Training Course on Cultural Heritage Protection in the Asia-Pacific Region 2014

Research, Analysis and Preservation of Archaeological Sites and Remains

2 September - 3 October, 2014, Nara, Japan

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

Agency for Cultural Affairs, Japan

National Institutes for Cultural Heritage
National Research Institute for Cultural Properties, Tokyo
Nara National Research Institute for Cultural Properties

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

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Edited and Published by
Cultural Heritage Protection Cooperation Office,
Asia-Pacific Cultural Centre for UNESCO (ACCU)

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Printed by Kyodoseihan

Opening Ceremony

With the lecturers, Dr Wijesuriya and Prof. Inaba at ACCU Nara Office

Mr Kaneda explained how to convert the images into three-dimensional data using specific software.

Practical Training on cleaning iron corrosion with equipment

Mr Yanagida showed the influence of humidity on iron corrosion.

Practical training on rubing (at Nara Municipal Archaeologica Reseach Centre)

How to pick up fragile artefacts with liquid nitrogen and with plaster cast in practice

Practical training on photography

On-site lecture at Kyusyu Historical Museum: Observation of conservation laboratry

On-site lecture at Osaka Museum of History: Museum tour using iPad

Preface

The Cultural Heritage Protection Cooperation Office, Asia-Pacific Cultural Centre for UNESCO (ACCU) was established in August 1999 with the purpose of serving as a domestic centre for promoting cooperation in cultural heritage protection in the Asia-Pacific region. Subsequent to its inception, our office has been implementing a variety of programmes to help promote cultural heritage protection activities, in cooperation with Agency for Cultural Affairs, Japan (*Bunkacho*); the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM); National Research Institute for Cultural Properties, Tokyo and Nara; Nara Prefectural Government; Nara Municipal Government; universities, and museums.

ACCU Nara Office's activities include, training programmes for the human resources development, international conferences and symposia, the training of young leaders in cultural heritage protection, the local training workshop, updating website for the dissemination of information relating to cultural heritage protection, the world heritage lectures in local high schools, and the system of "International Correspondents" for the purpose of promoting information exchange and networking with the countries in the Asia-Pacific region.

In particular, the training courses on cultural heritage protection in the Asia-Pacific region have comprised a significant part of our activities for heritage protection, with two themes in alternate years: "Preservation and Restoration of Wooden Structures" and "Research, Analysis, and Preservation of Archaeological Sites and Remains." This was the fifteenth training course on "archaeological sites and remains" and sixteen participants from across the Asia-Pacific region gathered in Nara to join the course in high spirits.

In the Nara region where the capital was located 1,300 years ago, there survives a large number of ancient structures and archaeological remains which are unique in the world; there are ample human resources working on a daily basis to carry out conservation; and the philosophy of restoration has been accumulated through many years' experience and is widely accepted by the local community. So, ACCU Nara Office has chosen "Nara" as the training venue because we can take full advantage of its environment.

I believe the participants were able to learn not only the techniques and knowledge relating to conservation and restoration of archaeological remains but also the important role of local community by visiting the cultural heritage on-site: the way how local people cared for the cultural heritage; their views and willingness to protect heritage and hand it down to posterity; and their daily society-wide efforts. I am sure the participants understood the need and importance

of respecting the views and initiative of the local community as well as joining hands with them in the conservation activities.

Finally, I would like to express my profound appreciation to the distinguished lecturers who offered their expertise in clear terms and to the organisations which provided us with generous support necessary for implementation of the training programmes. I would also like to extend my appreciation to sixteen participants, who actively took part in the programme and helped each other in a friendly atmosphere to acquire latest knowledge and techniques in a far foreign country, Japan. Success of this training depends on their future efforts in the field of heritage protection in each country.

NISHIMURA Yasushi
Director
Cultural Heritage Protection Cooperation Office,
Asia-Pacific Cultural Centre for UNESCO (ACCU)

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At East Palace Garden (World Heritage Site)

Training Course on Cultural Heritage Protection
in the Asia - Pacific Region 2014

- Research, Analysis and Preservation of Archaeological Sites and Remains -

(2 September – 3 October 2014, Nara, Japan)

General Information

1. Organisers

This course is jointly organised by Agency for Cultural Affairs, Japan (*Bunkacho*); Asia-Pacific Cultural Centre for UNESCO (ACCU); International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM); and National Institutes for Cultural Heritage, National Research Institute for Cultural Properties [Tokyo and Nara], in cooperation with Japan Consortium for International Cooperation in Cultural Heritage; Ministry of Foreign Affairs of Japan; Nara Prefectural Government; and Nara Municipal Government.

2. Background

In Asia and the Pacific region, there are various forms of cultural heritage which are of great value from a global point of view. In order to safeguard this important cultural heritage for future generations, it is necessary to train heritage professionals for proper investigation, analysis and preservation. ACCU Nara in partnership with ICCROM and *Bunkacho* has been organising training courses since 2000 on this topic with a view to building the capacities of professionals who have been working on cultural heritage protection in the region. This training course is focused on investigation, conservation and management of archaeological remains and aims to provide participants with the latest methodologies and technologies.

3. Dates and Venue

Course dates: From 2 September (Tuesday) to 3 October (Friday) 2014
Venue: Cultural Heritage Protection Cooperation Office, Asia-Pacific Cultural Centre for UNESCO [Nara Pref. Nara General Office, 757 Horen-cho, Nara, Japan] and related research institutions, etc.

4. Objectives of the Training Course

The objectives of the training course are:

- to provide participants with knowledge of principles and methodologies for protection of archaeological remains;
- to provide participants with knowledge and skills related techniques of recording and analytical methods for artefacts;
- to provide participants with knowledge and skills related techniques of storage, management and exhibition of artefacts;
- to provide participants with an opportunity to establish the network with colleagues from the region and share experiences.

5. Training Curriculum

Lectures

- Global Trends in Conservation of Archaeological Sites
- The Cultural Property Protection System in Japan
- Introduction to Conservation Science

Practical Training and On-site Lectures

- Workshop on Recording/Documentation of Artefacts:
  (Actual Measurement, Photography)
- Study Tour on Management of Museums and World Heritage Sites
- Study Tour on Preservation, Development and Utilisation of Archaeological Sites

Presentations and Discussion

- Presentations by participants on the current status of archaeological conservation in each country, and exchange of views
- Discussion on future issues and vision of the conservation of archaeological sites
- Recapitulation of the training sessions

6. Participants in the Training Course

Application Procedure

The training course is offered to participants from the following 40 signatory countries of the UNESCO World Heritage Convention (see below). The application form should be submitted no later than 20 June 2014 along with the endorsement of the UNESCO National Commission in the country concerned or the endorsement of the member of Japan Consortium for International Cooperation in Cultural Heritage. The documents necessary for application are the following.

(1) Application Form (Form 1)
Please attach a copy of the passport, if an applicant has a valid passport. Please check the blank page of the passport that needed for a visa application.

(2) Report relating to the applicant's achievements in archaeological heritage conservation.
This achievement report should be written by the applicant and should be a brief summary of present and previous work related to the theme of archaeological heritage conservation. This report should be no longer than 5 pages (in A4 sized paper) and will be weighted heavily in selection of the participants.

(3) Letter of Recommendation by NATCOM or by the member of Japan Consortium for International Cooperation in Cultural Heritage

(4) Letter of Recommendation by the head of the organisation to which the applicant belongs (Annex 1)

(5) Certification for English proficiency (if obtained)

Completed applications should be sent to the secretariat of the ACCU Nara Office at the address below by post or/and e-mail. Only complete application with all necessary documents will be considered.

The following are the 40 signatories of the World Heritage Convention from Asia and the Pacific: Afghanistan, Australia, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Cook Islands, Fiji, India, Indonesia, Iran, Kazakhstan, Kiribati, Kyrgyz, Lao P.D.R., Malaysia, Maldives, Marshall Islands, Micronesia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Palau, Papua New Guinea, Philippines, Rep. of Korea, Samoa, Singapore, Solomon Islands, Sri Lanka, Tajikistan, Thailand, Tonga ,Turkmenistan, Uzbekistan, Vanuatu, and Viet Nam.

Qualification Requirements

Applicants should be:

1) those who are professionals, 45 years old or younger, who are engaged in the conservation, preservation, restoration or management of archaeological sites and artefacts and who can make effective use of the results of the training course upon returning to his or her home country;

2) those who have a good command of English, the working language for all lectures, so that they can deliver presentations and write reports from the training sessions (ACCU Nara Office and ICCROM shall be allowed to utilise all contents of presentations and reports, including drawings and photographs, for future publication and cultural heritage protection programmes);

3) those who can attend the entire training programme;

4) those who submit all of the required documents (listed above) within the deadlines outlined;

5) those who will most likely continue exchanging information and interacting with ACCU Nara Office after returning to their home countries;

6) those who were not previous participants in training courses organised by ACCU Nara Office (however those who have participated in International Youth Exchange Programme and International Education Exchange Programme can apply for this programme).

7. Notification of Screening Results

After consulting with other organisers, ACCU Nara Office will select 16 people (one participant per nation, in principle) from among all applicants around late in July. Successful applications will be informed of the results along with each National Commission for UNESCO and the Japan Consortium for International Cooperation in Cultural Heritage.

8. Certificate of Completion

Each participant is awarded a certificate upon completion of the course.

9. Language of the Training Session

English is the working language throughout the course.

10. Expenses

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

(1) Travelling expenses:

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

(2) Living expenses:

Participants shall be provided the basic living expenses incurred from the day before the training course to the next day of the final day, 1 September (Monday) to 4 October (Saturday) 2014, according to ACCU Nara Office's regulations in principle. Arrangements for accommodations (a room for single occupancy) during the training course will be made by ACCU Nara Office. In case a participant needs accommodation on the way to and/or from Japan for any inevitable reasons (such as for a visa application and the limited connection of flights), ACCU Nara Office will cover the accommodation expenses.

11. Secretariat

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2. Schedule

Training Course on Cultural Heritage Protection in the Asia/Pacific Region 2014
Research, Analysis and Preservation of Archaeological Sites and Remains
Course Schedule

Month	Date		Morning (9:30-12:30)	Afternoon (13:30-16:30)	Lecturer	Venue
September	2	Tue.	Opening Ceremony (10:00-)	Orientation Session	ACCU Nara	ACCU Nara/ Todai-ji Temple
	3	Wed.	Global Trends in Conservation of Archaeological Sites		Gemini WIJESURIYA (ICCROM)	ACCU Nara
	4	Thu.	Presentation and Discussion: Country Reports by Participants		Gamini WIJESURIYA (ICCROM) INABA Nobuko	ACCU Nara
	5	Fri.				ACCU Nara
	6	Sat.				
	7	Sun.				
	8	Mon.	The Cultural Property Protection System in Japan	Conservation and Utilisation of Cultural Heritage Resources (Cases in Japan)	AOKI Tatuji (Agency for Cultural Affairs, Japan)	ACCU Nara
	9	Tue.	Conservation Science of Artefacts I: Introduction		WAKIYA Soichiro	NNRICP
	10	Wed.	Conservation Science of Artefacts II: First Aid for Fragile Artefacts		TAMURA Tomomi	NNRICP
	11	Thu.	Conservation Science of Artefacts III: Metal Objects	Museum Exhibition in Practice	YANAGIDA Akinobu HASHIMOTO Hiroyuki	Archaeological Institute of Kashihara, Nara Prefecture
	12	Fri.	Recording/Documentation of Artefacts: Photography		NAKAMURA Ichiro SUGIMOTO Kazuki	NNRICP
	13	Sat.				
	14	Sun.				
	15	Mon.	Maintenance and Management of Archaeological Sites in Practice: Nara Palace Site	Recording/Documentation of Archaeological Sites: Photography	ISHIMURA Tomo SUGIMOTO Kazuki	Nara Palace Site
	16	Tue.	Digital Data Management in Practice: Photography		NAKAMURA Ichiro	NNRICP
	17	Wed.	World Heritage: Historic Monuments of Ancient Kyoto		ASAI Ken'ichi (Kyoto Prefectural Board of Education)	Chion-in Temple/Nijo-jo Castel
	18	Thu.	Measured Drawing of Artefacts I: Introduction	Measured Drawing of Artefacts II: Earthenware"	FUKASAWA Yoshiki MIYOSHI Miho IKEDA Hirohide	Nara Municipal Archaeological Research Center
	19	Fri.	Measured Drawing of Artefacts III: Earthenware, Rubbing			Nara Municipal Archaeological Research Center
	20	Sat.				
	21	Sun.				
	22	Mon.	Recording/Documentation of Cultural Heritage Using 3D Scanner		KANEDA Akihiro	NNRICP
	23	Tue.	Site Museum Operations in Practice	World Heritage: Buddhist Monuments in the Horyu-ji Area	ARAKI Koji	Horyu-ji Temple/Ikaruga Centre for Cultural Heritage
	24	Wed.	A Study Tour: Conservation Science of Artefacts IV: Conservation Science for objects excavated from marine sediments		NAKATA Atsuyuki AIZAWA Tetsuro	Matsuura City, Nagasaki Pref.
	25	Thu.	A Study Tour: Facilities for Museum Science Analyses and Examination		IMAZU Setsuo	Kyushu National Museum
	26	Fri.	A Study Tour: Inventory System and Exhibition Technique of Artefacts		ODA Kazutoshi MATSUKAWA Hirokazu	Kyushu Historical Museum
	27	Sat.				
	28	Sun.				
	29	Mon.	Education Project in Museum in Practice		MAMETANI Hiroyuki	"Osaka Museum of History"
	30	Tue.	Lecture and Discussion: Future Issues on the Preservation of Sites and Remains I		Rachael Elizabeth EGERTON	ACCU Nara
October	1	Wed.	Lecture and Discussion: Future Issues on the Preservation of Sites and Remains II		Rachael Elizabeth EGERTON	ACCU Nara
	2	Thu.	Writing Final Reports			
	3	Fri.	Submission of Final Reports	Closing Ceremony		ACCU Nara

ICCROM: International Centre for the Study of Preservation and Restoration of Cultural Property
NNRICP: Nara National Research Institute for Cultural Properties
ACCU Nara: Cultural Heritage Protection Cooperation Office, Asia-Pacific Cultural Centre for UNESCO

II. Proceedings

1. Opening Ceremony
2. Summary of Training Course

With lecturer, Mr Ishimura at Nara Palace Site (World Heritage Site)

1. Opening Ceremony

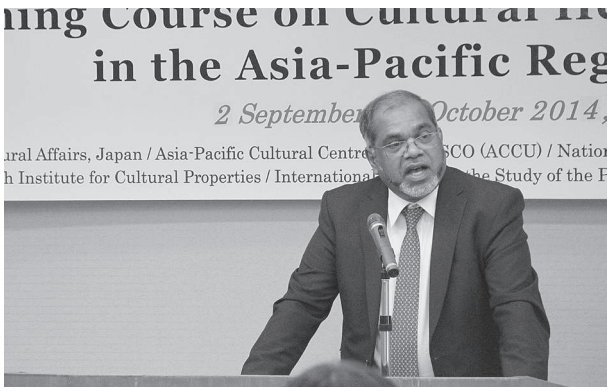
The opening ceremony of the 2014 training course was held on 2 September at Kasugano-so Hotel in Nara. The attendances were sixteen participants from the Asia-Pacific region and honourable guests from the Agency for Cultural Affairs, Japan; International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM); Nara National Research Institute for Cultural Properties (NNRICP); Nara Prefectural Government; and Nara Municipal Government.

Speeches form the guests were given by Mr NISHIMURA Yasushi, Director, ACCU Nara Office; Mr ISHIMARU, Agency for Cultural Affairs; Dr Gamini WIJESURIYA, Project Manager, ICCROM; Mr SUGIYAMA Hiroshi, Nara National Research Institute for Cultural Properties; Mr TAKEDA Naoki, Nara Prefectural Government; Mr IWASAKA Nanao, Nara Municipal Board of Education. They delivered addresses of welcome, introduced some features of ancient Nara, and wished all of the participants would learn and experience many things through the training course. Most of them told that they would learn lots of thing in Japan and make use the findings of the training in their jobs after returning. At the end of the ceremony, they had group photos with the guests, and some participants were interviewed by a press.

After the ceremony, the participants had the orientation session given the explanation of the schedule and information about the course. In the afternoon, after the orientation session they visited Todai-ji Temple. They looked around Great Buddha Hall and Great South Gate listening to the explanation about the history and the repair of the temple.

Mr Ishimaru from Agency for Cultural Affairs, Japan

Mr Nishimura, Director of ACCU Nara Office



Dr Wijesuriya from ICCROM

Mr Sugiyama from NNRICP

Mr Takeda from Nara Pref. Gov.

Mr Iwasaka from Nara Municipal Gov.

Opening Ceremony at Kasugano-so Hotel

Oriantation at Todai-ji Temple

2. Summary of Training Course

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

3 September (Wed.)

Global Trends in Conservation of Archaeological Sites

Gamini WIJESURIYA (ICCROM)

-Dr Wijesuriya gave the introduction of himself and ICCROM at first, and lectured the trends of archaeology. He proceeded with lecture by asking participants several questions about archaeological congress and issues. Then he lectured about world heritage, telling its definition, process and values. He emphasized the characteristics of archaeological sites that were different from other heritages, and broaden the topic to preservation and conservation. He mentioned charter, excavation and shelter so on. After the lecture about protection, Mr Akmatov Kunbolot from Kyrgyz Republic inquired about reburial. The lecturer suggested the discussion about it between the participants, and they argued on the originality of artefacts.

A lecture by Dr Wijesuriya

4-5 September (Thur.-Fri.)

Presentation and Discussion: Country Reports by Participants

INABA Nobuko (Tsukuba University) and Gamini WIJESURIYA (ICCROM)

-Each participant gave a presentation based on their country report. They shared the present situation, problems, needs for archaeological sites, their own experiences and their countries' skill. Since there were some common problems, several questions were asked after each presentation. As the feedback Dr Wijesuriya pointed that they had to show more positive points and solutions, not only problems, then participants started the discussion and sharing solution regarding to objects and sites.

-Following the presentations and request by Dr Wijesuriya, Prof. Inaba gave a lecture about authenticity on reconstruction. She mentioned the value of authenticity and described Horyu-ji Temple and Ise Jingu in Japan as instance of rebuilding. The Japan's uniqueness of authenticity, especially Ise Jingu, seemed to be interesting for the participants.

Presentation by the participants

Presentation by participants and discussion with lecturers

A lecture by Prof. Inaba

8 September (Mon.)

The Cultural Protection System in Japan / Conservation and Utilisation of Cultural Heritage Resources (Cases in Japan)

AOKI Tatsuji (Agency for Cultural Affairs, Japan)

-In the morning, participants visited Nara Prefectural Office and met Deputy Governor of Nara Prefecture, Mr Maeda Tsutomu. He gave a brief explanation of Nara city as archaeological sites, and wished their success in the course.

-After that, the participants had a lecture by Mr Aoki at ACCU Nara Office. He shared the classification of cultural properties and the role of national government, local government, and owners for protection of cultural properties in Japan. After the explanation of the law for protection of cultural properties, he described how to perform and manage archaeological sites in Japan showing some examples such as Nara Palace Site. Through the lecture, the participants seemed to be interested in the classification system and protection system in Japan. Especially they seemed to be surprised to know that World Heritage sites was not always on the top of hierarchy in Japan's system.

Meeting with Mr Maeda, Deputy Governor of Nara Prefecture

Mr Aoki

A lecture on the system for protecting cultural properties by Mr Aoki

9 September (Tue.)

Conservation Science of Artefacts I: Introduction

WAKIYA Soichiro (NNRICP)

-The lecture began with an outline of the conservation treatment for metal artefacts. Participants learned the mechanism of corrosion in metal observing the metal artefacts with microscopes and cleaning them with equipment. They learned how to observe the condition of artefacts and conservation treatment, and besides, they had an experimental test of the influence of humidity on corrosion in metal artefacts. In the afternoon they had an opportunity to tour the laboratory in NNRICP.

The mechanism of corrosion of metal with observation of the artefacts through microscopes

10 September (Wed.)

Conservation Science of Artefacts II: First Aid for Fragile Artefacts

TAMURA Tomomi (NNRICP)

-In the morning, participants were given a lecture about how to pick up fragile artefacts from the ground. They learned two methods, with liquid nitrogen and with resin. After the lecture, they were divided into four groups and put these two methods in practice. The progress varied with individuals. Mr Tenjin Wangchuk from Bhutan did very well and his group's work was introduced as a good example.

A lecture by Ms Tamura

Practical training of picking up fragile artefacts using plaster cast

How to pick up fragile artefacts by using liquid nitrogen (left), by using urethan form (right)

11 September (Thur.)

Conservation Science of artefacts III: Metal Objects / Museum Exhibition in Practice

YANAGIDA Akinobu and HASHIMOTO Hiroyuki (Archaeological Institute of Kashihara, Nara Prefecture)

-In the morning, Mr Yanagida lectured two topics, conservation of metal artefacts in storage and

display and corrosion process of iron artefacts at Takashima-Kouzaki site. Participants observed the result of the humidity experiment conducted on 9 Sep. and confirmed the influence of humidity on corrosion. Based on the result, the lecturer explained the relative humidity and demonstrated RP system as the store method of iron artefacts.

-In the afternoon the participants looked around Archaeological Museum of Kashihara, and after that they practiced museum exhibition: the method of packing materials and the way of exhibition. Divided into two groups, they displayed some objects to learn the effect of arrangement and correct direction of earthenware.

A lecture by Mr Yanagida

Lecture on temporary store method of iron objects

Making packing material for artefacts

With packed artefacts

Practurcal training on how to exhibit of earthenware

With the lecturer, Mr Hashimoto

12 September (Fri.)

Recording/Documentation of Cultural Artefacts Photography

NAKAMURA Ichiro (NNRICP) and SUGIMOTO Kazuki (Saidaiji Photo Studio)

-The lecture was about basic knowledge of photography of cultural properties. Participants learned the basic structure of camera, various types of cameras, and how to shed lights. Lecturers proceeded with lecture by asking the participants several questions about their experience of photography. Mr Nakamura explained how to shed light in taking artefacts by demonstration. After lunch, the participants were divided into two groups depending on their experience and had each practical training in the studio. While beginners' group started with the basic explanation of how to use camera, experienced members tried shooting the artefacts operating lights and some tools.

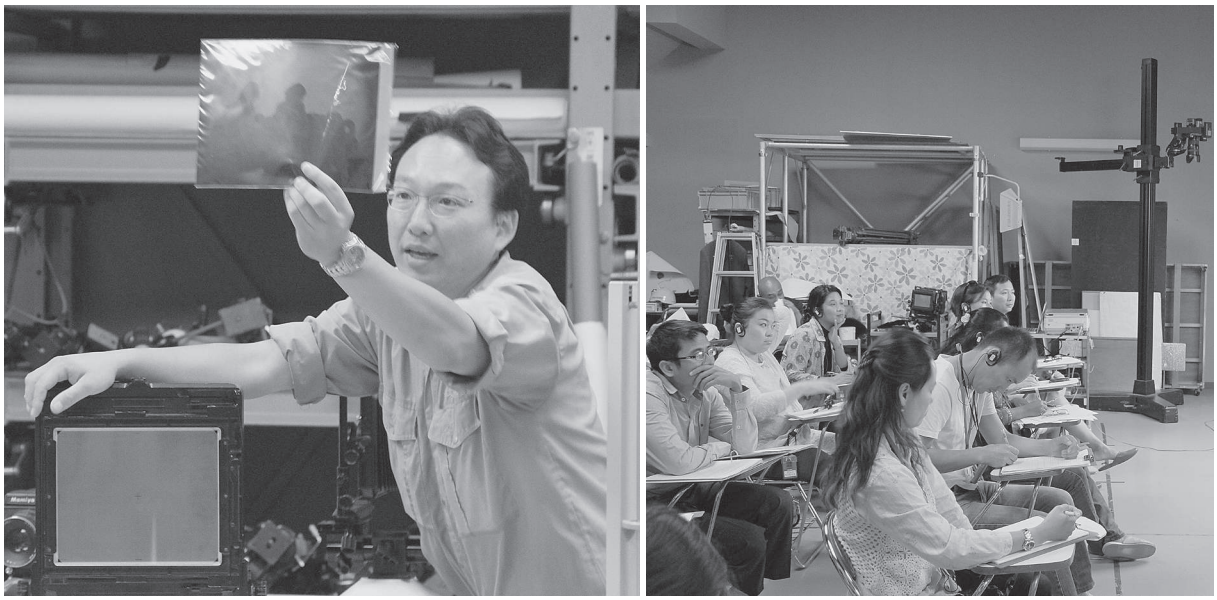
15 September (Mon.)

Maintenance and Management of Archaeological Sites in Practice: Nara Palace Site, Recording/Documentation of Archaeological Sites: Photography

ISHIMURA Tomo (NNRICP) and SUGIMOTO Kazuki (Saidaiji Photo Studio)

-In the morning, participants had the observation tour of Nara Palace Site, from Excavation Site Exhibition Hall through Imperial Audience Hall to Nara Palace Site Museum. They observed the remains, model restoration of Latter Imperial Audience Hall and Imperial Domicile, the unearthed objects, and some documents of excavation. Mr Ishimura mentioned the process and technic of reconstruction at the Former Imperial Audience hall, and the participants learned authenticity once more.

-The afternoon lecture was about photography of cultural site. The lecturer explained the good deals for the photograph of cultural properties and the way of shooting by an ordinal digital single-lens reflex camera with three functions: aperture, shutter speed and ISO. Then, the participants moved to East Palace Garden for practical training. They practiced shooting the building and cultural landscape by technical camera and ordinal digital camera.



A lecture by Mr Nakamura


Practical training on photography (Indoor session)

A lecture by Mr Sugimoto


A lecture at East Palace Garden

A lecture by Mr Ishimura at Nara Palace Site Museum

At Former Imperial Audience Hall

16 September (Tue.)

Digital Data Management in Practice: Photograph

NAKAMURA Ichiro (NNRICP)

-Mr Nakamura started with the review of yesterday's lecture about functions of digital camera, and added the explanation of its modes. Then, participants shot photos of replica artefacts with a grey card.

-The afternoon lecture was about processing and saving photo data. Mr Nakamura demonstrated the photo editing with Adobe-system. He mentioned that it was significant to reduce the colour of cultural property in a picture close to original. The participants edited the photos which they shot in the morning and yesterday in practice.

Practical training on photography, adjusting a shutter speed and an aperture value

Practical training on digital image processing

17 September (Wed.)

World Heritage: Historic Monuments of Ancient Kyoto

ASAI Ken'ichi (Kyoto Prefectural Board of Education)

-At Chion-in Temple, participants observed Mieido undergoing repairs. Listening to the explanation

about Japanese specialists of wooden architecture and their skills, the history of Mieido, its structure and summary of its repair, they observed inside. They seemed to be interested in the restoring roof, and asked questions about it actively as well as about the scale of the repair.

-After enjoying Japanese traditional vegetarian meal, the participants went to Nijo-jo Castle and observed the work to facsimile the painting on *fusuma* (sliding door) in the castle. Two special painters explained the work; how to make replica, difficulty of colour reproduction, and importance of observing and researching the original painting.

-On the way back the participants visited Kinkaku-ji Temple.

A lecture by Mr Asai at restoration site in Chion-in Temple

A lecture on facsimile of the paintings on *fusuma* at Nijo-jo Castle

18 September (Thur.)

Measured Drawing of Artefacts I: Introduction, Measured Drawing of Artefacts II: Earthenware

FUKASAWA Yoshiki (Tenri University), MIYOSHI Miho and IKEDA Hirohide (Nara Municipal Archaeological Research Centre)

-First, the participants got brief explanation about the relations between typology and archaeology, and the importance of majored drawing artefacts by Mr Fukasawa and Ms Miyoshi. Then they began to draw an earthenware following the demonstration by Mr Ikeda. Most of the participants practiced it for the first time, but they worked seriously and learned to draw both the surface and the section views of the earthenware.

19 September (Fri.)

Measured Drawing of Artefacts III: Earthenware, Rubbing

FUKASAWA Yoshiki (Tenri University), MIYOSHI Miho and IKEDA Hirohide (Nara Municipal Archaeological Research Centre)

-A second day of measured drawing, participants learned how to draw the patterns on earthenware and notes. Compared to yesterday, it seemed more difficult to draw three-dimensional materials on two-dimensional diagram.

A lecture by Mr Ikeda

Practical training on measured drawing of artefacts

-In the afternoon, Mr Fukasawa shared the findings about patterns and marks of pottery through his research, and Ms Miyoshi went on to demonstrate how to mark on pottery. In the end of the lecture, the participants practiced the rubbing. They seemed to enjoy it because it was the first experiment for almost all participants.

Ms Miyoshi demonstrate how to mark on pottery (left), Practical training on rubbing (right)

22 September (Mon.)

Recording/Documentation of Cultural Heritage Using 3D Scanner

KANEDA Akihiro (NNRICP)

-In the morning, the participants listened to a lecture on how to record three-dimensional data of cultural properties (e.g., the types and features of three-dimensional measurement methods such as laser scanning and photogrammetric techniques) and learned about the efforts underway to develop various survey methods to ensure that survey results of a uniform quality are constantly achieved and accurately and promptly recorded for future generations.

-In the afternoon, the participants inspected three-dimensional data captured by a laser scanner. They then took photographs and converted the images into three-dimensional data using specific software.

Mr Kaneda lectured documentation with 3D measurement methods.

A lecture on the shooting method with a helicopter

23 September (Tue.)

Site Museum Operations in Practice, World Heritage: Buddhist Monuments in the Horyu-ji Area

ARAKI Koji (Ikaruga Town Board of Education)

-In the morning, the participants visited Ikaruga Cultural Properties Centre where they saw the

Observation at Ikaruga Cultural Properties Centre

At Horyu-ji Temple

exhibition of artefacts unearthed in Fujinoki Tumulus and listened to a lecture about the tumulus. They then went to the tumulus to see its stone chamber, while learning how it has been preserved and managed as a historical site.

-In the afternoon, they visited Horyu-ji Temple. Divided into four groups, they toured the South Gate, Western Precinct and Eastern Precinct of the temple, with each group accompanied by a volunteer guide.

24 September (Wed.)

A Study Tour: Conservation Science of Artefacts IV: Conservation Science for objects excavated from marine sediments

NAKATA Atsuyuki and AIZAWA Tetsuro (Matsuura City, Nagasaki Pref.)

-The participants first attended lectures on "The Mongolian Invasions in the 13th Century and Archaeological Surveys" and "Conservation of Artefacts Recovered from the Sea" and then visited Takashima Museum of History and Folk Culture and also Takashima Cultural Property Centre to see their exhibitions and facilities. The participants specialising in conservation science were especially interested in the facilities of the museum and artefact conservation methods and asked many questions concerning the desalination of artefacts, the period required for impregnation of artefacts with PEG, and other conservation-related issues.

Preservation of wooden artefacts by soaking in water (left), Observation at Takashima Museum of History and Folk Culture (right)

At the laboratory

With the lecturers

25 September (Thur.)

A Study Tour: Facilities for Museum Science Analysis and Examination

IMAZU Setsuo (Kyushu National Museum)

-In the morning, the participants listened to a lecture on the importance of conservation science for museums, which dealt with topics such as exhibition, control of the collection storage environment, protection of the collection from insect damage, and past scientific research utilising an X-ray CT scanner.

-In the afternoon, they were taken to the 'backstage' area of the museum to see the museum's facilities not usually accessible to the public. Many of them took special interest in an X-ray CT scanner and a three-dimensional printer, and asked various questions about these devices. They then saw the permanent exhibition. Before leaving the museum, each of them was given a replica of an earthenware vessel produced by a three-dimensional printer as a souvenir.

Welcome address from Mr Niwa, Exective Director of Kyusyu National Museum (left)
Mr Imazu lectured the facilities of Kyusyu National Museum (right)

Mr Imazu explained the usage of three-dimensional data.

A room for X-ray CT scanner

A three-dimensional printer

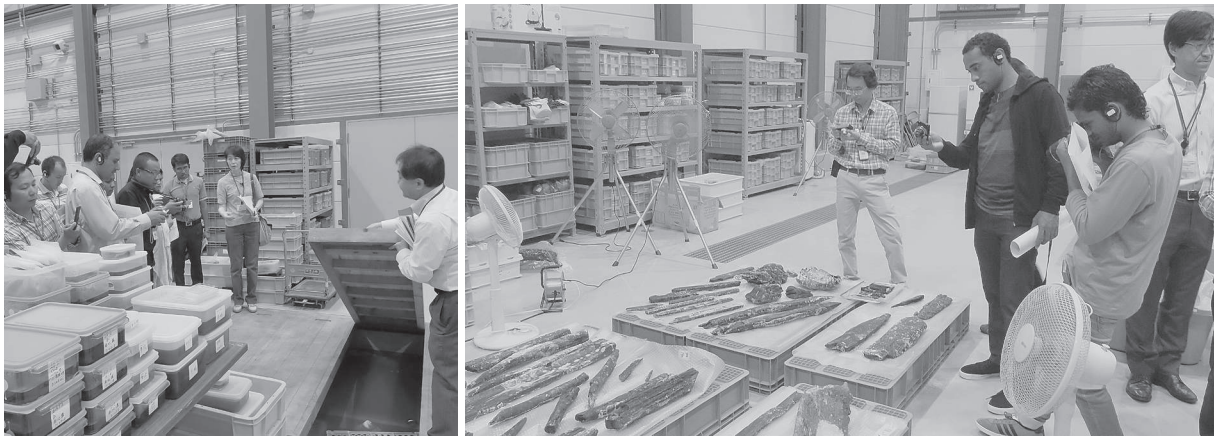
Kyusyu National Museum

26 September (Fri.)

A Study Tour: Inventory System and Exhibition Technique of Artefacts

ODA Kazutoshi and MATSUKAWA Hirokazu (Kyushu Historical Museum)

-The participants toured the earthenware storage room and other parts of the backstage area of the museum. In the exhibition room, they were given an explanation about the main features of the room such as movable stand-alone display cases and free-access flooring. Questions were asked in succession by the participants for more detailed information about the conditions of the remains conserved in the exhibition space under the floor and free-access flooring.



A lecture by Mr Oda on how to storage for wooden objects

A lecture by Mr Matsukawa on display cases under the floor (left), Hands-on exhibition (right)

At the storage room

With lecturers and Exective Director

29 September (Mon.)

Education Project in Museum in Practice: Osaka Museum of History

MAMETANI Hiroyuki (Osaka Museum of History)

-Today's lecture showed the features of archaeological site and museum in the city. In morning the participants had brief explanation about the museum and the location, Naniwano-miya site. They then observed the museum with iPad, which showed the ancient building and the trace of pole at the location they used to be. Through the iPad screen the participants could find how the site have looked. They also observed basement remains and listened to a lecture about how to conserve and maintenance them. They looked around the exhibition of all floors in the museum and found various

Explanation by a museum guide

At Osaka City Cultural Properties Association

ideas of exhibition.

-In the afternoon, the participants walked around Naniwano-miya Site Park and visited Osaka City Cultural Properties Association.

30 September (Tue.)

Lecture and Discussion: Future Issues on the Preservation of Site and Remains I

Rachel Elizabeth EGERTON (Department of Conservation, New Zealand)

-At first, Ms Egerton asked participants what they found the future issue on preservation through the training and how their ideas were changed. They discussed the matters and shared own ideas: economic situation, nature disaster, tourism and so on. Then Ms Egerton lectured on the significance of preservation mentioning the change of situation.

-After the afternoon presentation, divided into three groups they visited East Palace Garden. They observed there carefully, and discussed the value, who hold it and what tangible or intangible attributes within group.

1 October (Wed.)

Lecture and Discussion: Future Issues on the Preservation of Site and Remains II

Rachel Elizabeth EGERTON (Department of Conservation, New Zealand)

-In the morning, the participants continued group work; discussed the values of East Palace Garden and considered the statements of significance.

-After lunch, each group gave presentation. They explained the values that they considered and set out the statement. Ms Egerton praised their perspectives and the good statement, and she also said it was necessary to consider more deeply why and how cultural site was significant. Then she lectured about world heritage convention and statements of outstanding universal value and about interpretation of archaeological sites. She mentioned how to conserve the significance of cultural heritage in the future introducing practical ways and examples.

A Lecture by Ms Egerton

Discussion on the site (East Place Garden)

Discussion and making a presentation by group

Presentation by the participants (left), With lecturer at ACCU Nara Office (right)

2 October (Thur.)

Writing Final Reports

3 October (Fri.)

Closing Ceremony

-After all participants submitted their final report, the closing ceremony was held at Kasugano-so Hotel. They received the certificate, and completed the training for a month. Director Nishimura had a celebrating speech and praised their work. He told them to value the relationship and friendship through this training and to keep contact in the future. Next speaker, Mr Morimoto Susumu, the chief of NNIRICP, also emphasised the future relationship between Japan and their countries. Ms Tserendorj Tsolmon from Mongolia and Mr Arshad Ullah from Pakistan, gave words gratitude as the representatives of participants. The participants had the last group photos, then the training course came to end.

Ms Tserendorj Tsolmon from Mongolia

Mr Arshad Ullah from Pakistan

Closing Ceremony

III. Country Reports by Participants

Bangladesh

Jayed Muhammad

Problems and Needs for Cultural Heritage Protection and Restoration Activities in Bangladesh

Bangladesh is a small country but also a very rich one in terms of its natural beauty and cultural heritage. Bangladesh's cultural heritage is testimony to many centuries of religious, economic and social movements in this part of the South Asian region. This is recognized by the government as a unique inheritance which both legitimizes the state and the people who have inhabited the area since early historic periods and who established the cultures of successive historic periods from the Hindu, Buddhist, Muslim and other colonial eras. From this, we easily realize that Bangladesh has a number of very rich cultural heritage sites, such as Paharpur Buddhist Vihara/Monastery, Mahasthangarh, Mainamati, Shait Gambuj Mosque, etc. Considering the importance of these sites, Paharpur Buddhist Vihara at Nawgaon and Shait Gambuj Mosque at Bagerhat have already been inscribed as UNESCO World Heritage Sites. These two World Heritage Sites are threatened by many factors; other archaeological sites in Bangladesh also face many problems.

The archaeological sites of Bangladesh are being damaged due to many reasons, such as biological effects, natural disasters, human vandalism, etc. These reasons are co-related with others. Some of them are described below.

1. Humidity

Humidity is a particularly severe cause of damage to archaeological objects. Every archaeological object achieves a balanced condition in a balanced humidity. So the condition of artefacts can change due to rises and falls in humidity. This occurs mainly in two ways, directly or indirectly.

Organic objects are severely damaged by the effects of humidity. Artefacts made of textile, paper, bone, ivory and wood deteriorate in humidity. In lower humidity these elements release moisture and dry out, and external particles become loose. Therefore, cracking, brittleness, bending, etc. can occur.

Higher humidity increases the action of microorganisms and plants and increases chemical activity. So in metal objects chemical reactions are accelerated, causing rust on iron objects, and bronze disease on copper and bronze objects.

2. Rainfall

At archaeological sites, cultural heritage is greatly damaged as a result of heavy and long-term rainfall. The heaviest rainfalls create water logging, flooding and increase salinity at archaeological sites. The higher humidity that accompanies long-term rainfall allows plants and microorganisms to grow easily on building structures, creating cracks in the buildings through the action of roots and the secretion of organic acid. This simultaneously decreases the aesthetic beauty of the monuments.

3. Water logging

In water logging, water and saline absorbed by siliceous objects is the main factor damaging archaeological monuments. The presence of water will accelerate any kind of erosion by increasing the salinity and the number of microorganisms, encouraging the growth of higher plants. Archaeological monuments therefore lose their aesthetic beauty and are finally destroyed.

Fig-01: Logged water in the courtyard of Paharpur World Heritage Site.

4. Salinity

One of the most serious causes of visible deterioration of the brickwork of monuments is salinity. Extensive efflorescence of the salt in the wall mostly at the base of monuments is often seen during the months of November to February (the dry season). But during the rainy season it is less visually predominant. Rainwater during the season dissolves the salt and washes it away, or dissolves it so it is retained inside the brick capillaries. During the dry season there is a great reduction of water and humidity. The force of evaporation pulls water along with the salt from the capillaries to the outer surface of the bricks as efflorescence, or sometimes only the water evaporates, leaving the salt inside the capillaries, causing outward pressure on the wall. The pressure exerted by the solid salt breaks the capillary wall of the brick in the course of time. It can be clearly seen as fissuring and flaking of the brick surface. This phenomenon has been observed at many sites in Bangladesh. EG: Paharpur Vihara, Shait Gambuz Mosque, Tajhat Palace, etc.

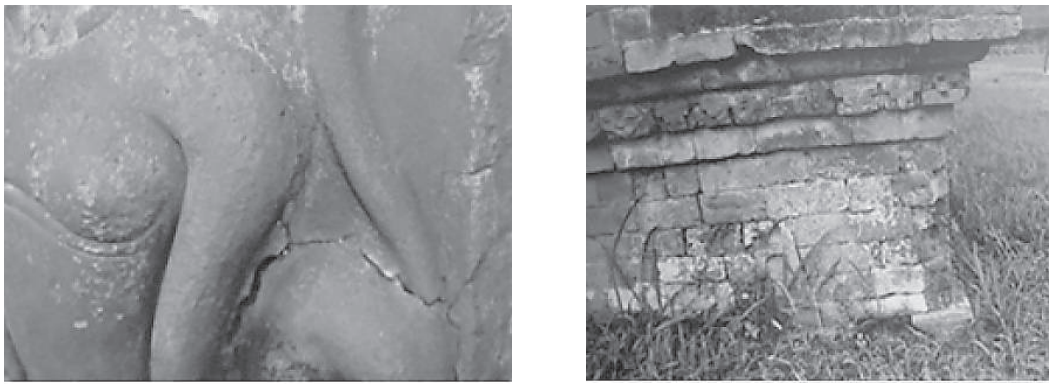


Fig-02: The white mark of salt efflorescence can be seen even in the rainy season in a corner wall of Paharpur monument.

5. Worms, Insects and Animals

Artefacts are damaged by different types of worms and insects. Wood, books, textiles, leather and other organic objects are all affected. These harmful worms, insects and animals include silver worms, book worms, wool worms, rats and cockroaches, etc. Most of these feed on organic objects. So immeasurable damage can be done to archaeological remains.

Bats, pigeons, sparrows, crows and other birds drop faeces on the monuments, which firstly spoil the aesthetic beauty of the building. Bird faeces may also cause some degree of biochemical disintegration of brick surfaces. They produce brick acid that may be harmful to the building materials.

6. Higher Plants

Brick monuments are easily destroyed by higher plants growing on the wall of the monument. The biophysical decay is mainly due to the growth and radial thickening of the roots of plants inside the brickwork, which results in increasing pressure on surrounding areas of the masonry. Their roots can grow many meters in length, width and depth. This is a dangerous condition that can result in the collapse or detachment of brick buildings, as well as other damage.

Fig-03: Damage by a higher plant.

7. Biodeteriogens

In tropical environments a wide variety of biodeteriogens are found on brick monuments. These organisms can cause direct or indirect damage. Algae, fungi, lichens, mosses and liverworts, etc. are responsible for not only disfiguring the aesthetic beauty of the monument's surface but also causing other physical degradation like detachment or flaking. They also accumulate high humidity on the structure, which provides a suitable environment for the growth of higher plants. The higher plants growing on the monuments can easily create cracks by pushing their roots into the building. Therefore, the building weakens and finally collapses.

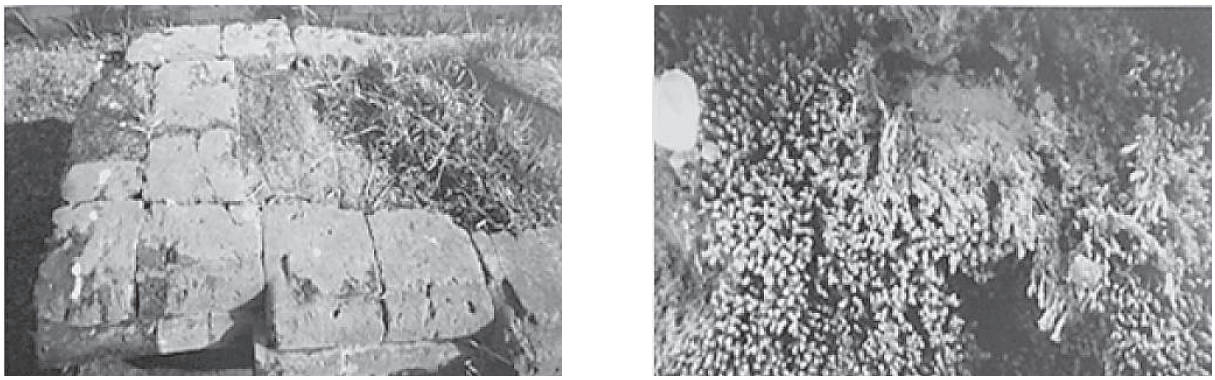


Fig-04: Algal attack and moss attack

8. Human Vandalism

Man can be responsible for all kinds of destruction at cultural heritage sites, either intentionally or unintentionally. In fact, lack of knowledge about heritage may lead to various destructive activities. Sometimes visitors can be seen damaging a building wall or writing something on an object or writing on brickwork through scratching or graving the bricks. There is a common tendency for visitors to touch objects or to climb up to the top of a monastery, for instance, even though official restrictions have been imposed.

Beside this, natural disasters, looting, war, transportation, dereliction of duty civilization and urbanization, unsustainable tourism, etc. are also responsible for destruction of archaeological monuments.

Fig-05: Visitors can climb up to the top of Paharpur

Needs for Protection of Cultural Heritage

While identifying the threats to our cultural heritage is comparatively easy, countering them effectively requires understanding their root causes.

Lack of Skilled Experts

A shortage of trained people is an especially urgent problem in our country. There are few skilled professionals—archaeologists, conservation experts, material specialists, structural engineers and historic architects—to participate in conservation activities in our country.

Lack of Effective Monitoring and Enforcement

Lack of monitoring and enforcement is another big problem in our country. A complicating factor is that, for a government with limited financial resources, monitoring and enforcement are often unaffordable or unjustifiable in the face of more urgent national needs. If the government can raise awareness among the local people about cultural heritage then they would be able to protect the archaeological site successfully.

Lack of National Funding and International Support

We know that archaeological work is very expensive. Our country is very rich in cultural heritage, but our resources are limited. Therefore, we need national and international financial support. Then we can preserve our cultural heritage properly.

Lack of Awareness

Every destructive incident that happens at an archaeological site is due to lack of public awareness. So we must try to raise awareness among the people through publicity campaigns and by providing leaflets, brochures, etc. to visitors.

Beside this, we can also increase awareness with seminars and workshops in local communities. If we can increase awareness among our people about heritage, then our valuable archaeological monuments and sites may be protected.

Conclusion

Although Bangladesh is a small and poor country, it has a very rich cultural heritage, and we will propose new cultural heritage sites in the Tentative List to be submitted to the World Heritage Centre. Due to many obstacles we cannot preserve them very well, and for this reason we cannot properly introduce our glorious history to our future generations. However, if we were able to gain some expertise and skills through appropriate training, we could then properly conserve and protect our glorious history, and thus, introduce our future generations to their glorious cultural heritage.

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Bhutan

Tenzin Wangchuk

Problems and Needs for Cultural Heritage Protection and Restoration Activities in Bhutan

Introduction

Bhutan is known to the world for its rich, unique and beautiful cultural heritage. The major aspects of the tangible cultural heritage of Bhutan are formed by the myriad heritage buildings and sites of great historic, religious and cultural significance to the people. These heritage buildings in Bhutan are known for being "living heritage" as they play a vital role in the daily lives of the people.

Most of the heritage buildings in Bhutan date back to the 17th and 18th centuries, but there are a significant number of sites that date back as far as the 7th century. The heritage buildings of Bhutan consist mainly of massive fortresses called *dzong*, stupas (*choeten*), temples (*lhakhang*) and monasteries, thousands of which are strewn all across the country. Traditional farmhouses varying in construction materials and styles from region to region within the country also form an important part of the country's collection of heritage buildings. Heritage buildings have evolved with distinctive styles and architecture according to the topography, climatic conditions and availability of natural resources of each region. They have also been shaped by the religious beliefs and socio-cultural conditions of the people. In addition to their architectural, aesthetic, historic, documentary, and archaeological significance, most of these heritage buildings have deep spiritual and cultural significance to the people of Bhutan.

Figure1: Bhutan Map

The following cultural heritage protection and restoration activities in our country were completed and handed over to the respective *dzongkhag* administrations during the 10th Five Year Plan 2008-2013:

1. Dagana Dzong Conservation/Renovation Project
2. Paro Dzong Conservation/Renovation Project
3. Wangdue Dzong Conservation/Renovation Project
4. Lhuntse Dzong Conservation/Renovation Project

Dagana Dzong Conservation/Renovation Project

The project team has successfully completed the conservation work of the *dzong*. As per the conservation guideline, the management team has preserved the old traditional structure with minor changes, incorporating seismic resilient features, while retaining authenticity and integrity.

The focus of the conservation project is to strengthen the structure as well as to improve the living conditions of the inhabitants. Besides renovating the main structure, i.e., the *dzong*, the management team has constructed subsidiary structures such as the drasha, dining hall, conference hall and others as per the requirement of the *dzongkhag* administration and Dratshang Lhuentshog. Moreover, in line with recent trends, firefighting measures have also been included in the master plan of the renovation, which goes a long way towards saving heritage sites from fire hazards due to the difficulty of securing access to the sites.

Figure2: Dagana Dzong

Paro Dzong Conservation/Renovation Project

Figure3: Paro Dzong

Wangdue Dzong Conservation/Renovation Project

The Wanduephodrang Dzong renovation project was one of the projects of national importance executed departmentally by the Department of Culture in the 10th Five Year Plan. The overall budget for the project is 200 million under the project-tied assistance of the Royal Government of Bhutan and the government of India. The major work includes renovation of the *dzong*, construction of *drasha* for monks, conference and dining hall, *dzongkhag* administration head residence and other small subsidiary structures. After the fire on June 24, 2012, the project is now a reconstruction project and is one of the projects of national importance in the 11th Five Year Plan.

Figure4: Wangdue Dzong after fire, Photo DCHS

Figure5: Wangdue Dzong before fire, Photo DCHS

Figure6: Wangdue Dzong during fire, Photo DCHS

Lhuntse Dzong Conservation/Renovation Project

Brief History

In 1551, Ngagi Wangchuk, the youngest son of Ngawang Chogyal, visited Bhutan, accompanied by his family from Druk Ralung in Tibet. His visit to a number of holy sites in different regions of the country eventually took him to Kurtoe. At the present-day site of Lhuntse Dzong he meditated and built a small temple, which came to be known as Kurtoe Lhuntse Phodrang. For many years the Lama resided here, later going to Timula, where he established his summer seat.

According to another account, Ngagi Wangchuk first meditated at Timula. Later, when he went to look for a winter seat, he arrived at the present site of Lhuntse Dzong. There the local deity appeared before him in the form of a white, bleating goat. The bleat was taken as an auspicious sign and he built a temple in 1552. It was named Leyley Dzong (The Fortress of the Goat) after the sound of the goat's bleat. Various other oral sources, though, suggest different ways by which the *dzong* acquired its name. One story says that a rock below the *dzong* is in the shape of a goat; and it is said that this rock bleated, alluding to the *dzong*'s name. Another account states that the site chosen for Lhuntse Dzong was on a high ridge across the Kurichu, on the right-hand side of Tangmachhu village. Opposite the ridge and below it lies Minjay village, where there is a rock shaped like a frog. This rock is also believed to have bleated like a goat. The people considered this to be an inauspicious sign and shifted the site of construction from Minjay village to the present site.

In an attempt to spread Drukpa rule in eastern Bhutan, the first penlop, Minjur Tempa, headed to Kurtoe for battle after defeating the Chokhor Deb of Bumthang. After defeating his adversaries in Kurtoe, he ordered the construction of Lhuntse Dzong. Another source states that Lama Namsay led the battle and contemplated building a *dzong* in the area. While looking for a site, he found the temple of Yongzin Ngagi Wangchuk to be suitable. In 1654 the *dzong* was built and was named Lhundrup Rinchentse.

During the reign of the Fourth Desi, Gyalse Tenzin Rabgay, the monk-tax tradition of sending one boy from each family to the *dzongs* was established, whereby the first 60 monks were recruited in Lhuntse

Dratshang. The practice of monk-tax gradually died away over the centuries. After the completion of the *dzong*, various religious artifacts and relics were installed by Gyalse Tenzin Rabgye. Today the dzong houses approximately 200 monks.

A legend tells about the origin of the statue of Tshepame and its arrival at Lhuntse Dzong. A fisherman who had laid his trap in a steam, possibly Kilingchu, found the image while inspecting the trap one morning. It was decided that the image be kept at Killing Lhakhang; but the image behaved most strangely, construed as its refusal to stay in the *lhakhang*. On more than one occasion, it is believed to have flown outside of the *lhakhang*. On one occasion it was found at a place called Nongma Chorten. An iron chain curtain was hung in front of the *lhakhang*'s window in order to keep the image in the *lhakhang*. However, the image tore a gap in the chains and escaped. Killing Gonpo, the *lhakhang*'s deity, is believed to have thrown a stone as it was escaping, which broke the centre of its crown, Rignga.

On a hill adjacent to Lhuntse Dzong stands the village of Jang. A woman was cutting grass in the rice paddy fields when she heard "*atsa*," an expression of pain. On closer inspection she found the sacred image. Her sickle had sliced through its left thumb. One source states it is possible that the image was then moved to Lhuntse Dzong. Another source says that it first travelled close to Legpagang stream, to the cypress grove below the village; then it was taken to the *dzong*. Due to the blessing of the image, it is believed that smoke rises from the grove in the eight month, prior to the celebrated "blessed rainy day."

Restoration Works

Construction of New Drasha

We have constructed a two story building with attached toilet and bathroom which can accommodate 300 monks, and another two story building is also being built. The upper one will serve as the main prayer hall for the monks and the ground floor will be a dining hall cum hostel for small monks who do not have many responsibilities.

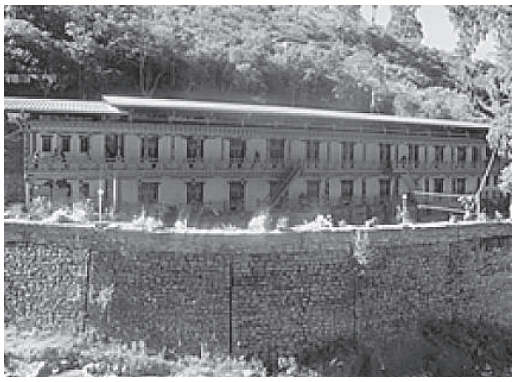


Figure8: Monks Hostel, Photo LDCP

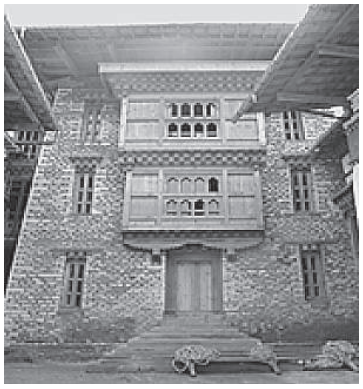
Figure9: Hostel cum dining hall for Monks, LDCP

Reconstruction of Ta Dzong

The 2009 earthquake seriously damaged the two story traditional building which serves as the Ta Dzong. We demolished the whole building above ground level and reconstructed it without damaging the traditional design.

Figure10: Reconstructed Ta-Dzong

Restoration of Timber and Masonry Work in Utse (Main Tower)



Upon conducting a structural study of the main utse, it was found that the timber had deteriorated over time and there were corner cracks throughout the wall in the front façade. Therefore, the management team pulled down the front façade and retained the original back and side portion of the wall.

The deteriorated timber components were replaced, but the traditional original design components were retained and restored.

Figure11: Restored utse

Replacement of Timber at Zeerey

These are the four major ongoing activities on conservation of the heritage buildings in the 11th Five Year Plan:

Figure12: Dismantlinged the timbers works at Zeerey

Figure13: Placing new timber at Zeerey

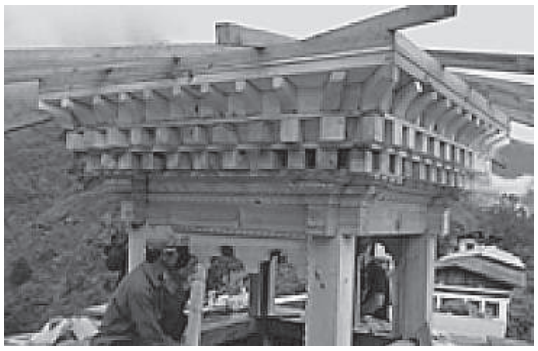


Figure14: Replacing roofing materials at Karsel Lhakhang

Figure15: Replacing timber structures at Karsel Lhakhang

1. Paro Ta Dzong Renovation/Conservation
2. Tashigang Dzong Renovation/Conservation
3. Gasa Dzong Renovation/Conservation
4. Re Construction of Wangdue Dzong

Figure16: Paro Ta Dzong

Brief History of Paro Ta Dzong

After Ringpung Dzong was successfully completed, La Ngoenpa Tenzin Drugda, the Second Desi, was installed as the Paro Penlop. During his tenure the country was threatened by unceasing assaults from Tibet and India. Therefore, to protect the country from invaders and especially to protect the Paro Ringpung Dzong, La-Ngoenpa Tenzin Drugda, together with Chhogyal Minjur Tenpa, built the Ta Dzong (Ta=watch, Dzong=fortress) in the mid-seventeenth century.

