following tree species have been identified:

Nara Palace site (114 posts): Japanese cypress (64), umbrella pine (45), fir (2), hemlock spruce (2), Japanese red or black pine (1)

Fujiwara Palace site including temples and shrines (7 posts): Japanese cypress (2), umbrella pine (4), evergreen oak (1)

Dazaifu site (6 posts): Umbrella pine (6)

Mikogaya site, administrative buildings (70 posts): Japanese cypress (52), Chinese black pine (12), yew (1), chinquapin (5)

As the figures show, the lumber used for the Nara Palace buildings was about 60% Japanese cypress and 40% umbrella pine. Only six samples were available from Dazaifu, and they are all umbrella pine. Japanese cypress was the wood most commonly used for posts in excavated large buildings, and umbrella pine was also commonly used.

4. Heian Period

The shinden and shoin styles are the two major styles of traditional Japanese domestic architecture. The shinden style was perfected in the mansions of the aristocracy during the Heian period (9th through 12th centuries).

The Shinden Style

The basis for this style was the grid pattern layout of the capital city of Heiankyo, with lots enclosed by small streets and measuring about 120 meters square, or in some cases two or four times that size.

The shinden (the main hall; literally, the "sleeping building") of the mansion was constructed in the centre of the lot facing south, with attached pavilions and annexes standing to the east, west and north. Adjoining the shinden on the south was a garden, with a pond to its south. In contrast to the houses of previous times in which a single large room served for cooking, eating and sleeping, in the shinden-style mansions of the Heian period the living quarters stand independent of the other rooms. On the boarded floors of the shinden, rush mats were positioned for sitting, with two-section shelves (nikaidana or nikaizushi) standing nearby for storing personal effects. A shinden-style building was covered only by the roof, with no ceiling. As the interior had no built-in partitions, folding screens were placed for privacy.

In the medieval era, ceilings and various space partitions were added.

Samurai mansions of the medieval era were built in the shuden style, with the shuden ("main building") floor covered entirely with tatami mats. There was also an oshiita alcove, a forerunner of the tokonoma, for the display of a hanging scroll or some flowers. On the front side of the building was a tsuke-shoin or a low desk beneath a light-admitting window, and staggered shelving.

Outstanding examples of buildings in the shinden style include the Tosanjo Palace, the Shishinden Hall and Seiryoden Residence at the Kyoto Imperial Palace, the Main Hall of Ninna-ji temple, the Enman'in at Onjo-ji (Miidera) temple, Rokuon-ji temple (Golden Pavilion), Itsukushima Shrine, and Shugakuin Imperial Villa.

5. Muromachi Period to early Edo Period

The Shoin Style

The shinden style evolved into the samurai mansion, which was the prototype for the contemporary Japanese house. The new style began in the Muromachi period (14th to 16th centuries) with the shuden-style homes constructed for families of the warrior class, and reached its final form in the 17th century, during the Edo period.

After the end of 12th century, when power passed from the imperial court to the warrior families, the Kamakura shogunate was established. During the Kamakura period (1192-1333) most of the samurai were of rural origin, and they lived in simple, country-style homes. But after Ashikaga Takauji established the Muromachi shogunate in Kyoto in 1338, the samurai began to adopt a more courtly lifestyle including shinden-style buildings. It became the custom for the shogun and other samurai to take religious vows and live as monks upon retirement, and gradually the design of the temple residence, with built-in display alcove, shelves and desk, was adopted. Thus was born the shuden style, which was the first stage of the shoin ("study") style.

The features of the Silver Pavilion and Togudo teahouse at Ginkaku-ji in Kyoto, built in the late 15th century, show that the progression from the shinden to the shoin style included the following changes.

1. From round posts to square posts
2. Space between posts reduced gradually from about 3 meters to about 2 meters
3. From one large room to several small rooms
4. From boarded floors to tatami-mat floors
5. From hinged wooden shutters and doors to double-sliding doors, including louvered doors and latticed paper screens (shoji)
6. From plain rooms to rooms with built-in features

From the 17th century the samurai exercised supreme political power, and the samurai mansion came to include a receiving room where the master met with groups of his retainers.

Accordingly the decorative alcove, desk and window alcove, and staggered shelving of the shuden style became a raised entryway platform called the chodaigamae along the front wall where groups of samurai could sit in full dignity. This "decorated tatami room" was a feature of the shoin-style samurai residence from the 17th century onward. Earlier, another distinctive feature of the shuden and shoin styles had evolved, the shikidai vestibule with a boarded floor at a slightly lower level than the tatami room. This is the origin of the contemporary genkan vestibule.

Examples of buildings in the shoin style:

The desk alcove and staggered shelving were first used in the Higashiyamadono (the precursor of Ginkaku-ji) and the Togudo teahouse at Jisho-ji (the formal name of Ginkaku-ji).

Other outstanding examples include the Kojoin Guest Hall and Kangakuin at Onjo-ji (Miidera) temple, the Omote Shoin in the Samboin at Daigoji temple, the Shiro Shoin and Kuro Shoin at the Nishi Hongan-ji temple, the Kuro Shoin and Shiro Shoin in the secondary compound of Nijo Castle, the shoin group at the Katsura Detached Palace consisting of the Old Shoin, Middle Shoin and New Goten, and the Manshuin temple.

The Sukiya Style

Influenced by teahouse architecture, the sukiya style is a breezy variant of the shoin style.

The shoin style and the teahouse (for the tea ceremony) were both perfected in the Momoyama period in the latter half of the 16th century, but they are fundamentally very contrasting architectural forms. In the sukiya style, the posts are partially or entirely covered with their natural bark, while the alcove, shelving and desk elements are simplified and the wooden elements are slender and delicate compared to the classic shoin style.

Outstanding examples of the sukiya style include the Old Shoin, Middle Shoin and New Goten at the Katsura Detached Palace, and the Kuro Shoin at the Nishi Honganji temple.

Wood species used in the Katsura Detached Palace buildings:

Old Shoin: Japanese red or black pine (26 members), Japanese white pine (1), togasawara (2), Japanese cedar (5), fir (3), Japanese cypress (2), hemlock spruce (2), chestnut (1)

Middle Shoin: Japanese red or black pine (12members), Japanese cedar (7), fir (5), Japanese cypress (1), hemlock spruce (1)

New Goten: Japanese red or black pine (27 members), Japanese cedar (12), fir species (13), Japanese cypress (7), hemlock spruce (4), umbrella pine (2), Japanese horse chestnut (1), sawara false cypress (1), hiba arborvitae (2)

Wood Species Used in Extant Ancient Temples and Shrines

Reports of microscopic analysis of wood include the following identifications:

Horyu-ji Temple: Original Inner Gate-Japanese cypress, 2 members; Main Hall-Japanese cypress, 2; Nishimuro-Japanese cypress, 5; umbrella pine, 2; Five-Storied Pagoda-Japanese cypress, 2; Bell Tower-Japanese cypress, 9; Japanese red or black pine, 2; Great East Gate-Japanese cedar, 1; Japanese red or black pine, 1; Kofuzo Storehouse-Japanese cypress, 8; Japanese cedar, 7; Japanese red pine, 5.

Banna-ji Temple: Miscanthus, Japanese cypress, Japanese cedar, 1 each

Jizo Hall of Shofuku-ji Temple: Japanese cypress, 11

Fukusai-ji Temple: Japanese cypress, 2; pine, 1

Three-Storied Pagoda at Zenzan-ji Temple: Japanese cypress, 2; fir, 1

Kojin Shrine: Japanese cypress, 1

Kuzu Hachiman Shrine: Japanese cypress, 1

Sofuku-ji Temple: Broad-leaf Japanese cedar, 3; Japanese cedar, 1; togasawara (Pseudotsuga japonica), 1; Japanese cypress,1

In temple and shrine buildings other than those listed above, according to various records (cited in "The trees that held up Horyu-ji"), species used in order of frequency were: Japanese cypress, 54; pine, 31; zelkova, 14; chestnut, 6; Japanese cedar, 6; hemlock spruce, 4; hiba arborvitae, 3; fir, 1.

6. Edo Period

During the Edo period (1603-1867), the wooden floor of the oshiita alcove was changed to tatami, and this feature became known as the tokonoma. Also, a raised area of the floor was added to serve as a seating area for people with higher status.

→warrior tatami room

The homes of common people differed according to their status, but generally tended to be either a simplified version of the shoin style known as the minka, or the machiya townhouse which is derived from a Heian-period design as described below.

7. Machiya and Minka

The shinden and shoin-style homes were for the aristocracy and the warrior class. What kind of houses did common people dwell in during the Heian period?

The capital cities of Heijokyo and Heiankyo were both laid out in a grid pattern creating regular blocks of land. Each block, or cho, was usually 120 meters square. A block held numerous machiya (townhouses) adjacent to each other in rows. At the centre of each block was an open area of common ground containing wells, toilets, gardens, etc.

Outside the cities, freestanding houses of farmers and merchants are called minka. There are many different designs corresponding to local geography and climate and different lifestyles. Minka can be broadly classified into these five types:

a) Gassho-zukuri (steep, high gabled roof) in areas with heavy snowfall
b) Magariya (L-shaped) in northern Honshu, especially Iwate Prefecture
c) Suzume-odori ("sparrow-dance" with large ornamental ridge) in Nagano Prefecture
d) Yamatomune (thatch and tile combination roofs) in the Yamato valley in Nara and Osaka Prefectures

e) Kudo-zukuri (separate roofs on adjoining wings) in northern Kyushu

Wood Species Used in Minka

From eight minka that were transported from various locations in Japan to the Open Air Museum of Old Japanese Farm Houses, sample chips were taken from sills, lintels, cross members, posts, floors, beams, girders, joists, groundsills, roofs and walls. The wood species from each location were identified, as follows.

1. Nanbu (former Fujiwara residence, late 18th century): Mostly Japanese red or black pine, Japanese cedar, Japanese cypress, chestnut, and poplar were heavily used.
2. Akiyama (former Yamada residence, late 18th century): Mainly beech, with some Japanese cypress, castor arabia, Japanese Judas and white oak.
3. Shirakawa (former Oi residence, late 18th century): Mostly Japanese red or black pine and Japanese cypress.
4. Tsuruga (former Yamashita residence, early 19th century): Much Japanese red or black pine, chestnut and zelkova, and some Japanese cedar and Japanese walnut.
5. Nose (former Izumi residence, early 17th century): Much Japanese red or black pine and chestnut, with some Japanese cypress and magnolia.
6. Totsugawa (former Maruta residence, mid-18th century): Much Japanese cedar and Japanese cypress, with some Japanese red or black pine.
7. Shodoshima (village kabuki stage, mid-19th century): Japanese cedar and Japanese red or black pine.
8. Shiibara (former Shiibara residence, latter half 18th century): Much Japanese red or black pine and Japanese cedar, some zelkova and Japanese cypress, and a little Japanese walnut.
9. Overall, the species that were commonly used in all eight structures, listed in order of the total number of members, were: Japanese red or black pine (170), Japanese cedar (125), Japanese cypress (92), chestnut (76) and zelkova (38). The other species included beech (15), Japanese walnut (11), poplar (10), white oak (7), magnolia (7), Japanese Judas (5), Japanese horse chestnut (5), and Japanese linden (5).

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3. Concepts and Philosophy of Conservation

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Part I:
Discussion of basic concepts on monuments and history.
The philosophy of Early European Conservation.
Conservation problems based on Norwegian World Heritage sites.
Introduction of a system for value analysis.
Presentation of a case study-the Norwegian stave church of Heddal
(medieval wood structure)

Part II:
Introduction to and discussion of charters and other standardsetting documents:

- The Venice Charter (1965)
- The Convention concerning the Protection of the World Cultural and Natural Heritage (1972)
- The Burra charter (Australia 1979, revised 1999)
- The Nara document on Authenticity (1994).

The followings are points of his lecture:

Basic Discussion
Why do we conserve cultural heritage?

- To have our national identity and hand them down to the future generations.
- It is tangible access to our history.
- To know our past.
- It is intrinsic part of current society. We can know our origin through the evidence of the past as a real history, not a story.

Then, what is history?
There are two different concepts of history.

- What has happened in the past. (HISTORIA RES GAESTA)
- Narration about what has happened in the past. (HISTORIA RERUM GESTARUM)

It is impossible to know what has happened in the past exactly since all we have are relics and remains. By the manner we treat the items of conservation, we tell the story about history. We need to consider how we conserve, preserve and restore cultural heritage based on the concept that there is no single truth.

We will become more professional conservationists, while asking to ourselves why we conserve cultural heritage and what kind of story we want to tell about the monument.

We cannot preserve everything. Accordingly, we have to make judgement on the items to be preserved. Such judgement is not possible without proper knowledge about the significance of each cultural heritage. Knowledge and information should be required to protect the site as well. Visitors can appreciate cultural heritage and become cooperative for the protection only when they understand

the significance of the site.

Where does the significance of historical monument come from? Buildings or other physical structures seem to be monuments, but real monument is in the head of a person who interprets the value of structure. Perception, interpretation and definition by human beings come first. Without those activities, we cannot achieve the preservation of cultural heritage. Conservation is not about physical structure but about human needs. Through the conservation work, only one of the possible stories can be told. In that sense, conservation is a subjective activity. Sometimes we have to make compromise of equally important different values.

Cultural heritage management is the management of change since it is inevitable to have changes in society. Without changes, society will die. All we can do is to try to keep the loss of cultural value as little as possible under the given conditions. Conservation should be done for human beings. Without people who interpret the meaning, such conservation is useless.

Case Study

1. Preservation of the Stave Church in Norway

It was the first restoration fulfilled in Norway carried out by a Danish architect. Immediately after the completion of restoration in 1851, it was criticized a lot because of the alterations added to the church. In the later period, it was re-restored and recovered the original design.

To protect the structure, certain restriction of visitors may be necessary, such as the limitation on number of visitors or time allowed for a visitor. However, it would be difficult if it is the case of religious pilgrimage to a living monument.

2. Norway-Russia Cooperation in Restoration Work

Restoration architects and skilled carpenters worked together, and all decision were made on the site through discussion. The building was jacked up and the deteriorated logs were replaced. This method required less material change and shorter time compared to dismantling the structure. The restoration work contributed for the society development to activate the region or community through the construction of a visitor center where local people may utilize.

3. Eco-Museum in China

The project is to preserve cultural heritage in four villages of different minority groups in situ by establishing eco-museums in a southern province. The museum consists of a documentation centre and some repaired traditional buildings in living culture of people there. The documentation centre keeps records including the recording of oral history of the village, exhibits traditional clothes and works as a craft shop. Through the participation in the project, local people revitalized their traditional in tangible properties such as traditional costume or performance.

4. Conservation of Wooden Architectural Heritage in the Asia-Pacific Region

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Timber relates to our lives in many ways. For the purpose of this discussion we limit our interest to the timber from historic structures and refers 'to all types of buildings or constructions wholly or partially in timber that have cultural significance or that are parts of an historic area'. Wooden architectural heritage can be understood from a) complete buildings built in timber b) timber used as structural elements c) timber used only in roof d) timber used as various architectural elements such as doors. Our interest extends to other built structures such as bridges but excludes furniture and those discovered as artefacts and waterlogged wood. In this paper, I intend to outline the challenges faced by the professionals in conservation of our wooden heritage in the Asia-Pacific region.

1.0 Wooden architecture.

Wood is perhaps the oldest material used in building construction. The use of wood and wood workers (carpenters) in building construction is referred to in many ancient chronicles and inscriptions. There were carpenters specially trained for conservation of monuments and were settled in special villages. However, it is very difficult to trace timber buildings older than 12th century that are surviving at present due to their perishable nature compared with other building materials like brick or stone. Asia Pacific region is particularly rich in wooden architecture and varies from a simple wayside resting place to massive royal or religious buildings. Among them too, religious buildings are the most dominating structures.

1.1 Different building types

A variety of building types can be found in wooden architecture. Wattle and daub construction utilises wood as the major structural element for the superstructure and the roof. Some of the primitive village houses are built completely out of timber. Buildings on pillars are a very popular form of construction in this part of the world. In this case the entire structure is built on stone or wooden columns of varying heights or even on stone boulders. There are also the wooden buildings of which the roof is resting on wooden columns. Many of the large buildings are combinations of wood and masonry. Roofs of all these types are of timber. Wooden bridges also come under a special building category. Timber elements in all these buildings are used as structural members while some are intricately carved or painted and assigned various traditional meanings.

1.2 Different functions:

Wooden architectural examples vary from primitive form of dwelling places to sophisticated palaces and religious buildings. Buddhist temples, Muslim mosques and Christian churches are among the major religious buildings. A religious building known as Marae which belong to the indigenous community of Maori, is also a fine example of wooden architecture.

While national authorities of different countries have listed many historic timber buildings in their

inventories, some of the best examples are already inscribed in the world heritage list. Some of the examples are:

- Wooden church of Urnes (the "stavkirke"), built during the 12th and 13th centuries is a fine example of wooden architecture form Norway.
- The Maramures wooden churches of Romania.
- Wooden buildings in the Scared city of Kandy, Sri Lanka including the temple of the sacred tooth relic of the Buddha.
- Numerous examples of Buddhist temples in Kyoto and Nara
- Examples of palaces and temples from Korea
- Examples of temples and palaces from China

There are even wooden villages already inscribed in the World Heritage List.

- Gammelstad, at the head of the Gulf of Bothnia, is the best-preserved example of a unique kind of town found in northern Scandinavia--the church town. It has 424 wooden houses crowded around the early 15th-century stone church.
- Bryggen, the old wharf of Bergen, is a reminder of the town's importance as part of the Hanseatic League's trading empire from the 14th to the mid-16th century. Many fires, the last in 1955, have ravaged the beautiful wooden houses of Bryggen but its main structure has been preserved. Many of the remaining 58 buildings are now used as artists' studios. Residential buildings also have a variety of types.

1.3 Different types of wood

Different varieties of timber have been used in different buildings and for different purposes. Starting from the hardest wood to the soft types have been used in different countries. The uses of varieties are based on the availability, their suitability to the purpose and the ability to work on the type of decorations required. For instance, Na trees are always used for temple building in Sri Lanka. The tree itself is a sacred tree in addition to the fact that it is very hard, with little room for insects and has a long life. You may be aware of similar uses in your countries.

1.4 Diverse technology

Most interesting feature of wooden architecture is the use of traditional skills and a variety of technologies. Combination of wood with other buildings materials has been executed very skilfully. The interlocking systems employed are still harder to understand in many cases. Use of wooden pins and metal nails also contribute to the skills displayed. As a result one can observe a variety of high calibre buildings in wooden architectural heritage.

1.5 Aesthetics/decorations associated

Wooden architecture has produced some of the finest examples of buildings and building complexes, which are well planned with very high aesthetic value. Aesthetics are not added only through well proportionate buildings but also by adding highly decorative woodcarvings such as the windows of Kathmandu and by colours with different designs. Such decorations have been executed to reflect the function of the buildings.

1.6 Traditions.

Wooden architecture is surrounded by numerous traditional and religious myths, beliefs, skills and

practices of different countries. I cannot think of a better example than a Marae from New Zealand of which form, roof, every rafter, every columns have a meaning related to their religious beliefs. The overall form represents an ancestor where his head is located in front. His backbone and ribs are represented through beautifully painted ridge beam and the rafters respectively. Intricately carved columns represent different important ancestors. Similarly, there are numerous other myths and beliefs practiced by different countries related to timber buildings and construction work. There are scientific truths behind some of the myths and beliefs. In many occasions, timber elements are carved with traditional motifs and assigned with traditional meanings. There are practices of planting trees in the vicinity dwellings and temples, and rituals governing the cutting and seasoning of trees for timber.

2.0 Conservation:

Conservation is a process involving the preparation of inventories, documentation, and legal protection to various types of interventions, regular monitoring and maintenance. Principles, procedures and techniques are required for every step of this process. A number of handbooks, charters and principles are already available for the use of conserving timber buildings. In particular your special attention is drawn to the ICOMOS International Wood Committee "Principles for the Preservation of Historic Timber Buildings" which I have annexed to this paper. It is important to study these international principles and develop standards for local uses by different countries and translate them into their own languages. Different countries use different names for such localised standards as standing orders, standard operating procedures, regulations and national charters. The above document will help to develop such standards where they are not available and to improve those existing in different countries.

It is important to draw your particular attention to a document born in this very city called 'Nara Document on Authenticity'. It highlights and in fact replaces several important principles that existed and had greater influence on conservation practiced in the Asia-Pacific region. In particular, the concepts of 'minimum intervention' and 'material authenticity' were two principles developed in the West, which had their bearings on our conservation practices. Restoration of timber buildings, which were part of the living religious heritage of this part of the world, had to confront both these concepts. As our veteran conservationist Prof. ITOH stated, minimum intervention was not in our vocabulary as we went on restoring timber buildings completely. We undervalued material authenticity, as there were spiritual and cultural values that were more important than materials in our historic building. The above document adopted by the international community in Nara has changed those notions by emphasising the need to take the cultural context into account when conserving buildings. This has provided us with much needed breathing space for the interpretation of our conservation practices in this region.

2.1 Decay/destruction

Timber is perhaps the most vulnerable material in historic buildings that we have to deal with. Decay of materials is caused by humidity fluctuations, light, fungal, insect, wear and tear, fire, dampness and water. Insect attacks mainly beetles are another cause. Termites perhaps are one of the most dangerous causes of deterioration in some countries. Components used over large spans are subjected to varying stresses and strains. Most of the timber buildings in the Asia-Pacific region being living religious places, activities such as lighting lamps cause damages to timber including the risk of fire. Terrorist attack is the latest threat to our heritage. Conservation interventions are required

against all these causes of decay and destruction.

3.0 Challenges:

Asia-Pacific can qualify to be the leading region rich with wooden architectural heritage. Those buildings are marvellous creations of the past and are museums of art sculptures, architecture and technology. They reflect the highly developed building traditions with very high aesthetic values and the spiritual and cultural aspirations of the society.

Conservation of this heritage is perhaps the greatest challenge faced by the professionals in this region. We are glad and extremely grateful to Japanese authorities for the initiative and leading role -played in the protection of our wooden architectural heritage. Japan is not only capable but also has developed the required skills to conserve wooden buildings to its highest international standards.

However, unless we all as responsible individuals act collectively we would not be able to conserve our heritage, which we can be proud of. I have identified 10 challenges:

1. **Identification:** Preparation of inventories and classifications of very rich and diverse wooden architectural heritage is perhaps our first challenge and the most difficult one. However this also should be the top priority for many countries. Many of the 'big' heritage buildings have been already identified but can we all be happy that we have a sufficient knowledge of our wooden architectural heritage? What about the samples of our vernacular heritage? At least have we identified representative sample of our wooden heritage? 80% of the Asia being rural, it is our duty to identify a variety of buildings that reflects our social, economic and religious history. This to me is one of the most difficult challenges today in the Asia-Pacific region.
2. **Legal protection:** Once identified it is necessary to protect them legally in order to provide opportunities for conservation. Do we have sufficient legislation in all our countries for the protection of a good cross section of our wooden architectural heritage? Legislative protection of the environment around wooden buildings is also equally important.
3. **Understanding:** Documentation of identified buildings is a vital step for many reasons:to make conservation decisions, understand history and technology. Even if we fail to conserve all the buildings, documentation will be useful for the study of history and technology. There was no sufficient documentation available for restoration of the Temple of the Tooth Relic in Sri Lanka when the terrorists bombed it. Important point to recognise is that it is only by physical examination that we are able to understand all the technologies employed and causes of decay.
4. **National level principles of conservation:** Principles are required for restoration, dismantling and reuse of materials, introduction of new elements, protection of old pieces. ICOMOS documents and Nara document on authenticity and other relevant local charters would be useful for all the countries to formulate their own principles.
5. **Treatment:** Treatment method for structural, non-structural, decorative and painted wooden surfaces need to be understood and tested where necessary and agreed locally. Use of preservatives also needs testing and agreements at local levels.
6. **Recognise the living nature:** We need to recognise the living religious functions of heritage buildings before conservation decisions are made. It is necessary to provide for rituals and other religious practices while protecting heritage buildings. There are also many other timber

buildings that are in use where our interventions need to be sympathetic with those functions.

7. **Environmental control:** Environmental control is one of the most important aspects of conservation of any building but particularly of wooden buildings. Control of trees, water seepages and water flows around timber buildings form an important strategy of conserving timber buildings. These should include actions against fire threats and hazards. Control of various threats to structure and aesthetics of buildings need consideration.
8. **Future timber needs:** One of the major challenges in conserving timber buildings is the non -availability of timber required for conservation. Growing forests for this purpose such as the one proposed in ICOMOS and that is being practiced in Japan would be lessons to others.
9. **Traditions:** Every attempt should be made to record and understand traditions surrounding the wooden buildings. We also need to recognise existing skills in timberwork. We need to take actions to sustain traditions, craftsmen for which we can learn important lessons from Japan.
10. **Monitoring:** Setting up of monitoring programmes to detect fire, availability of moisture, leakages and structural failures are essential challenges we have in this region.

Annexe 1.
ICOMOS International Wood Committee:

Principles for the Preservation of Historic Timber Buildings

The aim of this document is to define basic and universally applicable principles and practices for the protection and preservation of historic timber structures with due respect to their cultural significance. Historic timber structures refer here to all types of buildings or constructions wholly or partially in timber that have cultural significance or that are parts of an historic area.

For the purpose of the preservation of such structures, the Principles:

- recognise the importance of timber structures from all periods as part of the cultural heritage of the world;
- take into account the great diversity of historic timber structures;
- take into account the various species and qualities of wood used to build them;
- recognise the vulnerability of structures wholly or partially in timber due to material decay and degradation in varying environmental and climatic conditions, caused by humidity fluctuations, light, fungal and insect attacks, wear and tear, fire and other disasters;
- recognise the increasing scarcity of historic timber structures due to vulnerability, misuse and the loss of skills and knowledge of traditional design and construction technology;
- take into account the great variety of actions and treatments required for the preservation and conservation of these heritage resources;
- note the Venice Charter, the Burra Charter and related UNESCO and ICOMOS doctrine, and seek to apply these general principles to the protection and preservation of historic timber structures;

and make the following recommendations:

INSPECTION, RECORDING AND DOCUMENTATION

1. The condition of the structure and its components should be carefully recorded before any intervention, as well as all materials used in treatments, in accordance with Article 16 of the Venice Charter and the ICOMOS Principles for the Recording of Monuments, Groups of Buildings and Sites. All pertinent documentation, including characteristic samples of redundant materials or members removed from the structure, and information about relevant traditional skills and technologies, should be collected, catalogued, securely stored and made accessible as appropriate. The documentation should also include the specific reasons given for choice of materials and methods in the preservation work.

2. A thorough and accurate diagnosis of the condition and the causes of decay and structural failure of the timber structure should precede any intervention. The diagnosis should be based on documentary evidence, physical inspection and analysis, and, if necessary, measurements of physical conditions and non-destructive testing methods. This should not prevent necessary minor interventions and emergency measures.

MONITORING AND MAINTENANCE

3. A coherent strategy of regular monitoring and maintenance is crucial for the protection of historic timber structures and their cultural significance.

INTERVENTIONS

4. The primary aim of preservation and conservation is to maintain the historical authenticity and integrity of the cultural heritage. Each intervention should therefore be based on proper studies and assessments. Problems should be solved according to relevant conditions and needs with due respect for the aesthetic and historical values, and the physical integrity of the historic structure or site.

5. Any proposed intervention should for preference:

a. follow traditional means;

b. be reversible, if technically possible;

or

c. at least not prejudice or impede future preservation work whenever this may become necessary; and

d. not hinder the possibility of later access to evidence incorporated in the structure.

6. The minimum intervention in the fabric of an historic timber structure is an ideal. In certain circumstances, minimum intervention can mean that their preservation and conservation may require the complete or partial dismantling and subsequent reassembly in order to allow for the repair of timber structures.

7. In the case of interventions, the historic structure should be considered as a whole; all material, including structural members, in-fill panels, weather-boarding, roofs, floors, doors and windows, etc., should be given equal attention. In principle, as much as possible of the existing material should be retained. The protection should also include surface finishes such as plaster, paint, coating, wall -paper, etc. If it is necessary to renew or replace surface finishes, the original materials, techniques and textures should be duplicated as far as possible.

8. The aim of restoration is to conserve the historic structure and its loadbearing function and to reveal its cultural values by improving the legibility of its historical integrity, its earlier state and design within the limits of existing historic material evidence, as indicated in articles 9-13 of the Venice Charter. Removed members and other components of the historic structure should be catalogued, and characteristic samples kept in permanent storage as part of the documentation.

REPAIR AND REPLACEMENT

9. In the repair of an historic structure, replacement timber can be used with due respect to relevant historical and aesthetical values, and where it is an appropriate response to the need to replace decayed or damaged members or their parts, or to the requirements of restoration.

New members or parts of members should be made of the same species of wood with the same, or, if appropriate, with better, grading as in the members being replaced. Where possible, this should also include similar natural characteristics. The moisture content and other physical characteristics of the replacement timber should be compatible with the existing structure.

Craftsmanship and construction technology, including the use of dressing tools or machinery, should, where possible, correspond with those used originally. Nails and other secondary materials should, where appropriate, duplicate the originals.

If a part of a member is replaced, traditional woodwork joints should, if appropriate and compatible with structural requirements, be used to splice the new and the existing part.

10. It should be accepted that new members or parts of members will be distinguishable from the existing ones. To copy the natural decay or deformation of the replaced members or parts is not desirable. Appropriate traditional or well-tested modern methods may be used to match the colouring of the old and the new with due regard that this will not harm or degrade the surface of the wooden member.

11. New members or parts of members should be discretely marked, by carving, by marks burnt into the wood or by other methods, so that they can be identified later.

HISTORIC FOREST RESERVES

12. The establishment and protection of forest or woodland reserves where appropriate timber can be obtained for the preservation and repair of historic timber structures should be encouraged.

Institutions responsible for the preservation and conservation of historic structures and sites should establish or encourage the establishment of stores of timber appropriate for such work.

CONTEMPORARY MATERIALS AND TECHNOLOGIES

13. Contemporary materials, such as epoxy resins, and techniques, such as structural steel reinforcement, should be chosen and used with the greatest caution, and only in cases where the durability and structural behaviour of the materials and construction techniques have been satisfactorily proven over a sufficiently long period of time. Utilities, such as heating, and fire detection and prevention systems, should be installed with due recognition of the historic and aesthetic significance of the structure or site.

14. The use of chemical preservatives should be carefully controlled and monitored, and should be used only where there is an assured benefit, where public and environmental safety will not be affected and where the likelihood of success over the long term is significant.

EDUCATION AND TRAINING

15. Regeneration of values related to the cultural significance of historic timber structures through educational programmes is an essential requisite of a sustainable preservation and development policy. The establishment and further development of training programmes on the protection, preservation and conservation of historic timber structures are encouraged. Such training should be based on a comprehensive strategy integrated within the needs of sustainable production and consumption, and include programmes at the local, national, regional and international levels. The programmes should address all relevant professions and trades involved in such work, and, in particular, architects, conservators, engineers, craftspersons and site managers.

III Participants' Country Reports

Bhutan

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Introduction to Bhutan's Architectural Heritage Conservation

1 Introduction

Bhutan has for a long time been regarded as mysterious and elusive by most countries. The area of Bhutan is approximately 46,500 square km and populated with less than 700,000 people, so it can be called a small and under 2 populated country compared to big neighbouring countries like India and China. However, the country has a variety of people-groups ranging from yak herders of the North to orange growers in the South, as well as a variation in attitude of 150 m to more than 7,300 m. More than 60% of the land is under forest cover and the forest consists of various species of trees.

2 Introduction to Monuments of Bhutan

Bhutan has an immense number of historical monuments with over two thousands Lhakhangs and monasteries scattered about the country. There is no single village without a Lhakhang, while; each district in Bhutan has around a hundred Lkhakhangs on an average. Furthermore, we have numerous farmhouses and villages of very important cultural heritage value.

The majority of the historical monuments date back to the 17th and 18th century, but many have their roots as far back as the 7th and 8th century.

Our historical monuments have great architectural, aesthetic, historic, documentary, archeological, economic, social and spiritual significance. However, the first impact of our historical monuments is always emotional, for it forms an integral part of our cultural identify and continuity.

Our historical and cultural monuments are treasure houses with rich, unique and ancient paintings, sculptures, carvings, manuscripts, wood, and metal works which all form an integral part of our cultural heritage.

The Lhakhang -- or monastery -- is also normally the focal point of religious and cultural activities in the Bhutanese village and are centres for learning about our religion and culture. Our historical and cultural monuments also provide valuable architectural, artistic, historical and social inspiration not only to the people of Bhutan but also to other people from around the world.

The restoration, preservation and rehabilitation of the historical and cultural monuments in our country is an important National Policy and finds great emphasis in many Government documents.

The historical structures are classified by identity value, political value, educational value, relative artistic value or technical value, rarity value, social value, contemporary socio-economic value, cultural value, functional value, etc.

3 Cultural Monuments and their Significance in Bhutan

Cultural monuments in Bhutan are scattered all over the country and range from the grand and dominating Dzongs (fortresses that were used as regional strongholds of religious and administrative nature) to the mystical Lhakhangs (temples) and Goenpas (monasteries) sometimes found perched

high up on secluded mountains and the simple roadside chorten (stupa).

