Training Report
on
Cultural Heritage Protection

Training Course for Researchers in Charge of Cultural Heritage Protection in Asia and Pacific 2013 - Bangladesh -

5 November- 28 November, 2013, Nara, Japan

Cultural Heritage Protection Cooperation Office,
Asia-Pacific Cultural Centre for UNESCO (ACCU)
Agency for Cultural Affairs, Japan
Nara National Research Institute for Cultural Properties

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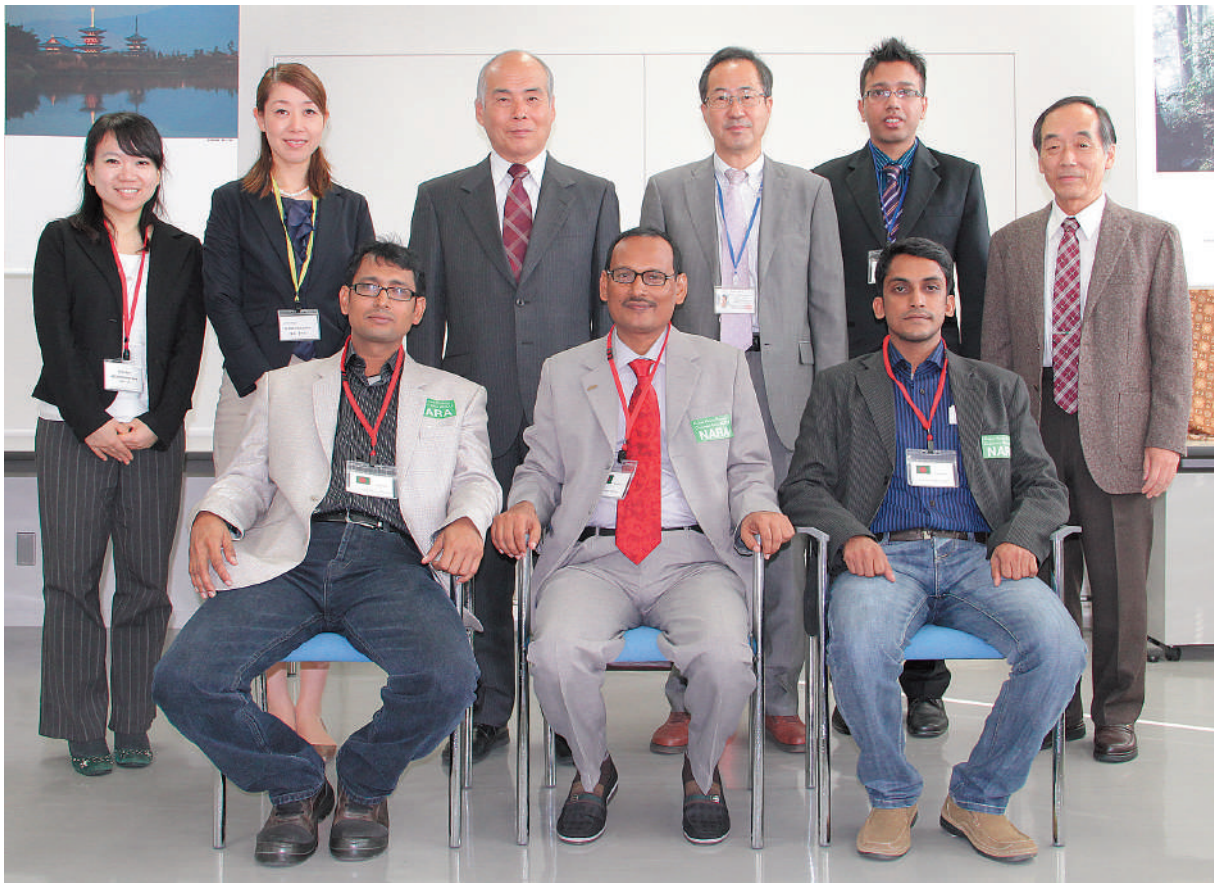

Opening Ceremony at ACCU Nara office

Measured drawing of *sueki* (earthenware)

Practical training for excavation method（detecting the surface of remains）

At Nara Palace Site

A lecture at Ikaruga Cultural Properties Center

Practical training of photography (at Nara Palece Site)

Mr Nakamura explained how to carry out studio (indoor) photography

A lecture on salt weathering test (at NNRICP)

Preparetion of salt weathering test by participants

Museum tour using iPad (Osaka Museum of History)

Observation of salt weathering at Motomachi Stone Buddhas
(the white part shows salt crystallisation)

At exhibition hall of Kanenokuma excavation site

A lecture by Mr Hisa (left) at Korokan Historical Museum

A lecture by Mr Imazu at Kyushu National Museum

Observation of X-Ray CT equipment

At Kyushu National Museum

Measured drawing of stone tool

Preface

The Cultural Heritage Protection Cooperation Office, Asia-Pacific Cultural Centre for UNESCO (ACCU Nara) 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 establishment, our office has been implementing a variety of programmes to help promote cultural heritage protection activities, in close cooperation with the Agency for Cultural Affairs, Japan (Bunkacho); National Institutes for Cultural Heritage, National Research Institute for Cultural Properties, Nara; the Nara Prefectural Government; the Nara Municipal Government; universities; and museums.

The ACCU Nara's activities encompass training programmes for the human resources development; international conferences and seminars; the website for the dissemination of information relating to cultural heritage protection; and the world heritage lectures in local high schools. In addition to those, ACCU Nara offers "Local Training Workshop" which dispatches a group of lecturers from Japan to one of Asia-Pacific countries and implements the practical training on cultural heritage protection on sites. Besides, we annually appoint "International Correspondent" from each country for the purpose of establishing closer ties with the countries in the Asia-Pacific region, who will periodically send latest reports on cultural heritage protection in their country.