The *dzong*'s 4th floor was used as a jail in the past. There is a footbridge, a temporary structure and intended as such, between the upper 5th floor and the lower 3rd floor, which could be disconnected, confining the captives to the 4th floor. Being a removable bridge, it was strategically useful during times of war to limit the enemy's advance. As a result, the *dzong* is also known as Dra Dzong (Defence Fortress). An underground passage is believed to have connected this tower to the Pachu River. It was mainly built to collect water during times of war and to supply the dzong when water was scarce. Today the passage is no more to be seen, as it was buried by debris at the time of renovations. Paro Ta Dzong is more than 350 years old. It has remained uninhabited for a long time. The children in the nearby area used it as a playground and entertainment room. This caused some damage to the *dzong*, and over time it almost collapsed. But the Father of Modern Bhutan, the Third King, Jigme Dorji Wangchuck, out of undying fondness for the cultural legacies of the past, ordered its renovation.

Brief History of Tashigang Dzong

Trashigang Dzong was founded according to the prophecies of Zhabdrung Ngawang Namgyal. In order to spread Drukpa rule over Sharchog Khorlo Tisb Gyed (the eight regions of eastern Bhutan), he directed the Trongsa Penlop, Chhogyal Minjur Tempa, to subdue the local chieftains and build a dzong at the present site.

Figure17: Tashigang Dzong

Brief History of Gasa Dzong

Built on a slope facing east, Gasa Dzong is the administrative headquarters of Gasa Dzongkhag, which consists of the Mochhu valley, locally known as Goen Khartoed in the upper region and Goen Kharmed in the lower region, extending as far as the Punakha Dzongkhag. The locals say that the entire landscape has the appearance of the image of Tseheringma, Goddess of Long Life; and the *dzong*, named Trashi Thongmon, is built on the chest of this image, which happens to be the local deity of Gasa.

Figure18: Gasa Dzong

Problems and Needs for Cultural Heritage Protection and Restoration Activities in Bhutan:Awareness, Understanding and Appreciation of Heritage Sites

The lack of awareness, understanding and appreciation among the general public on the importance of conservation of our precious heritage sites in Bhutan has been the main challenge faced by the Department of Culture. The concept of conservation is new and has been borrowed from outside and newly introduced into our country. The concept of conservation is unfamiliar to many stakeholders, and therefore, the public are not aware of the need for conservation and don't understand and realize the value of the old "fabric" of heritage sites, which makes it difficult for the conservators while carrying out conservation work, as the people always wish to dismantle our valuable old structures and have them replaced with new structures. In this regard, the importance of creating awareness and appreciation among the general public is one of the top priorities set by the government of Bhutan.

Challenge as a Living Heritage

Most of our heritage sites in Bhutan are a living heritage, whereby people are still culturally associated with the heritage sites with daily activities taking place inside the sites.

Being a living heritage, they are constantly subject to alteration in terms of design and materials as well as function. They are exposed to continuous wear and tear and numerous disaster risks. A rising number of monks, and the need to provide modern facilities and amenities for the residents of the heritage sites not only increasingly brings about change to the historic structures and their fabric, but also increases the disaster risk. It has now become critical to give extra attention to these heritage sites, which were originally constructed without provision for installation of electricity, water supply and modern sanitary facilities but have now been burdened with such requirements. This, when executed mostly without proper monitoring and implementation, weakens the structure and adds to the vulnerability of the structure to natural hazards, especially earthquakes, and also contradicts the principles of conservation. It thus becomes a challenging issue when carrying out restoration and conservation works.

Issues Pertaining to Modernization

With the advent of modernization and the rapid development taking place in the country, along with the introduction of new construction techniques and materials, our traditional skills and customs in various areas including our unique architectural design, construction techniques and materials are being replaced.

Physical heritage traditions such as architectural designs and construction techniques that are unique, environmentally friendly, and utilize local materials by local craftspeople and villagers are being replaced by modern structures that are often out of context and constructed clumsily due to inexperience and lack of skill. These are resulting in the disappearance of vernacular traditional houses and the related construction practices. Modern construction materials are used without understanding their effect on the building when used in combination with local construction materials, thus creating vulnerabilities for the structure as a whole.

Natural Disasters and Their Challenges

With a significant number of natural disasters having occurred in recent times, the extent of the threat to the survival of all the heritage sites in the country has become very high. Bhutan recently experienced two earthquakes, i.e., 2009 and 2011, causing a lot of damage and destruction to our cultural heritage sites. About 270 cultural heritage sites (including *dzongs, lhakhangs* and *chortens*) were damaged by the 2009 earthquake and around 330 cultural heritage sites were badly damaged by the September 2011 earthquake. It has become a huge challenge for the government to restore them at one go, considering the number of heritage sites damaged, and the shortage of technical capability, manpower and financial resources that Bhutan can mobilize, thus leaving the heritage sites in dilapidated condition, and more prone and vulnerable to further destruction and damage. The Bhutanese government has still not been able to recover from the huge amount of damage to the heritage sites from the last two earthquakes.

Shortage of Professionals in the Field of Heritage and Conservation

One of the primary problems currently faced in the field of conservation of heritage sites in Bhutan is a shortage of adequate key professionals and human resources in the Division for the Conservation of Heritage Sites office. The DCHS office, being the central agency in the government responsible for the conservation, promotion and development of heritage sites in Bhutan, is not able to reach out to assess and monitor conservation works in every corner of the country. The remote and sometimes almost inaccessible location of monuments also creates many constraints in terms of maintenance, safety and conservation. Of greater concern is that many of ancient and valuable monuments are often ignorantly being dismantled and destroyed instead of being conserved, thus causing whole treasure houses of our heritage to be lost forever. Also, due to limited technical capability within the country in the field of cultural heritage site protection and restoration, many of the restoration projects actually become reconstruction projects.

No Heritage Act or Other Legal Document

At present there is no heritage act or any legal document governing the rules and regulations for the

protection of heritage sites in Bhutan. This poses a great challenge when defining the responsibilities and accountability of heritage sites for protection and restoration. However, the DCHS office is currently in the process of formulating the Heritage Act bill, which will be submitted to the parliament for enactment. Once the Heritage Act is enacted and adopted, it will govern and ensure the protection of cultural heritage sites in Bhutan.

Heritage Sites (Traditional Constructions being Non-engineered Buildings)

The traditional method of construction in Bhutan is either rammed earth construction or composite stone masonry with timber construction. Since our precious heritage monuments are either rammed earth or stone masonry construction without any scientific and engineering calculations, the stability of the vernacular structures are now been questioned by the community, and this has become a challenge.

Due to the recent earthquake disaster, the mind-set of people has changed, and the feeling now is that traditionally constructed heritage monuments such as *lhakhangs*, *dzongs* and vernacular traditional farmhouses are not strong enough to withstand tremors, due to the fact that most heritage sites suffered damage during the recent earthquakes and thus they want to reconstruct them with modern techniques using steel and concrete.

No Pool Budget for Restoration and Protection of Cultural Heritage Sites

There is no pool budget allocated for the protection and restoration of cultural heritage sites in Bhutan, which hampers conservation and restoration projects. As mentioned earlier, recovery and restoration works for most of the cultural heritage sites damaged by the 2009 and 2011 earthquakes were not able to start due to lack of funds.

Traditional Belief in Merit

It is believed in Bhutan that making offerings to religious sites, which make up most of the heritage sites, earns merit, and this encourages many people to seek to "improve" the heritage site. This normally takes the form of reconstruction of the structure with either a better architectural design or a bigger living space. It is therefore a big challenge to discourage people from doing this good deed when it is spiritual belief, versus conservation of heritage sites.

Replication of Architectural Designs

One of the issues faced at present in our country is the desire to replicate elaborate architectural designs at all heritage sites regardless of the uniqueness of the architecture. In the process of restoring particular heritage sites, every individual or local community belonging or associated with the site wants it to look prominent and much more elaborate, and thus the design is replicated from others, which leads to loss of the unique architecture of individual heritage sites.

New Constructions

The number of newly-constructed *lhakhangs* are increasing tremendously recently, regardless of the efforts of the government to discourage new construction. The construction of new *lhakhangs* often

results in neglecting the existing *lhakhang* in the area/village, which is historically and spiritually more significant. The new construction increases the stock of *lhakhangs* and *choetens* in the country, increasing the future burden on the government for their conservation and management.

Inventory of Heritage Sites in Bhutan

Currently there is no proper inventory of heritage sites in Bhutan, which is the most fundamental information required for the protection and conservation of heritage sites. Inventory records will not only help us to understand the heritage sites better, but will also assist us in rebuilding the heritage sites of historical importance; therefore with no inventory record, this leaves us with very vague information on some of the heritage sites; however, the DCHS office started preliminary work on developing the inventory of heritage sites of Bhutan in the year 2011, and is expected to complete the work soon.

Vandalism - Manmade Disaster

One of the biggest issues pertaining to the protection of heritage sites in Bhutan is the vandalism of heritage sites, which is a manmade disaster. Since there are vast numbers of heritage sites in Bhutan spread all over the country in every nook and cranny, to ensure the protection of each and every site has become very difficult, thus enabling them to become a victim of vandalism.

Conclusion

The cultural heritage of Bhutan is an integral part of our identity, unity and continuity, forming an indisputable physical record of the historical, artistic and technical achievements of the Bhutanese through many centuries. The preservation and promotion of culture is also one of the four pillars of Gross National Happiness, the nation's guiding developmental philosophy.

Heritage sites, which are a core component of the cultural heritage of Bhutan, form an integral core of the country's rich and ancient cultural heritage and traditions. Culture is one of the main centres of attraction for tourists, with tourism being the second most important source of income for the nation; conservation and protection of heritage sites must therefore be ensured into the future.

Thus, with the advent of modernization and as a result of several disasters over the last decade, a number of heritage sites are being renovated or altered and reconstructed with modern technology. All citizens of Bhutan must, at all times, make a joint effort to overcome the various threats to, and the negative impact of modernization on our heritage sites. The need to protect and preserve our cultural heritage sites has therefore become the utmost priority in the Kingdom of Bhutan.

Cambodia

Hour Sothorn

East Mebon Temple Research and Conservation Works

1. Aims of the Project

Archaeologists from the Office of Archaeological Works had thoroughly studied the causes of the damage and subsequent collapse of the foundations of the staircases decorated with lion sculptures at the northern and western parts of the temple. After finishing the restoration these lion sculptures will be put back into their original places. The Office of Archaeological Works took this opportunity to expand the study on the foundations of the whole temple in order to investigate and understand the sub-structural condition and dimensions of the temple's foundations. Another aim of the project is to upgrade the value of the architecture and the environment of the temple.

2. General Locations and Contexts

East Mebon temple is situated in the middle of Baray Yasodhadak, a water reservoir (Fig.1), with dimensions of 2 by 7 kilometres, which was a huge structure in the ancient period. This water reservoir was an infrastructure installation that boosted the economy of the Angkor civilization. The resulting prosperity enabled the Khmer monarchies to build a social infrastructure and other colossal religious buildings. Professors Ang Choulean and B.P Groddlier elaborated that the Angkor civilization relied on a water system, that is, they depended on agriculture. After this water reservoir was abandoned and blocked, and fell into disuse, some communities moved in to settle around Baray dike, and other parts at the bottom of Baray became rice paddies.

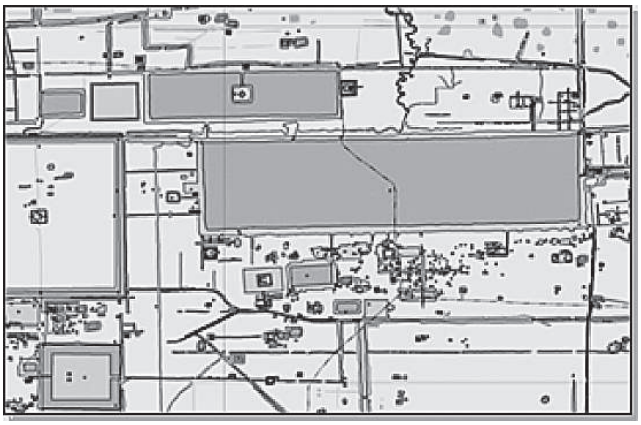


Fig.1: Map indicating the location of East Mebon temple.

3. Historical Aspect

East Mebon temple was constructed in the reign of King Rajendravarman II, in the mid-10th century, in the middle of Baray Yasodhadak (Baray Oriental) and dedicated to the god Siva of Brahmanism[1]. This temple has similar characteristics to Lolei temple. The Khmer's ancestors also built Lolei temple in the middle of Baray. Therefore, it was not a coincidence that we notice several carving designs on Mebon Oriental copied directly from the Lolei temple[2] . In the mid-10th century, King Rajendravarman II began building a royal palace and Phimean Akas in early form. Through various

[1] M. Glaize During the year 1927 by M Glaze

other constructions in this king's reign, we understand that his royal capital city was laid out and built in respect to the original layout of the royal capital city Yasodharapura, which was established by King Yasodharavarman I. This city was laid out along two axes: opposite to the path of the sun, compared to Phnom Bakheng, and parallel to Mebon temple. Pre Rup temple is a royal monument situated opposite to the path of the sun, parallel to Mebon temple. We still see the remnants of raised-earth causeways leading in all four directions from Pre Rup temple. Those are opposite and parallel to the path of the sun from the temple built by King Rajendravarman II.

4. Present Condition

With Cambodia having undergone civil conflicts for more than three decades, the conservation, maintenance, restoration and rehabilitation works of cultural heritage in Cambodia were delayed for a long period. Meanwhile, there were people who had illegally traded ancient art objects on the black market. This exploitation of cultural heritage has caused serious damage to ancient temples throughout Cambodia. The monuments inside Angkor Park had also deteriorated gravely. For East Mebon, we noticed its already poor condition had been aggravated by stonework having fallen down and scattered around, as well as tilted building structures, etc. Stone blocks of various structures had also decayed, leading to sunken foundations, and so forth (Figs. 2 and 3).

Fig. 2: Condition of the eastern staircase.

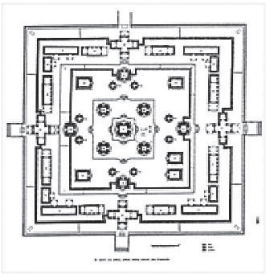


Fig. 3: East Mebon Plan (by EFEO)

5. Study of Dangerous Points

Teams of engineers and archaeologists have cooperated with Indian experts who have been undertaking restoration work at Ta Prohm temple (ASI). They went to East Mebon to study and assess the risks to the building structures. This joint study showed that these building structures have undergone destruction as a result of many factors such as:

[2] The Angkor, *Past, Present, and Future*, p. 49- 50

5.1 Natural Factors

The Angkor region has a monsoon tropical climate. The heat of the sun, the moisture and the wind have an impact on certain construction materials which are unable to adapt to this climate. The changing climate makes temple stones susceptible to erosion and decay, which lowers the quality of the stones. The rain is also a major problem, as it has caused water to overflow and penetrate into the temple's foundations, for instance, and damaged the staircase in the north and west. Moreover, this tropical climate enables vegetation such as mosses and lichens to flourish, which are types of vegetation that cause temple stones to decay.

5.2 Human Factors

According to the investigation carried out on this building, we encountered evidence of stones having been removed from the temple. This removal of construction materials induced the temple structure to lose its stability, which caused the temple stones to fall down. During the civil conflicts in Cambodia, certain persons took this opportunity to chisel off carvings from temple walls and sought to loot other ancient art objects and sculptures in the temples to sell.

5.3 Technical Factors

The temple superstructure had been damaged due to leakage and poor drainage in the foundation walls caused by defective techniques to connect the stone blocks together. Thus, rainwater flowed through these defective joints and accumulated inside the foundations. Instability of foundations is the main reason why temple superstructures collapse (fig. 4, 5, 6 and 7).

Fig. 4 and 5: The cracked condition of the northern staircases and lion sculpture pedestal.

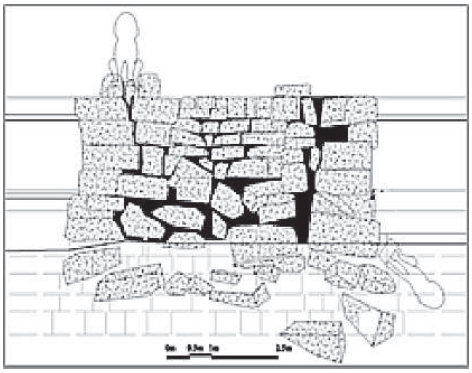


Fig 6: Front view of the condition of the lion sculpture pedestal

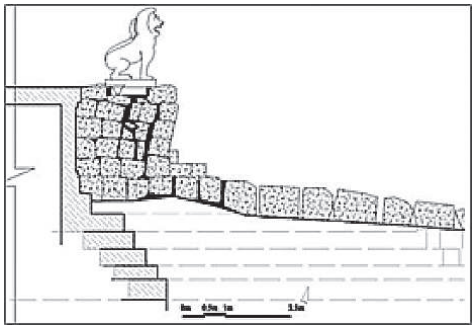


Fig. 7: Side view of the condition of the lion sculpture pedestal

6. Excavation in Rehabilitation Project and Restoration of Staircases

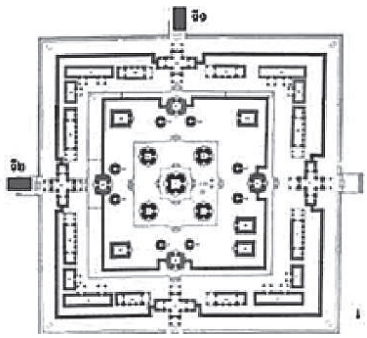


Fig. 8 Location of excavation trenches

The archaeologists and architects conducted their joint study in two steps. The first step was to excavate any unearthed lion sculptures which were lying beneath the ground and to study the condition of the foundations of staircases. The next step was to undertake restoration work to stabilize the staircase foundations and to extend research on the condition of staircases in the whole of Mebon temple (fig. 8).

6.1 Trench 1

This trench was excavated across the earth mound adjacent to the temple's northern staircases, for the purpose of uncovering and restoring the lion sculptures and for studying the condition of the foundations of the staircases. The main goal of this study is to restore and stabilize the temple staircases so that the lion sculptures can be put back in their original places and also to facilitate a visiting route for tourists in the temple. The median depth of this earth mound is 1.5 m. The composition of the soil is hard and firmly compacted with a yellow colour mixed with dark red clay in the upper part. We encountered some potshards, fragments of bricks, corrugated iron, and charcoal. The soil deposited at the bottom of this earth mound is loose, in a lighter grey colour than the upper section, and we also encountered several fragments of roof tiles, bricks, ceramics and pieces of laterite. We also discovered some pieces of laterite and sandstone in good shape (Figs. 9, 10, 11, and 12). At a depth of 0.3 m, we found fragments of lion sculpture manes buried next to the five lion sculpture fragments.

Fig. 9: Condition before excavation

Fig.10: Cross section of soil layers extending from west to east.

Fig.11: This is the location of a lion stand, which will be restored and stabilized, along with the temple staircases. It will then be put back in its original place.

Fig.12: Lion sculpture lying on the ground.

6.2 Trench 2

This trench was excavated across the earth mound located near the western staircase. The purpose of this excavation was to lift up the lion sculptures to be restored and to study the condition of the foundation of the whole staircase (Fig. 13).

The goal of this study was to restore and stabilize the foundation plinths, hoist the lion sculptures and place them in their original locations, and facilitate visits by tourists. In the southern part of the earth mound next to the foundation plinth, there were several potshards and some roof tile fragments. The soil composition of the earth mound is hard compacted clay in yellow, mixed with a dark red colour in the upper part. The earth mound contained roof tiles, brick fragments, potshards, and small pieces of charcoal. According to this excavation, we can conclude that this earth mound was probably related to the cleaning of the foundation terrace in the French era and subsequent soil deposited in later periods.

Fig.13: Lion sculpture lying on the ground.

6.3 Results of Excavation

Through stratigraphy studies on both trenches, we can divide the soil layer evolution into four different phases:

-Phase 1: The bottom of the foundation is prepared prior to construction of the temple by pounding and compacting fine sand mixed with mountain rocks 5 cm to 20 cm in diameter.

-Phase 2: This has a thickness of 1.5 cm divided into three layers, the lower layer of which has the characteristics of firmly compacted soil. The upper soil layer is a blend of mountain rock fragments lying in a horizontal position and some ceramic fragments. This phase involves a process of pounding and compacting foundation soil with small pieces of laterite in order to prevent the water from penetrating into the temple's foundation.

-Phase 3: According to in situ observation, we discovered several potshards mixed with roof tiles, brick fragments and charcoal. Furthermore, on upper foundation terraces, there are traces of several postholes. With these postholes, we can conclude that on this foundation terrace, there existed a wooden structure covered with earthen roof tiles. The soil sediment and deposit probably formed in the ancient era (in the medieval era).

-Phase 4: In this phase, we encountered several small pieces of laterite, charcoal, and potshards scattered with corrugated iron. The formation of the soil layer in this phase is related to sweeping and cleaning activities on foundation terraces during the French era in 1931, and also to looting activities in the present time. There are two lion sculptures that probably tumbled sometime between the 70s and 90s due to their good condition and shape, and there are only a few broken parts. Moreover, if the two lion sculptures had tumbled before the French era, French conservators would have probably repaired them and placed them back in their original positions like the lion sculptures on the eastern staircase. The foundation of that staircase is still in better condition.

7. Excavation on Staircase Foundation

This excavation was conducted for the purpose of studying structures lying below the foundation and understanding the cause of damage (diagnosis) so that we can find a solution to raise a restoration and stabilization project on these two staircases in the future (Fig. 14).

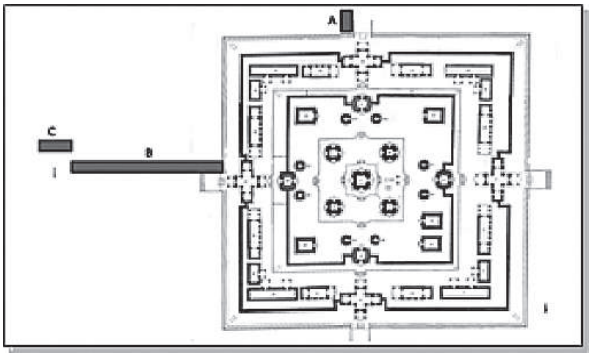


Fig.14: Locations of excavation trenches A-C

7.1 Excavation Trench A

The first excavation trench was dug at the western side of the staircase to survey the cause of damage in this staircase (Figs. 15, 16, 17, 18).

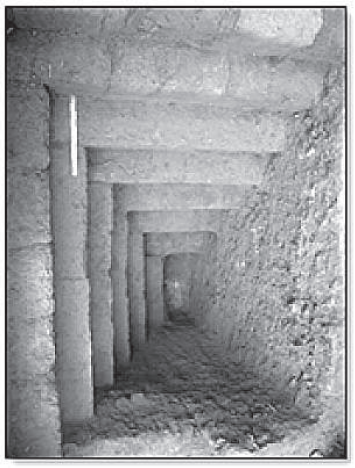


Fig.15: Excavation trench A showing foundation of northern staircase

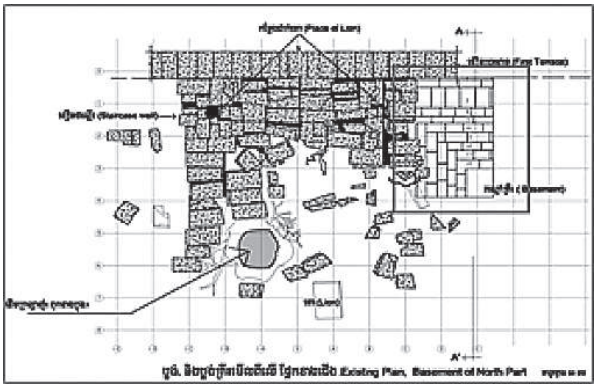
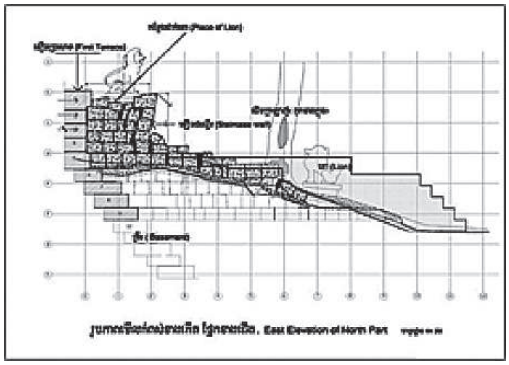


Fig.16: Plan of foundation of northern staircase foundation



Figs.17 and 18: Elevation plan of northern staircase from the east

After finishing the excavation, we can clearly understand the techniques for joining building materials in and below the foundation and the various structures in this staircase foundation. The foundation of the staircase is still in good condition, and we can divide it into four phases as following:

-Phase 1: This has one layer composed of white sand, with fine grains mixed with several mountain rock fragments compressed firmly together. This phase is for preparing the bottom of the foundation prior to laying a laterite foundation layer.

-Phase 2: This is the preparation of foundations in which six layers of laterite stone blocks were laid. Each laterite stone block is in sound condition.

-Phase 3: Comprises three layers of a thickness of 1.4 cm composed almost 100% of laterite chips that are compacted very firmly. Except for layer number 1001, it is mixed with fragments of mountain rock and potshards, which make up 10% of the total volume.

These laterite chips are probably present to prevent water from penetrating inside the foundation. On top of this laterite chip layer, another layer was paved around the temple. The laterite chips were probably acquired from the chiselling and trimming of laterite stone blocks during the construction of the temple, as this temple was built with laterite.

-Phase 4: This matches layer 1000, and is composed of clay mixed with fine sand of a medium firmness with a grey/dark red colour, an abundance of roof tiles and brick fragments blended with potshards, tree roots, and also small pieces of charcoal.

Through these artifacts, we can argue that the soil layers probably relate to utilization of the site for other purposes at various times in later period after completion of the construction of the temple, because we encountered traces of several pillar holes on the temple. These pillar holes were used for construction of wooden structures.

In conclusion, we found that the structures below the foundation, consisting of pounded and compacted mountain rocks with sand and laterite gravel in the foundation of the staircases are still in sound condition. Therefore, the collapsing and sinking of the upper laterite layers are not caused by any problem with the foundation below the staircases and temple.

7.2 Excavation Pits Nos. 2 and 3.

The archaeological team started to carry out excavation Nos. 2 and 3 at the north-west embankment to study its foundation structures and to discover the reasons for the deformation and collapse of its structure, and then to work out solutions and measures to reinforce and restore the platform's staircase (Figs.19, 20, 21).

Fig.19: Condition of foundation of western staircase, 30 m from temple basement, pit no.2

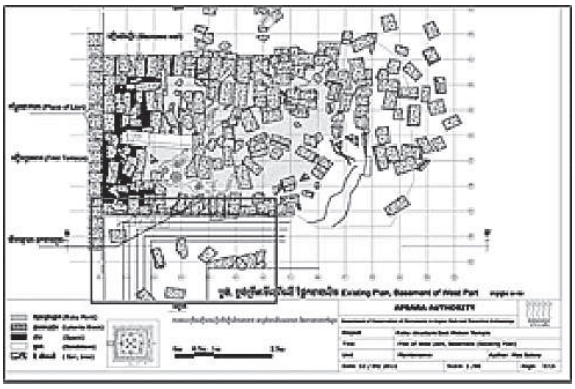


Fig.20: Location plan and foundation plan

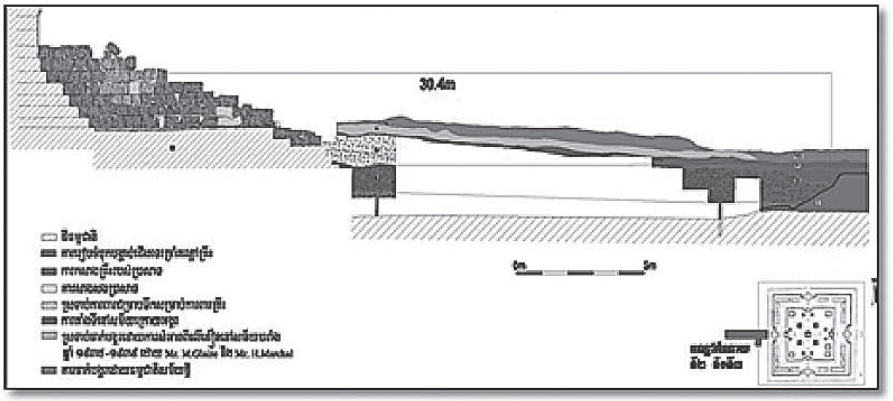


Fig. 21: East-West cross section, southern walls of trench 2 and trench 3

With reference to the analysis of the soil layers at Excavation Pits Nos. 2 and 3, especially at the northern wall, we identified the relationship between the construction structures of the temple and the northern port's platform. On the other hand, through the excavation, the soil layers were divided into seven phases as follows (the results from these two excavation pits are similar):

-Natural soil: This is composed of pure clay, compacted, and with a yellow to dark brown colour. These results are from the coring at the bottom of the pit at a depth of 1.5 m.

-Phase I: This contains two layers that are composed of a clay and sand mixture, compacted, and with a yellow to dark brown colour. These two compacted layers were done as a foundation wall before construction of the temple's foundation as we found a slope leading to the end of the western part of this excavation pit.

-Phase II: This contains two layers with a thickness of 1 to 1.5 m. The layers are composed of clay and mixed with rocks (the rocks are 5 to 20 cm in diameter). They are compacted and 30 meters in length from temple's foundation. We conclude that the compacted sand and rock was used as a preparation for constructing the foundation of the temple.

-Phase III: This is the bottom part of the temple's foundation made from laterite blocks. The blocks are in good condition and well preserved, except the upper part, which is in poor condition due to rainwater.

-Phase IV: This phase contains three layers, one of which is compacted with small fragments of laterite and used as a waterproof layer for protection against the penetration of rainwater into the foundation.

-Phase V: This phase contains two layers. They are composed of sandy soil mixed together with clay, charcoal, fragments of pottery and burned clay roof tiles. They are dark brown in colour. There were several postholes on this platform that indicate the construction of a wooden building here. We conclude that these terraces would have been used in other periods after the completion of the temple.

-Phase VI: This is a laterite block layer that had collapsed on the staircase of the temple's platform. It contains many pottery fragments, roof tiles and a small amount of charcoal. We conclude that this phase was related to the cleaning of the upper part of the eastern and southern staircase platforms of the temple.

-Phase VII: This is a modern phase. It contains many fragments of roof tiles, bricks, and pottery, charcoal and tree roots mixed together. According to the results from these two excavation pits, we concluded that the basement and foundation are well preserved and in good condition without any deformation or collapses. On the other hand, we found a clay compact layer which was used as a wall in a wave form to reinforce and support the foundation. The length of this layer is up to 33 meters from the basement of the temple. On the other hand, we found another compact layer of sand and rocks 30 meters long, and another compact layer of laterite fragments in the length of 20 meters from temple's foundation. So, the preparation of temple foundation of our ancestors was very solid, stable and resistant.

8. Ceramic Fragments Found in Excavation Trenches

The research and excavation works were conducted for several months with the aim of checking and investigating the condition and situation of the temple, especially to understand the problems behind the damage to the temple basement and upper structures. Through the excavations, some ceramic fragments were unearthed and collected for further study and for inclusion in a written report.

Because it is a temple site, we mainly found only roof tile fragments. However, a few pottery pieces were encountered, such as earthenware water pots and a few brown glazed jar fragments.

These ceramic fragments can be primarily classified as:

A- Earthenware Pot: we found a small piece from the rim of an earthenware water jar. The original shape cannot be recognized. The pot was made of red clay, mixed rough sand components, soft and fragile, measuring about 1 cm thick and decorated with a ridged circle near the neck (Fig. 22).

B- Brown Glazed Stoneware Jar: There are also a few pieces from brown glazed stoneware jars found in the excavation trenches. Their original shapes are unknown, but the jars would have been large. One rim part measures about 10 cm in diameter and is decorated with circular incised lines around the shoulder. Other pieces from the body are also designed with circular incised lines. These fragments are made of a dark grey clay similar to the ceramics produced at the kiln sites to the east of Beng Mealea temple, which has recently become known as a brown glazed ware production area in the Angkor period (Fig. 23).

Fig.22: Pottery fragment of earthenware

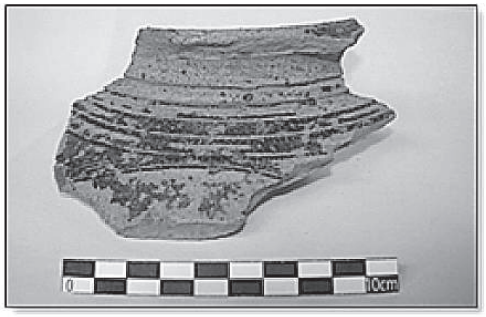


Fig.23: Pottery fragment of brown glazed stoneware jar

C- Flat Tiles: Because the site we researched and excavated is a temple site, we mostly found and collected roof tiles including flat tiles, round tiles, end tiles and finial tiles. The flat tiles collected are not complete shapes. These tiles are made of grey clay—mainly stoneware applied with green or ash glaze—while a few others are unglazed earthenware made of red clay. There is no decoration but traces of clay line joining can be observed.

D- Round Tiles: The round tile fragments are stoneware made of grey clay—some applied with green or ash glaze. Other pieces made of red clay are mostly earthenware without glaze. The red clay tiles are soft and fragile. There is no decoration.

E- End Tiles: There are two types of end tiles. One is earthenware made of red clay. They are soft and fragile, and decorated with a lotus flower design at the front. The other type is a stoneware tile made of grey clay also decorated with a lotus flower motif.

F- Finial Tile There are two kinds of finial tiles: one is earthenware while the other is stoneware. The earthenware tiles are mostly made of red clay. They are soft and fragile, and decorated with ridged circle lines. The stoneware tiles are made of grey clay. They are hard, and decorated with ridged circle lines. Some others are made of red clay.

Findings from Excavation Pits 1, 2 and 3:

The following charts are classifications based on the findings from the three test pits (Pits 1, 2, and 3).

Roof tile(up and down)				Element of roof decoration				Element of roof decoration				Ceramics			
Hard		Fragile		Hard		Fragile		Hard		Fragile		Hard		Fragile	
	kg		kg		kg		kg		kg		kg		kg		kg
	99.4		76	35	4.7	20	3.2	8	1.7	4	1.02	87	5.75	80	102

Figs.24, 25 and 26: Roof tile face up, roof tile upside-down and pottery fragment

9. Excavation Research

With reference to Excavation Pits Nos. 2 and 3, we found a compacted layer that was made from mountain rocks mixed together with sand to form a vertical foundation wall way and in the length of 30 meters from the temple basement. To clarify and to confirm the previous discovery, the team opened another three test pits in the eastern and south-eastern parts of the temple (Fig. 27).

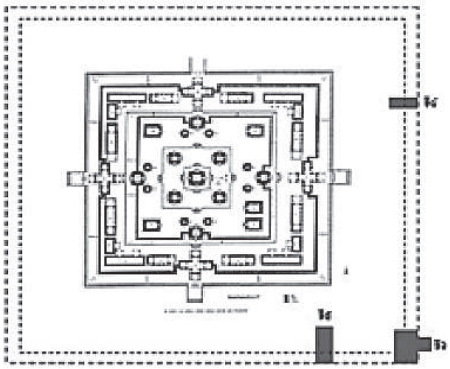


Fig. 27: Location of test pits (4, 5 and 6)

9.1 Excavation Pit No. 4:

Located in the north-eastern part of the Mebon temple. It is 30 meters from the temple basement. The dimensions are 3 x 1.5 m with a depth of 1.3 m. (Fig. 28)

Fig. 28: Northern section of pit No. 4

9.2 Excavation Pit No. 5:

Located to the south of the temple basement, 30 m away from the basement. The dimensions are 3 x 1.5 m (Figs. 29, 30).

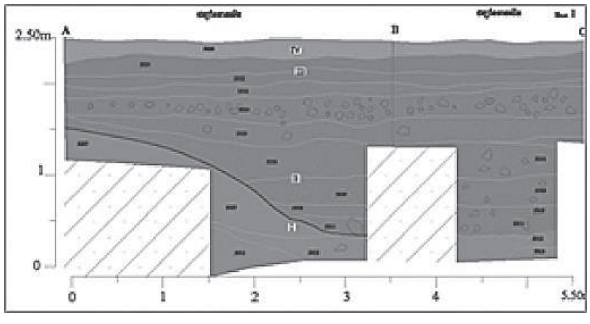


Fig. 29: A-B (western section) and B-C (northern wall) excavation pit No. 5

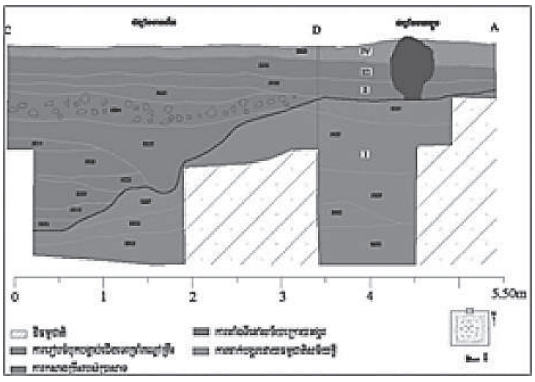


Fig.30: Foundation stratigraphy of excavation pit No. 5, C-D (eastern wall) and D-A (southern wall)

9.3 Excavation Pit No. 6:

Located in the south-east direction, 42 m away from the temple basement. The dimensions are 3 x 1.5 m (Figs. 31 and 32).

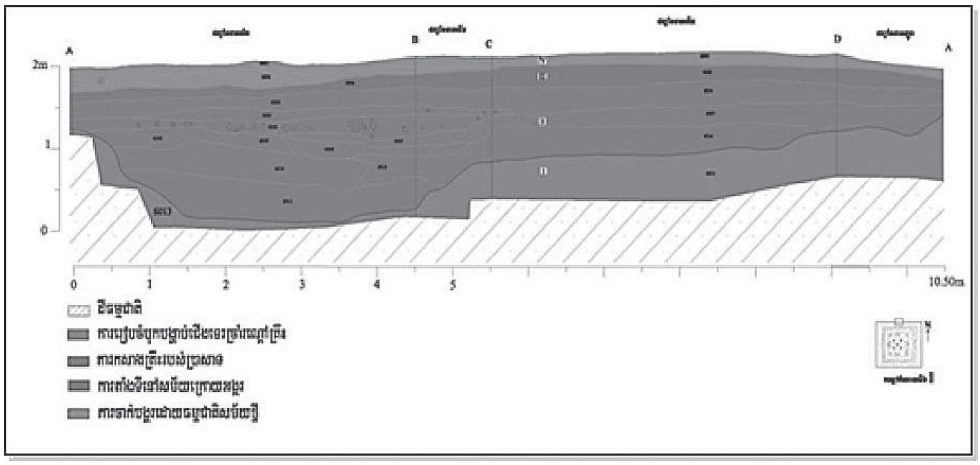


Fig.31: Preparation of temple foundation.

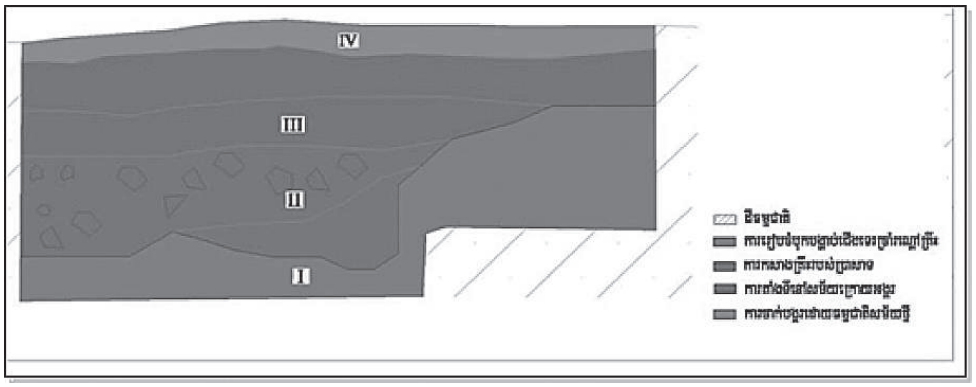


Fig. 32: Excavation pit No. 6 (South-east)

Results from the three test pits (Pits 4, 5 and 6):

The results from the three test pits above confirmed that there was no other evidence of occupation besides temple construction materials. Through study of the soil layers of these test pits, we found the technique for preparation of the vertical foundation wall was similar to that of the components of the compacted rock and sand layer of the temple foundation. We divided the results into four phases as follows:

-Natural soil: We didn't reach the natural soil; however, the coring results confirmed that the natural soil is composed of yellow to dark brown compacted clay.

-Phase I: Located above the natural soil are two layers composed of compacted clay mixed with small grain sand and rocks. They are a yellow to dark brown colour. This are compact layers of the vertical foundation wall preparation phase because we found evidence of a wave-like slope.

-Phase II: This phase contains several layers composed of clay mixed with a large quantity of yellow to white sandy soil, compacted firmly. (Except for test pit 6, where the soil layer is a very dark brown). Each layer in this phase is composed of rocks with diameters of 5 to 20 cm mixed with soil that was used to fill in the foundation. This compact foundation layer is 1.5 meters thick. On the surface of this layer there is a special layer composed of sand mixed with rocks that is hard and compact, and 20 to 30 cm thick. The layer is 27 meters in length from the temple's basement. With reference to test pits 2 and 3, this foundation layer became thicker the closer it was to the temple basement, with a thickness of up to two meters. Phase II thus consists of compacted layers of rocks mixed with sand for the temple foundation.

-Phase III: This layer contains two layers composed of a large quantity of clay mixed together with yellow grey sand and some charcoal at the surface of the layer. It is a compact layer. This phase is preparation for the compact layer in the area surrounding the temple.

-Phase IV: This is a modern phase composed of dark grey sand, bones, charcoal, and tree roots. With reference to the results of the 6 test pits, we concluded that the methods and techniques to build the foundation of Eastern Mebon temple were as follows: First, they dug a hole for the foundation, and used compacted clay layers to form a vertical foundation wall. Then they laid down many compact layers to form the foundation. This foundation extends to 30 meters away from the temple basement in the form a square.

In conclusion, the foundation of Eastern Mebon was made from a special foundation trench that is large and very well compacted. Of particular note is that this temple was built on an island in Eastern Barray that is surrounded by water.

10. Conclusion

In reference to the archaeological excavation research, we found that the laterite foundation's port was solid and stable. The collapse of the laterite staircases in the northern and western parts of these two ports was not caused by its foundation. This problem was caused by the deterioration of the laterite blocks, the tropical climate, the construction technique, insects, lack of temple maintenance from the period of abundance, and the vegetation growing on the temple.

Fiji

Kataiwai Sakiusa Rocky Nadakuitavuki

Fiji Museum's Efforts towards Cultural Heritage Protection in the Fiji Islands

1. Abstract

The Fiji Islands are rich in tangible and intangible cultural heritage with grand displays of cultural practices and remnants that still exist throughout the country. Fiji's cultural heritage goes as far back as 3000 years ago during the Lapita era. Throughout those years, from as early as the beginning of the Lapita migration, the Fiji Islands incorporated various forms of cultural identity through traditions and activities that have, to this day, defined the rich culture that is practiced and displayed throughout the country. In relation to the historical migration and settlement of the Pacific, in particular the western Pacific, Lapita is a term used to describe the earliest wave of migration to the western Pacific from Southeast Asia, and this wave originates from as far back as 3900 BP.

The value and significance of the protection of cultural heritage in the Fiji Islands is viewed from a minority perspective as awareness hasn't yet reached a national scale, and this is entirely due to the low level of interest. With intangible cultural heritage (ICH) still playing a major role in customs and traditions throughout the country, the tangible aspect is under threat of ongoing development and natural effects, however, that is not to say that cultural heritage in the Fiji Islands is diminishing, as efforts towards the protection and preservation is a priority of the government, and with the inscription of the old capital of Fiji – Levuka, as a UNESCO World heritage site in 2013, this has contributed profoundly to the awareness of cultural heritage in the country.

Efforts towards the protection and preservation of cultural heritage in the country are faced with many issues, ranging from the lack of public knowledge to the development of infrastructure, land and agriculture; however, with the steady implementation of national legislation concerning the protection of cultural heritage sites, many developments have incorporated the protection of such sites within the developments plans. The current legislation that is being utilized by the Fiji Museum is the **Preservation of Objects of Archaeological and Paleontological Interest (POAPI)** Act, cap.264, Laws of Fiji; however, there are supplementary laws that highlight the importance of cultural heritage and its protection to some extent, and these are being implemented by various organizations:

- National Trust of Fiji (Amendment) Act
- Environment Management Act 2005 administered by the Department of Environment under the Ministry of Local Government, Urban Development, Housing and Environment.
- Mining Act 1978 administered by the Department of Mineral Resources under the Ministry of Lands and Mineral Resources.
- Town Planning Act 1978 administered by the Department of Town and Country Planning under the Ministry of Local Government, Urban Development, Housing and Environment.

2. Implementation Efforts

The Fiji Museum has been implementing [legislative measures] on cultural sites around the country to ensure that protection is officially applied under the government laws. Efforts towards the implementation of protection and preservation of cultural heritage, in particular, tangible heritage, is mainly undertaken through requests from individuals, local communities, environmental consultants, tertiary institutions and various concerned parties. It is the protection legislation that highlights the need to restore cultural sites or features to achieve the original setup or appearance of these sites. Implementation of legislative protection of cultural sites is not only limited to requests, as the Fiji Museum also undertakes collaborative projects with various governmental and non-governmental institutions concerning biodiversity conservation and sustainability. Through these initiatives, many cultural sites have been included in national policies that have been endorsed in the country, to safeguard and protect forests and marine life for a sustainable future. This has contributed tremendously to creating awareness on a national scale among the many local communities that weren't aware of the significance of their cultural sites regarding the future sustainability of biodiversity in the country and the need to protect them. Through these national projects, the Fiji Museum has been able to reach out to a wider audience and at the same time implement the protection of unexploited cultural sites, not only under the relevant legislation but also within the policy framework of biodiversity protection around the country.

3. Implementation Setbacks

The holistic approach in protection measures towards cultural sites, which the Fiji Museum adopts, does face limitations or setbacks due to certain situations that understandably come into play. When focussing on the overall situation, there are specific issues that arise such as lack of finance, lack of resources, lack of knowledge/skills and the lack of public awareness and interest. These are some of the many issues that limit the overall performance of the Fiji Museum to protect cultural sites around the country.

[1] **Preservation of Objects of Archaeological and Paleontological Interest (POAPI)** Act, cap.264, Laws of Fiji

3.1 Site Disturbances

This is a major issue faced throughout Fiji in terms of the preservation of cultural sites, and these disturbances come in many forms, from human-induced, agricultural disturbances, to natural disturbances such as the activities of wild animals.

Fiji REDD + cultural sites:

This national project was adopted by the Fiji government in 2010 under the United Nations (UN-REDD+) efforts to safeguard and sustain forests in developing countries, focusing mainly on Asia, South America and the Pacific. The project commenced in Fiji with the first assessments undertaken at the pilot project site in Emalu Forest, Navosa in July 2012. As a result of the archaeological impact assessments within the project area, the team was able to identify a total of 77 cultural sites of significance across 7,347 hectares of rainforest over a period of four weeks. These sites were mainly identified as old villages, sacred sites, old agricultural terraces, war ditches and an abundant display of cultural artifacts consisting mainly of clay pottery vessel shreds with a few finds almost completely intact.

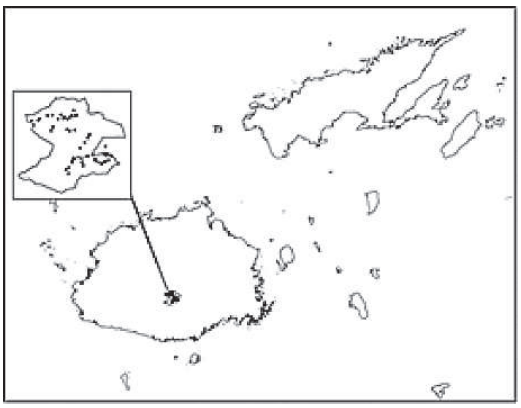


Figure 1: Map of Fiji showing the REDD+ project area.

During the course of the assessments, it was found that many cultural sites had been significantly disturbed and in deteriorating condition, especially in relation to the state of the cultural features that were displayed. Through a thorough investigation, it was obvious that natural processes such as erosion and wild pigs were the major contributing factors to the disturbance of the site. Prominent features such as house mounds and stone walls had been displaced and totally destroyed due to the breeding habits of wild pigs, and this in turn had contributed to the site's vulnerability to erosion.

Figure 2: A cultural site with an old house mound displaced through wild pig breeding and erosion. The scattered stones were once placed as stone alignments along the mound wall.

Figure 3: Wild pig breeding visible on the site surface.

Although most cultural sites identified within the project area are still in a highly preserved condition, it is possible that most of these would also be significantly disturbed over time as such disturbances are impossible to contain due to the extensive area and isolated location.

Further mentions:
Other major disturbance factors include infrastructural and agricultural developments, which represent the majority of factors affecting the preservation and protection of cultural sites in Fiji. Several of the cultural sites that have been surveyed by the Fiji Museum have been greatly affected by these types of site disturbance.

Figure 4: Stone wall barricade covered in shrubs with agricultural farming visible. Navitini fortification site, Nadala Village, Ba Province

Figure 5: Stone wall barricade visibly disturbed by agricultural practices. Navitini fortification site, Nadala Village, Ba Province

Figure 5: A house mound destroyed at the site of an old ancestral settlement. This cultural site has been permanently destroyed by the construction of a tourism residential development. Togovere Village, Ra Province

Figure 6: Fiji Museum staff assessing an old ring ditch fortification that had been almost completely demolished by road construction. Nadakua ring ditch site, Malabi Village, Tailevu Province

3.2 Lack of Resources

When discussing the lack of resources, finance is the main issue. Some of the major barriers to efficiently carrying out sufficient protection measures for cultural sites are inadequate logistical support and equipment, and a lack of financial support.

3.2.1 Logistical support - Accessibility to cultural sites in rural areas is a major problem, and the Fiji Museum relies heavily on the support of local communities in providing transport to and from isolated communities and cultural sites.

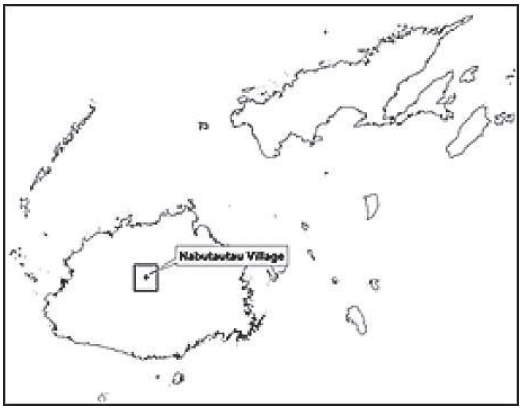


Figure 7: Map of Fiji showing isolated location of Nabutabutau village.

Nabutautau Village is situated in Navosa Province, in the interior region of mainland Vitilevu. The village is synonymous with the death of a Methodist missionary, Reverend Thomas Baker, who was killed and eaten by local tribes in 1867, during the era of tribal warfare and cannibalism. Earlier this year, during the month of March, the Fiji Museum visited and surveyed a total of four cultural sites that were once occupied during that fateful era. These old village sites are well preserved in their original form, with prominent cultural features and layouts still very visible and able to discern, and this preserved state is due to their isolated location from agricultural or human disturbances. The objective of the surveys was to document the sites and highlight recommendations on a proposed eco-tourism project for trek adventure tourists. Due to the isolated location of the cultural sites, let alone the village of Nabutautau itself, the poor logistics, feedback, monitoring and follow up correspondence with the local communities is a growing issue

Figure 8: Isolated village of Nabutautau, situated in the center of mainland Vitilevu, with temporary road access.

Figure 9: An ancestral house mound with well-preserved stone alignment, traditionally belonging to Nabutautau village, Navosa Province.

3.2.2. Financial backing – The major issue for Fiji Museum in carrying out protection and preservation efforts around the country is the lack of funding and recognition. The Fiji Museum is a statutory body, hence, government funding to the institution is limited only to assist in salaries with operational costs

usually acquired from museum funds. This has limited the implementation of protection efforts on cultural sites around the country.

On another note, when countering financial issues, the Fiji Museum relies on well-funded national projects involving forest and marine sustainability and conservation, which are well-funded programs that allow the Fiji Museum to cover extensive regions in Fiji regarding cultural heritage protection through cultural sites and oral history in project areas.

National Projects:

- **REDD+** (Reducing Emissions from Deforestation and Forest Degradation + conservation, sustainable management of forests and enhancement of forest carbon stocks)
- **MESCAL** (Mangrove Ecosystems for Climate Change and Livelihood) Fiji Project
- Forestry and Protected Areas Management **(GEFPAS-FPAM)** - Global Environment Facility (GEF) and FAO regional Pacific Island forestry project

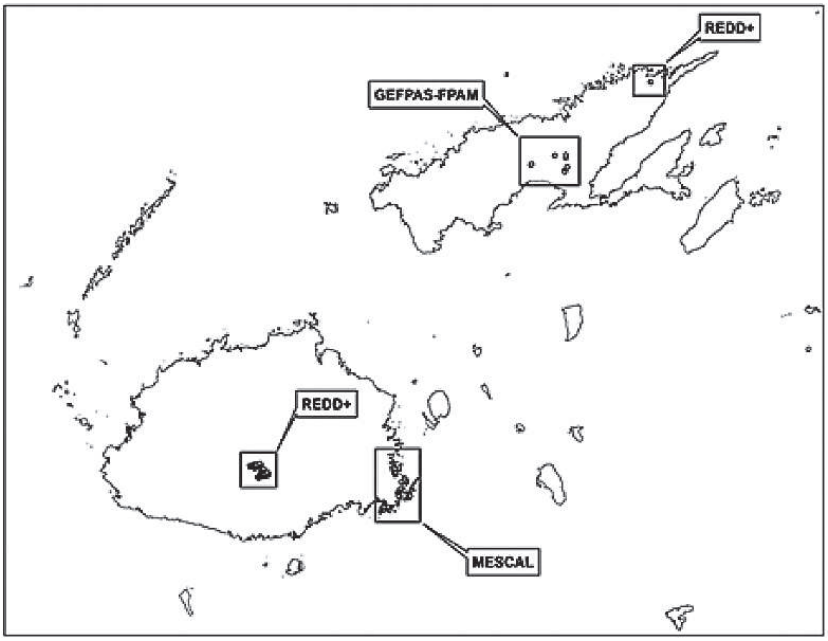


Figure 10: Map of Fiji showing project areas with site locations surveyed during the course of the project

3.2.3. Viable staff capacity – The Archaeology Department of the Fiji Museum holds responsibility for implementing the relevant legislation in protecting cultural sites in Fiji, and with this significant responsibility, there needs to be appropriate personnel to be able to carry out these duties, in terms of quality and quantity, something which is lacking at the Fiji Museum. The department is made up of five individuals, two of which are over the retirement age, hence the need for additional staff to be able to handle the workload.

3.3. Interest of the Population

Cultural heritage protection is an effort that requires the interest of the population and without that, the scope for implementation of legislative measures for cultural heritage in a country would be limited.

Awareness of the protection of cultural heritage and the relevant laws lacks a viable platform to be able to reach a wider audience around the Fiji Islands. The Department of National Heritage, Culture and Arts, under the government's Ministry of Education, was established in 2007, thus the attention being paid to cultural heritage is in its infancy, and creating awareness on the importance of cultural heritage around the country hasn't yet efficiently and sufficiently been applied to build up interest amongst the population, whether rural or urban.

4. Cultural Heritage Requisite(s)

When analysing the various setbacks to the implementation of measures for protection of cultural heritage, the needs are obviously highlighted as well. When considering the needs of cultural heritage protection and preservation, further requisites would be:

4.1. Efficient monitoring tools – When cultural sites have been surveyed, documented and protected through legislation, reliance on local communities to monitor and manage the state of the cultural site is paramount for the Fiji Museum, as consistent feedback, monitoring and management requires a lot of effort, finance and labour, things which the Fiji Museum lacks at the moment, and which are in dire need of being addressed by the management, with appropriate government input.

4.2. Awareness – Lack of interest from both urban and rural communities is mainly due to the lack of awareness channelled on a national scale; however, with awareness workshops undertaken by the newly-established Department of National Heritage, Culture & Arts, this should increase awareness levels across the country.

4.3. Capacity building – With the Fiji Museum lacking efficient and experienced staff, the need for capacity building is extremely important as the Fiji Museum maintains the groundwork for the implementation of legislative protection and preservation of cultural heritage sites around the country.

Kazakhstan

Altynbekova Dana

Problems in the Preservation of Archaeological Monuments of Kazakhstan

Artefacts from different materials have been discovered during the extensive archaeological investigation carried out under the state program "Cultural Heritage" in the Republic of Kazakhstan. Objects from archaeological excavations carry the most important information about the material and inner culture of the population of Kazakhstan during the past thousand years. Archaeological collections allow us to reconstruct the process of how contemporary Kazakh culture developed since ancient times.

Nowadays, new highways, trunk pipelines and other objects of industrialization are being built, and archaeologists excavate the monuments that are found such construction zones under emergency rescue conditions. There is always an alternative under such conditions—either to save and preserve them for future generations using the most advanced methods that are available to modern science, or to accept the fact that they will be destroyed and lost forever as evidence of our history and monuments of worldwide cultural heritage.

The scientific-restoration laboratory Ostrov Krym is the only organization in Kazakhstan where, at the request of state institutions, work on preserving movable archaeological monuments is carried out. The laboratory fulfils government orders of the Ministry of Culture of the Republic of Kazakhstan, the Institute of Archaeology, the Ministry of Education and Science of the Republic of Kazakhstan, and regional archaeological centres located in different cities in Kazakhstan.

The specialists at the laboratory often carry out some conservation measures during the excavations in order to prepare objects for transportation and storage. Presently in the laboratory there is a fair quantity of artefacts that have arrived from different archaeological monuments for laboratory conservation. These are ancient objects of metal, leather, fur, textile, wood and other materials. A large quantity of artefacts have been conserved and given to museums in Kazakhstan. A considerable number of them are wooden objects from Berel burial ground in East Kazakhstan—including structures, household appliances and artworks. When carrying out conservation work, great attention is paid to the documentation. Immediately after opening the packed object, the primary condition survey data is entered on a conservation passport.