Cultural monuments have over the centuries helped to shape the rich history of Bhutan and are a strong reflection of the ancient culture of the people and the unique and beautiful natural conditions of the Himalayan landscape. They are concrete expressions that substantiate the ancient philosophy of Mahayana Buddhism that still forms the central focus of the lives of the people and is interwoven into every aspect of their daily lives from birth to death and beyond, and the unique and beautiful natural conditions of the Himalayan landscape.

In their local communities, religious monuments play important roles by promoting not only cultural sustainability but also ecological sustainability.

Cultural Sustainability

Cultural monuments are usually not only the centre for cultural and religious affairs but also sometimes the social and economic nucleus of the community. Many of the religious rituals and festivals of religious monuments are supported and attended by the whole community, thus strengthening the communal spirit.

Many villages were born around and are still sustained under the nucleus of a cultural monument. Even today some ancient villages under harsh natural conditions survive solely due to the presence of a religious monument, while the neighbouring villages with no central cultural monument have been totally abandoned.

The construction, expansion and renovation of monuments over the years also contributes significantly to the promotion of the use of indigenous technologies which includes carving in wood and metal, painting, sculpturing and writing of prayer books.

A majority of the monuments are rich sources of the finest examples of ancient and unique paintings, sculptures, holy manuscripts and metal carvings. The monument is also sometimes used for religious classes. The monks are the main caretakers of the monuments and usually organise the various local religious and cultural festivals along with the community.

Ecological sustainability

Indigenous architecture in Bhutan is characterized by the use of natural and local materials such as earth, bamboo, local timber and stone. The use of local materials of fairly low environmental impact and the use of mainly manual energy in the construction and operation of these monuments have always made the local architecture ecologically-sound and sustainable.

4 Architecture and Material Used

The monuments are built in various shapes and sizes in accordance with functional values of religious beliefs and regional variation. The orientation of buildings is done according to the spiritual significance and, in rare case, the buildings are built in consideration of sun and wind direction because of climatic conditions while some sites are landscaped.

For the construction, locally available materials are used.

The Dzongs are built according to a common plan with heavy load-bearing stone masonry in mud mortar, gently tapering from foundations to the roof. The size of the windows differs with the level of floor, as narrow windows are generally used in less important rooms and, the higher the floor level, the bigger size windows and decorations we can find. Usually the habitable rooms are found on the upper level of the building where the outer wall consists of timber and mud that allows more leeway in construction. The vertical architectural order in sizes and decorations serves the purpose of both defense and aesthetics. The entire timber roof in Bhutan is thatched. The core of the Dzongs is always the UTSE, a tower like structure in the centre of the courtyard. It serves as the main

temple or space with multistoried structures, which shows similarities with a fortified tower.

Most of the monasteries are constructed with rammed mud walls and timber. The shape of the timbers and walls may vary, but the significance of doors, windows, decorations and purpose are all similar with the Dzongs. The temples or monasteries are similar in size. The monasteries are usually isolated on the hillock and village sides, overlooking the community.

Traditionally not only the monuments but also the farmhouses are constructed and renovated in the same way and with the same materials as the houses in the villages.

For the restoration and construction in Bhutan, local handmade tools are used even today.

5 Problems with Structures

It is of great concern to the Government that many of the ancient and valuable monuments are dismantled and destroyed instead of being conserved or restored, thus causing whole treasure houses of our cultural heritage to be lost forever.

The structures are mainly built with timber, mud and stone in traditional style. On the wooden parts are found intricate traditional carvings.

Natural calamities

It is the general concern throughout the world that historic buildings are being completely destroyed by natural disasters. However, in Bhutan, the destruction of the buildings and the affect of earthquakes, humidity and wind are minor concerns. Bhutan so far has not experienced any destruction by natural calamities such as flood, storm, avalanches, etc.

Rainwater

The roofs of the structures are with wooden trusses and shingle covering. Due to the large number of historic buildings, proper maintenance cannot be done and, moreover, some monasteries are quite far away from the community where the materials cannot be reached easily and thereby proper maintenance cannot be undertaken. The rainwater seeps inside and damages the timber structures, fine carvings, and old traditional mural paintings.

Insects

The main structures of these building are in timber and the insects bore holes or eat up and destroy the wood component and sometimes the whole structure of the building.

Location of the historic structures

Most of the buildings are constructed on rock with one side of the building attached to rock which is treated as one side wall. The rain water above the buildings come into the buildings and causes wetness under the foundation by capillary action coming from the wall to the timber flooring and gradually to the other structures, causing damage to the structure of the monuments.

6 Conservation of Cultural Monuments in Bhutan

Conservation, restoration and use of cultural monuments form an important part of the policies of the Royal Government of Bhutan. The conservation and continual use of the monuments would strengthen the important roles that the monuments play in the local communities and would also increase the protection of the ancient art and artifacts contained in them.

However, while raising the question of the monuments, one has to keep in mind that none of these monuments in Bhutan are static and never have been. They form part of the ancient living culture of Bhutan that has been and still is continually but slowly ever evolving. Totally freezing the state of the monuments for conservation may conflict with the continual process of evolvement of living cultural traditions. Preservation of the monuments is necessary but one needs to ask how

uncompromising this preservation should be.

The most important quality of our traditional buildings is the reflection of our spiritualism and harmony with life and nature; it is not just related to a set structure. In Bhutan, the ancient Buddhist doctrine of importance and change of all things in existence and the natural acceptance of decay forms a confrontation with the international approach of conservation.

Buildings are the material representations of spiritual ideology and beliefs and thus also go through the cycle or wheel of "Samsara". They are thus constructed, extended, demolished and reconstructed in response to the changing needs of the people and environment.

Traditionally, the local community has always looked after and managed their community temples and dzongs. To be able to contribute towards the maintenance of Lhakhang or Goenpa was considered to be a merit towards better rebirth. Bhutan has never had a tradition of documentation of any material culture as seen from the international point. Traditionally, all buildings were built with no drawings or written measurements on paper and, therefore, no original documentation of any monuments exist. Due to lack of concrete documentation, the demolition of a building meant that the original architectural concept was lost forever.

The traditional attitude of the community towards a local monument was normally not to preserve the original building and its contents intact but whenever it was possible to further the architectural and aesthetic process. If a painting on a wall peeled off or faded away, a new painting was done over it. If the roof decayed a new one was constructed. If the village prospered, new and more expensive extensions, decorations and paintings were carried out over the old ones.

Today, the local communities are slowly realizing the value of the old paintings and artifacts, and their attitudes are changing. This is especially in view of the fact that the newer paintings and artifacts are generally not as good as the ones done by the original artists.

Traditionally, every monument was a cultural achievement for the entire community, therefore under the Royal Government, the local community is still encouraged to contribute actively to the process of maintenance and conservation of their local monuments. Use of local materials and local carpenters, crafts and artists are encouraged very strongly.

Financing for conservation was traditionally done by donations from the local community and is still done by the communities whenever it is possible. Where the local community cannot manage on their own, the National Commission for Cultural Affairs of Bhutan helps them.

The National Commission for Cultural Affairs is the main body that formulates laws and regulations for the protection of Cultural properties. The importance of the involvement and the interest of the local community are recognized as extremely critical.

Shared responsibility between all Bhutanese people for the protection and continual use of our cultural monuments in Bhutan is the main aspiration as only through this shared interest will our rich cultural heritage values retain their true significance and sprit.

China

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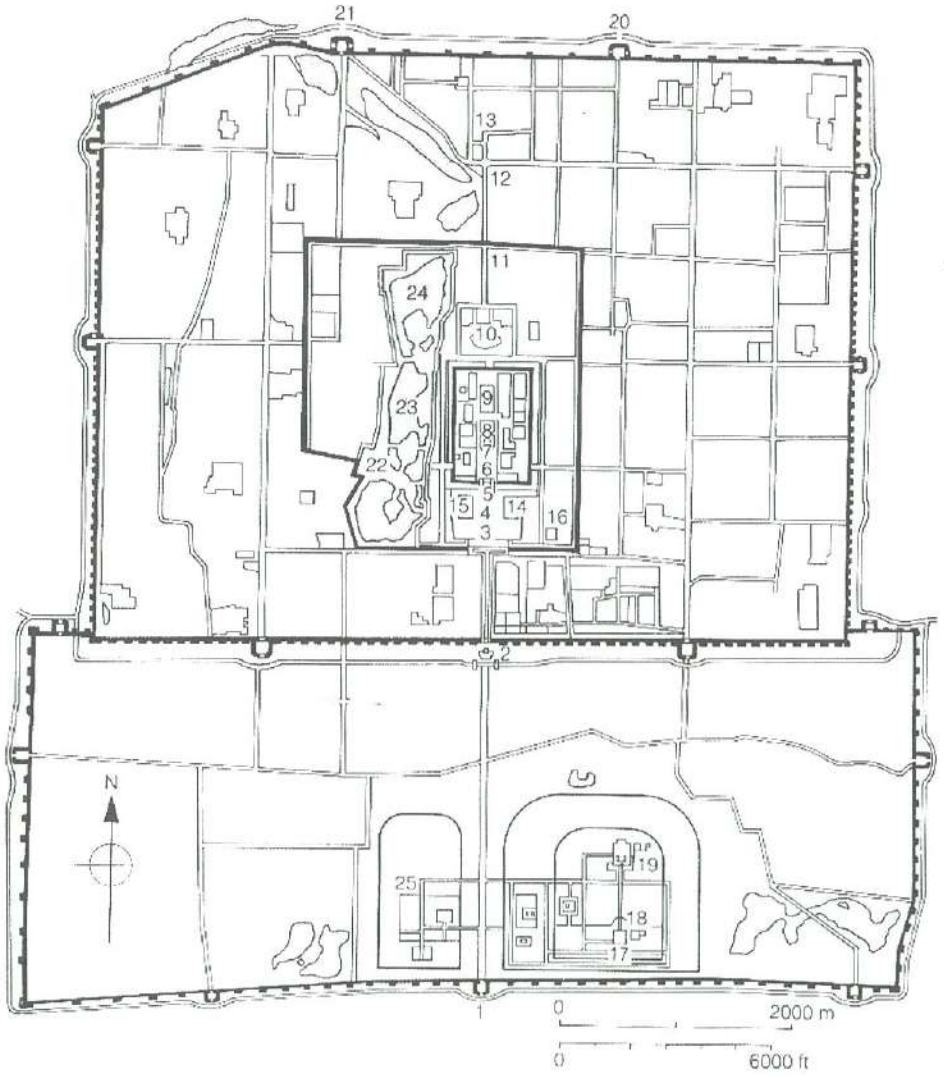
The Protection of Ancient Architecture and Relic in Beijing



Beijing under the Ming and Qing Dynasties

1 Yongdingmen Gate; 2. Qianmen Gate; 3. Tian'anmen Gate; 4. Duanmen Gate; 5. Wumen Gate; 6. Jinshui Bridge; 7. Taihemen Gate; 8. Taihedian Hall; 9. Inner palace hall; 10. Jingshan Hill; 11. Di'anmen Gate; 12. Gulou; 13. Zhonglou; 14. Taimiao Temple; 15. Shejitan; 16. Huangshicheng; 17. Huanqiu; 18. Huangqiongyu; 19. Qiniandian; 20. Andingmen Gate; 21. Deshengmen Gate; 22. Nanhai; 23. Zhonghai; 24. Beihai; 25. Xiannongtan.

Beijing has been the capital of the People's Republic of China for 53 years, but over China's long history, it has been the ancient capital of several dynasties. Beijing first served as the capital city for the Yan Kingdom over 3,000 years ago. Beijing was named in the Ming Dynasty and that name has been use up to the present. Therefore, without question, there are a lot of cultural properties in

Beijing, especially architecture and buildings. Based on data, there are 5 world cultural heritage sites, 60 protected national important cultural properties, 234 protected municipal cultural properties, 501 protected prefectural cultural properties, 237 protected prefectural temporary cultural properties and 2521 protected registered cultural properties, for a total of 3558 properties. There are so many cultural properties that they are not only the pride of Beijing and China, but also the wealth of humanity. We should research, study and protect them more and more. For a long time, persons engaged in restoration and preservation have tried their best to protect them. Moreover, they have made great achievements.

With social conditions and human behavior changing rapidly, cultural properties are facing many technical, man-made and social problems. These problems have been brought to light by experts, scholars, leaders and citizens.

This thesis focuses on the problems of protecting structures and buildings. In addition, it summarizes these problems in retrospect of new policy and my experience in the protection of ancient structures and buildings.

1. The difficulty of Protection

1.1 Lack of Understanding

The tragic destruction of cultural heritage in Beijing and China began on a large scale in the 1950s. Many ancient structures and buildings that should have been carefully protected were regarded as uncultured. A broad ring roads were built, but at a cost of knocking down the third and fourth rings of the city wall, which aroused strong opposition among experts and professionals as well as ordinary people.

Moreover, the problem of understanding the cultural importance of these properties has yet to be resolved as still many important cultural properties are being demolished and consumed, such as Dagaoxuan Palace, the south-west corner at Jingshan Park, and several islands in Kunming Lake of the Summer Palace.

1.2 The Lack of Legal Protection

The countries of the world came to an agreement on the problem of protecting our cultural heritage by drawing up several charters. Nevertheless, it is a pity that Beijing has missed out on the important opportunities presented by advantageous international circumstances and a series of detailed laws and codes that were passed in China.

Before 1999, there was The Project of 25 Historic Cultural Protective Zones for Protecting and Managing the Old City of Beijing. However, as an expert on the Literary History Committee pointed out:, "the cultural properties of Beijing were destroyed because special laws and codes had not been drawn up. To our delight, Beijing will end this lack of laws and codes on protecting cultural properties soon.

1.3 East-to-Decay Materials

Compared with stone buildings of Greece and Rome, the ancient structures built in brick and wood in China decay easily and are difficult to protect. So, the ancient structures in Beijing basically belong to the Ming and Qing Dynasties.

1.4 Population Density

The population density of the ancient city area in Beijing is 300-400 persons per hectare, which

is high compared with London and Paris. It is the most crowded area in the entire world. Thus, this changes Siheyuan, which fully reflects the historic view of Beijing, into Dazayuan, which is chaos.

1.5 Lack of Funds

Money is another major obstacle for urban planners in their efforts to preserve the protected zones. It does not hold that a strong economy guarantees cultural property protection. In fact, there is not enough money to protect cultural properties because China is developing. Similarly, Beijing lacks the funds. To resolve the problem, the government in Beijing decided to raise the budget by 330,000,000 yuan so that the ancient structures and buildings in Beijing will be restored before the Olympic Game open in 2008. Compared to the daunting task of relocating residents and maintaining old buildings, the money is just a drop in the bucket.

The protection of the cultural properties is complex and hard. And, the difficulty does not arise only from the several aforementioned aspects. For instance, often historical information is hard to find and research.

I ran into the same problem when I was designing the Emperor Temple of Past Dynasties in Beijing, which is a national important cultural property. For example, there was little architectural information on the torii and the rebuilt stove when the project entered the third phase. I found only several photographs taken in 1953 at our institute, the China National Institute of Cultural Property, where the most abundant ancient architectural information is found.

In addition, the skill level of the personnel engaged in restoration and preservation should be improved and the number of persons should be increased. For instance, there are only several dozen designers in the 4 designing units of cultural properties in Beijing and only a few have a high level of knowledge.

2. Methods of Protection

2.1 Cultural Properties

It is important that personnel identify and declare cultural properties besides the current 5 world cultural heritage sites and many cultural properties. At the same time, we should map out culture heritage districts and define the range of cultural relic protection. Instead of simply repairing an individual structure or building as is done conventionally, we should combine cultural property protection with the renovation and improvement of surroundings, and we should do preserve scenery alongside area protection.

2.2 Historic and Cultural Protection Zones

A historic and cultural protection zone is an area, a group of structures or a small town or a village where there are traditional scenes or local characteristics of national importance. Based on a protection plan, the dilapidated buildings in a historic and cultural protection zone are refurbished and renovated one by one. Though we need to improve civil engineering and gradually modernize our techniques, we should measure by Yuanluo when we refurbish and renovate the old houses. The Yuanluo layout and the Hutong texture must not be destroyed while we refurbish and renovate old houses. Areas or districts that still have the appearance of the Ming and Qing Dynasties are protected as a complete package. At the same time, villages and towns in the suburbs that still have a typical historical appearance will be protected as cultural heritage areas, according to an official.

I undertook a project to refurbish the dilapidated buildings along Jingshandong Street of Sanyanjing Hutong in Beijing. I abided by principles in my design work. I continued to use the texture of the

district and protected the historic structures, properties and 63 old trees. I adjusted the big street and the palace as required by the real estate company which was concerned about the economics of the project. In the end, both sides were satisfied with my hard work.

2.3 Ancient Water System Protection

The ancient water system of Beijing was important to past dynasties. Some historically famous rivers and lakes in the old city areas have all along been a part of the city's development. The ancient water system included the Huchenghe water system that acted as a water source and waterway, the Caoyun riverway that prevented and controlled flooding in the past, and the water system in the garden. Some important water conservancy buildings will be rebuilt. The famous historical rivers and lakes in the old city areas will also be cleaned up and recovered, including: the Yun River, Changpu River and Yu River so as to form the full water system of Beijing City. Among them, the Changpu River, near the Forbidden City, and a section of the Beijing-Hangzhou Canal in the old city area have been completed and opened to the public.

2.4 Protected and Developed City Area Axes

The axes of Beijing City consist of the old city area axis, the north axis and the south axis. The total length is about 25 km. Among them, the axis of the old city area is from Yondingmen Gate in the south to Deshengmen Gate in the north (North Second Ring Road). Its protection plan must abide by the principles that the protection is prioritized, and protection and development are combined with inheritance and creation. Therefore, there will be an area about 1000 m wide in which the height and shape of structures and buildings will be tightly restricted. Located beyond the axis protection and control zone, the special zones that effect the city axis must abide by the rules of the cultural and historic protection zone, such as the Temple of Heaven, Xiannong Temple and Liuhai. Renovation of the Temple of Heaven has already begun. The design and construction preparation has finished. Construction will begin on large scale.

2.5 Historic and Cultural Protection Zone of the Imperial City

The historic and cultural protection zone of the Imperial City extends to Donghuangchenggen in the east, Hongqiang at the north side of Chang'an Street in the south, Xihuangchenggen at Nanbei Street, Lingjing Hutong and Fuyou Street in the west, and Ping'an Street in the north. Its area is about 6.8 km^2. The zone is characterized by the imperial palaces, the imperial temples and the imperial gardens that act as the main elements, and the Siheyuan that serves as a foil to these elements. The zone has characteristics of traditional imperial culture. Through planning, the Imperial City should stand out in Beijing. We will definitely perceive that the Imperial City existed. The government will also limit the height and architecture of newly constructed buildings along the axis of the city, prohibiting the construction of buildings and structures of three or more floors and architecture that is not in harmony with traditional scenery of the Imperial City. All flat roof buildings in the area will be fitted with a "garrison cap" slope roof. The new roofs of those buildings will be covered with grayish tiles, commonly used during the Ming (1366-1644) and Qing (1644-1911) Dynasties. No coloured glaze tiles will be used without approval of the municipal government. All buildings under construction will also follow the design. By rebuilding, population density will fall in the protection zone and the traffic volume will decrease.

2.6 "凹"Shape City Wall of the Ming and Qing Dynasties

The "凹" shape city wall of the Ming and Qing Dynasties is an important characteristic of the old city area. There are 30 m greenbelts left along the East and West Second Ring Road while the old city area has been rebuilt. Similarly, there are greenbelts along the Beihucheng River and Nanhucheng River. Existing parts of the Zhengyangmen Gate, Deshengmen Gate, Dongbianmen Gate and Walls and the Xibianmen Wall will be protected. The city also plans to rebuild the Yongdingmen Gate tower and part of the city wall, which were torn down in 1956 for the expansion of an avenue. In addition, a park has been planned around a section of the ancient wall. The park is now being designed with the aim to provide better protection for the last existing part of the third ring of the ancient city wall, which is about 1 km long. To ensure that the park construction is carried out smoothly, the municipal government will clear out all factors jeopardizing the maintenance of the cultural property, including pulling down all the illegal or dilapidated buildings occupying the city wall site. For instance, with a myriad of trees, flowers, and a large area of grass, the Huangchenggen site has taken an entirely new look.

Moreover, all of the traditional hutong, streets, old trees and famous trees should be protected because they should be considered cultural properties. Their name should not to be changed. The streets should not be rerouted or torn up. Old trees and famous trees should be preserved and the surroundings should be renovated.

Here, I summarize the job of protecting cultural structures and properties in Beijing. But, according to the records of our institute, the problem exists not only in China but also all over the world. This is just our duty. Our aim is to protect not only historical buildings and scenery, but also the ancient ambience of the city.

Iran

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National Report of Islamic Republic of Iran

Introduction:

Iranian architecture is characterized as a non-wooden or earthen architecture. In fact, most of the outstanding examples of Iranian architecture are made of materials of inorganic origin (i.e. stone, mud brick, brick and so on). All have heard of the great Ziggurat of Chogha Zanbil, which is entirely made of mud bricks, or Perspolis, a great master piece of stone structures. But why? The reason is obvious: Iran lies in a semi-arid region of the planet. Actually, the only green belt is around the Caspian Sea in the north of Iran. This accounts for a limited zone of wooden constructions in Gilan and Mazandaran provinces.

On the one hand, we have limited use of wood as the main construction material and only where the geographical conditions allow extensive use of it, while on the other, we use wood in some elements of the structure (just as others do). Here after, I will explain the situation in detail.

Wooden Structures in Ancient Iran

In comparison to the large amount of structures made of stone or mud brick in ancient Iran, there is no evidence of any wooden structure. Of course, it's not a reliable fact to say we didn't have any in ancient times simply because the amount of wooden objects that have been found in archaeological sites of Iran is not as noticeable as other objects. This may merely indicate the unsuitable conditions for preserving wood.

What is clearly expressed in an ancient inscription of Perspolis is that the Achamenids used wood (imported from Lebanon) for roofing their palaces; such usage is reported from other archaeological sites.

It's amazing that old buildings in the region of northern Iran, where the main style of architecture is wooden, had been made of stone or brick.

All the wooden structures that we are now concerned about conserving are from the late 19th century and wood is not the main construction material in them.

Wooden Elements in Iranian Architecture

Iranians employ wood as a raw material for decoration and different elements in architecture. One can see the use of false roofs painted delicately with gold and warm colours from the Qajar Period. Also, we can see wooden pillars in the exterior of elegant palaces and beautiful houses of rich and famous families in major cities of Iran.

Another example of the use of wood is in large windows with stained glass called "Orosi". It's a kind of lock technique in fabrication. The best examples of them came from the Safavid and early Qajar Periods.

Until the Pahlavi Period, wood was mainly used for roofing (plain or gable). Another use of wood is in the skeleton of the structures.

This means that the frame of the whole building is formed with wooden beams and other construction materials fill the spaces between them. In some high buildings (for example the Sultanieh Dome from Ilkhanid Period.), you can see the remains of wooden stages in the walls that were used by the workers for working at such a high altitude (52 m). Whatever the use of wood in a building, we have major causes of deterioration.

Different Types of Buildings with Wooden Elements

There are three kinds of buildings, which can be considered in talking about wood in Iranian architecture: buildings in use, religious buildings and historical buildings without any residential or otherwise active function.

The proprietor of each may be one of these three: an individual person, the Iranian Cultural Heritage Organisation (ICHO) or, according to the Islamic law of "Vaghf", the Owghaf Organization. Most of religious buildings belong to Owghaf. Any conservation in these buildings shall be taken under supervision of the ICHO.

The ICHO also helps the individuals, to some extent, to conserve their buildings.

These helps cover some of the intervention expenses and technical assistance.

Causes of Deterioration

Biological Factors

Biological Factors are the main case. Insects (especially termites) are the most dangerous enemies of the wooden part of a building. In some areas, we also see evidence of other insects.

Termites are mainly active in the dry parts of the country. Every year, we have reports of damage that termites caused in the wooden parts of a building (i.e. windows, roofing, doors and other).We do not have systematic research or experience in controlling termites in Iran(as with other biological factors).

Changes in Relative Humidity

According to the hygroscopic character of wood, and great sudden changes in relative humidity over a 24-hour period in many parts of the country, dimensional changes are another cause of deterioration of wooden parts in buildings.

Air Pollution

Air pollution is one of the major causes for deterioration of wooden parts of buildings in Iran. Soot, acidic/black rains and wet/dry deposition of chemicals have become the main problems of Iranian historical cities, most of which are nowadays the larger cities in Iran. Added to that, the petrochemical industry or large refineries are located near historical cities (i.e. Shiraz, Isfahan, Tabriz).

Conservation Statutes

Organisation Responsible for Conservation

According to the law, the Iranian Cultural Heritage Organisation (ICHO) is the main responsible body for the conservation and preservation of cultural and historical properties. The ICHO is a governmental organisation affiliated with the Ministry of Culture and all the funds come from the annual budget of the country. The Research Centre for Conservation of Cultural Relics (RCCCR), the Research Centre for Conservation of Buildings and Urban sites, and the Department of Conservation and Rehabilitation are the executing, managing and supervising departments for

conservation and restoration. There are architects, conservators, restorers, craftsmen and conservation scientists all working together.

Main Iranian on Conservation

As a general rule, we prefer conservation and consolidation instead of restoration or renovation. We try to keep the old materials in their original place as much as possible. Every time we are obliged to replace the original materials with new ones, we try to change just the necessary parts. This does not apply only to wooden architectural elements but also other elements.

Unfortunately, there are few craftsmen who can reproduce the old patterns and younger generations are not very fond of learning these skills, so this may lead to trouble in the future.

Education and Training in the Field of Conservation

In Iran, we are some faculties and universities where one can get an academic education on conservation. Below are mentioned the important ones.

Isfahan Art University B.A. Conservation and Restoration of Cultural Properties
Isfahan Art University M.A. Conservation and Restoration of Historical and Cultural Artifacts
Isfahan Art University M.A. Conservation and Restoration of Historic Buildings and Urban Areas
Kerman University B.A. Conservation and Restoration of Historic Buildings
Higher Education Centre (ICHO) B.A. Conservation and Restoration of Historic Buildings
Open University (Tehran) M.A. Conservation and Restoration of Historical and Cultural Artifacts
Open University (Tehran) M.A. Conservation and Restoration of Historic Buildings and Urban Areas Sooreh Higher Education Centre (Ardebil) B.A. Conservation and Restoration of Historic Buildings

Unfortunately, there is no special training for the conservation of wooden elements and artifacts, just because we have not a lot of wooden objects. In any case, the existing amount of wooden elements and artifacts does not attract the attention of students and researchers.

Problems:

The main problems encountered in the conservation of wooden structures in Iran are listed below.

1 The use of wood in Iranian architecture is very limited in comparison with Southeast and Eastern Asia.
2 The less wooden architecture is a subject of research, the less research is dedicated to the conservation of wood.
3 Carpentry and wood roofing are old traditional crafts that will be forgotten in the near future.
4 None of the Iranian conservators, conservation scientists or architects has taken part in specialized training in wood conservation.
5 Our main construction materials are of inorganic origin, so they have different problems from wooden structures.

Kazakhstan

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Problems and Needs on Cultural Heritage Protection Activities in Kazakhstan

In Kazakhstan, as in all the other post-Soviet countries of Central Asia, major efforts have been done during the past years to protect their cultural properties. However, the strategies are to be elaborated by gradual improvement of existing legislation, policies and mechanisms for the protection, conservation and management of cultural heritage. The problems and needs related to the cultural heritage of Kazakhstan fall into the following main categories, in order of importance:

- Legislation & Administrative Mechanisms
- Conservation & Management
- Finance
- Public Education & Awareness

1. Legislation & Administrative Mechanisms

Following the separation of Kazakhstan from the USSR in 1991, Soviet-period legislation became difficult to enforce after the disappearance of the command economy. Moreover, the growth of private ownership made this legislation increasingly irrelevant.

In 1992, the Republic of Kazakhstan promulgated a new Law on the Protection and Use of Historical and Cultural Heritage. The 1992 Law only covers immovable properties. Although this Law was designed to take account of the new economic, social and political situation, rules for implementation were not developed. Above all, the 1992 Law lacks the precision necessary for successful enforcement. Subsequent to 1992, other laws have been passed which take no or insufficient account of the 1992 Law on the Protection and Use of Historical and Cultural Heritage, such as the Law on Culture, the Law on Architectural, Constructional and Town Planning Activities, the Law on Licenses, the Law on Land Use, and others. There are also discrepancies between the civil and criminal codes, and their legal provisions related to cultural properties should or can be enforced.

The 1992 Law states that the conservation and restoration of monuments should only be undertaken by licensed contractors, but does not define which types of alterations should be authorized and which do not require approval. Soviet legislation specified that interventions to listed monuments had to be approved by the Scientific Council of the Committee of Culture; this council still exists, but the 1992 law contains no comparable requirements and private contractors can now develop schemes without any authorization.

The Department of Cultural Heritage, Libraries and Museums of the Committee of Culture plays a part of the state agency for the protection of monuments and sites. This Department has now only four members on its staff and is incapable of protecting or influencing work on monuments in the

regions or any mechanism for delegating to or cooperating with local authorities. In Soviet times, every region had a dedicated agency for the protection of monuments, but this is not a requirement under the current legal system and most provincial agencies have disappeared.

As the answer to the present situation, the majority of the well-known and respected Muslim monuments and sites in Kazakhstan have already become the object of special attention and care of the people of local religious communities. Unfortunately, it is resulting, in principle, in modern "improvements" and "embellishments" of the cult monuments by their users without due respect to their historical fabric and character. The rapid growth of the pilgrims' flux to the Muslim historic sites, the insufficiency of ritual services, facilities and accommodations for visitors, the limited financial possibilities of the local communities and authorities, as well as the lack of detailed design guidelines and development controls have led in many cases to the intrusion of new structures which are often unsightly and unfit to their unique surroundings.

The historic cities also face problems in their attempts to keep the historic buildings intact, due to economic development pressures, insufficiency of protective legislation and lack of the adequate administrative mechanisms for the protection and management of their built heritage.

2. Conservation & Management Problems

A great number of monuments and sites of different periods from the Bronze Age to the XX century are in need of conservation. Most of monuments and sites situated in villages and in the remote steppes and desert areas are neglected and left to decay. Above all, those already restored in the past continue to undergo a process of degradation due to the lack of proper management and maintenance. This process is aggravated by the presence of unsuitable materials and/or techniques used during the previous restorations and repair works. The Cultural Reserves (National Parks), created for the protection and management of the most significant sites in some regions of Kazakhstan, are lacking trained and experienced personnel at all levels. The management plans for most of them are not developed yet.

After the period of 1994-1997, when most of the organisations and facilities for the protection, conservation and restoration of cultural heritage were closed, only a few of them survived, continued to work and arrived to save the conservation professionals. Due to a lack of training institutions and facilities, but also due to the low salaries, it is difficult to attract young people to the conservation field and rebuild the professional staff. The shortage of conservation professionals doesn't permit proper expertise and craftsmanship for all conservation and restoration projects ordered by the government. At the same time, there is a lack of knowledge, techniques and experience in conserving some particular kinds of cultural heritage, such as archaeological sites, earthen structures and wooden buildings.

3. Finance

Under governmental order, the restoration of many historic buildings was conducted during the period of 1980's to the early 1990's, but in 1993, all conservation and restoration works on monuments and sites of Kazakhstan were stopped by a lack of funds, until 1997. In 1997, budget allocations were provided for the conservation and restoration of three important Muslim monuments in Kazakhstan, namely the underground mosque of Beket-Ata in Oglandy (West Kazakhstan) and the

medieval mausoleums of Alasha-Khan and Jochi-Khan in Central Kazakhstan. In 1998, the restoration works were started also on secondary monuments surrounding the Ahmed Yasawi Architectural Complex, as preparation for the 1500 anniversary celebrations of the city of Turkestan. All those works were completed in 2000. The conservation and restoration of the most significant Islamic monuments and sites of the city of Taraz, which celebrated its 2500th jubilee this year, were implemented during a period of 2000-2002.

The restoration of the famous Mausoleum of Khoja Ahmed Yasawi in Turkestan, financed by the Turkish government, was completed in 2000. Other examples of international assistance in the conservation of cultural heritage in Kazakhstan are the current UNESCO/Japanese Trust Fund Project for Preservation and Restoration of Otrar Tobe, the medieval Silk Road site (started in 2001), and also the UNESCO/Norwegian Trust Fund project on Management and Preservation of the Tamgaly Petroglyph site (started in 2002). Nevertheless, the state remains the main sponsor and donor in the conservation and restoration of cultural properties. In spite of the dwindling budgets and growing deficits, it is planned to keep the total annual budget allocations for the conservation and restoration of monuments and sites in Kazakhstan in 2003 at the level of 300 mln tenge (1,9 mln USD), the same as in 2002.

However, the government can no longer conduct all the conservation activities alone anymore. The solution to the problem is very difficult, and the involvement of regional and local sources of finance in the protection, conservation and maintenance of monuments and sites seems to be one of the most essential and effective ways to solve it.