Our office has been conducting two types of the training course in Nara: for the group and for the individuals. The Group Training Course offers the opportunity to sixteen experts from Asia-Pacific region for about one month with two themes in alternate years: "Preservation and Restoration of Wooden Structures" and "Research, Analysis, and Preservation of Archaeological Sites and Remains." Meanwhile, the Individual Training Course is organised for a few experts from one country on the specific theme according to their requests.

In Bangladesh, there are a number of various remains and sites related to ancient Buddhism, medieval Islam, and also Hinduism. However, these remains and sites are exposed to the danger of natural disasters such as floods, earthquakes, and so on, as well as facing with inadequate conservation and management system due to a lack of awareness by the local community. With this situation in mind, and at the request from the Department of Archaeology, ACCU Nara has decided to offer a training course as with the aim of introducing a broad knowledge and techniques of documentation, management and utilisation of remains and artefacts.

We would like to express our sincere appreciation to Agency for Cultural Affairs, Japan (Bunkacho); Nara National Research Institute for Cultural Properties; Nara National Museum; Ikaruga Cultural Property Centre; Nara Prefectural Board of Education; Nara Municipal Board of Education; Osaka Museum of History; Kyushu National Museum; Oita Municipality, Fukuoka Municipal Government for their cooperation and support.

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

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1. General Information
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Five-story Pagoda at Horyu-ji Temple

1. General Information

1. Organisers

The course is jointly organised by Agency for Cultural Affairs, Japan (Bunkacho); Asia-Pacific Cultural Centre for UNESCO (ACCU); and National Institutes for Cultural Heritage, Nara National Research Institute for Cultural Properties.

2. Background

People's Republic of Bangladesh has two world heritage sites inscribed as a cultural property called "Mosque City of Bagerhat," founded in the early 15th century, and "Ruins of the Buddhist Vihara at Paharpur" in the 8th to 9th century, and also a site inscribed as a natural property, "Sundarbans," which is one of the largest mangrove forests in the world. Furthermore, there are numerous archaeological sites related to Ancient Buddhist sites, Islamic monuments in the Middle Ages and Hindu sites. However, the restoration and conservation for these sites and remains are not fully implemented due to the natural disasters such as flood and earthquake, and also because of the lack of awareness by the local residents. In addition to this, the lack of human resources concerning the conservation and maintenance projects has been addressed.

Based on this current status and in response to a request from Department of Archaeology of Bangladesh, ACCU Nara has decided to invite professionals into the individual training course as part of development of human resources so that they will obtain the knowledge and techniques of methodology of documentation, maintenance, and utilisation of archaeological sites and artefacts.

3. Date and Venues

Date: 5 November (Tue.) to 28 November (Thur.) 2013. [24 days]

Venues: Cultural Heritage Protection Cooperation Office, Asia-Pacific Cultural Centre for UNESCO (ACCU Nara), and other facilities and museums of cooperating organisations.

4. Objective of the Training Course

A sequence of the individual training course aims at mainly providing participants with the basic knowledge and practical techniques for recording/documentation (measured drawing, actual measurement, photography) of archaeological sites (remains and artefacts), methodology of conservation, museum exhibition and storage system, and so on.

5. Training Curriculum

- Recording/Documentation of Remains and Artefacts (Overview)
- Recording/Documentation of Sites (Measured Drawing, Actual Measurement, Photography)
- Recording/Documentation of Artefacts (Actual Measurement, Photography)
- Maintenance and Utilisation of Sites and Remains (Overview, On-site Training)

6. Participants

Md. Ataur Rahman (Dr)
Regional Director
Department of Archaeology, Ministry of Cultural Affairs
Date of Birth: 23 September 1975 (Age 38)

Mohammad Golam Fardaush (Mr)
Field Officer
Department of Archaeology, Ministry of Cultural Affairs
Date of Birth: 2 June 1977 (Age 36)

Khandokar Mahfuz Alam (Mr)
Assistant Architect
Department of Archaeology, Ministry of Cultural Affairs
Date of Birth: 5 December 1981 (Age 32)

7. Process of Invitation

People's Republic of Bangladesh recommended three applicants suitable for the above mentioned invitation programme as participants. Then ACCU Nara Office has determined to invite three applicants as participants through close examination.

8. Others (Past achievement to accept participants)

Since 2000 when the above-mentioned invitation programme started, 49 participants from 16 countries have been accepted.

9. Certificate

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

10. Language

Bengali is the main working languages of the course.

11. Expenses

Expenses for the training course will be borne by ACCU and comprise the following:

(1) Travel expenses:

Each participant will be provided an economy-class return air ticket between the international airport nearest to their residence and Kansai International Airport (KIX), and domestic transportation costs between KIX and their accommodations in Nara.

(2) Living expenses:

Participants will be provided daily subsistence allowances during the training course, beginning from 5 November (Tue.) to 28 November (Thur.) 2013. Arrangements and payment for accommodations will be made by ACCU Nara.

12. Secretariat

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Nara Pref. Nara General Office, 757 Horen-cho, Nara 630-8113 JAPAN
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2. Schedule

Individual Training Course Schedule 2013 (5 November - 28 November)