Information about the condition of the monument, the work performed, the observations, and conclusions are recorded into a conservation journal on a daily basis. Conservation steps are recorded with a digital camera, drawn on polyethylene film, and drawn on paper in colour. After completion of the work the conservation passport is drawn up for movable monuments and handed over to the relevant museums of the Republic of Kazakhstan along with the exhibit.

However, there are many problems in the preservation of movable monuments of archaeology. They are as follows:

1. The location of archaeological sites far away from civilization, and the difficulty of acquiring and delivering the necessary materials. Adverse climatic conditions at the excavation sites, such as the intense heat in some places and the short summer season in others, thereby affecting the safety of making archaeological finds.
2. Destruction of artefacts during excavations if there are no conservators in the expedition and if the archaeologists do not have enough experience in preserving weak materials.
3. Ancient objects are so fragile that they just fall apart when removed from the ground. In this case a method of extracting artefacts in large blocks is used, which requires special equipment to lift them from the excavation.
4. It is necessary to select the conservation method to carry out research and analysis to determine the type of material of the monument, its characteristics, destruction factors, and the degree of degradation. Not all studies can be carried out in Kazakhstan due to lack of equipment and specialists, and the participation of other countries requires a significant increase in the project budget that is not always supported by financial institutions.
5. The necessity of approaching each archaeological site on an individual basis, as the same material can be destroyed in different ways depending on the conditions of its location under the ground.
6. Lack of trained professional conservators at museums, leading to improper handling and storage of archaeological monuments, which results in further damage.

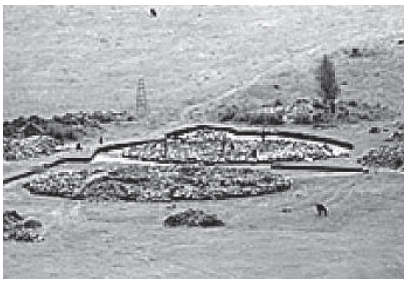
Apart from the conservation and restoration of movable monuments of archaeology, the laboratory Ostrov Krym takes part in conservation of Tamgaly petroglyphs inscribed on the UNESCO World Heritage List of. Our contribution to monument preservation is to disguise any anthropogenic damage made before the legal protection of the monument is organized

Problems regarding monuments of rock art:

1. Lack of complete documentation of the object
2. Lack of methods for the exact copying of petroglyphs
3. Lack of methods of photographic and digital image processing using modern software; classification and typology of images
4. Lack of modern methods of dating petroglyphs

The problems indicated above can be solved only with the active use of the most advanced technologies and achievements of the international community of conservators. In modern conditions it is therefore imperative for conservators in Kazakhstan to learn these methods and technologies.

Conservation of Wooden Artefacts



The main activity of our laboratory is conservation of archaeological finds. The majority of incoming artefacts are wooden items: constructions, household equipment and artistic goods.

Work on preservation of items of wet archaeological wood started in 1999, when the first such artefacts arrived, found by a joint Kazakh-French archaeological expedition at burial mound No.11 of Berel burial ground (IV-III BC).

The French restorers and archaeologists thought that only their laboratories filled out with expensive equipment were able to preserve degraded wood, and that not all of the finds could be treated, with most of them being documented only. We went our own way. After a long period of investigation and experiments we managed to elaborate various solutions, responding to further requirements:

1. applying accessible and economical technology for the conservation of wood;
2. strengthening the wood while preserving its appearance;
3. achieving economy of storage of exhibits without creation of a special micro-climate.

A polyethylene-glycol is used as the main consolidate, but in our laboratory, there are some differences in the technology used for its application.

The process of conservation starts from investigation of the physicochemical condition of the wood. At the beginning of the work we used a method, elaborated by the American Institute for Non-destructive Testing, where a sample of the tested material is used. However it is not always possible to take a sample, as it leads to damage of the archaeological material. The specialists at our laboratory have elaborated a method of detecting the value of the degree of degradation in the process of treatment with consolidative solution.

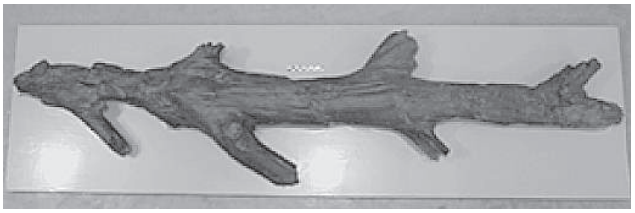
The penetrating solution is laid on the surface of the item to be strengthened using a sprayer or brush. Penetration of the wood is made with mineral spirits vapour, and the spirits is also used as a solvent. In an enclosed space the spirits vapour dislodges much of the air from the adjusted space. The wood pores are purged of air and become saturated with spirits vapour. This process can be called “spirits decompression”. Increasing the pressure of the spirits vapour not only saturates the wood pores, but also helps it to penetrate into the inner layers of the material.

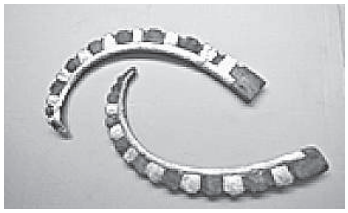
The presence of spirits inside the wood creates a gradient of concentration for the spirits solution of PEG inside the item and courses overpressure during the penetration. By regulating the temperature and pressure of the spirits vapour, it is possible to reach an equable degree of consolidative penetration of all the wood.

The penetration of water-saturated wood should be produced with gradual change from the existing solution to consolidative solution, with permanent preservation of material volume.

The next step after strengthening the wood is cleaning (before conservation this is impossible because of the weak physic mechanical condition of archaeological items). After cleaning the surface has a natural wood appearance, with the colour, texture and structure being preserved. There is no loss of the surface layer.

The process of conservation of wet archaeological wood takes a long time, and the strengthening of large-sized elements of constructions (balks, thick boards, etc.) generally continues for more than one year.





After penetration the items obtain the necessary durability, preventing further degradation of the wood, which guarantees long-term preservation of the appearance and inner structure of the material.

Since 1999 Kazakh archaeologists have been continuing their work at the site.

A funeral construction of wood had dimensions of 365 x 215 x 140 cm. The framework consisted of four walls and a ceiling. The ceiling was covered with birch bark sheets with some plants on them.

In the northern part of the framework, in the ceiling and in the wall, there were holes of about 1 meter in diameter made by robbers. Every wall was made of three planks 36-54 cm wide and 12-14 cm thick. The top of the framework was covered with six wooden balks 20-40 cm wide and 9-10 cm thick. The framework had a profile of a truncated pyramid.

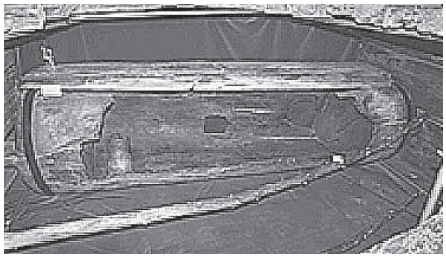
Inside the framework there was a sarcophagus—one of the most ancient types of closed funeral beds made of wood. The sarcophagus consisted of two parts: a body and a lid. The lid was broken in the middle, and deformed and flaked off into many separate fragments. To enter the framework the robbers had made a hole with an axe hammer in the northern side of the sarcophagus. The length of the sarcophagus was 273 cm, with a width in the middle of 71 cm. The width of the bottom was 13 cm, with walls 3-4 cm thick. The body of the sarcophagus was made of an old larch trunk 250-260 years old, with a diameter of 90-95 cm, and a length of about 350 cm.

There were four holes in the lid, where bronze nails with sculptures of winged griffins had been inserted.

Inside the sarcophagus there was an oval-shaped wooden pillow, with dimensions of 50 x 19 x 13 cm. Its surface had been thoroughly damaged.

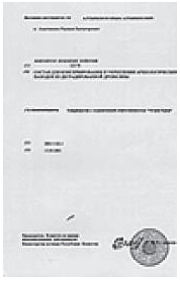
Besides large-sized wooden structures, about a thousand small wooden items were also found in the tumulus, including items with artistic carvings.

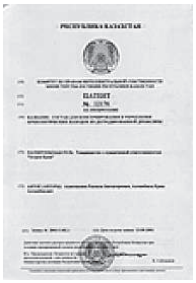
The details of the framework-carcass from tumulus №11 were penetrated separately, and then assembly of the structure was carried out. The sarcophagus was put inside the framework again. The sarcophagus regained its original appearance after the conservation work, which included gluing together many pieces. Hundreds of small wooden items were also prepared for exhibition.



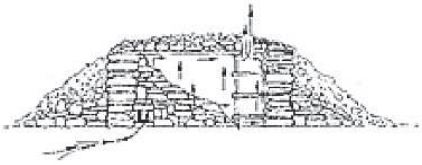
At tumulus No.10 of Berel burial ground an unusual method of field conservation of wet degraded wood was used. In 2006 our archaeologists in 2006 there found a badly preserved framework and sarcophagus, which were to be given to the local lore historical museum. Packing and transportation to Almaty and back would not have been rational. After antiseptic treatment, the fragments of the constructions were left in the field laboratory, which was built of stone with conditions similar to those in the tumulus, to provide gentle slow drying of the damaged material.

This was provided with natural ventilation and drainage in the field laboratory. A check of the artefacts condition is





performed every year, and we noticed that their condition had stabilized, with the wood ready for further conservation, which is planned to be done at the site under field conditions, for transportation of the exhibit to the museum. For this purpose a special consolidate was tested in the laboratory, consisting of poly-ethylene-glycol as a component of a wax and rosin solution, and as the solvent we used turpentine. Methods of conservation of degraded wood elaborated in the Ostrov Krym laboratory are confirmed by patents of the Republic of Kazakhstan. Conserved finds are exhibited in museums of our country and at exhibitions abroad.



Petroglyphs of Tamgaly and Tamgalytas

Conservation of the rock art monuments of Kazakhstan is inseparably connected to the study and conservation of Tamgaly petroglyphs, and after engaging in this process for more than 20 years, we can conditionally identify three stages.

But first, I want to discuss the Buddhist religious complex of **Tamgalytas** XVII – XVIII. Which makes up the third stage.

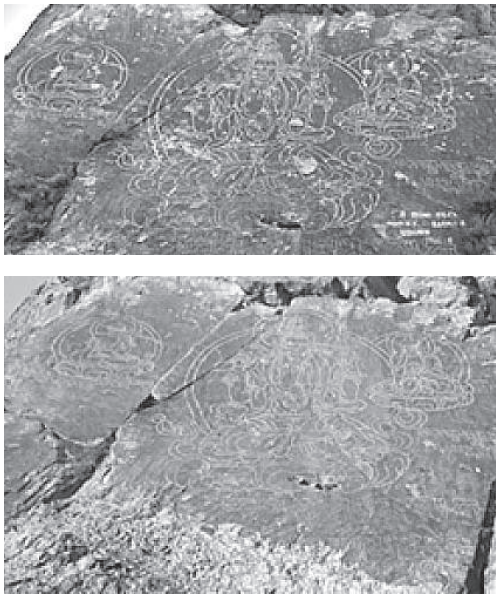
The third stage started in 2008, when work on the conservation and preservation of rock art sites within the framework of the state program “Cultural Heritage” was carried out by experts of Ostrov Krym. Objects of conservation in 2008-2014 were two locations of petroglyphs in the Almaty region: objects from the list of World Cultural Heritage - Tamgaly and Buddhist religious complex Tamgalytas of XVII-XVIII, located on the Ili River. Works based on documentary material from Tamgaly prepared in 2002-2006; and the participation of experts with many years of experience in research and conservation practices on the monument ensured the continuity of the scientific approach and methods of preservation. Also used were new methods, techniques and compositions of conservation materials developed in the scientific-experimental laboratory Ostrov Krym. Ostrov Krym actually handled only part of the conservation works on the petroglyphs, i.e., elimination of damage to the objects, whether natural or man-made.

Many monuments of rock art have suffered from vandalism from visitors, expressed by shearing, removing, and scratching the surface of the original monuments. The resulting damage has grossly distorted the ancient images, and regarding the petroglyphs in particular, has violated the historical and aesthetic value of the gallery of rock paintings. In the 1960s, this damage was removed mechanically by polishing out the scratched markings, sometimes together with the petroglyphs themselves. In

recent decades masking techniques for such damage have been used, discussed in detail below.

Artificial patina. This is an imitation of the natural process of patina formation. This allows us to apply coatings, colour matched with the general background of the stone, if well-chosen materials and modes of application are used. The process involves depositing oxide films of chromosphere elements (iron, manganese, chromium) on the surface of the stone, which create the colour of the natural patina. A feature of artificial patination is that there is no ready-made recipe—each time a unique palette for each particular object is created. The artificial patina palette for Tamgaly was made by E.N. Ageyeva in 2005. The selection of compositions for Tamgalytas was done in the laboratory Ostrov Krym.

The method of artificial patination is indispensable for the elimination of patina surface damage. On the central plane of the complex with the Tamgalytas Buddhist were masked splits, with preserved contour lines of the original pattern inside. Depending on the colour of the patina surface adjacent to the split, various formulations, concentrations, and orders of application of components were used in accordance with the palette of the artificial patina. Preserved contours of the graphic were not patinated, resulting in clearly designated existing lines that had seemed to be lost.



Plane with Buddhist before artificial patination

The three-step process of patination (sequential application of components of a patina: iron sulphate (II), manganese chloride (II), and an alkali), requires a high level of artistic skill, with the use of climbing ropes, mostly under the scorching sun.

However, artificial patina doesn't give the desired effect of masking deep inscriptions, and in such cases, other methods are used.

At the beginning of work on the petroglyphs, we used a polyester resin with additives, including colour. After reconstruction of the texture, the colour was finished with artificial patina. This method was used for masking erased inscriptions on Tamgalytas.

The work in Tamgaly started with an analysis of the results of a previous conservation, which led us to the decision to use composites that have successfully passed a 20-year test in the Almaty region: polymethylphenyl resin K-9 with the addition of an acrylic polymer. The main disadvantage of finishing composition is the monotony of the colour of crushed sandstone, defined by a matrix. Grey-green tint, like the colour of cement, goes well only with surfaces that do not have a patina; embellishment binder with colours, as experience has shown, does not give the desired effect in the reconstruction of a stone texture.

We continued to develop the technology of artificial patination in our laboratory to obtain filler of a wide range of colours, made of native stone. Masking modern inscriptions on plane without petroglyphs. Graffiti appears on most of the faces of the cliffs facing the road to the hiking trails of the current tour route, and this is clearly visible to visitors.

Conservation activities are carried out primarily on the most valuable objects, where rough damage is particularly noticeable for visitors to Tamgaly. So, in 2009, masking of several deep graffiti marks located in close proximity to the famous mural with "sun-gods" was undertaken. Completed refinement was carried out rather than restoration of the original appearance of the V group of petroglyphs. The structure of work on restoring loss of stone:

Palette of patinated rock crumb (in the centre - a crumb of natural colour)

1. Washing the surface with water using a brush to remove surface contamination in the form of dust, bird droppings, etc.;
2. Washing with acetone to degrease the surface of the stone;
3. Two-fold application of the diluted working solution without crumbs;
4. Filling of stone loss;
5. Re-texturing and colouring of the stone in the areas affected by modern graffiti.

Over the years, over 50 visitor "autographs" have become visible. Following the development of a new method of sealing defects using modified rock crumb, monuments at the Buddhist complex at Tamgalytas were renovated, by removing modern inscriptions made by visitors, compositions based on polyester resin were replaced with silicone binder with patinated local stone crumb.

Identification of petroglyphs damaged by modern inscriptions. Three years' experience of masking of modern inscriptions on surfaces without petroglyphs allowed us in 2011 to move to the most difficult high artistic processes—the masking of inscriptions and cutting through the artistic surfaces, because the ancient petroglyphs were not visible or distorted.

Mastication of losses must be done in the colour and texture of the adjacent undamaged areas. The drawing contours are determined by pictures taken before the appearance of the modern inscriptions which have disfigured the petroglyphs. In the absence of the necessary documentary materials, the outline of engravings or historical epigraphy of individual marks can be reduced by simultaneous analogues and the recommendations of experts—i.e., archaeologists and historians.

A new type of documentation for conservation was elaborated, which is essentially a working project for conservation of damaged graphic surfaces. The process of creating it—a laborious and time-consuming process—requires the study and treatment of each point of the modern damage. Over the years, 25 such projects have been completed, executed by Dr. A.E. Rogozhinskiy. The present works that are being carried out on the damage do not consist of reconstruction of the petroglyphs, as ancient engravings are identified, and freed from later distortion. Authenticity is maintained through the use of reversible compositions.

Removal of contemporary inscriptions made with paint. Inscriptions made with paint—the main type of man-made damage at the Tamgalytas complex—are located directly on the plane with petroglyphs, nearby rocks and the adjacent rock mass. On the graphic surface they have covered the original inscriptions, outside the plane, preventing proper perception of the petroglyphs and creating a basic background, so that the rock carvings are lost among them. Various paints and paint-like substances are used by visitors: all kinds of house paints, markers, correction fluid, ink, and even brilliant green

dye ("*Zelenka*").

According to the results of previous work on the Tamgaly complex it is known that the inscriptions made with paint were removed with the stripper "Smelaks" produced by Yaroslavsky paint factory, which is now no longer available. To select a stripper, test clearing of various types of paints using three factory-made strippers, which resulted in a number of problems. Almost all the colours that were on the rocks could not be removed with industrial strippers, which is normally applied to paint base coat, not the intended purpose of the cleaning formulations (wood and metal), and the special condition of the aging of the paints. It became necessary to select a new, more efficient composition for stone.

Compositions for the removal of different paints from the stone under different temperature conditions were elaborated, and it the safety of the cleaning compositions for this rock was ascertained.

The letters were covered with cleansing composition and left for a while until the paint started to swell. Hard-to-remove inscriptions were covered with polyethylene film. The paint was then rinsed from the surface using a bristle brush and water. If necessary, the procedure was repeated.

In general, paint at 17 locations was deleted, including individual lettering and whole blocks.

Removing lichen. Removal of lichen is performed only if it is located on a picture or in the immediate vicinity of a picture. Currently, cleaning artistic surfaces of lichen is done without chemicals—with water, brushes and wooden tools. The lichen is well wetted with water and allowed to swell. When the colour is bright green, removal is done with micro plants with post-humidification of biomass, if necessary.

Monitoring. The behaviour of conserved materials in a natural setting is often unpredictable, because there are too many factors affecting them, so we need long-term monitoring and, if necessary, to fix the undesirable outcomes of natural processes.

Despite the one-time funding for conservation work for Tamgalytas in 2009, we continue to observe the object, conduct an examination once a year and correct any identified deficiencies or new damage. Despite the lack of physical protection, people become more careful about how they treat the monument, and it is looked after by someone.

Tamgaly is an open-air museum, where petroglyphs and other ancient monuments, as well as the surrounding landscape, are preserved in their natural state.

The archaeological complex of the same name is formed by about a hundred multi-temporal monuments—settlements, burial grounds, ancient quarries, petroglyphs and places of worship (altars)—dating in a wide range from the mid-14th to 13th centuries BC to the turn of the 19th to 20th centuries AD. The central part of the complex from ancient times was a sanctuary—a place for religious rituals, prayers and worshiping of supernatural forces—where the possibility of contact with the celestial gods and spirits was supposed to occur.

In the first stage, at the beginning of 1990, experimental conservation works were carried out by a group of specialists of the institute "Kaz-Project-Restoration" (from 1993, NIPI Monuments of Material Culture) in the context of the state project "Conservation of rock figures of the gorge Tamgaly". This was the first time for such a task to be set for conservators of Kazakhstan, and that's why execution of the project experienced so many errors and difficulties, the resolution of which was

perhaps the main positive result of the experiment. The knowledge acquired from the experience became the basis of a wider, more systematic approach to monument conservation as a whole, and resolution of problems of practical conservation in particular. As the most important conclusions, we should recognize the lack of purpose of attempts to conserve archaeological monuments without any real safeguards, and also the necessity of deep and multilateral study of the object, which must precede each project, even with minimal interference.

Firstly, the specialist conservators had a fairly limited task in finding the right composition for gluing sandstone—the material on which the petroglyphs of Tamgaly appear. However in the process of the work there immediately appeared difficulties connected to the absence of data necessary for practical conservation: for the most part, publications about Tamgaly were generally dedicated to the historical aspects only. In relation to this, the previous program on complex study of the monument foresaw the attraction of specialists with different profiles—topographers, archaeologists, geologists, geomorphologists, botanists—to carry out scientific research and other work. Simultaneously in the laboratory of the institute, research began on selection of gluing compositions.

Prepared compositions were used in Tamgaly for the first time in 1990. On separate stones situated far from the main groups of petroglyphs experimental work was performed, including gluing fallen elements, filling cracks, and hydrophobia of a small part of the surface.

An analysis of the results of the first experiment allowed the correction of compositions for use the following year, 1991, including several options for gluing compositions containing only silicon-organic formations, or mixtures with acrylic polymers. On several surfaces of the V group complex, various conservation works were carried out: elimination of lichen, gluing of dropped fragments, filling of crumbling cracks, and fixation of exfoliating crusts with imagines.

The experience gained during the two years, and the positive results on the whole, allowed the planning of more works on the monument on a larger scale.

Only 12 years after the first experiments, Tamgaly was nominated to the World Heritage list in 2002, based on the detailed research on all conservation zones done in 1990. Analysis of the results of the executed research led to the following conclusions:

1. All compositions used to glue fragments have passed tests under natural conditions
2. The reversibility of one of the compositions used depended on long-term contact with sandstone. Hardened mastic was easily eliminated with toluole, and no damage was found on glued surfaces.
3. The work done in the northern part of II group on installation of overflow pipes required continuous monitoring. Some visible changes were marked. Most of the temporary protective covers were destroyed or had cracks for the following possible reasons: mechanical damage

caused by passing visitors; deformation due to fluctuations in the temperature of the rocks, which are especially significant on surfaces strongly warmed by the sun; as opposed to surfaces that remain in shadow for most of the day, which are conserved without any noticeable changes.

In 2001 a new stage in the conservation of the rock images of Kazakhstan began, which consisted mainly of preparing a systematic approach to conservation. Works acquired character of plane, and they were connected strictly with the common tasks of the monuments' conservation and use.

One of the important aspects of the activity became preparation of an entire system of documentation of the status of objects and executed conservation works. The set of documented materials (photos, graphical figures, standardized comments and others) allows fixing the petroglyphs' condition at the current moment, identifying changes happening at that time, and as a whole provides the possibility of effective control and implementation of the conservation strategy, both of single zones and of the whole monument.

Identifying the condition of, and damage to petroglyphs is an initial objective of the monitoring: by comparing a petroglyph's condition in various periods it is possible to keep track of the destruction process, to isolate the main danger, and if necessary, produce a plane of conservation. Sometimes long-term monitoring allows the conservator to reach a conclusion about the relative stability of the object and thus avoid unjustified interference. So, in Tamgaly there is a rare possibility to estimate the condition of single planes with petroglyphs in many years, beginning from 1957. At the same time, in a series of cases, the absence of any essential losses or changes is noted. Old photographs also help us to find, for example, the original position of fragments of petroglyphs.

Preparation of the main forms of documentation was executed in 2002-2003 in the framework of the UNESCO Norwegian-Kazakhstan project "Management, Conservation and Presentation of Tamgaly Petroglyphs". Instruction of Kazakhstani conservators on methods of damage documentation was one of the main tasks of the field work in 2002, and based on the Scandinavian Standard of documentation, the main forms of the field fixation of the petroglyphs' condition, classification of damage and the system of their graphical signature were completed.

Simultaneously in Tamgaly, there were renewed experimental conservation works: a special zone without petroglyphs (test polygons) was chosen some distance from the main sites, where there are all the main types of damage that are usually found at the main sites.

Here in the test zones experiments are carried out with materials that have not been tried out before on the Kazakh steppes. Use of test polygons provides an opportunity to observe new compositions and choose the best of them.

In June 2003, within the framework of the present UNESCO project in Tamgaly, international training on conservation was held.

In 2002-2006, conservation works in Tamgaly were carried out within the framework of the UNESCO-Norwegian-Kazakhstan project "Management, Conservation and Presentation of Tamgaly Petroglyphs", as well as a regional research project, UNESCO CARAD. One of the main activities of the conservators at this stage was the development of a common unified system of documentation of the condition of monuments and the conservation work carried out. Primary forms of field fixation of the condition of petroglyphs were developed in 2002 based on the Norwegian Rock-Art

Documentation Standard. In subsequent years, improvement of the system continued on the basis of practical application in Kazakhstan, Kyrgyzstan, Uzbekistan and Russia.

Analysis of the results of conservation works carried out in previous years was carried out at Tamgaly in 2005 during the regional UNESCO field workshop on conservation of monuments in Central Asia. On the example of Tamgaly a common approach was elaborated, and principles of conservation of monuments of rock art in the region were formulated. The basic principle of the practical conservation of rock art was declared to be minimal interference with the objects themselves: no preventive measures were to be implemented, except indirect protective measures performed on art surfaces. Conservation works are necessary only in an emergency, where the loss of fragments or flaking of the surface crust takes place. Protective surface treatment of stones with images should be excluded. Removal of lichen is carried out only if it is located on the pictures themselves or in the immediate vicinity. Clearing with chemicals is only permitted in exceptional cases, when the substrate material is fragile and requires natural weathering of lichen, or when the removal of lichen with water is difficult.

So, as a result of the active scientific and practical cooperation and exchange of professional experience in the field of conservation in 2002-2006, the modern methodology of conservation of Tamgaly petroglyphs was formulated, which is generally accepted by experts for other rock art sites in the region.

During the preparation of Tamgaly for inclusion in the UNESCO World Heritage List in 2004, a management plan and sub-development plans were developed and adopted, including a program of urgent conservation work and monitoring up to 2008. However, in 2006, the conservation work on the monument once again stalled, and started again only in 2008.

Thus, the present stage of development of conservation of petroglyphs in Kazakhstan is characterized by qualitative changes associated with the expansion of international cooperation and exchange of experience with experts from different countries.

In Kazakhstan, based on the work of our laboratory, the largest in the CIS, a group of conservators of petroglyphs has been formed.

Kyrgyz Republic

Akmatov Kunbolot

Problems and Needs for Cultural Heritage Protection and Restoration Activities in Kyrgyz Republic

Introduction

All types of cultural heritage are concentrated in the territory of the Kyrgyz Republic. These are: Stone Age sites, caves, quarries, workshop sites, petroglyphs, settlements, Middle Age cities, dwellings and farmland, mines and pits, mausoleums, towers, mosques, irrigation facilities, memorials and places associated with historical events that took place in Kyrgyzstan. They reflect the most important milestones in the history of the republic. Therefore, they need to be identified, explored and used for educational, scientific and tourist purposes.

Previous Activities

Researches and records of the monuments of history and culture of Kyrgyzstan began in the second half of the 19th century. These first attempts are associated with the names of Russian travellers, military personnel, researchers from various fields of science, and local historians, who in their notes and articles wrote about different ancient monuments.

The Turkestan Circle of Lovers of Archaeology (TKLA), which was formed at the initiative of the prominent orientalist Vasily Barthold in 1895, was the first scientific organization dedicated to the study and preservation of the historical and cultural heritage of the Turkestan region. It included representatives of the government, gymnasia teachers, the military, doctors and all those interested in the history of the Turkestan region. Thanks to them, the scientific community and society in general got to know about such monuments as the petroglyph site Saimaly-Tash, ancient Turkic runic, Muslim-Arabic and Christian-Nestorian inscriptions, Burana Tower, the caravanserai Tash-Rabat, stone sculptures, ruins of Middle Age cities, cemeteries and buried treasure consisting of metal objects. Activists from TKLA laid the foundation for saving the cultural heritage of Kyrgyzstan.

Later, in 1921, the Turkestan Committee for Museums, Heritage and Nature Protection (Turkomstaris) was established, which played a major role in preserving the cultural heritage of Central Asia. It was the first public institution in Turkestan to be involved in the protection, preservation and popularization of cultural heritage. In the same year, the List of Historical Monuments of Turkestan was drawn up, which included such monuments as the Özgön mausoleums and tower, Burana Tower, Manas Mausoleum, Ak-Beshim and Ak-Töbö medieval cities, and Tash-Rabat caravanserai.

In 1927-1928, the first conservation works on Burana Tower were carried out. The technical condition of the foundation of this structure was studied and restored, which allowed this unique architectural monument of the 11th century to be preserved until more comprehensive restoration works were carried out in 1971-1974. At the same time, some restoration works were also carried out at the Özgön architectural complex.

A special place in the protection of the cultural heritage of Kyrgyzstan is occupied by the archaeological supervision as part of the construction of the Great Chui Canal, which was conducted under the direction of A. Bernshtam. Archaeological finds revealed during the construction of this waterway reflected the history of Kyrgyzstan from the Bronze Age to the High Middle Ages. They were put on display in the historical and archaeological section at the Kyrgyz State Historical Museum. In 1945, M. Masson and G. Pugachenkova carried out a detailed study of Manas Mausoleum, with the objective to prepare for restoration works.

A Decree of the Council of People's Commissars of 14 October 1948 played an important role in the protection and preservation of cultural heritage. The document made local councils responsible for the protection of monuments in their region. Supervision and control of registration, protection, restoration and use of historical monuments were implemented by the Committee for Cultural and Educational Institutions in the Council of the Ministry of the Union Republics. The USSR Council of Ministers considered the need to organize research and restoration workshops in places where a large number of heritage sites were located.

On July 31, 1950 the Council of Ministers of the Kyrgyz SSR passed the resolution "On Measures to Improve the Protection of Cultural Monuments". It described the organization of the registration of monuments and allocation of funds for their restoration. A list of the most valuable heritage sites of Kyrgyzstan was made up, and Manas Mausoleum and Özgön architectural complex were attributed as monuments of national importance. This document has been important in the revitalization of the academic and public institutions devoted to the preservation, study and popularization of the cultural heritage of the Kyrgyz people.

Great attention has been paid to the protection of cultural and historical heritage since 1954, when the Academy of Sciences of the Kyrgyz Republic was established. Along with exploration and excavation, specialists have also started to work on the protection of sites.

At the end of the 1960s specialized restoration workshops were established in Kyrgyzstan. The main objects of the activities of these workshops became medieval architectural monuments (Manas Mausoleum, Burana Tower, Özgön architectural complex, Tash-Rabat caravanserai, etc.). But the restoration works were not implemented perfectly: the use of modern materials (cement, armature, etc.) has led to cracking of the foundations of Burana Tower. The almost 50 percent recovery of the central mausoleum of Özgön largely violates the principle of authenticity. Nevertheless, these works have allowed us to preserve the monuments and sustain them as tourist attractions.

In 1966, the Republican Society for the Protection of Historical and Cultural Heritage was established. It included representatives of local governments, scientists, architects and historians. One of the main aims of this organization was the popularization of historical and cultural heritage. For this goal, special literature was published, lecture tours were organized, and documentary films were shot. The periodical journal "Monuments of Kyrgyzstan" was very popular. This edition was richly illustrated and enjoyed wide popularity not only in Kyrgyzstan, but also in similar societies of the Soviet Union.

In 1968 the Council of Ministers of the Kyrgyz SSR approved a special decree: "On Measures for Protection of Cultural and Historical Monuments in the Territory of the Kyrgyz SSR", where the list of heritage of national significance was renewed. Responsibility for the condition of all kinds of monuments was entrusted to local councils. The Ministry of Culture of the Kyrgyz SSR controlled all

activities connected with the registration, protection, restoration and use of monuments. On the basis of this document, special art-restoration workshops were established.

An important event in the field of protection and preservation of the historical and cultural heritage of Kyrgyzstan occurred in 1977, when the law "On Protection and Use of Cultural and Historical Heritage" was adopted. Violation of this law was fraught with consequences. Article 44 stated that those who have been found guilty of violating the rules of protection, use and restoration of monuments shall bear criminal, administrative or other responsibility.

In the late 1980s to early 1990s, because of economic and political problems, activities in the field of cultural and historical heritage were discontinued, and restoration workshops were wound up. But at the end of the 1990s, the Research Project Office (NIPB) "Kyrgyz restoration" was established.

Throughout its existence the NIPB has implemented a number of conservation and restoration projects. For example, restoration of the Shah-Fazil mausoleum's cupola, preparation of a package of documents for inclusion in the UNESCO World Heritage List nomination "Issyk-Kul - the cultural and natural landscape" and so forth.

On 5 May 1993 the Parliament of the independent Kyrgyz Republic adopted a new Constitution, which spoke of caring for cultural heritage. Based on this document, in 1999 the law "On Protection and Use of Historical and Cultural Heritage of the Kyrgyz Republic" was created and adopted. In 2002, "Regulations on Registration, Protection, Restoration and Use of Historical and Cultural Heritage of the Kyrgyz Republic" and "State List of Monuments of History and Culture of Republican Significance" were adopted.

In 1995, the Kyrgyz Republic ratified the "Convention Concerning the Protection of the World Cultural and Natural Heritage". At the same time, activities connected with the inclusion of the most significant monuments in the territory of Kyrgyzstan on the World Heritage List of UNESCO began. In 2001, after the preparation of primary documentation, six sites were included on the tentative list: 1. Issyk-Kul - the cultural and natural landscape; 2. Petroglyphs of Saimaly-Tash; 3. Sacred Mountain Sulayman-Too; 4. Shah-Fazil architectural and archaeological complex; 5. Özgön architectural and archaeological complex; 6. Archaeological and architectural complex "Burana Tower". In 2009, at the 33rd annual meeting of UNESCO, the sacred mountain Sulayman-Too received World Heritage status.

On 27 January 2012, the Presidential Decree "On Measures to Study the Historical and Cultural Heritage of Kyrgyzstan and Formation of Civil Patriotism" was adopted. According to this document, one of the priority tasks of government is the study of the historical and cultural heritage of Kyrgyzstan and formation of a common cultural space.

Modern Legal Regulations

Currently, the legislation of the Kyrgyz Republic on the protection of historical and cultural heritage is represented by the following regulatory acts: the Constitution of the Kyrgyz Republic; the laws "On Protection and Use of Historical and Cultural Heritage", "On Intangible Cultural Heritage", "On the National Archives", "On Museums and Museum Fund", "On Libraries", "On Culture", "On Local Self-Government" and "On the Epic Manas"; and the codes such as "Code of the Kyrgyz Republic on Administrative Responsibility", "Custom Code", "Civil Code" and "Criminal Code of the Kyrgyz Republic".

According to the law “On Protection and Use of Historical and Cultural Heritage”, historical and cultural heritage are monuments of history and culture associated with historic events in the life of the people, the development of society and state, products of material and spiritual creativity, and all objects representing historical, scientific, artistic or other value. Historical and cultural monuments in the territory of the Kyrgyz Republic are protected by the state. Monuments owned by the Kyrgyz Republic but situated in the territory of other states are also protected by the laws of the Kyrgyz Republic. It should be noted that monuments of history and culture cannot be privatized.

Recognition of objects as historical and cultural heritage is secured by including them on the State List of Historical and Cultural Heritage. Newly discovered objects representing historical, scientific, artistic or other cultural value and waiting for the decision to be included in the state registry are eligible for protection as monuments registered on the list of objects of historical and cultural heritage. Furthermore, there is a list of objects of historical and cultural heritage under the threat of loss. According to the law, the exclusion of objects of any categories from the State lists is prohibited. However, in case of loss or destruction of monuments, the note “lost” is inserted in the lists.

For preparation of the decision on recognition of the historical and cultural values of historical and cultural monuments, and on a change of their status, a state body on protection of monuments establishes a special commission, involving scientists, experts, prominent people in culture and the arts, representatives of artistic unions and other public associations.

Protection of objects of historical and cultural heritage which have received legal status is implemented by means of funding from the state budget, financial allocations of organizations providing maintenance of monuments, donations of public organizations, private persons, and assistance from the international community such as the UNESCO World Heritage Centre and others.

For the purposes of effective registration and protection, the monuments are defined as monuments of international, national and local significance.

Lists of historical and cultural monuments of local significance are approved by local government bodies upon submission of the list by the territorial body responsible for protection of monuments, approved by the relevant state body.

The government of the Kyrgyz Republic approves lists of historical and cultural monuments of national significance upon submission of the list by the state body responsible for protection of monuments.

The state body responsible for protection of monuments, according to requests in line with international norms, compiles lists of historical and cultural monuments of international significance.

There are one monument of international significance, 583 monuments of national significance and 1269 monuments of local significance in the Kyrgyz Republic. Monuments of national significance consist of: historical monuments - 66; archaeological monuments - 335; architectural monuments - 122; monuments of art - 53; monuments of history, culture and nature - 7.

It should be noted that archaeological monuments from the time of their discovery, even before their inclusion on the State lists, have the status of historical and cultural monuments and are protected by the state.

Protection of historical and cultural heritage is based on legislation of the Kyrgyz Republic and includes a series of sequentially performed actions, namely:

- discovery, research, registration and popularization of historical and cultural heritage;
- assigning the appropriate status to monuments of history and culture;
- protecting the monuments from physical destruction, vandalism, tampering, distortion, unjustified changes, and removal from the historical context;
- preservation and revival of the heritage through conservation, restoration, regeneration and recording;
- use of the monuments in the process of revival of the ethno-cultural environment, as well as for scientific, educational and tourist purposes.

Restoration, conservation, regeneration and repair of objects of historical and cultural heritage are carried out only with the sanction of a state body responsible for protection of monuments. Indicated works are performed by specialized scientific/restoration organizations and other organizations or citizens with the special sanction of a state body responsible for protection of monuments, which is issued for each monument after the approval of submitted project documentation by the state body.
Demolition, removal and alteration of objects of historical and cultural heritage are allowed only with the sanction of the government of the Kyrgyz Republic when it could be destroyed as a result of natural disaster, or if there is a threat of loss in historical, scientific, artistic and other value of the object. The exception is the destruction of archaeological monuments upon excavation.
Objects of historical and cultural heritage are used for the spiritual and cultural development of the people of the Kyrgyz Republic, and for scientific, educational, tourist and excursion purposes. Use of objects of historical and cultural heritage for other purposes is allowed only under the sanction of a state body responsible for protection of monuments. Procedures for the use of monuments in city design, and art and historical centres in cities and other settlements is defined in the plans for protected zones approved by the government of the Kyrgyz Republic.

Problems and Needs

At present the problem of preservation of the historical and cultural heritage of Kyrgyzstan is becoming increasingly important, due to the increasing threat of destruction by the action of both natural and anthropogenic factors. Historical and cultural heritage objects occupy a special place in the system of archaeological heritage, and are sometimes the only evidence of the history of the ancient past of the peoples of Kyrgyzstan.
By their very nature, associated as they are with a large degree of destruction, the complexity of visual perception for the unprepared eye, and the long period of physical destruction, archaeological sites are recognized as the most vulnerable heritage requiring urgent conservation measures. In addition, the peculiarity of archaeological heritage is that, firstly, the total number of archaeological monuments is unknown; secondly, as a rule, archaeological objects are subject to the highest threat of destruction, both during land and construction works and as a result of illegal excavations; thirdly, the legal system in this area is extremely imperfect. Therefore, the issue of preserving archaeological monuments is becoming increasingly important.
One of the most serious problems in the preservation of archaeological heritage is the spread of illegal excavations and so-called treasure hunters. Experience has shown that illegal treasure hunting is

common in practically all regions of Kyrgyzstan, but priority is given to the ruins of medieval towns in the Chui region. The main purpose of illegal hunters, as a rule, is the collection of antiques for sale. In recent years, commercial circulation of antiques is becoming a multi-scale business. According to some scientists, the level of income from illegal operations with cultural values is the same as the income from illegal trafficking of weapons and drugs. However, bringing the perpetrators to account for the illegal excavation of archaeological sites is rare in the practice of both judicial and regulatory authorities.

Apparently, imperfect legislation, lack of strong controls, the availability of exploration equipment (metal detectors) and the increased interest in antiques are the main causes of the spread of illegal excavations.

Another important issue in this sphere is the lack of physical protection zones for monuments, i.e., the territory surrounding monuments is not isolated from economic land use. And the buying and selling of land on the market lead to the privatization of monuments. This situation has occurred not through the malicious intent of local authorities, but because of the authorities' ignorance of legislation and the monuments in their territories.

Another problem is the lack of coordination of individual pieces of legislation. For example, the Land Code of the Kyrgyz Republic does not contain any articles regulating the legal status of the territories where archaeological monuments are located. It never mentions the concept of "heritage" or "archaeological monument". However, article 84 of this code states that "Lands with natural complexes and objects that have special ecological, environmental, scientific, historical, cultural, recreational and medicinal functions are classified as specially protected natural territories".

Thus, setting the general rules of the study, use, restoration and preservation of historical and cultural heritage, the government does not carry the work to its logical conclusion, and does not seek to eliminate the contradictions in the legislation.

There are many problems in the field of cultural and historical heritage, but I would like to suggest some measures for the protection, preservation and study of historical and cultural heritage, and above all, the archaeological monuments of Kyrgyzstan. These measures are as follows:

- considering the peculiarity of archaeological monuments as mentioned above, and their ubiquity within the territory of Kyrgyzstan, it is rational to create and adopt a special law, "On the Protection of Archaeological Heritage";
- establish a special service for protection of archaeological heritage, which would be responsible for the entire range of control functions in relation to archaeological heritage. In this area, the following principles should be observed. Firstly, archaeological departments should be state institutions, which would exercise general supervision of all archaeological works. Secondly, these departments should be steadily provided with funds for the investigation of accidental finds, for the execution of rescue excavations and so on. Thirdly, permission for such excavations must be granted exclusively to institutions with qualified archaeologists;
- in the structure of the Ministry of Interior or the National Security Committee, an independent subdivision should be formed, which would fight against encroachments on cultural and historical heritage;

- it is necessary to expand the ways to protect historical and cultural heritage under civil law. To do this, first of all, public authorities responsible for cultural heritage protection and community organizations should be entitled to sue in the courts to stop activities threatening historical and cultural monuments;
- it is necessary to devise and implement a long-term program, "Archaeological Map of Kyrgyzstan", with the purpose of carrying out a survey of the entire country and the creation of a database of known and newly discovered archaeological sites. Implementation of the program should provide the appropriate state registration of cultural heritage, attract investments in the conservation and restoration of monuments and help create a well-developed infrastructure of research and restoration organizations in this field;
- implementation of a methodical scientific policy would receive new content in case of the formation of an Academic Research Institute for Protection of Cultural and Historical Heritage, which would carry out all activities connected with the protection and restoration of the historical and cultural heritage of the Kyrgyz Republic.

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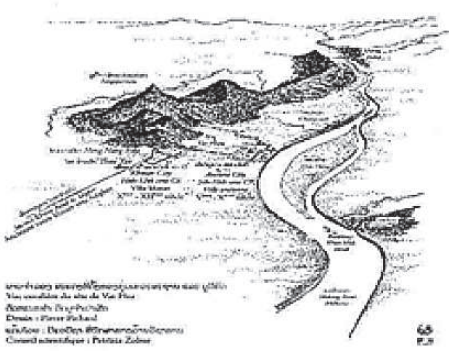
Lao P.D.R.

Sivorravong Souksavanh

1. Introduction



Lao PDR has a long, rich and splendid cultural heritage, which reflects its civilization and its national history inherited over the millennia. This cultural heritage is not only seen in the lifestyle, in traditional customs, and in the diverse activities of the Lao people, but also in innumerable historical and archaeological sites such as buildings, historic cities, city walls and streets, and other constructions.

The Vat Phou historic site, a cultural heritage site situated on the west bank of the Mekong River, about 500 km to the south-east of Vientiane municipality, has its origin in the Khom 'Khmer' civilization dating back to the Angkorian era. The Vat Phou site includes many components scattered on the slopes of Phou Kao Mountain and on the Champasak Plain.

Due to the impact of rapid socio-economic development, much of the Lao PDR's cultural heritage has been changed or disappeared over time. The historic cities, the architecture and the traditional local way of life are sadly, step by step, being destroyed by development.

The ancient monument complex of Vat Phou lies close to the Mekong River in Champasak District in the south-west of Lao PDR. While the Vat Phou temple is the most famous of the archaeological sites in Champasak, it is only one component of a rich and dense archaeological and cultural landscape extending along both banks of the Mekong River and up to the mountains west of the river. Many of these temple sites and ritual features have long been known. Fieldwork in recent years has revealed that many other archaeological sites survive, including a walled city on the west bank of the Mekong River, another walled area near Phou Kao Mountain, numerous other settlement sites, and traces of former planned watercourses, roads and field systems as well as industrial features such as quarries and kilns.

This extensive cultural landscape was planned around an axis aligning the mountain peak of Phou Kao with the temple of Vat Phou. The natural linga of Phou Kao Mountain, which imbued the site with a natural sanctity, was clearly the inspiration and stimulus for the ancient builders of the monuments. The Mekong River was also of great sacred and symbolic as well as economic importance. The Vat Phou area is therefore not simply a historic landscape with very high survival of archaeological features, it is also one of the world's great examples of the planning and management of a landscape to reflect the beliefs and concerns of its rulers and inhabitants.

The ancient walled city on the right (west) bank of the Mekong River is one of the earliest known urban settlements

in mainland Southeast Asia and the only one of its type to have been extensively investigated. As such, the site provides unique and valuable evidence for the origins of urbanism in the region. The archaeological sites of the Champasak Plain date principally from the 5th century AD onwards. Their distribution is dense and the quality of survival is high. The standing monuments are of great beauty and importance, while the buried archaeological sites are of equally high importance as a future source of knowledge and research for the benefit of the peoples of Lao PDR and the world.

Conservation of the surviving landscape and preservation of the individual archaeological sites and monuments are therefore of immense cultural importance because of their historical associations, the evidence of ancient urban planning on a large scale, and the sacredness attributed to the landscape by its planners. Also of significance is the way in which that formality has, over time, decayed and been adapted into a living and thriving agrarian landscape. While the adaptations reflect the changing needs and priorities of the Laotian people over the centuries, the landscape still preserves the framework of its earlier planning and is dominated by the remains of the great ceremonial sites, which still have a residual sacred role.

The present land use is primarily agricultural throughout the river plain, with scattered villages and considerable amounts of woodland surviving, particularly on the mountains. However, the area as a whole is now subject to increasing pressures for change and economic growth, which will have adverse effects on the preservation of this significant archaeological landscape if not carefully managed. The standing ruins have decayed and, in some cases, are at risk of major collapse. The quickening pace of development with the onset of road building, irrigation schemes and proposals for localized industrial development places the less obvious archaeological sites, particularly those close to the river, at risk of damage. There are also problems of fluvial erosion from both the Mekong River and its tributaries that criss-cross the landscape.

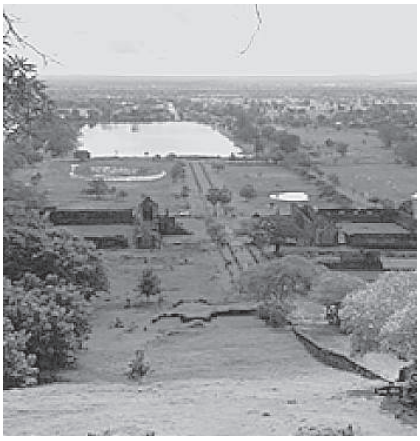
Another factor is tourism, which is likely to grow substantially in the coming decades. If managed sustainably, tourism can be an asset for the management of Vat Phou and its associated archaeological sites and for the charm of the riverine villages, both likely to be attractive to visitors. Income from tourism provides an economic justification for conserving the archaeological sites. However, if not managed sensitively, tourism, too, is likely to be highly damaging to the long-term future of this landscape and its archaeological value.

The archaeology and landscape of the Champasak area are therefore at a turning point. Recognizing its importance, the Government of Lao PDR has placed Vat Phou on its Tentative List for World Heritage nomination, and, with support from UNESCO, has decided to produce and implement a management plan for the area. The purpose of this plan is to conserve the archaeological sites and their landscape character along with the best of the traditional character of the land use and settlement of the area, within the overall development and economic growth of the region, for future research and for the benefit of the local communities and the wider world.

The plan introduces controls to prevent activities that would

The main sanctuary on the uppermost terrace of Vat Phou showing the intricate carvings that adorn its exterior surfaces.

be damaging, as well as policies for using the sites in a sustainable way for promoting the economic development of local communities. The plan also defines ways to increase public awareness and support for these policies, so that Vat Phou can become an exemplar of site management within Southeast Asia. In creating the Champasak Heritage and Cultural Landscape Protection Zone, the plan recognizes the importance of using preservation to improve the local economy and local living conditions within the overall needs of conservation. The plan establishes regulations within the Champasak Heritage and Cultural Landscape Protection Zone for application of the 1997 Decree of the President of Lao PDR on the Preservation of Cultural, Historical and Natural Heritage No. 03/PR.



The Vat Phou temple complex was intentionally set within a planned landscape reflecting the ancient world

1.1. The Archaeological Sites of the Champasak Heritage and Cultural Landscape Protection Zone

It is convenient first to describe the archaeological remains known in the Champasak Heritage and Cultural Landscape Protection Zone and then to discuss the evidence for planning in the landscape. For ease of reference, the sites are considered in a number of topographical groups working more or less from west to east. They are:

- Phou Kao Mountain
- Vat Phou Temple site
- Hong Nang Sida area south of the Vat Phou Temple site, including the Ancient Road
- Other monumental sites along the eastern fringe of Phou Kao Mountain
- The Ancient City
- Other sites on the Champasak Plain
- Tomo Temple

❖ Phou Kao Mountain: based on the evidence from inscriptions, Lingaparvata is the Sanskrit name given to Phou Kao Mountain (1,416 metres) by the ancient Khmer inhabitants. The mountain peak is a natural linga, some 10 metres high and visible from far away. It is an iconic representation of Shiva, god of fertility. In 1997, the remains of a brick foundation of a temple were found on the top of the rock outcrop, with a carved sandstone linga lying at its foot. This find appears to confirm the identification of Phou Kao as Lingaparvata. On the slope of Phou Kao Mountain the Hindu religious complex of Vat Phou was built.

❖ Vat Phou: This temple complex is located at the foot of Phou Kao Mountain, overlooking the floodplain of the Mekong River. The shrine

itself is built on a natural terrace of Phou Kao Mountain where a freshwater spring gushes out of the rock. The temple complex as a whole is laid out on a linear plan stretching 1,400 metres along an east-west axis, rising up the lower slopes of the mountain from the plain below. The complex was designed to be approached from the east and to impress the worshipper with the sanctity of the place, with Lingaparvata visible behind the temple itself. This axial layout is rare for a Khmer temple (a concentric layout is more common) and reflects the conscious use of the natural terrain to place maximum focus on Lingaparvata.

- Hong Nang Sida and the Ancient Road: The area south of Vat Phou is rich in archaeological evidence of the planned use of the area during the occupation of the temple site at Vat Phou. From the Nandi Hall at Vat Phou runs a road which probably ultimately extends over 200 kilometres to Angkor, the capital of the Khmer Empire. The road is in the form of a causeway, about 14 metres wide at its base and about 2 metres high, flanked for the first kilometre of its length by a drainage channel to collect run-off water from the mountain. The road also provided local access to sites more immediately to the south of Vat Phou. About 1.5 kilometres south of Vat Phou is the area of Hong Nang Sida. The most prominent feature here is Nang Sida Temple. It consists of a central shrine, with an entrance hall and sanctuary tower, built around the 11th to the beginning of the 12th century AD. The tower has collapsed, and its base is presently buried under the large stones of the superstructure. The decorative sculpture is extensive, though not complete, and is of high quality. The temple and a number of minor buildings are enclosed by a precinct wall. The temple in its present state dates to the 11th century AD, but use of the site as a whole probably falls within the period from the 10th to 14th centuries AD.

- Other monumental sites along the eastern fringe of Phou Kao Mountain: There are a number of monumental sites in this area, all situated on the slightly higher ground at the base of the mountain. They probably mark in some way the perimeter of the sacred mountain, thus 'enshrining' this natural landform. Hong Nang Sida has already been described. One kilometre to the south of it lies Thao Tao Temple, which is built largely of re-used stone. It probably dates to after the 12th century AD and was never finished. Within its precinct wall are the collapsed shrine itself and a small library, while on the eastern side of the precinct is an entrance or gopura. Thao Tao has tentatively been identified as a 'hospital' or 'rest house for travellers' (lit. 'house with fire')
- The Ancient City: The remains of the Ancient City, tentatively identified as Shestrapura, are located 6.5 kilometres east of Vat Phou, on the alluvial plain on the right (west) bank of the Mekong River. The archaeological area covers about 400 ha. The city was originally surrounded on the southern, western and northern sides by a rectangular double earthen wall, about 2.4 km by 1.8 km overall. The wall is 14 metres wide at its base and has survived to a height of 6 metres where it is best preserved. The northern wall of the Ancient City has been greatly eroded by the Huay Sahoua River. The eastern side of the Ancient City, along the bank of the Mekong River, has also been

heavily damaged by erosion

- ❖ Other sites on the Champasak Plain: A catchment area survey has identified a large number of sites on the alluvial floodplain of the Mekong River outside the main concentrations described above. All need further evaluation and a detailed survey before they can be fully characterized, but their distribution and density indicate the extent and intensity of past activity in the area. Indications from the field survey that has been undertaken reinforce the interpretation that pre-Angkorian activity was concentrated along the riverside and that the Ancient City was the capital in this period. Later, after the unification of the Khmer empire, activity moved west across the floodplain closer to Vat Phou with the development of a new urban centre at Hong Nang Sida, now tentatively identified as the city known from inscriptions as Lingapura.
- ❖ Tomo Temple: Tomo Temple is another massive monument complex located east of the Mekong River and 11 km south-east of Vat Phou. From the inscriptions, it has been dated to at least as early as the 9th century AD, but the style of the sculpture, which is still in situ, suggests the 7th to 8th centuries AD. These dates indicate that the site was already the subject of worship in the earliest phases of the Khmer settlement of the area. The still-standing monuments were re-built later, around the 11th to 12th centuries AD, the same time Vat Phou was re-built. Tomo Temple was built on one of the old eastern terraces of the Mekong River some tens of metres back, flanked by the Tomo River, a tributary of the Mekong River. The religious complex was built on an artificial laterite terrace surrounded by a laterite enclosure wall. The gopura (gateways) are still in good condition. The original temple, which has now completely collapsed, was built from bricks. An excavated baray is associated with the site. An inscription mentions a monastery in this area which was dedicated to Rudrani, the Shakti of Shiva (Rudra). The site can therefore be understood as the female counterpart and balance to the Temple of Shiva at Vat Phou and an essential part of the symbolic planning of the landscape

2. Problems and Needs for Champasak Cultural Heritage Protection

2.1. Pressures on Standing Structures

- The standing structures are clearly suffering from a number of pressures. All are in ruins and some are in danger of imminent collapse. All require regular ongoing maintenance to minimize further decay. They all will also need major conservation work to remedy past damage.
- There are a number of major causes of the structural problems. The technical reports (see References: Technical Reports) on the conservation of Vat Phou Temple and on the structural engineering issues identified some major structural problems involving foundation failure. A major concern here is the decay over time and the disruption caused by ill-conceived restoration work done to the original drainage systems established by the builders of the monuments, which diverted

water away from the buildings. Water now flows underground beneath the foundations and has washed away much of the consolidated soil and sand on which they were built. Re-establishing ancient drainage patterns is a high priority, particularly at Vat Phou where the artificial terracing of the hillside is vulnerable to water erosion.

- There have been structural failures of stones in a number of places, often due to the decay of the timber lintels used by the original builders on a large scale. Elsewhere, the water-logging of laterite blocks in the structures' lower courses has caused them to decay and be crushed by the weight of the wall above.
- The failure to keep the buildings clear of vegetation is a major problem since trees quickly establish themselves and their roots cause great damage. Uncontrolled vegetation is also a problem at ground level since it often conceals low walls and foundations, which are then at risk of casual damage. There is a need for a regular programme to keep the major sites clear of dense vegetation and the buildings free of trees and other woody growths.
- There is also some evidence of damage by visitors, either accidental or deliberate. This needs to be countered by better security and regular patrolling of the sites. Generally, while specific major works of conservation will be needed and will continue over many years, much could be achieved by regular maintenance, to slow decay and prevent new damage. This must be a high priority for site management.

2.2. Pressures on Buried Remains

- Buried archaeological remains, as well as visible ancient earthworks are also subject to a large number of pressures—both natural pressures and pressures caused by humans.
- The most significant natural cause of damage is erosion. Fluvial erosion occurs along the bank of the Mekong River in the Ancient City. The northern part of the Ancient City has also been heavily eroded by the Houay Sahoua River as it flows to the Mekong River. There is also damage from flooding and from runoff from the mountains during the rainy season.
- There are many human-induced threats. There have been a number of occasions where major development schemes, particularly those concerned with irrigation, have damaged parts of the Ancient City. Irrigation schemes cause damage both through the works themselves and through the subsequent intensification of agricultural use.
- Sites have also suffered from more haphazard development such as the construction of barays and brickworks. Casual damage on a small scale also occurs. In the villages, the change from traditional timber construction to concrete construction with excavated footings and foundations also causes damage to the remains.
- Thus far, looting of archaeological sites has not been a major problem, though instances of looting have occurred. However, many sites suffer from low-level general degradation, reflecting a lack of interest in them or knowledge that they even exist.