4. Public Education & Awareness

The state policies and strategies concerning public education and awareness in the field of protection and preservation of our cultural heritage are still to be developed. The efforts of some professional and public organisations and individuals (conservationists, historians, archaeologists, architects, and school teachers) in promoting historic preservation and building awareness of the importance and uniqueness of our properties, through publications and practical educational activities, are not enough to cover the great need of true information on cultural and natural heritage.

Lao P.D.R.

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National Report, Cultural Heritage, Conservation of Luang Prabang

On behalf of the Lao People's Democratic Republic, I would like to report the progress of world heritage protection in Luang Prabang (especially with regards to art and wooden buildings). Luang Prabang is an ancient town and was the capital of Laos for many years.

I would like to report on the protection of the heritage town of Luang Prabang.

- After Luang Prabang was designated a world heritage site in 1997, the provincial governor appointed a local committee and set up the world heritage office to improve the town. Luang Prabang was named a world heritage because it is rich in culture and nature.
- Our project focuses on restoring Vat Pa Phousang. A wood structure was built. And now trainees of the Cultural Surviaval Project are doing practical training there. The wall is made of brick, spread with stucco and natural colors painted. This color has been used for many years and tiles are then added.
- Process of restoration of Vat Pa Phousang

The restoration of Vat Pa Phousang was started in March 2002. The current work of restoration of Vat Pa is decoration at present. I would like to report on the building restoration as follows:

1. Surveys
2. Removal
3. Replacement of overall buildings
4. Decoration

The project worked with the world heritage office and local donors. After an agreement was made, the world heritage office was made responsible for the building structure and the local people provided funds to restore the building. The cultural project is responsible for decoration work. Before launching, the head teacher gave some advice and divided work into four phases:

1. Surveys

The head teacher told the carpenters to number each piece of the building, see which one should be marked and discover the history of buildings; for example, a wood called Mai Phao is used and we will replace it with one called Mai Pha. If the building is covered with tiles, we have to put tiles on. If the wall is made of traditional stucco, we will use the same materials. It means we have to learn the history of the building and the reason for its destruction.

2. Removal

First, we have to select the pieces and use them as artistic proof. We should try to collect and mark numbers carefully. After that, we can remove the old tiles and select the best one. If a good one, we can use it. The dismantling of the wooden structures is done similarly. For example, it doesn't matter if the member is old or new; the most important things is that we have to check it first. For example, we will break the stucco to see the brick and then spread new stucco by traditional

technique. These are Lao traditional materials.

3. Replacement of Overall Buildings

After the building structure is removed, before rebuilding, we ask the mason to make the best foundation possible with traditional stucco for its support. After that, we fix and join it in a traditional way. It is joined without steel. All materials must be approved by a specialist.

4. Decoration

After completing the construction of the building, we continue to work on artistic decorations.

History of urban buildings in Luang Prabang

The major part of construction in Luang Prabang consisted of three types.

1. Lao traditional
2. Lao traditional mixed with foreign styles
3. French architecture conveyed from China and Vietnam

Since Laos was liberated in 1975, the buildings, houses and temples in Luang Prabang were built in different ways. The Lao styles were built with thatch and surrounded with bamboo, and some are epoxy. We have a ladder in front of the house. The downstairs is open and the foot of the pole is surrounded by a beam.

The French style was built as a box. It is a mixture of Lao and French, and we can see many in the town. In addition, it also mixes in Chinese and Vietnamese styles as mentioned above, but it still keeps a Lao style and its own decoration and traditional art in the buildings and religious sites. It is also a local heritage of Luang Prabang.

Malaysia

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Protection of Heritage Buildings Especially Wooden Buildings in Malaysia: Problems and Requirements

Introduction

Most of the wooden buildings and structures in Malaysia are prone to destructive agents, either physically or biologically. Other than that, destruction is also caused by physical development and modernization in the area. Supervision by governmental law and protective measures are necessary to save these historical buildings and important wooden structures from destruction. Preservation treatment does not 100% restore to wooden buildings and structures to their former condition, but it can stop further deterioration.

The conservation of wooden buildings and Malay traditional wood carvings in Malaysia faces several problems concerning approach and techniques. The historical value of a building depends on the type of wood used, unique architecture, esthetic design and fine craftsmanship. Therefore, in order to preserve the historical value and fine craftsmanship of a building made and restore wooden structures as much as possible, a concerted effort must be. However, when efforts to restore wooden buildings and structure to their original condition fail, they are either replaced or rebuilt exactly as the originals. Conserving and repairing are two different things. Conservation involves careful treatment to keep the wood substance from decaying and deteriorating further. This treatment is necessary if we expect higher value in the wood substance. The value is viewed not only from its age or intricate carving but also from its usage. While repair is defined as a treatment to restore its function to the level of its original function, functions are defined here by the form and structure of the wood.

Problems Faced by Heritage Buildings

Problems faced by most heritage buildings in Malaysia are centred around wood damage caused by several factors. The main factors are as follows.

a) Biological rotting
b) Physical rotting

Biological Rotting

The problem with biological rotting depends on some physical factors such as humidity, surrounding temperature, water content in the wood and air supply. The presence of these factors encourages destructive agents such as fungus and pests.

Destruction by Organic Matter or Plants

Plants and organic matters love to live on building materials. They not only stain but also help to deteriorate the materials. Organic matter can grow on almost all building materials except metal, while plants grow when the materials are wet or damp. Some of the types of plants commonly found

are as follows.

a) Parasites

b) Moss

c) Lichens

d) Mushrooms

Other Plants

There are also other plants that usually grow on wooden building materials such as mole and algae. They will gradually destroy the wooden building materials.

Pests

Just like fungus, insects are also found everywhere both in hot or cold climate regions. Wood is prone to attack by pests at all stages. Pests can be classified into three groups.

a) Termites

b) Beetles

c) Marine borer

Termites

Termites live on dead wood as their food source. There are three types of termites that attack wood.

a) Subterranean termites

b) Drywood termites

c) Dampwood termites

Physical Damage

Physical damage of wooden buildings involves factors such as fire, climate, mechanical wear and urban development.

Damage Caused by Fire

This type of damage is swift and serious compared to biological damage. All wooden structures turn into ash when the oxidation of wood reaches 500 C.

Damage Caused by Climate

When exposed to direct sunlight, wind, rain and humidity, wooden building materials will deteriorate easily. Surfaces will change colour, become rough and fibers will erode by rain. Being exposed to wet and dry conditions continuously will cause the wood structure to alternately expand and contract. Such conditions will result in cracked, split and twisted wood. Weather factors will quicken the chances of fungus to destroy the wood. Wood material kept in proper storage will last longer than that exposed outdoors.

Mechanical Damage

Wood materials that are used for bridges or walkways tend to be damaged by wear and tear of pedestrians and vehicles. When they are exposed to weather, the wood structure will break loose because of fungus.

Measures in Conservation of National Heritage Buildings

Measures taken in order to overcome problems concerning national heritage buildings must be implemented systematically, quickly and efficiently. Related laws and regulations should also be carried out within the guidelines. Techniques and expertise regarding conservation of national heritage buildings must be upgraded and exercised. Action should cover aspects such as the following.

a) Laws and regulations
b) Techniques and methods of conservation.

Local Laws and Regulations

i) Antiquities Act, 1976

Act of Parliament allotted to the Department of Museums and Antiquities for the purpose of protecting and conserving national cultural properties.

i) Other laws and regulations

Some of the acts and enactments passed by the Parliament concerning these tasks are as follows.

a) Land Code, 960
b) Land Acquisition Act, 1960
c) Local Government Act, 1976
d) Town and Country Planning Act, 1976
e) Federal Constitution Act
f) Various States Government Enactments
g) Maritime Law and International Legislation

International Laws and Regulations

The restoration of monuments and historical sites is implemented according to international standards and procedures. This is to ensure the conservation works are acceptable since Malaysia is a member country of UNESCO. Several charters are involved such as the 'Venice Charter' and 'Burra Charter'. Malaysia also has signed three memorandums of understanding regarding the tasks of preserving cultural properties of this country.

Conservation Methods

All conservation works must comply with standards and guidelines. Factors concerning the damage of wooden materials have been discussed earlier. In tropical Malaysia, most of the wooden materials exposed to severe weather are destroyed by fungus and pests. Therefore, as a conservator, there are always new challenges of finding better methods to restore wooden materials.

Methods used for conservation depend on the damage found on the materials. Methods normally applied are as follows.

a) Preparation of wood for conservation
b) Application of chemical or preservation material
c) Application of resin and reinforcement material
d) Application of substitute material in conservation

Conclusion

Heritage is a national historical pride of future generations of a nation. Also, historical heritage becomes a source of reference and research for historians to study the progress of certain period

of history. Its existence is historical evidence. It also contributes to the national economy since it brings in cultural tourism. One such example is the Historical City of Malacca. It definitely helps the Malaysian tourism industry.

Elements of nationalism projected by multiple cultural backgrounds existing in certain periods are seen in architecture, designs and motifs. Our national heritage forms a distinctive identity and personality of Malaysia and gives a sense of pride to her peoples.

Through the works of conservation, heritage buildings become more durable and enable maximum economic return. Some old heritage buildings which are located in strategic urban areas are enhanced by conservation works. This will compensate the need to tear down old heritage buildings so as to gain economic return by building skyscrapers instead.

Our national heritage provides study and research opportunities such as building structures, designs, carvings, materials, techniques, etc. If conservation works are managed properly according to international standards, some historical towns are likely to be named to the World Heritage list.

Tremendous development which is taking place in Malaysia will gradually change the face of national cultural properties. Measures to determine a sense of direction concerning restoration and conservation work must be implemented systematically and effectively. Destruction of heritage buildings must stop. Preventive measures carried out through legislation such as Antiquities Act 1976, Cultural Properties Act and Local Government Act 1976 help to protect national cultural heritage.

Mongolia

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Problems and Needs of Cultural Heritage Protection Activities in Mongolia

Mongolia, located in the heart of Asia, plays a leading role in the history of the world's nomadic culture and civilization. As Mongolia has thousands years of history of nomadic lifestyle, she is rich in her historical and cultural heritage.

The territory of today's Mongolia was the origin of the human culture and civilization. The historical background of Mongolian people is inseparably connected to the history of not only Central Asia, but also the people of many other countries.

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

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

Any architectural work expresses forms and constructions reflecting the social development of that time. Mongolian architecture develops its original style based on its traditional background.

Historic documents prove that the appearance, forms and other identities of the "Mongol ger" started to develop in the third century BC. "Mongol ger" is a kind of dwelling used by nomadic tribes of Central Asia. It came to its present form by passing through many long stages of development. In general, the construction works of palaces had been developed substantially at the time of the Great Mongolian Empire. The ruins of Khara-Khorum, the ancient Mongolian capital city, is still open to the public today.

Mongolian architecture has been developing based on the culture, tradition and influence of eastern architecture closely connected with Chinese, Tibetan and Indian architecture. Mongolia has been developing its own architecture by enriching its interior and exterior decorations with eastern architecture, and designed a new style that is very convenient for its nomadic life style. In general, ancient Mongolian architecture can be divided into several categories such as pure Mongolian, Tibetan-Mongolian, Mongolian-Chinese and Tibetan-Chinese styles.

The Mongolian people have a long history of preserving their historical and cultural heritages. Even in the Hun's Period, we used to preserve and protect mountains, rivers and wild animals as

sacred things. During the period of Great Mongolian Empire (Chinghis Khan's period), protected zones were officially established under the Law "Ikh Zasag".

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

Established in 1973, the Historical and Cultural Heritage Restoration Organisation has developed projects and restored more than 30 historical monuments and cultural heritages including the Erdene Zuu, Amarbayasgalant and Gandantegchilen monasteries, the complex of Zaya monasteries, the Green Palace of Bogd Khaan, the Choijin lama's Temple, the Palace of Tsetsen Khaan, Chin Van Khanddorj's house and other historical sites in Altanbulag, from 1976 to 1995. In 1995, this organisation was privatized and now the Tuukh, Soyol and Suld uul companies are running the restoration of historical and cultural heritages as a business.

Under project no. MON-75-001 in 1979-1989, UNESCO kindly contributed some US$340,000 for the restoration of the Amarbaysgalant monastery, established in 1727-1736. This restoration work was completed in 1994.

According to the constitution of Mongolia adopted in 1992, Mongolian historical and cultural heritage, monuments and intellectual values of the Mongolian people are now subject to state protection and care. The present Government also pointed out in its action program that the preservation and restoration of historical and cultural heritage shall always be at the core of the Government's attention in conformity with ecological peculiarities, nomadic lifestyles, and the civilization of the Mongolian people.

The Ministry of Education, Culture and Science of Mongolia is responsible for the activities related to registration, preservation, conservation, and supervision of architectural monuments, cultural and archeological values, ethnographic items, art objects and other historical and cultural heritages.

Because of Mongolia's transition into a market economy since 1990, attitudes toward historical and cultural heritage have changed and it became necessary to regulate all issues related to the protection of historical and cultural properties. Therefore, in 1994, the Law on the Protection of Items of Historical and Cultural Values was amended and I was in charge of the working group of this law amendment. The purpose of this law is to regulate relations arising from collection, registration, preservation, protection, research, classification, evaluation, promotion, restoration, ownership, possession and usage of items and sites of historical and cultural values.

In 1998, a "list of state-protected immovable historical and cultural heritages of Mongolia" was worked out. According to this list, 119 historical and cultural sites are under the state protection and 233 heritages are under provincial protection.

In 2001, the Law on the Protection of Items of Historical and Cultural Values was amended and the Law on the Protection of Cultural Heritages was newly adopted and this new law regulates issues of both tangible and intangible cultural heritages.

The National Programme on 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, in order to fund the important activities aimed at preserving unique historical and cultural sites. According to the National Programme, a number of monasteries, such as Shankh, Dambadarjaa, Tuvkhen and Nomun Khaan, were restored between 1999 and 2002.

The Government of Mongolia joined in the Convention on Protection of World Cultural and Natural Heritage in 1990 and it provided favorable conditions for registration of our cultural heritage in the World Heritage List.

UNESCO and its World Heritage Committee accepted our proposal for the registration of the Orkhon Valley historical and cultural heritages in the World Heritage List. Orkhon Valley historical and cultural sites include Monuments of Turkish Bilge Khan, military commander Kultegin (YI-YII century), the ruins of Kharbalgas of Uigur State (IX-X century), Khara-Khorum city, the capital of the Mongolian Empire (XIII century) and Erdene Zuu monastery (1586). Since 1996, the World Heritage project has been underway, so all required documents were worked out and submitted to UNESCO. Now, UNESCO provides us a variety of support (to distribute tentative list of Mongoliian cultural and natural heritages).

For example, in order to explore, do geophysical research and define the territory of Khara Khorum, the ancient capital of Mongolia, the Government of Mongolia, UNESCO and the Government of Japan implemented the Preservation and Protection of Khara-Khorum, Ancient Capital City of Mongolia Project in 1995-1998. Since 1998, a German-Mongolian joint "Khara-Khorum" project has been underway to carry out research, archeological excavations and conservation of the cultural heritages on the territory of Khara-Khorum City.

The Mongolian Government has officially supported the project to preserve and restore some monuments of the Tureg Period in Mongolia, jointly worked out by the Ministry of Culture (present Ministry of Education, Culture and Science) and the Turkish International Cooperation Agency in 1997.

Even though various international and local projects on the restoration of historical and cultural heritages on the territory of Mongolia are being carried out and a favorable legal environment for the protection and restoration of them has been formed in Mongolia, the valuable heritages and monuments are broken and heavily damaged before our very eyes because of the natural and climatic phenomenon and aggressive human activity. As well, there are a number of problems in the restoration and protection of cultural heritages. Here, I would like to mention in detail about the problems associated with the conservation of wooden structures.

Present condition and Problems of Wooden Structure

During the initial restoration phase (1976-1994), a lot of restoration work had been done, but because of a lack of financing, the work could not be completed. In particular, the site faces several problems such as leaking (roof, platform) wall cracks, water infiltration on main walls, damaged wooden structures (decayed wood, settlement), insufficient drainage system, and damaged paintings (peeling off wooden coating, damage from birds).

Water Leaking and Wooden Structure Damage.

Because of roof damage and drainage problems, water leaks caused more damage to structures and paintings. Some of wooden structures were rotten and, at first, it looked as if they needed changing. After solving such structural problems, it was necessary to repair the roof and drainage systems. Poor restoration of roof tiles causes water leaks and damage to structures including beams and pillars. During the time when the state agency restored historical buildings in Mongolia, the agency had a kiln to produce traditional roof tiles, but after privatization of the agency in 1994, it started to use 2 kinds of roof tiles (one glazed in brown and green, and unglazed gray roof tile) made in China according to our order.

Painting and Coating Damage.

Most of beams and roof structure were painted, but also got damaged from water leaking and bird excrements. The wooden coating on pillars also was peeling off. It's necessary to study and repair it with both modern and traditional technique. Colors are made from various kinds of minerals, plants, etc. Today, chemical colors are much more popularly used for paintings because of their markedly lower costs, but they don't last as long as mineral colors in their appearance. Chemical colors are mostly imported from China.

Traditional Architecture Materials and Techniques

Lot's of modern materials are used in restoration work these days, because of the cost-performance and availability. Traditional materials and techniques are necessary for actual restoration work. There are many cases that modern materials sometimes even create more problems on historical building than they do good.

Lack of Professional Restorers

Mongolia suffers from a lack of all kinds of qualified restorers including restorer-architects, painters, craftsmen, carpenters, etc. Most of the current restorers are not trained and there isn't any training course for them to improve their skills. Local craftsmen should be further trained in restoration work according to internationally accepted standards.

Lack of Finances

Since 1990, Mongolia has been changing from a centrally planned economy into market economy and has been faces various financial problems.

New Zealand

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Conservation of Marae Structures

Introduction

This report considers the conservation needs for the indigenous-built heritage of New Zealand, in particular Maori meetinghouses that are part of marae complexes. The conservation of Maori-built heritage has developed in New Zealand out of both a cultural base and a western conservation philosophy. Maori history carries on in this physical material culture but equally in spiritual and cultural mediums. They are all dependent on one another and important to sustaining the Maori as a people. To conserve the material culture requires an understanding and participation in the culture itself so as to ensure that not only the physical structure is preserved but the traditions, values, relationships and meaning behind it are also maintained.

Background to Maori Marae and Meeting Houses

The marae complex is an ancient institution, the roots itself deeply Polynesian. With the discovery of New Zealand by early Polynesian explorers around 1000 years ago, marae became the central hub for tribal activities in New Zealand. The marae atea, central space within the marae complex, was used for discussion, debate, where customs and rituals were carried out, and, on certain occasions, become the realm of the gods, Atua.

With time came the development of the whare tupuna, or meetinghouse that supported the functions of the marae atea but also asserted the identity of the tribe with its carved, painted, and woven artwork. The structure also interacted with the Maori spiritual realm and is considered the medium where Ranginui (Father Sky) and Papatuanuku (Mother Earth) touch one another. This is the creation story, which describes the world existing within the embrace of the parental gods. Far back in time, this embrace was so close that the children found it difficult to live in the darkness. One child, Tane the god of forests, decided to separate his parents by forcing them apart and in doing so let light into the world. Meetinghouses are often referred to as representing Tane since that buildings are built from the children of Tane, trees, and the structure stands between the Father Sky and Mother Earth. This personification of the structure and its relationship with gods permeates throughout all the elements of the building.

When you walk into a meetinghouse you are also entering the embrace of an ancestor, or tupuna. The carved koruru figure in the front of a meetinghouse, at the apex of the roof, is the face of the ancestor looking forward to those that enter into the marae. The large bargeboards on either side are the outstretched arms of the ancestor welcoming and challenging those that step into the marae atea. The walls are often adorned with descendant ancestor figures -- carved, woven and painted -- that link to the main ancestor through the heke (rafters) and tahuhu (ridge beam). The tahuhu is the backbone of the ancestor and is the most sacred part of the wharenui. This contains the mauri, or

the life spirit, of the tribe and ties the building together. This structure is a powerful genealogical map that ties the descendant people together as tribal, sub tribal or family groups.

Other structures in the marae provide a more supportive role. The wharekai are dinning halls used to feed the visitors when staying at the marae; pataka (food store) a rarer structure, traditional lyused to hold important resources of the marae; whare mate used in funeral ceremonies to separate the sacred rituals associated with death. This collection of structures forms the marae complex that supports and provides for the tribe's needs.

Risks for Maori-Built Heritage

Site Protection for Marae Complexes

New Zealand has over 1000 marae in active use, most of which contain meeting houses and associated support buildings. Over half of the marae were built between the period of 1880 to 1950's. Marae are still being built today or redeveloped to support the needs of the many individual sub tribes called hapu. Generally each marae represents a sub tribe unit of people from 100 to 2000. There are larger marae that service the requirements of the whole tribe (iwi) and are often much larger buildings within a central location. The land on which marae stand is usually designated as Maori Reservations, a piece of land set aside by the tribe for the purposes of a marae. The meetinghouses in marae require little protection in terms of regulation, as they are reserved lands and in the ownership of representatives of the tribe. Any decisions regarding the land has to go through a formal court process, as for these types of reservations, the Maori Land Court presides over the appointment of trustees and the setting up of the governance structure.

Redevelopment of Marae, New Pressures on Heritage Structures

Whilst the land status has protected marae in part from outside interests, these places are living cultural institutions and are constantly in a process of development and reconfiguration. Marae have become learning schools, some run University outpost courses, and others provide health services, social services, and early childhood education programmes. With this growing variety of new uses and activities, some of the older structures in the marae come under increasing pressure to be redeveloped to support a new activity or service. Generally, marae buildings are enlarging as populations grow and are being integrated with other buildings such as dinning rooms and ablution blocks. While this growth is inevitable with a living complex, some redevelopments have resulted in the loss of important heritage fabric. More often, it is a problem of poor planning and a lack of advice on conservation.

Building Regulations

When building regulations were introduced early into last century, the design and construction of marae changed. Health regulations, building codes and fire regulations gradually phased out the traditional construction and brought in European construction methods. Fire regulations in particular have reduced the use of traditional fibre materials and replaced them with timber facsimiles to reduce the fire risk. While the construction of the meeting house has changed in many ways, traditional decorative artwork has continued.

Diminishing Natural Resources

Another factor that impacts on retaining traditional materials within marae structures is the

diminishing natural resources used for construction and repair work. Large areas of New Zealand have been converted to farming land and, as a result, there is less land available for sustainable harvesting of timbers and natural fibre materials. This reduction in the availability of materials has also forced compromises to be made in the construction methods used on marae, where not only has the resource diminished but often the local knowledge of its collection and preparation as well. As a result, there are more substitute materials and construction methods employed in marae structures.

Natural Deterioration and Fire

New Zealand is a generally wet temperate environment that, in most parts, is exposed to coastal weather. As a result, wooden structures have to withstand constant effects of dampness, decay, biological attack, and UV degradation. New Zealand also has a high frequency of earthquakes and volcanic activity because of its position on the edge of the Pacific Plate, which poses a significant threat. As a result, marae structures require constant maintenance to survive and special protection against natural disasters. Many buildings have been lost after relatively short periods of disuse as the effects of weather and decay take their toll. There are many associated marae structures, including food storage buildings, that disappeared off the landscape due to the rapid decay of timber. One of the immediate and most destructive risks is fire and, in the last 10 years, three significant buildings have been lost. Most marae structures do not have fire protection systems and, in remote rural locations, limited access to water makes this a serious threat.

Conservation Approaches

Traditional Methods of Cultural Preservation

Traditionally, Maori conserved a material culture in a number of ways. There are legacies of artistic tradition that ensured that a generation of carvers, weavers, and painters would teach and pass on the knowledge and skills of the arts to students in a ritualised form of school. This process is a form of conserving the cultural values of a tribe by passing knowledge and skill through generations.

Traditionally carved items from meeting houses were often hidden in caves or buried in swamps to protect and preserve the carvings during times of war. Often carvings were left for months to years. These early methods for the protection and retention of cultural materials are important as they demonstrate a practice of preservation that was traditionally carried out.

Some traditions also went in a different direction by allowing buildings to deteriorate naturally and return to the earth. This practice is still carried out in some circumstances where the sacredness of an object or building does not allow for it to be intervened with.

Modern Conservation Practice in NZ

Conservation practices from a western perspective have been active in NZ on marae projects since the 1970's. This early work, however, often highlighted differences in approach of conservators used to working in museums to the expectations of the local Maori. What became increasingly important was developing Maori conservation practices in its own right and more importantly to be lead by the Maori themselves. In the mid 1980's, the NZ Government put together a programme to train Maori in conservation through the Canberra University Conservation Course in Australia. Out of this

period of time, the NZ ICOMOS Charter and the Code of Ethics of the NZ Professional Conservators Group were developed to recognise and accommodate the different value system of the Maori.

New Zealand then, through the programmes of the NZ Historic Places Trust and assistance from the National Museum, developed programmes to assist marae through marae survey programmes, conservation workshops and advice. An important part of this work has been developing skills and knowledge where Maori could conserve and maintain their own-built heritage.

Current Issues in Conservation Practice

In the conservation sector, there is a general understanding of the needs and trends but not a strategic view of the state of Marae-built Heritage. Questions such as where are our most important at-risk buildings, or where are resources needed to undertake work, can only be partially answered. Some of the key issues are as follows.

Assistance Programmes

Direct assistance programmes are vitality important to develop and focus the conservation skills and planning advice needed to work with tribal groups. An important element of this is finding the resources that tribal groups need to undertake work.

Funding

Direct advice should be provided to tribal groups covering the range of options that are available. This also would involve working with funding bodies so that consistent and larger amounts of funding can be accessed for marae projects. General funding applications take time and some agencies need to consider developing an emergency fund that can be used to react quickly to buildings at risk that have been damaged by fire or natural disaster. Finally, advice is needed to help tribal groups plan projects and identify the resources and skills required for the work.

Technical and Advisory Services

A range of technical services should be available for tribal groups to access. This is important to provide technical services for problematic conservation tasks and urgent architectural and engineering advice for at-risk built heritage. Some services are available through the Historic Places Trust and local advice from some museums and local councils. However, mostly conservators and conservation architects working in private practice provide specialist conservation services in New Zealand, a cost which marae have to find funding for.

Maintenance Plan Advice

An important area of work that requires further work is the development of better maintenance of marae buildings. Part of the maintenance planning work should include the training of regional marae maintenance services through the development of Maori conservation practitioners.

Conservation Training

Further work is needed to develop and deliver specialist heritage training programmes. The current conservation workshop programmes delivered by the HPT are effective for training groups who are working specifically on projects but are less effective in providing coherent and long term skills for any particular region. What is of urgent concern is the lack of professionals and practitioners

needed to carry out remedial and maintenance conservation programmes.

Survey Programmes

One of the important cornerstones to be developed is a survey programme to record marae and the condition of the buildings. This would assist tribal groups in determining priorities and strategies for conservation and maintenance

Conservation Research

More research projects are needed to extend the knowledge of Maori-built heritage and enable better conservation, protection, and maintenance methods. Most of the conservation science applied has is adapted treatments from other countries in many instances. A more planned approach is needed for future research to ensure that this body of information develops in a logical sequence and is tied to real needs of marae building conservation.

Conclusion

The conservation of marae structures illustrates the importance of broadening the concept of conservation to accommodate cultural values that exist between Maori people and their structures. The cultural and historic fabric of a marae structure includes a dynamic relationship of history, people, and the structure itself. Professionals working in this environment need to have an understanding of these values and its important to the Maori. With Maori Conservators now working in this field, the conservation of marae structures can progress further. However, it's now reached a critical point where now there is an awakening of need and expectation but not the coordinated resources to respond.

For more marae heritage structures to be conserved, there will need to be a more collaborative approach made by heritage agencies and more partnership programmes developed with Maori Tribal Groups. But, the success of conserving Maori cultural materials will continue as long as the Maori have a role in the development, decision-making, and implementation.

Philippines

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Cultural Heritage Protection Activities in the Philippines: Its Problems and Needs

Introduction:

The Philippines is rich in architectural heritage, particularly those found in various historic town centres and old districts. The historic centres themselves are great landmarks-the achievements of our forefathers, and the sites where important events happened and great people lived and died. These important sites and structures reflect Filipino society's cultural development. They give us a sense of community and identity, pride and dignity, progress and continuity. They also add interest to the town; and they attract and entertain people. These monuments of the past teach us lessons today and guide us to a better tomorrow. We consider them as common patrimony, and, therefore, the responsibility to preserve them for posterity is ours.

Preserving these sites should not be solely based on bringing back those times, or, for the sake of tourism, to increase town earnings. But, it should focus on genuine community development and human welfare. It must be the preservation of values, of character, and of many other aspects that relate the town and its people. At the same time, there must also be growth and continuity of time. It must be a living heritage.

There must also be respect for historical evidence. Any change or transformation in time should refer to historical evidence, such that this evidence should guide succeeding changes, which then become integrated with the whole entity. The concept may be difficult in theory, but we can actually start it with involvement, commitment and cooperation. The Bayanihan Spirit is always our model for community projects. Preservation should be a major concern of the government, and the citizens should support the nation's conservation programme and projects.

Historical Background:

The Philippines, an archipelago of 7100 islands in the Southeast Asian region, was practically untouched by the super cultures of early Hindu, Buddhist and Islamic civilization. This is the main reason why the country did not have ancient monuments. However, there are visible cultural heritages of more recent vintage. Traditional architecture and art were not permanent because of the materials people used. The coming of the Spaniards, and later the Americans, paved way to permanent construction in masonry, timber, steel, glass and other modern processed materials such as reinforced concrete and galvanized iron. Architectural style was a mixture of imported and local design and construction. Geographic, geologic, climactic and traditional factors influenced design and construction. Fires, earthquake and wars had taught designers and builders better techniques to adapt to local conditions. Repair and reconstruction were an instinct for life continuance.

Historic preservation in the Philippines has just recently gained popularity. This is manifested by

the numerous government projects for the Centennial of the Philippine Revolution and Independence, and the recent public rallies against demolition and destruction of historic sites and edifices. The government popularized architectural conservation in the Philippines right after World War II. It was for the recovery and rehabilitation that several public buildings were reconstructed. Preservation, though, was not really the main objective of the period.

In 1972, the National Historical Institute (NHI), renamed from the National Historical Commission and other defunct cultural agencies, came into being. The institutional status was really intended to copy similar European and US cultural institutions. It started with the documentation of historic places, buildings and personages, and installed state markers on significant ones. Restoration then came a long way, with the government refurbishing several historic sites and structures declared by the National Historical Institute, including the Barasoain Church in Malolos, Bulacan, the Quezon Memorial Shrine in Quezon City, the Mabini Shrine in Padacan, the Rizal Shrine in Dapitan, the three of the four baroque churches in the Philippines declared by the UNESCO as World Heritage Sites -- namely: St. Maria Church in Ilocos Sur, Paoay Church in Ilocos Norte and Miagao Church in Iloilo -- the all-steel San Sebastian Church in Quiapo and many other national landmarks all over the country.

After the 1986 EDSA Revolution, the interim government drafted a new constitution, and, in 1987, the Constitution was ratified. The government of Cory Aquino was established restoring the democratic format. In this Constitution of 1987, Section 14 under Arts and Culture states that: "The State shall foster the preservation, enrichment, and dynamic evolution of a Filipino national culture based on the principle of unity in diversity in a climate of free artistic and intellectual expression." Section 15 states that: "Arts and letters shall enjoy the patronage of the State. The State shall conserve, promote, and popularize the nation's historical and cultural heritage and resources, as well as artistic creations." And Sectionx 16 states that: "All the country's artistic and historic wealth constitutes the cultural treasure of the nation and shall be under the protection of the State which may regulate its disposition."

Today, many government and non-government organisations and individuals are actively participating in the national programmes and projects for historic preservation. Major cultural institutions are now linked to international organisations. Schools and colleges of Architecture are also actively involved, and some have plans to offer specialization or master courses in architectural conservation. Professional organisation for architects, such as the United Architects of the Philippines (UAP), conducts continuing professional training seminars and workshops for its members and is also linked to other international architects'organisations.

The trends are quite optimistic for the development of architectural conservation in the Philippines. However, there are two schools of thought emerging and rapidly developing which may cause serious confusion in the near future. These are the Puritans and the Progressives, each with their own set of concepts in architectural conservation. On one side, the Puritans believe that a monument must be "restored" to its original state or appearance. On the opposite, the Progressives believe that, in restoration, a certain degree of transformation should be allowed, in other words, it should follow the concept of spoken and written languages-they all grow with time, in continuity.

If the present trends continue, then there is a great urgency to resolve the differences between the two opposing concepts or at least forge a compromise. After all, architectural conservation is sometimes -- if not always -- built on compromises. On the international scene, the major issues in conservation are environment and authenticity. For the resolution of our national issue on conceptual differences, we could place more emphasis on environment and authenticity as unifying elements.

National Policy Statements:

The Philippine government supports the conservation of sites and structures with historical, cultural and scientific values. Their interpretation is a vital part of the government's mandate to popularize our rich history and diverse culture. The state supports the following hierarchical chart as its guiding concept in the restoration of monuments and historical centres: Ideology > Principles > Methodology > Techniques.