Date			9:30-12:30	13:30-16:30	Lecturer	Venue
November	5	Tue..	Opening Ceremony (10:30~)	Guidance to the Programme	ACCU Nara	ACCU Nara
	6	Wed.	On-site Training: World Heritage Buddhist Monuments in the Horyu-ji Area		HIRATA Masahiko	Horyu-ji Temple, Ikaruga Cultural Property Center
	7	Thur.	Practical Training: Recording/Documentation of Artefact (Actual Mesurement I: Stone Tool)		SHIBA Kojiro	NNRICP
	8	Fri.	Documentation and Survey of Archaeological Remains	Inventory and Management System of Archaeological Remains	SHODA Shinya, ISHIMURA Tomo, AOKI Takashi	NNRICP Yakushi-ji Temple
	9	Sat.				
	10	Sun.				
	11	Mon.	Museum Exhibition in Practice	Practical Training: Museum Exhibition in Practice	NAKAGAWA Aya, WATANABE Junko	NNRICP
	12	Tue.	Designation of Archaeological Remains and Protection System		NAKAJIMA Yoshiharu	NNRICP
	13	Wed.	Practical Training: Recording/Documentation of Artefact (Photography)		NAKAMURA Ichiro	NNRICP
	14	Thur.	Practical Training: Recording/Documentation of Artefact (Actual Measurement II: Earthenware)		JINNO Megumi	NNRICP
	15	Fri.	On-site Training: Conservation of Archaeological Remains and Museum Institutions		MAMETANI Hiroyuki	Osaka Museum of History
	16	Sat.				
	17	Sun.				
	18	Mon.	Conservation Science of Archaeological Remains I		WAKIYA Soichiro	NNRICP
	19	Tue.	On-site Training: Museum Institutions in Practice		IMAZU Setsuo	Kyushu National Museum
	20	Wed.	On-site Training: Conservation of Archaeological Remains in Practice I		KAWANO Shiro	Sekibutsu, Motomachi, Oita City
	21	Thur.	On-site Training: Conservation of Archaeological Remains in Practice II		HISA Yoichiro, MIZUNO Tetsuo, SUGANAMI Masato	Kanenokuma Museum Korokan Historical Museum
	22	Fri.	On-site Training: Historic Monuments of Ancient Kyoto		ACCU Nara	Kyoto City
	23	Sat.				
	24	Sun.				
	25	Mon.	On-site Training: Exhibition of Buddhist Art in Practice		NOJIRI Tadashi, TANIGUCHI Kosei, ONISHI Seiji	Nara National Museum
	26	Tue.	Conservation Science of Archaeological Remains II		WAKIYA Soichiro	NNRICP
	27	Wed.	Writing Final Reports			
	28	Thur.	Submission of Final Reports	Closing Ceremony		ACCU Nara

ACCU Nara: Cultural Heritage Protection Cooperation Office, Asia/Pacific Cultural Centre for UNESCO
NNRICP: Nara National Research Institute for Cultural Properties

II. Summary of Training Course

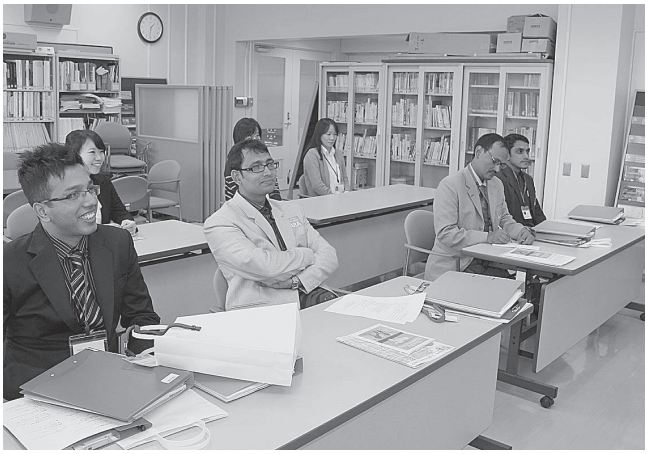
With the packaged artefacts after the practical training

Summary of Training Course

5 November (Tue.)

■ **Opening Ceremony/Guidance to the Programme**

In the afternoon, the training course for Bangladesh was started by the opening ceremony. Mr Nishimura, Director of ACCU Nara, welcomed the participants with the words of encouragement. He shared his hope that the participants would enjoy learning the archaeology as well as the culture of Japan. Since the training course includes a study tour to Kyushu region, he encouraged them to experience not only the culture of Nara, but also that of Kyushu. During self-introduction, Mr Ataur Rahman showed his gratitude of this special invitation from himself as well as from the head of his department. Mr Golam Fardaush also mentioned how special it was to be able to be in Nara for this training course. Mr Mahfuz appreciated a Bengali interpreter, saying that this would allow them to fully understand what is said and done in Japanese. All three participants were eager to absorb



Opening Ceremony

Message from Mr Nishimura, Director of ACCU Nara

the knowledge and techniques to bring back and share with the colleagues and junior fellows in Bangladesh.

After the ceremony, the participants listened to the explanation by ACCU staff about Nara and the brief overview of this whole programme. They looked excited and keen to encounter new things in a very different culture from their own.

6 November (Wed.)

■ **On-site Training: World Heritage Buddhist Monuments in the Horyu-ji Area**

HIRATA Masahiko (Ikaruga Town Board of Education)

[Ikaruga Cultural Properties Center]

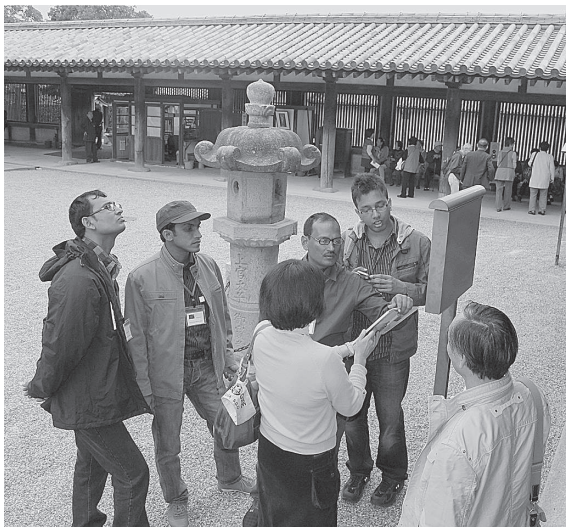
- After having heard an overview from the lecturer about the Fujinoki Tumulus and the historical background of the Ikaruga region, the participants watched an explanatory video (in English) about the Fujinoki Tumulus in the video room.
- Tour of the exhibition room. The barrier-free exhibition room enables wheelchair-bound viewers to watch the exhibit right in front of them. The participants showed interest in the make-up of cases, lighting fixtures and lighting methods.