2.3. Environmental Pressures

- The natural resources of the Vat Phou area, which include fertile arable land on the Mekong flood plain, the dense forests of the sacred Phou Kao Mountain, and the Mekong River, provide valuable economic resources for the inhabitants of Champasak District.
- Although Lao PDR currently has one of the highest proportions of intact forest cover in Asia—47 per cent of the country in 1992 (Department of Forestry Reconnaissance, 1992)—this has decreased 23 per cent in the last 50 years. As arable land in Lao PDR is limited, there is increasing economic pressure to more fully exploit the country's forest resources. As yet, Phou Kao Mountain's 120 square kilometres of dense forest has not been commercially logged, and tree felling occurs on a very limited scale. In order to ensure the continued survival of this important natural and cultural resource, measures must be taken to conserve it.
- To increase the yield of arable land, a process of modernization of agricultural practices is currently underway. New varieties of rice are being developed along with the introduction of mechanized farming equipment. Modernization of rice cultivation could have a potentially serious negative impact on both the visual quality of the Vat Phou cultural landscape and on the sub-surface archaeology of the area. The use of motorized ploughs will cause paddy fields to become amalgamated to form larger fields. The traditional agricultural landscape of small rice paddies with dispersed trees may therefore be lost. In addition, motorized ploughs will disturb archaeological deposits due to their weight and increased plough-shear depth.
- With economic development and increased local income levels, there is a danger that traditional wooden houses will be replaced by modern concrete constructions. This change will damage the visual quality of the cultural landscape and lead to increased destruction of the archaeological resources, as permanent concrete foundations are required to support the new constructions. There will be a particularly negative effect on the character of the villages, which contribute so much to the special character of the area.

Wall of Vat Phou, showing the type of structural damage that results from improper drainage, which undermines the soil supporting the structure.

A laterite wall at Vat Phou damaged by uncontrolled growth of vegetation, one of the greatest threats to structures at the site.

2.4. Future Development Pressures

- The Government of Lao PDR is committed to increased prosperity through economic growth. This

commitment is implemented through the Economic Policy Frameworks for 1994 at the national level and through development plans at the provincial level. The Champasak area is prominent within this policy because of its agricultural potential and its location as a potential node of communication between southern Lao PDR, Thailand, Viet Nam and Cambodia. The various improvements to the road network will greatly increase this potential, and also open up the area more to tourism.

- Pressures are likely to show themselves in a number of areas, and have already begun to do so in some cases. It should be noted, too, that infrastructure improvements elsewhere are likely to have an effect on the Champasak District by making it more accessible. Once existing and planned road improvements are implemented, for example, between Vangtao (on the Lao side of the border with Thailand) and Pakse, there could be considerable development pressures around Champasak as a consequence.
- Probably the most significant large-scale pressure in the future will come from agricultural improvement through irrigation schemes. These have the effect of bringing back into cultivation areas which have not been cultivated for many years and of intensifying agriculture where it already exists. The need for larger fields, the construction of the irrigation channels themselves and deeper cultivation will all be damaging to the archaeological sites that are directly affected. Cumulatively there will be a negative effect on the historic landscape as field size increases and trees are lost from field divisions and from areas brought back into cultivation. If logging operations were allowed, the effects on either Phou Kao Mountain or on Don Deng Island would be devastating.
- Industrial development can also have an adverse effect on both the sites themselves and their settings. The effects of small-scale haphazard development, such as brickworks, can already be seen in some places. The construction of an industrial zone, if sited within an area of archaeological interest, would, if permitted, cause major damage both to the site itself and to the landscape setting.
- Increased prosperity and higher expectations for living standards will lead to pressures for new housing types and for more facilities within villages and within the town of Champasak itself. These could lead to considerable changes in the character of the villages and, possibly, to the loss of interesting historical features such as the traditional houses of the area. These changes would have a cumulative negative effect on the visual appearance and setting of the various settlements if not carefully managed.

2.5. Tourism and Site Development

- Tourism is already of some significance in the Laotian economy, and is likely to become much more important as tourism grows globally into the world's major industry and as Lao PDR becomes more accessible, particularly since the country has so much to offer to the discerning visitors. The Government's tourism development policy, set out in 1996 (report in Vientiane Times, 23-29 August, 1996), is to concentrate on group packages and high income tourists and to minimize impacts on the environment and cultural heritage, while promoting eco-tourism and incorporating tourism activities related to the environment and traditional Lao culture.
- The current tourist numbers for the Champasak area are comparatively low, with approximately 7,500 visitors to Vat Phou in 1998 (excluding those domestic visitors who came to the Vat Phou

Festival in February). The provision for tourists, both at the sites and in terms of accommodation and services, is consequently limited.

- Managed sustainably, cultural tourism provides visitors with a rewarding and valuable experience, while they in turn make a substantial contribution to the local economy and to employment, as well as to the conservation of the sites and their landscape through the income generated from them.
- If tourism is not managed with sensitivity, the consequences can be dire. On the sites themselves, there will be damage through erosion resulting from over-visiting, possibly from vandalism, and from the inappropriate provision of services. Off-site, insensitive construction can damage the landscape setting of the archaeological features and of the villages, and can introduce elements which are not in accord with the lifestyle and aspirations of the local population
- A particular issue requiring attention is the Vat Phou Festival, held annually during February and embodying the continued sacred and communal role of the site. During the three days of the festival, between 7,000 and 10,000 people visit the Vat Phou temple complex, in some cases staying overnight. There are concerns over the safety of visitors as well as the safety of the monument itself that need to be addressed

2.6. Public Awareness and Understanding

- It is clear that public understanding of the existence and significance of the archaeological remains of the Champasak area is crucial for the preservation of the site. Without that understanding and the support of the local population, efforts to conserve the area will not be successful. At present, most people regard only Vat Phou itself and the other standing ruins as being of archaeological and historical importance; they are largely unaware of the significance and extent of the below-ground remains and of the integrity and value of the cultural landscape as a whole.
- The apparent conflict between conservation of the cultural landscape and the opportunities for economic development is one that will need to be addressed. It has to be accepted that conservation will prevent some developments. On the other hand, proper conservation of the site should offer considerable economic benefits to the local communities. The key here must be to work with the local villages and through the village heads to raise understanding of the importance of the cultural resources of the area and the opportunities that the conservation of these resources can bring to the sustainable development of Champasak.

2.7. Funding, Resources and Capacity Development

- The Government of Lao PDR has long recognized the importance of Vat Phou and has, since 1989, funded a local office to manage it. In addition, the Government has sought technical and financial support from UNESCO over a number of years. Original proposals for extensive restoration work at Vat Phou, made in 1989, were never carried out because they were too elaborate, too expensive, too interventionist, and focused only on the main temple complex. Since 1989, there has also been an increasing realisation of the extent of archaeological remains and the integrity and significance of the cultural landscape as a whole.
- Since 1995, Italian and Japanese funding has enabled UNESCO and the Government of Lao PDR to develop a new approach to the management of the Champasak cultural landscape. This

has been based on (i) identification of the resources and development of a management database, (ii) capacity development so that it can be locally managed, (iii) recognition that a successful approach to management must also include sustainable economic development, and (iv) a belief that conservation work should be as non-interventionist as possible. The Government has also devoted considerable resources to the management programme through the allocation of staff and the provision of infrastructure support

3. Restoration Activities and Protection

Now, turning to restoration activities on Champasak cultural heritage protection, first of all, we have created a plan in order to suggest to UNESCO for getting the consent, and then they may provide funding and some professional and technical staff for inspecting and researching how to protect cultural heritage. Our government has also passed legislation and issued regulations in order to protect Champasak cultural heritage, and we introduce differing degrees of protection for the archaeological sites as well as for other distinctive features of the landscape, including those of the natural environment, traditional settlements and buildings, and their character and setting. It establishes policies within these zones for:

- protection of the cultural landscape as a whole
- protection of buried archaeological remains
- protection of settlement character and traditional buildings
- protection of the natural environment
- protection and enhancement of the landscape setting
- control of new development
- regulation of traditional land use

❖ Developing partnerships and consensus among all those, public and private, who are stakeholders in the cultural landscape

❖ Establishing effective operational linkages between the Site Manager and all other bodies working in the area

❖ Identification and promotion of changes beneficial to the cultural landscape and its protection and safeguarding for future generations

❖ Maximizing public and private resources, national and international, for the initial conservation and enhancement of the cultural landscape while developing economically and locally sustainable management systems for the future

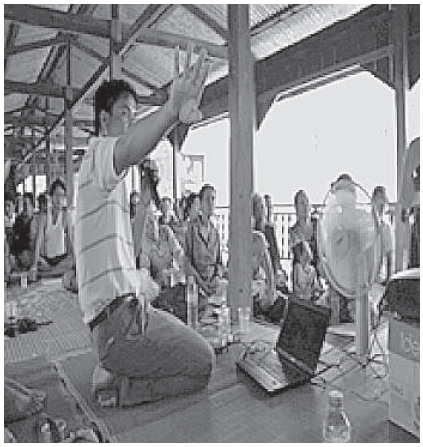
❖ Stabilizing the environmental pressures on the cultural landscape

❖ Retaining, protecting and enhancing the vitality of the living culture and landscape

❖ Maintaining and reinforcing the special character of the cultural landscape and enhancing understanding of all aspects of the site, including the sacred aspects

❖ Conserving the material remains of the site

❖ Improving public understanding of the value and



importance of the cultural landscape, and engaging the support and positive intervention of the local communities for the plan's objectives

- Clear definition of the zones to be protected and their boundaries
- Revision of laws and regulations to provide adequate protection for the Champasak Heritage and Cultural Landscape Protection Zone and its sub-zones
- Production of guidelines for the protection of archaeological sites under other land uses or in private ownership
- Regular inspections to monitor the condition of all archaeological sites, including earth works and those sites that are buried
- Preparation of an inventory of all movable antiquities within the site with a record of their original sites and current location
- Relocation of all movable antiquities at risk of theft or damage into secure areas
- Assessment of likely future damage by fluvial erosion, and the taking of appropriate action to minimize that damage
- Assessment of the conservation needs of all standing structures and initiation of work necessary for the prevention of collapse

The urbanism team presenting the protection plan and regulations.

Maldives

Ashraf Ismail

Problems and Needs for Cultural Heritage Protection and Restoration Activities in Maldives

Being an island nation located in the Indian Ocean tropics, Maldives boasts an impressive historical background that shows evidence of more than 2000 years of human habitation within its white sand and lush vegetation. This report is based on case studies and observations done personally by myself in the field of research, conservation and preservation of artifacts within the museum's collection via their origin during the past seven years since joining as a trainee curator. For this report I will portray the original status and current status of four different heritage sites to provide examples of the cultural heritage protection and restoration needs of Maldives.

Kaashidhoo Archaeological Site

Situated on the island of Kaashidhoo in Kaafu Atoll, Kaashidhoo archaeological site is the largest pre-Islamic (before 1153 CE) site recorded in Maldives. It is also the only scientifically excavated site in Maldives. As with most of the archaeological sites in Maldives, the site on Kaashidhoo was originally observed as a large sand mound about 1.5 meters high with coral stones visible on the surface.

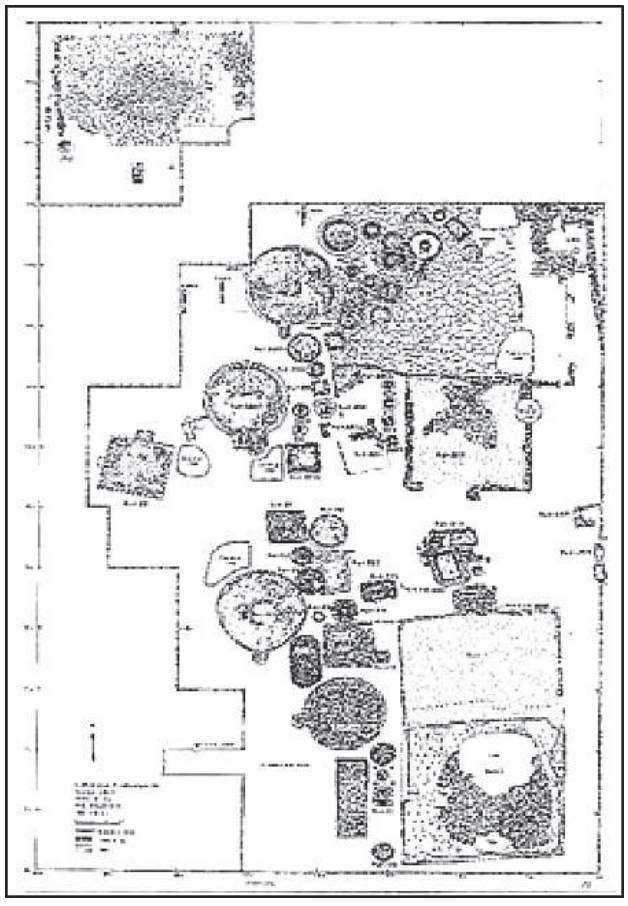


Fig 1: Sketch of Kaashidhoo archaeological site

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[(1) Photo: Scanned from 'Archaeological Excavations of a Monastery at Kaashidhoo; Prof. Dr. Philos Egil Mikkelsen, University of Oslo, Norway.]

The excavation of the site was carried out by Professor Egil Mikelssen and his team in partnership with the National Centre for Linguistic and Historical Research (Department of Heritage at the time) and local historians over a span of three years, from 1996 to 1998. Locally known as Kuruhinna Tharaagandu, the site instantly provided evidence of the culture and life in ancient Maldives as the excavation proceeded. An area of about 1,880 square feet was unearthed and investigated. Structures uncovered mainly consisted of only the lowermost parts (30 – 40 cm in height) of structures, which were made from course coral stone with lime plastering and moulding on the outside, and which varied greatly in size and shape. Most of the structures possibly served as platforms for light buildings such as houses constructed with wood while others served as reliquaries or bases for statues and stupas. According to the native islanders, stones from the ruins had been previously mined by them as building materials, which explained why many of the coral stone structures had only the platforms remaining.

Figs 2&3: Ongoing excavations with local workers in 1997, and the finished excavation of the area.
[(2) Photo: Department of Heritage; Site excavation photos / (3) Photo: Scanned from 'Archaeological Excavations of a Monastery at Kaashidhoo; Prof. Dr. Philos Egil Mikkelsen, University of Oslo, Norway.]

Apart from the structures, several artifacts were also unearthed in the expedition. These included coral stone caskets, coins, beads, stone fragments, cowrie shells, clam shells, bones of a tortoise, and bronze and clay ware with fragments. Apart from the artifacts, the site also contained a cemetery. Areas with deposits of light grey sand, which were said to have been filled intentionally, contained a number of graves, of which four were excavated.

On further research and analysis of the finds from Kaashidhoo site, it was concluded that Buddhist culture there was established in 1 CE. Radiocarbon dating of some of the finds shows that the finds are from between 40 BC to 1100 CE (dates of the earliest individual find to the latest from the site). After the excavations were completed in 1998, some of the discovered artifacts were

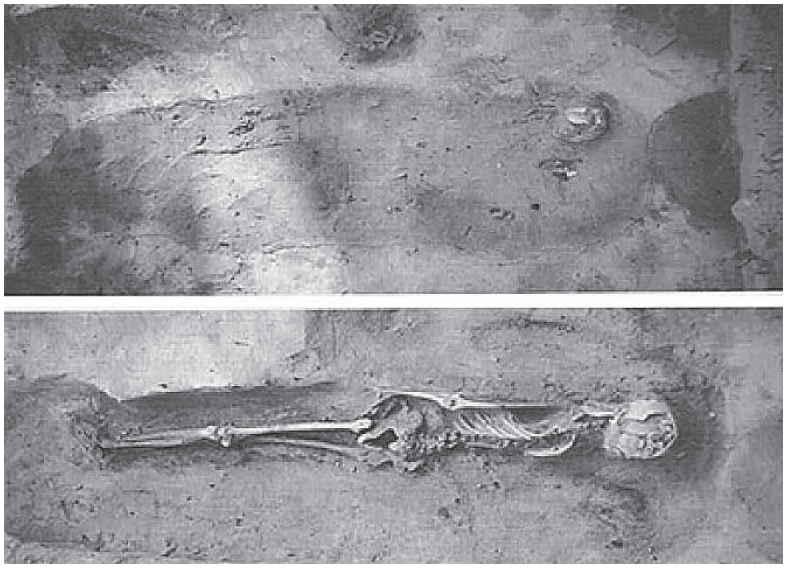

Fig 4: A grave covered with light grey sand, before and after excavation. *[(4) Photo: Scanned from 'Archaeological Excavations of a Monastery at Kaashidhoo; Prof. Dr. Philos Egil Mikkelsen, University of Oslo, Norway.]*

presented to the Maldives National Museum and the research material and discoveries were published. But behind the accomplishments and new finds from the expedition, there was a flaw in the whole project that had not been realised until it was too late.

The problem was that the expedition did not contain a contingency plan for the protection of the site after excavation. This has led to the site being directly exposed to the elements, which has resulted in damage observed and recorded over time up to the present day. As the coral stone ruins became exposed, humidity in the tropical environment took its toll and has deteriorated and broken down many of the ruins originally excavated.

Figs 5 & 6: Fully excavated part of the site in 1998 and the same area in 2002 showing the impact of the site being left exposed without protection; the ruins had already started to gather moisture and break down due to moss growth, vegetation and other means.

[Photo: (5) Scanned from 'Archaeological Excavations of a Monastery at Kaashidhoo; Prof. Dr. Philos Egil Mikkelsen, University of Oslo, Norway. / (6) Department of Heritage; Photo of site taken in 2011 on a trip to assess the impact due to site exposure through the years.]

In 2008 a project was initiated to preserve and develop the Kaashidhoo site with the aid of the US Ambassadors Fund. The aim of the project was to re-bury the most severely damaged area of the site and to build replicas on top for viewing, and to shelter the whole site from the natural elements by building a roof above it. However, the project was only half completed as the funding from the US Ambassadors Fund proved insufficient. Several difficulties raised the original estimate for the project, such as the transportation of equipment and workers to the island. Weather patterns also delayed the project, increasing the overall project cost. Due to these reasons the Department of Heritage asked for financial assistance from the Ministry of Finance and Treasury to provide the extra amount needed to complete the project. This request was turned down by the government, thus leading to the abandonment of the project halfway through. At the end of the project the most damaged area was buried and the rest of the site is still exposed without any protective measures.

Male' Hukuru Miskiy

Built in 1658 CE during the reign of Sultan Ibrahim Iskandhar I, the construction of this marvel was carried out under his rule and guidance as a renovation and expansion project to build a new, larger mosque in place of the previous mosque, being completed in approximately one-and-a-half years. The foundation of the Hukuru Miskiy (4°10'40.9"N 73°30'44.5"E) is one of the first mosques ever built in Maldives after the introduction of Islam by the first Muslim Sultan of Maldives, Muhammad Ibun Abdullah, in 1153 CE.

The architectural ingenuity of having the Hukuru Miskiy built from carved coral stone blocks bound to each other without the use of lime or mortar, but only with hewn grooves, is a good example of the craftsmanship of Maldivians. Complementing the structure is the roof, doors and windows finely hand carved with intricate patterns by handpicked 'Maavadi' or chief carpenters. On the interior and exterior of the mosque, coral stone and wood contain both a combination of Islamic geometrical art and Maldivian art forms passed on by ancestors along with verses from the Quran and sayings of the Prophet Muhammad (PBUH), which are finely carved and engraved. Apart from the mosque, the grounds also contain graves of many kings and honoured people, whose tombstones are also made of coral stone hand carved and engraved with the same patterns. These qualities paved the way for the monument to be inscribed in the UNESCO World Heritage Tentative List in 2008.

Fig 7: Hukuru Miskiy as it is seen today. The coral stone mosque remains the same as it was more than 300 years ago, with only minor changes as protective measures such as the roof.
[Photo: (7) Taken on 23 August 2014 by Ismail Ashraf, Assistant Curator of the National Museum]

Today the mosque remains one of the most well-maintained heritage sites in Maldives, and it is still being used for religious purposes daily with only minor repairs and changes since its construction more than three centuries ago. The latest full restoration work on the mosque was done in 1988 by a team of Indian experts from the National Research Laboratory for Conservation of Cultural Property. Currently the mosque is looked after by the City Council through daily maintenance and the restoration and conservation work is done by the Department of Heritage.

Fig 8: The entrance of Hukuru Miskiy seen from the left. While development has changed the surroundings, the mosque grounds remain as they are, although precautions must be taken to establish a buffer zone for the mosque for future preservation efforts to be more fruitful.
[Photo: (8) Taken on 23 August 2014 by Ismail Ashraf, Assistant Curator of the National Museum]

Even though the site is looked after and well-maintained, the lack of expertise in the field along with financial issues should be pointed out when considering the long-term maintenance of the site, as well as any sudden accidents or disasters that might occur. Not having a proper buffer zone is another potential risk when considering long-term protection of the site. Being located in Male', the capital of Maldives, and only metres away from traffic and development work, the site needs a considerable amount of attention, awareness and controlled development if the site is to be sustained and conserved, keeping in mind that the site is already included in the UNESCO World Heritage Tentative List.

Usgekolhu

Usgekolhu is a small three-storey building located inside what is now Sultan Park in Male'. Built by Sultan Muhammed Imaadhudheen VI (ruled from 1893 CE to 1903 CE) near the end of the 19th century, the building is said to have been built for the Egyptian princess bride of the sultan, Shareefa Haanim after she was to be brought to Male' to live with him. However, Usgekolhu was completed by Sultan Muhammed Shamsudheen III (ruled from 1903 CE to 1934 CE) during his reign. Some of his family were the first people to use the house as living quarters. The building is an excellent Maldivian architectural example of the 19th century with its thick lime plastered walls and arched entrance.

Usgekolhu is special in many ways, as what it lacks in age, it has gained in historical value. The building is the last remaining structure of the royal palace of Male'. During the second presidency of Maldives under the presidency of Mr. Ibrahim Nasir, the palace was dismantled, after which he build Sultan Park on the palace grounds, which can be seen today. During this process, all the treasure and valuable documents within the palace were collected and stored in Usgekolhu. The reason why Usgekolhu was not dismantled along with the other buildings is because it was the last building to be erected within the palace grounds and therefore it was in excellent condition compared to the others, especially due to not being used for a long time.

Fig 9: Usgekolhu as the National Museum in 2005. Located within Sultan Park, visitors often find themselves feeling as if they have travelled back in time as they walk through the lush green park and the museum, which allows them to briefly escape from the life of the city.
[(9) Photo: Department of Heritage 2005.]

On November 19th 1952 Usgekolhu gained in historical value by becoming the home of the first National Museum of Maldives. It was this building that housed the national museum until the foundation for the present building was laid in 2007 and opened in 2010.

After the opening of the New National Museum building, Usgekolhu remains unused and empty within Sultan Park. During the presidency of Mohamed Nasheed (2008 to 2011) the park walls were taken down as an act of 'freedom'. This resulted in the park being accessed freely day and night with no

protection plan. Due to these factors, both the park and Usgekolhu have suffered unsupervised human impact damage. Today Sultan Park has lost its former beauty and Usgekolhu is still without proper protection, while graffiti on the walls has to be painted over every now and then.

Raa. Maamigili Heritage Site

Situated in Raa Atoll, Maamigili is a small uninhabited island which is now being developed as a resort. Though the island is presently uninhabited, history suggests that the island was once inhabited and recent discoveries of ruins within the island during the resort construction show evidence that this is indeed true.

Raa Atoll Maamigili, today known as Loama Resort Maldives at Maamigili.
[Photo: loamahotelsandresorts.com]

The recent discoveries on the island include two wells, a cemetery, two bathing tanks and mausoleum foundations with tombstones and pottery shards. All structures and ruins are from cut and carved coral stone. Due to being overrun by heavy vegetation over the years, many of the structures and ruins are deformed as a result of the action of roots.

While the resort is being constructed on the island, the resort management has decided to restore the site and artifacts to their original state, to the extent possible, with the main aim being to restore the bathing tanks and to open the area as a display for the tourists who will visit and be accommodated at the resort. The restoration and management of the site will be completed under the supervision and support of the Department of Heritage.

Overall Assessment of Problems in Cultural Heritage Protection and Aims

Analysing the various situations of the abovementioned sites, and for all related sites and artifacts in Maldives, four main factors that are intertwined can be put forward to explain the setbacks and difficulties in the proper maintenance of the sites. Lack of 'expertise' in the execution of projects and monitoring is a reason behind the current situation of many heritage sites in Maldives. 'Awareness' among the locals of the many islands and areas with heritage sites in Maldives has resulted in deterioration and damage (some of it being human damage) to artifacts and sites that are required to be properly looked after. While large-scale projects are planned for sites that require immediate or long term conservation and preservation, many of these projects are 'frozen' in the middle due to a shortage of funds, resulting in the abandonment or amendment of the projects so they stay within the budget, which decreases the life and value of the targeted site. Absence of the required resources for proper conservation and preservation also effects and puts at risk ongoing projects.

The aim of including Raa Atoll Maamigili site in this report is to draft a protection and preservation plan for the site, with the use of the information that is gained through the lectures and discussion sessions of the training programme. The fundamental knowledge gained upon hearing the views of participants and lecturers will hopefully help us create a compact long-term programme for the site as well as provide new ideas and views on approaches to improve other similar sites and their current policies for protection and conservation.

Note: All information in this report has been expressed in my own words based on collected information and documentation from the Department of Heritage.

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Mongolia

Tserendorj Tsolmon

"Conservation and Utilization of Mural Paintings in Shoroon Bumbagar Tomb"

The tomb located in the Valley of Tuul, Ulaan Khermiin Shoroon Bumbagar, near Maikhan Mountain, in Bayannuur Soum, Bulgan Province, Mongolia was detected in 2001 and discovered during an excavation campaign carried out by a joint team of archaeologists from the Institute of History of the Mongolian Academy of Sciences and the Eurasian University, Astana, Kazakhstan in July – August 2011.

Before excavating the tomb, Mongolian archaeologists had studied tombs with a similar external view, located in countries and regions to the northeast and southeast such as the People's Republic of China, the Russian Far East, Xinjiang Uighur Autonomous Region and the Democratic People's Republic of Korea. After long research, Mongolian archaeologists and scholars decided that the Shoroon Bumbagar tomb belonged to ancient nomads.

Figure 1. View of the tomb during archaeological excavations

The tomb belongs to the Turkic (Tureg) Period and is dated between the end of the 6th century AD and the beginning of the 7th century AD. As a result of archaeological excavations, a number of finds such as wood carvings, silver, bronze and metal items, and over 40 mural paintings were discovered.

The area where the tomb is located comprises a main complex (marked by the mound above) with 10 smaller mounds around it (some are difficult to identify), although it has not yet been determined whether these also mark tombs, as they have not yet been excavated. The tomb comprises an open passage (42 m long x 1.80 m wide) facing south that slopes down into a narrower corridor (circa 1 m wide) composed of sections of covered passages alternating with wells on top, making a total of four

wells and four covered passages. The last well, which functions as antechamber, has a niche at either side (there is a sacrificial well that contained human bones on the western side) and it is connected to a short passage that leads to the burial chamber (4.50 m diagonally from one corner to another and 2.70 m high), which is 7.50 m deep below ground level. The mound above the burial chamber is 4 m high and has a diameter of 32 m; it was built by superimposing and ramming layers of clayey soil so as to maintain a certain solidity that has stood the passage of time.

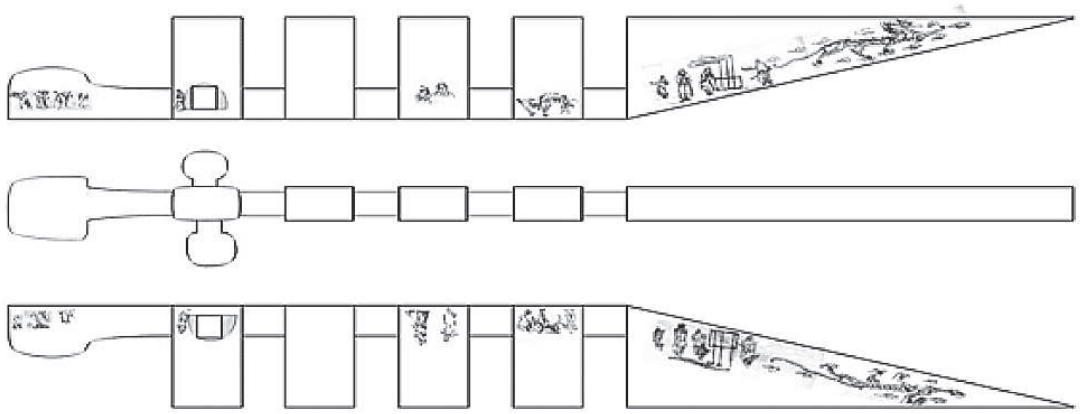

Figure 2. Ground plan and elevations of eastern and western sides

Bayannuur Tomb was never violated so all the funerary paraphernalia was found intact, as was the wooden coffin containing the ashes of the deceased in a wooden box on the western side of the burial chamber. The archaeological findings are numerous and of a variety of materials; for instance, items in gold and silver such as coins, saddle ornaments, and a pot; a few wood carvings of a dragon, a horse, sheep, a Galbingaa (a legendary bird) and the entrance doors to the burial chamber; a copper gilt key, lock, latch and staple; and fired ceramics such as a lion, Makhranza or protection deity, unknown legendary animals, and about 120 coloured figures of standing men, women, children, soldiers, monks and horsemen. This large variety of objects is currently stored at the Kharkhorin Museum, Uvurkhangai Province.

Figure 3. Plaster layer

The tomb was hewn from the spathic subsoil, the very crumbly and friable regolith. This incoherent rock mass was easy to cut but inadequate for carving any kind of underground structure. The carving of the tomb shows that the execution of the open passage, or dromos, is very fine and regular, becoming less refined as it goes deeper down into the burial chamber, which has very irregular surfaces. However, it was not the intention to carve such a structure in the subsoil for living creatures but for funerary purposes, and therefore safety was not important. The bare stone surfaces were plastered, at varying thickness, with mud-based renders containing chopped straw and sand, and this was for rendering a smooth surface for painting.

The wall surfaces in the burial chamber are not regularly cut and have many protuberances on which standing figures and plants were painted just up to a certain height (circa 1.50 m) as a skirting board, and the mud-based plaster was applied just to that level. Probably the ceilings were not plastered and some vertical sections of walls do not show even traces of plaster.

Almost all of the plastered areas were whitewashed, most likely with white clay and on some sections, the depictions of daily life scenes, personages, livestock or mythical animals were painted with a very limited palette that consisted of very few colours (the aforementioned white for the background and highlights, and black, red, brown and blue). Samples of each colour were taken by national specialists in order to identify the type of pigment and eventually the binder employed. In addition, the different styles of the depictions and the style of execution of the paintings suggest that there were at least two different hands.

The eastern and western walls of the open passage each depict a dragon about to fly out into the clouds, and at the northern end of these walls there are groups of three men standing under banners that pledge another man, who has a sword.

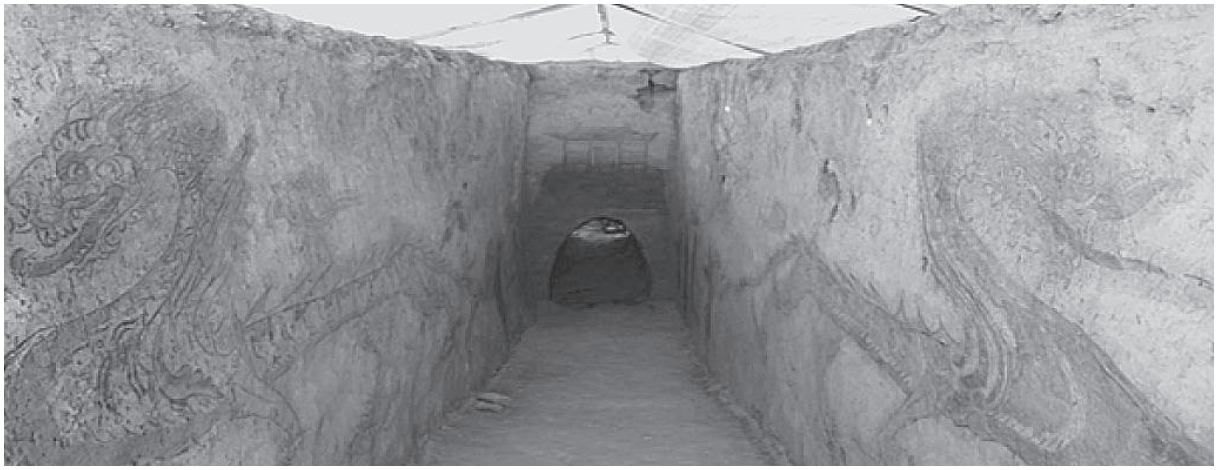

Figure 4. Entrance of tomb

Figure 5. Mural painting on right wall

The physical aspects of each of the groups are different from wall to wall, as are the clothing and headdresses, probably depicting Tureg and Uyghur people. The uppermost northern façade of the open passage above the entrance to the corridor with covered passages and open wells depicts a wooden building with birds flying away from under its roof eaves. The other two northern façades of the wells towards the north depict an arrangement of stylized lotus flowers (the second one), and the head of an animal like a cow (the third one).

Figure 6. Mural paintings in upper part of corridor

The lower sections of the wells' eastern and western walls depict attendants, butlers, stablemen and horses. The vertical sections (walls) of the corridor that have covered passages have no paintings. The walls of the first well, from the south, depict on either side a stableman holding the reins of a horse;

the attitude is as if he is waiting for his master to ride it. The hat of the stableman depicted on the east wall reminds us of the Sogdo headdress. The paintings in the burial chamber depict a series of standing Uyghur personages in a garden with trees.

Figure 7. Mural painting of north grave

During excavation and upon opening the wooden doors that concealed the burial chamber, it was said that about 60 cm of vaulting collapsed. That's why the ceilings of the passages and the burial chamber were propped up with wooden poles and planking. The walls of the passages and the wells were also covered with planking in order to prevent landslides that may threaten the survival of the tomb and the lives of the technicians and conservators working there.

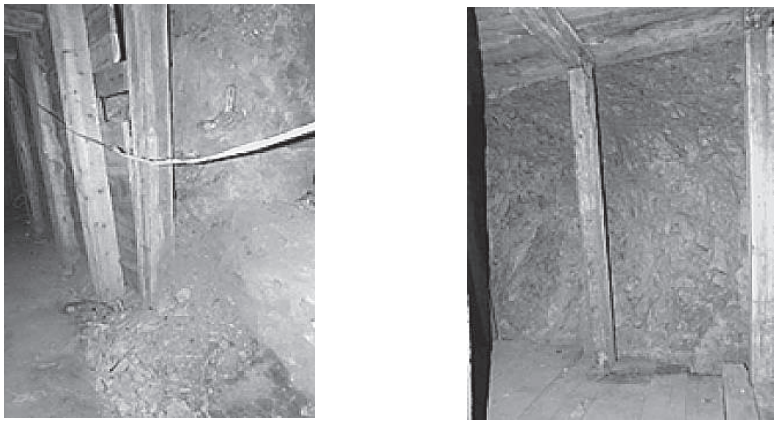

Figure 8. Props supporting the ceiling of the covered corridor and the western side of the third well from the north. Note the large amount of stone that had crumbled from behind the post.

According to Decision 71 of the Government of Mongolia in 2011, the archaeological site was placed under state protection and a protection zone of 700 hectares was created around the site. In order to prevent any negative human or natural impact on the site, a temporary metal shelter (45 m x 12 m) and iron fence (110 x 120 m) were built over and around the site, and a local family was hired to guard it.

Figure 9. Metal shelter and wooden fence

Mural painting conservation is very new for Mongolians, because this was the first ever discovery of this type of underground mural painting in Mongolia and we don't have adequate methods or techniques for conservation and preservation of such items.

Since the discovery and excavation of the tomb, the Mongolian authorities have taken many different measures for the conservation and preservation of the mural paintings. In order to conserve the mural paintings we organized two field missions to Bayannuur Tomb with the attendance of a UNESCO mural painting expert and a geomechanical expert to assess the current status of conservation of the tomb and its mural paintings, provide practical training to Mongolian national experts pertaining to the conservation and preservation of tombs and mural paintings, and provide guidance to Mongolian national experts regarding immediate follow-up actions and long-term actions to be undertaken to ensure the appropriate preservation and conservation of the site, etc.

Figure 10. UNESCO expert mission with Mongolian conservators

According to the recommendations of the UNESCO expert, the mural painting should be conserved and preserved onsite. Currently it is very difficult to follow their recommendations, because the infrastructure is not well developed in this area.

The intention of the Ministry of Culture, Sports and Tourism of Mongolia is to conserve and preserve those mural paintings onsite and to build an underground archaeological museum, as there are several tombs similar to Bayannuur Tomb located in the surrounding area.

In this case, further contribution from international community for conservation and site utilization is very important.

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Myanmar

Myo Sandar Oo

Problems and Needs for Cultural Heritage Protection and Restoration Activities in Myanmar

1. Introduction

Myanmar is a geopolitical entity sandwiched between two giant neighbours, India and China, forming the north-eastern portion of the Southeast Asian region. The country of Myanmar is Mother Nature's choicest son, endowed with a bountiful wealth of fossils, flora and fauna – a land of vast biodiversity. Second largest in territorial size among ASEAN countries, with long land borders and coastline, Myanmar is exposed to the outside world, regardless of a number of impassable natural barriers in the form of lofty snow-capped mountain ranges and green thickets. Myanmar's physical features serve as a sort of wire network encompassing the country as a well-integrated entity. Unavoidably the impact and influence of neighbouring countries, particularly India and China, have been felt upon Myanmar. But Myanmar has managed to retain for itself an independent cultural identity in the process of adopting and adapting external impacts and influences. The happy result of this process was the enrichment of its cultural heritage. Indigenous belief systems like nature and spirit worship easily mingled with ancestor worship from China and planet worship and the Vedic culture of India. Later, the advent of Buddhism from India and Sri Lanka and its broad dissemination further fertilized and cultivated Myanmar cultural heritage both in depth and extent. The tolerant nature of the people and the coexistence of all belief systems in the country, including Buddhism, up to the present day speak volumes for the development of Myanmar cultural heritage throughout its history.

2. Ministry of Culture

The Ministry of Culture was established in March 1952 to carry out the two main tasks of preserving and safeguarding the cultural heritage of the nation. At present, there are three departments under the Ministry of Culture:

(i) The Archaeology and National Museum Department, which is responsible for the discovery and preservation of cultural heritage, historical sites and artefacts, as well as establishing the National Museum and the Archaeological Museum, and displaying archaeological and historical findings and artefacts.

(ii) The Fine Arts Department, which is responsible for the preservation and safeguarding of Myanmar traditional and fine arts. Since the Department of Fine Arts was established with the aim of promoting traditional cultural dance, songs and music, it has presented performances to the people every now and then. To encourage and promote Myanmar culture, the State School of Fine Arts and State School of Music and Drama were opened in Yangon and Mandalay, in 1954. And then the National University of Arts and Culture was opened in Yangon in 1993 and in Mandalay in 2001.

(iii) The Department of Historical Research and National Library, which is responsible for carrying out research on Myanmar history in both the historic and prehistoric periods by supporting archaeological finds and excavation evidence, and the culture and customs of the national races and ethnic groups, as well as establishing and opening the National Library for promoting people's awareness.

Measures under the "From Vision to Action" program of the Ministry of Culture are being implemented as follows:

-Enacting laws

-Establishing the State School of Fine Arts and the National University of Arts and Culture

-Organizing the Myanmar National Races' Traditional Performing Arts Competition,

-Developing cultural heritage preservation awareness,

-Participating not only at the regional level but also at the international level.

3. Safeguarding System and Policy

Preservation and sustainment of the nation's cultural heritage was undertaken by successive Myanmar kings for the sake of safeguarding the national character, uplifting the patriotic spirit and integrity of the state, making Myanmar a country with high cultural standards with its people respected for their own unique customs and traditions.

The Ministry of Culture has set its policies and vision for the preservation and protection of ancient cultural heritage sites, ancient cities and artefacts.

Among its preservation measures, a number of important laws and acts for preservation, education, conservation methods, etc. have been enacted.

The following laws have been enacted:

(a) Indian Treasure Trove Act 1878

This act was concerned with the finding of treasure, and was enacted in lower Myanmar for archaeological objects and artefacts before 1885.

(b) Ancient Monuments Preservation Act 1932

This act was concerned with protecting archaeological structures when mining and other related processes took place.

(c) Antiquities Act 1957

This was the very first act announced after Myanmar regained its independence, and is concerned with artefacts.

(d) 1962 Amendment Law for the Antiquities Act

This law was to amend the Antiquities Act 1957.

(e) Protection and Preservation of Cultural Heritage Region Law 1988

This law was concerned with protecting and preserving cultural heritage regions by designating and demarcating zoning plans.

Among those promulgated laws and acts, the 1878 Act and 1932 Act were repealed after 1962. Updates to the Antiquities Act 1957 are now being drafted in accordance with present practice. The Ministry of Culture has therefore been continually using the 1957 Act for antiquities and the 1998 Law for cultural heritage regions.

4. Safeguarding Bodies and Organizations

Preserving and safeguarding the cultural heritage of the nation is the main goal of the Ministry of Culture. The Ministry of Culture, other related ministries, regional authorities and non-profit social organizations and associations (including monks) work in close collaboration for the preservation and safeguarding of both tangible and intangible cultural heritage.

For example, the history and culture of national races have been prescribed and are taught in all schools under the Ministry of Education, starting from primary level, to promote good morale and morality among young people. Regarding religious ceremonies and festivals, the Ministry of Culture works in cooperation with the Ministry of Religious Affairs. Moreover, the Ministry of Cooperatives and small and medium enterprises (SMEs) are preserving Myanmar arts and crafts by producing traditional artistic products.

Competition and exhibitions such as the National Races' Traditional Performing Arts Competition, traditional costume and dress exhibitions, and traditional cuisine competitions are held, and publication of cultural-related literature is carried out in cooperation with NGOs, painting and sculpture organizations, musician organizations, dramatic organizations, movie organizations, literary organizations, etc., along with other activities all over the country.

Establishment of the Central Committee of Myanmar Cultural Heritage: To encourage and promote the preservation and safeguarding of Myanmar cultural heritage nationwide, the government established the Central Committee of Myanmar Cultural Heritage (June 25, 1993) headed by high ranking officials in the government.

5. List of Designated Cultural Heritage

In accordance with the Protection and Preservation of Cultural Heritage Region Law 1998, 46 Zones of Cultural Heritage Building and Regions have already been designated and notified as of the end of 2012.

Submitting World Cultural Heritage Nominations: Myanmar ratified the 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage in April 1994. Myanmar submitted eight cultural heritage sites to the Tentative List for nomination in 1996. Of these eight heritage sites, Myanmar has been preparing its nomination dossier for the three Pyu Ancient Cities since 2010. In order to move ahead with the project, in cooperation with UNESCO, Myanmar has been implementing capacity building for safeguarding cultural heritage. At the 38th session of the World Heritage Committee, Qatar, Pyu Ancient Cities was inscribed on the World Heritage List, on 22nd June, 2014.

The 37th session of the World Heritage Committee, Cambodia, included the Kuthodaw Inscription Shrines on the Memory of the World Register in June, 2013.

6. Protection and Management of Cultural Heritage in Myanmar

Before achieving independence in 1948, Myanmar was a part of British-controlled India. Therefore, the sites and their archaeology were protected under the provisions of the laws protecting archaeological sites in British India, principally, the Indian Treasure Trove Act of 1878 and the Ancient Monuments Preservation Act of 1904. Under the British colonial administration, the Archaeological Survey of India (Burma Circle) was responsible for archaeological excavation and research, while the Public

Works Department was responsible for conservation and restoration work. From 1902 until the Second World War, considerable work was carried out to research and conserve the major structural remains at all three Pyu Ancient Cities in Myanmar.

Therefore, to reinforce and supplement their earlier gazetting of the Ancient Cities sites as protected areas under the laws of British India, in 1957, the Myanmar Government enacted the Antiquities Act 1957 (amended 1962), which established the Department of Archaeology and gave national monument protection status to the three Pyu Ancient Cities. In 1998, the Law on the Protection and Preservation of Cultural Heritage Regions 1998 (amended 2009) was promulgated. According to this Law, as of 1999, all nationally declared Cultural Heritage Regions are each to be registered and demarcated into three protection zones: Ancient Monumental Zone (MZ), Ancient Site Zone (AZ), and Protected and Preserved Zone (PZ). Accordingly, since 1999, altogether 42 cultural heritage regions throughout the nation have been declared and demarcated. In January 2013, the zoning order notifications for the three Pyu Ancient Cities were reissued to ensure that the legally-protected areas of the three sites conform precisely to the boundaries of the property nominated for inscription on the World Heritage List. To demarcate the protection zones, and to make the zones known to other authorities and to the public, DANM has installed permanent boundary posts at Sri Ksetra in accordance with the regulations for the implementation of the notifications issued by the Ministry (No. 1/2001 dated30/01/2001). The marking of the protection zones of the other two ancient cities is in progress.

7. Administrative Mechanisms

At the national level, there are Central Committee for Myanmar National Heritage and Myanmar National Committee for World Heritage, both headed by the Minister of Culture. At the site level, an Ancient Cities Coordinating Committee (PYUCOM) with three constituent site-specific sub-committees has been established under the authority of, and reporting through the Director-General of the Archaeology and National Museum Department.

Under the existing legislation, implementation of the provisions of the applicable laws takes the form of: (a) **land use zoning** – protection implemented through enforcement of official notifications of zoning orders and associated regulations; (b) **monument conservation** – protection implemented through the consolidation and conservation of ancient structural remains; (c) **site management** – protection implemented through the application of an officially-notified Ancient Cities Property Management Plan (PMP) integrating heritage protection with local development; and (d) **public education** – protection implemented through eliciting the cooperation and participation of local community stakeholders.

8. Management Vision

A heritage site with a balance between antiquity and livingness, where its potential Outstanding Universal Value is safeguarded, promoted and communicated to contemporary life and to bring these values into play to contribute to the local community's economic, social, and cultural development, by integrating heritage preservation into environmental conservation and sustainable development through a participatory approach to the property's management, undertaken in cooperation with other stakeholders including the sangha (monk body) and the local community.

9. Long-term Challenges and Responses to Ensure Protection and Management

While the overall state of conservation of the Ancient Cities is, at the present time, satisfactory, achievement of the vision articulated by the management committee is not assured unless the particular challenges of the factors negatively affecting the property can be managed. The physical remains of the ancient sites are subject to a range of vulnerabilities, which can negatively affect the long-term stability, integrity, and authenticity of the constituent attributes of the property unless addressed and mitigated. Among the vulnerabilities posing the most direct conservation management challenges are: (a) the fragility of the material remains due to their aging, (b) the changes to the cultural landscape due to the change of agricultural practices, introduction of non-traditional cash crops and installation of modern irrigation infrastructure, and (c) expanding population pressure within and nearby the property. They will present long-term challenges for the protection and management of the property.

10. State of Conservation and Factors Affecting the Property

Since 1972, the Department of Archaeology (later reconstituted as the Department of Archaeology and National Museum) has continuously carried out conservation work in parallel with archaeological excavations, and has overseen the repair and restoration work undertaken through the private initiative of the Temple Trustees. Due to limited human and financial resources this work has been relatively modest, but has assured the stabilization and consolidation of both the standing monuments and exposed archaeological features and for emergency and priority repairs (for example, following a particularly heavy monsoon rain).

11. Excavated Archaeological Sites and Exposed Ancient Structures

At already excavated sites with exposed ancient brickwork, conservation measures consist of the removal of vegetation growth, which can be dense after the annual rainy season, and the drainage of standing water from the sites. Following these measures, constant and routine maintenance is required at all excavated archaeological sites and exposed structures, to control deterioration caused by the infiltration of rainwater into the exposed bricks, absorption of groundwater into the structures' foundations, and the growth of vegetation. At some exposed sites and monuments, these preventive conservation measures are not sufficient to ensure the continued physical integrity of the structures and more aggressive conservation intervention is required, such as the construction of shelters over the exposed features and artefacts, or the removal of some moveable artefacts into on-site museums.

The major threat to the outstanding universal value of heritage sites is to be found in the short and long-term environmental impacts. Passive conservation measures at the site involve the maintenance of ground cover to protect against erosion. Active conservation measures at sites include the construction of shelters over the most important in-situ features, and the removal of artefacts to a temporary site museum.

12. Threats to the Cultural Value of Ancient Cities in Myanmar

The particular challenges of the conservation of the physical remains of the Ancient Cities are due to (a) their antiquity and (b) the pressures placed on the religious and ceremonial use of the still-venerated monuments by local residents and pilgrims. A lesser, but still serious threat to the integrity

of the still-buried archaeological remains at the some places comes from (c) the recent change, by a few of the local farmers, from traditional shallow-draft to modern deep-draft agriculture plowing technology employed in rice farming, while (d) the conversion of traditional wet-rice paddy fields to non-traditional cash crops by some farmers is a threat to the continued authenticity of the historic land-use of the property. At some Ancient Cities sites, located near modern cities, (e) expanding population pressure within and nearby the property also presents a management challenge in terms of maintaining the integrity of those sites. The location of the some Ancient Cities sites on ground slightly elevated above the surrounding low-lying and easily-flooded paddy fields has resulted in various government departments, since the British colonial period, constructing public infrastructure such as a road, a railway line, an (unused) airfield, and more recently a gas pipeline and high-wire electricity pylons, across the property. It can also be anticipated that there may be pressure from the public, and supported by the sangha (monk body), for the renovation of the most venerated stupas, in keeping with traditional religious practice.

In light of these abovementioned threats to the continued integrity and authenticity of the property, as well as to respond to the need to ensure incremental, but ever-increasing levels of site maintenance and preventive conservation at all ancient archaeological sites, as the ancient structures continue to age and suffer from the negative effects of weathering, there are three principal needs to ensure the conservation of the character-defining attributes of the Ancient Cities, including the still-venerated religious monuments, the excavated and unexcavated archaeology, and the historic landscape and land use: (i) control of land use within the property; (ii) consolidation and maintenance of the standing and exposed ancient physical remains; and (iii) public education as to the significance of the property and the value of its preservation to all concerned.

In the Asia Pacific region for a very long time, there have been the highly developed skills for conserving wooden structures in connection with international standards; and learn the ideology and methodology of conservation of wooden structures in different part of the world from the lecturers.

13. Problems and Dangers Faced by Cultural Properties in Myanmar

(a) Problems of Deterioration by Climate

Climate is the most dangerous element that affects cultural properties. Natural disasters such as earthquakes, volcanic eruptions, storms, floods and fire also cause much damage and loss of cultural properties. No archaeological remains can escape the danger of climate. Thousands of Bagan ancient monuments in the tropical dry zone have suffered from the different temperatures in the hot and cold seasons. Similarly, late rite cultural properties of Lower Myanmar have also faced a hot and wet climate. The changing climate has caused deterioration of not only monuments, and structural and sculptural remains, but even organic and inorganic artefacts that are kept in storage or displayed in showcases.

(b) The Danger of Looting and Smuggling

Nowadays, Myanmar cultural properties are facing the danger of looting and smuggling, which is now a global issue. It has become a serious danger in the last two decades. In Myanmar, there are many villages or towns with significant historic structures, especially the religious constructions

such as stupas, temples and wooden monasteries with delicate wood carvings.

With the illicit trafficking of antiquities becoming more extensive in Myanmar, cultural monuments and properties have increasingly become threatened by looting and smuggling. Beyond the major archaeological zone, i.e., Bagan, Mandalay, and Bago, other sites of prehistoric and historic heritage have been destroyed. Concerning destruction of cultural heritage by robbery and theft, we notice two types of situations:

(i) Plaster or stone carvings and heads of Buddha images and statues were robbed by being cut or removed from the main building. Looting has frequently occurred in numerous places around the country, in remote areas away from the care of the Department of Archaeology.

(ii) Another type of antiquity-hunting is the digging up of old mounds and searching for objects without permission. The objects and artefacts are then sold to brokers and collectors in smuggling markets abroad. There are many unexcavated archaeological sites spread throughout the country. Some of these sites are important for understanding the context of cultural sequences.

There have been several cases of theft at the abovementioned cultural properties. In many cases, local villagers have been persuaded by antique dealers, brokers or collectors to steal cultural objects from their villages. Sometimes palm-leaf manuscripts, traditional folding books (parabike), and monastic utensils have also been stolen from the village monasteries.

(c) The Danger of Illicit Trafficking and Export of Cultural Properties and Antiquities

Antiquities obtained by looting and robbery from ancient monuments and old mounds are traded and exported abroad. The stolen antiquities from Myanmar usually go to neighbouring countries. There is no doubt that the smugglers avoid government custom gates at the borders and try to escape by another route for illicit trafficking for exporting the cultural properties and antiquities.

14. Preventive Measures for the Protection of Cultural Properties

All cultural heritage ancient monuments and cultural properties that have existed through the ages must be protected and preserved by the State, which owns all cultural heritage both above and underneath the ground. Therefore the State is responsible for the protection and preservation of Myanmar cultural heritage. The Myanmar government wished to formulate a guide to, and policy for preservation of national heritage, and in order to implement this goal the government established a high-level committee called the **"Central Committee for Myanmar Cultural Heritage Presentation and Preservation"** in 1993. This committee makes decisions and gives instructions to the Ministry of Culture and the Department of Archaeology concerning cultural heritage preservation policy. The Ministry of Culture, which implements the State's policy on culture, has three organizations under it. The Department of Archaeology, one of the three organizations, is responsible for presentation and preservation of Myanmar cultural heritage.

(a) Enacting Laws for the Protection of Cultural Properties

During the British administration of India and Myanmar, the following protection measures for ancient monuments and antiquities were enacted:

(i) India Treasure Trove Act of 1878.

(ii) Ancient Monuments Preservation Act of 1904.

(iii) Antiquities Export Control Act of 1947.

After independence, successive Myanmar governments promulgated a number of laws in order to protect movable cultural properties. In 1957, the Parliament of the Union of Myanmar enacted the **Antiquities Act**, which explicitly mentioned that such antiquities, and indeed, any class of cultural properties shall not be moved without the permission of the relevant authority. The Act was amended to include general additions with the **Antiquities Amendment Act of 1962** by the Revolution Council of the Union of Myanmar. This Act stipulated that moving antiquities abroad was strictly prohibited and that such actions would be subject to serious punishment. Finally, in the last decade, the State Peace and Development Council enacted the **Protection and Preservation of Cultural Heritage Regions Law of 1998** in order to protect and preserve cultural heritage regions throughout the whole country, demarcated as: ancient monumental zones, ancient site zones and protected and preserved zones. The law also aimed to protect Myanmar cultural properties.

(b) Inspections in Border Regions

In the protection of cultural heritage, the Ministry of Culture has joined hands with other institutions such as the Police Force, Customs Organization and Bureau of Special Investigation. Special training programs are needed to promote awareness among police and custom officers of the problem of illicit trafficking in cultural properties. They should possess considerable knowledge so that they can protect cultural objects. Moreover the police and custom officers who work in border regions, i.e., Myawaddi, Tarchi-Late (Thailand border) are trained by the Department of Archaeology and museum curators to be capable of identifying the differences between antique and modern objects.

(c) Inspections at Airports and Seaports.

Cultural properties are strictly prohibited from being exported from Myanmar without a certificate issued by the Department of Archaeology. The Department also cooperates with the abovementioned bodies for inspections at the airports and seaports of departure from Myanmar. The Department of Archaeology records the name and address of the supplier, description and price, and so on. Only after inspection at the airport or seaport determines that the object is a non-antiquity, the Department of Archaeology issues necessary permit.

(d) Inspection by the Department of Archaeology

The Department of Archaeology has Antiquity Section to preserve antiquities that have been unearthed from various excavation sites and collected from the public by offering cash rewards and donations. This Section is responsible for inspecting objects such as Myanmar handcrafts in order to issue certificates of non-antiquity.

If someone wants to export Myanmar handcrafts such as Buddha images, lacquer-ware, bone or ivory objects, carvings, paintings, etc. out of Myanmar, first those objects must be sent to the Department of

Archaeology. Information about the objects must be provided on a form of certificate of non-antiquity. Then the objects will be inspected by the Board of Inspection of the Department, which must submit a report to the Director General on whether the objects are ancient antiquities or not. After receiving the approval of the Director-General, the Department will issue a certificate of non-antiquity to the applicant. Then every object will be stamped 'checked' by the Department of Archaeology.

Confiscated objects which are believed to be antiquities are usually sent to the Department of Archaeology for inspection by the Customs or Police Departments. The Board of Inspection will report to the Director General, Department of Archaeology and inspect the objects. After inspection, the Board will report their remarks to the Director-General, who will send an appropriate reply to the respective departments.

15. Needs for Heritage Management in Myanmar

Heritage can be defined as something that has been passed down from previous generations, and which is of value and worthy of preservation for future generations. A heritage site requires an ***Integrated Management System*** which establishes the frameworks and processes to safeguard the attributes that express the value of the heritage.

This understanding of heritage closely fits any approach to sustainable development, especially in respect to heritage conservation. Therefore, whether considering the development of tourism, agriculture or the urban sector, priority will need to be given to safeguarding heritage. Considering the limited resources available to the site managers of cultural heritage areas, the management system must be made more efficient, and this would require the minimum management activities to be carried out through routine procedures, with employment of personnel as per their level of expertise. Coordination and cooperation with affiliated government agencies and local government become essential. It would, however, be necessary to develop capacity at the national level as well, in order to develop national expertise. Also critical is the need to ensure that the system allows international cooperation in a coordinated and meaningful manner. Finally, Myanmar needs to implement a ***Cultural Management Master Plan*** and call for international assistance so as to proceed with the facilitation of our needs and requirements systematically.

16. Conclusion

The Department of Archaeology and National Museum have increasingly and systematically protected the venerated ancient cultural heritage and other culturally significant structures from lightning strikes, earthquakes, storm winds, rainwater penetration, fungus and vegetation growth, and other threats to their integrity and authenticity. This work has included annual removal of all vegetation, pointing of brickwork where eroded mortar has exposed it to rainwater penetration, replacement of lost brickwork where this loss has presented problems of structural integrity, strengthening against possible earthquakes, the addition of quick excavation drainage to the superimposed platforms of and around the monuments, installation of lightning rods, and so forth. In addition, in the case of exposed megalithic free-standing sculptures and inscriptions, shelters have been built to protect these important attributes of Myanmar civilization; while smaller moveable items have been placed in site museums for protection and conservation.