The state adopts the International Charter for the Conservation of Monuments and Historic Centres, otherwise known as the Venice Charter of 1964 (Venice), its 1981 Edition (Rome), and the 1986 International Charter for the Conservation of Historic Towns and Urban Centres.

The state is not anti-development nor a restoration puritan. The National Historical Institute (NHI) believes that culture and progress are compatible. Furthermore, the NHI believes that preservation is part of positive development. Hence, there should be continuity. However, it prioritizes the preservation of existing authentic objects or historical evidence above all concerns. Therefore, a balance between preservation and development may also be considered the best possible compromise that will guaranty both objectives. For the development side, this shall mean that the present and future needs will be satisfied. On the other hand, for the preservation side, this shall mean that authentic objects, their settings and meaning will be correctly interpreted and safeguarded. The blending of old and new elements really would indicate not only a gradual transformation but also a positive development.

The state supports the preservation of our natural sites and resources. Any built environment can never gain appreciation without its natural surroundings. There must be a good balance between the natural and the built environments. Restoration works that call for extensive use of materials extracted from nature (like hardwood of rare species) must resort to modern substitutes or technologies, or must be limited to just preserving the existing authentic materials and status. By insisting on using original materials, it would be tantamount to going against or violating the preservation of our environment and endangering the ecological balance.

The National Historical Institute (NHI) implements Presidential Decree Nos. 260 and 1505 (dubbed as the National Historic Acts of the Philippines) in accordance with set criteria and guidelines. However, each case is unique depending on the structure's individual conditions and characteristics. Our preservation programme is focused on the awareness and appreciation of the rich and diverse Filipino art, culture and history, and how these relate to our development as a nation and as a people.

The NHI supports public education on the processes, values and benefits of preserving our historic sites and monuments. It supports the dissemination and transfer of technologies to organisations and individuals who have interests or are directly involved in historic preservation activities. The NHI

supports the inclusion of historic preservation in graduate studies, specialization courses or curriculum subjects at universities offering architecture, urban planning, interior design, landscape architecture and humanities.

The state supports the adaptive reuse of historic sites and structures, and the development of new products and by-products derived from conservation experiences. It encourages the establishment of school research and laboratory centres for conservation purposes. The concept of "common heritage" applied to any of our cultural and historical properties is also being supported by the state, thus, they believe that both the government and the church can work harmoniously for the preservation of historic church edifices without disturbing the functions and sacredness of the church. Likewise, functioning historic Muslim mosques and their physical qualities can be preserved. We subscribe to the principle that "the least intervention is the best conservation".

Conservation Measures Undertaken by the National Historical Institute:
The National Historical Institute;
1. Legal-enforces Presidential Decree Nos. 1505 and 260 and other existing laws; coordinates with government and non-government organisations; issues guidelines on restoration and preservation; settles disputes and recommends measures for properties and activities involving or affecting historic sites and structures.

2. Educational-supports and implements educational and awareness covering diverse areas such as conservation philosophy and policies, restoration methods and techniques, building code integration, student apprenticeship and thesis reference materials, technical assistance, etc.

3. Technical-implements measures for scientific application and techniques of restoration; works for the standardization of restoration techniques in the Philippines.

4. Fiscal-plans and requests budget allocations for restoration projects, solicits local funding or participation; solicits political support for sponsoring and securing funding for conservation programmes and projects.

Common Problems of Conservation in the Philippines:
1. Legal-Government instrumentalities lack the "police powers" to properly implement the heritage conservation laws. This situation is aggravated by a lack of implementation guidelines in most of these laws. Not everyone has full knowledge of the existing laws on conservation. Since the state respects private ownership, not all of the surviving structures could be accessed, classified or declared as historic structures or sites.

2. Educational-Lack of public awareness and interest. Several schools of thought on restoration methodologies, principles and philosophies exist. The resulting trend, therefore, is an endless variety of intervention techniques, which is contrary to the principle of universality.

3. Technical-Lack of resources for both traditional and modern techniques of restoration(e.g. skilled artisans and workforce for traditional works; funding constraints due to expensive or unavailable advanced technologies;no process for simplifying operations;lack of scientific conservation facilities

and equipment); lack of time for quality technical supervision; quick turnover of technical personnel; complex operations involving different and unique individual restoration works that require particular solutions or matrices of techniques for implementation.

4. Fiscal-Too many cases in urgent need of attention but limited budget caps to work with; the implementing government agency finds difficulty in arranging counterpart support from local communities, other governmental organisations and non-government organisations. Conservation is not a major governmental priority. Limited appropriations tend to hasten the programmes and projects; prices of materials and services are unstable; unwanted and uncontrolled delays that result in increased costs of the projects occur.

5. Political-Personal interventions of political or influential figures; conflict of interests between conservationists and persons in power.

6. Socio-Economic-Lack of public awareness on the potential for development, gains and benefits of conservation work. The social and cultural fabric of traditional towns are endangered because of rapid and radical modernization.

Republic of Korea

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Preservation of Traditional Wooden Architecture in Korea

1. Main Subject

1.1 Preservation Time Point of the Prototype

First, in order to preserve the original form of wooden architecture, the point in time to be taken for its preservation is proposed. This is due to the following reasons.

Firstly, wood, due to its material characteristics, must be substituted when aged and, on this basis, most of the architecture targeted for preservation is processed with repair works so as to remain as it is today. The most frequent repair work may consist of that which does not affect the original form like tile substitution, but most historical buildings of today underwent huge scale transformation processes like remodeling, rebuilding, and reconstruction.

Due to this historical process, many buildings left today are built from a composite technique of many generations, from the viewpoint of materials. Depending on the type of cultural heritage, an accurate period of construction may be derived, whereas, on the other hand; this is not the case for all-wooden structures.

Of course, the generational characteristics which remain most on current architecture are generally examined to determine the age of a building but the transformations by repairs must be importantly considered. Thus, according to the viewpoint of the historical vestiges of these buildings, the possibility exists that preservation methods of differing perspective may be adopted.

Secondly, due to the fact that tenants continuously occupy buildings, unlike other historical relics, a continuous transformation is a substantial attribute. It is only in modern times that buildings are considered cultural properties to be preserved. Before this, buildings were utilized for various functions, extended or demolished according to demand and transformed according to use. Especially with wooden architecture, these transformations were inevitably due to the decaying nature of wood and fire risks. Therefore, buildings have changed continuously because of these internal and external demands and here too, hence the issue arises of which point in time should be regarded as the original form of the building and designated as a cultural property. Furthermore, in the case of currently utilized buildings, the issue arises of whether stopping this transformation is the right preservation method.

1.2 Preservation Units

Here, I would like to mention the issues regarding the preservation of wooden architecture, which is such a unique characteristic of wooden architecture in Far East Asia to the point that these characteristics must be reflected in preservation.

Wooden architecture starts from the basic structural unit of the 'kan(間)' and forms 'a single building (棟)', many of which accumulate to form 'a building group (建物群)'. The important point here is that one building is not a constructional unit with strong objective characteristics, but it must be understood from its continuity with the whole building group as a related point. Thus, it bears

its own unique characteristic of modeling. Due to this characteristic of wooden architecture, when wooden architecture is preserved by its understanding as a single existence, it may only be preserved in the form of a single stuffed object, losing its important architectural essentials which arise due to serious issues. This means that the building group must be recognized as a major construction unit.

Table 1. Preservation Unit of Building

	Architecture (建築)		City (都市)
Kan (間)	Building (建物)	Building Group (建物群)	Historical Culture Environment (歷史文化環境)
Minimum unit of wooden architecture (Structural basic unit)	Major preservation unit of wooden architecture	Major preservation unit of wooden architecture	Expansion of Preservation Unit
Designated Form	- National Treasure - Treasure - Important Folklore Material - Tangible Cultural Property - Cultural Material	- Historic Site - Historic Site and Scenic Area - Important Folklore Material	Protected by law as 'Protected Area' and 'Cultural Property Protection during Construction' by the Cultural Property Protection Law

2. Preservation Methods and Problems by Preservation Units

In this section, methods of preservation by preservation unit and associated problems of wooden architecture will be discussed on the premise of the aforementioned basic problems.

2.1 Preservation of Single Structure

Preservation of a general wooden structure starts with the preservation of individual buildings because this is the most basic preservation form of wooden architecture. This is preserved generally as "material cultural properties according to the current Cultural Property Protection Law (refer to attached Table 1)".

Focusing on the structural system of wooden architecture, these problems associated with preservation can be broken down into 3 factors.

2.1.1 Structure

Structural problems are the most serious threats of unit constructions. This is because structural problems can progress into a collapse of the construction. Signs of these structural problems appear in major members of wood construction like the tilting of pillars, drooping of girders, breakage of packed caps, etc. The two major factors, which give rise to these problems, are currently the subsidence of stability and a change in the dead load of roofs.

Subsidence of stability is defined as the irregular sinking of the foothold ground, which today, occurs during the development of areas adjacent to cultural properties in big cities, due to changes in underground water level. Therefore, before large-scale underground development, research must be done.

Changes in the dead load of roofs occur mostly during remodeling. During the substitution of tiles, weight differences of the old and new tile, differences in volume of filling soil may occur which give rise to lopsided dead load on the stabilized structural body, whereby transforming the lower structural body.

2.1.2 Unit Sub-Materials

The declination of unit sub-materials is a problem that occurs with individual materials that compose the structural body, which can lead to problems of stability in the whole structure. If strong unit sub-materials of the structural body are not used, even buildings with excellent structural designs are liable to collapse. On the other hand, the declination of sub-materials can occur due to problems in the structure, that is, structural irregularities can concentrate on the unit sub-materials whereby giving rise to damage or bends.

The most general declination phenomena of unit sub-materials are physical cracks, which arise from material aging. Also, damage caused by insects like termites may also occur, due to biological cracks.

2.1.3 Preservation Environment

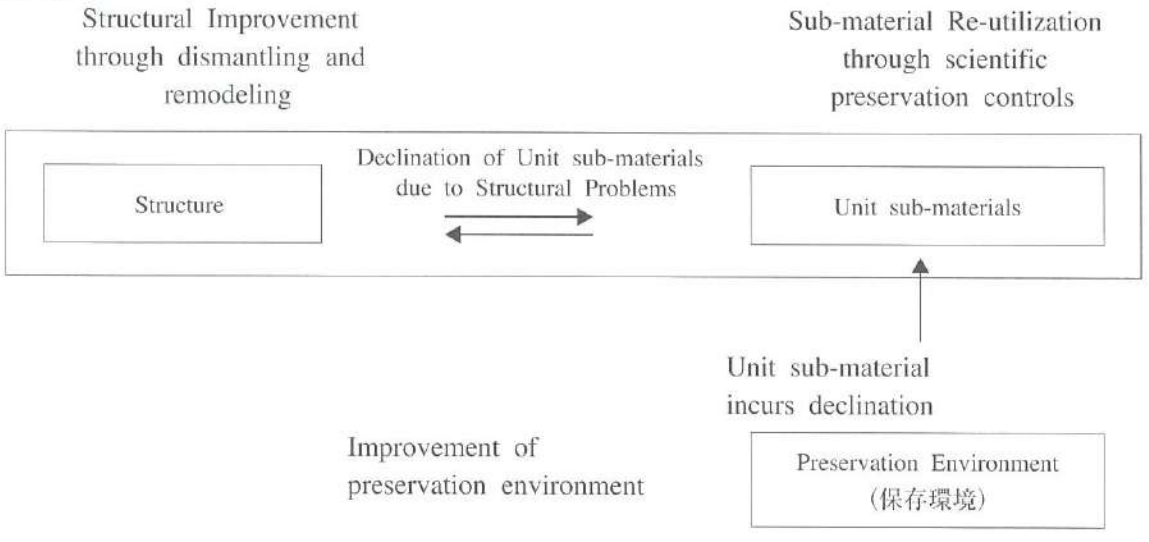
The preservation environment generally gives rise to the declination of unit sub-materials and, in some cases, the whole structure is affected. Due to the recent advancement of urbanization, cultural properties, particularly those located in the downtown area, face many problems that are caused by large scale development that causes changes in underground water level, vibrations and noise from means of transportation like cars and subways, environmental pollution due to acid rain, etc.

When the above-mentioned problems occur, countermeasures for preservation differ accordingly. Thus, in the case of structural problems, buildings are preserved by improving the basic structure by dismantling and repair. In the case of weakened unit sub-materials, scientific preservation controls of sub-materials, like resin treatments, have progressed thus, supplementation of sub-materials and partial substitution methods are utilized. In cases where problems arise from the preservation environment, there is the possibility of unit sub-material declination or structural problems. Here generally, measures of environmental development are taken.

Also besides these, scientific preservation measures are also utilized for the preservation of special properties like wall paintings and sculptures.

The following table illustrates the aforementioned matters.

Table 2.



2.2 Preservation of Building Groups

The building group is currently designated and protected as memorials, that is to say, as a 'historic site' or 'historic site and scenic area', 'scenic area' or 'major folklore material' by the Cultural Property Protection Law (refer to attached Table 1).

2.2.1 Preservation of "Mutual Relationship of Buildings"

The mutual relationship of buildings is a very important preservation target from the preservation unit of a 'building group'. The mutual relationship between buildings regulates the characteristic of each building in the building group. This, in the case of the Geunjeongjeon, the main hall of Gyeongbokgung Palace, the building itself possess its own values worth preserving, but, on the other hand, its relationship with the various buildings that surround it allow more meaning as the most important building.

The recent issues on this kind of mutual relationship between buildings are still maintained functions of temples and houses. This is because, in the case of temples and houses, new building construction is based on current function demand. The methods in which these demands are adapted -- by preserving the content targeted for preservation without destroying the order between buildings -- are being raised as a very important issue.

Another recent issue is the demand for restoration. Especially in the case of temples, restoration is frequently demanded after excavation. The issue that arises here is the point in time of the original form that was mentioned at the beginning of this paper. The location of the building is generally confirmed through excavation, because, in the case of wooden architecture, the building has often been burned down by fire or the tensile strength of the temple was reduced or even ruined. With each new generation, the relationship with other buildings differs because of newly constructed buildings with added features or extensions or because the building itself was moved, making it difficult to specify the point in time to be regarded as the restoration point. Furthermore, the restoration of buildings that go back to the Korea Period must be inevitably managed with limited data because there are no buildings remaining, which may hinder historical imagination.

2.2.2 Preservation of "Relationship between Land and Architecture"

One of the important factors that determine the construction work of traditional architecture is the site. The reason of the land must be observed in site studies and the building is made concrete by geomantic aspect of the land. In traditional architecture, the pursue of sites is not merely the passive selection of land (or nature) as a property but where the reason of the land applies from an active viewpoint that affects its mutual relationship with the construction work. The principle of mutual relationship between architecture and land does not only mean the construction work must be coordinated with the natural environment but also that a mutual relationship must be formed between man and nature. Therefore, the consideration of these relationships in the protection of a single structure forms one of the very important contents of construction. Thus, in buildings, the building is the master and the site -- its environment, which does not establish a master-servant relationship through the meaningful value of land -- is a very important factor in preserving wooden architecture.

On the other hand, this issue of sites must be extended to the preservation of 'place (場所性)'. Currently, the reality is that certain protection areas have been established from a passive viewpoint of protection -- the preservation of single buildings or building groups. Thus, cultural properties isolated from the downtown area are left detached from the rapidly developing city area, whereby only minimum protection is provided. For example, in the case of Seoul, in order to keep its 600-year

history along with its appearance and build a city which harmonizes tradition and the current times, cultural properties must be looked at from an active viewpoint. Even if construction is executed the traditional way without the functional benefits of today, the historical and symbolic meanings it contains should be re-interpreted in terms of today's circumstances and, furthermore, the current physical environment of the construction must harmonize with the historical environment. For these circumstances to be materialized, broader range cooperation is required. Thus, cooperation is needed between professionals like architects, urban designers, city planners in constructing the physical environment of cities. And, this can be achieved if this cooperation is established systematically.

3. Conclusion

The basic issues concerning the preservation of wooden architecture is first observed, then followed by a brief examination of preservation methods and associated problems by preservation unit. Within this, preservation unit, utilization, and location are circumstances that must be considered in the preservation of wooden architecture. These concepts are outlined in Table 3 below.

Table 3.

Classification		Practical Examples	Preservation Considerations	Remarks
Preservation Unit	Single Building	Buildings left alone	- Scientific Preservation of single buildings - Regulations placed on acts which may have negative impact	- Preservation unit currently classified as single building and building group by Cultural Property Protection Law - Establishment of protection area centralized on preservation unit - Outside Protection area regulated as cultural property preservation during construction work and cultural property preservation during development projects.
	Building Group	Royal Palace/ Buddhist Temple/ Confucian School/ Houses	- Preservation of terminable relationship between buildings	
Location	Suburban Region	Buddhist Temple/ Confucian School/ House		
	Urban Region	Royal Palace/ Government Office/	- Control of developments that impose negative impact on surrounding scenery and other preservation efforts - Terminable harmony with urban development	
Utilization	Not utilized	Royal Palace/ Government Office	- Need for application measures of buildings for terminable relationship with environment, preservation of junctions	

	Utilized	Buddhist Temple/ Confucian School/ House	- Adjustments of demands on new construction and circumstantial changes	

However, the point to be emphasized here is that the most important factor for the preservation of wooden architecture is the understanding of its characteristics. Preservation without understanding the target object is done in vain. Thus, after understanding the object to be preserved, what exactly has to be preserved must be set and then the preservation method of the object must be discussed. Wooden architecture is formed with clearly different historical processes from western architecture. From these historical processes, the traditional architecture of Korea possesses both uniformity and characteristics seen today, where it is here emphasized that today's subject can be confronted by the clear understanding of these uniformities and characteristics.

Also, another fact is that protection from a passive viewpoint must be transformed into an active viewpoint. Buildings are live cultural heritages that exist in the daily lives of people and not protected behind the glass walls of a museum. This implies that the preservation of buildings must be approached from different angles from that of relics and suitable preservation techniques that apply active concepts must be developed.

Wooden architecture is common to Korea, China and Japan, as a part of culture. It is currently known that each of these countries has competed for the preservation of wooden architecture. It is thought that it is time for these efforts to be combined to achieve more efficient accomplishments and, therefore, joint research must also be promoted.

Sri Lanka

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Problems and Needs of Cultural Heritage Protection Activities in Sri Lanka (mainly about architecture in buildings)

1. General-Department of Archaeology in Sri Lanka

Sri Lanka has a recorded history of more than 2500 years. Our cultural heritage has grown with the introduction of Buddhism in the 3rd century BC. The Department of Archaeology is the organisation responsible for all the archaeological activities, i.e. preservation and restoration of cultural assets in Sri Lanka. Any other institution or person that wishes to get involved in archaeological activities should get appropriate authority from the Department of Archaeology.

The major functions of the Department of Archaeology include;

i. The regular maintenance and security of the antiquities in sites, museums, archaeological reserves and protected monuments.
ii. Exploration of ancient sites and the administration of the Antiquities Ordinance
iii. Excavation of ancient sites and research into the physical culture of historical and pre-historic periods.
iv. Conservation and layout of ancient monuments and environs.
v. Conservation of wall paintings and sculptures.
vi. Research relating to inscriptions, their translation and publications.

The annual budget allocated for the preservation of cultural assets in Sri Lanka was 160 million rupees (2. 1million US$) for the year 2001. This amount was directly transferred from the annual budget of the Sri Lankan Government to the Department of Archaeology. In addition, several other institutions also invest money in the protection of the cultural heritage.

For easy handling of work, the services of the Department have been divided into 7 sections.

a. Exploration and Documentations
b. Excavation and Museums
c. Architectural Conservation
d. Chemical Conservation
e. Maintenance
f. Epigraphy and Numismatics
g. General Services

Each section has a Director who is professionally qualified in the respective discipline. I am working in the Architectural Conservation Section as a Senior Technical Officer cum Conservator. Legislation dealing with Cultural Asset Preservation in Sri Lanka are the Antiquities Ordinance of 1940 (Revised 1956 & 1998) and the Cultural Property Act 1988

The number of persons involved in cultural asset preservation activities in Sri Lanka is as follows.

Professional Staff	
(Ph D, Master Degree Level):	125 approx.
Technical Staff	
(Graduate/Diploma Level):	250 approx.
Craftsman Level:	2500 approx.

In addition to the Department of Archaeology, the University of Moratuwa (Faculty of Architecture), Post Graduate Institute of Archaeology and Central Cultural Fund are participating in the conservation, research and education activities in architectural conservation. The National Museums Department maintains a major museum in the capital city and 5 other branches island-wide to exhibit the archaeological findings as well as other cultural properties, in addition to the archaeological museums operated by the Department of Archaeology.

The Central Cultural Fund, a separate institution, also carries out archaeological conservation work with foreign funds and UNESCO assistance. They conduct conservation work at five sites, all of which are world heritage sites, under the authorization of Department of Archaeology.

2. Major Cultural Assets in Sri Lanka

Six places that are rich in archaeological values have been inscribed in the World heritage List.

1. Sigiriya Ancient City
2. Polonnaruwa Ancient City
3. Anuradhapura Ancient City
4. Kandy Sacred City
5. Galle Ancient City and Fort
6. Dambulla Cave Temple

2.1 Sigiriya Ancient City

Sigiriya is a large rock boulder, which is about 200 m. high. In the 5th century, King Kashyapa built his fortified palace and pleasure garden at this site. The remains of a vast palace can be seen on the summit of this monolithic rock. There are many pools and fountains around the rock. The geometrically symmetrical arrangements of the ponds and the pleasure garden are wonderful creations of the past. The entire fortress area is surrounded by a moat and thick fortifications. Sigiriya is world famous today for its unique and lively frescoes, architecture, landscaping, engineering and hydraulic technology.

2.2. Polonnaruwa Ancient City

Once Polonnaruwa was the capital of Sri Lanka and these spectacular ruins, located on the plains of north-central province, symbolise the pride of a mighty kingdom of the 12th century. Among the remains there are ancient monuments, Image Houses, stupas, ponds and lakes that are all made of stone, brick and timber. The Thivanka Image House has the best-known Buddhist frescoes of the Polonnaruwa Era, and most of ruins in Polonnaruwa are not yet excavated.

2.3 Anuradhapura Ancient City

Anuradhapura, the island's capital for some 1,400 years, was the largest and the oldest kingdom,

which spreads approximately across 100 acres (40 hectares) of land area. In this sacred city, the ruins of huge stupas, monasteries, Buddha images, colossal man-made lakes and ponds, hospital complexes, storied buildings and stone inscriptions are imperishable evidence of the energy, technology and imagination of the people of Sri Lanka. The Sri Maha Bodhi tree is considered the most sacred tree of Buddhists because Lord Buddha attained enlightenment under a Bodhi tree (Ficus Religiosa) in Gaya, India, and the Sri Maha Bodhi is an off shoot (sapling) of that original tree. It is well known as the oldest recorded historical tree in the world.

2.4 Kandy Sacred City

Kandy was the last capital of the ancient kings'era of Sri Lanka. The temple of the tooth relic of the Lord Buddha -- the treasure of Buddhists -- is preserved here. Around the temple, the buildings of the King's palace can be seen and the Sri Lankan skill of wooden architecture is depicted by the remarkable wooden constructions, which are well preserved today. In addition to the Dalada Maligawa, there are many wooden buildings of historical temples around the city of Kandy.

2.5 Galle Ancient City and Fort

In 1505, Portuguese who first invaded the maritime provinces of Sri Lanka built a small fortress to guard the natural harbor in Galle. The Dutch took it in 1656 and added ramparts and more bastions around the edges, churches, houses and well planned streets within the walls together with a complex network of underground channels which enabled the sea to flush away the sewage. And, the dungeons and guard rooms are the visible evidence for present generations.

2.6 Dambulla Cave Temple

Dambulla is a complex of rock temples and is known as the largest rock temple with well-preserved ancient wall paintings including 160 images of Lord Buddha, Bodhisatva and gods. The beautiful ceiling paintings of Buddha stories can be seen over 2000 sq. m. of the rock roof. These paintings are now being conserved. Apart from this natural complex, there are many wooden creations remaining in Sri Lanka today.

3. Architectural Conservation of the Department of Archaeology

This project provides for the exposure and conservation of ancient monuments in archaeological reserves and the layout of their environs. The main activities of this project are classified as follows.

i. Exposure of Ancient Monuments
ii. Conservation of Monuments

Normally conservation work can be divided into 3 categories.

1. Brick Monuments
2. Stone Monuments
3. Timber monuments

In this report. I do not mention the first two types of monuments, i.e. brick and stone monuments.

3.1 Ancient Timber Monuments in Sri Lanka

Timber is the most popular and easily found building material at present as well as in the past. The wooden architecture of Sri Lanka goes back to a period of over 2500 years. A building

tradition of wood and mud walls has existed since the early settlers colonized Sri Lanka. In early period, timber was used in log form. After the advent of tools, logs were converted into the required sizes and shapes.

Timber buildings, which remain today, are of the 15th-18th centuries. The tradition of wooden structure is excellence in design, construction and carvings. Over thousands of timber buildings are conserved today including the remains of assembly halls, shrine rooms and rest halls. These buildings can be seen in and around Kandy, which was a mediaeval city.

The four main types of timber structures are identified as follows.

1. That which uses timber as a base of a building
2. That which uses timber for the superstructure
3. That which uses timber for the roof though the superstructure can be of any material
4. Other

3.1.1. That Which Uses Timber as a Base of Building

These buildings were constructed on a platform raised about 1'-0" from ground level. Four logs were placed transversely on four or more stone pillars or rock boulders. Stone pillars can be short or tall or they can be a boulder. In these buildings, the superstructure could be timber or wattle and daub. An example of the above is (1) Temple on Pillars (Tampita Vihara) and (2) Wayside Resting Places (Ambalama)

3.1.1.1. Temple on Pillars (Tampita Vihara)

This is the very interesting wooden construction. These are shrine rooms that are constructed on a grid of timber beams placed over large boulders or stone pillars. These stone elements are used to protect the timber from insect attacks and moisture. The height of the stone pillars varies from building to building. The shrine room was covered with mud walls (Wattle and Daub) and both sides the of walls were painted with Buddhist stories.

The roof was erected on wooden pillars that were fixed to horizontal timber beams. Clay tiles were used to cover the roof. About 1000 of this type of Tampita Vihara are in Sri Lanka. Most of them were conserved by the Department of Archaeology

3.1.1.2. Wayside Resting Places (Ambalama)

Another interesting wooden structure in Ancient Sri Lanka is the Ambalama (Rest Hall). The construction is similar to Tampita Vihara described above. These buildings were the resting places built by the side of ancient thoroughfares, under a big tree or on a flat rock in a paddy field for those who traveled by cart or on foot in Ancient Sri Lanka.

An ambalama is normally square in shape. Four stone boulders are placed on a rubble platform or flat rock, and huge wooden beams are stretched over it. These beams are used for sleeping or as benches to sit on. The roof is constructed on timber posts, which are fixed on beams. Most of the timber parts, except huge wooden beams, are carved. The roof is covered with clay tiles or thatched. A fine example of such structure is the ambalama at Panavitiya.

3.1.2. That Which Uses Timber for the Superstructure

In this case, two or more rows of timber columns are fixed on a raised platform to hold the roof. The most common examples are the audience hall in Kandy built for kings and the Dancing/ Drummer's Hall of "Embekka Devalaya". Most of the wooden elements are carved.

3.1.3. That Which Uses Timber for the Roof Though the Superstructure Can Be of Any Material

In the above types and other masonry buildings, the roof structure is made of wood and clay tiles laid on it. Examples: Shrine Rooms

3.1.4. Other

In addition, other elements of these buildings such as doors, windows, railings, columns and some other timber parts are carved. Among these are the popular decoration motifs. The only evidence of an ancient timber bridge is found in the hill country in the village of Bogoda. The three large beams, which span two cliffs, are placed across the stream and are supported at the centre. The span of the bridge is approx. 30 m. Timber pillars that are fixed to above beams support the tile roof.

4. Problems and Needs of Cultural Heritage Protection Activities

The above types of structures are threatened by negligence, deterioration, climate, humidity, biological attack and lack of maintenance. A conservation programme should be proposed with the first priority being given to the roof. Then, the superstructure can be taken care of. Therefore, these monuments must be preserved in an intelligent manner. As in a country like Sri Lanka, a decaying building is always in danger due to heavy rains. Therefore, first of all, the monuments must be protected against rain. In most of the cases, before starting conservation work, a temporary protection roof, mainly thatched with woven cadjan (dried leaf of coconut tree), is erected over the building. That will make it easier for conservators to work in the sun and rain.

But, as a developing country in south Asian region, Sri Lanka faces different difficulties when it comes to conservation work.

4.1 Lack of Funds for Conservation

The main problem of protection activities is the lack of funds for conserving and maintaining the cultural heritage. Although the cultural properties contribute very much to the country's economy, it is not directly visible. Therefore, the funds allocated for conservation are also a lesser amount when comparing to other funds of the National Budget allocations. A large number of timber buildings are in state of decay. It is the duty of the Department of Archaeology to protect and preserve all listed cultural properties. But, due to insufficient monetary allocations, the department could not carry out all the conservation work. Therefore, the general public is conserving most of the monuments, as most of our monuments are living monuments related to a religion. The owners of these buildings intervene to protect monuments in wrong ways. In this procedure, they will destroy the character of the original building with interference of unskilled conservators. As an example, concrete beams were introduced instead of using timber in one of the wooden structures.

4.2 Little Knowledge of the Latest Techniques

Traditional techniques are currently being used in most conservation projects. Though it is good

to follow traditional techniques, some of the conservation projects need newer techniques to ensure greater protection. Lack of skill and knowledge with new methods, techniques and the latest equipment is also a problem. As a developing country, the latest technology is not accessible to the people engaged in the conservation field. The Internet can be considered as the most recent main source of information. But, it is very expensive in Sri Lanka to access the Internet. On the other hand, with little knowledge of international language, the conservators are caged into their own territory. Although it is better to practice the traditional techniques of conservation, the conservator must know modern techniques as well.

4.3 Lowly Skilled Craftsmen

Technical personnel and craftsmen have been trained for typical traditional construction works. When they start to work on conservation projects, the methods and theories practiced here are different from what they have learnt. Therefore, they have to learn and develop their skills in conservation work. As trained people, they can easily be converted in to conservators, but there are some who do not want to become conservators, as their mind has already been trained for another purpose. Hence, there should be basic training in conservation for the conservators during their technical education. On the other hand, there must be training courses and workshops for them, to ease the construction work. But, with the few facilities we have, that is a difficult task. The conservators involved in cultural heritage protection have little opportunity of improving their skill and knowledge. More education and training opportunities should be given to them. But, it is a tragedy that lower and middle level conservators have the least opportunity to be trained overseas.

4.4 Lack of Help from Other Related Parties

The officials engaged in conservation are directly responsible for their duties. But, due to insufficient qualified personnel and/or governmental procedures, the authority fills the necessary vacancies not with the qualified officials but officials with administrative positions. Due to this conflict, the objectives and targets of archaeological principles cannot be achieved. But, with the above -mentioned difficulties and the lack of help from official administrators, conservators face problems. On the other hand, due to the strict rules, regulations and procedures of the administration, most of the conservation projects are completed without conservation principles.

Thailand

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Characteristics of Thai Houses and Problems in Cultural Heritage Protection Activities in Thailand

Preface

Wood is natural and it has been used as a construction material for thousands of years. Generally, a wooden structure is considered temporary lasting 20 to 30 years, however, if use suitably and the environment is favorable, it can be long-lived and durable. The example is wood in constant dry condition or wet condition will not decay over time.

It may be said that wood is one of the most popular construction materials because its cost is lower than other materials, such as concrete and steel. Not only having a good mechanical quality, wood also offers good resistance to vibrations, thermal insulation, a smooth and shiny surface, as well as a beautiful grain to enhance the aesthetic value of the structure. Wood is a material which is easy for assembling and dismantling, and can be made in as many sizes as required. For these qualities, wooden structures are generally found in residential buildings, schools, factories, bridges, retaining walls, etc.

The durability of the material and structure is essential. It depends on elements which are assembled to form the building which are materials, joints, fastening, etc. It is usual for each element to age and decay during the building life. Durability also depends on the quality of the materials and structures themselves, on resistance to environmental factors such as sunlight, wind, rain, chemical reactions, biological reactions, as well as the nature of exposition to temperature and moisture, which varies according to location. Materials used in repairing and conservation, therefore, must always consider the nature and scale of damage that occurs with wood and structural systems made with it, and decide the means of conservation to be applied.

Thus, it is necessary to consider and analyze problems and select suitable methods of repair. It is also important to understand that, in repairing ancient buildings, there are constantly many professionals who study and invent new methods and technology for conservation.

Building Documentation

The conservation of an old building is important in terms of architecture, engineering or history, or its connection with historically important people. Thus, it must be conserved to retain the condition of a certain period of time in history. Conservation works will be carried out on some parts of the building, but the survey and recording of the whole building may be required. This is because we may correctly specify the date, priority of building and changes when the whole condition of building is assessed. Apart from recording the condition of a building above ground, sometimes we may require some below ground information in order to better comprehend the condition of the building. Thus, archaeological excavation and recording of the below ground condition are necessary in some cases. This happens in the case that the building is so damaged that only some aboveground part remains, or the building was built on the site where there had been

other buildings situated formerly.