Fujinoki Tumulus

A lecture on burial accessories at Fujinoki Tumulus by Mr Hirata

- Following this, participants visited the Fujinoki tumulus site. After touring the stone chamber, they received an explanation about maintenance/management from the lecturer.

[Horyu-ji Temple]



At Horyu-ji Temple

- Touring the precincts under the guidance of a volunteer guide

  Great South Gate – Central Gate – Saien-do Hall – Western Precinct (Five-story Pagoda, Main Hall, Lecture Hall) – Daihozo-in (Great Treasure Gallery) – Eastern Precinct (Hall of Vision, Shariden Hall, Eden Hall)

[Hoki-ji Temple]

- The participants looked closely at the actual traditional repair methods of Japan (such as joint, wood plugging, etc. by using the original materials as much as possible) at the three-story pagoda.

Hoki-ji Temple

7 November (Thur.)

■ **Practical Training: Recording/Documentation of Artefact (Actual Measurement I: Stone Tool)**

SHIBA Kojiro (NNRICP)

- After having explained the outline of actual measurement (difference between actual measurement methods, depending on materials such as clay, wood, metal, stone, etc.), the lecturer familiarised the participants with the actual measurement method of stone tools.
- The lecturer gave a step-by-step explanation (e.g. placement of stone tool, key points of actual measurement such as establishing head-tail or front-back, with a graphic representation, so that the participants could understand the stone tool manufacturing process). After the demonstration, each participant carried out some actual measurements.

A lecture by Mr Shiba (at NNRICP)

Mesured drawing of stone tool

- In the afternoon, after an explanation of the reason that “fisher” and “ring” are produced by using drawings to explain the method of representation, the lesson on actual measurement resumed. The participants worked continuously on the shape of the lateral side.
- The back was inversed by using a tracing paper, in order to draw profile lines.
- An explanation was provided of the principles of locating a target cross section to draw.
- When the drawings were finished, an explanation was made of filling notes, etc. before the completion of the class.

8 November (Fri.)

■ **Documentation and Survey of Archaeological Remains**

SHODA Shinya, ISHIMURA Tomo (NNRICP)

- At an excavation site, Mr Shoda gave a lecture on the outline of the survey and research methods, stating that generally, at excavation sites, experts/professionals of archaeology, architecture, and history work as a team to comprehensively proceed with survey research, and that excavation was carried out while surmising the extended archaeological remains based on the artefacts/archaeological remains found in the past.
- The participants took a field trip to the precincts of Yakushi-ji Temple under the conduct of Mr Ishimura, who held a briefing about the current state of restoration of the East Pagoda as well as reconstructed buildings.

A lecture by Mr Shoda at Yakushi-ji Temple

- As practical training in structural-remains excavation, the participants learned how to contain unearthed artefacts in containers with numerical labels. In addition, they worked on operations to observe the color and properties of the soil in order to detect archaeological remains. The participants commented that they were greatly satisfied that they could actually experience an excavation on site.

■ **Inventory and Management System of Archaeological Remains**

AOKI Takashi (NNRICP)

- The participants had a lecture on the sort-out of the artefacts brought in from an excavation site. Before being brought in, artefacts including earthenware, stone artefacts, roof tiles, etc. were sorted out depending on the stock rooms to contain them. Earthenware was cleaned and dried first, and then important artefacts were selected. For storage, information was entered on a card which was stored with the artefacts.
- After having provided an explanation of a sequence of working process through a PowerPoint presentation, the lecturer explained the storage method, while showing real artefacts. At the

A lecture by Mr Aoki at NNRICP

earthenware store room, the lecturer showed the fixed lockers in preparation for earthquakes as well as the storage method for important artefacts.

11 November (Mon.)

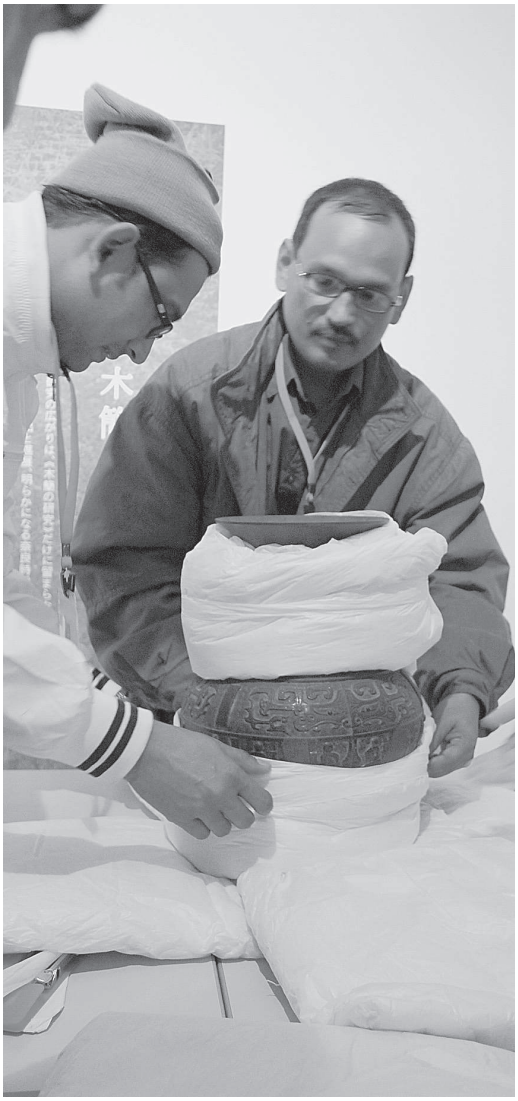
■ **Museum Exhibition in Practice**

NAKAGAWA Aya (NNRICP)

- Ms Nakagawa explained the outline of the exhibition of the Nara Palace Site Museum remodeled in 2010. The Nara Palace Site Museum is located within a historic site with the illuminating purpose to present the ancient Nara Capital. The museum organises special exhibitions twice a year, through which real artefacts that cannot normally be seen are displayed.
- After being remodeled, the Museum has consciously made participatory displays for visitors, including hands-on exhibits other than the displays of artefacts. The lecturer commented that although this type of exhibit enjoys popularity among children, and that the exhibition should have effective displays based upon exchanges of opinion between researchers and visitors.
- The participants exchanged opinions of methods of display with the lecturer, and commented that in Bangladesh, too, researchers support visitors.