Although the Department of Archaeology and National Museum already have various forms for the preservation, protection and promotion of our cultural heritage, we are in need of advice, guidance, moral, material, financial and technical assistance from international organizations and institutions, NGOS, INGOS and individual well-wishers.

Pakistan

Ullah Arshad

Introduction

Pakistan possesses one of the oldest socio-political backgrounds, traceable to the Old Stone Age. This Stone Age has been estimated to have existed two million years ago. The areas covered by this earliest Palaeolithic Culture are located in the Potohar Plateau of Punjab, which appears to have been the earliest home of *Homo erectus and Homo habilis* outside Africa. Though their actual remains have not so far been found in these areas, the crude stone tools they used for their livelihood, termed Pre-Soan tools by anthropologists and archaeologists, have been found in abundance. Then, with the advent of agriculture, the stone tools became refined as Neolithic specimens.

The beginning of organised social living is witnessed at Mehrgarh in Kacchi Plain, south of the Bolan Pass in Baluchistan. Some low and high cultural mounds have been recognised as the abodes of this prehistoric community, and these have been scientifically excavated during the past four decades. The discovery of an organised community life in the 7th millennium BC is of immense significance, as very few ancient places in the word have shown such remote cultural antiquity.

The traits of the early agricultural economy so introduced and developed continued during the following two millennia, traces of which have been discovered in different areas of Pakistan. The distribution of these sites, spread over almost the whole of Pakistan, shows that the dissemination of this prehistoric culture was a uniform phenomenon throughout, which developed later on into the Chalcolithic era, when the changeover from stone to copper and bronze took place in the 4th millennium BC.

The dawn of the historic period in ancient Pakistan relates to the time of the Achaemenid Empire. One of the important habitations of this period was located at Taxila. It has been regarded as a classic landmark of those remote days. Later, the Macedonian invasion led by Alexander the Great in 326 BC is likewise a great event. The impetus given to Buddhists by the Mauryan Emperor, Ashoka, and the artistic impulses emanating from the Bactrian Greeks in Central Asia led to the flowering of Gandhara art under the patronage of the Kushanas and their successors.

The period from the 1st century AD to the 4th century AD is a period in the history of Pakistan when sculptural art became the handmaiden to spiritual seal. The decline of Greco-Buddhist culture in ancient Pakistan resulted in the revival of Brahmanism, though Buddhism continued in a much weaker form and its sculptural art degenerated into Tantric iconography, often in the medium of bronze or brass groups belonging to the 9th and 10th centuries AD. The Hindu temples of the Salt Range areas, especially the Malot Temple are built in four-square Kashmiri style. Similarly, a group of Hindu temples at Ketas, and the southern and northern Kafir Kot at Bilot in Dera Ismail Khan are noteworthy

examples of this religious art.

The early decades of the 16th century witnessed yet another political change in the subcontinent, and brought a new religious power to the scene. The progenitor of this dynasty as called by modern historians, the Mughal Empire, was Zahir-uddin-Muhammad Babur. The rule of this imperial power lasted for well over three hundred years when it declined and fell. The imperial Mughal introduced a much refined and sophisticated socio-cultural pattern into society.

Problems and Needs for Protection of Cultural Heritage:

The Department of Archaeology and Museums has so far protected 403 archaeological sites and monuments (Categories I, II & III) under the legal framework known as the Antiquities Act, 1975. Out of these 403 protected sites/monuments, seven important archaeological sites and historic monuments belonging to Pakistan have been inscribed on the World Heritage List by UNESCO, which include the highly prized proto-historic metropolitan site of the Indus Valley Civilisation known as Moenjodaro; the group of highly important Islamic period monuments in the world's largest necropolis at Makli Hills, Thatta; the famous Lahore Fort, which houses highly prized and unique monuments such as Shish Mahal, Naulakha, Diwan-e-Khas, etc.; the Royal Mughal pleasure garden, Shalamar Gardens at Lahore; the unique military Fort at Rohtas in the Jhelum district built by Sher Shah Suri, the great warrior king who dethroned Humayoun of the Mughal dynasty; the Taxila Valley containing three city sites of the earliest historic period of Pakistan; Buddhist sanctuaries (stupas, monasteries, temples, etc.); and the huge Buddhist monastery at Takht-i-Bahi in the Mardan district.

The main source of funding for the proper preservation, conservation, protection and restoration of these sites and monuments is the budget of the Department of Archaeology and Museums; however, the department has also been getting financial as well as technical assistance from UNESCO, UNDP, ICCROM, ICOMOS, and sympathetic countries such as the USA, Japan, Korea, Thailand, Germany, Norway, Italy and the Netherlands.

Over the past several years, the Department of Archaeology and Museums has successfully carried out preservation and restoration works at a number of archaeological sites/monuments such as the Tomb of Jehangir, Lahore; the Tomb of Nur Jahan, Lahore; Rohtas Fort, Jhelum; the Tomb of Asif Khan, Lahore; the Tomb of Shaikh Ali, Gujrat; Baoli at Jandiala Sher Khan, Sheikhpura; Hiran Minar and Tank, Sheikhpura; the archaeological remains at Harappa, etc.

The main factors causing deterioration of the monuments in Pakistan can be classified as follows:

Temperature:

Considerable differences between day and night temperatures are common in tropical areas and the alternation between day and night temperatures affects remains. Since stone is a bad conductor of heat, the forces thus set up are further aggravated by shaded areas and between the surfaces of interior layers. This causes flaking to take place and, to some extent, granulation. The problem of flaking can be observed on the monuments of the 2nd and 3rd group at Makli Hill Monuments, Thatta.

Weather:

Windborne particles are very harmful for the surface of any building, and they are very dangerous when they are large. For example, the velocity of the wind at the historical monuments of Thatta is very high and this strong wind acts as a sand blaster on the exposed surfaces. Here, limestone has been used for the construction of the monuments, and iron in the limestone is rusted by the humidity and then eroded by the strong wind, causing the problem of pitting, which can be observed very easily. The high velocity of the wind itself is very dangerous to structures such as pagodas, towers, canopies, etc. At Makli Hills Monuments, Thatta (in the third group of monuments) some stone canopies have been found collapsed due to the high velocity of the wind.

Light:

Natural light is also injurious to ancient remains as well as historical monuments, because it aids harmful chemical reactions. The light rays discolour pigment that does not have the ability to reflect light wavelengths. The energy is thereby observed and this can break the chemical bonds in materials and cause them to change. Clear signs of such decay can be observed on the walls towards the east and west of the historical monuments at Makli Hills, Thatta.

Dampness:

Humidity and temperature are closely related. The conditions of very high temperature and humidity along with the presence of light encourage the growth of organisms such as bacteria, mould, fungi and algae, or plants like lichens and mosses. A thick layer of black coating can be observed, for instance, on most of the monuments in Makli Hill Thatta, which is due to growth of the abovementioned micro-organisms and plants on the surface.

Air Pollustion:

Sulphur dioxide is the most important pollution problem in stone decay. In fact the dark deposits and black scabs observed on the surface of most of the stone-built monuments in Makli Hill, Thatta are mainly composed of calcium sulphates which are formed by the reaction between sulphur dioxide and calcium carbonate in the limestone. The chief sources of this pollution are domestic coal fires and industrial furnaces.

Rain:

Rain is always damaging to archaeological sites/remains and monuments. Rain assisted by wind causes general erosion of the surface. This erosion is accelerated in a heavily polluted atmosphere. The great concentration of dissolved acid gases and signs of erosion by the rain can be observed on historical sites/monuments.

Conservation and Preservation Activities in Pakistan:

In Pakistan, the problems of conservation and restoration of archaeological sites and remains are no doubt enormous. At present, there are seven archaeological sites and historic monuments in Pakistan inscribed on the World Heritage List, and all of them face serious problems.

The problems at Moenjodaro are unique and difficult to overcome through ordinary means. The most alarming problems are the rising water table, hazardous salts rising into the standing structures through capillary action and from the atmosphere, improper and insufficient drainage systems, etc. The generous assistance of UNESCO and sympathetic countries have greatly helped in overcoming the problems, but despite serious efforts at the national and international levels, elimination of the problems is nowhere in sight. The UNESCO Campaign for Safeguarding Moenjodaro has ended. Sufficient funds are still available and efforts are still continuing to make some breakthrough in finding viable solutions to these serious problems.

The problems of the remains/monuments at Makli Hills, Thatta are no less alarming. Located on top of the Makli hillocks, the Makli monuments, comprising both stone and brick buildings, are exposed to different kinds of threats. Strong winds containing dust particles erode the surfaces of both stone and brick buildings at an alarming pace. People interested in the highly intricate carvings on the stones often take the carved slabs as decorations for their houses. Birds, especially tits and pigeons, harm the buildings due to their droppings. It is not easy to combat these problems.

The conservation of Lahore Fort is a difficult task. These unique monuments are suffering from different problems in various degrees. The unique and highly prized Shish Mahal in particular was suffering from some unique problems which have now been solved with the start of a UNESCO-NORAD-funded project. Both national and international experts have studied the conservation problems and the restoration work is in progress. However, the problem of high humidity inside the monuments with very thick walls has also added to the difficulties of the conservator and managers of the site. Shalamar Gardens is also under threat both from visitors and the hazard of the rising water table around the prized monument. A few years ago the unique hydraulic system of the Mughal period was damaged, but it is now being restored.

Similarly, Rohtas Fort has been heavily encroached upon from inside and a complete village is housed in it. The Department of Archaeology and Museums has tried to restrict further expansion of the village by demarcating the limits of the village. Strong wind makes it difficult to approach the site, the nearby Kahan River, etc.

The problems at the archaeological remains of Taxila are also complex. The wild plant growth is virtually uncontrollable. Both the microclimate and macroclimate of the valley have been disturbed at a rapid pace, which has also adversely affected the monuments.

The World Heritage Buddhist sites of Takht-i-Bahi in the Mardan district, KPK have been preserved, but the problems of conservation are even bigger. The site is not easily approachable and water is not readily available, and conservation material is carried to the site with great difficulty. The poor drainage system has been harming the standing structure. Similarly, the restoration of suitable microclimatic and macroclimatic conditions is also an important need at this time for better preservation and maintenance of the cultural relics in their original environment.

Palau

Meyar Egan Yaoch

Coming from the tiny island nation of Palau, I am blessed and very fortunate to be granted this grand opportunity to come in front of all of you and speak about my island country. Palau is located in the western Pacific Ocean. It is geographically part of the larger island group of Micronesia. We Palauans are fortunate and blessed to be able to call such a beautiful island "Home".

Our island nation comprises sixteen (16) different states, and each state is governed by its own state government. I hail from the great state of Koror, which is the most densely populated island in Palau. I am also here as a representative of Koror state government's Department of Conservation and Law Enforcement to share with all who are in attendance a brief insight on how archaeology and the preservation of cultural heritage is a huge part of our (DCLE) enforcement efforts.

Archaeological Heritage and Conservation: An Insight

As conservation officers we are sworn to protect, preserve, and provide safety for all inhabitants, resources, heritage and traditions of our great state of Koror and the Republic, and within our program we are also sworn law enforcement officers, locally known as the Koror State Rangers.

Our role in the community is deeply rooted within our mission statement. (To maintain peace, order and safety for all residents and properties of Koror, to work with the community to deter illegal activities in Koror state and develop environmentally sound programs in the Rock Island Southern Lagoon Management Area.)

The Rock Island Southern Lagoon Management Area (RISLA) was inscribed as a UNESCO World Heritage Site in June 29, 2012 as a mixed UNESCO World Heritage Site for both natural and cultural criteria, and is the first area in Palau to be awarded this prestigious recognition.

The RISLA is internationally known for its stunning beauty, both above and below the water. As a world class dive destination, the area is an integral part of Palau's cultural heritage, with prehistoric rock paintings, archaeological remains, remnants of the Second World War and a rich oral history. The area continues to be culturally important for its current use by locals visiting the area for recreation, fishing and gleaning. The RISLA also contributes significantly to Palau's biodiversity and provides an important habitat for the country's endemic and endangered species.

The proper management and maintenance of the area is therefore critical for the well-being of Palau's economy, culture and biodiversity. Koror State Government has jurisdiction over the RISL Management Area.

In the past, the traditional leaders have always taken responsibility for the RISLA, governing with customary law and traditional management. However, the increasingly intensive and varied use of the area has created greater and more complex challenges for management, resulting in Koror State Government taking an increasingly active role to improve management of the area. Since the 1960s, Koror State has passed numerous laws governing the RISLA. In 1956, the Ngerukewid Islands Wildlife Preserve (70 islands) within the RISLA was established. Making it the first formally protected area in Palau. In 1999 the entire RISLA was designated as a managed conservation zone. In 2004, the sixth Koror State Legislature passed a resolution to create the first integrated management plan for the conservation of the RISLA's resources. An Executive Committee was appointed by the Governor to oversee the development of the five year Management Plan, effective between 2004 and 2008.

The Rock Island Southern Lagoon Management Area is an extremely important area for Palau, supporting biodiversity, fisheries, tourism and cultural values. The area has been recognized as having universal value, through its inscription as a United Nations Educational, Scientific, and Cultural Organization (UNESCO) World Heritage Site. It is the intent of Koror State Government to maintain these abundant and diverse natural, cultural and historical resources, so they can continue to be used and enjoyed by the community, and so that these values remain strong into the future. The area is an internationally renowned tourist destination, and as such underpins the nation's economy. It is important that the people of Palau benefit from the revenue generated from such use of the area, and all management is designed with the community in mind.

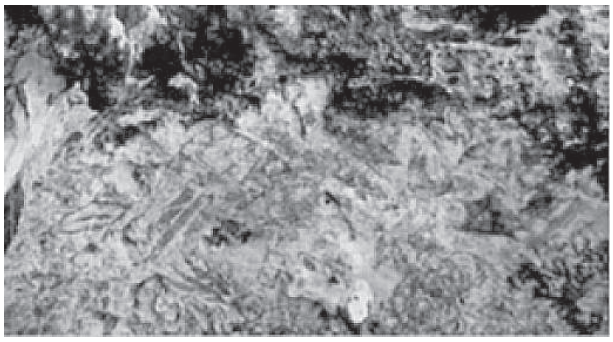
The Koror State Department of Conservation and Law Enforcement (KSDCLE) is solely responsible for the coordinated management of the Rock Island Southern Lagoon Management Area, including enforcement and surveillance.

Within the Rock Island Southern Lagoon Management Area there are archaeological sites that have been preserved by our forefathers, grandfathers and fathers, and now it is our responsibility as conservation officers to carry the torch of preservation and protection of our cultural heritage.

RISL is an area with a rich cultural history, and holds important cultural value for Palau. The Rock Islands were inhabited for centuries, and the people of Koror and other areas of Palau can trace their ancestry back to the area. The Rock Islands contain many cultural sites and features that are hundreds to thousands of years old, including the remains of stone villages, cave burial sites, and rock art. The cultural importance of the area was recognized with its inscription as a UNESCO World Heritage Site. RISL also played an important part in the more recent history of WWII, with many historic relics remaining from battles fought in the area.

The Koror State Department of State and Cultural Affairs (KSDSCA) is responsible for protecting and preserving cultural and historical properties/features within Koror. A permit and fee system acts to restrict all access to historical and tangible cultural properties. However, much work needs to be done to protect and preserve RISL's cultural and historical features and sites, particularly from threats

such as environmental weathering, natural disasters and human activities. Under this Management Plan, the KSDSCA will undertake management actions that will lay the foundation for future preservation work, including the creation of State registries, plans and protocols for managing these properties. It is important to develop these components, and build the capacity of the KSDSCA, in order to undertake more specific rehabilitation and preservation action plans in the future.



Ulong red-painted rock art.
Photo by Clark/ Reepmeyer, ANU.

The preservation of traditional cultural sites and features will be an important part of the management of the area in the coming decades. Although most cultural sites/features have been mapped and registered with the national registry, it is important to develop a Koror State registry of sites, so that the State can better control and manage cultural properties. The Management Plan calls for the creation of such a State registry, and a timeline for registering key sites. Many cultural sites/features are also in critical need of rehabilitation, and currently there has been little work done in this area. It is important that these sites, which link communities to the past, are included as a management priority, so that they can be preserved for future generations to appreciate.

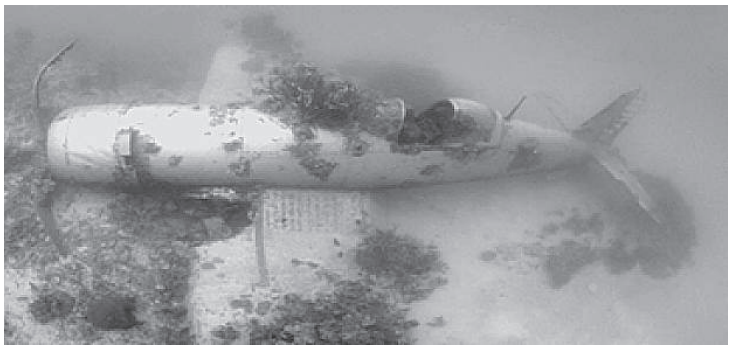
Ulong stone work village defensive wall.
Photo by Clark/ Reepmeyer- ANU.

The strength of the community's cultural connection to the area is also something that managers are keen to enhance, for many people still use the area for culturally important activities such as fishing

Palauan legend. Painting by Adora Hideo, courtesy of PCS.

and gleaning, and even though people no longer live on the Rock Islands, it is felt that some of the cultural values, stories and traditions of the Rock Islands have become lost or less valued by the community over time. Management actions seek to assess and enhance the way people with traditional ties to the RISLA value the area, through school programs and other educational campaigns. Koror State will also work to compile and share oral traditions from RISL as part of these awareness campaigns.

It is also important to preserve and manage the WWII historic relics within the area. Limited work has been done to identify, register, and protect these historical relics and sites. Management actions in this plan will focus on developing a State registry for historical features, as well as protocols and plans for protecting and handling relics. Historical relics from WWII include unexploded ordnance, which pose significant safety issues for both locals and visitors, and require plans to deactivate and remove any threats.



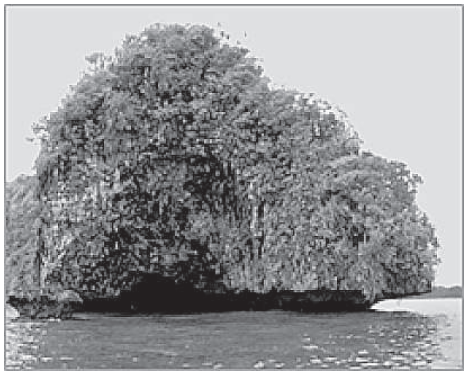
The Rock Islands and the surrounding marine areas that make up the RISL Management Area are an integral part of Palau's cultural identity, both in the present day and historically. Many families continue to visit RISL to fish, glean, relax, and barbecue on the white sandy beaches, just as past generations did. The area also provides a source of local coconut fronds and pandanus leaves for traditional handicrafts, as well as inspiration for local artists who interpret the stunning scenery and wildlife through traditional and modern art forms.

The Rock Islands, or "Ocheall," meaning "Rocky Place," hold clues to Palau's pre-history and migration history, through prehistoric rock paintings, archaeological remains of abandoned settlements, and a rich oral history. The people of Koror and other areas of Palau trace their ancestry to the Rock Islands, and the oral histories of these areas recount the movement of people from the Rock Islands throughout Palau.

The Rock Islands have been occupied by people for thousands of years, with evidence of humans at Ulong Island over 3100 years ago. The earliest human settlement in the Rock Islands is believed to date back to 650 AD, at Uchularois in the Ngemelis Island Complex. However, permanent villages in the RISLA were first established around 1200 AD. Rock Island villages were gradually abandoned from 350-100 years ago, due to dryer climates and economic difficulties. (Nero 1997)

Ancient stonework villages and features showing the history of Palauan communities throughout the ages can be found on many of the Rock Islands. Major stonework sites include stone platforms, terraces, walls, wells, and canoe jetties. A variety of ancient deposits have been found, including shell and stone tools, ornaments, shell rings, ceramics, food shells, and fish and animal bones. Recent studies have shown that one of the oldest cultural sites in Palau is located at Ulong Island, with deposits dating back 3000 years (Clark 2005). Human bones from a cave burial site on Chomedokel Island have been dated to range from 200 BC to 900 AD, indicating the long history of cave burial in the Rock Islands. Caves and shelters were used for human burials in the Rock Islands for almost 2000 years.

Oimaderuul Beach restored stone well. Photo by Clark/ Reepmeyer, ANU.



Cave entrance on Chomedokel Island, which was used for cave burials over hundreds of years. Photo by Clark/Reepmeyer, ANU.

Human remains at Ucheliungs cave. Photo by Jayliavin Adelbai.

Prehistoric rock paintings can still be found throughout the RISL management area and the in the eastern part of Koror Island as well. The paintings at Ulong Island (RISLA) are believed to be some of the oldest art sites in the Pacific (Clark, 2005).

The Rock Islands were also visited by people from the neighboring island of Yap, who traveled roughly 250 miles to carve large stone money disks from aragonite, a type of limestone common in the Rock Islands. The remains of stone money quarries and stone money dating back to around AD 1500 can still be found in the RISLA.

Ngeremdiu Ya

The RISLA also contains relics from more recent historical events involving other countries. One of the first recorded encounters with Europeans took place at Ulong Island in 1783, when Captain Henry Wilson and the crew of the East Indian ship “Antelope” took refuge on the island after being shipwrecked on a nearby reef (Osborne, 1966).

Jungle-covered ruins of a military base, built during the German occupation of Palau, can be found on Ngeruktabel Island, which is the largest Island within the RISLA. During World War II, Koror and the Rock Islands became an important area with fighting between Japanese and American forces, and so there are many World War II relics spread throughout the area, including the remains of Japanese lookouts, unexploded ordnance, abandoned equipment, gun emplacements, and sunken ships and planes.
The Island of Koror and the RISLA has two hundred and fifty (250) Cultural Sites that have been identified and surveyed, twenty three (23) of them are Registered Sites, and two (2) out of the sites have been restored. The management and preservation of all known sites and sites discovered in the future rests solely on us (K.S.G/DCLE) as we take on the role of managers of sites in Koror State, the Rock Island Southern Lagoon Area and the Republic as well. Much still needs to be done to enhance the conservation, preservation and protection of archaeological, cultural and historical remains within Koror State, the RISLA and the Republic of Palau as a whole.

I am very happy and to be able to participate in this training. All that we learn and experience throughout our stay here in Japan—learning, interacting and sharing with one another insights and experiences in the management, preservation and protection of archaeological remains in our respective countries—will give us a sense of how they are a huge part of our cultural heritage and identity.

This opportunity allows me to gain a broader understanding of how to better preserve and protect all archeological remains in Koror State, the Republic of Palau and the region. This will give future generations an opportunity to experience all the sites in my island country—registered or not, found or yet to be found—and also give them a sense that they are the managers and everything that is located and placed within any site is for them to conserve, preserve and protect for future generations.

Sri Lanka

Weerakoon Mudiyanselage Nirupa Priyadarshani

Conservation of Stupas and the objects found in Excavations

Introduction

Sri Lanka is a tropical island with 2500 years of written history, influenced by its multi-cultural and multi-religious neighbour, India. But the introduction of Buddhism to the island in the 3rd century BC, during the reign of Emperor Asoka of India, can be identified as a most remarkable historical event, when considering the development of art, architecture and all other trades and traditions of the country. Arhant Mahinda, son of Emperor Asoka, introduced Buddhism to Sri Lanka, and his daughter, Arhant Sangamitta, arrived in Sri Lanka with a sapling from the sacred Bo Tree of Bodhgaya, which had sheltered the Lord Buddha at the time of his enlightenment. She was accompanied by group of men who were skilled in 18 different trades, and it is believed that thereafter there was an awakening of the country in various ways. Although a civilized culture had already existed for thousands of years, a remarkable upturn in art, architecture and various other trades occurred with the arrival of Arhant Sangamitta.

Anuradhapura was the first capital city of Sri Lanka, which it is considered to be a well-planned city with a proper zoning system.

After Anuradhapura, Polonnaruwa became the capital, which was little to the southeast of Anuradhapura, where it was believed to be safer from Indian influence. Thereafter the capital was shifted farther south to Yapahuwa, Dambadeniya, Kurunegala, Gampola, Kotte and Kandy. When the Portuguese arrived in 1505, the capital was Kotte. The Portuguese were able to capture some coastal areas, but they had to surrender these to the Dutch in 1640, which gained the support of the local king. In 1796, the Dutch handed over their areas to the English, and in 1815, the English were able to conquer the entire island after signing the Kandyan Convention.

With all the above mentioned influences, and especially the colonial rule for about 500 years, various social, economic, cultural and religious factors have been affected and changed over the last 2000 years. As a result, on the island of Sri Lanka there are different types of heritage structures and remains to be protected for the sake of future generations.

Archaeology in Sri Lanka

The British rulers created the Department of Archaeology in 1890, and it was legally enacted by the Antiquities Ordinance in 1940. Throughout the last 125 years, Department of Archaeology has played the role of the apex body of archaeological protection in the country.

The Department of Archaeology conducts various kinds of projects, from explorations, excavations, architectural and chemical conservations, and maintenance of sites and monuments. In addition, the Department of Archaeology conducts studies on all types of inscriptions and numismatics. A number

of publications are issued on the works carried out, in order to raise public awareness.

The Traditional Approach

As a living religion, Buddhism plays a major role in society, and even under the Constitution the government is required to protect Buddhist traditions. Therefore the stakeholders in Buddhist religious places, the monks and the community all participate in various religious activities.

As stated in Buddhist texts such as Vinaya (the code of discipline) and other teachings of Lord Buddha, it is said that dilapidated shrines or buildings are not suitable for living or meditational purposes. In addition, the Buddha has given permission to monks to engage in repair work to their buildings, even though they were normally prohibited from engaging in much of the work that laymen do.

Therefore, keeping Buddhist remains in a ruined condition is not acceptable within the Buddhist community, as the expected outcome in the spiritual mind is not achieved with ruined structures. Especially when, in the case of conservation of a stupa, worshiping relics is a difficult task to convince the people and come to a conclusion which is acceptable to the whole.

There are three types of monuments within a Buddhist temple complex. The first and most important is the Shaaririka, which means the "Bodily" Shrine. The Stupa is the main shrine where the bodily relics are deposited. The other two are the Paribogika and Uddeshika, or the "Consumed" and "Represented". In most places the "Bo Tree Shrine" is the consumed shrine, under which the Buddha became enlightened. The statue is the represented shrine, as the Buddha statue represents him as being alive.

The Challenge

The Antiquities Ordinance ensures the protection of all types of antiquities, mainly tangible antiquities, which is similar to the laws and practices in India, Pakistan, Bangladesh, Nepal, Sudan and many other countries which functioned as British colonies. Although it gives more than adequate protection for antiquities, its ability to protect heritage is debatable. In these Asian and African countries, heritage is not limited to antiquities which are interpreted and protected by existing laws. Heritage is a combination of art, architecture, culture, religion and economy in these regions. Even industry, agriculture and trade also contribute to heritage in different ways. Therefore, when considering the protection of heritage, all these aspects must be considered. As a country with strong living religious traditions associated with Buddhism, and where the majority of archaeological remains are related to Buddhism, protection of heritage in Sri Lanka, in the sense of conservation and restoration, is a difficult task. In that sense, decision making in regard to most of the issues is a challenging task. The community associated with the archaeological remains often has different needs when it comes to restoration or conservation.

Stupa

The Stupa at any Buddhist temple is important in two ways. Firstly, as a place where bodily relics are kept, it is worshiped and honoured ardently. Secondly, it is the main attraction due to its scale

within the temple complex, creating a spiritual feeling in devotees' minds due to its architectural design. The Stupa is the tallest monument constructed within a temple complex, and most of the time it is constructed at the highest elevation of the complex to achieve greater prominence. And being a depository of bodily relics, it is believed that there should not be any other place at a higher elevation.

To obtain the maximum spiritual feeling together with the Buddha's teachings, the entire Stupa is plastered and whitewashed. This massive white monument creates the emptiness of life, or the Samsara within a devoted Buddhist's mind. That feeling leads to the final goals of the teachings of Buddha. Therefore, the white dome is the most important feature in a Buddhist Stupa.

Fig. 1 Ruwanweli Stupa

Conservation Practice in Sri Lanka

Conservation of historic monuments in Sri Lanka is based on globally accepted charters, especially the Venice Charter. This doesn't replace the existing Antiquities Ordinance, but conservators have agreed to follow the principles stipulated in the Venice Charter. Therefore, there are some standing orders within the Department of Archaeology for conservation based on the Venice Charter. Principles such as minimum intervention is practiced in these standing orders, and as a result most of the ruined monuments are not conserved to their original condition. The remains of buildings that have been ruined for hundreds of years without major portions of their superstructure are conserved only to prevent further decay. But monument buildings that have a superstructure are conserved to their original condition, with the removal of later additions and unnecessary alterations.

But when it comes to the conservation of a Stupa, the issues are different. Many Stupas are also conserved according to those principles, and the larger Stupas are often conserved only to prevent further damage. But when considering the other heritage aspects described above, a Stupa is different from other monuments, due to its sacred and spiritual importance. Within a Buddhist temple complex, the Stupa is the main worshiping element, which represents the living Buddha. Even in the visual context, the Stupa plays a major role in strengthening the religious environment in a Buddhist temple complex. With the size and height of a Stupa, a certain value is added to the temple in different measures.

Therefore, the Buddhist community, consisting of monks and other people associated with the religion, normally take a different view to the accepted conservation principles. Even throughout history, the kings always restored and developed the Stupas, considering this as one of their major responsibilities and duties. It is said that the first Stupa built in Anuradhapura, after Arhant Mahinda, the Thuparama, was restored 33 times by different kings, as per the Mahawamsa, the Great Chronicle. Therefore, following the same practice, the people and their leaders stand together with the monks to continue the same practice even today. As a result, disagreements arise between the conservators and the community in the decision making process.

Decision making in regard to conservation in a religious setting is a very critical task. However, the Antiquities Ordinance, the Venice Charter and the other related principles alone do not help. The issue must be considered from a wider perspective, considering all the factors related to the heritage. In the present context, instead of kings, politicians always attend to such matters. This cannot be considered to be wrong, as they consider it to be one of their responsibilities to the community.

In some cases this political interference is very strong, depending on their community involvement. Some cases are even brought to the attention of the highest political leader.

Therefore, the decision making for Stupa conservation must be based on different aspects, securing the protection of the monument. There are Stupas of different types and in different condition throughout the country, which are in Buddhist temples. But it is well understood that only completed Stupas are used for religious purposes, although not much attention is paid to the other ruined and preserved Stupas when it comes to religious rituals.

Relics in a Stupa

On the other hand, the Stupa is venerated only because of its contents, which are the relics deposited inside. Without these relics, a Stupa doesn't become a place of worship, although its architectural appearance is important. In Sri Lanka, Stupas are built with fired bricks, and the world's tallest brick structure found in the country is a Stupa, Jethawana Stupa in Anuradhapura. Undoubtedly, it's a masterpiece of engineering and architecture. But the relics kept inside it causes it to be worshiped. The spiritual feeling comes with the completed white washed bubble finished with a pinnacle of precious gemstone.

Therefore, in conservation, proper respect to the relics must be shown. Bodily relics are not subject to any scientific research due to their sacredness. Scientific and technological research does not strengthen religious and spiritual feelings as they are based on belief and dedication. In that sense, even conservators tend to follow the traditional rites and rituals when they find relics in the excavations and conservations.

The case study described below tries to explain how the objects and relics found in a Stupa excavation decide the conservation of both the Stupa and the objects.

Fig. 2 Jethawana Stupa

Case Study

The Nawagala Stupa, Katiyawa, Eppawala, Anuradhapura District, North Central Province, Sri Lanka: Background of the Project

The Stupa in Nawagala Temple has been in a ruined condition for hundreds of years, but it is worshiped by the Buddhist community in surrounding villages in the belief that bodily relics of the Buddha are kept inside. The ruined mound is about 18 m in height but it is assumed that the original

Stupa was more than 25 meters in height with the pinnacle. The temple complex consists of several other buildings that were added later: an Image House, a Preaching Hall, a Bo Tree Shrine and a priests' residence.

Fig. 3 Nawagala Temple

The temple land can be described as an island in a paddy field. It is a flat terrain and the Stupa itself is therefore as tall as possible in order to obtain the desired sacredness. There are many elements of ancient buildings on the land, which can be identified as remains belonging to the Anuradhapura Kingdom period.

The community related to the temple is an agricultural community engaged in paddy cultivation, and therefore, they always gather at the temple during their free time. According to paddy cultivation traditions, they have enough free time to engage in social and religious works and therefore the Temple Development Society is strong. Three years ago, the Temple Development Society decided to start a Stupa renovation project and this was notified to the regional archaeological office in Anuradhapura. The Department of Archaeology decided to commence the work especially due to the enthusiasm of the villagers. A number of discussions were held at both the temple and the office.

Fig. 4 Nawagala Stupa before excavation

The Temple Development Society agreed to provide all the material and labour needed for the project and the Department of Archaeology was to provide excavation and conservation expertise.

Excavation

The excavation team of the Department of Archaeology commenced the excavations and the villagers provided labour on a voluntary basis. Food and lodging for the skilled staff of the Department of Archaeology was also provided by the villagers. The excavations started with the patronage of several politicians representing the local, provincial and national level. Several religious rituals were carried out to obtain blessings for the task.
In the initial stage of the excavation the outer surface of the Stupa mound was cleared. All the trees, plants, bushes, loose bricks and debris soil were removed carefully to recover the brick construction. Thereafter the excavation started in the first quarter of the Stupa, and different construction layers were discovered.

Fig. 5 Nawagala Stupa after excavation

As in most of the Stupas in Sri Lanka, the later modification and alteration layers were recovered. Then the excavations were extended to the other three quarters. The most important were the relic chambers found in the excavations in the outer surface of the dome. It was a tradition to keep the relics in the middle of the dome. But here it was a new experience to find several relic chambers in the outer surface of the dome. Inside the 23 relic chambers found, there were caskets made as models of the Stupa: two gold caskets, ten marble, five ceramic, two glass, and seven made of stone. The glass caskets were believed to have been made of imported materials as this type of glass has not been found in earlier research. There were unidentified substances in those caskets wrapped in gold leaf, and these were believed to be relics.

The two gold caskets provide important evidence on the shape and design of the Stupa, as they are very descriptive. All the elements of the Stupa point to it belonging to the 2nd century BC. But the other caskets show later period designs. Therefore, it is proved that the Stupa was modified and altered in later periods. It was found that the earliest Stupa was based on a different central point that does not match the later period additions. Even the bricks found in the excavations were analysed, and it was proved that there were different periods of construction. Thereafter, the excavation group started excavations from the summit of the Stupa, which was believed to have been excavated in an earlier time, most probably by treasure hunters. The loose soil and the pit on the summit provided evidence of a later period excavation, but the villagers assured us that no treasure hunting had occurred during last 200 years as per the information given by the senior villagers. Therefore, it was difficult for them to be convinced by the excavations from the summit, but started to remove the loose soil.

Fig. 6 Golden relic casket

This excavation was extended down to the inner chamber of the Stupa, but this was not acceptable to the community. Even the conservation team of the Department of Archaeology was of the opinion that they should not excavate down into the dome, as it would make the structure weaker. Even though it was not safe for the excavation team to work down into an 8 m-deep pit, they continued and found the inner chamber with painted walls. There was a stone casket inside the chamber called the “Mahameru”. This casket was removed for the research purposes, and all the findings were documented in different ways.

Decision Making

Even before the completion of the excavation, a huge debate was occurring on the restoration and conservation works. There were two groups, both among the community and the professionals in the field. There were two issues to respond to. First was how to conserve the Stupa, and the second was what to do with the objects and relics found.

How to Conserve the Stupa

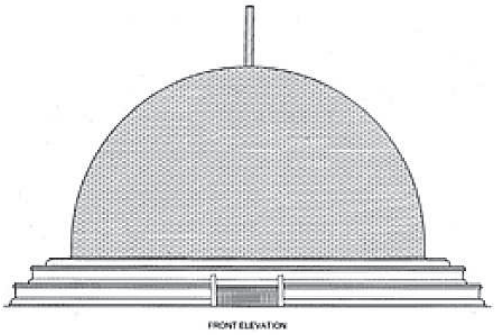


Fig. 7 Proposal 1

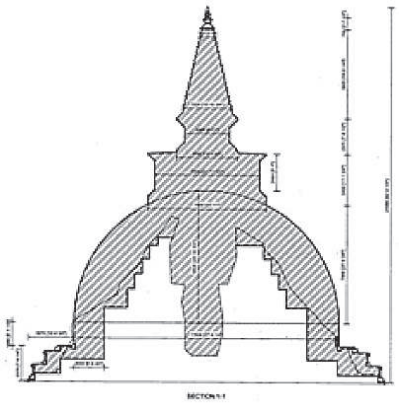


Fig. 8 Proposal 2

Considering the excavation details and the Stupa-shaped relic caskets, it was difficult to come to a conclusion on the final shape of the Stupa for conservation. The excavation revealed information on the different construction layers belonging to different periods. Therefore, there was a debate on the actual shape of the Stupa. Two proposals were prepared based on two designs. Several discussions were held at the temple, and at the Archaeological Department. Also, several site visits were made by officers of the Department to gather on-site information. At one point the temple community requested conservation of the Stupa as per proposal 1 (Fig.7), but after two months they changed their minds and wanted to do it as per proposal 2 (Fig.8). The situation was difficult and sometimes there were heated arguments among the parties.

What to Do with the Relics and Artifacts

As stated above, there were several caskets with relics found in the excavation, and it was difficult to decide what to do with them as the Director General of Archaeology had decided that these caskets were very important and so should be exhibited in the National Museum for public viewing. There was a dilemma regarding the relics as they were not expected to be exhibited in the Museum. But the relics inside the caskets, wrapped in gold leaf, could not be exhibited as they are extremely sacred and it is believed that if they are not properly venerated, they would disappear. Therefore, people were of the opinion that all the caskets must be re-deposited in the same way together with the relics, so that they could be worshiped and properly honoured.

On the other hand, the sacredness of the Stupa is directly based on the relics. The Stupa itself is just a heap of bricks when there are no relics inside. Therefore it was essential to keep the relics inside the Stupa to maintain its sacredness.

Fig. 9 Marble caskets

In parallel to this, the people's position was that all the artifacts and relics belonged to the local people, and they therefore objected to moving them to Colombo National Museum, which is 200 km away.
Therefore, there was a request from the villagers to construct a site museum to exhibit them, but they also strongly believed that the relics must be kept inside the Stupa and placed in new caskets.
But the proposal was not encouraged as there were insufficient funds to construct a site museum, and also because it was difficult to ensure the safety of these valuable artifacts. And also, as the Nawagala is situated very much inland and far away from the pilgrims' route to Anuradhapura, it was understood that there would be fewer visitors to this place from other parts of the country, unlike the National Museum.
Therefore, it was finally agreed to re-deposit most of the caskets with the relics inside the Stupa and to exhibit only the caskets of most outstanding importance in the National Museum. This was agreed to by all the parties. First, however, all the objects were documented through drawings, photos and descriptions. Steps were also taken to conserve the objects chemically, but again, it was difficult to bring them to the central laboratory in Colombo, as the local people thought they would be lost or damaged. Some thought that if they allowed them to be taken away to Colombo the objects would not be returned to their village. Therefore, it was agreed to conserve them on-site and so the chemical conservators had to visit the site with their equipment. A temporary on-site laboratory was established and the objects were conserved carefully. It was proposed to do a dating test on the organic substances that were believed to be relics, but this was not agreed to by the community. They were undoubtedly believed to be the bodily relics of Buddha, and therefore no scientific dating test was carried out.


Fig. 10 Glass casket

Objects in the Museums

There are about 28 site museums operated by the Department of Archaeology, apart from the five main Museums operated by the Department of National Museums. These site museum's exhibit objects found at the same site and adjoining sites in close vicinity. At present they just exhibit objects in display cabinets and on shelves. There are no qualified curators looking after these places; only one responsible officer and some support staff. All management decisions are made in Colombo, and the chemical conservators come from Colombo as well. Also, the indoor climatic conditions are not controlled, or at least there is no air conditioning or dehumidification. Being a tropical country with varying climatic conditions, the fluctuating temperatures, varying rainfall and high humidity affects objects made of different materials. There are objects made of gold, silver, bronze, brass, ceramics, clay, wood, iron, glass, marble, granite, etc. The conditions affect the objects differently, and so they are treated in different ways.
In addition to that, the security of objects is ensured by two primary methods. The first is strengthening the structural security. That is, construction of strong walls, installation of safety doors and iron grills, etc. But there are many incidents in which those places have been broken into and theft has occurred.

The second method is to employ more security personnel. Among the official cadre of the Department there are security guards and watchers employed in those places. But it has been found that the efficiency and dedication of those people is often inadequate.

In view of the present-day incidents involving theft, vandalism and robbery, installation of automated security systems such as alarms and security cameras may be more useful, although these are expensive in the installation stage. But as a long-term investment, such systems would more economical than employing people when considering their salaries and the pensions to be paid after their retirement.

Therefore, it cannot be stated that keeping and exhibiting objects within site museums is safe for many reasons. To overcome this situation, all existing museums must be re-organized with suitable display, monitoring and security systems. And for museums to take advantage of the expertise provided by trained curators is most important.

Conclusion

Objects play a major role in archaeology. They give more than enough information about history, and help in conservation and restoration through providing evidence. They strengthen religious and cultural systems. They create social harmony in Asian communities. But the concept of belongingness may cause disputes with professional conservators.

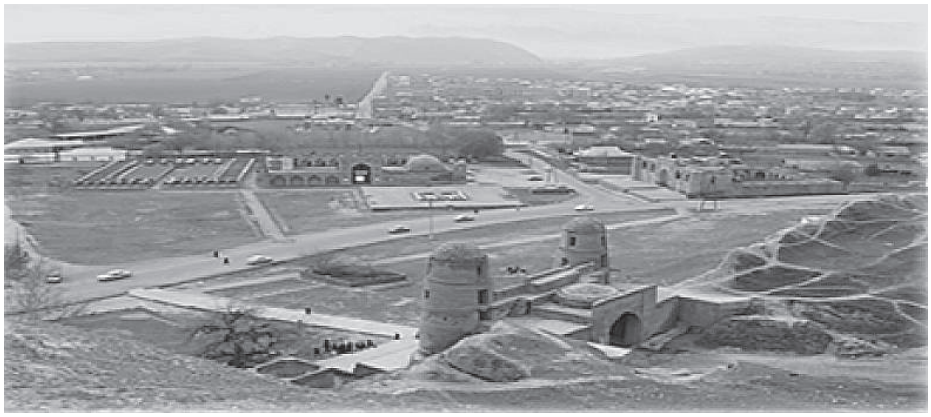
The professional concept is to display the objects to the world to exhibit the talents and creations of our ancestors. But often the community believes that the objects must be kept in their original location to continuously honour them. They believe that as they have been worshiped and honoured for generations, the sacredness of the objects exists only with the original location and system.

Parallel to the fact that the professionals have failed to ensure the safety of the objects that are kept in the museums, it is also believed that the required honour is not given in the museums. Therefore, conservation and exhibition of cultural objects is presently facing a critical situation in Sri Lanka.

Tajikistan

Abdulloev Umar

The Ancient Town of Hisor



The ancient town of Hisor has a rich history, reflecting the history of the past thousand years not only in the Hisor Valley but also in the whole of South Tajikistan. The first sites of Neolithic culture (the 6th to 4th millennia BC) were found in this valley, later named Hisor. In this vast river valley agriculture was developed and nomadic cattle breeders of the late Bronze Age (end of the 2nd millennium BC) pastured their herds on the slopes of mountains. In the early Iron Age (beginning of the 1st millennium BC), Hisor Valley was an integral part of the Avesta region of Bactria which was a member of the Achaemenid Empire in the 6th to 4th centuries BC. The beginning of urbanization (emergence of towns) and emergence of the city of Hisor as a cultural centre of this agricultural oasis can be traced back to this period. In the following historical periods it was the political, economic and cultural centre of the Hisor Valley and all of South Tajikistan. Ruins of ancient buildings reflecting the millennial history of the Hisor Valley as a component of the history of the Tajik people rest under the hills of Hisor Fortress and the populated part of the site of ancient settlement. They await investigators for comprehensive research. A large number of archaeological materials and written original sources are evidence of the rich history of the Hisor site of ancient settlement. The ancient town of Hisor is situated at a distance of 7 km to the southeast from the present-day district centre. It consists of a number of parts. The best of these are the remains of Hisor Fortress. The fortress itself consists of three parts with the main gate in the southeast facade. A wide square behind the gate of the Darvozakhona unites these parts. To the right of the gate is situated an elevated part in the form of a truncated pyramid. The Citadel, or Kuhandiz, which was the palace of Hisor bek, has been located at the top of the hill since olden days.

The second part, called the Ushturkhona (Stable), is situated to the left of the gate. It measures 180 m x 80 m (12 hectares including the Darvozakhona area), and 60 m high. From the southern and western sides it is encircled with a defensive wall.

The third part is the Askarkhona; it is the lowest one at 350 m x 150 - 160 m (6.5 hectares). It is in the form of an irregular rectangle. The Askarkhona is the south-western part of the fortress. On three sides it is encircled with a defensive wall. The Askarkhona is separated from the Darvozakhona with a wide wall, which has its own gate. There is a free-flowing spring (*havz*) in its south-western part near the defensive wall. On the face of it each part looks like an independent fortress but in reality, all parts make up an integral defensive system (the total area of Hisor Fortress is 25 hectares).

The city proper has right-angled form running from northeast to southwest. The fortress-citadel is situated in the centre of the site of ancient settlement. The total area of the site of ancient settlement is 426.5 hectares. The length of the defensive wall built of pakhsa (wattle and daub) is 5 km; the present-day height is up to 5 - 7 m. In the Middle Ages the city had gates on four sides: Darvozai Khoki Safed − eastern, Darvozai Shakari − southern, Darvozai Changob − western and Darvozai Chashmai Mohiyon − northern. It is possible that the northern gate was considered the main gate of the city. At the foot of Hisor Fortress in the 15th to 16th centuries there was a city square, or registan, and this area features architectural monuments from different times. Within the territory of the city only some buildings remain from past architectural ensembles such as administrative, religious and dwelling complexes. Buildings still in existence include the following: Gate of Arch, Madrasah of Kuhna, Madrasah of Nav, Caravanserai, Mosque of Sangin, Makhdumi Azam Mausoleum and Tahoratkhona. They have been restored now. The research work on the site of ancient settlement of Hisor and its environs began in 1925 and it has continued to the present day with short breaks. The following scientists have contributed heavily to the investigation of archaeological and architectural monuments of Hisor: M. S. Andreev, M. M. Diakonov, L. S. Bretanitski, A. P. Okladnikov, B. A. Litvinski, E. A. Davidovich, A. M. Mukhtorov, E. V. Zeimal, T. M. Atakhanov, A. l. Abdulloev, P. T. Samoilik and architectures−restores Z. Khasanov, N. Valiev, N. N. Broos, H. Rahmatulloev, T. Khvorykh, and S. Repin.

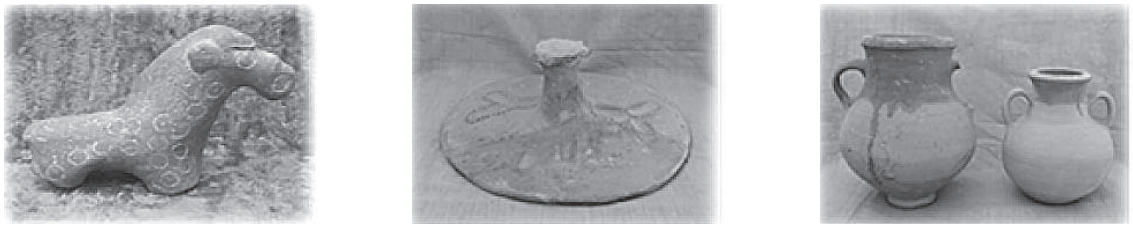
The territory of Hisor and its environs were developed as long ago as the Neolithic epoch. In the hill of Tepai Ghoziyon in 1946 a Neolithic site was found by academician A. P. Okladnikov. It contained characteristic stone tools made of river pebbles. By all indications this culture differed from other Neolithic cultures of Central Asia. In the following years sites with such tools were found all over South Tajikistan, and this type of Neolithic culture became to be called Hisor one. Pebble stone tools were found in the Askarkhona area too. This is evidence that the environs of the spring were occupied in that epoch.

Remains from the Bronze epoch (end of the 2nd millennium BC to the beginning of the 1st millennium BC) including seven graves were found in various locations during excavation of the site of the ancient settlement. Five graves were excavated within the burial ground of Tupkhona, and two graves were excavated respectively within Khoki Safed and Ushturkhona. Accompanying implements consisting of ceramic vessels such as pots, coppers and saucers made by a method of model forming were only present in three graves. They are typical of the cattle-breeding tribes of the late Bronze era.
The next historical period (the 8th to 9th centuries BC) is represented by the ruins of ancient structures

and numerous objects of material culture indicative of the town planning skills of the inhabitants.
The strata of the Bactrian and Achaemenid epochs were revealed in the Ushturkhona, Askarkhona and Tupkhona. Archaeological finds from these strata are represented by splendid ceramic hand-made goods characteristic of the site of ancient settlement, which was the cultural centre of the agricultural micro-oasis of Hisor Valley.
In the history of Central Asia and the Tajik people, the next stage comprises the Antiquity and Hellenic periods. This stage began from the time of the conquests by Alexander the Great and after his death in various states, including Greece and the Bactrian state.
In the Antiquity epoch, important political, social and cultural changes took place, both throughout all of Central Asia and in the Hisor site of ancient settlement and valley. They consisted of expansion of the territory of the city and the development of new branches of handicrafts.

Objects of the life and art of the Kushan period

In Greek historical and geographical sources, north-eastern Bactria (of which Hisor Valley was part) was named Pareitakena under the administration of a satrap. In Chinese historical chronicles mentioning the history of the formation of Kushan state, the region was named Su-man or Shuan-mi and was the capital of some Yue-chi princedoms. According to Chinese travellers, the territory of the princedom stretched for four days' journey from north to south. It was named Shuman and Hisori Shodmon in Arab and Persian chronicles and guides.



Ceramic handicrafts of the 5th to 8th centuries

The Antiquity period is represented by remains of buildings, burials and splendid fine ceramic handmade goods, including objects of art and the plastic arts. They reflect the political, social and cultural changes which took place in that period. The found objects of art and adornments made of bronze and silver are silent witnesses to the former trade relations of the city of Hisor. Hisor was situated on one of branches of the Silk Road. This branch lay along the Valley of Plenty in the 2nd to1st centuries BC.

The 5th to 8th centuries was a period that saw the disintegration of the slave-owning system and the formation of a feudal system in the states of Central Asia. The process was aggravated because of conquest by the Hephthalite tribes, which created a large empire founded on military power (510−567). In the middle of the century, Central Asia was invaded by nomadic Turkic tribes (567−657).

The conquests had political, economic and cultural importance. This period was characterized by the independence of some districts, which constituted large feudal properties with good internal and external trade relations. Hisor Valley was one of these districts with a central site of ancient settlement where town planning skills typical for the Early Middle Ages were developed. The valley became a political and economic centre with the development of handicrafts. The Hisor feudal possession went by the name of Shumon and it was considered one of the largest feudal principalities in South Tajikistan. Chinese sources provide evidence that Buddhist temples and clergy were an integral part of the city.

Objects of the life and art of developed middle ages and metal Handicrafts

The territory of the city was enclosed with a new defensive wall reinforced with towers. The history of Hisor in the Developed Middle Ages is documented by a large number of written original sources which reflect the political, economic and cultural life of the city and valley.
In the periods of governance by the Samanids it was a centralized state with well-coordinated state machinery. Within the territory of the state, the process of forming the Tajik nation was completed. It created conditions for the economic and cultural development of feudal possessions, not only in the central cities, but also in the outlying districts.

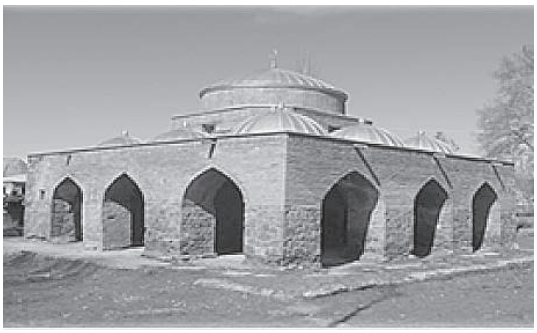
The period of the 11th to 16th centuries was accompanied by stormy political events and cultural changes for all of Central Asia, including the city of Hisor and Hisor Valley. The city was ruled by many dynasties, which changed one after another. Hisor was a possession of the Kara-khanids, the Ghaznevids and the Seljukids. In the period of the Mongol conquests, Hisor and South Maverannahr were members of the Timurid Empire. At that time Hisor had developed ceramic handicrafts and weaving, and grew saffron.

The Arch Gate is situated in the southern facade of the Fortress and turned towards the registan, the main square of the city. The Arch Gate was built in the 16th century to replace a destroyed gate of the 14th to 16th centuries, as remains of the old gate were found inside the new gate. The gate is of high portal construction 4.5 m wide and 16 m high. It was built on a high foundation and was flanked with round towers on either side. The towers, which narrow upwards, are crowned with cupolas with loopholes. The gate has a cupola overhead cover. Guard premises are situated near the towers. The gate was restored in 1974 - 1976. There are some remains from the previous gate, which is right behind the first one. These remains are from the 10th century (and need special conservation).

The Arch Gate

The Arch Gate - the inner side and the remains of the previous gate

The architecture of the Mosque of Sangin is of the central and cupola type. Its space composition is realized by transformation from a square central part to a cylindrical drum crowned with a cupola. The mosque has a cruciform composition (chortok) formed by deep arched bays on four sides of a square under the cupola (5.5 x 5.5 m). One of characteristic features of the mosque is the presence of four resonators in the brickwork under the cupola in the form of ceramic pitchers without bottoms. The resonators serve to improve the acoustic qualities of voice. There is a mehrob (arched bay) in the south side of the mosque. It shows the direction to Mecca. To the right of the mehrob is a stepped minbar for sermons. The name of the mosque is connected with the main feature of its construction: the bottom half of its wall is built from red sandstone, while the upper part is built from bricks. The mosque was restored in 1986 - 1987.



The Mosque of Sangin (the 8th to 15th centuries)

The Mausoleum of Makhdumi Azam is situated to the south from the old Madrasah of Kuhna. The mausoleum was built in 1547 over the grave of Hoji Muhammad Haivoki. He was a grandson of Hoji Isaac who was a member of the Sufi Order of Nakshbands and was named Makhdumi Azam (The Greatest Lord) by the inhabitants of Hisor. The mausoleum was built on the instruction of Sheikh Hussein of Khorasm, the leader of the Order of Nakshbands, who had visited Hisor in 1547. Hoji Muhammad Haivoki died in 1546 and bequeathed his fortune to him. Sheikh Hussein of Khorazm recommended the Emir of Hisor, Muhibilo Amir Sarikbosh, to build a two-cupola structure like the Mausoleum of Sheikh of Serakh to enable visitors to admire its greatness and beauty. The mausoleum is a three-cupola complex constructed in different historical periods. The earlier element is a small cupola grave room in the form of a *chortok* with apertures built in the 11th century. The Ziyoratkhona was attached to the grave room from the southern side with common central axes in the XI – XI centuries. In the 16th century another cruciform grave room was built, with an additional portal oriented to the west. Now the mausoleum is a two-portal and cupola structure with an unfinished west veranda. The uniqueness of the structure is seen in how the outward walls follow the cruciform contours of a visiting hall and grave room. The mausoleum was restored in 1986 - 1987.

The Mausoleum of Mahdumi A'zam

A *caravanserai* was a hotel and type of trading building in the Middle Ages. The one here was situated in the *registan* to the right of the Madrasah of Kuhna. It consisted of a rectangular yard (25 m x 33 m) and one two-story building around it. The buildings outside dimensions were (37.5 m x 47.5 m). The *caravanserai* was built of baked bricks. Situated in the northern side of the *caravanserai* was a portal (*peshtok*). Behind an arched bay under an arched vestibule was the first floor of a library with a cupola overhead. A similar portal was situated in the southern side. Around the perimeter of the yard there were 30 one-story rooms (*hujras*) and four corner halls. There were six small bays functioning as trading shops in northern facade on each side of the portal. There was a passage in the *caravanserai* set into the floor of the yard for lightening or unloading caravans. The *caravanserai* was preserved 1.5 m above ground level.

For the moment our scientists are working on restoration of the *caravanserai*, which was not completed because of the collapse of the Soviet Union.

The Caravanserai

The Madrasah Kuhna has a rectangular inner yard measuring 27 m x 26 m and an outside perimeter measuring 50 m x 45 m. The yard is surrounded by 27 rooms of 3 m x 4 m (*hujras*) for students, a mosque and auxiliary premises. A monumental portal faces the registan. There is a cupola mosque to the right of the entrance and there are auditoriums to the left. The corners of the main facade are

formed by three-fourth towers (*guldasta*), adorned with relief brick ornaments. One of the features of the entrance part of the madrasah is a library (*bolokhona*) over the cupola vestibule. The side of the facade is fenced off by a portal. There is a wood balcony with a view of the city square in the portal's bay over-gate.

The architecture of the main facade consists of contrasts between right-angled portals with arched bays and a multi-staged structure of a cupola mosque in the right part of the building.

The Madrasah "Kuhna"

The Madrasah Nav is situated in the city square to the right of an ancient road leading to the southern gate of the city. The madrasah has a line of one-story rooms (*hujras*) on three sides. A two-story facade facing the *registan* is flanked by corner towers measuring 35.2 m x 38.4 m without lights. The building has portal entrance consisting of an arched passage vestibule. The mosque of this madrasah is situated on the left side, with two classrooms on the right side. The first floor has hujras connected to open galleries facing the yard. The yard, measuring 20 m x 21 m, is square with cut corners. There is a round drainage system in the centre, and the rain and snow water drains out through ceramic pipes which are deep underground.