Special Characteristics and Details of Elements in Thai Houses

Thai traditional houses are mainly built of wood. The roof is steep and walls are made of wood in knock-down style. The house is one-story with a high raised floor. This style is popular and mostly built along the waterways because they are primary communication routes. A traditional Thai house is large at the base and tapered towards the column purlins. This style is generally found in the countryside. The construction technique are wood jointing and dowelling. The materials are local and the style is simple with moderate size and scale which is suitable to the local environment and climate. Therefore, it is widely built in local areas and can be considered a basic housing style of Thai society.

Characteristics of Thai Houses

The plan of the house is usually rectangular. The structure is entirely wooden using teak or other hard wood, fastened with joints, dowels and Chinese nails. The roofing materials are terracotta tiles, elephant grass, or nipa palm leaves.

The house is one-storied with a high raised floor for good ventilation. The area under the floor is also used for activities, warding off dangers, keeping animals and avoiding flood waters. The roof is steep and triangular in form, without ceilings, and, on side, the eaves are extended to cover a deck. The form of the house is wide at the base and tapered toward the heads of columns on all sides. The floor is made of wooden planks of approximately 40 cm. in width and 4 cm. in depth. These planks are paved lengthwise on beams made of one timber installed along 3 bays of columns, and may be extended by joining at the following bay. Floor planks are joined at intervals by dowels made of bamboo or cassia wood. Stairs are open and without balustrades. Fastening is by Chinese nails to hold the wall base and roof structure. Walls are jointed. Window frames are decorated with carvings. Sometimes the panel under the window is carved. Ventilation is decorated with openwork. The middle part of the door or window is also carved.

Roofs in Thai Architecture

The roof is the covering of the whole building. It can be divided in two parts: structure, which is mainly built of wood, and roofing material such as terracotta tiles, etc.

1. Roof Structure: In Thai architecture, the roof structure frame is triangular, virtually equilateral for the most part. As an exception, some buildings of the Ayutthaya Period have steeper angle than 60 degrees, and some of the Rattanakosin works during King Rama III's reign have a roof angle of less than 60 degrees. As for Ayutthaya architecture, there are both roof types with rafters to connect the purlins together and those without rafters. In Rattanakosin, however, the builders preferred to use large rafters between the ridge and purlins at the column top to reduce the horizontal force. The necessity for using large-sized purlins is thus reduced and the purlins became rectangular and smaller in size. This roof structure of post bearing lintel -- one tier upon another -- originated from ancient Chinese architecture which has been widely distributed in East Asia and Southeast Asia. The strength of the roof structure depends of the 3 important points, that is, the end of the angles of the triangular frame, which are the ridge and both column purlins, as well as strength of joints.

2. Basic problems found in roof structures due to structural deformation, construction, design, termites

Roofing materials in Thai architecture are mainly terracotta tiles made from clay fired at medium heat (not higher than 800 degree centigrade). Such tiles are both glazed and unglazed. The 3 most

popular designs are the rounded end, the cut end, and the banana plant curved tiles. The rounded and cut end tiles have 'male' and 'female' types, which are of different length. The female tiles are approximately 13.5 × 25.0 cm. in size and the male tiles are approximately 13.5 × 18 cm and are placed on top of the female tiles in the middle of the joint of two female tiles in order to cover the joint.

3. Eternal principles for wooden roof repair

3.1 Splicing: As for wooden roof structures, the splicing method done by cutting the damaged part of wood and replacing it with the same kind of wood, or wood of good quality, is a basic method of repair. Splicing is used where the structure is uncovered, therefore craftsmanship is required for it to be good quality, original and durable.

3.2 The use of synthetic materials such as epoxy: At present, the use of epoxy in repairing structural wood is more acceptable due to conveniences in in-situ repairs. The epoxy used is mixed with methanol and hardener called "10% cobalt naphthenate" and filler (diatomaceous earth). This mixture may be diluted with chemical to make work more convenient. It also requires consolidation by fixing with stainless steel rods or glass fiber rods to hold the original wood with the epoxy.

3.3 Moisture prevention: Moisture prevention treats the root of the problem before damage occurs. Moisture is a cause of rotting tissue and decay, which lead to mould growth and termite attacks. Moisture prevention methods:Ventilation, coating, termite prevention

Susceptible to Attack by Organisms

The highest disadvantage of wood is that it is sensitive to attack and damage by microorganisms such as mould, insects and boat-boring shells. When wood is in a condition that enables microorganisms to live, the wood's working age is naturally shortened. Some wood has very high natural durability because it can produce resin which is toxic to microorganisms.

1. Physical environment that affects microorganism growth: Biological damage to wood occurs when physical conditions are beneficial to growth of microorganisms that can potentially damage the wood. To find means for controlling these microorganisms, we have to know the physical requirements that affect their growth. Wood-damaging microorganisms basically require the following to grow: Food, suitable temperature between 0-45 degree centigrade, moisture and oxygen.

2. Wood-damaging mould in tropical areas: Fungi are found abundantly in tropical areas in the ground, deadwood, or even the wooden structure itself. The severity of damage depends on the species of fungus. The significance ones are White fungus (Pycnoporus sanguineus) and Brown fungus (Lenzites adusta).

3. Insects: There are 3 groups of wood-damaging insects, namely the damp wood attacker, the dry wood attacker, and termites, which are the most serious wood attackers in the tropics.

Wood Conservation

In a suitable environment, moderate quality wood may endure as long as one thousand years. In countries with cold and dry climates, along with the selection of good quality wood and suitable design, wooden buildings may stand for a very long time. As for the countries with hot and humid climates, the usable age of wood is much shorter. The durability of wood depends on several factors as follows; the quality of the material, techniques and tools for cutting and finishing, design of the building (that prevents the building from bearing the effects of self-deterioration), condition of soil where the building is located and the foundation of the building, and exterior and interior conditions.

Biodegradation

Biodegradation is a major problem which causes damage to wood. This kind of damage can be caused by sources from bacteria to large trees, as follows:bacteria, fungi, insects or other plants.

Wood Conservation

Wood used for the construction of a monument is a kind of natural material derived from trees. The conservation of wood in ancient monuments can be carried out with two objectives, which must be determined beforehand. These are to repair the wood so as to retain its condition and original function, that is, to keep it as a structural element that is capable of bearing load, and to repair the wood so that it bears its own live load, acceptably using other elements as support. This type of repair is used only for museum exhibitions and must be kept in a controlled environment. There are several methods of wood conservation.

1. Hanger of the original wood, entirely or partially
2. Mechanical reinforcement
3. Chemical reinforcement
4. Reinforcement with resin

Thus, it is necessary to consider and analyze problems and select the appropriate method of repair in advance.

Structural Strengthening and Repair Techniques

The susceptibility of timber to 'infectious' biological attack and its significant moisture movement make it essential that structural strengthening and repair are not undertaken as an isolated operation, but are designed as part of a general renovating effort that includes the weather-proofing and moisture-proofing of the building as a whole. The methods and materials used must be chosen with due consideration of the condition of the entire fabric before, during and after completion of the work. The movements resulting from accelerated drying out of such a building may not be as spectacular, but they can result in damage, particularly at joints between old and replacement timbers, unless the latter has been conditioned so as to follow the movement of the old.

Suitability and Compatibility of Materials and Methods

It is not enough to design a strengthening scheme merely to overcome a structural weakness. The design must take into account the general condition of the fabric and to what extent the structural problem is caused by moisture problems and/or biological degradation. Where new and old timbers have to share the load, consideration must be given not only to the relative stiffness in the final environmental condition but also to the relative moisture movement of the two timbers after installation. It is unlikely (except perhaps for a glued joint) that neglect of this aspect would lead to structural collapse, but it could create serviceability problems. Consideration must also be given to possible chemical interaction between repair components and the timber and/or any treatment of it. The tannic acid of fresh oak may attack carbon steel;similarly some fungicidal treatments are based on metal salts which may corrode steel. Where new metal roofing, lead or copper is to be laid directly on new timber boarding that has been given fungicidal or flame-retardant treatment, the possibility of chemical interaction in the presence of condensation or minor leakage must be considered and manufacturer assurances should not always be blindly accepted.

Replacement of Timbers and Strengthening with Additional Timber

When a member is badly rotten or has been significantly weakened by past notching by plumbers and/or electricians, the structure can be restored to its previous integrity and function by replacing the damaged member with a new member of timber, preferably of the identical species. The strength of a compression member is its resistance to bucking. Simply butting the ends of the replacement piece would be almost tantamount to putting hinges at those points-not the best way to achieve stiffness. For members subjected to moderate tensile forces, a 'tabled scarf joint" may allow the splicing in of a new length of timber without the use of bolts. When the joints are notched over the top of a beam, it may be possible to increase its depth by gluing and screwing boards on top of it, between the joist ends (which can be cut back, if necessary, to make room for the strengthening, provided adequate bearing of the joist on the beam is left). It may by advantageous to use a timber of a higher Young's modulus than the parent beam, in order to get an increased effect within the available depth. When such strengthening by 'lamination" is carried out, the moisture content of the new material should be equal to, or less than, that of the existing timber, to avoid subsequent additional deflection due to differential moisture movement.

Strengthening by Metal Straps, Ties or Plates

The techniques adopted in the seventeenth century onwards for new timber trusses, i.e. the provision of metal straps to resist tensile forces at connections, can equally well be used to strengthen and/or repair existing structures.

In the North of Thailand, a building was rebuilt after earthquake damage, including a collapsed tower. Most of the fabric was destroyed. The roof trusses over the rather wide nave were made of softwood, with wrought-iron straps reinforcing those connections that were subjected to tensile forces (these straps were connected to the timbers by the 'forelock' bolts then in use;these were tightened by a wedge being driven into a slot in the shank of the bolt and then bent over). The configuration of the trusses was, however, structurally unsound and led to large bending moment in the tie-beams, due to the inability of the walls to prevent the feet of the rafters from spreading. In one or two of the trusses the tie-beam had, in fact, failed in bending at some time in the past and some time strengthening straps with threaded bolts were evident. Even so, there were gross distortions of the tie-beams and an adequate margin of safety of the roof could not be demonstrated.

Resin-Based Reinforcement Devices

This principle was used in a temple in Thailand to restore the carrying capacity of the floor beams, in which the heartwood had been largely consumed by termites. In this case, however, there was little need for repeated deep saw-cuts;once the top of the beam had been opened, it was mainly a case of 'carving' out the affected timber back to sound wood, before placing reinforcement in the bottom of the cavity and then filling it with a resin compound to 'replace' the termite-eaten timber. The same reservations about the differential moisture movement between timber and resin do, however, apply as much to this type of strengthening as they do to the glued-in flitch plate,. With all resin repairs, it must be remembered that resin compounds have their own special properties, some of which are quite different from those of wood. Advice on any potential problems that might arise should, therefore, be sought in each case from an expert who is not connected with resin manufacturers or with promoters of any of these repair processes.

Antiseismic Bracing

Timber structures, being light, are not subjected to large inertia force arising from their own mass,

and they have an inherent flexibility that enables them to absorb a fair amount of movement without damage. In many cases, however, they support heavy cladding, e.g. masonry wall infill or tiled or slated roofing, which transmit their inertia forces to the frame and/or the roof structure and which are likely damaged by quite small movements. Also, timber floors may provide the only stabilizing restraint to masonry walls. In many traditional roof structures, the only resistance against horizontal movement parallel to the ridge is provided by the connections between purlins and principal rafters. This may well be inadequate to prevent all the trusses from simultaneously keeling over in the same direction and it will often not offer adequate restraint to masonry gables. This deficiency can be overcome by the provision of crossing diagonal flat steel ties, running at about 45 (from the eaves to the ridge and bolted to the principal rafters. At the same time, anchor straps should be embedded into the masonry and connected to the main timbers, so as to provide restraint to the gable triangle. It has been found that one of the causes of serious damage to traditional masonry buildings in earthquakes is movement that distorts the horizontal plan shape, making rectangular all patterns which become lozenge shaped. This distortion can be largely prevented by connecting the wall to the floors and making these acts as rigid horizontal diaphragms.

Conclusion

At present, several ancient buildings which used to be considered irreparable are conserved by modern methodology. Thus, if it is possible to wait for suitable or the best technique, the repair should be undertaken only to preserve the materials. A period of 5-10 years may be worth waiting, and it is not a long time when compared with the life of a building which may last for centuries longer after the right conservation.

Uzbekistan

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Restoration of Architectural Monuments in Uzbekistan

A brief information about historical and cultural monuments, wooden constructions and buildings today.

The government of the independent Uzbekistan pays serious consideration to the development of national economy, industry and culture in preserving historical monuments of architecture which are the heritage of our people.

More than 1350 monuments of architecture were destroyed in Uzbekistan during the years of Soviet power.

The government of the independent Uzbekistan passed some laws that created opportunities to preserve and restore many historical monuments of architecture.

The architecture of Uzbekistan and the historical monuments of Bukhara, Samarkand and Khiva are known all over the world.

Wooden structures, wooden carved doors, gates, penthouses with beautiful unique columns.

Wooden structures and buildings of Middle Age architecture are deeply rooted in antiquity and are the results of the skillful work of the masters of the Bukhara, Samarkand and Khiva schools.

Suffer raising and decadence skill in building and restoring wooden constructions always keeps a peculiar sonorous loftiness, refinement and colorfulness. Side by side with stone carving, alabaster carving, monumental paintings and wood carving, the skill of building with wood by changing the sphere of usage and character continues to exist in our days.

Wooden structures and designs were destroyed over time (as seen during the archeological excavations in Shahristan and Afrasiab) and decorative treatment of wood wasn't known. Columns, cross-beams and boards of arches were covered by delicate carving. Simple geometric and more complicated vegetable ornaments, pictures of birds, people and fantastic animals were used at the same time.

Painters had creative freedom. They worked without preliminary patterns. Similar elements of ornaments always differ from each other, which makes them fascinating. Verve architectural decoration was integral with the building materials, construction and composition of buildings used at that time. It didn't hide the construction;it worked to expose them. One can say that they continued to paint decorative carvings in wood at that time.

After the Arab conquest, a period of instillation of new ideology began:the ideology of Islam (izlam) that greatly influenced the character of building and decoration of buildings.

Strengthening and widening of further development of cities and towers-the centre of trade and handicraft.

This created an opportunity to increase the interior of apartment houses. The thickness of walls was lessened steadily. It was necessary for many regions of Central Asia as they were highly seismic (saizmik).

We cannot say anything about the architecture and decoration of buildings where saw bricks were

used as they were destroyed after leaving them by their owners.

We can say something about such buildings remaining from the end of the 19th century and later.

As for monumental buildings, mosques, mausoleums, madrasahs, palaces, caravan sera is and trade-buildings become the main types of construction.

All these mosques, madrasahs and Khanakas (places where dervishes lived for months and offered prayers) had entrance doors with patterns of geometric or vegetable ornaments.

Gates and doors divided into several types by their variety.

1. Simple doors of dwelling yards
2. Doors with complicated ornaments
3. Simple gates without design
4. Gates with patterns for mosques, mausoleums, madrasahs and palaces

Penthouses are divided into several types, too.

1. Simple yard penthouses without patterns
2. Bulky yards'penthouses with complicated patterns
3. Simple penthouses of mosques
4. Bulky penthouses with beautiful splendid patterns in mosques, madrasahs and palaces.

Doors and gates are the main details in architectural monuments. If we search for information on which architectural monuments retained wooden carved doors, gates and wooden penthouses, we shall see a picture like this.

1. Winter Palace of Bukhara emirs - 1st-4th centuries.
2. Mir Arab Madrasah - 15th century.
3. Poi-Kalyan Architectural Ensemble (Pedestal of the Great One) - 15th-16th centuries.
4. Bohouddin Nakshband Ensemble - 15th-17th centuries.
5. Kukeldash Madrasah - 16th century.
6. Nodir Divan Begi's Khanaka beside Labihauz - 16th century.
7. Hodja Zainiddin Khanaka.
8. Bolohauz Mosque - 19th-20th centuries.
9. Summer Palace of Bukhara emirs-Palace of Sitorai Mohi-Khossa - 19th-20th centuries.
10. Alimkhan Mosque - 19th-20th centuries.

There is little information about monuments where wooden structures, buildings or wooden works were used by Bukhara masters.

The main problems of preserving and restoring architectural monuments of the past in Uzbekistan are:

Many mistakes were made in preserving and restoring architectural monuments during the Soviet power.

1. In restoring architectural monuments, they used wood that had been brought from other regions of the country. The sun, wind and water effects wood and materials. Native wood and native materials must be used in restoring architectural wooden monuments of the past.
2. During the Soviet power, "historical time" was interrupted. Monuments of the 20th century were like the monuments of the15th-16th centuries. Examples of such approach to architecture are:
   - Bolohauz Mosque
   - Jodja Zainiddin Khanaka
   - Alimkhan Madrassah

3. The third problem is the ecological situation of our days. It is a problem of the Aral Sea. The saltiness of the soil is rising in Khiva and Bukhara. This will quickly destroy the architectural monuments as wooden buildings and structures are the first to be destroyed. Our ancestors used local materials in restoring architectural monuments. It is difficult to grow the necessary trees locally for use in wooden structures and buildings in modern architecture.

   The problems are little noted in press.

   Uzbekistan is a unique land where peoples of different nationalities live and work side by side. Our people are an industrious people. We have many ancient cities and tours with unique historical and architectural monuments (Samarkand, Tashkent, Bukhara, Khiva, Shahrisabz, and Kokand).

Thanks to the efforts of the government of Uzbekistan and participants of the Committee of UNESCO, books and pamphlets will be published about our architectural monuments with wooden structures and buildings, which will enrich the world culture.

All of the world must know the unique ancient cities and towns of Uzbekistan. All of the world must value the unique historical and architectural monuments of our land.

Vietnam

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Wooden Architectural Heritage in Vietnam and More Wooden Structure Preserving Activities

Introduction

Vietnam has a history of more than 4000 years. After many periods of construction and conservation, Vietnam has maintained a long history and culture. There are many cultural traces left by ancient Vietnamese throughout the country, from the mountains to coastal areas. Up until 2002, Vietnam had more than 2,700 national properties and 4 vestiges recognized as the World Cultural Heritage. Besides, many properties have been preserved by locals nationwide.

As for the physical heritage, a list was made to classify groups of archeological historical vestiges, architectural vestiges and scenic spots. These groups help to prove a history of thousands of years of culture. Inheriting a great and precious treasure about culture and history, Vietnam has been making efforts to preserve and enrich those precious treasures.

However, Vietnam is situated in a tropical area with a hot moist climate all year long. Therefore, this is a negative influence on the preservation and conservation of Vietnamese cultural heritages, particularly to wooden heritages.

Wooden Architecture Heritage in Vietnam:Features, Threats of Degradation and Destruction Under the Effects of the Natural Environment

Wooden architectural heritage in Vietnam plays an important part in Vietnamese culture including communal houses, temples, pagodas, palaces, rural houses or ethnic houses.

Features: Most wooden architecture has a force-resistant wooden frame in the shape of a range of holding pillars. The construction is 90 percent wood, the rest being brick walls and tile roofs. There is also a wood construction with a red clay roof such as the Dinh Bang Communal House in Bac Ninh Province or the Tay Dang Communal House in Ha Tay Province.

Most parts of a wooden structure contain historical, cultural and artistic values in the form of sculptures and artistic designs. Sculptures in Vietnam are usually made under the theme of a dragon, turtle, phoenix, festivals and cultural activities of ancient people that express thoughts or wishes about natural phenomena and the daily life of people and animals. Sculptures are also masterpieces showing the talent and artistic skill of ancient people.

By making a list and evaluating it, we saw that most of the current wooden architectural vestiges in Vietnam are 200 to 300 years. There are not many constructions more than 300 years old. There are many reasons for this, the main reason being that Vietnam is located in a monsoon tropical region with storms, rain and high humidity, which causes water absorption and licking. This is a favorable environment for the growth of mould that attacks wooden structures. Changes in temperature and humidity make the quality and life of wooden degrade rapidly. Therefore, wooden architectural vestiges in Vietnam are always in danger of gradual destruction under the effects of a severe natural environment. In order to preserve these cultural heritages, Vietnam is facing many difficulties in properly undertaking the task of conservation and preservation of wooden architectural

heritages.

Wooden Structure Preservation Measures in Vietnam

Since ancient times, the Vietnamese people have known how to protect wooden structures in architectural work by designing the house with a high roof that is higher and covers 2/3 of the height of the whole house. The house is built with a wide roofed porch to minimize contact of the front of the house with inclement weather conditions such as sun and rain, as well as wooden supports which are the main strength bearing structures of the building. Ancient people knew how to chip natural blocks of rock into certain geometric shapes (square, round) for column bases to support the load of the building transmitted through the column to the base of the blocks and, at the same time, to avoid direct contact of the column with the wet ground to prevent termites from the ground.

In the following period, ancient people learned how to paint on supports or other architectural members of the work (girders, etc). There are some kinds of wooden members which are covered by types of traditional painting with decorative shapes. In this way, their purpose was to create artistic decorations for the work and additionally prevent the wood surface from being contacted by a high degree of moisture-air minimizes damage to wood.

Nowadays, with wooden structure preservation works for tangible cultural properties of the country, the some ways of wood preservation are applied. This includes moisture-proofing, water-proofing, reinforcement to create natural ventilation, avoiding moisture accumulation and high temperature differences between indoors and outdoors, minimizing conditions that deform materials, separating wooden members from brick blocks by ventilation space or bitumen boards, and separating column bases from blocks of rock by pure lead boards.

In comparison with traditional materials consisting of brick and stone, wood is short-lived. Through wooden architecture works, we find that sculptured traceries on the wood express the spirit of skilled workers in the field of art. Therefore, it is necessary for us to concentrate on preserving the original characteristics of the traces sculptured on wooden members. We observe that:

- Firstly, details should be preserved by only original materials including steps of joining and patching using types of original wood. In the case of damage, they should be replaced or restored with wood of the same type.
- Secondly, they should be manufactured by skilled workers using traditional tools to ensure their entire spirit with subtle traits, aesthetic sense and expression that proves the relation to contemporary production.
- Thirdly, some decorative materials can remain on the surface of the wooden members. For example, painting is an old traditional trade. This is a distinctive mode of manufacture of the Vietnamese people.

The basic values of the wood architecture are protected so that members retain significant information about its past.

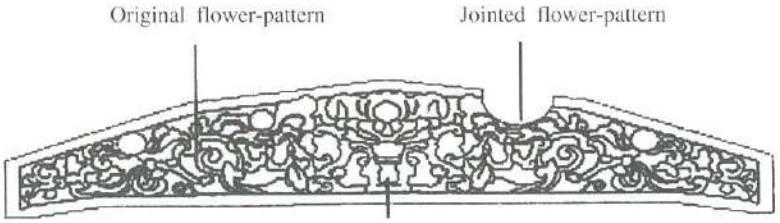
Here following are some common principles for wooden architecture preservation of Vietnamese cultural heritages.

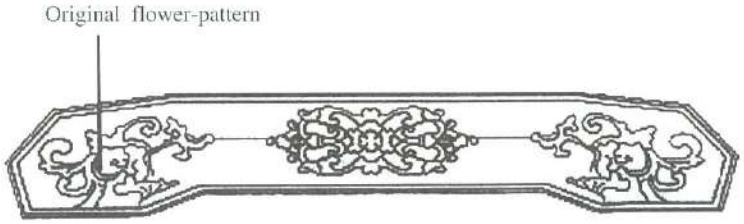
- Maintain covering members with anti-moss, mould and termite chemical substances.
- Moisture-proof and water-proof-the whole member (including covering and core). Because wet members can very easily deformresulting in a great damage.
- Distribute load mainly on core parts of the members to minimize external force on covering

parts.

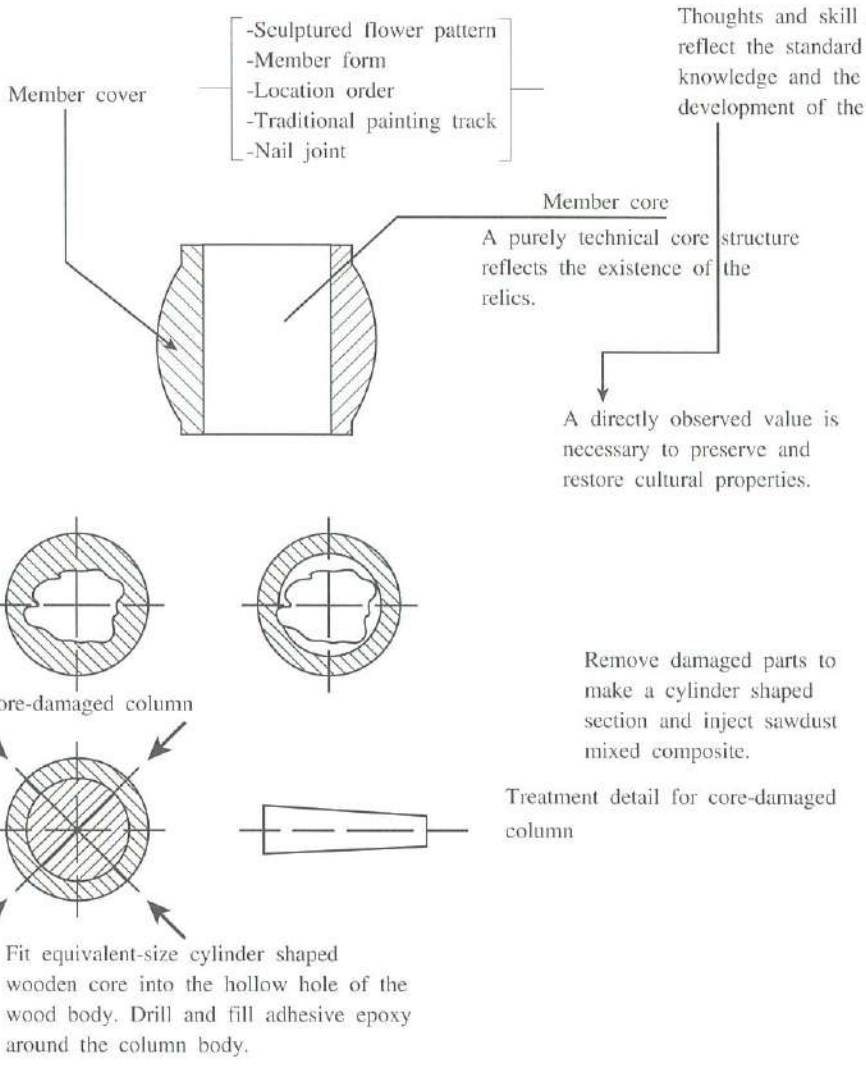
- Know how to select new core and original coverings of the same quality (age, degree of moisture, colour, wood grain, etc). This may be supplemented with artificial means (drying, patina, etc) when necessary.
- Join by tendon, peg and types of composite adhesive to ensure stability.
- Eliminate or treat agents that destroy wooden structures by impregnating bamboo tendons with chemical protection, rust-proofing iron pieces, etc.
- Use chemical substances to maintain the members and especially traditional painting.

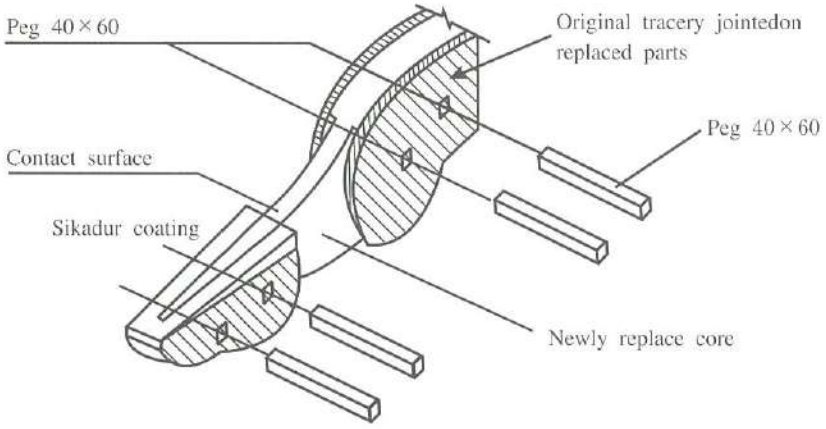
Example for Core-Damaged Column Treatment Method





Keeping the original tracery is the restoration base.


Member cover
-Sculptured flower pattern
-Member form
-Location order
-Traditional painting track
-Nail joint
Thoughts and skill of the artist reflect the standard of artistic knowledge and the level of development of the time.
Member core
A purely technical core structure reflects the existence of the relics.
A directly observed value is necessary to preserve and restore cultural properties.
Core-damaged column
Remove damaged parts to make a cylinder shaped section and inject sawdust mixed composite.
Treatment detail for core-damaged column
Fit equivalent-size cylinder shaped wooden core into the hollow hole of the wood body. Drill and fill adhesive epoxy around the column body.


Peg 40 × 60
Original tracery jointedon replaced parts
Peg 40 × 60
Contact surface
Sikadur coating
Newly replace core

The preservation method of wooden structures by the natural environment is seen as a traditional method and includes activities such as maintaining, checking and exposing damaging agents (especially fungus and termite) and sources of infection, creating ventilation environments, cleaning, collecting garbage, preventing leaks in the roof, and insulating and moisture-proofing members by theoretical mechanics.

The main purpose of the above mentioned methods is to limit the degree of moisture in the building in order to prevent timber fungus in an advantageous development environment.

Fungus is the first damaging agent to wooden members. Wood strength will be decreased if an element of fungus or group of fungus attack the wood and change chemical composition of it, making the wood moister and keeping moisture longer, which leads to further attack by fungus. Therefore, the most effective method is to keep the building dry at all times. Through experience in Vietnam, regular maintenance will stop the process of fungus development in the roof and base of the building because the roof and base have most moisture-retaining places of the building. It is very easy to wipe out some kinds of timber fungus if dry conditions are kept at all times. However, the timber fungus can recover its attacking strength in some case. So, other types of fungus destroying chemical substances should be applied in the preservation of wood members.

The type of chemicals often used for the above purpose in Vietnam is mixture of Bo. It is used to cover all areas of damaged wood or is injected it into small holes in the column base.

After wiping out the timber fungus, the danger of termites will appear. To exterminate the termites, there are two ways, as follows.

- Use a bait to lure the termite. The bait contains a poisonous mixture (compound PMC 90) that reduces mobility and restrain the process of solution. This method does not kill the termite immediately; instead the termite brings the compound to its nest and spreads the substance throughout the colony.

- Use Hexaflumuzon. This chemical substance prevents the skin processes and has no impact on individuals bearing it. The compound can stop a big nest of termite such as Formosan termites. Small traps containing an efficient composition are located in high danger places and checked regularly. In the case of a trap containing many termites, the Hexaflumuzon is added. The result is stated that 3 to 5 g of the compound can wipe out an entire nest of termites in comparison with many litres of chemical liquid. The Hexaflumuzon only spreads in the nest of termites and has no impact on living creatures in the surrounding area.

Wooden structure preservation measures for the cultural heritage are diverse. It depends on the specific case which measures are the most effective and can preserve the heritage and protect the environment at minimal expense. However, the preservation of wooden structures faces many difficulties. For example, building maintenance and protection have not been implemented strictly. The types of chemical substances as well as regulations on chemical substances in maintaining structures and preventing termite are unclear and very complicated. Specific regulations and procedures for measures of joining, patching and sealing wooden members have not been documented. For that reason, it is very difficult to guide carpenters in their work.

Therefore, the study of preservation of wooden structures in cultural heritages should be continued through cooperation and the sharing of experience for years to come, in order to protect our cultural heritages for future generations.

IV Introduction of ACCU Programme

Introduction of ACCU Programme

Ms. OHNUKI Misako
Director, Culture Division
Asia/Pacific Cultural Centre for UNESCO (ACCU)

General outline

Brief History

1971 ACCU founded
1979 Pacific countries joined in ACCU activities
1981 Literacy Programme started
1999 Cultural Heritage Protection Cooperation Office opened
2001 30th Anniversary of ACCU

General outline

Contents

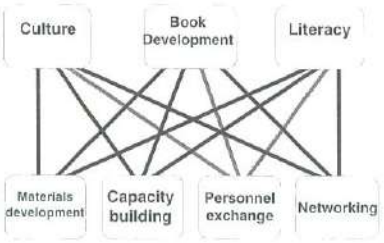
Pt.1 General outline of ACCU

Pt.2 Individual programmes

Pt.3 Future agenda

General outline

Activities(Fields & Programmes)



General outline

What is ACCU ?

- Asia/Pacific Cultural Centre for UNESCO
- A non-profit, semi-governmental organization
- Established in 1971
- Working for the promotion of mutual understanding and cultural cooperation among people in the region
- In line with the principles of UNESCO
- "Since wars begin in the minds of men, it is in the minds of men that the defenses of peace must be constructed...."