A lecture by Ms Nakagawa

Practical training of exhibition method



Practical training of packaging artefacts

■ **Practical Training: Museum Exhibition in Practice**

WATANABE Junko (NNRICP)

- After a briefing about display articles, practical training for the preparation of the displays of wooden tablets as well as for the packing of display articles was conducted at the Nara Palace Site Museum. The participants learned a method of packing to protect fragile parts of an article by winding a buffer material around the narrow part of a large jar, and carefully wrapped the handles too with the buffer material as packing practice.
- This practice was very much appreciated by the participants, and they remarked that the experience, through which they could undertake actual displaying work, was practical and significant for them.

12 November (Tue.)

■ **Designation of Archaeological Remains and Protection System**

NAKAJIMA Yoshiharu (NNRICP)

[Briefing about Japan's cultural-property administration]

- Explanation of the organisations of the Agency for Cultural Affairs: There is a Council, under which there are five Committees (including arts/crafts, buildings, etc.). Each Committee should hear the opinions of experts with regard to designation, protection, etc. Although the state budget for culture or cultural properties is increasing slightly, the budgets of local governments continue to decrease.
- Protection of Cultural Properties: An explanation was provided of the types of cultural properties and, subsequently, that of changes in the Law for the Protection of Cultural Properties.

Q: Specifically, what do you do for the preservation of traditional techniques?

A: We select people or groups that have the techniques, and protect them. In addition, we strive to facilitate succession of the techniques.

- The maintenance of the Nara Palace Site, etc., the tour of which was scheduled for that afternoon, was briefly explained in a PowerPoint presentation.

The briefing included the history of the preservation of the Nara Palace Site, and the history of the maintenance that represents excavation results. The lecturer especially focused on zoning for

With Mr Nakajima (second from the right)

A lecture at the Excavation Site Exhibition Hall

implementing maintenance in conformation to the "Basic Concept of Maintenance of Nara Palace Site (1978)", which has become fundamental to the maintenance of the Nara Palace Site, as well as the mode of representation (improvement methodology).

- In the afternoon, the participants toured the Nara Palace Site to see the actual state of the maintenance/improvement work, visiting a facility which displays an exposed archaeological site (the Excavation Site Exhibition Hall).
- Although the participants saw the display of the exposed archaeological remains and unearthed artefacts, they showed more interest in the facilities provided for the convenience of visitors, such as the slope for wheel chairs, lighting, information panels, and further, direction boards, public drinking fountains, etc. around the Excavation Site Exhibition Hall.

13 November (Wed.)

■ **Practical Training: Recording/Documentation of Artefact (Photography)**
NAKAMURA Ichiro (NNRICP)

- To start, the lecturer addressed some questions to the participants about the circumstances of cultural-property research in Bangladesh, centering on photography (mainly about photo shoots of excavation

Mr Nakamura explained how to carry out studio (indoor) photography

sites and unearthed artefacts). The participants answered that as they have eight photography experts, they themselves do not shoot. Then, the lecturer continued that, if a client (archaeologist/researcher) knows photography well, the archeologist can clearly communicate to a photographer about what kind of photo is needed. The lecturer proceeded with the lecture concerning how photographers could take photos that further meet the requirement of researchers.

- Looking at the photos of wooden tablets with no shadows shown in the PowerPoint presentation used for the briefing, a participant inquired about the method of shooting the photographs.
- When photographing an object for the use of academic record retention, don't use colored background; because the colors of such papers reflect off the object.
- Following the explanation of field photography, the lecturer explained how to carry out studio (indoor) photography, use of gray scale, RAW data of digital single lens reflex cameras, and the saved data of JPEG, TIFF, etc.
- The lecturer mentioned that when shooting indoors, a gray card serves as a reference to judge whether or not the data photographed is the original color of an object, and, that as the color is correctable with reference to the gray card, the participants should use it by all means.

  The lecturer also mentioned that it is not necessary to use the gray card in all photographs. It is especially useful for indoor photography using artificial lighting; or even for outdoor photography, because under cloudy skies, the original colors may be muted.

A lecture on outdoor photography

At Nara Palace Site

How to adjust digital data

- In the afternoon, the participants practiced indoor photography. First, the lecturer explained and demonstrated the procedure for taking photographs. After that, each participant selected an object, and photographed it for practice.
- After the photography practice, each participant selected a few images from those they took, compensated the colors in conformation to a gray card, readjusted the brightness on a computer, and then saved it as data.

14 November (Thur.)

■ **Practical Training: Recording/Documentation of Artefact (Actual Measurement II: Earthenware)**

JINNO Megumi (NNRICP)

- The lecturer discussed the significance and necessity of actual measurements of earthenware, as well as the necessary tools for actual measurement (e.g. triangle ruler, Mako (a molding device), compass, caliper, divider, etc.).
- The lecturer explained the difference between actual measurement methods for artefacts which have retained their perfect shape and those that have not, while demonstrating how to use the devices. To

A lecture by Ms Jinno at NNRICP

A lecture on recording artefact using a 3D scanner

Practical training on measured drawing of artefacts

measure artefacts that are in perfect shape, the diameter is measured first to determine the center line. The lecturer also showed how to determine the diameter of the artefacts that are broken by using tracing paper. Subsequently, the participants practiced the method as demonstrated. Furthermore, the lecturer noted that:

- In practice, for contour measurements, it is important to find the points of variation;
- Mako (a molding device) is basically a device for confirmation. In order to measure the contour, priority should be given to the observation of objects with one's own eyes over the use of the Mako.
- Actual measurements can include information that does not appear in the photographic record and 3D scans, etc. Carefully observe the detailed information of the manner of production (e.g., rotational direction of potter's wheel, the scope of a part scraped with a pottery spatula, etc.), and note it in the record.