The Madrasah "Nav"

The washing place (*tahoratkhona*) is a special place for ritual ablutions; it is situated in the square between the Madrasah Nav and the Madrasah Kuhna. The building is placed on a rectangular platform (*stilobat*) measuring 30.5 m x 35.5 m enclosed with hewed blocks of marble limestone. The platform has staircases in the middle of all four facades. There was a square building in the central part of the platform. It consisted of a large hall and three small rooms adjoining it from the north. Five cabins set slightly over the floor level adjoined the east wall of the hall. In the floor of each cabin were rectangular hollows connected to ceramic drainpipes laid under the floor. Water flowed down to a manmade pool situated in the centre of the large hall through the middle cabin.

The borders of the pool were strengthened with square wooden beams. There was a spillway in the northwest corner. Through it water flowed down into an overflow well. The Tahoratkhona of Hisor

"Tahoratkhona" -washing place.

is one of the rare preserved structures that were attached to mosques and madrasahs. There is no other complex analogous to the Tahoratkhona of Hisor anywhere in Tajikistan. Besides that the Tahoratkhona was a place for executions. The Tahoratkhona was excavated in 1982. The monument was preserved to 0.5 m above ground level.

The discovery of two cave rooms of a cult building in the village of Buston suggests the existence of Buddhist temples and shrines in the vicinity of the Hisor settlement in the Kushan period. The site is located 3 km south of Hisor hilltop near the slope of the Urtabuz ridge, and has two caves of different lengths that are located near the premises, 15 - 20 meters apart. The southern one has a length of 33 meters and a height of 2.5 - 3 meters, and in the wall there is a high narrow bench with a width of 35 - 40 cm. The second preserved cave to the north has a length of 23 - 45 meters including a section that has been destroyed, with a width of 3.8 meters and a height of 2.5 - 3 meters, and this also has a bench in the wall. These cave rooms have no analogues among the studied Buddhist monuments in Central Asia. To some extent, these cave rooms were used by Buddhists as a meeting place, or *katk hika-sala*. According to preliminary calculations, such structures can hold 70 to 100 people. The study of these caves can provide new material to determine the prevalence of Buddhism in Hisor Valley.

Kushan period - buddhist meeting hall Katk hika-sala

We try our best to conserve all these heritages to keep them in better condition, but in some cases we need more knowledge with new conservation technology. Sometimes we observe wet and damp conditions in some parts of buildings or salt coming out of the walls of historical buildings.
We are working on the recently found Buddhist meeting hall Katk hika-sala at the moment. It would be a great idea if scientists from all over the world could give us useful advice and especially if the experts from ACCU NARA could teach us.

Thailand

Srisomboon Puangporn

The Fine Arts Department of the Ministry of Culture is responsible for keeping the cultural heritage of Thailand. The Fine Arts Department is the key government agency responsible for the sustainable maintenance, conservation, restoration, promotion, creation and inheritance of national culture. Although some fields of arts and wisdom have been utilized less and less for social benefit, the Fine Arts Department is persistent in its intention to pass such arts and wisdom on to responsible new artists from generation to generation, in order for the department to be accountable to, and become a key player in society in the creation of national works of art and religion.

Nevertheless, similar to other agencies in the situation currently facing the Thai public service system, the Fine Arts Department, which has responsibilities covering various matters throughout the country, has personnel limitations. Experienced staff have gradually been retired year by year in accordance with the public downsizing policy. Consequently, the rehabilitation of art and cultural works in many fields has experienced a lack of skilled experts. In addition, economic, social, and political changes, and competition have also resulted in the neglect of the conservation of art and cultural heritage. This problem has caused some challenges in maintaining and conserving archaeological sites, archaeological finds, museums, and artisan works of all kinds. Hence, the Fine Arts Department has determined an implementation policy to create an awareness and sense of ownership of national art and cultural heritage among the general public as follows:

1. Administer the maintenance, conservation, and rehabilitation of national art and cultural heritage by involving participation from all relevant sectors.
2. Promote and support the creation of art and cultural continuity.
3. Develop art and cultural heritage as sustainable learning resources in order to provide them with economic value.
4. Develop wisdom by creating motivation for society to be aware of, love, and cherish national art and cultural heritage in order to learn and implement management plans on the basis of proper technical principles.
5. Develop personnel to enhance the efficiency of sustainable management of art and cultural heritage either by learning from international practices or by hiring experts to share their knowledge and experience.

My government section is the Conservation Science Division, which is a section in the Office of National Museums, Fine Arts Department. My duties emphasize the conservation of antique objects in national museums and archaeological sites, and objects from other places such as temples, schools, local museums, etc. The Conservation Science Division's responsibilities and processes are as follows:

- Process of survey and analysis of disintegrating and severely damaged cultural materials in national museums, temples, etc., for those places are able to offer funding for treatment of objects.

- Process of conservation including preventive measures and conservation treatment. Some antiques for conservation are sent from national museums in other provinces or nearby archaeological sites. Preventive conservation includes management of the environment surrounding the exhibition in national museums and storage rooms, where there is proper relative humidity and temperature control, source light selection, packing and handling, moving of objects, etc.
- Process of training the authorities and other people about how to look after cultural heritage using preventive conservation and basic conservation treatment.
- Process of research and training for investigating the past, obtaining more knowledge, and conservation skill developing and technology developing in each case study.

Regarding the above, I have to manage the conservation of antiques that belong to the national museum to control and eradicate insects and fungi. For example:

Conservation of paper such as ancient documents called *Sa-Mut-Thai*, books and albums. First, we carry out certain procedures including registering the antiques for appraisal and taking photos to create an extensive photo record. After that we put the objects in clear zip lock bags and place them into a fridge set at -20 degrees Celsius for two weeks. After that we expose them to normal temperatures and remove insect residue. When the problem is eliminated, we start the repair work by choosing the glue. There are two types of glue: natural glues such as rice starch, wheat starch, etc.; and synthetic glues such as methylcellulose glue or MC, Hydroxypropylcellulose or Klucel G glue. In this repair, we used mulberry paper as backing. There are also two types of mulberry paper: mulberry paper from Japan, and another type made in Sukhothai, Thailand. Mulberry paper from Thailand is suitable for reinforcement because the typography is more visible and it is cheaper than Japan's. I learned about this repair method from SEAMEO SPAFA Regional Centre of Archaeology and Fine Arts, in cooperation with Centre-regional de Conservation du livre, France. Then I started obtaining more knowledge and developed my own paper conservation methods from my experience over 10 years. I have spread my knowledge and experience to others in temples, villages and schools, including the practice of preliminary conservation.

Figure 1 Lub-Ror temple

From my experience in surveying and educating how to take care of ancient documents, I found that there are problems in looking after and understanding the management of documents, such as keeping *Sa-Mut-Thai* documents at the Lub-Ror temple at Chumphon province, which is located in the forest in the southern part of Thailand. The average relative humidity there is 80%, and the temperature is 28 degree Celsius. The standards for the preservation of antiques, art objects, and various types of paper are not appropriate. As a result, some paper has begun to disintegrate, some are covered with fungi and some have been partially eaten by many insects due to lack of care on a regular basis. Stacking causes more deterioration, as shown in Figure 2.

Figure 2 Sa-Mut-Thai at Lub-Ror temple

I explored this ancient document storehouse in 2014 and continued exploring at Khao Sarm Kaew temple in the same province, which has the same problem as described above. There is a wall painting in the temple that is over 100 years old, but the colour has faded as shown in Figures 3 and 4. The problem is that moisture cannot drain off the surface because the floor is covered with a rug, which makes moisture come up the walls. We have to fix this problem by taking rug away and letting the moisture drain.

Figure 3 Inside Khao Sarm Kaew temple

Figure 4 The wall painting in the temple

Aside from the conservation of antiques, art objects, and certain types of paper, I have responsibility for ancient fabrics too. Most of the fabrics have been housed at the national museum, Bangkok, Thailand since 1800. Ancient fabric contains fibres such as cotton and silk. Some that have been imported from aboard contain fur. I found that there was deterioration of fabric due to age. In addition, most of the problems involve improper storage methods which have damaged the fabric and make it change colour due to exposure to sunlight for a long time, as shown in Figures 5 and 6. The fabric, especially silk, is brittle and too difficult to conserve. Lack of knowledge is the main reason why sunlight and heat have been allowed to cause this problem.

I also have to conserve wood antiques and other wooden objects. These ancient objects are much stronger than the two types mentioned above, but their problems have the same cause: the environment and insect bites. In July, 2014 I worked for the conservation of book cabinets at the national museum in Ayutthaya province. These book cabinets are over 200 years and valuable for Buddhism. There are beautiful patterns from the ancient fine arts of Thailand such as gold lacquer, glass lacquer on the surface of the wood, and some patterns that came from China called Lai Kammalor pattern. In 2011, Thailand was affected by massive floods. The water was 20 centimetres high in this national museum for two months. After the situation had stabilized as the floodwaters receded, many problems followed.

Figure 5・6 Ancient fabric

Figure 7.8 Book cabinets

Stains appeared on the surface of the book cabinets, white stain became dull and the patterns faded. So we removed all the dirt using a solution comprising 50% alcohol and 50% distilled water—but the stains still remain, and this problem is particularly serious for lacquer objects, as shown in Figures 7 and 8.

A number of sandstone Buddhas, made from a type of sandstone found in Ayutthaya province and nearby places, were also damaged. White powder stains had appeared on the surface of the sandstone. So I took samples for analysis, and found that it was a compound of calcium carbonate and calcium sulfate. Presumably, it came from the wall when it was in contact with water for a long time, as shown in Figures 9 and 10.

Figure 9 Sandstone Buddhas

Figure 10 Sandstone Buddhas

In regard to my experience in the conservation of antiques at archaeological sites, I would like to outline two of my projects:

1. Archaeological site: Baan Gu Pra Pa Chai district Nam Pong, Khon Kaen province in northeast Thailand. This site has been dated to 1177 AD as shown in Figure 11, and many types of antiques such as pottery, images of sandstone Buddha and iron tools have been discovered there. My team was undertaking conservation work at the site in 2010 and found that many objects had deteriorated because they had been under the ground for a long time. Iron tools were covered by rust and pottery was broken, as seen in the sample of antique objects shown in Figure 12. In addition, improper storage methods, such as keeping antiques in boxes, bad ventilation, etc. had caused more damage. We cleared the room and started the conservation in a different way.

Figure 11 Archaeological site Baan Gu Pra Pa Chai

Figure 12 Sample of antique objects

For an image of Buddha that was made from silver, we used ethyl-alcohol and acetone to remove stains, and then fixed and coated the surface with Paraloid B-72 to protect it from humidity.

For iron tools, we completely removed the rust by using a special knife and acetone.

The pottery was cleaned by using a brush. It was then fixed with Paraloid B-72, with the missing pieces replaced with plaster.

I also taught people to value antique objects highly as part of the nation's cultural heritage, as shown in Figure 13.

Figure 13 Teaching

2. Archaeological site: Pratu Pha, Lampang province, Thailand. Located in northern Thailand at around 500 meters above sea level. Pratu Pha is an ancient passage through the mountains. The present geographic location still brings to mind a wartime period when Pratu Pha was used as a strategic fortress in historical and fictional accounts that coincided with old beliefs. The rock paintings at Pratu Pha can be found behind the Pratu Pha spirit house and were scattered in groups along the wall of the rock, which measures 400 meters in length. The paintings can be divided into seven groups, and the site is approximately 300 meters from Route #1. A total of 1872 pictures were found as shown in Figures 14 and 15. Two categories serve for differentiation: 1239 pictures with depictions, and 633 that are unclear or faded. From a survey of the area where the first groups of paintings were discovered, traces of improper digging were found, with potsherds and human skeletons scattered around. A formal excavation was then conducted to find scientific traces of man in the past and to gather as much evidence as possible before more damage occurred. From the AMS radiocarbon dating carried out by Dr. Goran Possnert and Dr. Maaud Soderman from Uppsala University, Sweden on organic substances of rice grain, bamboo and pieces of human skeleton, a date of 3200 – 2900 years BP is suggested.

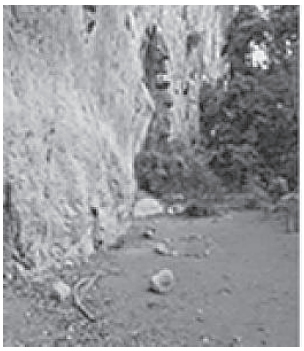


Figure 14 Archaeological site Pratu Pha

Figure 15 Rock painting

I started conservation work at Chiang Mai National Museum in 2014, where I surprisingly found organic matter antiques that had not decomposed even after a thousand years. All the baskets appeared to be in perfect condition, showing all the design and decoration patterns. There was evidence found in the area as follows: hair, rice grains and small wooden spatulas with painted designs on the surface, as shown in Figure 16. Unfortunately, at that time there were some antiques that had already deteriorated because of improper preservation, with no humidity or temperature control. For example, fibres that

Figure 16 Samples of antiques Pratu Pha

had degraded into dust were unable to be used to determine the nature of the cloth. Hair, which was reported from the excavation to be long hair tied at the back of the head, was also discovered in the form of a short strand of hair. As I was not sure whether it was possible to use plaster to repair the antique pottery, for this conservation, I preserved bones, repaired broken pottery and filled the rest with white clay filler in order to avoid the damage that might occur to antique pottery. After all the antiques have been preserved, they will be exhibited and protected properly at Chiang Mai National Museum in Chiang Mai province. Therefore, all the antiques can be preserved and remain for future generations.

Summary of the problem of Thailand's cultural heritage in my experience:

1. The most common problem that I have found is improper management of the environment for the storage and exhibition of antiques. Thailand's weather is hot and damp, with a 5 month-long rainy season and summer all year long. Thailand lies entirely within a region with a tropical and monsoonal climate. The climate is characterized by uniformly high temperatures and heavy rainfall for most of the year. The average annual rainfall for the whole country is over 1400 mm. The rainy season lasts from May through October. During the rainy season some parts of Thailand are occasionally overwhelmed by typhoons from the east or the southeast. Their winds, rain and high tides sometimes cause floods. Such conditions are optimum or near optimum for the growth of biological life. A great number of cultural materials disintegrate and are destroyed through attacks by biological agents of deterioration (e.g., insects, microorganisms and higher vegetation), in particular, those materials which are derived directly from plants and animals, for instance, wood, paper, textiles, leather, etc. So the climate in antique exhibitions has to be the right temperature and humidity to protect the objects on display. This is our responsibility: to educate staff to control the indoor climate and develop the technology to do so.
2. Another problem is the lack of knowledge of staff and misunderstandings as to who is responsible for looking after antique objects during exhibition and storage, which often causes more damage to the objects. For this problem, the Conservation Science Division takes steps to educate them about how to look after, move, handle, and pack objects, as well as management of the environment surrounding objects.
3. There is also the problem of people who intend to damage cultural heritage, such as writing on rock paintings or stealing objects from archaeological sites, etc.
4. Finally, there is the problem arising from the exhibition and improper keeping of antique objects. This problem can speed up the deterioration of antiques. It's hard to manage all the different things in an exhibition such as the exhibition of human skeletons and tools from archaeology explorations, and whether they should be arranged in a special way because of their antiquity, especially

considering variations in the environment. And regarding this problem, I have a case study for an exhibition of antique objects from the Pratu Pha archaeological site at Chiang Mai National Museum. The museum is now setting up this exhibition and has nearly finished as shown in Figure 17. I would like to gain knowledge in this training about how to manage antique objects from archaeological sites in the museum such as human skeletons, pieces of pounded tree bark, piles of rice husks, etc. A human skeleton will be placed on the sand in the showcase, and I don't know whether the sand will damage it or not.

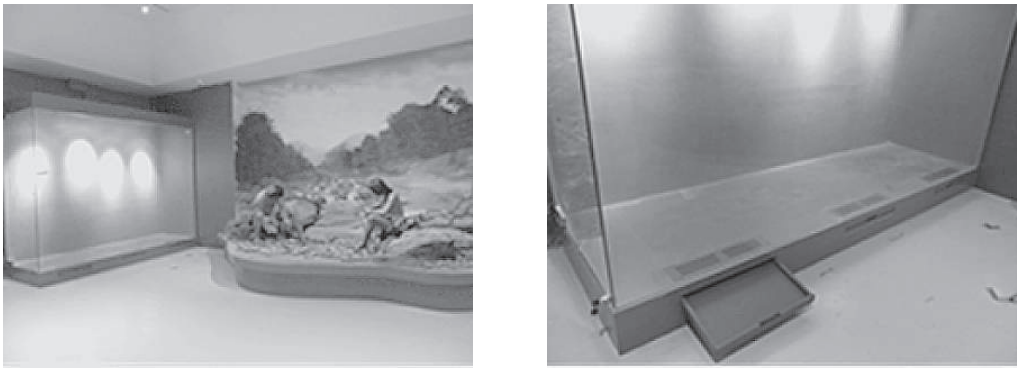


Figure 17 Showcase for exhibition of Pratu Pha's antiques

Viet Nam

Dang Ngoc Kinh

Circular Earthworks in Southwestern Vietnam Research and Conservation

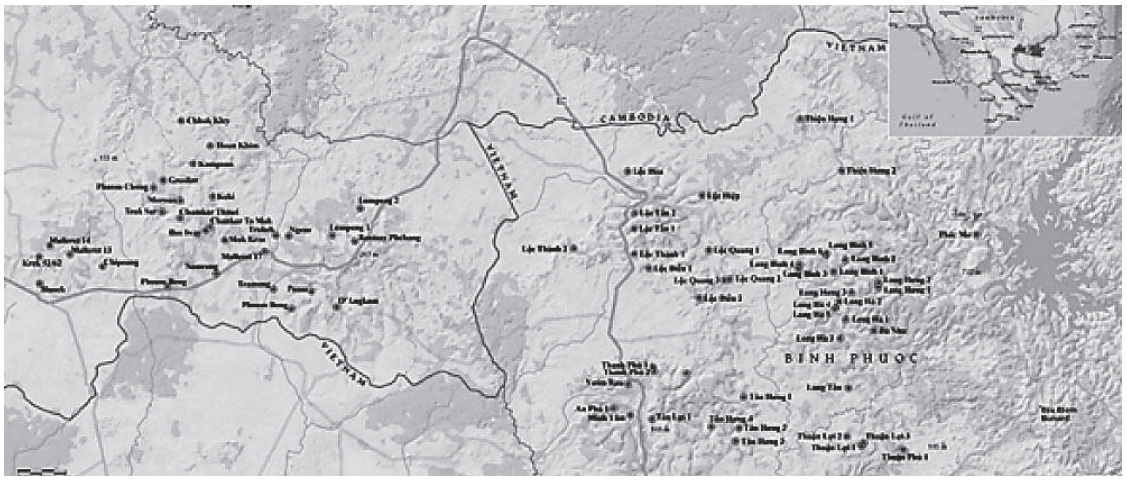


Fig.1 Circular earthworks in Cambodia and Vietnam
Base map ArcGIS 2014, location of sites Lê V.Q., Bùi C.H. et al 2013 and Thuy2002

Circular earthworks are archaeological sites surrounded by circular walls usually with two entrances, a circular ditch inside the wall, and an inner platform. They are usually more than 200 meters in diameter. These sites are located on the red soil plateau in southeast Vietnam (Binh Phuoc province) and eastern Cambodia (Kampong Cham province).

The circular earthworks were originally studied by French scholar M. Louis Malleret in 1959, and one of them was excavated by B.P. Groslier in 1962. In a French article, the sites are called “Ouvrages circulaires en terre” (Malleret Louis, 1959). These words were translated into Khmer as “Phum Moul” and Vietnamese as “đất đắp tròn,” meaning “circle village.” Because of several political upheavals in the region, the study of the circular earthworks did not recommence until the 1990s. Some investigations and surveys were done in Bình Phước (Nguyễn T. Đ. 1984, 2002, Nguyễn V.L., 1986, Nguyễn K.Q., 2009, Lê V.Q., Bùi C.H. et al, 2013) and Kampong Cham province (Kojo, 1997, 1998, Dega, 1999, Albrecht et al., 2000). In Vietnam, five surveys including test pits were carried out by the Centre for Archaeological Studies, Southern Institute of Social Sciences in 1985, 2000-2001, 2006, 2011-2012 and 2013-2014. As of spring of 2014, at least 46 sites have been identified to date, increasing from just 12 sites in 1959. Two of them were excavated (An Khương and Lộc Tấn 2) and 21 were test-excavated. One remarkable study is a doctoral thesis about circular earthworks in Binh Phuoc written by Nguyễn Trung Đỗ in 2002. Recently, a research project involving surveying and mapping archaeological sites in Binh Phuoc province was conducted by a group of researchers from the Centre for Archaeological Studies and Binh Phuoc Department of Culture (Lê V. Q., Bùi C. H. et al 2013).

Most of the documented earthworks are situated on hilltops, and are also located near water sources. Normally they are situated close to each other, about two to three kilometers apart. In Binh Phuoc, there are four groups of circular earthworks, namely Lộc Ninh, Bình Long, Bù Nho and Thuận Lợi, and each group is spaced 10–15 km distant from each other (Lê V.Q., Bùi C.H. et al 2013) (Fig.1). The earthworks consist of a concentric earthen embankment like a wall, enclosing a depressed circular area and a central flat area. In some cases, there was a small mound in the centre. According to an intensive survey by Nguyễn Trung Đỗ (2002), there were six types of circular earthworks in Binh Phuoc. They can generally be divided into two major layouts. The first is circular, with a circle ditch and one or double entrances, making it lemon-shaped on the plan. The second one is also circular but has no wall and is smaller. Most of the sites have diameters measuring about 180-250 meters. The largest is Lộc Tấn 2 earthworks and the smallest is Bù Nho earthworks, with diameters of 365 m and 140 m respectively.

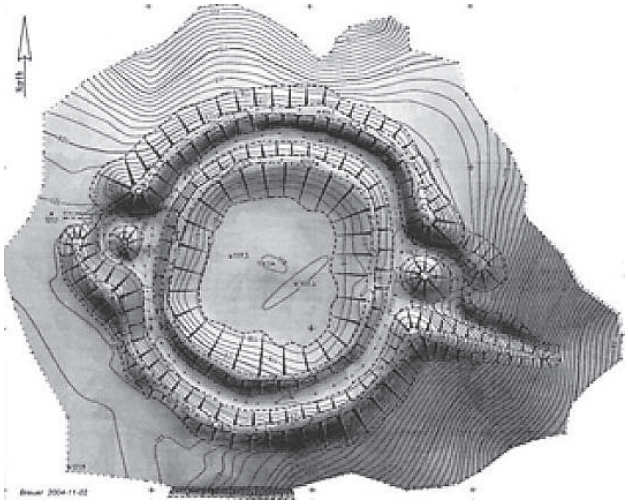


Fig.2 3D image of Hourn Khim Circular Earthworks, Memot, Cambodia. Memot Centre for Archaeology. 2014

Minor excavations at the earthworks demonstrated that the cultural layers of each site are about 1 m deep with many archaeological remains, which has been interpreted as evidence of permanent settlement at the sites. The excavations show that the density of artefacts was highest inside the circular raised part, indicating the habitation area. In contrast, far fewer artefacts were reported from the central depression and outside on the embankment, which seems to have been used for another purpose. The interpretation of the ditch as a water reservoir has also been abandoned, because of the high permeability of the red soil. The purpose of the ditch and embankment is probably for defence or for protection from wild animals (Nguyễn T.Đ. 2002, Lê V.Q., Bùi C.H. et al 2013).

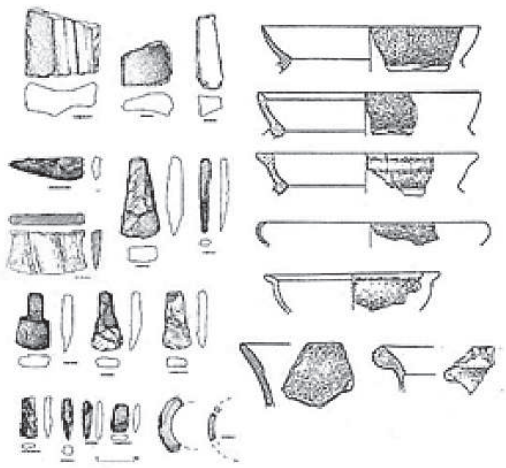


Fig.3 Artefacts from circular earthworks
Nguyễn T.D. 2004, Lê V.Q., Bùi C.H. et al 2013

Artefacts from the earthworks, especially stone tools and pottery, share the same tradition with prehistoric sites in southern Vietnam, such as Lộc Giang, Mỹ Lộc and Dốc Chùa. The stone tools assemblage excavated from the earthworks included shouldered and un-shouldered adzes and axes, and a few flakes from the reworking of these tools. The identifiable cross sections of adzes or axes were quadrangular. However, there are fewer shouldered tools than un-shouldered ones, and they are

usually absent from the upper layers of the stratigraphy, suggesting a transition from shouldered to unshouldered. The pottery is all sand-tempered, and vessel types include pots, dishes, and pedestal bowls. Surface decoration of the pottery includes paddle decoration with cord-marking, non-corded parallel impression and simple smoothing that are similar to that reported from Neolithic and late Bronze Age sites of the Dong Nai culture. (Nguyễn T.Đ.2002, Lê V.Q., Bùi C.H. et al 2013) (Fig.3). Unfortunately, the sites are located in red basaltic soil that is strongly acidic with pH values below 4, which makes it impossible for organic materials and metal to survive for a long period of time.

The circular earthworks in the red soil region of eastern Cambodia and southeast Vietnam have been dated from the Neolithic to late Bronze Age. Nguyen Trung Do (2002) suggested an age of 4000 to 2500 B.P. based on comparative studies of artefact samples from other prehistoric sites in southern Vietnam. Until recently, not much radiometric dating has been done due to the problem of the absence of organic material at the sites. One charcoal sample from a basal layer at the Lộc Tấn 2 site returned a radiocarbon date of 2980±50 B.P. (Nguyễn T.Đ. 2002). In Cambodia at the Krek 52/62 site, one charcoal sample was radiocarbon dated to 293±70 B.P., and two Accelerator Mass Spectrometry (AMS) results based on organic materials provided dates of 3495±75 B.P. and 3990±70 B.P. In addition, Michael Dega et al. (2000) presented five new radiocarbon dates based on the organic temper of pottery from four earthworks in Cambodia. The dates range from 2290-2030 B.C. for the Trameng site and 320 B.C.-200 B.C. for the Chi Peang site. However, Albrecht et al. (2001) pointed out that these samples face similar problems of contamination and should be evaluated critically because they are much younger than expected.

One challenge when undertaking research on circular earthworks is the large number of sites and the large geographical area. In Vietnam, 46 earthworks have been found, and each site area is about 40,000 square meters. Due to the soil acidity and resultant problems with organic preservation, there are limitations to the amount of information that can be recovered from the circular earthworks. Therefore, if we continue to excavate using the same archaeological methods, we may not increase our knowledge of the sites. At this point, we propose that the earthworks should be investigated with new methodologies and technologies. Potential methods of analysis for future research could include dating micro-material using AMS, and sampling spores and pollens. Also, the homogenous quality of the red soil suggests that ground penetrating radar (GPR) systems can be used. GPR is a non-destructive technique that will help to see what is below the ground surface that cannot be seen with the naked eye. The density and depth of any artefacts can be predicted, and we may develop a site specific plan for targeted excavation and conservation. As such, this proposed research methodology will assist in the protection of these cultural heritage sites.

Another problem of this cultural heritage is that the sites need not only to be researched but also preserved. Although the Vietnamese law on cultural heritage took effect in 2001 (National Assembly, 2001), collaboration between the government and scientists was not sufficient. Rather than a planned program of research, archaeologists were usually called in to investigate architectural discoveries in public buildings or unexpected finds from construction projects such as road works or hydroelectric dams. The findings in these cases were significant, such as the Thăng Long – Hà Nội Imperial Citadel (Bùi M.T. and Tống T.T., 2010) or the Lung Leng sites at the hydropower projects on the

Kon Tum plateau of Vietnam (Nguyễn K.S. 2005). However, these results also caused regret among archaeologists as the sites could not be conserved. If sites are protected, they can be studied and bring continual benefits to the community. Balancing economic growth and cultural heritage protection can be a challenge.

Recently, collaboration between the government and scholars has improved, and a project to investigate and map circular earthworks in Binh Phuoc by the Centre for Archaeological Studies and the Binh Phuoc Department of Culture is one of the outcomes. Maps and land management data integrated with a Geographic Information System (GIS) are important products of this project. The software program used to analyse the data is Quantum GIS. The GIS uses the Vietnamese national coordinate reference system VN2000, enabling the combination of existing maps with various sources of spatial data, including roads, land use, elevation, trees, waterways, and up-to-date archaeological information about "sites" and "artefacts" in text and image format (Fig.4). With this project, the government can make development plans more efficiently and reduce the adverse effects on these archaeological sites.

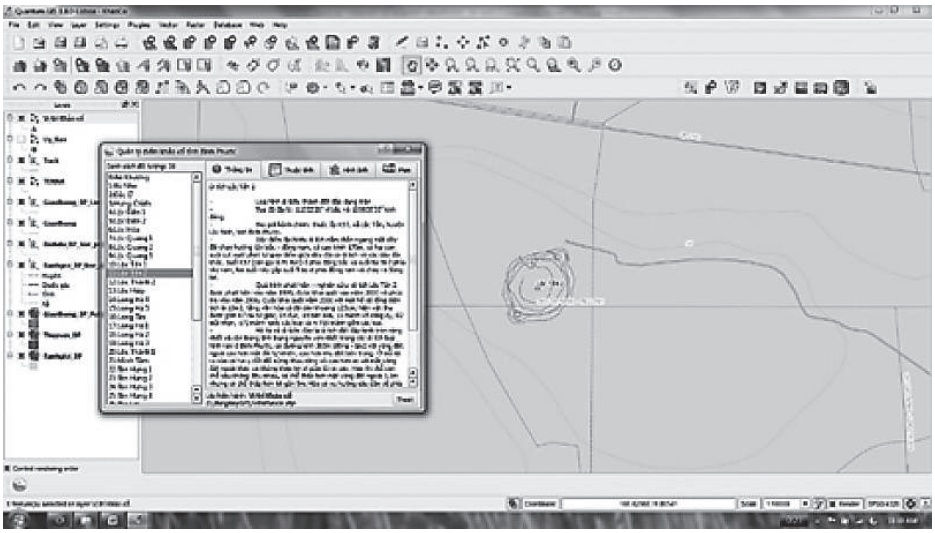


Fig.4 Geographic information system (GIS) for circular earthworks. Lê V.Q. Bùi C.H. et al 2013

From this project, we have two suggestions for protecting the earthworks in Binh Phuoc. The first involves administrative measures. These sites are at risk of destruction from the planting of rubber trees and building construction. Most of them are now located within rubber tree plantations. Normally, after a 15 year cycle, the plantation will cut down the rubber trees and level the ground for new planting. The sites may then be destroyed by bulldozers. Some of them are now no longer intact because the moats on the inside of the embankments have been filled in with the soil from the earthen walls. Public construction work and roads have also harmed the sites. For example, two circular earthworks were destroyed to construct schools and five or more were cut by roads. For this reason, the government should provide management recommendations to the owners of plantations where earthworks are located, to help to prevent further unnecessary impacts.

The second suggestion concerns a community-based problem. The locals have almost no knowledge of the circular earthworks. This is not good for protection activities because local communities are

in charge of their own cultural heritage. Documents from the government and recommendations of archaeologists will not be effective if the locals do not know about their cultural heritage. Accordingly, we suggest that the government informs the community about the history of their region, and explains the value of the heritage sites in the area. Therefore, the local people can be informed participants in developing policy decisions that protect their heritage. To attain this goal, local school children and authorities may be invited to attend presentations on cultural heritage and visit the museum where artefacts from local sites are on display. The sites should also be interpreted, for example, by installing a plaque with their name and a brief description. Some important sites could be reconstructed and used as tourist attractions.

In conclusion, the circular earthworks are archaeological sites located in Binh Phuoc and Kampong Cham provinces and date from the Neolithic to the late Bronze Age. Minor excavations have demonstrated that cultural layers reach approximately 1 m in depth. Artefacts from this group of earthworks, particularly stone tools and pottery, share the same tradition. Due to the problems with organic preservation, there are limitations to the information that can be recovered. To increase our knowledge of these sites, the earthworks should be investigated with new methodologies and technologies, such as AMS and GPR. Although some attempts have been made to protect these sites, they are still at risk of destruction from rubber plantations and building construction. Therefore, we should adopt administrative measures and community-based archaeology to step up heritage protection in the region. The efforts of archaeologists and the government will be meaningless if the locals do not value their own cultural heritage.

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IV. Final Reports by Participants

At Horyu-ji Temple with a local guide (World Heritage Site)

Bhutan

Tenzin Wangchuk

Introduction

I wish to make a few comments and comparisons with the current practices in my country and those of Japan as my final report for this Training Course on Cultural Heritage Protection in the Asia-Pacific Region 2014 with the theme, "Research, Analysis and Preservation of Archaeological Sites and Remains."

Group photo on opening day

Although I cannot find the words to fully express my gratitude to the organizers of this wonderful and fruitful training course, on behalf of the Division for Conservation of Heritage Sites, Department of Culture, Ministry of Home and Cultural Affairs, Royal Government of Bhutan (Pelden Druk Zhung) and on my own behalf, I would like to sincerely thank (*arigato*) and extend my heartfelt gratitude to the Cultural Heritage Protection Cooperation Office, Asia-Pacific Cultural Centre for UNESCO (ACCU); Agency for Cultural Affairs, Japan (*Bunkacho*); National Institutes for Cultural Heritage; National Research Institute for Cultural Properties, Tokyo; Nara National Research Institute for Cultural Properties; International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM); Nara Prefecture Government; and Nara Municipal Government for giving me this great once-in-a-lifetime opportunity to participate in this international-standard course, something that I have never experienced before.

Before coming to this training, the concept of archaeology to me had been just excavating and looking for artefacts, but after attending this training and coming to the end of it, I came to understand that my knowledge had been next to zero. Therefore, this training course was very educational and enhanced my knowledge in the various aspects of archaeology, and will definitely help me in building my career. The training was very relevant to me, my office and my country at large, because, as I always mentioned, the field of archaeology is very new to me, my office and my country.

History of Archaeology in My Country, Bhutan

For the first time in its history, the Himalayan Kingdom of Bhutan has witnessed the scientific investigation of its buried archaeological past. An interdisciplinary team from Switzerland, led by archaeologist Reto Blumer (SLFA), received the opportunity to excavate and document archaeological structures at the site known as Batpalathang in Jakar dzongkhag (one of the central districts of the Himalayan kingdom) in 1998.

Batpalathang is the name of a hamlet located about 5 km from Jakar, on the northeastern bank of the Chamkhar Chu, a river running from the High Himalayas in the north. The archaeological sites under investigation are in the immediate vicinity of the building yard for the construction of a new Renewable Natural Resource Research Centre (RNR-RC) for the Ministry of Agriculture of the Royal Government of Bhutan (RGoB). Both are situated on an old river terrace. During the earliest phase of construction, the remains of unknown antiquity had an archaeological potential only acknowledged through utilization of archaeological expertise (a campaign in April 1999). This expertise was also needed because of the proximity, partly overlapping, of new and old. The results of these first observations, and the fact that the remains were conflicting with the progress of the building, necessitated immediate intervention in the sense of a unique archaeological salvage project. This could be implemented during a second investigation campaign starting April 2000 and planned until the end of July 2000.

Batpalathang


Jaker Dzong

Archaeological Activities in Bhutan

- Scientific Excavation of Drapham Dzong, Bumthan Dzongkhag
- Rescue Excavation of Sangkha Rune, Sarpang Dzongkhag
- Workshop on Legal Aspects of Archaeology, Thimphu
- Documentation of Obtsho Dzong, Gasa Dzongkhag
- Documentation of Chubjekha Dzong, Paro Dzongkhag

Main Objective or Outlook of the activities

Our main aim and objective is to institutionalize archaeology in Bhutan, we are in the process of setting up, developing and establishing our own system of management, preservation and conservation of archaeological sites. The foremost thing is to build human capacity in the field of archaeology.

For this we have nine participants who have successfully completed nine classroom and fieldwork teaching modules, developed by the Department for Prehistoric Archaeology of the University of Zurich and conducted in collaboration with SLSA, the Museum Rietberg, the Department of Town Planning of Zurich, Helvetas Swiss Interoperation, and the Division for Conservation Heritage Sites, Department of Culture, Ministry of Home and Cultural Affairs, Bhutan. The teaching modules were held from spring 2011 to autumn 2013 (second phase of the Bhutan-Swiss Archaeology Project). Each of the students have written and submitted a diploma thesis on a selected topic. They will then receive a Post Graduate Diploma in Practical Field Archaeology, issued by the Department of Prehistoric

Archaeology, University of Zurich, and SLSA. With Swiss support, these diploma holders will be able to run the Bhutanese Central Archaeology Office and also establish archaeological zone plans and conduct rescue excavations. With that, the second phase of the Bhutan-Swiss Archaeology Project will have been completed.

In the context of the third project phase (2014–16), Bhutanese-Swiss collaboration is still seen to be necessary and welcome. However, it should be mentioned that the project's steering committee declared the institutionalization of the Central Archaeology Office as a condition for Swiss involvement and proceeding with the project's third phase. The focus of the third project phase will be on the development of archaeological zone plans, rescue excavations and carefully selected research excavations. The Swiss team is looking forward to further collaboration.

Group photo on the way back from Gasa

My Personal Feelings or Observations on This Training Course

I do not wish to elaborate much on this topic, in terms of "how," "why" and "what," as the training course was well planned and based on the needs of every country through the compilation of individual country reports beforehand, which I particularly liked. Most of the subjects in this training course were very relevant to me and my office. It was very interesting, educational, and informative, and I gained a lot of knowledge that I have never encountered before. In general, I found the site visit to Kyushu National Museum to be something very different, and though the museum is newly constructed, I did not imagine that they would be so well equipped, with very good infrastructure, and so well managed under the guidance of a very good director, with the help of well-trained and seasoned office staff. They have their own conservation studio, which is well equipped with all the latest technology, and a very big storage area, and the building itself is designed to be earthquake resistant as a seismic isolated structure. Likewise, even the Osaka Museum of History was very interesting to me. They have well preserved original underground archaeological remains that have been excavated and which are showcased to the public in the building itself without destroying their original features, which date back to the 7th century with a great historical background. They even use the iPad as a medium of exhibition to the public, which is very unique. Another site was Fujinoki Tumulus, which was a very interesting site for me as I have never before seen this kind of archaeological site, or even heard of it.

Kyushu National Museum

Among the four main topics of this training—Lecture, Presentation/Discussion, Practical Training and On-site training—I liked and really enjoyed the Practical Training, and the Measured Drawing of Artefacts was very interesting as we were fully engaged both mentally and physically. Mentally I was concentrating very hard at that time, and physically/practically, I learnt a lot on how to carry out measured drawing in a more precise way, with the help of many different instruments that I have never used before.

Conclusion

I would like to submit that my month-long stay here in Japan was very interesting, enjoyable and an adventure with which I could learn a lot about Japanese principles, methodologies, and techniques concerning the protection, conservation, management and utilization of archaeological sites through the various presentations, practical training and on-site lectures conducted by experts in the field of archaeology. Therefore, I would like to pay my deepest respect and express my heartfelt gratitude to all the eminent lecturers and specialists for sparing their time and sharing their knowledge and words of wisdom.

Acknowledgements

My sincere, heartfelt thanks go to the ACCU office and the staff (Mr Nishimura Yasushi, Director; Mr Takahashi Wataru, Deputy Director; Mr Kobayashi Ken-ichi, Director, Programme Operation Department; Ms Wakiya Kayoko, Director, International Cooperation Division; Ms Sakimoto Keiko, Chief, International Cooperation Division; Ms Horikawa Kazuko, Chief, Planning and Cooperation Division; Ms Nishida Michiko, Planning and Cooperation Division; and Mr Shimomura Nobuhito, International Cooperation Division) for organizing this training program and giving me this great opportunity to attend this world-class training course.

Without the eminent help of the interpreter, Ms Hata Chiyako, I am sure that I would not have even picked up the A-B-Cs of this training course, as many of the lectures were done in Japanese. So thank you very much for enabling me to understand everything in this training course.

I wish to also thank the assistants, Ms Suzuki Sonoko, Ms Miki Kazusa and Ms Mitsui Naka, for their selfless help and assistance every time I was in need, and for making my stay in Japan a most wonderful one, even though they had a very busy schedule as university students, and so many other things to do.

Thank you, tashi delek, and arigato gozaimasu.

Cambodia

Hour Sothorn

I. Introduction

From 2 September (Tuesday) to 3 October (Friday) 2014, the ACCU Nara Office held a training course for the preservation and restoration of cultural heritage and opportunities to learn the latest knowledge and techniques, all with reference to the characteristics of Japanese archaeological sites and historic buildings. One of the objectives of this course was also to help human resources development such as the training of specialists engaged in the planning of cultural heritage protection, and the preservation and restoration of cultural properties. Participants from 16 countries attended the training course: Bangladesh, Bhutan, Cambodia, Fiji, Kazakhstan, Kyrgyz Republic, Lao P.D.R, Maldives, Mongolia, Myanmar, Pakistan, Palau, Sri Lanka, Tajikistan, Thailand and Vietnam.

II. Course Curriculum

This training is necessary for all participants and also their respective countries in order for them to obtain useful knowledge such as how to conserve, preserve and restore World Heritage Sites including both tangible and intangible cultural properties. Even though Cambodia is still a developing country, we are fortunate to be informed of these important global trends in conserving archaeological sites. In the first session of this training programme I gained a lot of knowledge from Dr Gamini Wijesuriya, a project manager from the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM), who talked about ICCROM's work in the research, analysis and preservation of archaeological sites and remains. He also put forward valuable discussion topics on the conservation and management of archaeological sites. Suggestions for better site preservation in our respective countries included examining our principle legislation for heritage protection as well as other legislation that aids the management and conservation of archaeological sites. Our country needs to look at our main institutions and regulations in relation to heritage as well as the available national and international resources. It was stressed that heritage protection needs to be proactive and not reactive. This session was very valuable in that ideas about heritage protection were discussed, and suggestions for better site preservation and conservation were identified, which was extremely applicable to the situation in Cambodia.

Prof. Inaba Nobuko presented a lecture on architectural conservation for wooden structures, the history of the Japanese legal system for the protection of cultural heritage, and some of the articles in the Venice Charter of 1964. Japan's legal system is very useful for the protection, conservation and preservation of archaeological sites, even in the midst of widespread city planning and development. As of June 2014, Japan has 18 World Heritage properties that have been inscribed on the World Heritage List: 14 cultural sites and four natural sites. My country has only two World Heritage properties, both of which are cultural heritage sites. The Angkor archaeological site in Siem Reap province was inscribed on the World Heritage List in 1992, and the Preah Vihear Temple was

listed in 2008. Regarding this training, Japan seems to be a pioneer in the Asia/Pacific region in the management, conservation and preservation of archaeological sites, as led by the Nara National Research Institute for Cultural Properties.

Through this training, both in the classroom and on-site, it appears as if there are no international cooperation research teams conducting archaeological research in Japan. In my country, there are many international agencies working in cooperation with Cambodia on conservation, restoration and research. Japan is also involved in several projects such as Japan-APSARA Safeguarding Angkor (JASA), the Sophia University Angkor International Mission, and the work of the International Research Sites Section of Nara National Research Institute for Cultural Properties.

Nara served as the capital of Japan from 710 to 784 and was known as Heijo-kyo. The Nara Palace (Nara Imperial Palace) extended about one kilometre wide and one kilometre long and served as the site of the emperor's residence and government offices. For its great historical and cultural importance, the palace site is included as one of the UNESCO World Heritage Sites of Nara. The Nara Palace has no surviving wooden structures, but does have vestiges as archaeological remains such as postholes of wooden pillars and other features. Part of the ancient palace has been reconstructed in order to add to its value as a historic site and to help people know their own traditional style of building. In Cambodia, there has been no construction of ancient wooden monuments yet, so we usually undertake conservation, preservation and restoration work. We have many temples that have collapsed due to human and natural causes, including the action of insects.

Mr Aoki Tatsuji gave a detailed lecture on the system for protecting cultural properties in Japan. Cultural properties in Japan are classified into six categories such as tangible cultural properties, intangible cultural properties, folk cultural properties, monuments, cultural landscapes and groups of traditional buildings. He also shared with us the role of the national Government in the framework of the Law for the Protection of Cultural Properties and other laws/regulations. In my country, Cambodia instituted such a law on January 25, 1996. The purpose of this law is to protect national cultural heritage and cultural property in general against illegal destruction, modification, alteration, excavation, alienation, exportation or importation.

Mr Nakamura Ichiro and Mr Sugimoto Kazuki gave us basic knowledge on photographing cultural properties. Photographs are very important for the study of cultural properties and must be understood by anyone engaged in such study. I am very interested in photography. I learned to take photographs using additional light sources in order to produce clear pictures of artefacts and excavated trenches including photos used for work and documentation. However, my department doesn't have a professional camera or other equipment for taking such photographs. We use only small digital cameras to take photographs of ceramics and other artefacts that are collected from archaeological excavations.
The Nara National Research Institute's ceramic storage, wood and bone conservation laboratories use the modern technology of X-ray computed tomography, with which we can see the interior structure

of objects in three dimensions. The tomography machines can analyse artefacts that archaeologists encounter during the excavation of sites. My department does not have wood or bone experts. If we encounter some pieces of wood, we always need international experts working in the Angkor area to help. We know that Cambodian archaeologists must conduct joint research together with other experts including natural scientists, because Cambodia does not have enough experts or equipment to analyse archaeological finds.

When it opened in 2005, the Kyushu National Museum in Fukuoka prefecture was the first new national museum in Japan in over 100 years, and the first with a focus on history over art, comprehensively undertaking the collection, preservation, exhibition and research of various cultural properties such as archaeological, historical, artistic, folkloristic and ethnological materials. The museum has many resources for the analysis, conservation, restoration and preservation of these materials, for example by using X-ray CT, 3-dimensional scanning, painting scanning, plus storage facilities to preserve paper, and so forth. Such equipment is useful in preserving and restoring artefacts. The visit to Matsuura City Takashima Centre for Archaeological Operations, a small museum with more simplified methods, specializes mostly in marine archaeological finds related to the Mongolian invasions. This museum showed the technique of removing salt from an artefact by cleaning it and keeping it in a solution of fresh water and alcohol in which after the removal of salt, P.E.G. treatment is given in a special chamber to dry the artefact. Since our country does not have any underwater archaeological sites, this practice cannot be applied. But the information from the observation and lecture was very important for future reference if needed.

Another large museum we visited was Osaka Museum of History. This museum has long played an important role in relating the history of Japan from ancient times through today. The history and culture of Osaka has been researched for over 40 years by the Osaka Municipal Museum, which opened in 1960. The new museum carries out this function through the Naniwa archaeological Resource Centre. The exhibitions at this museum make use of the unique character of its location and combines new technology with materials and experience accumulated in the old Osaka Municipal Museum and materials excavated from around Osaka City to form the basis for active ongoing research activities.

Fujinoki Tumulus is known as kofun in Jafupanese, located in Ikaruga, Nara Prefecture, Japan. It is estimated to date from the latter half of the 6th century or the late 7th century. The burial mound is about 50 metres in diameter, 9 metres in height, and the stone chamber the mound covers is 16 metres in length. The excavation of this tomb began in 1985. The tomb yielded gilt-bronze ornaments, horse trappings, and a stone coffin. The tomb's appearance is supplemented by the harness excavated from the tomb, which is a Chinese product that was imported via the Korean Peninsula. In Cambodia, I have not yet found any large tombs fit for a king like Fujinoki. Some researchers have suggested that during the Angkor period, the bodies may have been cremated, rather than being buried in tombs.

Measured Drawing of Artefacts was the most important activity for me. I am interested in pottery drawing and tool drawings. Participants should have been given potsherds to draw and then taught the

methods and techniques to calculate the diameter and position the potsherd in its proper location, etc., which is more important as excavations yield more potsherds than complete or nearly complete pots. I feel this would have been of greater use to most of the participants. Further, the document part should have incorporated not only the drawing and measurement, but also the method of context recording at the time of actual excavation.

Presentations on the 16 participants' countries covered various topics such as World Heritage archaeological sites, national culture and historic heritage sites, landscapes and intangible culture. Some presentations showed the problems and needs for cultural heritage properties and conservation. It was very important to obtain knowledge that I did not have before about such archaeological sites, especially their management as related to conservation, preservation and restoration, for World Heritage Sites as well as national heritage properties, plus the intangible heritage of various ethnic groups.

Through attending this training and the interaction with other participants over the month, I also came to better understand each country's culture, religion, language and living style. I gained new knowledge from different Japanese experts who have more than 30 years of work experience in the field of management of archaeological sites, conservation, preservation and restoration during this one-month training course. After learning about the Japanese system, it feels as if Japan is better organised, and has strong government support and funding, as well as strong legislation protecting archaeological sites. Japan is very proactive in preservation work led by the government. I will improve my work related to cultural World Heritage Sites, and the national cultural heritage properties and landscapes in my country. It was useful for me to learn additional skills applicable to archaeological work.

III. Acknowledgments

I would like to take this opportunity to profoundly thank Mr Nishimura Yasushi, Director of the Asia-Pacific Culture Centre for UNESCO; Dr Gamini Wijesuriya, Project Manager, Site Unit of International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM); and Prof. Inaba Nobuko. I would also like to thank all the lecturers: Mr Aoki Tatuji (Agency for Cultural Affairs, Japan), Mr Wakiya Soichiro, Ms Tamura Tomomi, Mr Yanagida Akinobu, Mr Hashimoto Hiroyuki, Mr Nakamura Ichiro, Mr Sugimoto Kazuki, Mr Ishimura Tomo, Mr Asai Ken'ichi (Kyoto Prefectural Board of Education), Mr Fukasawa Yoshiki, Ms Miyoshi Miho, Mr Ikeda Hirohide, Mr Kaneda Akihiro, Mr Araki Koji, Mr Nakata Atsuyuki, Mr Aizawa Tetsuro, Mr Imazu Setsuo. Mr Oda Kazutoshi, Mr Matsukawa Hirokazu and Mr Mametani Hiroyuki. I would like to thank the staff members of ACCU Nara: Mr Takahashi Wataru, Deputy Director; Mr Kobayashi Ken-ichi, Director, Programme Operation Department; Ms Wakiya Kayoko, Director, International Cooperation Division; Ms Horikawa Kazuko, Chief, Planning and Coordination Division; Ms Sakimoto Keiko, Chief, International Cooperation Division; Ms Nishida Michiko, Planning & Cooperation Division; Mr Shimomura Nobuhito, International Cooperation Division, and Ms Hata Chiyako. Lastly, I would like to thank Ms Suzuki Sonoko, Ms Miki Kazusa and Ms Mitsui Naka.

Fiji

Kataiwai Sakiusa Rocky Nadakuitavuki

Evaluation Report

1. Abstract
2. Training activities – personal observations and analysis
3. Limitations

1. Abstract

Over the course of the training program, various analytical methods and practices in the field of archaeology and conservation were emphasized through training lectures and practical activities. With the training highlighting analytical and advanced technological methods, a wider understanding of the efficiency and sufficiency of archaeology work has been achieved on a personal level.

Creating a more positive and extensive approach to archaeology work in the Fiji Islands is the major output developed from this participation. On the other hand, there are certain practical boundaries that will limit efforts emphasized through this training program, and these are largely due to technological advances and financial disparities; however, that is not to say that these limitations will discourage practical methods that could be applied in the Fiji Islands, as simple and effective practices were highlighted that will be applicable to the efforts being made in archaeology and conservation in Fiji.

2. Training Activities – Personal Observations and Analysis

The training activities that were applied in this program were relevant and effective, and this brought about a wider understanding of the extensive archaeology work that can be applied back in Fiji. From a personal perspective, the majority of the activities undertaken during this program emphasized the basic efforts that could be applied but have not yet been realized, and I believe that has been the major achievement in this training course.

2.1 Conservation Science of Artefacts I, II, II

Dealing with archaeological artefacts is a vital part of archaeology work in Fiji and the materials are in line with the artefact materials highlighted in this training course, from wood and earthenware to metals. Lack of a professional perspective on the conservation and storage of these artefacts is a major limitation, with little or no understanding of the basic approach needed to counter the effects and conditions that can cause the deterioration of these artefacts over a period of time. Through the training and lectures, acquisition of this basic knowledge was a major achievement that can and will be applied to some extent back in the Fiji Islands, let alone the Fiji Museum, on the analysis and treatment of such material artefacts for a more sufficient and safer state of conservation of these artefacts.

Figure 1: Conservation science practical session, NNRICP.

2.2 Recording/Documentation of Artefacts and Cultural Sites: Photography

The photographic documentation of artefacts and cultural sites is an effective approach to better understand, view and record the subject for further research and analysis; however, the processes and methods required to undertake a more sufficient technique to create a precise image of artefacts and cultural sites brought about the realization that this was a vital requirement for study and analysis, and this was what was lacking in Fiji. The various ways of creating clear and efficient photo documentation on a professional but simple level is a skill that needed to be utilized in archaeology work in Fiji, and through the practical process during the training, this was achieved.

Digital data management and use of the required software was a simple skill learnt during the course, and this is an efficient method that will help in the development of a professional approach, personally and on a national scale.

Figure 2: Photography practical session, East Palace Garden, Nara Palace Site.

2.3 Measured Drawing of Artefacts I, II, III

I developed a clear understanding of how to draw artefacts in this training practice. Use of a simple, yet effective and sufficient method for efficiently documenting artefacts is a skill which I had not developed prior to this training course. This will help in the development of a method in Fiji on the thorough recording and condition reporting of artefacts, which is currently lacking at the Fiji Museum, let alone on a national scale.

2.4 Recording/Documentation of Cultural Heritage Using a 3D Scanner

My personal view is that this would be an effective and efficient method of comprehensively recording an artefact or cultural site; however, financial constraints is a barrier to achieving this. Simply understanding the concept and operation of this technology, though, will be effective in demonstrating the extensive recording and documentation that is possible, no matter which method is undertaken.

2.5 Site Tours and Museum Induction

As a result of these visits, and comparing the efforts undertaken in Japan and Fiji on cultural heritage my analysis is that there is an immense disparity in the awareness of and attitude towards the protection and recognition of cultural heritage between Japan and Fiji. In relation to the site tours, the protection and reconstruction of shrines, temples and palace sites and displaying them to the public is an outstanding effort in promoting recognition and creating awareness of cultural heritage and its grandeur, and this is an idea that could be applied in Fiji, as awareness is gradually developing on a national scale.

Figure 3: Todai-ji Temple tour

The unique architecture and technological advances in museums in Japan show that there are no limitations to what cultural institutions can achieve to protect, preserve and exhibit cultural heritage with an attractive approach.

2.6 Global Trends and Discussion of Cultural Heritage Issues

In discussing the various global trends highlighted by Dr Gamini Wijesuriya, the broad understanding of cultural heritage, or the modern definition of heritage, on a global scale, was a new concept for

me. The various ideas and factors associated with this topic has developed my understanding and broadened the context associated with archaeology in Fiji and its relationship with the global cultural community.

The issues highlighted by the various participants indicates a parallel correlation shared around the world, let alone the Asia-Pacific region, and this allows the opportunity for us to network together on such issues and correspond on the various actions undertaken that may, or will be effective.

3. Limitations

Throughout the training program, there were many advantages in developing new skills and methods through the lectures and practical sessions; however, the question still remains as to whether they can be applied in the various participating countries, in this case, Fiji.

3.1 Technological Advances

Many methods learnt during this course were related to the utilization of technological equipment:

- 3D scanner
- 3D printer
- Radiography/CT scanning
- Photogrammetry
- 3D digitizer
- Photo Editing Software

An understanding of the concept of this equipment and software, along with their efficiency and comprehensive ability in the field of archaeology and conservation work is vital; however, the disparity lies in the ability to obtain such equipment and software to utilize in Fiji. This is, and will continue to be an ongoing limitation; however, the possibilities are endless.

3.2 Conservation Science of Artefacts

Conservation science and its practical efforts may face limitations in Fiji, as the need for chemicals, tools and equipment during the conservation process of artefacts is vital. The right ideas can be proposed, however, the conditions under which these artefacts are stored may not meet the necessary standards, as storage facilities are not as uniform as they should be.

On the whole, this training course was enlightening, and provided a comprehensive understanding of the concepts of cultural heritage protection. Utilizing the ideas, skills and methods learnt during the course of the program is the main objective, and this can be achieved to some extent as many technological advances utilized during the practical training sessions are, or may not be available in Fiji, or in many cases, affordable. However, these skills have opened up opportunities and a professional mind-set on how archaeology and conservation can reach such a level, and this highlights the fact that there are no limits in the documentation, research and exhibition of cultural sites and artefacts.

Kazakhstan

Altynbekova Dana

The Scientific-restoration laboratory “Ostrov Krym” is the only organization in Kazakhstan, where by request of state institutes the preservation works of movable archaeological monuments are carried out. The laboratory fulfils governmental orders of the Ministry of Culture of the Republic of Kazakhstan, the Institute of Archaeology of the Ministry of Education and Science of the Republic of Kazakhstan and regional archaeological centres located in different cities of Kazakhstan.

Apart from conservation and restoration of movable monuments of archaeology, the laboratory “Ostrov Krym” takes part in conservation of Tamgaly petroglyphs inscribed as a World Heritage of UNESCO. Our contribution to monument preservation is to restore anthropogenic damage made before the legal protection of the monument is organized in Kazakhstan, as in many other countries. In the process, a lot of questions and problems have arisen such as:

- Archaeological excavations in emergency and rescue mode
- Primary conservation at the site before arriving in laboratory as first aid
- Phased and detailed documentation of each object
- Not just the conditions of excavation
- Remoteness from settlements and signs of civilization
- Lack of advanced technology for more accurate study of the sites
- The administrative work
- Legislation
- Lack of established management structure

These issues can be solved by a special commission or by participating in international conferences, seminars and training courses, such as the one provided at the ACCU Nara. In this kind of training, you can always find a lot of answers to questions, where the course participants share their own experiences of work in their country.