General outline

Unique feature

- **Joint Production Scheme**
- Close cooperation & full participation of UNESCO and its member countries
- From planning, implementation & distribution and evaluation

General outline

Joint Production Scheme (1)

Needs Assessment

General outline

Joint Production Scheme (2)

Text and illustration sent to ACCU

Implementation

General outline

Joint Production Scheme (3)

Prototype master version in English

Reflect Cultural diversity

General outline

Joint Production Scheme (4)

Domestic versions in local languages

Dissemination & Evaluation

Cooperation with UNESCO

General outline

Priority Area of UNESCO

- **Basic education** - Literacy promotion
- **Cultural diversity** - World heritage & Intangible cultural heritage
- **Water & environment** - Ecology series of ACP, PLANET 1-3
- **Digital divide** - Literacy Data Base & Cultural Heritage Data Base

A C C U

Programmes

Intangible cultural heritage

- Data bank on traditional/folk performing arts (2000)
- Documentation and promotion of intangible cultural heritage (2001)
- Regional Workshop on Proclamation of Masterpieces of Oral and Intangible Heritage of Humanity, 12-16 March, 2002, Tokyo

Cultural Programme

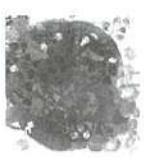
Photo Contest and Traveling Exhibition

- ACCU Photo Contest in Asia and the Pacific since 1976
- Aim: Promote mutual understanding through photographs
- 2001 Contest :"Clothes and people" 27 countries, 7,648 entries, 3 Grand Prix, 10 Special Prizes, 87 Excellent Works selected

Protection of Cultural Heritage

- Cultural Heritage Protection Cooperation Office opened in Nara (1999-)
- Regional Training Programme (2000-)
- Individual Training Course (2000-)
- International Seminar/Symposium (2000-)
- Data Base on Cultural Heritage (2001)

Book Development



Book development

Asian/Pacific Copublication Programme(ACP)

- Basic model of joint production scheme
- 29 titles published : Folk Tales in Asia, Ecology Series, picture books
- Vernacular version : 26 countries, 36 languages, 4.2 million copies
- New book has been published entitled: "Meet My Friends" in 2001

Book development

Asian/Pacific Book Development (ABD)

- A quarterly magazine on news and information relating to publishing and book promotion in Asia and the Pacific
- Articles on special topics, significant publications, current trends and events of publishing in each country
- 32 volumes since 1969

Book development

Training Course on Book Production

- Since 1967
- Aim: Promote publication knowledge and technique in Asia, and Build up network of publishing personnel in the region
- 33 Times, Over 700 trainees
- Theme of 2000-2001: How to produce environmental education materials

Book development

Asia-Pacific Cooperative Programme in Reading Promotion and Book Development (APPREB)

- An internet website news service proposed by UNESCO in order to promote book development and reading activities in the region since 1992
- Experts meeting for consultation on APPREB website 19-21 February 2002, Kuala Lumpur
- URL: http://www.accu.or.jp/appreb

Book development

Noma Concours for Picture Book Illustrations

- Since 1978
- Aim: Encourage illustrators in developing countries, and Provide them with an opportunity to introduce their works, thus Improve the quality of picture book illustrations in the region
- 2001 Concour:308 entries, 54 countries, 1 Grand Prix, 2 Second Prizes, 10 Runners-up, 21 Encouragement
- Noma site: http://www.accu.or.jp/noma

Literacy promotion

Literacy Promotion

Literacy promotion

Background

- 880 million illiterates in the world
- 620 million in Asia and the Pacific
- 400 million women and girls (2/3)
- World Conference on Education for All in Jomtien (1990)
- World Education Forum in Dakar (2000)
- Poverty, Over populated, Under developed

Literacy promotion

Literacy Resource Centre for Women and Girls (LRC)

- A resource centre managed by ACCU's partner organizations
- Serving for the promotion of literacy especially for girls and women
- Human, technical, material and information resource centre
- Regional network
- 15 LRCs working in Asia/Pacific

Literacy promotion

Materials Development

- AJP Materials:
  58 prototype learning materials
  330 titles, 34 languages, 19 countries
- Package Learning Materials on Environment (PLANET)
  "Water pollution", "Forest conservation"
  "Waste management"
- Handbook for Adult Learning Materials Development at Community Level

Literacy promotion

Information Network

- Asia-Pacific Literacy Data Base
- Literacy Facts and Figures, Who's who in Literacy, National Literacy Policies, NFE Curriculum, etc.
- Since 1997
- URL: http://www.accu.or.jp/litdbase

Literacy promotion

Capacity Building

- Regional Workshop on preparation of Literacy and Continuing Education Materials in Asia and the Pacific
- Aim: Train specialists in literacy and CE
- Since 1983
- 2002CBW: 22Jan.-2Feb., Bandung, Indonesia

Literacy promotion

Tokyo Statement on Non-Formal Education

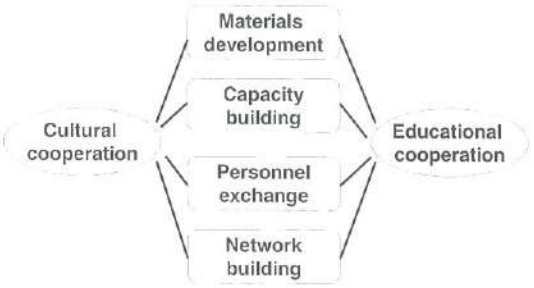
- UN Literacy Decade 2003/12
- Inclusion of NFE in National Action Plans
- Equivalency between Formal and NFE
- Community participation, ICT, Monitoring
- Funding

Youth exchange

Youth Exchange

Future agenda

Structural Change



Youth exchange

Background and New Programme

- Cologne Summit Communique of Group 8 in 1999
- Stressed the importance of exchanges of teachers, administrators and students
- UNESCO-Japan Fund in Trust for the Promotion of International Cooperation and Mutual Understanding
- Since 2000

Future agenda

Priority Area and Future Agenda

- Respect for cultural diversity
- Contribute to the promotion of basic education
- Personnel exchange for mutual understanding
- Advancement of professional skills and knowledge
- Seeking new project and budget

New Step Toward 21st Century

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

In many Asia/Pacific counties, numerous cultural properties are threatened by such risks as deterioration, weathering, and quick and shoddy repair or incomplete restoration urged by tourism promotion policies. In addition, in many countries, the numbers of specialists committed to the planning of cultural property protection policies and experts of cultural site preservation/restoration are far from sufficient. To respond to requests for cooperation from these countries, the Cultural Heritage Protection Office, Asia/Pacific Cultural Centre for UNESCO (ACCU) was established in August 1999, as a centre for promoting cooperation in cultural heritage protection.

The office is located in Nara, Japan's ancient capital, where numerous cultural properties have been preserved. With cooperation given from UNESCO and the International Centre for the Study of Preservation and Restoration of Cultural Property in Rome (ICCROM), the ACCU Nara Office organizes training courses for experts in the Asia/Pacific region, holds international conferences gathering experts and specialists, and collects cultural heritage information through overseas site surveys and disseminates such information.

Programmes

Collecting and Providing Information

Networking and Information sharing is of strategic importance for cultural heritage preservation, since many volunteers, as well as experts, participate in such projects from around the world. It is also important to collect and share information necessary for risk management. For instance, those involved should know which cultural heritage sites are threatened and the types of risk they face.

We are creating a database of organizations and institutions, education and training courses, and Japan's role in Cultural heritage protection in Asia and the Pacific region, which can be accessed throughout the world.

The ACCU Nara Office has already established human networks by organizing training courses and international meetings. With cooperation from National Commissions for UNESCO, the ACCU Nara Office will select its counterparts and update the database. Also, by disclosing study results and articles in its journals on the website, the ACCU Nara Office will continue to augment its functions as an information centre.

Providing Technical Support and Specialist Training

We organize various training programmes to provide participants with expertise and advanced technology in the surveying of ruins, preservation and restoration of wood and stone structures, preservation science and other related areas.

The training course is intensive with lectures, research, technical training, discussions, fieldwork and so on; in this way the participants learn about cultural heritage protection methods.

Holding International Conferences

We hold international conferences which offer opportunities to exchange information among specialists worldwide.

Regional Exchange Programmes

We hold symposiums and seminars open to the public to raise awareness of the preservation of

cultural properties. Cultural Heritage includes precious for all humanity which have been bequeathed to us from ancient times. Asia and Pacific countries boast a variety of these precious properties, some of which have been inscribed on the World Heritage List. However, many are facing critical problems - they are threatened with degradation or even destruction.

Education Through Publicity

We introduce both domestic and foreign cultural heritage sites through the Internet and bulletins.

V Participants' Final Reports

Bhutan

Mr. Phuchu DUKPA
Restoration Engineer
Division for Conservation of Cultural & Historical Structures
National Commission for Cultural Affairs

As a Specialist

Detail data collection work has to explore the site in the following way.

Meetings with responsible and concerned officials in the locality. And, to gain the active participation and raise of awareness of general public about the programme, the people of that locality must be involved with the programme and discuss the historical and cultural background, as well as regional, functional, social and educational values.

Site visits should be made and detailed surveys should be conducted at the site or monument. And, an analysis of the problems should be done thoroughly of what, how and when the worse affects appeared in these sites.

Detail documentation such as photography, measurements, filming and sketching should be carefully done. A special consideration and priority should be given to the worse affected part so as to protect the cultural heritage from further deformation and prevent it from losing its value forever.

After detailed surveys and documentation have been completed, a master plan and a well-planned work schedule must be drawn up for the whole work or for the project period. Each and every part of the members should be marked wherever necessary and every member, which needs to be replaced and restored, should be carefully recorded when dismantling the structures. Detailed explanations of the job have to be given to the carpenters at the site using written drawings and orders, before actual work starts.

During actual execution of the work, careful and timely supervision at the site should be monitored and, in the event the officer in charge of the project is away from site for some reason, either the head carpenter or any person with extensive experience in the same field should be given the responsibility for the work. Lastly, it is necessary to share responsibility amongst the project management staff of for the successful completion of the restoration project.

The Most Difficult Part of the Job

To cross the bridge of conservation work is really a challenging and tiring job as it needs to be set to music from diverse angles such as finances, international standards, laws and regulations, ecological and cultural sustainability, identification and future authentic material availability. However, the most difficult part of the job is to convince the higher authorities and face the public with words that will make them understand the value of our own cultural heritage and stimulate them to make a collective effort to preserve this own heritage (thinking and acting on owns own with national pride). Then, we must match our intervention and decisions with the living cultural heritage and traditions. In particular, my country (Bhutan) lacks the professional personnel in the field of conservation and,

with low experience and training, we have great difficulty undertaking conservation work efficiently and in line with international standards.

My Main Interests in This Training Programme

- To learn the knowledge, techniques and skills associated with the conservation of wooden structures in Japan, through a series of lectures, practical training and visits to many world heritages and important cultural heritage sites, as Japan has been the leading country in the protection wooden architectural heritages in the Asia Pacific region for a very long time and has highly developed skills for conserving wooden structures in line with international standards.

- To learn the ideology and methodology of conservation of wooden structures in different parts of the world from the lecturers.

- To share the experiences, approaches and problem-solving amongst participants from different countries in Asia Pacific region with different interpretations of cultural values, climatic conditions, and traditions.

The Most Impressive Points during This Programme

Having landed in Japan on October 15,2002, I expanded my reach and saw such a great number of timber structures ranging from massive castles to mystical temples and simple dwellings, which substantiate the expression of their high value and unique cultural heritages of this country. Furthermore, we could see the highly professional skills and technologies used in the conservation of cultural heritages since the 7th century to the latest developed technologies. Also, the well-maintained and systemic arrangement of their cultural heritage sites is really impressive, such as the installation of fire security systems, and so on. Also, to know that, apart from the availability of funds, the people in this region have highly developed knowledge and a strong interpretation of the preservation of their own cultural heritage is very impressive. The detailed explanations of the works and sites, and the willingness to make every participant understand the course were also very impressive.

What I Learned from This Training Programme

With hope and aspiration to learn, (I should say that the dream has come true) from this training programme I learned lot of things.

- From the veteran experts or lecturers: The cultural heritage protection system in Japan, such as a history of cultural properties, laws for protection of both tangible and intangible cultural properties, designation and selection of structures at various levels, incentives for owners that promote the protection of cultural heritage, and the concepts of Japanese architecture in general.

- The various ideologies, methodologies and approaches to conservation and restoration work in Japan such as complete replacement, half replacement and partial replacement of all types of timber structures.

- The methods of structural analysis that determine the age of a building, whether any restoration or alterations have been done;use of different methods of analysis such as the carbon dating of roof tiles and wooden members, studies of style and design of the structures in the roof, facade, layout of beams and columns, frames, etc.

- Diagnosis and treatments

- Different methods of conservation from the 7th century to these latest methods

- From course mates and international lecturers: What is happening with conservation works in the Asia Pacific region.

- The attitude of people in this country toward their cultural heritage and so on.

Utilization of Results of This Training in My Country

Once back in my own country, my day-to-day responsibility is in dealing with wooden structures and their problems, so what I learned from this training programme is very relevant to my job of saving the life and cultural heritage of my country. The things I learned will be shared with colleagues working in the same field, through workshops, meetings, reports, etc. Although some methods cannot be directly implemented, but, for the long run and sustainable use, they are very important.

Conclusion

The training programme, which offered theory, practical work, site visits and study tours to different places in the country, provides a great chance to enhance oneself in many ways. The coordination of the whole programme is very systematic and efficient in the arrangement of lecturers, transportation and lecture halls, and, especially during the study tour, the arrangements to meet with the concerned lecturer were marvelous. The duration was just right which means not too short and not too long.

China

Mr. XIAO Dong
Assistant Researcher
Ancient Architecture and Relic Protection Centre
China National Institute of Cultural Property

1. As a researcher of monuments and sites, I have many things to do, especially project and research cultural heritages.

In China, there is a long history and a large area of cultural heritage. These heritages are distributed all over my country, and they have existed for several thousand years or several hundred years. All of them are in need of repairs of varying level. But, for a long time, because of some reason attributable to mankind or Mother Nature, many of these cultural heritages were damaged or loss. It is a very big loss that we cannot prevent. All people in my company and I should work hard with this undertaking. Especially now, with a well developed culture and growing economy, the understanding of government and all the people has certainly improved. Many people have learned the value of the cultural heritage more. This is very important to cultural heritage and our conservation work. Thus, we can pull together our energies to study the problems facing each cultural heritage and repair them step by step.

Up to now, I have been engaged in two aspects of conservation work: one deals with the actual conservation of monuments and sites, including planning and design. For example, I am doing projects for Diwang Temple in Beijing, Beizhen Temple in Liaoning (province), Fuxi Temple in Gansu (province). The other work is research into China's ancient architectural history. I am now studying a very special part -- Tou Kung -- and I have had some very important results.

2. I think the most difficult part of my job seems to be how to finish exact plans or designs for a cultural heritage in a limited amount of time.

Every cultural heritage project is given a set amount of time, but it isn't usually formulated by the researcher who is engaged in the protection of the cultural heritage after his system and scientific research. Instead, the time frame is determined by the government that is in charge of the project. Because the people in government do not know the quality of cultural heritages, the planning is formulated mainly according their work, in order to achieve a special political or economical aim during the limited amount of time. But, when we really begin to plan or design the project, we often run into something difficult which we didn't consider at first, and these sticky points cannot be solved thoroughly in a short amount of time.

For example, when I designed the project for the Beijing Diwang Temple this Mayn, I thought I would have finished the planning in two months, including the material I had collected from my investigations, but when I began to design the Pailou (one part of all the projects), I found some different sizes and shapes in all the materials, which I should have known, so I had to stop my designing to spend more time trying to verify certain things. Therefore, without question, it was a more difficult thing.

3. My motivation and interest for this training programme are of course to do better work in the conservation of cultural heritage, by learning through the lectures, visits, practical work and so on.

In Asia, the Pacific and even all the world, there are many wooden buildings. There are many

methods and experiences in different countries and regions, but it is impossible for us to use these methods directly in our country and region. So, through this training programme, I think we should learn the thought process more than the content and method. Without question, a person of the same profession in Japan works very well. Through this investigation by myself, I have improved my confidence and force.

4. The most impressive points during this training programme were the practice of wooden structure conservation and the decision-making processes.

Because the participants spoke and understood English more or less on the same level, I think the practice process was the best. Everybody including all the participants, the translator and all the workers got easily through the structure and technology which we all knew well. By gesticulating, the exchange was easier and the memories better.

5. What I have learned from this training programme is mainly the thought process of cultural heritage conservation.

(1) Every participant has some sort of contact with ancient buildings in Asia and the Pacific. It is very important and useful for us that we investigate and compare the differences between the ancient buildings in Japan and one's own country, especially for me. We know the Nanchan Temple is the oldest building which still exists now in China. It was built in 782, it is very small one and part of the Tang Dynasty. But, the Toshodai-ji Temple in Japan is bigger and more important than it. Because when it was built in 780, the Chinese monk Jianzhen brought many Chinese craftsmen to Japan to do it. Without question, it is Chinese style, so many people who want to study the China's ancient architectural history want to come here to look at this building. Of course, this training programme was a very good opportunity for me and I really learn something.

(2) Before we came to Japan, I think some of us did not know the situation of wooden structure conservation in other countries, especially those in Japan. Maybe the problems that somebody thinks aren't really a problem. In fact, it is only a simple technical method. But, after we came here and learned something from reports, lectures, practice, discussion, investigation and so on, I think every participant has learned the real problem of wooden structure conservation in his (her) country.

(3) When we go back our countries to continue our work and run into some sort of difficult problem with a cultural heritage, we can invite other foreign experts -- of course including Japanese experts -- to cooperate. I think it is very good for the cultural heritage.

(4) In this training programme, I feel everybody who is engaged in wooden structure conservation is very careful and serious about everything. I admire them and congratulate their success deeply. If it is possible, I hope I can interact with persons of same profession in Japan.

6. When I go back China, I will study, propagate and utilize many things from this training programme.

(1) Because I have some difficulty in English and there is not enough time to understand all the material thoroughly in Japan, I have to spend some time to study these materials again. And, then, I will draw a conclusion from them in line with the facts of Chinese heritages.

(2) I want to prepare a report about this training programme. I will tell persons of same profession in my institute what I have seen, heard, learned and so on. I think they will find some inspiration and I hope they can have the chance to see Japan for themselves.

(3) I will do my best to practice and bring forth new ideas of what I have learned from Japan and

all the other counties, not only what I learned about the methods but also the thought process.

7. My general impression of this training programme is that it is a very good chance for every participant to exchange and learn from one another.

I believe all the participants learned in this training programme to different degrees, of course, because the programme was good, including the lectures, practice, study tours and reports.

I also have several suggestions.

(1) For me, I think there should be more lecturing in the classroom and less practice in the field. Because the guidelines would be given to us, especially those handed out beforehand, we can study them for a certain amount of time by ourselves. I think it is better for the lecturer only to spend a short time explaining answers to our question. And, I don't think that all the lectures were good or useful.

(2) We know the ACCU Nara Office is the common organisation of all the countries in Asia and the Pacific and that the aim of this training programme is to help each country do better in the conservation of wooden structures in their country. But, I think some of us don't know the history or situation of wooden structures in Asia, the Pacific or around the world, either systematically and clearly. For those who do not know the relationship of wooden structures between his (her) country and other countries, it is possible that he (she) does not know which thought process and method are the most useful and would directly help him (her) to solve the problems of conserving wooden structures in his (her) country.

For example, we know there is similar type of the wooden structure in China, Japan and Korea. Some thought processes and methods are fit for each of these three countries and they can be understood easily by the participant of these countries. But, these thought processes and methods may not be fit for other countries.

Therefore, I think if the ACCU Nara Office can invite an expert who is engaged in the ancient architectural history to give the participants a lecture about what I said during the later half of the training programme.

(3) I don't know but I hope that the ACCU Nara Office can organise workers who are irregularly engaged in the conservation of wooden structure so that they can jointly study wooden structures which have been repaired at one time or another in some country in Asia or the Pacific and devise a plan together in a short amount of time. I think this is the kind of action for the conservation of world and human cultural heritages.

I welcome every person of the same profession to China for investigation and exchange.

Iran

Mr. Gholam Reza RAHMANI
Head of Both Departments of
Architectural Decoration Conservation & Painting Conservation
Research Centre for Conservation of Cultural Relics (RCCCR)

The Difference between Activities Related to Cultural Heritage in Iran and Japan

The main difference appears in the organisation responsible for cultural heritage and the laws for protecting these cultural heritages.

In Iran, the Iranian Cultural Heritage Organisation (ICHO) is the governmental body in charge of cultural heritages.

We don't have any particular laws that show in detail how to protect a cultural heritage. Everything is limited to some regulations of the ICHO and those differ case by case.

Although experts in Iran have a good understanding of concepts related to cultural heritage, we have not been so successful in giving the public appropriate information our cultural heritage. It means the lack of suitable publication, TV programs, and public cooperation in protecting the cultural heritages. The Iranian Community is not aware of importance and value of cultural heritage, which causes some troubles not only to the ICHO and cultural properties but also the public.

As we were in war for about 8 years just after the revolution, until now the main priority has been to reconstruct economical structures. Cultural heritages received only a small part of national budgets. This caused a decrease in the speed of implementing projects related to cultural heritages.

In Iran, the main part of projects, in the field of cultural heritage, is concerned with the identification phase that includes archaeological, technical and architectural (in case of buildings) surveys. It means that archaeologists work closely with other specialists on a project team.

What I'm going to Do After Going Back to Iran

From the experience I have had here, I will suggest the following projects be executed in the coming year:

1. Identification and Documentation of Wooden Structures of Iran

As constructing wooden structures is not main style of Iranian architecture and is limited to some parts of Iran, we have little documentation about them. Concerning the characteristics of this kind of building, we have to protect this style and encourage the public to use this material for constructing where it is possible and meet their needs. This project would need to organise a research team that consists of architects, conservators, anthropologists and conservation scientists who work together. It needs an archive for keeping the maps, photographs and records of the project, and also a data possessing section, which can define future projects.

2. Working on the Diagnosis of Wooden structures in Different Parts of Iran

As wooden architecture in Iran appears in different areas with different climate conditions, and uses different woods as the raw material, there are different kinds of damage. Identification of these damages and understanding the relationship with environmental conditions, their usage and botanical properties of the wood are vital as basis of conservation strategies.

Also, I have some points useful for the manager of World Cultural Heritage Sites of Iran, which can be used in revising the management plans of these sites.

My Responsibility As a Conservator

As the head of both the departments of Painting Conservation and Architectural Decoration of the RCCCR, I am responsible for:

- Submitting the annual program for education, research and conservation strategies/activities of the RCCCR related to the activities of both departments.
- Acting as a chief conservator in projects that the RCCCR carries out in these fields.
- Organising conservation scientists of our departments in their research projects and revealing the priorities of research activities of this department.
- Programming the expansion/setting up workshops for conservation projects nationwide.

Designing and under taking short training courses, seminars&conferences and publication of guidelines and technical bulletins for curators and restoration technicians in the conservation of paintings and architectural decorations.

The most difficult part of my job is to find the materials and methods used in international references in Iran. Sometimes, I have to find substitute materials or adapt a conservation method to suit our local conditions. Also, I make the curators aware of the importance of preventive conservation.

This Training Course and I

As my first course outside Iran, it was a successful experience. I've obtained good knowledge of wooden architecture and Japanese culture. Everything was good and every one was nice and kind.

The programme of the course was great. It was arranged in such a way to make it possible to get more information in the least amount of time. The environment was suitable and I've made some good friends from other nations.

I think if the ACCU expands the items of training courses into different fields of conservation, it would be a great help towards improving the level of conservation in this region.

Conclusion

The training including the theory, practical work, site visits and study tours to different places in the country gave me a great chance to enhance myself in many ways. The coordination of the whole programme was very systematic and efficient in the arrangement of lecturers, transportation and halls. Especially during the study tours, the arrangements to meet with the different lecturers were marvelous. The duration was very suitable, which means not too short and not too long.

Kazakhstan

Ms. Yelena Khristoforovna KHOROSH
Chief Architect
State Institute for Scientific Research and Planning on Monuments of Materials Culture (NIPI PMK)

I work in the State Institute for Scientific Research and Planning on Monuments of Material Culture (NIPI PMK), which represents now the only institution in Kazakhstan responsible for all kinds of scientific research, surveys and planning for protection, conservation, restoration, rehabilitation, adaptive reuse, interpretation and presentation of immovable cultural heritage. The Institute has contributed to the elaboration of all ongoing national programmes related to cultural heritage, and also participates in their implementation, conducting the scientific, experimental and planning works on a broad range of heritage conservation and management problems. In the field of protection and conservation of cultural heritage, I have worked here since 1981, after receiving a degree in architect at the Almaty Institute of Architecture and Civil Engineering. Conservation architecture is my main profession and I have achieved through my practical work. My usual activities are mainly related to conservation planning and supervision of work implementation on architectural monuments and archaeological sites, especially in cases when there must be used the most delicate and poorly known conservation techniques. Such project implementation programmes include the training of conservation workers, and the experience gathered during the conservation process serves then as a model to be used in future practice on other sites. As a chief architect of the Institute, I am also partly involved in the administrative work and play a part of coordinator for all the Institute's projects related to the international cooperation, nominating cultural properties to the World Heritage List, management of cultural heritage sites, and educational and training activities. Presently, I participate in the implementation of the UNESCO/Japanese Trust Fund Project for Conservation of Otrar Tobe, the Silk Road city-site in South Kazakhstan. The project involves three national institutions, and my role is the NIPI PMK official representative and a national conservation expert team leader. The most difficulty I face in my work is a lack of professional staff in the agencies responsible for the decision-making on the protection of cultural heritages, and the selection and approval of conservation and restoration projects. It is aggravated by the insufficiency of protective legislation, low public awareness and a shortage of conservation experts.

My institute was very much interested in sending one of its workers to participate in this training course, because we actually have not trained experts in the field of conservation of wooden structures. I have been selected mainly due to the fact that I am supposed to be a trainer for the group of young experts we plan to accept in the Institute next year. My personal motivation for participation in this training programme was a wish to learn more from the international experience in protection, conservation and management of cultural heritage in general, and in the existing techniques of preventive and curative treatment of wood, and in methods of analysis on cases of wood deterioration in particular. Also, I had a strong wish to see the famous Japanese architectural monuments and to establish contacts with Japanese conservation experts.

There were many impressive points for me during my stay in Japan. First of all, it was the Japanese historic architecture itself, representing a perfect example of refined simplicity and aesthetic

quality, with a high level of workmanship and special relationships with the natural environment. To the best of my present knowledge, I find that the Japanese concept of cultural heritage and approach to its preservation are unique in the world. It is reflected in the legislation and criteria for listing cultural properties. The administrative structure that provides the active participation of both national and local agencies, financial support by the government, a number of responsible organisations and professionals, the high level of organisation and management of the conservation projects, the combination of traditional techniques and high technologies, developed facilities both for scientific research and for the implementation of conservation and restoration projects-all these aspects of the whole system of protection and preservation of cultural heritage in Japan that I have learned through lectures, site visits and communication with the Japanese experts has made a strong impression on me as a great contrast to the present situation in my country. Due to the possibility to see the restoration sites in action, the restored monuments, museum exhibitions, videos and slides - all supported by the explanations of professionals - I have also learned a lot of practical things related to the traditional craftsmanship of Japanese carpenters, to the organisation of restoration process, and to the role and practical work of conservation architects as the main coordinators and decision makers. It was quite interesting to discuss with Japanese experts and with course participants - conservation experts from the other countries - our common and particular problems and concerns, and it was also one of the most important components of the course. After going back to Kazakhstan, I will share this information with my colleagues and also with our cultural heritage protection authorities. I will use it as a tool to improve the present situation in the organisation of conservation activities in general and in the promotion and facilitating of the scientific research in conservation in particular. Later, together with my colleagues, we shall study in detail the documents of the Japanese cultural heritage legislation, in order to use the most effective points in our future work on the revision of our protective legislation. The training course itself can serve as a good model for other training activities.

The training programme was worked out very thoughtfully, embracing a wide range of problems related to the protection and preservation of cultural heritages in Japan with a reference to international concepts and experiences. Rather than practical training in traditional and modern techniques of wood conservation, this training course aimed to show a clear picture of the complicated system of historic preservation in the context of a wood culture country, as a bright example of the organic unity of cultural and natural heritage and its tangible and intangible values, of traditions and modern development, of past and present. Japan is indeed a country with a historic preservation culture. To develop this culture, it took ages of continued tradition in construction, reconstruction, restoration, maintenance and care of architectural monuments and their natural environment. I have got a good lesson that there are no ready recipes anywhere in the world on how to protect and conserve the cultural heritage in a particular country, and the only way for all countries is to maintain their traditions and to develop historic preservation as a part of their culture.

Lao P.D.R.

Mr. Ounheuane SOUKASEUM
Teacher
Fine Arts School
Department of Information and Culture

Luang Pra Bang city was named a world heritage site in 1997. To provide protection for this area, the provincial governor appointed local committees and set up the world heritage office, which improved the town because of its important heritage, culture and natural environment. I am a teacher of wood carving and lacquerware in the fine arts school. Currently, we are working on the conservation of Vat Pa Phou Sang Temple which is a wooden structure. The trainees that work with me from the cultural survival project are doing practical work on the brick walls repairing the stucco and natural painted surfaces. These colors have been on the temple for many years and appeared between the tiles.

In the Lung Pra Bang there are many historic wooden buildings, monuments, and temples that need conservation work. Mural painting conservation is a big part of the work. We have a problem finding materials to use in the conservation work and knowledge on how to conserve the properties. Another problem is the lack of money for projects to be undertaken. Now, I have had the opportunity to participate in this training course, which is useful for my work conserving wooden structures.

I am interested in wooden carpentry, policymaking, project planning, project management, building construction, and techniques of wood conservation. The Japanese technique is interesting because it is very strong and most impressive. An example is Toshodai-ji Temple where I could see the Kasuga -style (Bentensya) architectural column. The roofing style of the traditional Japanese house in the Nara Prefecture Folklore Museum was very interesting for study. I also learned how to copy flower designs from roofing tiles (pome pong) and architectural drawings of the bracket were also interesting.

It was good to visit buildings and see traditional Japanese wood construction, particularly the height and size of these buildings and the decorative elements. It was also most impressive to see the Japanese -style temple roofs, stepped in two layers, a very beautiful construction. I was also impressed by the techniques of restoration used for the decorative elements of buildings. The visit to the Japanese Carpentry Tools Museum was very interesting to my training. It was good to learn the Japanese methods of conservation.

I have learned many things from this training programme. The first lecture was an introduction to Japanese architectural heritage and conservation preservation in Japan. We also visited historic buildings in the Nara area including wooden heritage temples such as Horyu-ji Temple, then to the Nara Prefecture Folklore Museum. We had participants'presentations and discussions, then case studies on practical wooden conservation by Ms. INABA Nobuko. The lectures on the concepts and philosophy of international conservation were lectured by Mr. MYKLEBUST. Mr. WIJESURIJA gave an overview of the conservation of wooden architectural heritages in the Asia-Pacific region. I studied the reconstruction of ancient buildings in the Nara Palace and visited the National Museum

of Ethnology and the Osaka Museum of History. Overall, Mr. KONDOH Mitsuo presented the process of wooden structure and, another day, we had a workshop at Toshodai-ji Temple. At Toshodai-ji Temple, we studied policymaking, project planning, and management. Also, we learned about inspections, diagnosis, wooden carpentry, and roofing. Our tasks were to produce a measured drawing from the old building, then had to present and discuss the results of the group workshop. We had a lecture by Mr. UENO Kunikazu about urban/territorial conservation and visited the Imai-cho Conservation Area. Last was the study tour that included; Itsukushima Shrine (world heritage site); Kokuzen-ji Temple (conservation site, Hiroshima City). Then, we visited Kurashiki City (conservation area), Himeji Castle (world heritage), Kobe city Kitano Conservation Area, and Takenaka Carpentry Tools Museum. Finally, lectures on the conservation science of wood, dendrochronology, the protection of traditional techniques, materials for sustainable conservation and integrated heritage management were made.

This training program was useful for me because my country has important culture heritages that are particularly old wooden buildings that need to be conserved and managed.

In Laos, the conservation of wooden buildings has just started, so there is no experience in conservation and management. I have studied in this training course about conservation and wood building structures. In our projects after this training, I will try managing conservation planning to check the progress of drawings and survey old buildings before restoring decorative elements.

The benefits that this training programme gave me were an understanding of wood conservation, particularly the work of conservation architects, and the research needed to determine the history of buildings. I was impressed with the knowledge that the Japanese experts had about the research work on historical documents for conservation work. The experience of the course showed me how carefully they examined the architecture, artistic details, and woodcarvings to find out the history of a building. From this, the restoration work is carefully carried out, particularly the joining and mending of wooden architectural timbers.

The training course was very good and gave me knowledge about conserving old style wooden structures. It was also very interesting in learning about Japanese heritage and the importance of the work they do here. Overall, the course gave me a great opportunity to discuss the viewpoints of conservation with fellow participants and tutors to further my knowledge in this area.

This training coarse helped me to understand more about the conservation of wooden building culture heritages and, as a first course in Japan, Nara, it has been very successful.