- The participants observed the method of recording artefact information using a 3D scanner.

15 November (Fri.)

■ **On-site Training: Conservation of Archaeological Remains and Museum Institutions**
MAMETANI Hiroyuki (Osaka Museum of History)

- The on-site lecture started with a brief PowerPoint presentation about Osaka Museum of History by the lecturer, Mr Mametani. As he was explaining how this institution had been established and what

A lecture by Mr Mametani

Museum tour using a visual device called AR Marker

In front of museum with the lecturer

Remains in the basement of museum

they presented.

- Participants went off for a museum tour, starting from the entrance where they could see the remains down beneath the floor. An iPad was provided to each of them, which fascinated them with what is called AR Marker. This is a great device that helps you visually imagine how it looked in the original state. When they take the photo of an AR marker, the original appearance shows up on the screen of iPad, so that people can feel as if they were standing in the midst of the ancient times. There were three points where they can get this AR Marker in the museum, and participants enjoyed watching the original site of a warehouse group on western side of Naniwanomiya Palace Site.

Elementary students experiencing excavation activity

A participants (right) having a conversation with an elementary student

-In the afternoon, Mr Mametani took them to an excavation site, where about 50 elementary students were experiencing the excavation during their field trip. This was one of the projects Osaka city had been doing, so that the students would be exposed to the importance of protection of cultural property at an early age. Dr Rahman said that the educational usage of museum had just begun in the last couple of years, so it seemed they had seen the future possibility of wide use of museums.

-In the end, they enjoyed walking through the regular exhibitions of each floor. “It was good that the museum had a floor where younger kids can touch the real tools and actually experience the excavation,” reflected Mr Mahfuz.

18 November (Mon.)

■ **Conservation Science of Archaeological Remains I**

WAKIYA Soichiro (NNRICP)

- To start, the lecturer asked participants about the problems of archaeological site conservation in Bangladesh. The participants responded that the problems included salt damage to buildings with kneaded roof tiles, water immersion, luxuriance of plants, etc.
- The lecturer provided an explanation using a PowerPoint presentation, with regard to salt damage in the archaeological sites of Japan. In Japan, a protective cover building is built, in which the objects are displayed in the state in which they were excavated. Salt damage can be seen there (A case study of the Kanenokuma Site in Fukuoka city was introduced.). In addition, stone cliff Buddhas have been seriously damaged by salt (A case study of the Motomachi Stone Buddhas in Oita city was introduced.)

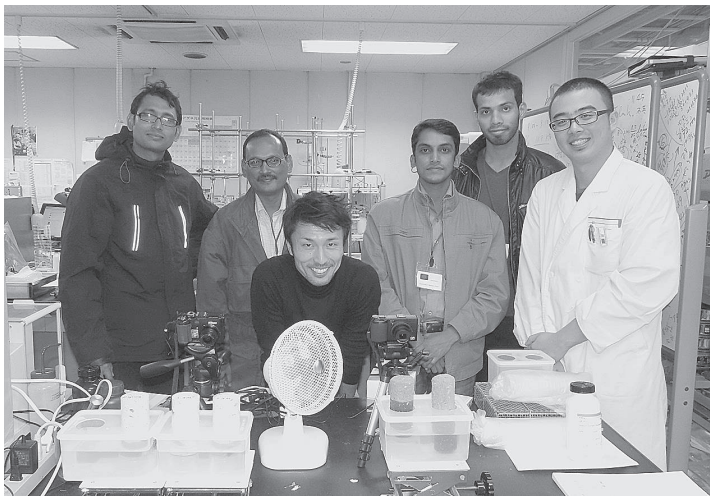
- There are many kinds of salts, and the humidity, temperature, etc., under which the salt is separated out vary depending on each salt. (i) First of all, analyse the type of the salt to understand its characteristics; (ii) Carry out an environmental survey. Make a record of the changes (e.g. temperature, relative humidity, amount of insolation, precipitation, etc. per day/year within an archaeological site) to understand the environment of the site; (iii) Analyse whether the kneaded roof tiles or underground water contains salt. When all such information becomes available, effective countermeasure can be taken. It is critical to comprehend the cause.

A lecture by Mr Wakiya at NNRICP

- Discussion about salt damage in Bangladesh was held. The participants reported that in Bangladesh, salt is separated out all through the year. Salt does not dissolve even it rains, and is precipitated within buildings with kneaded roof tiles. In some buildings which have incurred salt damage in Bangladesh, the precipitated salt reaches almost four meters high.
- The lecturer suggested that it was highly likely that such phenomenon occurred due to the salt originally contained in the kneaded roof tiles and which was separated out after becoming wet with rainwater, and was not due to salt in the groundwater. In this case, it may be effective to set up a roof or the like which prevents contact with rainwater.
- Since salt is separated out via water, restraining water intrusion can prevent salt precipitation. Especially, a water repellent agent works for artefacts, which do not come into contact with the ground, and, consequently, are not affected by groundwater (e.g. outdoor sculpture, etc.), and from which salt is possibly precipitated due to contact with rainwater. Subsequently, the participants practiced applying a water repellent agent (Wacker 290).
- In addition, an experiment of salt precipitation was conducted. First, three similar stone blocks were prepared according to the following three methods; (i) the full surface was water-repellent treated; (ii) the upper half was water-repellent treated; and, (iii) one was not water-repellent treated. Then, the lower half of them was immersed in salt water (sodium sulfate). In this case, each stone block was considered to be an archaeological site, respectively assuming them to be (i) one separable from the ground surface, and which can be entirely water-repellent treated; (ii) one the lower half of which is in contact with the ground, and only the upper half of which can be water-repellent treated, like a building; and, (iii) one which is not treated at all. This experiment shows how the artefacts are

Experimenting the effect of water repellent

Applying water repellent agent



Experiment of salt weathering

destroyed under the effects of salt. It is planned to report the results in a lecture scheduled for after the on-site training in the Kyushu district.