In the work of archaeological sites conservation and restoration, an important point is to use the reversible methods and materials, and acting on the principle - “do no harm”. What I like in Japanese conservation is the fact that they try to use only natural ingredients for the preparation of adhesives, preservatives, dyes and other materials to the maximum extent.

Some chemicals are used in limited cases, where an artefact is in poor condition. Metal objects require conservation and restoration, as well as cleaning of corrosion products by hand. Our Scientific-restoration laboratory “Ostrov Krym” works on the same principle, and we use a large variety of natural preservatives etc. only with some exceptions. This approach to the archaeological artifacts is much more delicate and gentle than using aggressive chemicals whose use is sometimes inevitable.

Thanks to the international project of Asia-Pacific Cultural Centre for UNESCO (ACCU), I was among the participants for training course. Program is dedicated to preserving the world's cultural heritage. At the end of this course, which was an interesting experience for me, I found new challenges in my work for the future. How, what and where you can apply or improve at every stage of the work. For example, to date, it is considered that damaged artifacts should be treated by restorers at museums. And for many decades after the collapse of Soviet Union, in spite of the great efforts made in this area in the Republic of Kazakhstan, we have not developed a national school for restorers. This situation has led to the fact that some of the unique items were partially lost. This situation has arisen as a consequence of the lack of a central research organization for the conservation and restoration, which should carry out scientific and methodical control over the entire network of organizations in this area.

Gaining Independence of the Republic of Kazakhstan is a new step in the study of national history. During the years of independence, and especially in recent years, thanks to the program "Cultural Heritage", a tremendous increase in appropriations for the carrying out of research works on the history, ethnography and archaeology. Dozens of expeditions have made outstanding discoveries of new sites.

The restoration, preservation and museumification works were carried out for discovered monuments. And unfortunately, these works are not keeping pace with the volume of scientific research and widespread excavations. In each region of Kazakhstan, an extensive network of research centres already exists. There are umbrella organizations, institutions NANRK coordinating regional centres. However, the products of this activity are the thousands of artifacts excavated from the earth every year. And regional organizations for conservation and restoration find it difficult to handle these volumes due to their scientific and technological level.

Currently, in the northern capital of Astana, a new "Kazakh National Museum of the Republic of Kazakhstan" is scheduled to launch the first major centre covering all areas of conservation and restoration, followed by training.

Today, however, there are not enough specialists and an appropriate level of qualification. But thanks to such courses as ACCU, such problems can be approached by professional hands of experienced Japanese colleagues, and perhaps further cooperation will help Kazakhstan organizations for the restoration and preservation improve their professional level with a clear structure and formulation of the task sequence. So, in my opinion, before the start of any excavation of the monument, it is necessary to determine the long term plan, where and who will carry out further work.

For me it was a good experience to see how to use the new materials and technologies which can be different to perform the same work. On the other hand, much more information on the tools using advanced technology should be introduced, which Japanese colleagues have gone very far.

This training course was very useful and made me look at the old familiar things in new ways. And I

know exactly where it is necessary to get started, or rather to be improved, after returning home.

Many thanks to all the organizers: Cultural Heritage Protection Cooperation Office, Asia-Pacific Cultural Centre for UNESCO (ACCU), Agency for Cultural Affairs and National Research Institute for Cultural Properties.

Kyrgyz Republic

Akmatov Kunbolot

Specialist Final Report on the Training Course at ACCU Nara 2014

Introduction

The Training Course on "Research, Analysis and Preservation of Archaeological Sites and Remains 2014" is one of a series of training courses conducted by ACCU Nara, in which I was lucky to participate after a number of unsuccessful applications to previous ones. It was great to receive the invitation to the training course after all this time and effort.

In this report I will try to share my opinions, impressions and some comments on what I saw, heard and experienced during the training course.

Authority and Cultural Heritage

First of all, I would like to note the broad support of the Japanese government in the research and conservation of cultural heritage, not only in Japan but also in other countries of the Asian continent, including Kyrgyzstan.

In this connection I would like to mention our meeting with the vice-governor of Nara Prefecture. In his speech he clearly gave to understand that one of the important nexuses of our countries is Buddhist monuments. In his opinion, Japanese culture has been deeply impacted by influences from Central Asia. Indeed, the history of Buddhism shows that Central Asia played an important role in the movement of Buddhism from India to Japan. There are several Buddhist temples and statures in Kyrgyzstan that support this idea. Unfortunately, the preservation of these monuments leaves a lot to be desired. Furthermore, as practice shows, in many cases our local authorities don't know what and how many cultural properties are situated in their regions.

Ice-Breaking Lectures and Discussions

The training course started with a lecture on the theme "Global Trends in Conservation of Archaeological Sites" by Dr Gamini Wijesuriya from ICCROM. Noting the positive and negative trends in the field, he pointed out that some archaeologists don't pay enough attention to the problem of conservation and preservation of the archaeological monuments they excavate. In his opinion, they should not start an excavation unless they have sufficient resources for conservation treatment. During the lecture he continually underlined the importance of the conservation and preservation of archaeological sites and remains. Agreeing with him on this point, I would like to add that conservation and preservation of cultural heritage is a complex problem that demands the cooperation of archaeologists, restorers, authorities and the local people living around a heritage site. Unfortunately, at present I can't see such cooperation in my country.

We received a lot of information on the theoretical basis of conservation, preservation and management of cultural heritage from Dr Gamini's lecture. Furthermore, a great number of websites, books, legislation and guides titles were cited. Also, I was surprised to, learn that Kyrgyzstan is not a member of ICCROM. According to Dr Gamini, this situation prevents young specialists from Kyrgyzstan to participate in different training courses conducted by the organization. But I am more than sure that the Kyrgyz Republic needs to be a member of ICCROM.

After the lecture by Dr Gamini, the trainees reported about the problems and needs of cultural heritage protection in their respective countries. Each report was accompanied with visual materials which made them more understandable for everyone, as English is not the native language of any of the trainees. It became clear that we all face the same problems in the preservation of cultural heritage. Therefore, after each report there were questions and group discussions, in which not only the trainees but also Dr Gamini and Prof. Inaba actively took part. As usual, Dr Gamini pointed out the importance of conservation and preservation of cultural heritage, citing different facts and data as evidence.

No less interesting was the lecture by Prof. Inaba from the University of Tsukuba on the basic concepts of conservation science, such as restoration, reconstruction, authenticity, etc. During the lecture a serious debate emerged about the authenticity of some Japanese temples. According to Prof. Inaba, the authenticity of Ise Jingu, which is completely reconstructed every 20 years, is that it has intangible value. In that case, it seems to me that we should first decide if the reconstruction activity of the temple is a unique ceremony worthy of international recognition. And if it is, then the reconstruction itself should be considered as an intangible heritage.

It is possible that I don't fully understand the heart of the issue, but it seems to me that the reconstruction of the temple every 20 years is aimed at preservation of the temple for the next generation. The way the Japanese people preserve the temple and associated traditions is worthy of respect, but I can hardly say that the ceremony is able to impart authenticity to the temple.

On Legislation and Reconstruction

A great deal of information on the protection, conservation and management of cultural heritage in Japan was heard from Dr Aoki Tatsuji, representing the Agency for Cultural Affairs. It seems to me that there are not so many differences between Kyrgyz and Japanese legislation on the protection of cultural heritage. But in the conservation and management spheres there are many things that we can learn from each other. I don't know how authentic some of the temples and palaces are, but the management and utilization of them as tourist attractions are at a high level. It seems to me that the reconstruction of tangible monuments is a priority of Japanese heritage policy, which sometimes contradicts the principle of authenticity.

Probably one such example is the Imperial Audience Hall in the Nara Palace Site. Judging from its appearance it is easy to confuse the monument with a modern Japanese traditional structure. I realize that it is a reconstruction of an ancient building, which is highly hypothetical, but it seems to me that

what is lacking is an ancient “atmosphere.” I think replicas of the Emperor with retinues and guards wearing Middle Age armour would create such an atmosphere.

Perhaps I have taken liberties in finding fault, as the situation in the cultural heritage conservation, protection and management field in my country is not comparable with Japanese cultural heritage policy. Unfortunately, many archaeological monuments in Kyrgyzstan are being destroyed as a result of anthropogenic activities. The government is not capable of stopping the looting of historical heritage, let alone the conservation and reconstruction of them.

On Conservation

The conservation part of the training course began with a lecture by Dr Wakiya Soichiro from NNRICP on the theme “Mechanism of corrosion of metal objects.” In his presentation, Dr Wakiya gave us detailed information on the reasons for the emergence of corrosion. Furthermore, the main steps in conservation treatment were explained. As a continuation of this theme, Dr Tamura Tomomi from the same institute gave us a lecture on “First Aid for Fragile Artefacts,” after which practical experiments were carried out, which allowed us to strengthen our theoretical knowledge. The last yet no less informative lecture on the conservation of artefacts was given by Dr Yanagida Akinobu from the Archaeological Institute of Kashihara. He in dwelt in detail on the question of storage and display of artefacts. I was astonished hearing information about Japanese archaeologists who try to conserve and preserve underwater archaeological sites and artefacts in situ in Imary Bay.

The lectures were extremely important to me, as iron objects are frequent finds at archaeological monuments in Kyrgyzstan, and in most cases they are corroded and fragile. Of course we try to conserve such artefacts using mostly mechanical cleaning. But because of a lack of special laboratories and specialists, conservation treatment is not carried out to its logical conclusion. Furthermore, we have no notion that conservation treatment must be continual and reversible. Of course I am not going to say that after my attendance at this training course the situation in Kyrgyzstan will become better. But at least we have begun to understand that the conservation of archaeological monuments must be an important part of our archaeological researches.

The excursion to the Conservation Science Laboratory of NNRICP left a deep impression on us. I haven’t seen such kind of research laboratory equipped with modern and high-tech equipment and engaged in cultural heritage conservation and preservation. An interesting moment occurred when the research assistants of the laboratory asked us to give them a metal coin from our countries in order to examine its composition with X-ray fluorescence. Our colleague from Tajikistan gave them his ring, and after a one minute examination we received the data on the composition of the ring. This kind of operation with real artefacts is very important, not only from a conservation point of view, but also in the study of ancient metallurgy and technology.

Seeing all the researches taking place in the laboratory and their results, I caught myself thinking that every year in my country we excavate and find archaeological monuments, but because of lack of

special laboratory and equipment, we extract from them less information.

On Documentation

As conservation science is not developed in my country, with a lack of specialists and laboratories, it seems to me that there is no other way to preserve artefacts doomed to deterioration than the comprehensive documentation of them. From this point of view, the documentation part of the training course was extremely relevant for me. It consisted of photography, measured drawing and 3D scan activities, which were conducted by well-qualified specialists from corresponding departments of national and municipal research institutions in Nara.

For example, in the photography segment, the main techniques and methods used in cultural property photography were explained and demonstrated. Part of the course time was spent in practical training. Our instructors kindly shared their knowledge and experience with us and answered the trainees' questions. The importance of the course is that it was conducted by professional photographers involved in the cultural property field.

No less significant for us was the course "Measured Drawing of Artefacts" conducted by specialists from Nara Municipal Board of Education and Tenri University. In my opinion, it was appropriate that lecturers paid less attention to theoretical teaching and gave us more time for practical training. During the course I gained some new practical skills in the measuring of artefacts, which will make my drawing more accurate.

Another lecture on the documentation of cultural heritage using a 3D scanner was given by Dr Kaneda Akihiro. He gave an explanation on basic 3D documentation techniques and devices, which were mostly new for me. However, because of high prices and lack of corresponding specialists, new devices used for 3D documentation are not available to us. Fortunately, as it turns out, there is a simple and inexpensive way to overcome these difficulties, which were kindly explained and demonstrated by Dr Kaneda.

On Temples and Museums

It would not be wrong to say that the history of restoration works in Japan is rooted in ancient times. Seemingly it was connected with religious structures, which occupied an important role in the spiritual life of the Japanese people, and were to be preserved for the next generation. It seems to me that today's restoration and reconstruction works of temples by Japanese restorers is a continuation of this tradition. In this connection I would like to mention the grand Todai-ji Temple, which was built in the 8th century and has been damaged and reconstructed several times since then.

Speaking about temples I would like to point out the massive weight of a tiled roof on top of a wooden frame. According to an estimate by Japanese restorers, the weight of all the tiles of Chion-in Temple is about 700-750 tons. Of course a firm wooden frame is needed to hold up such a mass, and this task has been solved successfully by Japanese architects.

The Museum of the Archaeological Institute of Kashihara is filled with archaeological artefacts discovered in Nara Prefecture dating from the Palaeolithic period to the Middle Ages. In comparatively small exhibition halls, the rich and developed cultural and historical past of the Japanese people is displayed. In connection with Central Asian archaeology, the figure of a saddled and bridled horse from Shijo Tumulus attracted my special attention. Some archaeologists believe that in these figures the oldest wooden saddles and first stirrups are represented. According to them, the first wooden saddles and metallic stirrups originated in eastern Asia and then spread west.

Fujinoki Tumulus and the artefacts from it also have some similarities with Central Asian archaeological materials. From a management point of view I would like to pay attention to the following circumstance. Both in Central Asian and Japanese archaeology, a huge mound over a grave indicates the high social status of the deceased. This means that such kind of monuments contain valuable items. Although most of these burial sites have been looted, there are some monuments that have survived until today, such as Fujinoki Tumulus in Japan and Issyk burial mound in Kazakhstan. Unfortunately, these monuments are still frequent victims of treasure hunters in our respective countries, which demands urgent measures on behalf of science and the community. In this connection, Fujinoki Tumulus Museum in the open air is exemplary for us.

The super modern Kyushu National Museum equipped with state-of-the-art technology and its "younger brother," Kyushu Historical Museum, produced a great impression on us. They are not only museums but also grand research centres, where conservation science takes the main position. The museums are able to practically carry out the entire process from excavation of monuments to documentation, conservation and exhibition of unearthed artefacts. Unfortunately, because of lack of finance and with all the ensuing consequences, museums in Kyrgyzstan are not capable of exhibiting artefacts in a proper way, not to mention the excavation of archaeological monuments and conservation of artefacts.

Concluding Remarks

It should be noted that in contrast to the situation in Kyrgyzstan, the Japanese cultural property research and conservation field is highly specialized. It is possible to be convinced of this by visiting not only the respective research institutions and laboratories, but also libraries. There are many books on historical and cultural heritage written by archaeologists, restorers and other specialists. Unfortunately, because of the language barrier, most of them are not available to foreign specialists.

However, Kyrgyzstan archaeologists, who are very few in number, are responsible not only for excavation and documentation of monuments and artefacts, but also for their conservation and management. In other words, the lack of specialist staff is a serious barrier to the development of the cultural property field in my country. Furthermore, there is no definite or fixed state policy on the study and preservation of cultural heritage, even though the Kyrgyz society, like the Japanese nation, is typically based on ancestor-veneration. Apparently, the effectiveness and productiveness of cultural heritage policy directly depends on the economic condition of a state.

Acknowledgments

I would like to express my deep gratitude to the organizers of the training course, particularly the Agency for Cultural Affairs and ACCU Nara, for the invitation. I would also like to extend my thanks to the lecturers for sharing their knowledge and experience with us. My special thanks are extended to the staff of ACCU Nara, who followed us all the time and who made us feel comfortable and safe during our stay in Japan. Finally, I wish to thank the National Commission of the Kyrgyz Republic for UNESCO, Director of the State Historical Museum, Mrs Anarkul Isiralieva, and Chief Research Officer of the National Academy of Sciences, Dr Bakyt Amanbaeva, for their support during the application process for this training course.

Lao P.D.R.

Sivorravong Souksavanh

Final Report on the Training Course on Cultural Heritage Protection in the Asia–Pacific Region 2014 -Research, Analysis and Preservation of Archaeological Site and Remains-

I. Introduction

This training course was held in Nara city, Japan from 2nd September to 3rd October 2014, jointly organized by the Agency for Cultural Affairs, Japan (Bunkacho); Asia-Pacific Cultural Centre for UNESCO (ACCU); International Centre for the Study of Preservation and Restoration of Cultural Property (ICCROM); and National Institutes for Cultural Heritage, National Research Institute for Cultural Properties [Tokyo and Nara], in cooperation with the Japan Consortium for International Cooperation in Cultural Heritage; Ministry of Foreign Affairs of Japan; Japanese National Commission for UNESCO; Nara Prefectural Government; and Nara Municipal Government. ACCU hosted the opening ceremony of this course, with participants from 16 countries: Bangladesh, Bhutan, Cambodia, Fiji, Kazakhstan, Kyrgyz Republic, Lao P.D.R., Maldives, Mongolia, Myanmar, Pakistan, Palau, Sri Lanka, Tajikistan, Thailand, and Vietnam. This training course covered the investigation, conservation and management of archaeological remains, with the aim of providing participants with the latest methodologies and technologies to apply to our work in our respective countries.

The purpose of this training course was to upgrade the knowledge of participants on the principles and methodologies for protection of archaeological remains; and we were taught various skills and techniques for recording and analysing artefacts as well as methods for the storage management and exhibition of artefacts; and we also got the opportunity to establish networks with colleagues from the region and share our experiences in the field.

II. Activities and Lectures in This Training Course

This training course was one month long, held from 2nd September to 3rd October 2014; starting with the reception at ACCU amid a warm atmosphere and the excitement of trainees from other countries who had come to witness the development of Japan's economy as well as its cultural prosperity. By the end of this training course we could learn many varied things, all of which will benefit me in my work on conservation and protection of cultural heritage, such as the research, analysis and preservation of archaeological sites and restoration of remains, as well as storage management and exhibition of artefacts. The following is an account of the daily activities covered by the course:

- On 3rd Sep., Dr Gamini Wijesuriya presented a lecture on Global Trends in Conservation Archaeological Sites, and the basic meaning, importance, role, and responsibilities of ICCROM. In addition, he gave definitions of heritage, archaeological sites and the rescue archaeological artefacts, and the advantage of archaeological impact assessment of sites that are threatened with development. He stressed that it was important to develop heritage law and management

of archaeological sites, with the consideration of strict measures for archaeological site management and preservation.

- On 4th and 5th Sep., ACCU gave us a chance to share our own experiences with each other through the presentation of country reports by each participant. Participants also talked of the issue of archaeological site risk and cultural heritage site risk involving damage from development, natural and human factors, and general deterioration of sites, etc..
- On 8th Sep., we studied the system for protecting cultural properties in Japan, from a lecture by Aoki Tatsuji (Agency for Cultural Affairs). He explained the classification of cultural properties in Japan, and it enabled me to clearly understand the definitions of tangible cultural properties and intangible cultural properties. We also studied folk cultural properties, monuments, cultural landscapes and groups of traditional buildings in Japan and learnt about the role of the national government in the framework of the Law for the Protection of Cultural Property and other laws and regulations.
- On 9th Sep., we studied the conservation science of artefacts, through a presentation by Wakiya Soichiro. He talked about many issues such as conservation treatment, and gave us practice in a number of methods of mechanical cleaning, and examination of corrosion of metals, desalination (iron objects) and stabilization (copper and bronze objects). However, it was important for me to learn how to use modern implements in cleaning artefacts by modern implements, including the circulation of metal, diagnosis by microscopic examination, X-ray radiography and analysis of materials (usually with XRD) for identification of corrosion agents with XRD (some kinds of corrosion agents act as a protection layer, hence it is important to identify or estimate the specific corrosion agents present).
- On 10th Sep., we studied First Aid for Fragile Artefacts, a lectured presented by Tamura Tomomi, in which she taught us how to temporarily increase the strength of artefacts and how to revive artefacts with the surrounding soil
- On 11th Sep., we studied the conservation science of metal artefacts. The lecture was divided into two parts, with Part 1 on the conservation science of metal artefacts in storage and display, including problems in the conservation of metal artefacts, consideration of the effect of humidity on the corrosion of iron artefacts, the corrosion mechanism of bronze artefacts in storage, and environmental control for preventive treatment. Part 2 was on the corrosion process of iron artefacts at Takashima Kozaki site, as well as on the location and history of the site, the background and purpose of the investigation and the result of the investigation.
- On 12th Sep., we studied the recording and documentation of artefacts in a lecture on photography, presented by Nakamura Ichiro (NNRICP) and Sugimoto Kazuki (photographer). They talked about certain guidelines for the preservation of cultural properties through photography, centering on digital records: how to save digital photographs, file management, and precautions in preparing digital photographs. They also provided basic knowledge on the nature of cultural property photographs. It was important for me to learn at the lecture: the role of photographs for cultural properties, the types of cameras such as digital single lens reflex cameras, the formats of savaging digital photograph image, the photograph mechanism, lighting angle, structural outlines, lenses and image processing.

- On 15th Sep., we studied the maintenance and management of archaeological sites in practice at Nara Palace Site, as well as the photographic recording and documentation of artefacts.
- On 16th Sep., we studied digital data management in practice. This enabled me to know how to keep photographic documentation on a computer.
- On 17th Sep., we went to the World Heritage Site Historic Monuments of ancient Kyoto, including Chion-in Temple, Nijo-jo Castle and Kinkaku-ji Temple (Golden Pavilion) for studying the restoration of wooden constructions, how to maintain temples and traditional painting of a castle.
- On 18th Sep., we studied the measured drawing of artefacts and earthenware, in a lecture by Fukasawa Yoshiki, Miyoshi Miho and Ikeda Hirohide. This enabled me to know the significance of measured drawing and techniques for measured drawing.
- On 19th Sep., we continued to learn about measured drawing of artefacts and rubbing techniques, but this was also new knowledge and important for me in my work, because it helped me to understand the shape of items such as pottery, bowls, Buddha statues, etc.
- On 22nd Sep., we studied the recording and documentation of cultural heritage by using a 3D scanner, presented by Kaneda Akihiro. He talked about methods of 3D documentation, 3D modelling from traditional archaeological records, laser scanning vs photogrammetry, terrestrial laser scanning, the triangular method, laser scanning results of pottery, and UAVs. This lesson taught me how to take photographs in high corners using a UAV and how to use a 3D program to take pictures for the documentation of cultural heritage.
- On 23rd Sep., we studied Site Museum Operation in Practice at Fujinoki Tumulus, Ikaruga Cultural Properties Centre. At the Horyu-ji Temple we also learned about the history of Buddhism in Japan and the background of the temple, presented by a volunteer guide.
- On 24th Sep., we learned about conservation science for artefacts and objects excavated from marine sediments, and we also found out about the history of Japan vis-à-vis Mongolia, and it was important for me, to learn how to preserve wooden artefacts.
- On 25th Sep., we went to Kyushu National Museum to learn about facilities for Museum Science Analysis and Examination. We also studied how to use X-ray scanners in order to look inside of artefacts and how to copy them with 3D printer.
- On 26th Sep., we learned about inventory systems and exhibition techniques used for artefacts at Kyushu Historical Museum.
- On 29th Sep., we went to Osaka Museum of History and studied the operation of the Museum. We also learned about the history of Osaka city and the background of Osakan people in the past. It was important for me to learn about conservation of the landscape of an ancient city that was buried.
- On 30th Sep., we listened to a lecture from ICCROM, presented by Rachael Egerton. There was also a discussion among participants on suggestions for solving problems relating to the preservation of sites and remains in their own countries in the future. In the lecture and discussion I learnt about values and statements of significance, and it enabled me to identify defining values and defining significance.
- On 1st Oct., we listened to another lecture by Rachael Egerton, on World Heritage Convention

and Statements of Outstanding Universal Value. There was also a presentation from participants about value and significance of East Palace Garden where we had visited and observed the day before.

❖ Problems suggested in the respective countries of participants in the future:

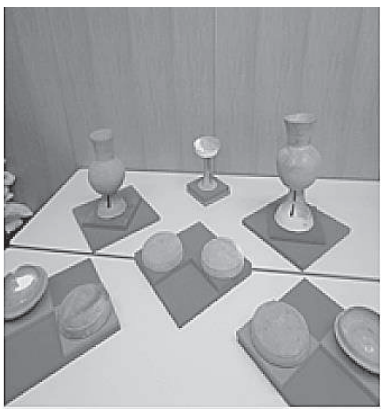
- Community awareness, natural disasters, poor planning, new technologies/tools
- Human vandalism, risk management, climate change, rising sea levels, worldwide pollution
- Resources
- Capacity building
- Planning
- Legal framework
- Lack of policy

III. Evaluation of This Training Course

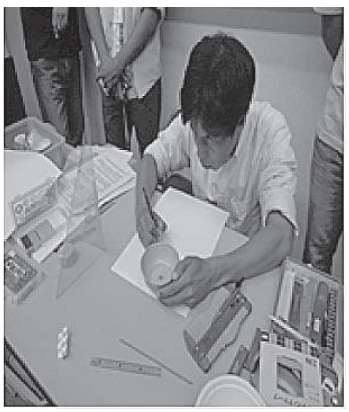
❖ Strong points:

During the training course, ACCU paid attention to us sincerely and made everything convenient for us, with the payment of an allowance every day for items such as meals (food), accommodation, transportation, and travel. In addition, ACCU prepared study materials for everybody, and it is very important to note that ACCU had chosen the best lessons in order to teach us as individuals. All the lessons of ACCU will benefit me in my work, now and in the future, and some lessons can also be applied immediately in my country, for example: the movement of artefacts, lifting artefacts, the system for protecting cultural properties of Japan, and the conservation of artefacts, such as how to preserve pottery, jars, bowls, Buddha images, and wooden objects. Also, other lessons can be presently applied in my country, for example: how to conserve metal artefacts, how to display artefacts in the museum, photographic recording/documentation of artefacts, using a 3D program for photography of cultural heritage, the photography of artefacts , measured drawings of earthenware and rubbing, how to clean artefacts, and how to inventory and exhibit artefacts. I want to emphasize that the system of museum management in Japan, compared with my country, is excellent, including conservation, exhibition, education and giving information to visitors, as is the system of cultural landscape protection zones.

Lifting artefacts



Displaying artefacts

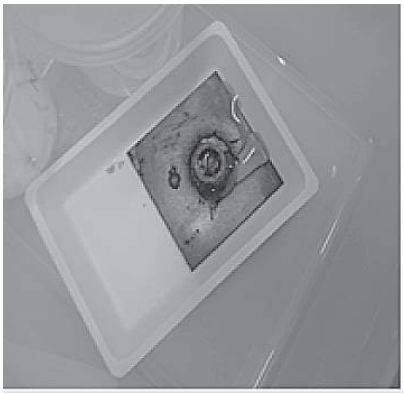


Measured drawing

❖ Weak points:

We could see this in the last few days of the course particularly on the rules of conduct, because sometimes we caused trouble to ACCU by doing such things as coming late and getting lost.

In addition, although some lessons that ACCU taught were relevant, other lessons cannot be applied in my country, because modern implements and advanced technology were used, which are unsuitable for a poor country such as mine. The measures cannot be applied because they need a large budget, but their benefits are so clear that they may be able to be applied in the future. Such lessons I mentioned above include the lesson on the X-raying of artefacts to look inside the objects and the lesson on analysis of metal artefacts to identify corrosion and the conservation of metal artefacts. It is because that we don't have a laboratory for experiments, and even if we have the chemicals and the implements, there is also a lack of experts. Most of workers did not study this sort of specialist work and they graduated from other faculties, so this has made our work really difficult. Also at some museums, we did not have enough time to learn many things for the study tour.



Result of analysis on corrosion of metal

X-raying inside an object

3D scanner printer

IV. Conclusion

The Training Course on Cultural Heritage Protection in the Asia/Pacific Region 2014 has provided all participants with an opportunity to improve and upgrade their knowledge and skills in their own work for better efficiency, and to study new techniques of conservation and restoration of cultural heritage. In addition, this training course has provided me with practice and experience in Japan and also introduced me to modern implements that can be used in various conservation, preservation and research analysis techniques. This course has been of great value for me, because it gave me the opportunity to learn new things and to share experience and knowledge with my colleagues from other countries.

V. Acknowledgments

I would like to express my appreciation to the Government of Japan, and the Japanese people, as well as to the following organizations for giving me the chance to attend this training course: Asia-Pacific Cultural Centre for UNESCO (ACCU), Agency for Cultural Affairs, Japan (Bunkacho), International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM), Ministry

of Foreign Affairs of Japan; Japanese National Commission for UNESCO; National Institutes for Cultural Heritage, National Research Institute for Cultural Properties [Tokyo and Nara], and the Nara Prefectural and Municipal Governments. I am really grateful to Mr Nishimura Yasushi, the ACCU Director, and I am also truly grateful to all the lecturers and all ACCU staff and the interpreter, who made the conditions convenient for us during the entire period of this training course.

Maldives

Ashraf Ismail

Concluding Report

The training course on cultural heritage protection in the Asia/Pacific region 2014 has been a very fruitful and enjoyable experience in terms of the observations, lectures and practical work. The reflection of the people of Japan along with methods being practiced and the devotion and concentration shown has given me confidence and the ambition to step forward in changing current views on history and heritage by communities in Maldives. Representing the Maldives National Museum, I based my country report on heritage sites in general rather than concentrating on the confines of the museum, with the aim of sharing, discussing and learning new methods and ideas on improving the current standard of practice on how the museum and heritage sites are maintained in Maldives. I am very satisfied to be part of this training course in a year in which ACCU decided to broaden the spectrum of concentration from that of the previous training programs.

The opening lecture, which concentrated on the definitions of heritage, archaeology and management of heritage, broadened my knowledge of the basics that I have been applying through helping with the research and analysis of heritage sites, working together with the staff of the heritage section.

Important points I would like to highlight according to my understanding of the first lecture are as follows.

- Creation of strong legislation built upon heritage sites and the community.
- In the modern day, heritage cannot be fenced around anymore.
- Evolution and development bring changes to the nature of society and its thinking, and are important factors that need to be taken to consideration before planning for heritage assessment.
- Community understanding needs to be taken into consideration in decision making, in order to create more flexible rules that are beneficial to both parties in sustaining heritage.
- Management of heritage sites and artefacts can be transformed into a self-sustaining income generating process that benefits the community and preservation through involvement of the community understanding of management.

The definitions of heritage in Japan and its practice have opened up my eyes to new ideas that can be applied for the understanding of heritage in Maldives. Notably, the definition of intangible heritage, which includes the people in the practice of intangible heritage, is a very important factor that needs to be established in Maldives in the near future, along with the way tangible heritage is categorized through placing importance in its properties. The management of archaeological sites and reconstruction in Japan is something that I take an interest in, regarding how it benefits the community, which also raises the value given by the people to the site. For visitors, the reconstruction can be seen

as an illustration of how it originally might have been, which creates interest in seeing a genuine view of the site.

Designation of cultural property in private ownership is an important point that I picked up from the lecture, and is something that I would like to see established in Maldives. Given the lack of land for flexibility in maintaining a site on land in private ownership, it is a daunting task which I wish to look further into, as there are cases where private landowners accidentally stumble upon sites. I believe this is an applicable and beneficial point for my country, even with the difficulty in introducing a subsidy system, and if successful, will become a major way of changing the thinking of local people in how they can utilize such sites as an income-generating source under the supervision of the department/ government regarding maintenance of the site. This method can be utilized through local government authorities by the central government.

In general I understand that the maintenance of cultural/historical properties should be carried out in a way that shows the value of the cultural property to the community. However, that being said, it may become difficult to establish such a system in a country like Maldives, with an Islamic history of more than 800 years where its oldest artefacts and sites are from the pre-Islamic period. This is a risk factor that has shown its effects in a very aggressive fashion in recent times. But through careful planning and consideration I do believe that it is something that can be achieved through the engagement of the community in the planning, documentation and utilization of the cultural/historical property.

The observation and practical sessions on conservation of metal and wooden artefacts gave me knowledge that I can apply directly to my conservation work. I also found out that the methods I observed in Japan are, in a basic way, very similar to the methods I currently apply in my own conservation work. This gives me great confidence in my understanding of the procedures that I have been following. Although several methods of conservation and preservation that I observed in the training are inapplicable in my own country due to the high standard and cost, I am greatly honoured to have observed the high-level techniques practiced in Japan. It was an experience that can be used for future reference. The stabilization of bronze and copper is a process that I only knew very briefly through my own research before the training program. The explanation of the details of the process was very informative, as bronze and copper are the most common elements in the artefacts I work with.

The excavations and first aid for fragile artefacts was one of the numerous practices I observed for the first time. I will do my best to apply this at a level that is possible in my country. I believe that my colleagues who have previously participated in this training program already know and understand these methods, even though they are not able to fully apply their knowledge and skills due to various restrictions.
The session on exhibiting ideas was something I am very well experienced in and it was great to share my own ideas with my fellow participants. The packaging for artefact transportation with the use of acid-free paper and cotton fibre creating a soft cushion is an effective and easy applicable method for

Maldives Museum, where we currently handle artefacts as they are, with only the help of gloves. It is also a technique that I believe is simple enough to be used in moving any kind of valuable from one place to another.

Recording/documentation of artefacts is a study that I am greatly interested in, as I personally work on documentation of the collection in Maldives Museum. Although documentation in the form of accession number, artefact details (owner, description, time period, date of entry to museum, current status, conservation if any) are well documented through a form that is filled in, the photographic data is not up to proper standards in my thinking. The methods of artefact and site photography in the session helped me understand the step-by-step procedure in photography and also photo processing, with which I had had very little experience before the training. The use of a grey card in photography is something that I have not known before. Experiencing the way it works in bringing out the true natural colour of the target object is easily applicable in photo documentation, along with the saving format, protection and storage of the file.

Introduction of other forms of documentation such as measured drawing and rubbing are also important applicable methods for Maldives Museum. The practical session of measured drawing was a hard, but effective and accurate way to show the exact details and measurements which cannot be seen by a photograph. It is also the simplest and least expensive method of documentation with the most detailed information included. 3D scanning using multiple photographs and conversion to 3D data in PDF format using a photo processing program, available at a relatively reasonable price, is another method that can be applied to heritage sites and artefact documentation, given the low cost in comparison to other methods such as laser scanning.

The study tour of the Kyushu National Museum, Kyushu Historical Museum and Osaka Historical Museum showed great examples of museum development and the vast expanse of technological marvels that come along with it, and how a relatively low-level museum can still sustain and maintain a collection in a decent way. Observation of how the museums operated gave me comparative information as to how the current Maldives National Museum is operated. Of course, it would be impossible to achieve such an advancement in structure, capacity and funds directly, as the Kyushu National Museum is one of the best museums in Japan. But knowledge on the systematic level of operation with high-end equipment was given along with alternative methods that can be used at a lower level, which can be applied to museums such as in Maldives. The importance of architecture based on the environment also came to my attention, which I can take back as a good example to the Maldives National Museum.

The establishment of site museums is a project that is being put forward in modern day Maldives, as the archaeological, historical and cultural sites are spread around the many different islands of Maldives. My observation of how site museums work in Japan has given me some valuable points on further improving the approach to site museums in Maldives. The idea of creating self-sustaining cultural centres and site museums operated by the local community at island level is essential for

the proper maintenance and use of the sites, given that overall decisions are to be made through discussions with the local authorities and the Department of Heritage.

In conclusion, considering the whole training program, I have learned many interesting things applicable to my work as a curator and conservator. My favourite sessions of the program were the opening lectures/discussion, metal and wood conservation, recording and documentation of artefacts, digital data management in practice and measured drawings of earthenware/rubbing. This training has helped my understanding of these topics at a much deeper and detailed level, which I can utilize right away.

Apart from the content of the training program, I also learned a lot through discussions with my fellow participants about their opinions and the situation in their respective countries. These discussions revealed many similar issues that we all face, and that are hard to tackle and find solutions to. One of the biggest problems faced in Maldives is the lack of a proper law for heritage as neither the politicians nor the government have expressed much interest in passing the relevant bill or respecting its importance. Apart from the abovementioned problems, the protection of heritage sites and artefacts faces a very unstable problem of religious extremism induced into the community, which has led to aggressive behaviour on sites regarding artefacts that represent non-Muslim culture or history.

These types of issues are very sensitive issues that need careful assessment before action can be taken to reach out to people with different opinions on the matter. A strong law is the first thing that should be established to continue to protect all heritage sites. The final lectures on future issues regarding the preservation of sites and remains highlighted some very interesting ways in which such previously mentioned problems can be approached. Defining value and creating an understanding of the definition among the community is the first step to show a reason why the target site or remains should be of importance. The value given to a site or remains must not be built upon a single evaluation but rather an evaluation given by the community and the authorities in such a way that all parties develop a sense of mutual understanding. This will create a genuine identity to represent the particular site, which has values and morality of evaluation to support the reason why it should be preserved. The evaluation should be based upon all or some of the following criteria: age/era, physical attributes, historical theme, architecture, socio-cultural significance, and economic value. The understanding up to this point should be the foundation to planning the preservation, which should be carried out in a way that would benefit all parties.

Most of the criteria are also included in the World Heritage nomination steps. But I believe if these steps are applied to all listed heritages in Maldives, it could change the view of the community in this particular field as it will involve the community and enable them to share their opinions in a much more effective way than under many of the current practices.

The reason I do not describe the heritage protection methods in more detail in my country in this report is due to the fact that my specific area of work is based on museums and museology, even though I

participate in research, analysis, preservation and conservation programs in the field alongside my colleagues who specialise more in the subject. I also note that the previous participants in this specific training program have started applying their renewed knowledge to their work very effectively and showing positive results. I will end this report in a positive sense and undertake to apply what I have learned and share this with ACCU. I wish to acknowledge the work of ACCU in organizing this training program and thank them for accepting me as a participant. I would also like to thank the lecturers and the helpful staff for the wonderful experience in the beautiful city of Nara and Japan.

Mongolia

Tserendorj Tsolmon

Depending on the heritage type, there are many different conservation and restoration techniques used throughout the world. The main objectives of this training course, "Research, Analysis and Preservation of Archaeological Sites and Remains - 2014," was to outline the international trends in conservation of archaeological sites, present the Japanese heritage conservation system and related legislation, give participants expertise in heritage conservation management, and research, and analyse techniques used in Japan.

About Lectures and Demonstrations

At the beginning of the training course, ICCROM project manager Mr. Gamini Wijesuriya presented a very important lecture: "Global Trends in Conservation of Archaeological Sites." His lecture was very valuable and I obtained a great deal of knowledge on archaeological heritage conservation, management, restoration and reconstruction based on his comparisons of international practice.

The country reports presented by participants gave me a chance to learn about the heritage legislation and conservation practices in Asia-Pacific countries and make comparisons with my own country. While listening to the country reports, I observed that every country faces problems in heritage conservation, such as human vandalism, natural disasters, lack of capacity building and modern equipment, etc. After this 30 day training course, I am thinking that every participant found a way to solve these problems in heritage conservation, and maybe have a long list of things to do when they go back home.

The lectures "The Cultural Property Protection System in Japan" and "Conservation and Utilization of Cultural Heritage Resources" by Aoki Tatuji were one of the most important parts of this training course. His lectures gave me an understanding of the Japanese heritage conservation system and how the Japanese utilize their heritage.

In the second week of the training course, we worked at Nara National Research Institute for Cultural Properties, and Mr Wakiya Soichiro and Ms Tamura Tomomi presented lectures on "Conservation Science of Artefacts" along with demonstrations and practical workshops on how to organize first aid for fragile artefacts, and how to desalt metal artefacts. The demonstrations were very useful for us, because we used new techniques and new materials such as polyurethane foam, liquid nitrogen for lifting the fragile artefacts from the site, and the RP System for stabilizing relative humidity and temperature.

At the Archaeological Institute of Kashihara, Mr Yanagida Akinobu presented a very interesting lecture on the desalting of metal artefacts, as well as the Takashima-Kouzaki site. This site is a very important

Japanese underwater archaeological site and part of the Mongolian cultural heritage abroad. While we were visiting the Archaeological Institute of Kashihara, we had the chance to pack archaeological artefacts and to display them in an exhibition demonstrated by Mr Hashimoto Hiroyuki.

Desalting, stabilizing, and packing are some of the conservation activities important for archaeological artefacts. Besides this, photography and digital documentation are also important in conservation. After archaeological artefacts and sites are uncovered, they deteriorate very easily and become very fragile. During the lecture and demonstrations by Mr Ishimura Tomo, Sugimoto Kazuki and Nakamura Ichiro, we studied how to take photos of fragile archaeological artefacts and archaeological sites, as well as how to process those photos.

During the lectures and demonstrations of Mr Fukasawa Yoshiki, Ms Miyoshi Miho and Mr Ikeda Hirohide, I practiced how to make measured drawings of archaeological artefacts. The work is very detailed and needs a lot of patience as everything on a measured drawing should be accurate. At the Nara Centre for Archaeological Operations, we had more practice on how to make ink rubbings.

At the beginning of the fourth week of the training workshop, Mr Kaneda Akihiro presented a lecture and demonstration on "Recording/Documentation of Cultural Heritage Using 3D Scanner." We practiced operating a Faro laser scanner and a Next Engine laser scanner, and shot aerial photo with the use of a UAV unmanned aerial vehicle and processed the photos with Agi-soft Photo Scan software.

Study Trips

Since the beginning of the training course, we visited several World Heritage sites in Japan and temples in Nara city. In the third week of training, we visited the city of Kyoto and saw the restoration procedure of the ancient Chion-in Temple. According to Mr Asai Ken'ichi, the temple restoration started in 2011 and will finish in 2019. He also said that 70 percent of the roof tiles will be replaced with a similar type of roof tile because the old roof tiles have deteriorated so much. From Mr Asai's words I was able to understand the Japanese heritage conservation system and management more deeply. The conservation plan was based on long-term research works, and every activity related with the restoration was managed so well.

The second trip was to Ikaruga Cultural Properties Centre. There we visited Fujinoki Tumulus. This tumulus was excavated in 1985 and number of artefacts from the late 6th century were discovered. When we stayed in the Ikaruga area, we visited Horyu-ji Temple, and there I saw one of the best practices in Japan. Retired people were providing a free guide service for visitors at Horyu-ji Temple. As speech by guide lady, she has been working as a volunteer for 10 years at this temple, and she likes this work very much.

Our longest trip was to Kyushu by shinkansen. In Nagasaki, we visited an underwater archaeological site, Takashima-Kouzaki site. This place was the most interesting part of the trip because there are over 900 ships related with Mongolian history under the water and large-scale research and conservation

works were being carried out. Mr Nakata Atsuyuki and Aizawa Tetsuro gave a presentation about the site and conservation procedures, as well as some of the problems faced with the conservation of metal and wooden artefacts. They also mentioned that they have some unknown underwater archaeological artefacts, the usage of which was very difficult to determine. They also said that Matsuura city has a sister city relationship with Khujirt soum in Ovorkhangai province in Mongolia, with no collaboration with Mongolian research institutes or individual researchers on the underwater archaeological research at Takashima-Kouzaki site.

On our 2nd day in Kyushu, we visited Kyushu National Museum and Mr Imazu Setsuo guided us around his museum. According to Mr Imazu, the Kyushu National Museum provides excellent facilities for modern research, including analysing equipment for all types of heritage. During our stay at the museum, he showed us the operation of an X-ray CT and microscope set on free-arm stand for 3D measurement. After gathering data from the abovementioned equipment, a copy of the artefact is able to be printed with a 3D printer. I had previously just heard about 3D printing and not seen it in operation. That was an interesting and important demonstration for all participants, not only me.

On our 3rd day in Kyushu, we visited Kyushu Historical Museum. Mr Oda Kazutoshi and Matsukawa Hirokazu welcomed us and gave us a tour of the museum. A specific feature of this museum was its special showcase and facilities.

Our last trip was to Osaka Museum of History. This museum also provides excellent facilities and has relationships with Osaka Castle and the ancient capital site, the “Naniwa Palace Site.”

Archaeological Research and Analysis in Mongolia

In Mongolia, several universities and other institutions carry out archaeological excavations with the permission of the Ministry of Culture, Sports and Tourism of Mongolia. These universities and institutions send their previous year’s annual report to the ministry, after which they can receive permission to excavate. Except for the Institute of Archaeology under the Mongolian Academy of Sciences, these organizations just carry out excavations and prepare research papers on the excavated artefacts and sites.

The Institute of Archaeology under the Mongolian Academy of Sciences has some facilities and equipment for analysing and researching archaeological artefacts, but they are not adequate and not modern either. Mongolian archaeologists also do not have adequate experience in post-excavation activities, such as how to lift fragile artefacts from a site, how to consolidate artefacts, and how to make proper documentation for finds, etc.

In urgent cases, our organization, the Centre of Cultural Heritage under the Ministry of Culture, Sports and Tourism of Mongolia, sends restorers to the unearthed sites and carries out onsite consolidation and lifting for the artefacts and sites. In 2013, our centre was equipped with several high-tech devices, such as an X-ray analytical microscope XGT-5200, an energy dispersive X-ray fluorescence X-Met-7500

device (handheld type), and a portable 3D digitizer – Vivid, Fourier Transform Infrared Spectroscopy FT-7200 – for analysing the composition of materials and digital documentation. The abovementioned equipment is now used in research and the analysis of archaeological artefacts discovered in Mongolia.

Suggestions for Further Activities

As a result of the 30 day training course in Japan, I now understand the management of heritage conservation very well, especially for archaeological artefacts and sites. Every single operation we saw related to heritage conservation was planned and managed very well in Japan. But in Mongolia, archaeological artefacts and sites are not well managed. Universities and other institutions just carry out the excavation, and they do not plan and manage further follow ups, such as conservation, consolidation and documentation.

Of course, I will share the knowledge I obtained on heritage management with Mongolian archaeologists, and I hope that Mongolian archaeologists will again be involved with this training in the future. This training will contribute greatly to Mongolian archaeologists in their management of archaeological artefacts and sites.

In addition, after I return to my country. I will try to build collaboration between Mongolian-related organizations and Matsuura city on research matter taken from the underwater archaeological site "Takashima-Kouzaki." During our stay in that place, Mr Nakata Atsuyuki expressed his hope to collaborate with Mongolians on this research project. I also believe that Mongolians would have an interest in being part of this project.

Conclusions

This training course was extremely effective and impressive for me. The entire program was clear and all participants felt this because we obtained wide range of knowledge and experience from this training course, particularly procedures of conservation, preservation, heritage management, utilization and archaeological artefact conservation techniques.

Training course consisted of lectures, demonstrations and practical work. The coordination of the training course was very systematic and efficient regarding the arrangement of lectures, transportation and hotels. The attitude of all staff and organizers was magnificent.

Finally, I would like to express my great appreciation to the training organizers, the Government of Japan, ICCROM and ACCU Nara, as well as Dr Nishimura Yasushi and his staff who all worked together with us on this training course.
Thank you.

Myanmar

Myo Sandar Oo

Introduction

Cultural heritage is essential for an accurate understanding of the history, culture and spirit of each country; it is also a cultural foundation for the past, present and future. Therefore, proper research, analysis and preservation of archaeological sites and remains are required for us to keep important cultural heritage safe for the next generation, and accordingly, ACCU Nara, in partnership with ICCROM and the Agency for Cultural Affairs, organized this training course, titled "Training Course on Cultural Heritage Protection in the Asia/Pacific Region." In 2014, its subjects were "Research, Analysis and Preservation of Archaeological Sites and Remains," and the program consisted of presentations, discussions, lectures, workshops, and study tours of cultural heritage. The training was held from 2 September to 3 October 2014, in Nara, Japan. In this training, there were a total of fifteen participants from fifteen countries (Bhutan, Cambodia, Fiji, Kazakhstan, Kyrgyz Republic, Lao P.D.R, Maldives, Mongolia, Myanmar, Pakistan, Palau, Sri Lanka, Tajikistan, Thailand, and Vietnam). The course enabled participants to learn from Japanese heritage professionals and to share their own experiences. The training course consisted of theoretical and practical work and on-site lectures at different places in Japan, enlightening me and providing an opportunity for me to enhance my knowledge. I strongly felt that the most important topics in the training course were conservation science, reconstruction of historical monuments, management of archaeological sites, and museum science. This is because conservation science, reconstruction of historical monuments, management of archaeological sites and museum science are all well conducted in Japan.

Training Course Summary

In the first week, the opening ceremony was conducted on 2 September 2014. We had an introduction to World Heritage in Nara, where we visited Todai-ji Temple to observe restoration work at a historic site. The next day, the training course featured an introduction to "Global Trends in Conservation of Archaeological Sites" by Dr Gamini Wijesuriya, which contained interesting and useful information for me. I also became acquainted with the different international charters, recommendations, and conventions regarding guidelines for heritage conservation in various parts of the world. On 4-5 September, country report presentations were made by the course participants. It was very interesting and enjoyable for me to learn about the conservation methods being applied in different countries. All participants presented their country reports, and then discussed approaches to the issues that were raised. Dr Gamini Wijesuriya and Prof. Inaba Nobuko gave many useful suggestions for how to improve the various situations. After that, Prof. Inaba introduced the cultural property protection system in Japan and the conservation and utilization of cultural heritage resources. She gave detailed information on the system for protecting cultural properties, including tangible cultural properties, architecture and other structural monuments, folk cultural properties, cultural landscapes, and so on. She also spoke on the chronology of laws on historical, cultural, and archaeological properties in Japan.

In the second week, on 8 September, the lecture delivered by Mr Aoki Tatsuji on "The Cultural Property Protection System in Japan" covered how Japan has enacted and revised a number of different laws. The following lecture on "Conservation and Utilization of Cultural Heritage Resources" (cases in Japan) was very useful for understanding the legal framework for the protection of cultural heritage in Japan. This lecture provided an outline of guidelines for the funding, management, conservation, and protection of cultural properties from both international and national perspectives. The national government, local government, land owners, and the public are all included in the framework for considering how to protect cultural properties and in other laws and regulations. In this week, on 9-11 September, in the subject of "Conservation Science of Artifacts I, II, III," the main emphasis of the training was on archaeological metal materials and artefacts. This lecture provided me with an excellent opportunity to learn and develop my understanding on the need for archaeological sites and artifacts. The lecture and workshop on the conservation science of archaeological artifacts was arranged under the guidance of Mr Wakiya Soichiro and Ms Tamura Tomomi of the Nara National Research Institute for Cultural Properties, and Mr Yanagida Akinobu, of the Archaeological Institute of Kashihara. We learned the details of the mechanism of corrosion of metal objects, first aid for fragile artefacts, conservation of metal artefacts in storage and display, and the corrosion process of iron artifacts at Takashima-Kouzaki site. In this week, we had practical training in museum exhibition practice. The training was conducted by Mr Hashimoto Hiroyuki. Myanmar has many metal artifacts and some of them are intended to be display objects at a new national museum. This practical training was therefore very useful for me.

In the third week, on 15 September, "Nara Palace Site Investigation" was held at Nara National Research Institute for Cultural Properties. Mr Ishimura Tomo introduced the maintenance, management, and preservation of structural remains, focusing on the actual conditions and challenges of cultural heritage management. He also gave us an idea of the architecture and the excavation at the Nara Palace Site (Great Audience Hall), which was very important and informative for me. On 12, 15, and 16 September, a lecture and workshop on "Photographic Documentation of Sites and Remains" and "Digital Data Management in Practice: Photography" was arranged under the guidance of Mr Nakamura Ichiro of Nara National Research Institute for Cultural Properties. Photography is an important and necessary method for recording archaeological artefacts and sites. He gave us basic knowledge of the camera, the storage of photographic data, and general photographic knowledge. On 17 September, we went to Chion-in Temple (National Treasure of Japan), Cultural Properties Division, Kyoto Prefecture Board of Education. We observed the repair work for Mieido (Main Hall). I was impressed with the Japanese traditional temple conservation system. We also visited Nijo-jo Castle (World Heritage Site), which is one of the finest examples of early Edo period and Momoyama culture in Japan, as it makes splendid use of early Edo period building designs, lavish paintings, and carvings that Tokugawa Iemitsu generously commissioned. The Castle was designated as a World Heritage Site in 1994. We also observed these lavish paintings. In this week, on 18-19 September, all the participants of the training course participated in practical work on measured drawing of earthenware and taking rubbings of roof tiles. This lecture and practical work was run by Mr Fukasawa Yoshiki and his group from Nara Municipal Board of Education. One important part of the documentation of archaeological

artefacts is drawing. Basically, there are two kinds of drawing needed in order to express an archaeological object of three dimensions through a drawing in two dimensions, and these kinds of drawing are combined. Artefacts provide a wealth of information on archaeological sites, and we have a system for the documentation of this information. First: observe the condition of the material, its characteristics and other information. Second: conserve the artefact for long-term preservation. Third: present to the public all data on the artefact.

In fourth week, on 22 September, all the participants of the training course participated in practical work on "Recording/Documentation of Cultural Heritage Using 3D Scanner." This lecture and practical work was run by Mr Kaneda Akihiro from Nara National Research Institute for Cultural Properties. He showed us the techniques used in the Laser Scanning and Photogrammetric method. It was very important and informative for me. Myanmar has one heritage site (three ancient pyu cities) and seven tentative listed sites, and we are starting to use the Laser Scanning and Photogrammetric method for the documentation of monuments. This latest technology is very useful for our cultural heritages. On 23 September, we went to the World Heritage Buddhist monuments in the Ikaruga area. First, we went to the Ikaruga Centre for Cultural Heritage. This centre provided a good understanding of the Fujinoki Tumulus, providing video explanations together with the display of many funerary goods. We observed that the tomb had never been looted; many gorgeous funerary goods have been discovered, such as the gilt bronze saddle fittings with its superb and unique design, which is a rare find in East Asia. Other burial accessories have also been found, such as the gilt bronze crown and shoes and swords. It is clear that Fujinoki Tumulus is very important for unravelling the funeral customs of the late 6th century. We also went to Horyu-ji Temple. We observed the preservation of cultural assets and archaeological observation of Horyu-ji Temple. At this temple, I was interested in the volunteer guide system.

The most important and comprehensive part of our training course was the study tour to the Kyushu area (from 24 September to 26 September), in which we visited cultural heritage sites and museums such as Takashima-Kouzaki site, Kyushu National Museum, and Kyushu Historical Museum. On 24 September, we went to Takashima-Kouzaki site (National Historic Relic Site). Mr Nakata Atsuyuki, Manager of the Cultural Properties Division, Matsuura Municipal Board of Education introduced the management and conservation of structural remains, focusing on the actual conditions and challenges of the conservation of underwater historical remains. He also showed us actual conservation treatment of artefacts unearthed at the Takashima underwater site, which was very important and informative for me. On 25 September, we went to Kyushu National Museum. It was opened in October 2005 as the fourth national museum of Japan. This museum is particularly well-equipped, with facilities such as advanced storage, scientific study and research divisions, and conservation and restoration sections for the cultural properties in this museum. Kyushu National Museum showed the high level of presentation and display techniques adopted by Japanese professionals. At this museum I studied many ancient artefacts of Japan and I wanted to prolong the experience, by walking slowly while admiring the adorable atmosphere, but we did not have enough time. I was impressed with the practical work using an X-Ray CT Scanner, 3D digitizer and 3D laser printing. On 26 September, we went to Kyushu Historical Museum. We observed the inventory system and exhibition technique for artefacts. Much

valuable knowledge was obtained, particularly on excavation studies for promoting archaeological sites, organization work for unearthed relics, report preparation and utilization of artefacts.

In the fifth week, on 29 September, we had a day trip to Osaka Museum of History and Naniwa Palace Site. We observed that the permanent exhibition features numerous full-scale reproductions, models, graphics and large quantities of original artefacts to bring to life the history and culture of Osaka. Naniwa Palace Site occupies the site of two palaces from two different periods. The palace site has now been designated a national relic historical site and is a familiar landmark to the citizens of Osaka. On the study tour to the museums, I had the opportunity, together with all the other participants, to observe museum science in practice. All the participants obtained a lot of information about the conservation, exhibition and educational aspects of the cultural heritage that we should be preserving. At Osaka Museum, the underground ruins exhibit was especially interesting.

On 29-30 September, I was impressed with the lectures and discussions on "Future Issues on the Preservation of Site and Remains" by Ms Rachael Elizabeth Egerton of ICCROM. She gave us an introduction to the World Heritage Convention and Statements of Outstanding Universal Value. The lectures provided me with an excellent opportunity to learn and develop my understanding about the need for management of cultural assets. I also became acquainted with the different international charters, recommendations, and conventions regarding guidelines for heritage conservation in various parts of the world, and how ICCROM and other international organizations are playing a significant role in cultural heritage preservation and protection. On the last day of the training course, all the participants discussed the heritage of value, archaeology of renown, and reshaping archaeological assessment of significance. This was coordinated by Ms Egerton.

Conclusion

The Training Course on Cultural Heritage Protection in the Asia/Pacific Region 2014 has provided an excellent opportunity for me to gain in-depth knowledge about Japanese cultural heritage and its conservation, preservation, and excavation, using both traditional and modern methods. This training course has provided me with a wealth of technical information which I look forward to utilizing in my future research work. During the visit to different museums in Japan, I learned the latest methods and techniques applied by Japanese experts for the proper display of artefacts and their preservation in the museums. By visiting these museums, I could study the development of museology in Japan and these techniques will be applied in my own country. Most countries in the Asia/Pacific region suffer from insufficient funds and experts for preserving their cultural heritage. We have different kinds of problems, with different backgrounds. Therefore, it is essential to cooperate with one another and share our information and experience. The experience that I have gained during this training program is applicable to the most cases. Throughout the training course, I felt that the entire program was very valuable for me in handling issues of conservation, restoration, and archaeological work in my job and also in my country in general. Despite differences in the sites and materials, especially for monuments built of brick, wood and sandstone, all of the methods that I learned from this course can be applied or used as models.