Malaysia

Mr. Johar Bin KADIS
Senior Assistant Curator
Monument and National Conservator Centre
Department of Museum and Antiquities

I am a Senior Assistant Curator responsible for the Malay Traditional Unit at the Section Monuments and National Conservation Centres, Department of Museums and Antiquities, Malaysia. One of my duties is to take inventories of the heritage buildings and ancient monuments such as houses, mosques, shrines, palaces, and all the monuments and buildings related to Malay traditions in my country. I also manage and supervise all the conservation projects for heritage buildings and ancient monuments, which are very important in term of history, architecture and materials and unique to my country

In addition, I manage all the processes of conservation works before and after completion of the projects. Before the conservation project starts, all procedures for conservation works mentioned as below must be followed.

1. Historical surveys and research
   Historical surveys and research are important because from them we know how important specific heritage buildings or ancient monuments are. This covers the following aspects.
   a. Surveys for evaluation of historical buildings
   b. Structural analysis of historic structures and architecture

2. Research on conservation
   Research on conservation will cover following aspects.
   a. Research on landscape
   b. Research on location area
   c. Research on building materials

3. Archaeological excavation for monuments
   Surveys and archaeological excavations are very important before the implementation of works on monuments or historical sites. Here following are the aspects.
   a. To detect all the structures
   b. To detect all the artifacts and archaeology

1. Conservation management
2. Conservation consulting
3. Preparation of working drawings and specifications
4. Construction management
5. Various survey and research into conservation
6. Writing and editing of conservation reports
7. Creating archival drawings
8. Preparing official applications and reports
9. Technical assistance in conservation works

Most of the heritage buildings and ancient monuments built in wood in Malaysia are prone to destructive agents either physically or biologically. Other than that, destruction is also caused by physical development and modernization in the area, especially in urban areas. Supervision and protection under certain governmental legislation are not efficient enough to ensure historical buildings and ancient monuments are safe from destructive agents. Preservation treatment applied to heritage buildings and ancient monuments, especially timber buildings and structures, does not restore structures 100% to their former condition, but it can stop further deterioration.

Conservation of heritage buildings and ancient monuments especially made of timber faces several problems concerning approach and technique because we have not enough expertise especially in the conservation of wooden materials.

Legislation and related acts such as the Antiquities Act of 1976, enacted to protect national cultural properties like heritage buildings, ancient monuments and cultural heritages, was outdated and revised as the Cultural Properties Bill of 2000. The present act is more efficient about protecting national cultural heritages, heritage buildings and ancient monuments.

Another problem in Malaysia is that we lack technical workers such as engineers, quantity surveyors and architects with expert knowledge and clear ideas of the objective of the conservation method of wooden structures applied to heritage buildings, ancient monuments and cultural properties. They must know, what the important characteristics of the heritage buildings, ancient monument and cultural properties are and what the future use of these properties will be? Because each heritage building and ancient monument presents unique problems.

Measures taken in order to overcome problems concerning national heritage buildings, ancient monuments and cultural properties must be implemented systematically, quickly and efficiently. Related Acts and legislation should also be carried out within the guidelines. Techniques, knowledge and expertise in the conservation of national heritage buildings, ancient monuments and cultural properties must be upgraded and exercised.

The most interesting part of this training course for all participants is a lot of exposure to the Cultural Properties Act. Also, I learned from explanations of specific subjects and learned more details through an introduction to the cultural heritage protection system in Japan and an introduction to Japanese architectural heritage by Dr. SAITO Hidetoshi. Other impressive lectures were on the theory and practice of conservation by Mr. Dag MYKLEBUST, the conservation of wooden architectural heritage in the Asia-Pacific region by Mr. Gamini WIJESUIYA, the overall process of conservation in Japan by Mr. KIMURA Tsutomu, systems and project planning for restoration of important cultural properties by Mr. FUKUMOTO Kuniharu, and the protection of traditional techniques and materials for sustainable conservation by Mr. MURATA Kenichi.

The most impressive point during this programme was the practical and on-site workshop where all participants learned in great detail through site visits in the Nara area and discussions about issues on reconstruction. Other than that, we have learned about the overall process of wooden structures, policymaking, project planning and management, inspection, diagnosis, wooden carpentry and roofing.

We also get exposure to and were able to observe Bentensha, a very old timber building which

was built in the 14th century. The building is a good example for the participants to learn about Japanese architecture and the unique technique of the joints and brackets and also wood carvings and roofing materials.

What we have learned from this course is how very important the related acts and legislation are to protecting heritage buildings, ancient monuments and cultural properties. Other than that, we have learned how all conservation work must comply with standards and guidelines.
Detailed planning and management of conservation works must be implemented systematically and effectively.

My duties in Malaysia are to manage and supervise all the conservation works and to do inventories on heritage buildings and ancient monuments such as houses, mosques, shrines, palaces and all the buildings and monuments related with Malay traditions. So, all the knowledge I got from this training programme is very important for me to implement my duties in planning, management, techniques, diagnosis, inspections and systematically conducting conservation works. Also, it will help me work on a detailed cultural properties act that will more efficiently protect and preserve cultural heritages, heritage buildings and ancient monuments as the national historical pride of a nation for the future generations.

As a whole, this training programme is very good, effective and impressive for all the participants because from that training programme we got a lot of knowledge, experience and expertise about the process of wooden structures conservation works, detailed planning and management, proper techniques and systematic conservation work with wooden materials as well as the details of the Cultural Properties Act.

Heritage is a national historical pride of a nation for her future generations. Also, cultural heritages, heritage buildings and ancient monuments become a source of reference and research for historians, researchers and archaeologists to study the progress of certain period of history, culture and the stage of evolution of the society and nation.

A national heritage also contributes to the national economy since it creates cultural tourism. Elements of nationalism projected by multiple cultural backgrounds existing in certain periods are seen in its architecture, designs and motifs. National heritages form a distinctive identity and personality of a nation and give a sense of pride to her people.

Hence, as a whole, from this training programme, we get a lot of knowledge, experiences and expertise about the entire process of conservation work, all the procedures of planning and management, and details of the Cultural Properties Act that protects national heritages.

Mongolia

Ms. Zundui OYUNBILEG
Officer
Arts and Cultural Policy Regulations Department
Ministry of Education, Culture and Science

Architecture is the art and science of building including its planning, making and decoration, so architecture is a wonderful profession that forms a favorable environment for human daily life. But, an architect of modern buildings is totally different than the conservation architect of historical buildings.

I have had over twenty years'experience of specialist professional practice in the conservation of culturally significant buildings and sites. I have undertaken many conservation studies and projects. Outlined below are some of my usual services. I work with museum directors, other architects, planners, designers, engineers, historians, materials conservators and others.

- I undertake conservation planning which is a process of discovering the cultural significance of a place, and planning to protect that significance and the originality of the place, then I usually produce a report on the conservation plan or conservation study.
- I give strategic advice to all museum directors, design consultants, other architects and community groups.
- I give advice and undertake all the issues related to design, documentation and contract administration of conservation and restoration of historical and cultural heritages.
- I make evaluations of completed conservation or restoration works of historically and culturally important buildings and sites.

A conservation architect should have broad knowledge of history and traditional technology, materials and methodology must be used in restoration work.

As I mentioned previously, I have over twenty years of experience in the conservation of culturally significant buildings and sites, including 14 years that I worked as an architect restorer. While working as an architect restorer, I gathered documentary and physical evidence of historical and cultural heritages and monuments, then coordinated and analyzed the evidence to make measured plans for the conservation or restoration of the building or the site.

At that time, there was no serious difficulty in my job. But, there were some cases where my conservation plans were not precisely carried out and several parts of the restoration work were poorly done due to the lack of proper materials. For example:only dry wood must be used for restoring wooden structures, but in reality dry wood was not always used. As well, manually made roof tiles were very heavy and did not meet the quality requirements for restoration because the overloaded the roofs. Nowadays, this roof tile problem has been eliminated thanks to the import of roof tiles from China. But, the usage of unseasoned wood for restoration is still existing in Mongolia.

Now, I work at the Ministry of Education, Culture and Science of Mongolia, as an officer in charge

of preservation and conservation of historical and cultural heritages. At the ministry, I develop restoration, conservation and protection policies for cultural heritages in Mongolia. I work out all legal guidelines and documents such as laws, concepts, national plans, rules, by-laws, manuals, etc. For example, I worked out the "Law on the Protection of Cultural Heritages", the "National Program on Preservation and Restoration of the Immovable Historical and Cultural Monuments for the Period of 1999-2005", the "List of State and Provincial Protected Immovable Historical and Cultural Heritages in Mongolia". In general, a favorable legal environment for the protection and restoration of cultural heritages has been formed in Mongolia. Unfortunately, the promotion of "the Law on Protection of Cultural Heritage" has been poorly carried out among the rank and file. Therefore, the general public doesn't abide by this law because of their lack of knowledge of it.

Another difficulty is a lack of monitoring and supervision of the protection of cultural heritage. Mongolia has a population of only about 2.5 million people and a large territory (1.5 million sq. km) that is rich of historical and cultural heritages. Therefore, it is very difficult to control the protection process of cultural heritages in isolated or distant areas. In some areas, some local and foreign people make excavations and copies of cultural heritages, take photos and even take some items of the heritages for free without any permission, and intentionally cause damages to the sites.

As well, I am responsible for developing a policy on training professionals in the field of restoration and conservation of cultural heritages. Lack of trained restorers, conservation architects, skilled carpenters and craftsmen is one of the most difficult problems that we are facing now.

- To learn about the cultural heritage protection system in Japan
- To share experiences and opinions with other participants
- To observe and experience the restoration work of cultural heritages in Japan

1. The cultural heritage protection system in Japan, particularly the system of preservation districts for groups of historic buildings.
2. Restoration work on architectural and historical heritages in Japan. Especially conservation work of the Nara Palace Site and Toshodai-ji Temple.
3. Observations
4. Introductionrrr to documents (The Nara Document on Authenticity and Principles for the Preservation of Historic Timber Buildings)

Generally, in my training course, I learned the following points:

1. The cultural heritage protection system, policy, concepts and project planning in Japan
2. The concept of cultural properties and the designation system for protection
3. How preservation and protection of cultural heritage is done in Japan
4. Conservation and restoration of cultural and historical buildings (especially restoration work of wooden structures)
5. Traditional techniques of carpentry work in Japanese architecture

I improved my knowledge of timber buildings in particular. I will utilize the following points that I learned during the training course, when back in my country:

1. Based on the manuals, textbooks and brochures provided by the ACCU, I will organise a

training course among architects and students.

2. I will try to introduce some important and appropriate parts of the cultural heritage protection system of Japan into Mongolia.
3. I will translate into Mongolian the Nara Document on Authenticity and Principles for the Preservation of Historic Timber Buildings adopted by ICOMOS International Wood Committee.
4. Then, I will distribute the translated documents to all organisations that restore cultural heritages and especially conserve wooden cultural buildings.
5. I will study documentation of the ICOMOS and a possibility to join ICOMOS as a member.
6. I liked the excavation and reconstruction of the Nara Palace Site and open museum. I think that it is very important to introduce such excavation and reconstruction into our country. Because, right now, we are making archeological excavations in Khar-khorum, the ancient capital city of Mongolia. After completion of the excavation, we will start to conduct conservation works there in order to establish an open museum.

Organized by the Cultural Heritage Protection Cooperation Office, the Asia/Pacific Cultural Centre for UNESCO, the training course on Conservation of Wooden Structures in Asia and Pacific, held in Nara, which is full of historical and cultural heritages, was very successful and helpful for me to improve my knowledge.

Because having the same goal to protect historical and cultural heritages and to hand them down to future generations, we gained deeper knowledge of the conservation of wooden architectural structures.

This training course gave us a wonderful opportunity to observe how to conserve wooden structures in Japan and to share our experiences with participants from other countries.

I wish the ACCU would organise a training course on the restoration of wooden architectural structures for young architects.

New Zealand

Mr. Dean Douglas WHITING
Maori Building Conservator
Maori Heritage
New Zealand Historic Places Trust

Conservation Background

My current involvement in conservation is through the position I hold at the New Zealand Historic Places Trust as a Maori buildings conservator. This position is set up to assist Maori tribal groups with conservation projects and ensure that they can get the appropriate advice and assistance. This involves developing conservation plans for marae, assisting with funding applications, providing conservation workshops and technical assistance for projects, and developing strategies and programmes to support the conservation of marae structures.

My specialist expertise is conserving the artwork components of marae structures including the woven panels, carvings, and painted artwork. It is a combination of applying traditional repair methods along side modern conservation treatment practice. I was trained as a materials conservator at the Canberra University, Australia, some 12 years ago but also practiced Maori arts techniques. My current work is varied in many ways; some work involves the traditional skills of sourcing and preparation of natural materials used in repair work and providing training on these practices. Other tasks involve analysis of materials and application of modern conservation treatment, particularly for painted surfaces and timber decay where fragile important artwork are to be preserved.

A growing part of my work is developing with other agencies better support and opportunities for conservation training. Part of this is developing conservation skills in the regions to increase the level of conservation knowledge and skill that will provide more capacity for conservation work to be done.

Part of my work also is to assist marae in finding finances for conservation projects. Funding is sourced mainly from community trusts organisations and money that tribal groups raise themselves. An important task is the discussions and planning work needed to ensure conservation projects receive adequate funding and can manage and implement work effectively.

Another part of my job is initiating conservation research into treatments for conservation of marae structures, and preventative systems for reducing risks of fire and natural disasters. There are a number of research areas that need attention and are to be developed with other organisations.

Current Challenges

The most difficult part of my job is responding to the demand that is growing for marae heritage projects. With the lack of other professional staff, it is difficult to respond to this while at the same time trying to develop skills and knowledge to be able to tackle the many projects that are coming forward. Currently, I spend a lot of time traveling and advising on a number of conservation projects that would be better managed regionally if there were more professionals available in this field.

While there are some financial resources available for projects, there is little support for conservation training. Currently, in NZ, there are no formal conservation training courses for conservators and conservation architects. This problem will need to be addressed urgently before any improvement in capacity can be achieved. My position is the only one dedicated to working on marae built heritage and it highlights the shortage of professionals in this area of work. The Historic Places Trust is trying to develop training and support for individuals, groups, and professionals to get involved in conservation and looking at new avenues for training. Australia has provided training through Canberra University in the past but has since closed down this course making it more difficult to find training in the Pacific region. There are possibilities to develop some of our own conservation training programmes in the near future that could address the training for conservation practitioners but the tertiary level training is more problematic.

Lack of funding and resources targeted specifically for marae heritage work is another problem. While there is some funding for marae projects, it is difficult to find money to develop the support programmes for the work. A number of agencies in the general conservation sector need to work more closely together to develop support programmes across agencies that address this shortfall in trained professionals rather than developing programmes independently.

There is also a great need for a dedicated fund for buildings at risk or those that have been damaged by disaster. Currently, we do not have funding for this type of need and are reliant on slow funding rounds to get urgent work done. Important marae structures are in danger of being lost because of the rapid onset of decay and weathering. It is important to be able to move resources quickly to save structures from collapse or demolition.

One area that needs more work is understanding the state of marae structures in New Zealand. Currently, we have limited information about marae structures and their condition and the resources available to conserve them. A survey programme and data base needs to be developed so that the limited resources can be targeted more effectively and appropriate programmes developed.

Why This Training Programme?

My initial motivation to attend the course was to get a different perspective of conservation work in other countries. I understood that Japan had a highly developed conservation programme that utilised traditional and modern conservation techniques. This was of interest to me as work we carry out on marae also has a mix of retaining traditional knowledge and skills as well as applying conservation science. I wanted some insight into the techniques employed in Japan considering we share a similar climate and land topography. It was also important to get a better understanding on how some of the ancient structures in Japan have stood the test of time. Most New Zealand structures date back no more than 180 years so it was a good opportunity to see how timber performs for the time periods much longer than we have yet to experience in our country.

It was also one of the few conservation courses available for conserving wooden buildings and an opportunity to discuss conservation approaches with other participants to get ideas and perspectives from other countries. Wood conservation practice is a growing field in the Asia Pacific region and needs every opportunity to meet, discuss, learn, and network further to advance the knowledge and debate on the approaches and directions.

Interesting Points in the Course

Site visits were extremely valuable in getting an insight into the processes and approaches taken by Japan in building conservation. It was certainly impressive to see a number of temple structures and understand some of the history and construction methods. I was impressed with the variety and depth of the visits and the lecturers'knowledge on these sites. An example of this was the workshop sessions at the Toshodai-ji Temple site. It was an opportunity to have some hands-on work and develop a sense of how conservation projects are undertaken in Japan. The evaluation of the Bentensha Shrine was an interesting exercise in evaluating the needs against values and understanding the balance needed to preserve early material while still retaining the shrines structural integrity.

The study tour further exposed me to the scale and depth of cultural heritage in Japan. The visit to Itsukushima Shrine was particularly impressive to see this elegant shrine structure as part of a cultural landscape. The constant effort that is needed to maintain this structure in this coastal setting was interesting, particularly the work that has gone into keeping the gate structure in place at the entrance to the bay. The second part of the tour was the visit to Himeji Castle that was impressive from the scale and technology in the buildings, but the work that is needed to conserve such a massive structure.

Learning Experiences

I have learnt a number of things from the Japanese approach to conservation and how the retention of traditional knowledge and skills is an integral part of the cultural heritage conservation. It was a good experience to see the work of the carpenters at the Toshodai-ji conservation project, to see first hand those skills of these crafts people and how the system worked between skilled practitioners and conservation architects. It was also good to learn about the process of retaining traditional knowledge through the organisations that are established under the Cultural Affairs Ministry to maintain and retain traditional building skills.

I developed a better sense of what cultural landscapes are and how important they are in terms retaining the values of a cultural heritage site or structure. Efforts that have been made in Japan often show the difficult balance of land use controls that are needed to ensure a landscape can remain intact verses development. A good example of this was the visit to Itsukushima Shrine, which showed the strong relationship between the island landscape and the temple. The zoning controls that have been applied over the cultural landscape appear to be effective in retaining the values of the structure while also allowing the town to remain and the tourism to flourish.

The Japanese system also informed me more of the importance of the relationship between conservation professionals, conservation practitioners, e.g. carpenters, and the natural resources needed to repair and conserve important cultural structures. The processes that are in place to secure timber for conservation were a good example of a system that can sustain itself. There were many occasions where we could see this relationship in practice and explanations of how it had been developed.

Useful Knowledge

One of the important points picked up from the course that can be utilized in my country is the strong relationship between the traditional knowledge of building repair and conservation work in

Japan. While we practice a similar process in our country, I believe there is room to strengthen the ties between the two areas and establish conservation practitioners as a professional field. There should be less of a division between conservation science professionals and traditional knowledge. A further benefit of strengthening the traditional knowledge and skills is that new structures on marae could be constructed more to fit with existing heritage buildings on marae by using traditional designs and methods. This is particularly important since there are many marae being redeveloped to cater for growing populations and additional uses.

The traditional techniques used in Japan also demonstrate that natural materials like timber are very durable given the right conditions and care. It was good to see first hand that timber left in its natural state and protected from biological attack can last many hundreds if not thousands of years relying only on its natural composition for protection. Our current practices of using epoxies and other synthetic resins for conservation should be reviewed more closely, particularly when we have not explored the natural qualities of timber and try to find more ways in which these qualities can be utilised.

This leads to developing sustainable techniques of conservation that are compatible with traditional techniques. One example is developing better techniques for joining new timber repairs into damaged areas. Currently, methods of repair are relying on epoxy adhesives to secure the joint. I was very interested in the complex jointing systems used for construction in Japanese architecture and its application in the repair work. This jointing system does not rely on adhesives to make the joint secure but uses the mechanics of the interlocking surfaces. Another area to develop is techniques for filling damaged timber in decorative and structural timberwork without the loss of sound timber. Currently, the process is to cut out damaged sections to receive square edged timber inserts. While this is effective it does remove some sound areas of the timber so a flat edged block can be adhered into position. While we can also use synthetic materials to fill without loss of the original timber, the thought of repairing with timber only as the fill material is more compatible with our own cultural perspectives. More work is needed to find techniques to cut precisely the repair block so there is a minimal loss of cultural material. This could involve laser scanning the loss area then using a computer aided milling process that makes an exact timber insert for the loss section. This level of approach would be justified where surfaces are carved or natural finishes are needed.

Another direction is to find preservative treatments that are derived from the timber's natural preservative qualities. Currently, organic fungicides and preservatives based in zinc and copper are used extensively. While they are effective in preventing a range of biological damage, the long-term effects are not known. Research is needed to develop a better range of materials that can be used and is more culturally appropriate and environmentally sound. There might be simpler methods for sterilizing timber such as raising temperature to destroy fungal spores, etc., using phenol based fungicides that are derived from timber, and controlling moisture more effectively.

General Impressions of the Course

Most of the work was very rewarding throughout the course and there were many opportunities for interaction with lecturers and group discussions with fellow participants. The practical sessions were particularly useful in developing our own skills and testing them in a real situation. Presentations were an important follow up to this to ensure that we could analyze and convey the

results. Study tours were a good break from the lecture room and an opportunity to meet other professionals in the field and discuss their approaches to the range of problems they are faced with.

Overall there was a sense of being exposed to the range and depth of cultural heritage in Japan and the different conservation approaches taken. It was important having the opportunity to interact with knowledgeable experts to get some insight into the philosophy and process that they take in their work, and the course programme provided many opportunities to do this. Finally, it was also worthwhile having the time to analyze and interpret through discussion with participants and lectures the many new experiences and approaches we were exposed to, and I felt at times the course coordinators and lecturers were enjoying the interaction for the same reason.

Philippines

Mr. Wilkie Balasolla DELUMEN
Restoration Architect
Historic Preservation Division
National Historical Institute

The preservation of our cultural property is one of the major tasks of our times. What our ancestors have created over centuries and millennia reflects a historical development upon which we build, and on which we draw to fame our future.

Great and varied are the dangers threatening the survival of our cultural heritage and admonishing us to concentrate our efforts on its maintenance and lasting protection. The manifold products of the arts and crafts, the rich testimonies of religious life, the wealth of written documents, the articles of daily use, even edifices and technical installations were seldom made to last over great periods of time. They were impaired when they wore out or replaced when they were no longer of use.

When we set about today to preserve things that were not originally designed to be imperishable or permanently maintained, we need to undertake considerable efforts to succeed in our aim. Too varied are the destructive influences acting with differing impact upon the various materials, too fundamental the damage we often find and too weak the means available to us for the proper conservation and restoration, and the lasting protection of wooden structures.

As a conservation architect, the awareness of the prevailing global situation on the damage and losses of our environment and cultural heritage are the areas of consideration, also the reassessment of value systems and reorientation to the benefits of conservation. Fortunately, in the Philippines, hand-in-hand with our efforts towards nation rebuilding, are some moves to integrate conservation in the national policies. There is a scheme to include a section in the building code about historic preservation and the integration of architectural conservation courses in the architecture curricula. It is also happy to note that there is an active participation of other government agencies in the development projects for popular historic sites and structures

Filipinos are learning to be ready for this kind of work. Whereas, in the most recent past, often when development, which was usually claimed as much needed, was proposed in an area of historical or architectural interest, especially development that would involve some measure of destruction, there was a conflict between the advocates of development and the advocates of preservation. Decision required a careful estimate and assessment of respective values. The decision never satisfied everybody.

Generally, though, when any large-scale urban development project is proposed, or there is a need for urban renewal, or for new traffic routes in old and historic areas, there is often a conflict of values. The question that arises is whether the historic area with buildings or architectural merit should be sacrificed in order to serve the needs of the new development or whether another scheme, saving something of historic area, should be prepared. When there is a proposal to demolish a historic building of architectural merit because a new traffic route, or because of an urban renewal

scheme, there is a storm of protest with varying results. Sometimes the scheme is adopted and the historic buildings of architectural distinction are demolished, sometimes the preservationists win and another scheme is adopted, and sometimes there is a compromise. The matter is, of course, a question of relative values and knowing when to hold on and when to let go.

However, it should be remembered that conservation is only a part of a holistic approach to positive development. A successful development programme has always taken every bit of consideration covering all possible influencing factors, including lessons from the past, thereby satisfying everything that has to be satisfied. Hence, the results are rewarding.

The Training Course on Conservation of Wooden Structures in Asia and the Pacific 2002 had as its objective to contribute to the promotion of the cultural heritage protection of each country in the region, by holding a training course through a series of lectures and practical sessions for persons in charge of the conservation and restoration of wooden structures in their respective countries, so that they may deepen their knowledge of conservation, restoration, management, and utilization of wooden structures for the preservation of cultural heritage. The aforesaid objective motivated me so much with great enthusiasm. Through this training course, a cross-section of the different countries in the region are overviewed in different perspectives, with varieties in customs, traditions and cultural values. This is a process wherein we could learn a lot from others, and the different ideologies that could possibly be adopted in our own context.

The most impressive points of this training programme are the following: 1.) Participants' presentations and discussions with other experts: through this process, we were able to learn about different concepts and approaches based on its particular traditions and cultural significance and values. 2.) Actual visits to the different prefectures of Japan concerning cultural, historic sites and structures, particularly those situated in the ancient Nara Prefecture. The value of areas of particular historic interest in cities and towns is that they are part of the cultural heritage, from which we also often receive aesthetic delight;for time is harmonizing and sometimes a beautifying influence. There is also the desirable preservation of distinctive achievement in urban planning and architectural design which is not only valuable for its own sake but as a guide to future work. And, further, some places are considered of special interest for their associations with famous historical persons and events. Historic areas are thus often preserved and maintained in good condition, with as little alterations as possible, for the reasons indicated.

The utilization of the main objective of this training programme could be well carried out to our own particular place, in consideration of the different point of views discussed by the experts, and as reference in addressing our own particular problems in the field of conservation and restoration. As with all areas of historic preservation, prudence and a systematic approach are required. Problems must be fully understood before attempts are made to solve them, and we must be aware of the ramifications of our methods before we employ them. An attempt at restoration that irreversibly alters or damages a structure or work of art might not have been attempted. Discussions and exchange of experiences are instrumental in the effort to pose the right questions and find the appropriate solution. It is our duty to hand them over in the full richness of their authenticity.

The Training Course on Conservation of Wooden Structures in Asia and the Pacific 2002, initiated by the Cultural Heritage Protection Cooperation Office, Asia / Pacific Cultural Centre for

UNESCO, is a global means of disseminating awareness in the conservation of cultural heritage, and instill the evolving discipline where the deterioration and destruction of old historical and significant monuments have awakened the desire to preserve them. Indeed, these old monuments are tangible links of our past and assist in maintaining their identity as a nation in the rapidly changing scenes of development and modernization.

Significant for their age and cultural values, these ancient structures are indispensable media and sources of artistic and historical information, and thus, measures to preserve them from the onslaughts of time, nature and man are imperative. What is the present when there has been no past, and what will the future be when the present is so uncertain? In more ways than one, the preservation of cultural heritage provides a spiritual anchorage for the uncertainties of the present, as a new life is breathed into the past in the domain of the present, so that it can transcend whatever problems the future may bring.

Republic of Korea

Mr. KANG Hyun
Researcher
Art & Architecture Division
National Research Institute of Cultural Properties

I am a researcher of architectural conservation. I have worked for the Art&Architecture Division of National Research Institute of Cultural Properties in Korea since 1996. During these years, I have done surveys and research projects about traditional architecture in Korea. These projects consist of measuring the member's size, drawing details, analyzing historical documents and so on. The aim of these projects is to record the present condition of architectural cultural properties and research the traditional technique of architecture.

And, another important work is safety investigation of architectural cultural properties. The National Research Institute of Cultural Properties has executed safety investigations of important cultural properties since 1981, in order to investigate the structural safety of architectural cultural properties. I have had charge of this safety investigation of architectural cultural properties since 1997. Therefore, periodically I have to visit places where are located important architectural cultural properties and investigate the safety of the architectural cultural properties.

And, in order to improve the method of this investigation, I have also tried to develop various advanced measuring tools and systems. As a result of those efforts, we have many kinds of measuring instruments such as a vibration level meter, crack gauges, inclination measuring sensors and so on. And, we continue to develop high technology measurement tools or programmes for evaluating the structural safety of architectural cultural properties.

Through these activities, we are trying to find appropriate methods of architectural conservation.

I think the most difficult part in the architectural conservation field in Korea is a balance between development and preservation. Rapid development of the whole country in Korea since the 1970s caused traditional towns and streets to change radically. In many cases, the development of the whole country destroyed cultural heritages and demolished the traditional way of living. Therefore, we have to seek ways to control this kind of need to develop and harmonize with the protection of cultural properties. And, I think this problem is the most difficult part of my job. Besides this, recently a new problem arose as a religious group demanded a new building on historical site. I think this is a very complicated problem and we have to find a solution that coordinates these demands rationally.

I also think there is a problem of budget management in Korea. In my opinion, recording the of a property and researching traditional techniques are very important activities in conservation work and, furthermore, these activities are the most basic activities of architectural cultural heritage conservation work. But, in general, our conservation work is focused on the conservation of material itself. As a result of this, the budget for conservation is mainly invested in repair work, restoration work, reconstruction work and so on. Only small amount of the budget is invested in research projects.

I heard about this course for the first time in February 2002 and I was very interested in this training course because it focused on the conservation of wooden architecture. I always think that

the preservation of wooden architecture must differ from other structures that are made of other materials, such as stone, concrete, or brick and so on. Therefore, this training course was a very good opportunity for me to understand many subjects related to the conservation of wooden architecture.

And, secondly, I always think international cooperation in the preservation of cultural heritage is very important, because cultural heritage is not only related to the nation where the heritage is located, but also related to the whole world. Therefore, I think this kind of training course is a good opportunity to improve international cooperation.

Furthermore, I think Japanese experience in the conservation of wooden architecture is very important for us, because Japanese architecture is very similar to ours. By reason of this, I am always interested in Japanese architecture.

For these reasons, I decided to participate in this programme.

In my opinion, the most impressive point during this training programme was the variety of culture. Frankly speaking, I was not interested in West Asian architecture before I came here, and, when I need to know something about neighboring countries for my work, I only refer to Japanese or Chinese architecture. But, during this training programme, I have heard about architecture of many other countries and, finally, I have learned that many historic wooden structures remain in the Asia -Pacific region. At the same time, I heard about the problems that they confront and conservators tried to solve. I think communizing this experience is very important for me because their problems are very similar to ours. And, moreover, if we communized each other's experiences, we can find more reasonable solutions to that problem.

In addition, I realized that the establishment of principles for conservation work is very important. When we are absorbed in one thing as a specialist, we often forget the final aim of the activity. In this case, understanding the basic principles plays an important role in acting appropriately.

I have learned how to think problems through. In this regard, Mr. Dag MYKELEBUST's lecture especially impressed me. We have to ask ourselves continually, "Why are we going to preserve that monument?" This is very simple and short, but I think this is the basis of conservation work and, at the same time, the starting point of conservation work. And, it is also helpful for me to build principles of conservation of wooden architecture in Korea.

Secondly, I have learned how important it is to cooperate with one another. I think Asian-Pacific countries have many common problems with conservation work for wooden architecture. And, we have to communize these problems and should try to solve these problems together. In my opinion, this is the best way to solve these problems.

I will utilize the results of this training programme in my country as follows.

At first, as I mentioned, Japanese architecture is similar to ours and, furthermore, the methodology of conservation work is very similar to ours. Therefore, it is easy that we apply the Japanese preservation method of architectural cultural properties to our circumstances. But, actually, the circumstances of conservation work in Korea differ from Japanese in many respects. Therefore, I think finding out how to utilize the results of this training programme is another research task for me.

Secondly, I think the Japanese attitude towards restoration work is a very useful example for us. Generally, the alteration of cultural properties has been strictly prohibited by the national government

in Korea. This includes the alteration of shape, style, material and, moreover, the restoration of a building on a historic site. But, recently, we have been interested in restoration work, such as the restoration of an excavation site of a historic temple and the restoration of palaces that had been changed by unfortunate historical event. As the result of this, actually, we have done some restoration projects, such as the restoration of the main palace in Seoul, in the 1990s. Probably, Japan's experience with restoration is useful to us. Therefore, after I return home, I'd like to start researching restoration techniques.

Thirdly, I have met many persons that have something to do with the conservation of wooden architecture, during this training course. I hope that I will keep in touch with all of them and that I can discuss the problems of conservation work with them. This is helpful towards carrying out my work.

I was given the impression that this training programme is well-organised. In particular, I think this programme is very good for conservation architects. I had been looking for this kind of training in the conservation of wooden architecture, but I couldn't find one. Therefore, when I heard about this programme, I was very happy.
I am sure this training course contributes to the protection of wooden architectural cultural heritages in each country and it was a very satisfactory meeting for us.

But, what I want to say is that this kind of training programme should be held more often by international organisations such as the ACCU, ICCROM and so on. And, through these programmes, we should maintain cooperative relationships between the many specialists involved in the conservation of wooden architecture.