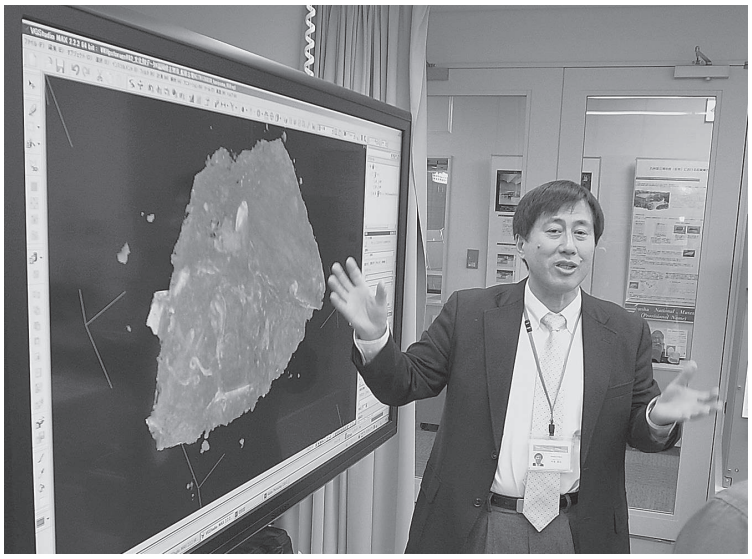
19 November (Tue.)

■ **On-site Training: Museum Institutions in Practice**

IMAZU Setsuo (Kyushu National Museum)

The participants left for Hakata from Shin-Osaka station by Shinkansen and arrived at Hakata at noon. Then, they visited the Kyushu National Museum.

- The lecturer outlined the analytical instruments belonging to the Kyushu National Museum, while referring to a document. The cutting-edge research equipment/materials introduced at this time included a CT scanner, a portable analytical instrument, papers and cloths, etc. A participant asked when Japan began to use such analytical instruments.
- The lecturer answered that the analytical instruments were previously installed in a research institute belonging to the Kyushu National Museum, not at the museum itself. But, after transferring the equipment to the museum, researchers have found it extremely convenient that the equipment is within the museum so as to be able to analyse artefacts that are difficult to transfer (e.g. borrowed artefacts).
- The participants toured the backyard of the museum. The storage room located in the central part of



A lecture by Mr Imazu on 3D Digitiser and storage system

An explanation of 3D printer

In front of Kyushu National Museum

the museum has a stable environment less subject to the effects of outside air. As the storage room is a facility not only to store but to protect artefacts, it should preferably be a space with a stable environment even in the occurrence of fire, earthquake, troubles of air conditioning system, etc.

- The participants observed the replicas of real artefacts produced by using a 3D printer. Since a replica can be made in one night, it is available to make replicas (permissible, even if broken) for visiting classes of primary school children, etc. In addition, in the event that many artefacts are unearthed in folds at a site, it is possible to set some coordinates between them by using the 3D printer to grasp the entire objects, and to carry out an "indoor excavation."
- The participants toured the craft center for the paper used for the repair of ancient documents, etc.
- The participants observed instruments such as the CT scanner, large-size scanner, etc. They were interested in the fact that such instruments were originally developed for and used at medical sites, and are currently applied to the analysis of cultural properties.
- After touring a base isolation device, the participants saw the special and permanent exhibitions.

In the early evening, the participants left the Kyushu National Museum and moved to Oita city using

a minibus taxi.

20 November (Wed.)

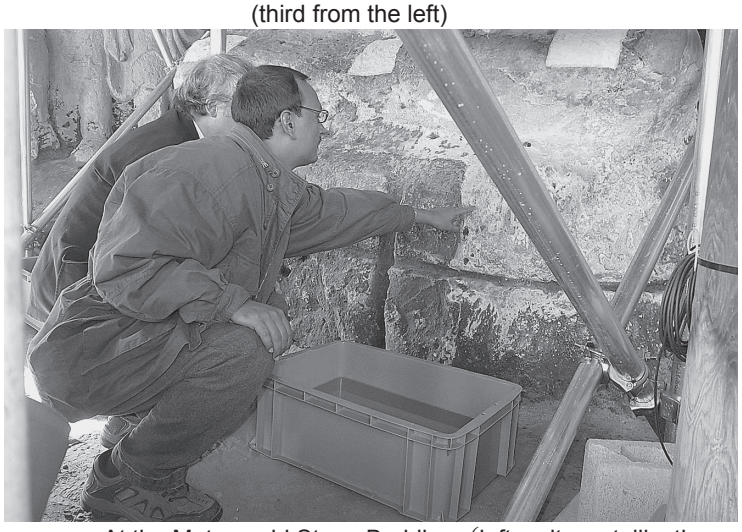
■ **On-site Training: Conservation of Archaeological Remains in Practice I**

KAWANO Shiro (Board of Education, Oita Municipal Government)

- After paying a courtesy call on the superintendent and the Cultural Properties Division of the Oita Municipal Board of Education, the participants moved to the Ōtomo-Clan Historical Site Experimental Museum to listen to a lecture. The lecturer explained the outline of the Motomachi Stone Buddhas, problems in the conservation of the Stone Buddhas, details of salt damage to date, the results of salt analysis, the countermeasures taken, and the process after that.
- Salt crystallisation occurs on the surface of the Stone Buddhas when moisture seeping out from the cliff evaporates. To address this problem, in the 1990s, Oita city undertook large-scale engineering work including a drainage tunnel and catch basin to control the groundwater, followed by applying surface reinforcing agent. However, salt crystallisation did not cease, and deterioration of the Stone Buddhas progressed further. Based on the results of salt analyses and environmental research carried out since 2011 which assumed that the salts accumulated inside the Stone Buddhas over a long period of time are precipitated in times of low humidity (when the Stone Buddhas dehydrate), at present,

A courtesy visit to superintendent of Board of Education (third from the left)

A lecture at the drainage tunnel



At the Motomachi Stone Buddhas（left: salt crystallisation on the surface of the stone buddhas）

A lecture at Takase Stone Buddhas
（The shelter was set up for conservation）

At Iwayaji Stone Buddhas

Oita city is trying to remove the salts remaining inside the stones by affixing pulp paper (*washi*, Japanese traditional paper) to the surface of the Stone Buddhas to absorb and remove the salt by degrees.