Acknowledgements

First of all, I want to express my sincere gratitude to the government of Japan for giving me the chance to attend the ACCU Training Course on Cultural Heritage Protection in the Asia/Pacific Region 2014, "Research, Analysis and Preservation of Archaeological Sites and Remains" organized by the Agency for Cultural Affairs of Japan, the Asia/Pacific Centre for UNSESCO (ACCU), the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM), the Independent Administrative Institution, and Nara National Research Institute for Cultural Properties, with cooperation from the Japan Consortium for International Cooperation in Cultural Heritage, the Ministry of Foreign Affairs of Japan, the Japanese national government and the Nara prefectural and municipal governments.

I want to thank the organizers for their time and effort in providing this training course, beginning with Mr Nishimura Yasushi, Mr Kobayashi Ken-ichi, Ms Wakiya Kayoko, Ms Sakimoto Keiko, Ms Hata Chiyako, and all the ACCU staff for their excellent and wonderful organization during the entire course. And I also extend a special word of thanks to all the lecturers. I am also thankful to my government, my director general, and to all the other participants in this training. Again, I am truly grateful to all parties concerned, and I look forward to sharing this knowledge with my institute and associates upon my return to Myanmar, and to continue to communicate with, and take joint steps with all of the participants.

Pakistan

Ullah Arshad

Pakistan is a very rich country in respect of cultural heritage and its history goes back almost one-and-a-half million years, covering the Paleolithic, Mesolithic, Buddhist and Islamic eras. The country's cultural heritage in the form of stone caves, Buddhist stupas and monasteries, Islamic architecture, etc. requires proper conservation and preservation, and in line with this, museums and their storage houses have a great repository of artefacts that are in constant need of preservation and attention. This course by ACCU has provided me with ample opportunity to learn modern techniques useful for the preservation, conservation and restoration of our archaeological heritage and to analyse the prospect of application of these techniques in Pakistan. Therefore, this Training Course on Cultural Heritage Protection in the Asia-Pacific Region 2014 (Research, Analysis, and Preservation of Archaeological Sites and Remains) has really broadened my knowledge of the conservation and preservation prospects of cultural heritage and the use of museums as educational, cultural, historical and architectural hubs of learning. After completing this course it is hard for me to compare the heritage protection mechanism and conditions of museums in Pakistan with the sophisticated heritage institutions, mechanisms and museums of Japan, but this opportunity has greatly helped to point me in the right direction in this diversified field, and I will earnestly try to apply these methods back in my own country one way or another.

The first lecture by Dr Gamini, on global trends in the conservation of archaeological sites, was full of diverse information on new phenomena in the field of conservation of archaeological sites, but the aspect of application of a sense of ownership among the population of the country regarding their archaeological sites is very important in respect of Pakistan. We have not been able to promote this sense of respect and ownership in the populace regarding their cultural heritage, and as a result, our cultural heritage is constantly under threat from human vandalism. Even our leaders do not care about the value of heritage, as we saw in the past, when one of our politicians once tried to construct a stadium on the World Heritage site of Bhirmound (Taxila Valley) dating back to the 4th century BC. This attitude can be curbed by the publication of periodicals, articles, and creating an environment which will create a sense of respect among the readers and the common people regarding their rich cultural heritage and its global value.

The lecture given by Aoki Tatsuji regarding the cultural property system in Japan was very interesting and showed how the government of Japan is taking great care of its tangible and intangible heritage, especially in terms of the recognition of scenic valleys and places as natural heritage, which is rampant here. In Pakistan we have great potential in respect of beautiful scenic valleys and other places situated in the northern part of the country, and with the same approach of Japan, Pakistan could designate its beautiful natural sites as natural heritage, and through their promotion, generate a great amount of revenue. The approach of central and local government in respect of protecting cultural heritage is

tremendous in Japan, and their mechanism of awarding compensation for acquiring cultural property from private owners is very quick, in contrast with Pakistan. We have many cultural sites which are the property of private owners, and as the government does not pay heed to the acquisition of these sites due to paucity of funds, consequently most of these sites either vanish or are constantly under threat. It is also of interest to know that Japan established laws for cultural heritage protection in the early 20th century and then enacted a new law in 1950. Compared to this, in Pakistan, the Antiquities Act was promulgated in 1976, and now the provinces have enacted their own Antiquities Acts.

The lecture on conservation science of artefacts by Tamura Tomomi was very interesting, as we came to know about the use of casting tape and rigid polyurethane foam resin for solidifying the artefacts in the place of excavation, and wrapping them in a box to bring them safely to a laboratory. In Pakistan we carry out a lot of excavations but we lack these sorts of modern techniques and equipment. For example, if we find a precious artefact in an excavation then most of the time we just bring it out of the virgin soil without applying these modern methods, and in its transportation to the laboratory it gets damaged, so application of this method will greatly reduce the chance of damage of freshly excavated artefacts. Another aspect of that technique regarding the transfer of heavy objects from the excavation site is very much needed in Pakistan, because in an excavation we sometimes find large-sized sculptures, storage jars, etc., and during their transportation there is always the constant hazard of damage, hence application of casting tape and rigid polyurethane foam resin will make them solid, and with the help of a specialised instrument for lifting heavy objects, we can bring them safely to the laboratory. Similarly, the fantastic method of removal, and ensuring safety from corrosion of metallic objects is also very interesting, and application of this method will help the Department of Archaeology and Museums of Pakistan to eradicate the problem of corrosion of metallic objects. We have laboratories in our museums, but these laboratories are equipped with old machines with untrained and insufficient numbers of staff, and this training has brought to the surface that in Pakistan the administration of all the museums should take immediate steps to make the laboratories functional, and equip them with modern machines, which will help us greatly in saving our metallic objects from corrosion. The use of microscopes and X-ray machines, as we saw here, is very necessary for the diagnosis and treatment of metallic objects, as through this one can judge the exact problem and the proper treatment can be applied accordingly. In Pakistan some of our conservation laboratories already possess microscopes.

The lecture at the Archaeological Institute of Kashihara, Nara Prefecture was commendable and it further enhanced my knowledge regarding the treatment of iron and bronze objects and saving them from corrosion. In Pakistan most of the excavated bronze objects are cleaned with water to make them shiny for display purposes (especially in the case of coins), but here we learned that water with oxygen causes corrosion and rusting, hence, to make objects attractive we compromise their stability, which is wrong. With the help of modern equipment, Pakistan can achieve proper maintenance of her archaeological objects of bronze and iron, as we have the earliest iron objects dating back to 1500 to 1000 BC. In Pakistan it is very necessary to install air conditioning in museums and go-downs, which we are missing presently, to maintain a proper humidity level. The other ways, such as installing

moisture consuming instruments in the display show cases, and placing RP kits in the boxes of objects at storage houses for control of moisture, are more convenient, because they are easily available and arranged in Pakistan. At present, however, we lack these sorts of facilities and our artefacts are open to corrosion and rusting. Recently in some newly-renovated galleries of old museums, air conditioning has been installed, like in the renovated Quran and Islamic galleries of the National Museum of Pakistan, for controlling moisture and humidity.

The visit to the museum at the Archaeological Institute of Kashihara was very informative and we were very inspired by the beautiful display of the museum along with its lighting and method of voice recording for the description and history of objects. Here the curator, Hashimoto Hiroyuki, has practically demonstrated how to arrange a perfect display of artefacts. The technique of display and transportation of objects to their display spot is exquisite. Through use of these modern techniques, in Pakistan, we can easily save our artefacts from being damaged during transportation to the place of display from the go-downs. There have been incidents in which during the process of transportation by museum staff, some objects fell and were damaged, so this safe method can avoid this danger, and I note that the same sort of cotton and paper is also easily available in Pakistan for the packing of artefacts.

The session regarding photography of cultural artefacts was marvellous, because this is the first time I had come across modern techniques of photographing items with proper light, accuracy and modern cameras. In Pakistan, the Department of Archaeology and Museums has a separate section for photography, and every museum has specialist photographer, but they lack this sort of camera and training. This modern style of photography is very important in Pakistan for making catalogues of artefacts at go-downs and in display cases of museums, and these catalogues will also be very helpful in maintaining a proper record of the artefacts. In Pakistan the museum curator is in charge of a great number of artefacts present at go-downs and museum displays, and this responsibility is taken and handed over in a manually-prepared register, so the time it takes in transferring the responsibility from one officer to another creates problems. Hence if a proper catalogue is maintained, then one can easily check the record. At present we use normal digital cameras for photographs of objects and use hard disks and CDs for the storage of photographic data. Another aspect is the taking of photographs of heritage sites from a height, which is common in Japan, in order to have a clear and complete view of the cultural heritage sites. This is flabbergasting, as they can even arrange a helicopter for that task. In Pakistan, the Department of Archaeology cannot acquire such facilities, but with the help of cranes or making an elevated pedestal, our photographers can manage to get exquisite photographs of the archaeological sites. This process can be applied easily, yet we have not done so. The two photographic experts, Nakamura Ichiro and Sugimoto Kazuki, taught the participants how to transfer photos to a computer, manipulate the colour and shading, and preserve it with various methods for a long time for research purposes. In Pakistan we do not have large studios with such sophisticated equipment, but to some extent we can manage the colour of the photographic objects through available computers while applying a high level of attention and professionalism, and for this purpose, our photographers and archaeologists must be given proper training.

The visit to Nara Palace Site was fabulous, and I was mesmerized by the reconstruction of the palace site with cracks in the wooden poles, as would have been present in the original structure of the Main Hall; this idea of originality is splendid. Another feature of the site is that most of it has been rebuilt according to its old design. In Pakistan we do very little reconstruction; rather, we maintain the archaeological site in its original form despite its shabby condition, in order to present its originality. However at some sites partial restoration has been done—for example, at various monasteries complexes, stupas, and forts—so this method of restoration and reconstruction with utmost professionalism can be applied in Pakistan, to present the complete shape of historic buildings and cultural heritage. The authorities face the problem of a rising water table at Nara Palace Site, and the same sort of problem is present at the Moen Jo Daro World Heritage site of Pakistan, where the water level is constantly rising, which is very dangerous for the site, and a great number of foreign and local conservationists and archaeologists have tried and are still endeavouring to find a solution to this problem, but so far in vain, and the problem is getting worse day by day.

The historic visit to Chion-in Temple was very informative, and the participants were impressed by the ongoing conservation work at the temple. In Pakistan we also have many archaeological complexes which are in need of restoration, but besides the dearth of funds, we don't have the same kind of sophisticated material and expertise, like making a complete cover for a stupa site or tomb during the restoration process. However, for partial restoration of most stone-built stupas and monastery complexes in Pakistan, we are capable of acquiring the original stone and using the same masonry methods as used in the original construction; yet the attention Japan's archaeologists and conservationists apply to their work is lacking in Pakistan. Covering the entire structure with a roof is very necessary for some sites in Pakistan, such as the renowned Buddhist stupas of Julian, Mohramuradu, Takht Bhai, etc. (all are World Heritage sites), which are under constant threat of the ferocious climate.

The visit to Nijo-jo Castle was very informative, and the method of producing replicas of original paintings was especially spectacular. In Pakistan we possess rare paintings of the kings of past dynasties, but their constant display leads to the risk of damage, so with the help of professionals in the field of painting, we can arrange replicas of our rare paintings to preserve the real ones for the coming generations in humidity- and temperature-controlled go-downs. Through this professional approach, Pakistan can also make replicas of rare rock carvings, of which there are a great number in the northern part of the country.

The lecture on the drawing of artefacts revealed a new fabulous phenomenon to me, and for the first time, I underwent training in the professional drawing of artefacts. In Pakistan we have a separate branch for the drawing of artefacts, but they are not as professional and trained as we saw here, so this practice and information can easily be transferred to the drawing branch in our museums and heritage offices, which will help us to make accurate pictures of broken artefacts with the exact depth and motifs. As Pakistan has some beautiful old pottery vessels with beautiful animal motifs, this informative pattern will help us greatly in the documentation of these artefacts. In the lecture we

learned about the oldest designs of earthenware in Japan, which go back some 2000 years, having the marks of a Japanese plant similar to rice. In Pakistan we possess one of the oldest examples of earthenware featuring beautiful motifs of fish, birds, oxen, etc., with its age going back to 3500 to 4000 BC. Another important part of this lecture was the practice of taking an exact sketch of archaeological objects with the help of special paper and ink. In Pakistan we seldom use this method and normally take just photographs of the archaeological items for our records and for making a catalogue, so with this technique we can achieve a precise image of these objects for keeping it on record and also to prepare a catalogue. We can especially use this method of rubbing for the panels and brackets of Buddhist art to acquire exact sketches of these items to have a proper record of them.

The lecture on the use of a 3D (three dimensional) method for documentation was very informative, and showed that in a limited time a large number of artefacts and heritage could be documented. It has various modes of application, but equipment used for 3D is very expensive and it is presently not possible for Pakistan to use this method for the purpose of documentation. Despite that, the use of 3D is crucial in Pakistan for the documentation of archaeological sites and artefacts, and for this purpose, one of the software applications that we were shown in the lecture, like Agi-soft photo scan, can be applied as its method of use is simple, the equipment is also not so expensive, it can be arranged in Pakistan, and after scanning pictures of artefacts the creation of PDF files is also a convenient way for research in Pakistan. At present, we use a two dimensional method for documentation and a GPS system for mapping, and the use of laser systems and drone cameras for survey and documentation is out of reach in Pakistan at the present time.

The visit to Fujinoki Tumulus and its site museum was very interesting, but in contrast to the display of replicas of original artefacts, in Pakistan we display the original artefacts at the site museums. The visit to the tomb site showed me how much attention is being extended to its preservation. The tomb is not open to visitors, but in Pakistan we give access to visitors for all rare tombs and unique sites. Even though they are encircled and covered in wooden, glass and net cages, visitors are allowed to visit inside the safe blocks; yet our sites lack the kind of conservation and preservation that is present in Japan.

The visit to Horyu-ji Temple was remarkable and demonstrated the quality if the preservation overseen by Japan's Agency for Cultural Affairs, as the preservation of this wooden structure is a very laborious and lengthy job. This old, large wooden World Heritage structure entices many visitors each year. In Pakistan, on the other hand, we have stone-built structures which are older than that, but the preservation of these sites are not up to the mark. Even when we carry out yearly conservation of these sites, due to lack of funds, our different stupa sites have clay roofs, and in torrential rain, water trickles down to the original structure and damages it. The most inspiring thing for me at the Horyu-ji Temple site was the role of senior citizens who volunteer to guide visitors, free of charge, just for the promotion of their country's heritage. In Pakistan we lack this attitude in society; hence, by creating a sense of ownership in society we can also promote our heritage. But this will take time.

On our visit to Takashima-Kouzaki site, we were briefed by the respected lecturers Nakata Atsuyuki and Aizawa Tetsuro about this underwater archaeological site and the conservation methods that are employed with the help of modern techniques and equipment. In Pakistan we have an underwater archaeological site at Banbhore on the Arabian Sea, but proper investigation of this site has not been done yet as we do not have any specialists in this field, but one interesting point, according to Japan's marine archaeologists, is that a catapult found at the Takashima-Kouzaki site had been used by Mongolian invaders, and the same sort of catapult was used by Muhammad bin Qasim, a Muslim general who invaded this Banbhore area of Pakistan in 711 AD.

The visit to Kyushu National Museum was an amazing experience for me, and the building itself demonstrates the beauty and depth of this historic museum. Here we learned about 3D printers and scanners, which was a wonderful experience for all of the participants, and all of them practically saw for the first time the functions of a 3D scanner and printer. In Pakistan at this time we cannot afford this expensive technology. Here, I learned that most of the storage houses in Japan museums are made of wood to contain humidity among other things, but in Pakistan most of our storage houses are made of stone and concrete without any equipment to control humidity and temperature, and that's why most of our precious artefacts have corroded. We normally use the CO2 method for pest treatment of wooden objects and seldom use chemicals for this purpose. 3D scanners can greatly help Pakistan in producing replicas of splendid Buddha sculptures along with other beautiful artefacts. The display, earthquake proof quality, and lighting system of Kyushu National Museum is awesome, and it made me proud to see exquisite artefacts of Ghandara art of Pakistan also adorning the showcase in one gallery of this splendid museum. In Pakistan we also have the same number of galleries at the National Museum of Pakistan, which depict the history from the Stone Age to the late Mughal period. The electric track and elevator for the approach to the temple site is a fabulous idea. In Pakistan we need to arrange this type of elevator for the approach to various World Heritage Buddhist sites, as they are situated at high altitude; at present, however, concrete steps are available for visitors to approach these sites.

The visit to Kyushu Historical Museum was a tremendous experience for me, and here the mechanism for treatment of artefacts, the storage facilities, the display concept with proper lighting and moveable showcases to avoid the danger of earthquakes are fabulous. The concept of steel panels adorned with plastic boxes for the storage of earthenware is present in some museum storage houses in Pakistan, but we have to extend this to all go-downs. The prospect of restoring earthenware with plaster after proper cleaning and drawing was great to see. In Pakistan we have beautiful ancient earthenware with exquisite motifs of animals, but these are mostly found in broken condition during excavation, so by applying this sophisticated mechanism with concentrated effort we will be able to restore them properly. The facilities and amenities for visitors at the museums at Japan are gorgeous and their usage as institutions of learning for children is especially tremendous. In Pakistan we also place great importance on the educational aspect of museums, and at the National Museum of Pakistan we have arranged a special bus which is used by educational institutions for paying visits to the museum.

During this course we enjoyed the night festival at the East Palace Garden with the enjoyment of

special cuisine of the past, which used to be served to guests at that time. This idea of depicting real history in this way is really fantastic, and in Pakistan back in 2007, we organized the same sort of event in the form of a Gandara carnival festival at the 2nd century Buddhist site of Taxila Valley at the Dharma Rajika stupa, which was greatly praised and enjoyed by a huge number of foreign and local visitors. So the replication of that event in Japan has shown me that it's important and in future, we will plan to arrange similar kinds of events at Pakistan's cultural heritage sites.

The visit to Osaka Museum of History was a great experience that completed the puzzle of how to use a museum for entertainment, amusement and educational purposes, and it was nice to see how such a colossal museum was established by the city government with the initiative and collaboration of the local people. In Pakistan we lack that kind of support and responsibility from the government and population. The palace and castle near the museum looks great, but when I heard about the national highway passing so close to the site, I was amazed. In Pakistan, according to our Antiquities Act of 1975, no development can be made within 200 feet of a historic site, notwithstanding how important it is, so when a highway was planned to pass close by Moen Jo Daro World Heritage site, the strong resistance of the Department of Archaeology compelled the authorities to change the path of that road. The display, lighting system, audio video recording and use of iPads for giving an idea of how the site may have looked is fabulous in this museum. In Pakistan we can arrange some of these facilities, but the paucity of funds is a great impediment. The prospect of a salvage excavation to be carried out by the research centre of the Osaka museum is a great idea from the perspective of the archaeological heritage of Pakistan, as the government cannot acquire all cultural heritage sites because of a scarcity of funds, so at least we can conduct salvage excavations at potentially rich archaeological sites in order to preserve the precious artefacts. It has been done many times, but this aspect still needs more attention in Pakistan.

In a nutshell, the establishment, display, amenities and facilities of the museums, as well as their use for educational purposes, is unequivocally a conspicuous phenomenon in Japan. All the museums I have visited have really broadened my knowledge in the field of museology and given me new vigour regarding the improvement of museums in Pakistan. It is a fact that we cannot match Japan in this field but we can improve our museum administration according to the pattern of Japan. We can ameliorate education activities in our museums and extend facilities and amenities to the visitors. The lighting and display of the museums can be further improved. In Japan the condition of the artefacts at storage houses is very satisfactory and the administration takes great care regarding the humidity and temperature in the storage houses. In Pakistan, however, our go-downs are in bad condition, and although they are filled with precious artefacts, the absence of facilities such an air-conditioning creates humidity and high temperatures, which is very hazardous for our precious artefacts. Hence, prompt measures have to be taken in this regard. In Japan the concept of reconstruction of heritage sites prevails but in Pakistan this approach is not present, and we keep sites in their original condition after proper conservation. In Japan most of the heritage buildings are wooden structures, so their conservation is very difficult, but in Pakistan most cultural heritage sites are made of stone and therefore rather easy to conserve. The attention and commitment to the field of cultural heritage that I

have seen here has greatly inspired me, and learning these modern techniques will help me greatly in my future research activities in the field of archaeology, museology, and preservation and conservation of cultural heritage.

Sri Lanka

Weerakoon Mudiyanselage Nirupa Priyadarshani

Final Evaluation Report on the Training Course on Cultural Heritage Protection in the Asia Pacific region 2014, Research, Analysis and Preservation of Archaeological Sites and Remains

Introduction

The training course on cultural heritage protection in the Asia Pacific Region 2014, Research, Analysis and Preservation of Archaeological Sites and Remains was organized by the Agency for Cultural Affairs, Japan, Cultural Heritage Protection Cooperation Office, ACCU Nara, ICCROM, Nara Municipal Government and Nara Prefectural Government. The course was held from 02 September to 03 October 2014.

Significance of Training Programme

I work for the Department of Archaeology of Sri Lanka under the ministry of National Heritage as an archaeologist. The Department of Archaeology and Central Cultural Fund are the main government organizations which are responsible for the protection of cultural properties in Sri Lanka. Identification of ancient monuments, explorations, excavations, conservation and maintenance are some of my responsibilities related to the work.

Sri Lanka has rich cultural heritage which includes large ancient monuments and sites and also has 8 world heritage sites. It is my great responsibility to protect them and maintain them for the future generations. I have been engaged in different archaeological projects mainly in the north central province of Sri Lanka.

This training programme is an invaluable opportunity for me to get further experience at an international level and have the chance to share knowledge with professionals from different countries. This valuable training program helped me to improve and upgrade my knowledge with high technology.

The training was held in very nice environment. During the training period, participants feel free to learn about the lectures and every detail of all the subject. The lectures are valuable not only to Japan, but also in every corner of the world. The lectures given by the lecturers involved were understandable for the participants, and communication among the participants helped learn about more things. I would say this training course was hundred percent successful.

The Japanese research, analysis and preservation system were the principal topics. Accordingly we had the opportunity to observe these on sites as well as to interact with relevant professionals. It was a

great benefit that resource persons were either technical practitioners or academics capable of giving detailed information on their subject. We learn both of the practical knowledge in the field observation and the principles or theoretical knowledge.

Due to the broad scope of the training it can benefit not only the participants in making successful contributions but also their home countries. This should be the true significance of this training. Most of the Asian countries have similar kind of problems in the protection of the heritage. There are some specific problems due to the situation of each country, such as the perceptions of the local communities and traditions or the communities' climate. But broadly these countries all have the similar problems including management of legal system and budget.

Five Weeks in the Training Programme

In the first week of training, we had a Global trend in conservation of Archaeological Sites beginning with a lecture on that topic by Dr Gamini Wijesuriya, Project Manager for ICCROM. Then two days were allocated for all participants to make their country report presentation on the problems and needs for cultural heritage. The participants' presentations seemed to be very successful. Because there was a discussion after each presentation which allowed participants to share their ideas and comments on issues pertaining to his or her country efforts to pressure and restore important cultural properties. On the last day of the first week we had an introduction about Japanese heritage. It was conducted by Prof Inaba Nobuko, from University of Tsukuba. We learnt about history of Japanese speciality on wooden architecture.

In the second week we had a good introduction on the system of protecting cultural properties in Japan, by Aoki Tatsuji from Agency for Cultural Affairs, Japan. We learned about classification of cultural properties in Japan. There are six types of cultural properties such as

1. Tangible
2. Intangible
3. Folk
4. Monuments
5. Cultural landscape
6. Groups of traditional buildings

We learned each by each in detail. It is very useful for us to learn about this classification. We can apply protection methods separately. Second day in the second week we learned about mechanisms of corrosion of metal objects from Mr Wakiya Soichiro from NNRICP. We learned the six steps of conservation. Those are planning, cleaning, desalination, reinforcement, bonding, and storage. It was a very important lecture for me as we are not aware of modern methods of conservation.

Third day in the second week we had a lecture about conservation science of metal artefacts by Mr Yanagida Akinobu from Archaeological institute of Kashihara. We learned by both lectures and practices. Also we got knowledge about conservation of metal objects in display and storage. We got the practical experience at Archaeological Institute of Kashihara. As I didn't have any experience

on metal artefacts conservation, these teachings were very important. We have learned about metal artefact storage methods. This new method is called RP system. It will be very useful in my office work. Another important thing I have learnt is first aid for fragile artefacts. In my work, we do many excavations and find many fragile artefacts. But still we use very old techniques to protect them. Japanese techniques are modern and safe in fragile artefacts. Now I can share my experiences with my colleagues when I returned home.

The training course provided us the knowledge of photographing the objects in correct way. As an archaeologist, it is important for me to learn how to take detailed and precise photographs. In the field work, we took photos necessary for recording and interpretations. Also we got the knowledge on the types of cameras and focusing correctly on objects. It is understood that we need a good quality camera in archaeological recording.

In the fourth week we visited the Japan's first listed World Heritage Site by UNESCO World Heritage centre. It is called Horyu-ji Temple. Its history goes back to seventh century and is a huge timber structure. It is one of the oldest timber structures in the world.

Another interesting site visit was made to Fujinoki Tumulus, which is 400 m west of Horyu-ji Temple. It is assumed that it was built in the latter half of the 6th century. It was surveyed and excavated from 1985 to 1988. The excavation research found a huge house shaped coffin as well as various kinds of earthenware and superb harnesses. It was interesting as they allowed us to go inside the mound. The Ikaruga Centre for Cultural Heritage which gives a better understanding about Fujinoki Tumulus is very informative with modern techniques. It is more important to the visitors. It gives a better understanding about the funeral rituals of the 6th century.

On Wednesday in the fourth week we went to the study tour to Takashima Island, a national historic site in Japan. We went to Matsuura City Takashima Centre for Archaeological Operation in Matsuura city. This centre has two functions. The first is the exhibition facility and the second is the base of the excavation research of the underwater site. It is important for me to see this underwater site as I have one subject in my post graduate degree on that.

Sri Lanka, as an island, we also have a rich underwater archaeological heritage, around the country. In ancient harbour in Galle, in southern Sri Lanka, we have found 37 ship wrecks of 14th century. These ship wrecks give very useful information about the foreign relations in the era.

We have learned how to conserve underwater archaeological objects there. In the final two days of the fourth week we went to Kyushu National Museum and Kyushu Historical Museum. Kyushu National Museum is located on a hill and it is an amazing building. There we learned museum science, analysis and examination. There we learned about CT and 3D scanning of objects. Accumulating and utilizing 3D data created by digital measuring devices such as X-ray CT scanners would help the research, study, exhibition and preservation of cultural properties. X-ray CT scanners can record the internal

structures of objects without physically touching them. Data generated by X-ray CT scanners includes considerably more information than the conventional data which is currently used including pictures, blue prints and so on. The data from X-ray CT scanners can be used not only to study the structures and techniques of artefacts, but also to safely preserve and transport artefacts by using the data to understand the properties' current condition. In my opinion X-ray CT scanner is very important in improving the quality of study in a museum. The use of 3D scanner allows us to study large cultural properties safely and quickly. It doesn't need to cut or damage the object. By using both techniques, image can be created with the 3D printer. Even though the textures and colours differ from the original object, the shape of the object is made accurate. These images can be used for exhibition and education purposes.

Comparisons with Current Practices in My Country

The observations and experiences obtained in the training taught me the difference between my own experiences in Sri Lanka and Japanese practices. As a developed nation, Japan can allocate more funds to preservation of cultural properties and heritage unlike a developing country such as Sri Lanka. On the other hand, people of Japan are much aware of their heritage, specially the elder generation, than other countries.

Although we practice the same charters and international documents such as Venice and Athens charters, the Japanese process of preserving authenticity of a property must be studied thoroughly.

I didn't know about restoration through the total dismantling and relocation process before Prof Inaba taught us. If an object is structurally deteriorated and vulnerable to decay, total dismantling and repair in the same design and form may be adopted. But partially deteriorated structures may be partially dismantled when the restoration is necessary. Generally some repair work is done. According to Prof. Inaba, dismantling and relocation is a general practice in Japan. And that is a popular method in Japan. As this method is not practiced in Sri Lanka, I think it is good to introduce it to Sri Lanka especially in stupa conservation.

Acknowledgment

The ACCU Nara 2014 training program was a great experience for me. I have learned a lot of information and shared them with people from all across the Asia and pacific regions. It was great to meet all these participants, and it was really amazing to share thought and subject with them. What I have learned from the training program will greatly benefit my future archaeological works.

I would like to pay my sincere thanks to the Department of Archaeology and Ministry of National Heritage of Sri Lanka for giving this opportunity for me, and thanks very much to ACCU Nara for inviting me to be a participant in the ACCU Nara training 2014. I would like to give my thanks as well to Dr Gamini Wijesuriya of ICCROM for his kind helps to me. I also would like to thank again Mr Nishimura and all members of ACCU office. They are very polite, kind, friendly and cooperative. I wish them all good luck and a successful life ahead.

BUDU SARANAI
ARIGATOO GOSAIMASU
AND THANK YOU ONCE AGAIN

Tajikistan

Abdulloev Umar

Introduction

Being one of the five "stan" countries from the post-Soviet Union period, Tajikistan still has some influence in the method of treatment, restoration, reconstruction, conservation, etc. It was well organized during the Soviet Union period to deal with cultural and especially historical heritage. But as we are in the 21st century we cannot always use the old methods, because many new technologies exist in the world. And the Cultural Heritage Protection Cooperation Office, Asia-Pacific Cultural Centre for UNESCO (ACCU) in Nara, Japan is the only organization at the moment to give us such a great opportunity to acquire more knowledge in this sphere. Actually, it was a very good idea for ACCU to organize this training course not just in one place, but at heritage and other various sites and museums, such as in Nara, Osaka and Kyushu. This gave us a lot of knowledge about most of them that we didn't know before, as well as practice in new techniques, and also made what was taught in the lectures to easy understand. And as I now know what I have to share the information from this experience with our company and give many recommendations for the projects which are going on right now back in my country:

The ANCIENT TOWN OF HISOR in Hisor Historical-Cultural Reserve is one of those cultural heritages in my country. You can see in the following report pictures of the existing monuments which are mostly not going to be touched during this great reconstruction project. Let me give you some brief information about the Ancient Town of Hisor and its reconstruction projects. Based on archaeological research and the discovered artefacts, Tajikistan is going to celebrate 3000 years of ANCIENT TOWN OF HISOR history on September 15th in 2015. At this moment there are huge reconstruction and restoration works taking place there. The government has already finished the reconstruction of WORKSHOPS for local craftsmen on the given site, and the reconstruction of a certain part of the FORTRESS WALL and a WATCH TOWER is now taking place. The next step is going to be the reconstruction of the RULER'S RESIDENCE at its original location, situated on the highest strategic point inside the FORTRESS. And the visit to Osaka Museum of History gave me another experience where I could observe the excavation site under the new museum building, which will be very useful for the reconstruction of the RULER'S RESIDENCE back in my country. I will definitely share this experience with the reconstruction group upon my return. Inside the FORTRESS the reconstruction of the AMPHITHEATRE will start next, and later on, a couple of SUMMER PAVILIONS (places of rest for the rulers of Hisor in that period) will be reconstructed around the NATURAL SPRING with pure drinking water. The NATURAL SPRING needs to be cleaned and restored. Based on all the historical research which has been carried out for the Ancient Town of Hisor, another GATE for military use and a TEAHOUSE are supposed to be finished by the end of that project. And the last and most important step of proper research in our project is going to be KUSHAN PERIOD TWO BUDDHIST MEETING HALLS - "KATK HIKA-SALA". We already have some researched works on this site, which do not

have any analogues yet in Central Asia in terms of its large size (see information and picture below). This is another point supporting my view that I have to conduct more research on this site using the experience that I gained at ACCU.

I believe and am hopeful that obtaining knowledge through this training will be helpful, and play an important role in the improvement of our cultural heritage preservation and management. I am going to make additional contributions to this great project back in my own country by sharing all that I learned at ACCU.

Conclusion

Through this training in Japan I obtained many new ideas in heritage management. In my opinion, the protection of cultural heritage needs a relatively complete legal system. A law for the protection of cultural properties should be the foundation for the conservation and utilization of cultural heritage resources. I think public education is the most important factor in site management because one of the aims of cultural heritage protection is to have the nation's culture understood by the public.

I am very proud to have had the chance to learn about modern scientific conservation methods and advanced management systems from knowledgeable experts. The training course has provided me with a lot of new knowledge and many unforgettable experiences in cultural heritage protection. On my return to Tajikistan I will attempt to convey my impressions and experiences to my colleagues and apply the ideas and technologies learned in Japan to my work. Sharing experiences with participants from other countries also broadened my view. This exchange program promotes friendship among countries in the Asia-Pacific region, and the training course is meaningful and productive.

Acknowledgments

Let me express my gratitude to the Asia-Pacific Cultural Centre for UNESCO (ACCU Nara), ICCROM, Nara prefecture, the Japanese government, and other organizations with their excellent staff, all of which have provided an invaluable opportunity for me to draw from the knowledge of, and share experiences with participants from different countries, and further widen my knowledge. The knowledge gained through this course will be very useful to enhance the culture of conservation efforts at archaeological sites and other remains in Tajikistan.

ARIGATO GOZAIMASU!
THANK YOU VERY MUCH!
TASHAKURI ZIYOD!

Thailand

Srisomboon Puangporn

Introduction

The Training Course on Cultural Heritage Protection in Asia/Pacific Region 2014 was held from 2 September to 3 October 2014, and there were 16 people from each country. Everyone was friendly and we had a happy and enjoyable time in this course. The ACCU staff were very nice, very kind and friendly. The lecturers had an informal approach and taught willingly. They did not even seem fed up with the many questions from participants. This training featured a variety of instruction including management of cultural heritage such as archaeological site management, exhibitions at museums and environment control, the value of archaeological sites, practice and knowhow of the treatment, conservation and preventive conservation of artefacts, practice and knowhow of moving artefacts from archaeological sites, recording and documentation of artefacts and archaeological sites, measured drawing of earthenware, and analysis of facilities for museum science. I received a great deal of knowledge from various places and different lecturers. The training had practice sessions and workshops with original objects, which I could understand very well, and I was able to understand Japanese culture from its cultural heritage. I would like to say thank you to the organizers because I will be able to use the knowledge received in my work to help the development of conservation practices in Thailand such as environment control in the museums and storage rooms, treatment conservation techniques and the process of preventive conservation. And next I will pass on what I have learned to officers at the National Museum.

This training can be applied to my work and lead to development of the Fine Arts Department, Thailand as follows:

1. Conservation Science of Metal Artefacts

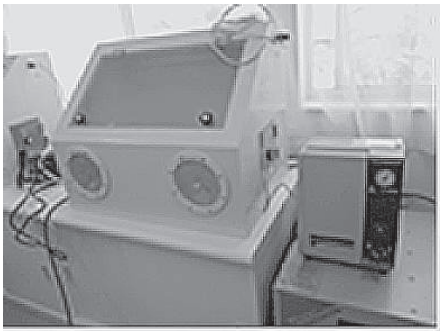
On 9 September 2014 the lecture “Mechanism of corrosion of metal objects” was presented. The lecturer was Wakiya Soichiro, Nara National Research Institute for Cultural Properties.

He explained the mechanism of corrosion in iron and copper artefacts and showed the reasons for corrosion after excavation. He also showed iron corrosion through a microscope, and I was able to identify compounds of iron. When iron reacts with oxygen and water, it results in a compound of goethite (brown), magnetite (black) and iron chloride. After identifying the iron compounds, I tried treating the goethite (brown) to make iron good condition. In the case of iron chloride, it is a serious case and the treatment methods are complicated. I can use this knowledge in my work with the following iron and copper conservation techniques:

1. Before treatment conservation, everybody must analyse the iron artefact with microscopic or X-ray radiography even if the iron is so big (my office has an

equipment that can handle X-ray radiography at about300 Kev).

2. Analyse the compound of iron and treat only the goethite (brown).
3. Develop an instrument for metal treatment conservation similar to the one shown in the photo. This instrument is necessary for metal treatment conservation because the process of metal treatment creates a great amount of metal dust and metal fragments, so it is not safe for workers and causes pollution. I will create a cheaper version because my office does not have the money to purchasing one.
4. If the iron corrosion is iron chloride, I will use an alkaline solution of sodium hydrogen carbonate and sodium carbonate (soak for about six months).



2. Conservation Science for Objects Excavated from Marine Sediments

On 24 September 2014, there was a study tour at Matsuura Municipal Board of Education. The lecturers were Nakata Atsuyuki and Aizawa Tetsuro, and they spoke about the Takashima-Kouzaki site (underwater site), which is located on Takashima Island to the south of the main Japanese islands. It is a beautiful island with unspoilt nature environment, and the site can be seen from Matsuura Municipal Board of Education's office. From this lecture I discovered the significance of Takashima Island in the past. Takashima Island caught a great deal of attention as the "Island of the Mongol Invasion". The topic included information about conservation treatment for artefacts unearthed at Takashima-Kouzaki site, which is useful for my work because Thailand has an underwater site with a section that has been excavated, located to the east of the country, where many artefacts such as pottery pieces, ingredients, textiles, and wooden and metal items have been found. The problems associated with underwater artefacts are the same as at the Takashima site, and I received knowledge about the conservation treatment of artefacts including wooden, rope, lacquer and iron items. I was particularly interested in the functions of each room in the Takashima Centre for Archaeological Operations. There are two functions, the exhibition facility and the base for excavation research which includes a storage room, a laboratory, etc. The storage room has many big tanks and many instruments for the treatment of artefacts, and we also learned at this site the treatment method for metal and wooden artefacts. I can use this in my work, and will pass on the techniques I learned to officers in the section for excavations in Thailand. Hopefully, that section will be able to purchase large tanks and instruments for a room for conservation treatment, and set up a storage room for keeping artefacts after treatment conservation and environment control under proper conditions. After that I will reform the conservation treatment of wooden and metal items in my office as follows:

Saving treatment method

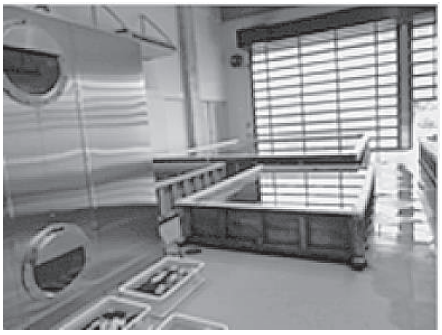
Metal artefacts:

1. Clean the metal artefacts using clean water.
2. Desalt the metal artefacts using clean water and soak for about one year (change water every month).
3. Copper artefacts require stabilizing treatment.

4. Metal artefacts must be left to dry.
5. Impregnate the metal artefacts with acrylic resin.
6. Keep the metal artefacts in the degassing pack in good condition.

Wooden, lacquer, rope artefacts:

1. Clean the artefacts with clean water.
2. Desalt the artefacts with clean water and soak for about one year
3. Impregnate the wooden artefacts and rope artefacts with acrylic resin.
4. In this case, use polyethylene glycol (PEG) with a concentration of about 10-48% and temperature control at 60 degrees Celsius. For lacquer artefacts use sugar (lactitol or trehalose) with a concentration of about 10-48% and temperature control at 60 degrees Celsius.
5. Leave the artefacts to dry.
6. Keep the artefacts in the degassing pack and keep in good condition.



3. First Aid for Fragile Artefacts

On 10 September 2014 a lecture with the topic "First Aid for Fragile Artefacts" was presented. The lecturer was Tamura Tomomi, Conservation Science Section, Nara National Research Institute for Cultural Properties. This lecture was interesting for me because it gave me new knowledge. Normally I work at the laboratory of the National Museum, and this knowledge could mark the beginning of cooperation between scientists and archaeologists in Thailand. In the past, scientists and archaeologists have worked separately in the field. Almost all artefacts are broken when they are moved from archaeological sites by workers who do know how to correctly move and store artefacts, such as those at the Pratu Pha archaeological site, Thailand, which is shown in the photo. I will provide the information that I have learned to officers at the site and assist them in the purchase of equipment and chemicals for applying this technique. This knowledge will greatly benefit the Fine Arts Department because there are insufficient conservators, and it therefore takes a long time to carry out conservation treatment. So keeping artefacts in good condition is necessary. There are three techniques for first aid for fragile artefacts: temporary reinforcement of artefacts using washi (Japanese traditional paper) and gauze (lining), lifting artefacts using liquid nitrogen, and lifting artefacts using rigid polyurethane foam resin. In the training, everybody successfully practiced with objects at a real site. This technique is not difficult and can be used in our country. But I would select the method of lifting with rigid polyurethane foam resin because I like to use chemicals and they are easy to carry on to the site.

The project for first aid for fragile artefacts using lifting with rigid polyurethane foam resin has several promises in Thailand as follows:

1. Cooperation with the archaeology section and presentation on first

aid for fragile artefacts using lifting with rigid polyurethane foam resin.

2. Organizer (archaeology section) will take a seminar and workshop, and invite the staff who are involved in excavation.
3. I will demonstrate this technique at a real archaeological site using lifting with rigid polyurethane foam resin.
4. Finally, everybody at the seminar and workshop will practice this technique.

4. Recording/Documentation of Artefacts: Photography

On 12 and 16 September 2014 there were lectures on the topic "Recording/Documentation of Artefacts: Photography". The lecturers were Nakamura Ichiro and Sugimoto Kazuki, Photography section, Nara National Research Institute for Cultural Properties. This training was very interesting because of the large studio and many kinds of cameras, so it provided inspiration for buying new camera. And I liked both lecturers because they were very nice and very friendly, and tried to teach students who did not know how to use a camera. After participating in these sessions I picked up a lot about photography techniques and understood the basics of taking good photographs: adjust focus, aperture, shutter speed, ISO sensitivity and light management for quality photographs. We practiced indoors and outdoors (East Palace Garden), and everybody found the workshops enjoyable and meaningful. I now know about the management of image files after taking the photo and this will greatly benefit me because I must take photos of artefacts all the time for reports. After the workshops, I now know the principles for taking artefact photos and image processing using the Adobe Bridge CS6 program and saving them as JPEG or TIFF images. As a result of this course I plan to modify a room that can serve as a studio for taking artefact photos. There are many rooms in my office that can be modified for this purpose.

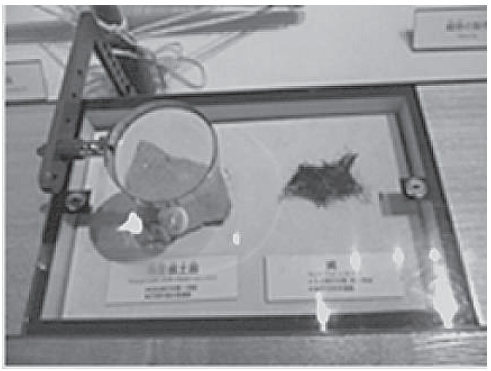
5. Recording/Documentation of Cultural Heritage Using 3D Scanner

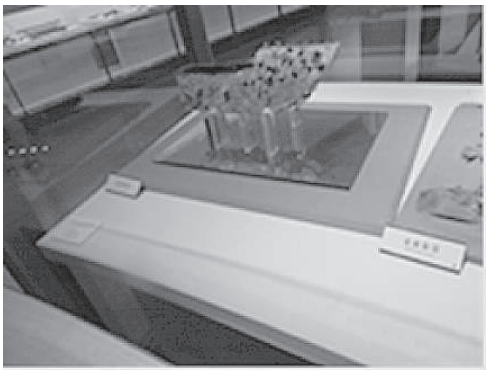
On 22 September 2014 a lecture was presented on the topic "Recording/Documentation of Cultural Heritage using 3D scanner". The lecturer was Kaneda Akihiro.

This lecture covered the technology of archaeological site photography, large artefact photography, and creating 3D images. The lecturer talked about modern technologies for archaeological site photography including photogrammetry, laser scanning, remote sensing and prospection. All of the techniques were interesting for me because they are new and modern, especially laser scanning, which is an expensive technology. It is a fast photographic technique by which a laser is directed onto the object, reflected to a detector and then processed by program to create a 3D image as shown in the photo. And I was interested in large artefact photography using a digital camera and then transferring the photo into the Agisoft Photo Scan program, because I often have problems taking photos of large artefacts, for example one of the gates of Suthat Temple. This is 6 meters high and 4 meters wide, and located in Bangkok National Museum, as shown in the photo. If I use normal photography I cannot take a photo of all of it. After studying about this program I think it can be applied to this particular artefact; this technique is easy to use and the price of the program is reasonable.

6. Museum Exhibition in Practice

On 11 September 2014 a lecture was presented on the topic "Museum Exhibition in Practice". The lecturers were Yanagida Akinobu and Hashimoto Hiroyuki, Archaeological Institute of Kashihara, Nara Prefecture. This topic was very interesting because for exhibitions in the National Museum in Thailand, it is a problem to maintain proper environment control and keep artefacts in good condition. The lecturers taught us about environment control for preventive treatment. The method includes use of air conditioning and a humidity conditioning agent under the RP (Revolutionary Preservation) system, and shows the temperature and RH so that I can use it in Thailand National Museum. In particular, the lecture taught about the Revolutionary Preservation system for keeping artefacts before and after conservation treatment. The system includes an RP agent, which absorbs moisture and oxygen from the air, with the package sealed with ESCAL film (high gas barrier film that has a low oxygen transmission rate and low water vapour transmission rate) as shown in the photo. This can keep the artefacts in good condition with no contact with the outside, because air and water are the cause of an artefact's deterioration. This can be applied to my work and I will start a project to introduce the RP system to keep artefacts in the National Museum (about 40 National Museums). I will pass on what I have learnt to officers at the National Museum. And I was interested in the exhibition of this museum because the exhibition was managed so beautifully. I liked the technique used in the collocation and presentation of artefacts, which enabled people to look under the artefacts with a mirror. Some artefacts also had a magnifying glass for a close up view, as shown in the photo. I will present this idea to the National Museum in Thailand for use in the exhibition room.





Conclusion

This training course took about 21 days and every day produced very good memories and included a lot of diverse knowledge. I can apply what I have learnt to my work and develop ideas for my office. I would like to say thank you to the organizers for selecting me, even though I am not an archaeologist. All the ACCU staff and lecturers were very nice and friendly. I think the training course would be of benefit for any worker who is involved in cultural heritage (such as archaeologists, conservators, scientists, curators and officers at archaeological sites or museums). Because Japan has many technologies and advanced knowledge, it can support and add to the knowledge base of other countries in Asia. In addition, the course helps in forging cooperation and good relations between the people of each country and across diverse cultures.

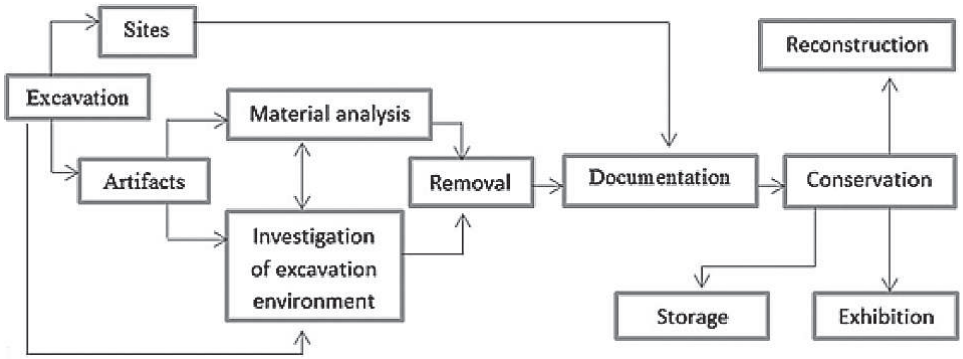
Viet nam

Dong Ngoc Kinh

Letter from Nara

The Training Course on Cultural Heritage Protection in the Asia/Pacific Region 2014 was organized by the Agency for Cultural Affairs, Japan (*Bunkacho*); Asia-Pacific Cultural Centre for UNESCO (ACCU); International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM); and National Institutes for Cultural Heritage, National Research Institute for Cultural Properties [Tokyo and Nara]. The course was held in Nara, Japan from 2 September to 3 October 2014. The training course was offered to participants from 16 countries that are signatories to the UNESCO World Heritage Convention, including Bangladesh, Bhutan, Cambodia, Fiji, Kazakhstan, Kyrgyz Republic, Lao P.D.R., Maldives, Mongolia, Myanmar, Pakistan, Palau, Sri Lanka, Tajikistan, Thailand and Vietnam.

On the first two days, each of us shared our experience of cultural heritage protection in our respective countries. Cultural heritage is a historical, traditional and cultural symbolic presence of a country and helps connect people to their cultural origins. This ranges from prehistoric sites to temples or castles, and together helps to tell the story of each country. All developing countries share much the same underlying problems of cultural heritage protection. First, the processes that damage cultural heritage sites in developing countries are due to a lack of overall appreciation and insufficient management. The authorities are usually not completely aware of the overall scale and severity of the problem and threat, or even the value of cultural heritage. Developing countries also have no management plan or proper funding for conservation of cultural heritage. In addition, poor management can also include unscientific restoration. The original character and value of the site may be lost because of an inexpert restoration that is not conceived, supervised, and implemented by skilled professionals. A shortage of trained people and limited conservation technologies are the second problem in developing countries. There are few skilled professionals—archaeologists, conservation experts, material specialists, structural engineers and historic architects—to participate in conservation activities. There are also few laboratories that have the technology and means for the analysis, documentation and conservation of archaeological sites and artefacts.



In the following days, we learned about the system for protecting cultural properties in Japan. The Japanese system includes tangible cultural properties, intangible cultural properties, folk cultural properties, monuments, cultural landscapes, and groups of traditional buildings, and primarily focuses on tangible culture conservation. When an excavation is carried out with the aim to preserve an original site, conservation technology will be applied in a variety of forms.

First of all, by investigating the excavation environment, deterioration factors can be explored and the information will be used to identify the state of deterioration and consider methods of conservation. Also, the conservation sciences of cultural property need material analysis, which is important for cleaning, restoration and other processes. Different materials need different methods, and in part of the course we focused on the conservation treatment of metal artefacts.

The conservation treatment for metal objects began with microscopic examination and X-ray radiography for diagnosis and XRF (X-ray Fluorescence Analysis) to analyse the condition of object. After that, object was cleaned and physical methods, such as use of a scalpel, grinder and air abrasive, were applied to remove soil particles, pebbles and concretion. The iron artefacts were covered with iron oxide-hydroxide, Beta-FeOOH had been produced in the presence of chloride irons, a significant causative factor for corrosion. Similarly, the copper and bronze artefacts, which had appeared stable at the time of unearthing, had corroded and suffered disintegration after several years due to copper chloride. The corrosion rate tends to increase with increasing RH (relative humidity) and the chloride corrodes metal artefacts even if they are stored in low humidity condition. As a result, it is important for the safety of metal objects to keep RH as low as possible. To absorb moisture and oxygen from the air, RP (Revolution Preservation) is used. I was very surprised to find out that a simple RP system will result in an RH of less than 10% in a microenvironment. Many metal artefacts have been found in Vietnam. However, they are usually not well preserved because of the cost of environment control. The RP system is an inexpensive method, however, and can be widely used in Vietnamese museums. With this system, larger quantities of metal artefacts can be stored.

The second important part of conservation is documentation. The first session, “Documentation of Artefact: Photography” was an introduction to photography for archaeologists. It is recommended that we become familiar with cameras and understand the basic functions of a camera, such as shutter speed, ISO, aperture and depth of field. The difference between each image is an issue of quality, which will result in more archaeological detail. Moreover, an understanding of lighting can have an enormous impact on the given textures, form and inherent detail of objects, giving valuable information. Depending on the complexity of the artefact’s shape, lighting can be experimented with by finding the best position, and this is often a laborious job.

Second, in the session “Measured Drawing of Artefacts,” we learned how to draw archaeological objects accurately, make a top view, side view and section illustrations. Archaeological illustration is not just creating a pretty picture of an object. It should be designed to convey information as accurately and with as much detail as possible. The goal is to provide the most information in a form that viewers

can read. The object must be observed from all angles, making you examine its uses, its damage, and its intricacies. Photography and drawing are a vital part of the most important skill in archaeology, so these classes were very useful for me. Knowledge about methods of recording, photographing and drawing artefacts will help my illustrations become accurate and clear.

Third was documenting archaeological artefacts using a 3D scanner and an X-ray computed tomography scanner. The workshop aimed to instruct archaeologists how to use 3D laser and X-ray CT scanning in the conservation of cultural heritage projects, how it works, why we might need to use it, and how it could be applied. The recording of position, dimensions and shape is a necessary part of almost every project, forming an important element of the documentation and analysis process. Laser scanning generates a point cloud and provides a digital geometric model of an object, from which a replica can be generated for display. X-ray CT scanners have been used to study inside archaeological artefacts such as wood statues and metal tools. In essence, an X-ray CT scanner comprises an X-ray source with an X-ray detector opposite the X-ray source. An X-ray beam shines through the archaeological artefact and is absorbed differently depending on its material. This means that a 3D and X-ray scanner together can record the exterior and internal structures of cultural properties without physically touching them.

Generally, access to 3D and CT scanners for archaeological research will continue to be a problem. Even in Japan, 3D and CT scanners tend to be too expensive for exclusive archaeological use. The initial purchase cost is high and there is the issue of the cost of maintenance and repair. However, they still are useful technologies of interest to archaeologists, and it is clear that complex and sophisticated technology will aid archaeology even more in the future.

The next part, after documentation, is reconstruction, exhibition and storage. The session on reconstruction was interesting and contained some very useful ideas. By using traditional methods and techniques, the Japanese can conserve not only the building itself but also the tangible and intangible value of the building such as the architecture, painting, paper, tiles and other traditional handicrafts. In addition, the reconstruction process can be used for tourism purposes or festivals and gives visitors a true experience, which may transmit cultural values and history. During the course, we visited many historical sites that are reconstructions, such as Todai-ji Temple, Kohfukuji Temple, Gangoji Temple, Nara Palace Site, and Horyu-ji Temple in Nara; Chion-in Temple, Nijo-jo Castle, and Kinkaku-ji Temple in Kyoto; Naniwa Palace Site in Osaka; and Takashima Island and Dazaifu Tenmangu in Fukuoka. On September 27 we had a special event at East Palace Garden. There we watched actors recreate the historical character of the imperial family, and enjoyed traditional food and music. It shows how an archaeological site can be used for the community.

We also visited some museums such as the National Treasure Museum, Nara National Museum, Kyushu National Museum, Kyushu Historical Museum, and Osaka Museum of History. All of them have an impressive exhibition room with a moderate amount of artefacts, but they all have a focused topic. I particularly liked the illustrations behind the artefacts that give the viewer more information

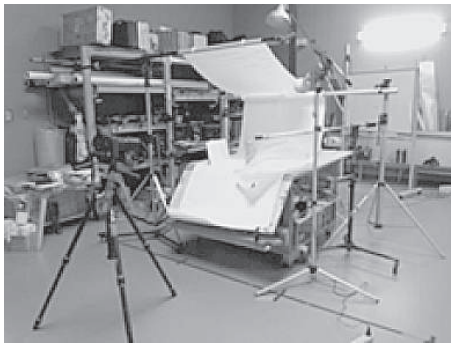
than a simple written explanation. Digital devices also support the display. A public computer provides visitors with access to various data in an exhibition room with a friendly touch screen. At Ikaruga Centre for Cultural Heritage, an LCD screen can also help recreate the scene inside the coffin of Fujinoki Tumulus before it was excavated. At Osaka Museum of History, visitors can use their smart devices to see a computer graphics reconstruction of a palace. Osaka Museum of History also shows how to link a museum and a historical site. Through the device, visitors can look out to Naniwa Palace Park where the foundation of the building was reconstructed. In addition, the museum storage rooms, where cultural properties are preserved and stored, are designed carefully. Conditions such as appropriate humidity and lighting, the structural design of air conditioning equipment, and storage facilities were set up in a sensible way. The designers also planned for natural disasters or fires. Besides this, I was particularly interested in the educational activities of the museum. There is an interactive room where young visitors can learn about culture and history through activities such as playing the role of an archaeologist, and making pottery.

In conclusion, the training course was very useful, and many ideas that cropped up during the course can be applied to Vietnam. Not only in the lectures but also on Nara's streets I learned a lot about cultural preservation. The Japanese have a real appreciation of their cultural heritage and it shows in their attitudes and the way sites are preserved. Together, the government and the Japanese people have acted to protect their cultural heritage, which makes Japan different.

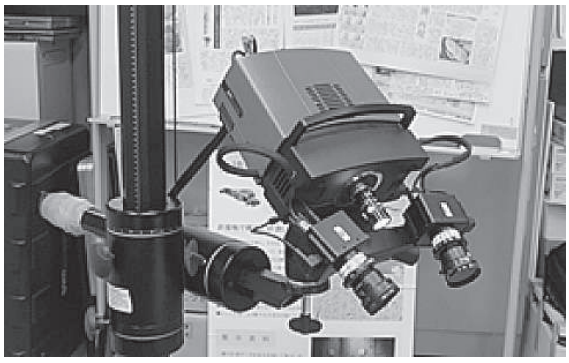
Acknowledgements

We would like to thank ACCU, ICCROM, National Institutes for Cultural Heritage and Agency for Cultural Affairs for organizing and accepting us on this training course. We are particularly grateful to Dr Nishimura, director of ACCU, and all the staff of ACCU, Mr Takahashi, Mr Kobayashi, Ms Wakiya, Ms Horikawa, Ms Sakimoto, Ms Nishida and Mr Shimomura, who provided a wonderful course and were always kindly looking after us and making sure our stay in Japan was comfortable. Thanks are also due to our interpreter, Ms Hata, and all presenters for taking the time to share with us their very useful experiences. Thank you Suzuki san, Miki san, and Naka san for all you did for us. We will never forget the great experience we had together.

Sayonara - See you Nara.



Lecture and workshop activity: Documentation of cultural heritage Photography and using 3D scanner



V. Appendix

1. List of Participants
2. List of Lecturers
3. Acknowledgements for Cooperation
4. List of Interpreter and Assistants
5. Staff Members, ACCU Nara Office

Full moon fest at East Palace Garden (World Heritage Site)

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