Sri Lanka

Mr. D.A. Rasika DISSANAYAKA
Senior Technical Officer & Conservator
Architectural Section
Department of Archaeology

As I am a Senior Technical Officer & Conservator of the Architectural Conservation Section in the Department of Archaeology in Sri Lanka, I have engaged in a variety of responsibilities of conservation and restoration works of ancient monuments and sites island-wide as well as new construction works. The Department of Archaeology in Sri Lanka is the only organisation responsible for all the archaeological activities authorized by parliament acts i.e. Preservation and Restoration of Cultural Assets in Sri Lanka. The activities of the Architectural Conservation Section are exposure of ancient monuments, conservation and layout of ancient monuments and environs, regular maintenance of the antiquities in sites, reserves and protected monuments. In this frame, I should have participated in several activities.

Following are some of these responsibilities.

1. Preparing of observation and conservation reports and feasibility reports before starting a conservation project
2. Drawing up plans and estimating quantities and preparing a Bill of Quantities for the conducting works
3. Conducting supervision and implementation of the conservation of ancient monument projects especially wooden, brick and stone structures
4. Preparing and evaluating progress reports and records, and remedial measures for improving progress covering all the conservation sites in Sri Lanka (I act as a coordinator of the progress controlling work at the head office and maintaining the progress according to the target schedule.)
5. Preparation of a Bill of Quantities and supervision of civil engineering works (i.e. new building construction projects)
6. Preparing drawings by using AutoCAD and Rate, analyzing material consumption reports and charts by using computer applications
7. Responsibility of IT work with internet and e-mails of the Department of Archaeology

In participating in these activities, I may face a variety of difficulties as a third world country like Sri Lanka.

When conducting the conservation work, the following problems normally arise.

1. Lack of funds for conservation work
2. Low skills of craftsman
3. Lack of help from other related parties and strict rules, regulations and procedures of the administration
4. Little knowledge of latest technology

   We have to follow traditional techniques, but sometimes we need the latest techniques to do conservation work more properly and accurately. But, we don't have a facility to fulfill our wishes. As an example, an Internet facility is more expensive. And, the latest machineries like we saw

in Toshodai-ji Temple site are a dream for us.

5. Transportation facilities
   Most of our sites are situated in rural parts of the country. Therefore, traveling to these places is very difficult because there are no government transportation facilities for those rural areas. In the situation of alack of funds, therefore, we couldn't arrange vehicles because the one vehicle is in our Architectural section for the 15 technical personals.

This was a good opportunity to learn from international professional like Ms. INABA, Mr. Dag MYKLEBUST and Dr. Gamini WIJESURIYA. Ms. INABA tried to give us broad knowledge about the Nara Document of Authenticity and other charters. I was surprised and very interested in seeing Horyu-ji Temple. It was first time I have ever seen gateways of this monument. I had a chance to discuss lot of problems and clarifications with Prof. UENO.

Most impressive points of this training course

1. Bracket structure-I believe that it may be a sign of Japanese culture. It is most suitable for a logo of Japanese Cultural Conservation Project Agency.
2. Roof covering of cypress bark
   This roof cover lasts 25-50 years. It is very surprising to see these types of roof covering arrangements. (In most of the cases in Sri Lanka, before starting conservation work, a temporary protection roof, mainly thatched with woven cadjan (dried leaf of coconut tree), is erected over the building. That will facilitate conservators to work in sun and rain as well. But, this will last only one year.)
3. It is more impressive to me that a temporary roof is erected above a temple. The preliminary cost of this project due to temporary building and other warehouses may be very high. The temporary building has various floors to reach most of the levels of this ancient monument.
   But, it is a pity to here that Bentensha is very close to the above project; it is not being restored for various purposes. But, it will not cost about 1/10000 of the estimate of Toshodai-ji main hall restoration.
4. I had a valuable chance to see the National Museum of Anthology and the Museum of History in Osaka. It was a memorable experience.
5. The conservators as well as the other workers went about their duties without any supervision and they worked very honestly in their work place. A good example of this is the gentlemen who worked in tile sorting store at Toshodai-ji Temple. I think he is one of the experts in this field.
6. It was more attractive to use slides, videos, and other electronic presentations by the lecturers.
7. Machinery and tools used in wood/carpentry workshops made a good impression on me.
8. Study Tour:Visiting Miyajima, Kokuzen-ji Temple and Himeji Castle was very interesting.
9. I was surprised by the wood carpentry tools used in ancient people in Japan. The ink well and related tool (bamboo pen) are not only tools but also very attractive ornaments, because of their carvings.

On the other hand, I have learned a lot of important things, mainly the cultural heritage system of Japan, the concepts and philosophy of conservation, etc.
i.e.

1. Safety measures using conservation/construction projects in Japan
2. Transcription rubbing procedures to get a stamp print of a wooden element
3. Preventive measures for actions against deterioration, insect attack, fire threats and hazards
4. How to overcome the challenges of the conservation of a wooden building
   Learning advanced methods of conservation and restoration of wooden structures and other structures such as clay/earthen walls etc.
5. Broad knowledge of various charters and legislation of Japan and various countries
6. System, policy, administration and project planning of restoration of cultural properties in Japan
7. Latest techniques applies in the arrangement of museums to exhibits findings
   Particularly, the museums are well planned and arranged to attract visitors. The method of lighting was appreciated.
8. I saw many historical sites here with well-planned landscapes that attract visitors. It is a good lesson for us to maintain a site.
9. Finally, I learned about the Japanese social situation and their economical and political background by talking with many people that I met.

This training programme will provide me with an opportunity to review the present work that I am doing in Sri Lanka, particularly, the restoration of timber buildings in the context of Japanese practices. It can be improved where applicable and help to upgrade the quality of the wooden building conservation projects of timber monuments in Sri Lanka. I can adopt advance methods of restoration of timber buildings used in your country. For example, I hope to introduce the transcription and padding method for preparing a stamp page of a woodcarving.

I gained comprehensive knowledge of the conservation techniques of timber structures in Japan and it will be useful to apply them to Sri Lankan conservation practices.

General impression of this training course

It was a good opportunity to share my knowledge with other colleagues in the region. I have got broad knowledge of the conservation practices of their countries as well as other human activities, social, cultural, economical and political backgrounds.

The training programme was done by various experts in relevant fields and several visits to timber monuments sites and laboratory works. Slides and videos were used in lectures. This is very helpful towards understanding the subject.

I would like to suggest the following points to upgrade the value of this training course.

1. Adding more practical sessions (I think, out of the four weeks, one week of practical training is more important.)
2. Including lectures and visits (or practical work) to new machineries and equipment for measuring the characteristics of timber, used in wooden conservation in Japan as a developed country.
3. Computer applications of wooden conservation technology
4. Design principles of wooden structures(Basic knowledge)

Finally, I had a great chance to follow this valuable training course. It gave me golden values for practicing conservation as a career.

Thailand

Ms. Vatcharin KETKUL
Civil Engineer
Monuments and Sites Conservation Section
Fine Arts Department

Building survey is, therefore, important and should be carried out before proceeding to conservation work.

Conservation works will be carried out on some parts of the building, but the survey and recording of the whole building may be required. This is because we may correctly specify the date and priority of buildings and make changes when the whole condition of building is assessed.

Apart from recording the condition of building above ground, sometimes we may require some below ground information in order to better comprehend the condition of building. Thus, archaeological excavation and recording of the belowground condition is necessary in some cases. These are in case the building is so damaged that only some aboveground part remains, or the building was built on a site where there had been other buildings formerly situated.

In Japan, the conservation of wooden structures is entirely handled by architects and carpenters, who make and repair the wooden parts of buildings. In this country, the wooden specialist is an expert in the restoration of wooden structures. In Thailand, the architect takes cares of architectural design and the engineer looks after the structural part of the conservation works. After the rectification of the above works by the respective personnel, then both the architect and engineer work together in processing the conservation work or the project in detail. After finalizing, it then is given to the carpenters and craftsman, with instructions on the procedures of how the work should be carried out with the full set of proposed drawings on restoration work. Eventually, the carpenters and craftsman carry out the works under the supervision of the architect and engineer.

In this country, they repair structures every 50-60 years, but, in my country, we repair the building only during the failure of structure and when the structure is in critical condition of collapse or cannot be used any more.

As the motivation and interest for this training course, I wanted to improve my knowledge in traditional wooden structures, technical skills and understanding of methods and material selection in repairing and conserving works, taking into consideration the environmental impact, as well as learn the degree and scale of damage that occur to the wooden structural system and management on the cultural properties in this country. I also wanted to learn about the methods used in the protection of several ancient buildings that can be repaired and conserved by modern methodology.

Every part of this training programme such as practical exercises at sites, study tours, site visits and so forth were very impressive. Furthermore, the most impressive points during this training course were the beauty of the building itself and its aesthetic value, including the marvelous carvings on them. Many places have a most distinguished way of management in keeping the ancient remains protected and reconstruction works going on simultaneously in one heritage site. In my country, there are many contradictions between the educationists, with different ideas, as some want to undertake the work in the same way as in this country and some want to protect the ancient remains only

apart from the reconstruction of building at one heritage site.

In this training course, I leaned about the traditional skill and techniques of conserving wooden structures, the reuse of old timber material to repair the old building and new timber material in some parts of the structure, besides the traditional carpentry tools. In some sites, the latest tools are used to repair timber structures. The cultural heritage protection system in Japan, such as the history of cultural properties, laws for the protection of both tangible and intangible cultural properties, designation and selection of structures at various level, incentives to the owner and more for the protection of cultural heritages and the concepts of Japanese architecture, in general, from the veteran experts or lecturers.

The various ideologies, methodologies and approaches to conservation and restoration work in Japan such as complete replacements, half replacements and partial replacements of all types of timber structures.

The methods of analysis of structures, like the age of a building, whether any restoration and alteration has been done, using different methods of analysis such as the carbon dating of roof tiles and wooden members, from style and design of the structures in roofs, facades, layout of beams and columns, frames, etc.

Different methods of conservation from the 7th century to these latest methods.

What is happening with conservation works in the Asia-Pacific region from course mates and internationally from lecturers.

To utilize the results of this training programme in my country, I must develop some account of comparison with the methods available in my country and try to adapt the technologies to some cases. The knowledge learned from here will be spread to my office to establish some purpose wherever necessary. The analysis of structural problems has to be done to select the suitable methods of repair learned from here. It is also important to understand that, in repairing ancient buildings, there are constantly many professionals who study and invent new methods and technology for conservation to be applied in the future. The most suitable method and such period of time is not too long away when compared with the age of the building which may last for decades further, if repaired with the correct methodology.

The arrangement of the whole course was very good, such as visits to the sites where we can see many things in the places like buildings. The recruiting of high professional level lecturers with a wide range of experience from different countries and practical exercise at sites with a veteran conservator were very impressive. Also, the arrangement of study tours and site visits to provide us exposure to many places in different cities of this country was very impressive. In brief, I would like to mention that the programme is well organised so as to learn many things in such a short time.

Uzbekistan

Mr. Bahityor Achilovich BABAMURADOV
Chief Restorator
Bukhara Region Scientific-Restoration Office

The most difficulties I face in my work are the deficiency of finances, low payment, and, as a consequence, the shortage of young craftsmen willing to work in the field of restoration. Another negative tendency is a shortage of time given by the authorities for the implementation of the restoration projects, especially for those related to the most important monuments, because such projects are always dedicated to some important dates and events (e.g. the jubilee of the city, etc.) and, therefore, they are always implemented in a hurry, making it impossible to do the restoration works with due quality.

My main interest for participating in this course was the possibility to learn what is common and what are the differences in the conservation concepts and approaches in the different countries of the region, and also to learn the various techniques of wood conservation and use them then in my practical work.

The most impressive thing for me here was the Japanese approach to the preservation of wooden structures, based on the ancient traditions, showing the continuity of mastership and a particular respect for the material. Restoration of wooden structures in Japan, starting from the planting of trees, 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 very fact that the historic records not only of the construction, but also of restorations of architectural monuments, are available in archives and museums, proves that restoration is an essential part of the history of Japanese architecture. Perhaps, the 1:10 scaled wooden model of the main hall at the Toshodai-ji site also represents the traditional and very effective way to design the projects for the restoration of wooden structures. The museum exhibitions we have visited during our study tour show the respect to the traditional craftsmanship and the scientific approach to its preservation.

Particularly complicated joints and construction systems used for the building of temples, vernacular houses and other wooden structures in Japan, and also the techniques of earthquake-safe construction do not find any similarities in the architectural heritage of my country and of the other Central Asian countries. The Japanese historic architecture, with its 'module' system of proportions, shows a combination of perfect engineering and aesthetic quality. The knowledge of that helps me to better understand the nature of wood as a building material, and also the principles of its work in the different parts of structures.

The knowledge received through this training programme, I will

a) Use in my practical work.
b) Share with other professionals working in the field of conservation.
c) Transfer to my trainees (young craftsmen).
d) Communicate to my students in Bukhara State University, where I teach wood and alabaster carving at the Department of Graphic Art.

e) Disseminate through publications in the local and national newspapers by providing information of the Japanese system of protection and conservation of cultural heritage.

In general, the training programme has shown a good balance between lectures and practical exercises, and all the teachers were highly professional. The study tour was very informative. It represented an important and interesting part of the training programme. This tour helped me to realize the actual state of protection and conservation of architectural heritages in Japan, and to appreciate it for its real value. The training course itself has demonstrated a high level of organisation of the training process.

Vietnam

Mr. Tran Dinh THANH
Expert of Section for Relics Management
Department of Conservation and Museology
Ministry of Culture and Information

I am implementing all-round archaeology work: for example, restoration of ancient buildings or cultural heritage sites, examination of archaeology remains concerning dynasty construction and architectural styles (roof tile, brick, column bases, etc.). I am also measuring archaeology areas and drawing maps.

The difficult part of my job is as follows:

-Finding dates of wooden architecture members:

In wooden structures, most architectural shapes and surfaces of wooden members are different, because they are embossed with art and figures.

When an wooden architectural member is broken, wrong or replaced, it is a big matter. However, in my experience, there are 3 main types based on time period: older wooden architectural member, new wooden architectural member and middle time between these previous two periods. The finding of older members is easy (especially in older wooden architecture). But, it is not easy to find new wooden architectural member (after 200-300 years old).

I know that most dating of wooden members is usually done by eye, so it is difficult to be precise.

I am an architect. Now, I am making management plans and projects concerning the conservation of monuments in my country.

In my country, now, the cultural heritage conservation works face many difficulties. For example, in Vietnam, there is no architectural university to train monument conservation architects (conservators); there is only the museology section of a cultural university. It is training researchers of architectural history, but the number of researchers is limited. And, in the museology section, the structure of ancient cultural buildings is not being researched.

So, management of cultural heritage conservation is very important in order to do my work well. I have to get more information on cultural heritage conservation, especially the conservation of ancient wooden architecture.

I saw conservation work was completely prepared for restoration work when I came to study at Toshodai-ji. The new house, which covers the entire outside of the main hall, is very big. In this house, there are all essentials for carrying out restoration work on the main hall. It can protect the temple (Toshodai-ji main hall) and architectural members against sunshine, rain, and a lot of another matters after dismantlement.

With 60 million yen to construct this covering house, it is very expensive but it is also necessary and suitable to the value of the temple.

I learned from this training course as follows:

First: I have learned the theory of conservation and restoration of monuments.

Second: I got some experience in conservation and restoration of monument which were implemented in Japan.

This training program is useful for me, because, in my country, I am a management conservator of ancient cultural heritages and especially old wooden buildings.

In Vietnam, the conservation work of old wooden buildings was started only recently, so we have difficulties and lack experience in conservation and management. Finances for conserving culture heritages is lacking. There is not enough requirements, staff or techniques to enable conservation work. However, after this training course, I will try plan conservation activities myself. I will check the condition and progress of drawings and examine old buildings.

The visits to the conservation sites of wooden architecture in Japan (for example: Toshodai-ji Temple, Kokuzen-ji Temple, Kasuga-Taisha Shrine, etc.) were very impressive. The restoration work is progressing carefully .

In order to conserve wooden buildings in Japan, experts research the value of history and examine all of the buildings carefully.

This training course helps me to believe more than in cultural heritage conservation activities. It is very helpful for my future activities.

VI Appendices

1. General Information
2. Programme Schedule
3. List of Participants
4. List of Lecturers
5. Opening Addresses

1. General Information

Training Course on Conservation of Wooden Structures in Asia and the Pacific 2002 (Nara, Japan 16 October-14 November 2002) is jointly organized by the Asia/Pacific Cultural Centre for UNESCO (ACCU), the Agency for Cultural Affairs, Japan, and the International Centre for the Study of Preservation and Restoration of Cultural Property (ICCROM), with the support of the National Research Institute for Cultural Properties and the Japanese Association for Conservation of Architectural Monuments (JACAM) in cooperation with the UNESCO, the Japanese Ministry of Foreign Affairs, the Nara Prefectural Government and the Nara Municipal Government.

1. Background

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 succession of these preservation/ restoration techniques.

Since the 8th century, when many wooden structures were built in Japan, many of these structures have been preserved and repaired time and again. The wealth of knowledge and techniques thus accumulated in Japan should be shared with other parts of the Asia-Pacific region. During the Experts meeting on Training Programmes for Cultural Heritage Protection in Asia and the Pacific (Nara, Japan, 3-6 March 2000) co-organized by the Cultural Heritage Protection Cooperation Office, Asia/Pacific Cultural Centre for UNESCO (ACCU Nara Office) and the Agency for Cultural Affairs, Japan, it was suggested that the ACCU Nara Office organize training courses and provide participants with the restoration techniques and know-how for the preservation of wooden structures. The International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) also supports the plan to hold such training course.

ACCU and the Agency for Cultural Affairs, Japan will organize with ICCROM the above-mentioned Training Course for persons in charge of cultural heritage protection in Asia and the Pacific.

2. Date and Venue

Date: 16 October (Wednesday) to 14 November (Thursday), 2002

Venue: Cultural Heritage Protection Cooperation Office, Asia/Pacific Cultural Centre for UNESCO (Nara Prefectural Government "Horen" Office 1F, 757 Horen-cho, Nara 630-8113,Japan), and other institutions, as well as some field visits.

3. Objectives

The objective of this training course is to contribute to the promotion of the cultural heritage protection of each country in the region, by providing with a series of lectures and practical sessions for persons in charge of the conservation and restoration of wooden structures in their respective countries, so that they may deepen their knowledge of conservation, restoration, management, and utilization of wooden structures for the preservation of cultural heritage.

In addition, the course will provide a mutual learning experience encouraging exchange of experience, practices and approaches among those from different countries and cultures.

4. Training Curriculum

(1) Lectures

- Introduction to Japanese Architectural Heritage
- Laws, Ordinances, and Charters for Cultural Heritage
- Principal Ideas and Standards of Conservation and Restoration
- Planning, Design and Construction Management
- Management and Utilization of Structures

(2) Practical Training

- Methods of Investigation for Vernacular Houses and, Historic Towns
- Visit to Wood Conservation Facilities
- Practical Training at Wooden Structure Conservation Project Sites
- Field Study of Conservation, Restoration, Utilization (4-day tour)
- Visit to National Museum of Ethnology and other institutions

5. Participation

(1) Participants:

Total number of participants for this course is 15. Participants will be selected from those recommended by the National Commissions for UNESCO (or relevant bodies in the countries where the National Commissions for UNESCO are yet to be established) of the following 33 countries, along with prescribed documents and submitted to the ACCU Nara Office by **25 July 2002.**

Afghanistan, Australia, Bangladesh, Bhutan, Cambodia, China, Fiji, India, Indonesia, Iran, Kazakhstan, Kiribati, Kyrgyz, Lao P.D.R., Malaysia, Maldives, Mongolia, Myanmar, Nepal, New Zealand, Niue, Pakistan, Papua New Guinea, Philippines, Republic of Korea, Samoa, Solomon Islands, Sri Lanka, Tajikistan, Thailand, Turkmenistan, Uzbekistan and Viet Nam

(countries in alphabetical order)

(2) Requirements for Participation

Those who are recommended should:

a. be a specialist (45 years old or younger as a general rule) in the fields of cultural heritage protection (i.e. conservation and restoration of wooden structures), who can utilize the experience and knowledge acquired from the training and continue to play a leading role in this field upon his/her return to his/her own country.
b. be proficient in reading and writing English, and capable of making presentations and participating in discussions in English during the training.
c. be able to attend the entire programme and submit reports on the themes specified by organizers.

6. Selection of Participants

By the beginning of August, ACCU will select 15 participants from among those who have been recommended by their country, based on their career in the field of cultural heritage protection and their experience in conservation/restoration of wooden structures. The results of the selection will then be made known to each UNESCO National Commission, as well as each selected participants.

7. Certificate

Those who complete the course will be awarded a certificate.

8. Working Language

The working language of the training will be English.

9. Financial Arrangements

(1) ACCU will provide each participant, except those from Australia, New Zealand and Republic of Korea, with a round trip air ticket (economy class) between the international airport nearest to the participant's residence in his/her own country and Kansai International Airport.

(2) ACCU will cover living expenses from 15 October to 14 November, 2002 for all the participants. The participants are requested to stay in the hotel reserved by ACCU.

10. Insurance

ACCU will purchase a Personal Accident Insurance Policy for each participant that covers medical expenses, residual disabilities, and death from accident during the period of the programme. Treatment for any pre-existing conditions (i.e. injury, illness, chronic/congenital diseases currently under treatment, pregnancy/childbirth, and dental treatment), and personal belongings of individuals are not covered by this Policy.

11. Secretariat

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2. Programme Schedule

16 October (Wed)

9:30-12:00 Inauguration Ceremony, Visit of the Vice Governor of Nara Prefecture
12:45-13:30 Orientation
13:30-14:00 Introduction of ACCU's activities
14:15-17:00 Lecture "Introduction to the Cultural Heritage Protection Systems in Japan"
by Dr. SAITO Hidetoshi of NRI TOKYO

17 October (Thu)

9:30-16:40 Lecture "Introduction to Japanese Architectural Heritage and Conservation"
by Dr. SAITO Hidetoshi of NRI TOKYO

18 October (Fri)

9:30-16:40 Site Visits:Horyu-ji, Nara Prefectural folklore museum, Yakushi-ji
by Prof. UENO Kunikazu of Nara Women's University

21 October (Mon)

9:30-16:40 Participants' Presentation and Discussions
by Dr. INABA Nobuko of NRI TOKYO

22 October (Tue)

9:30-16:40 Participants' Presentation and Discussions
by Dr. INABA Nobuko of NRI TOKYO
Mr. YAMATO Satoshi of BUNKA

23 October (Wed)

9:30-16:40 Lecture "Theory and Practice of Conservation"
by Mr. Dag MYKLEBUST of Norwegian Directorate of Cultural Heritage

24 October (Thu)

9:30-12:30 Lecture "Conservation of Wooden Architectural Heritage in the Asia-Pacific region"
by Dr. Gamini WIJESURIYA of Department of Conservation
13:40-16:40 Lecture "Design for the Reconstruction of Ancient Buildings in Nara Palace Site"
by Mr. SHIMIZU Shigeatsu of NRI NARA

25 October (Fri)

9:30-12:30 Lecture "Conservation of Wooden Architectural Heritage in the Asia-Pacific region"
by Dr. Gamini WIJESURIYA of Department of Conservation
13:40-16:40 Participants discussion
Lecture "Conservation of Timber Building"
by Mr. YAMATO Satoshi of BUNKA

28 October (Mon)

9:30-12:30 Lecture "Systems and Project Planning for Restoration of Important Cultural Properties"
by Mr. FUKUMOTO Kuniharu of JACAM
13:40-16:40 Lecture "Overall Process of Conservation in Japan"
by Mr. KIMURA Tsutomu of JACAM

29 October (Tue)

9:30-12:10 Site Visit: Kasuga-Taisha Shinto Shrine
by Mr. TACHI Toshihide of NARA
13:20-16:30 Site Visit: Toshodai-ji Temple
by Mr. UEDA Tetsushi of NARA

30 October (Wed)

31 October (Thu)

1 November (Fri)

On-site Group Workshop at Toshodai-ji
by Mr. KONDOH Mitsuo of JACAM
Mr. IMANISHI Yoshio of Nara

2 November (Sat)

9:30-13:30 Presentation and Discussion of the Result of the Group Workshop
by Mr. KONDOH Mitsuo of JACAM

5 November (Tue)

9:30-12:30 Lecture "Policy and Problems regarding the Conservation of Historic Districts in Japan"
by Prof. UENO Kunikazu of NWU
14:00-16:30 Site visit:Imai-cho Conservation Area, Kashihara, Nara
by Prof. UENO Kunikazu of NWU

6 November (Wed)

Study Tour Itsukushima Shrine World Heritage Site
by Mr. MATSUMOTO Shuji of NRI NARA

7 November (Thu)

Study Tour Kokuzen-ji Temple,
Hiroshima Prefectural Museum of History
by Mr. MATSUMOTO Shuji of NRI NARA

8 November (Fri)

Study Tour Kurashiki City Conservation Area
HimejiCastle World Heritage Area
by Mr. MATSUMOTO Shuji of NRI NARA

9 November (Sat)

Study Tour Kobe Kitano Conservation Area
Takenaka Carpentry Tools Museum

11 November (Mon)

9:30-11:20 Lecture "An Introduction to the Conservation Science of Archaeological Relics"
by Mr. KOHDZUMA Yohsei of NRI NARA

11:30-12:30 Lecture "Architectural Development of the Japanese House and Wood Species Used for Construction"
by Prof. ITOH Takao of KYOTO
13:45-17:00 Lecture "Dendrochronology in Japan and its Application"
by Dr. MITSUTANI Takumi of NRI NARA

12 November (Tue)

9:30-14:20 Lecture "Protection of Traditional Techniques and Materials for Sustainable Conservation"
by Mr. MURATA Kenichi of BUNKA
14:30-16:40 Site visit: Kawarau Kogyo

13 November (Wed)

9:30-13:00 Lecture "Cultural Heritage Preservation and Restoration"
by Dr. SHIMIZU Shinichi of NRI NARA
14:10-17:00 Conclusion and Evaluation of the Course
18:00-19:30 Farwell Party

14 November (Thu)

10:00-10:30 Closing Ceremony

NOTE
(KYOTO)
Kyoto University

(NWU)
Nara Women's University

(BUNKA)
Agency for Cultural Affairs, Japan

(NRI TOKYO)
National Research Institute for Cultural Properties, Tokyo

(NRI NARA)
National Research Institute for Cultural Properties, Nara

(JACAM)
Japanese Association for Conservation of Architectural Monuments

(NARA)
Nara Prefectural Board of Education

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3. List of Secretariat (4)

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4. List of Tutor (3)

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Ms. ONO Sakura
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Ms. KANADE Michiru
Osaka Office, Japanese Association for Conservation of Architectural Monuments

5. Opening Addresses

(1) Director of ACCU Nara Office

Mr. KANASEKI Hiroshi
Director
Cultural Heritage Protection Cooperation Office, Asia/Pacific Cultural Centre for UNESCO (ACCU)

Distinguished participants from Asia-Pacific region,
Honourable guests
Ladies and Gentlemen
Good morning

It is indeed a great pleasure for me to welcome the 14 participants from 14 countries in Asia and the pacific on the occasion of the opening of Training Course on Conservation of Wooden Structures in Asia and the Pacific 2002.

Our Office was established in August 1999 by the Agency for Cultural Affairs, Japan, Nara Prefectural Government and Nara Municipal Government to cooperate cultural heritage protection in Asia and the Pacific.

Since the establishment, we have been actively engaged in various cultural heritage protection activities such as Database Creation, Experts Training, International Conferences, seminars, symposiums and public relations programmes.

This training programme is the third occasion, and this time the theme of the training course is "the Conservation of Wooden Structures", which the holding had been demand since before. This course is jointly organized by the Asia/Pacific Cultural Centre for UNESCO (ACCU), the Agency for Cultural Affairs, Japan and the International Centre for the Study of Preservation and Restoration of Cultural Property (ICCROM). Mr. SUZUKI, the Agency for Cultural Affairs, Japan is present here. Taking this opportunity, I would like to express my heartfelt gratitude to Mr. SUZUKI.

During this training, we will arrange various courses including field trip to Hiroshima, Okayama and Hyogo Prefectures. I sincerely hope that you will study hard as well as enjoy the autumnal season in Nara.

Thank you very much.

(2) Councilor on Cultural Properties of the Agency for Cultural Affairs, Japan

Mr. SUZUKI Norio
Councilor on Cultural Properties
Agency for Cultural Affairs, Japan

Upon the inauguration ceremony of the training course on Conservation of Wooden Structure in

Asia and the Pacific, 2002, I would like to give my sincere welcome to the fourteen participants from fourteen countries.

Cultural heritage is the precious asset for mankind, born in the long history and succeeded through generations. I believe that the international cooperation concerning the protection of such cultural heritage should greatly contribute to the diversified development of the world culture.

Based on such an idea, Cultural Heritage Protection Cooperation Office, Asia/Pacific Cultural Centre for UNESCO, was established here in Nara in 1999, with the support of Nara prefecture and Nara city. This office, we usually call it ACCU Nara Office, has implemented the training for the staff in charge of cultural heritage protection in Asia and Pacific region since 2000 as one of its main activities. It also works as an organisation to disseminate the information from Japan and organise international conferences.

The training course starting today covers examination methods, conservation ideas, restoration technique, etc. for the various wooden structures in the countries in Asia and Pacific region. Through this training course, we would like to contribute for the human resource development in the field of cultural heritage conservation of respective countries.

In the international cooperation for cultural heritage protection, I consider the principle of "self-help" is important. Cultural heritage protection of one country should be carried out primarily by the people of that country under their own initiative.

Based on this principle, Agency of Cultural Affairs of Japan continues its active support for human resource development by implementing the training courses like this.

Nara is, in a sense, a treasure house of cultural heritage. I expect all of you to enjoy the fruitful training period, while experiencing many historic remains and structures.

In closing, I wish your good health and great success in this one-month training.

(3) Director of ACCU

Ms. OHNUKI Misako
Director, Culture Division
Asia/Pacific Cultural Centre for UNESCO (ACCU)

Dear participants, and eminent guests,

It is my great pleasure and honour to welcome all of you to the Training Course on Conservation of Wooden Structures in Asia and the Pacific 2002 on this lovely beautiful autumn day in this ancient city of Nara.

My name is OHNUKI and I am a director of Culture Division of ACCU main office in Tokyo. I should like to take this opportunity, on behalf of our Director General of ACCU, to thank all the distinguished participants for coming all the way to attend this training course.

ACCU is a non-profit and semi-governmental organization established in Tokyo in 1971. The primary objective of the Centre is to work for the promotion of mutual understanding and cultural cooperation among people in the region, in line with the principles of UNESCO. We have been covering programmes on Tangible and Intangible Cultural Heritage nearly since our Inception, and now for Tangible Heritage Programme being covered by Nara Office, and for Intangible Heritage Programmes by Tokyo office. Both of us are carrying out programmes in close cooperation with UNESCO, National Commissions for UNESCO in respective countries, ICCROM, ICOMOS, and other international organizations.

I believe the practical knowledge and restoration techniques acquired together with the network established during your stay, will give strength to deepen your know-how for the preservation of wooden structures both in Asia and the Pacific.

Also, this region, Nara and Kyoto is well known for its successful promotional activities and campaigns for getting public awareness and interests towards preservation of cultural heritage at a very grass roots level. Therefore, I am sure that you will learn effective ideas and strategies for 21st century not only from lectures but from people living here.

Once again, I welcome you all and I hope that you will have a good time in Nara, and enjoy becoming acquired with each other and also with Japanese people. Thank you very much.

(4) Nara Prefecture

Mr. UEHARA Atsushi
Deputy Director, Planning Department
Nara Prefecture

Good Morning. I am UEHARA Atsushi, from the Planning Department of the Nara Prefectural Government.

It is a great honor to be able to extend a very warm welcome to the 14 representatives of 14 nations who have come together in Japan at this Opening Ceremony for the Training Course on Conservation of Wooden Structures in the Asia-Pacific Region.

The Cultural Heritage Protection Cooperation Office, Asia/Pacific Cultural Centre for UNESCO (ACCU) was established here in Nara, the ancient terminus of the Silk Road and a World Heritage Site, in August 1999. This base in Japan for protecting cultural heritage sites in the Asia-Pacific region has been actively disseminating information, training preservation officials, and holding international conferences, and Nara Prefecture has been helping to support all of these activities. The training that we are beginning today is one of the core activities of this office, and it is now being held for the third time.

The previous two trainings in 2000 and 2001 focused on archaeological surveys and restoration and management activities. For us here in Nara, which has many precious wooden buildings including several that are now being restored, this year's training on Conservation of Wooden

Structures is indeed a timely and welcome event.

It is our deep hope that this one-month training will be very productive for everyone involved, that you will be able to use the fruits of this training to good advantage in your home countries, and that a lasting personal network will be established through your experience together here as trainees.

The time you are spending here falls during a season with various tourist events, including the Shosoin Exhibition and the trimming of the antlers of the deer in Nara Park. I know you will be working very hard during your training, but I urge you to take some time to stroll around and see Nara.

In closing, I express my hope that any inconveniences you encounter during your stay in this land to which you are not accustomed will not prevent you from remaining in excellent health, so that this training will proceed smoothly and with every success.