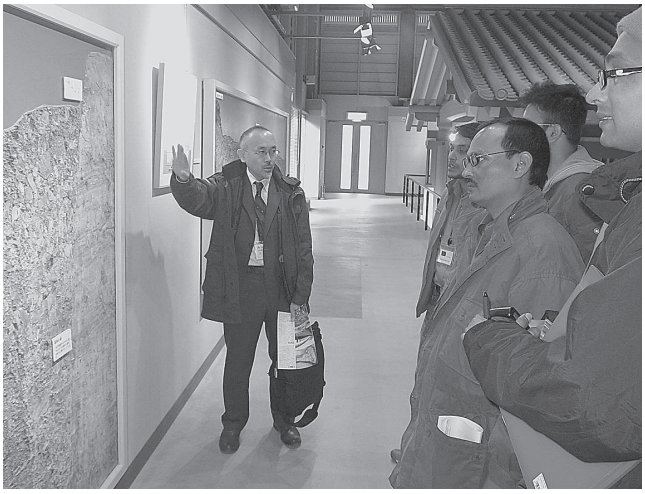
- To address problems at sites undergoing salt weathering, it is important to carry out salt analyses and environmental research.
- After lunch, the participants toured the restoration site of the Motomachi Stone Buddhas, the Iwayaji Stone Buddhas, and the Takase Stone Buddhas. At the Motomachi Stone Buddhas site, they saw restoration work, the drainage tunnel, and the catch basin. At the Iwayaji Stone Buddhas site, the lecturer commented that although these stone Buddhas were designated as a prefectural historic site in the past, the designation was cancelled because the present Stone Buddhas have almost lost their original form due to salt weathering. Lastly, the participants visited the Takase Stone Buddhas site, that is an example of a successful case study which maintains good conditions by moisture control.

21 November (Thur.)

■ **On-site Training: Conservation of Archaeological Remains in Practice II**
HISA Yoichiro, SUGANAMI Masato, MIZUNO Tetsuo
(Cultural Property Protection Division, Fukuoka Municipal Government)

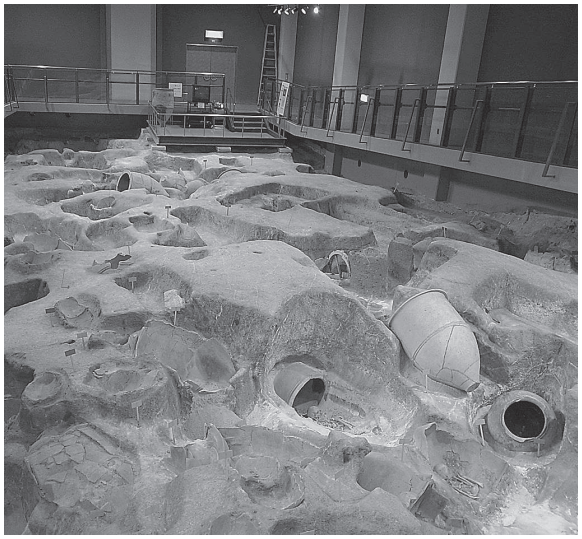
- At the Korokan Historical Museum, the lecturer explained the geographical outline of Fukuoka city (located close to the Korean Peninsula and China), profile of the Korokan Guest House (the state guest house of the 7th century), and the exposed display method of the archaeological remains.
- The conditions of the archaeological site are relatively good here except for spots on which lichen grows thickly. As the excavated state only cannot provide practical visualisation, some parts are displayed covered by a restored building made of plastic materials so that the archaeological remains are not damaged.
- The Site of Korokan is still being researched for confirmation even today. At the excavation survey site, Mr Suganami Masato briefed the participants to the effect that the site is located on the edge of upland and, upon being unearthed, it was found that the roof tiles and ceramic ware of that time period had been abandoned in folds.

- At the Kanenokuma archaeological site, the tombs of the Yayoi Period (“Kamekanbo,” earthenware jar-coffin graves of 2000 years ago) are openly displayed (in the excavated state). Although the site has been maintained in a comparatively good condition for over 20 years, salt weathering is progressing, and a portion of the earthenware jar-coffins and archaeological remains have been broken. Despite applying a reinforcing agent to the surface of the archaeological remains, the agent

A lecture by Mr Hisa at Korokan Historical Museuml


A lecture by Mr Suganami at the excavation site of Korokan




A lecture at Kanenokuma archaeological site (earthenware jar-coffin graves of 2000 years ago)

has peeled off in places where salt has precipitated, and some archaeological remains have been crushed to powder.

- The lecturer remarked that although to date, Fukuoka city has not taken any particular protective measures, it is necessary to carry out environmental research and arrange the environment (control of humidity/temperature) so that salt is not precipitated.
- A participant showed interest in a large-size earthenware jar-coffin and asked a question about the production method of the coffin.

22 November (Fri.)

■ **On-site Training: Historic Monuments of Ancient Kyoto**
KOBAYASHI Ken'ichi (ACCU Nara)

The participants travelled to Kyoto to see Kiyomizu-dera Temple and Nijo-jo Castle, which are part of World Heritage; Historic Monuments of Ancient Kyoto.

- At the entrance of Kiyomizu-dera Temple, they heard that almost all of the temples and shrines in Kyoto were reconstructed in the 16th century because of the numerous civil wars during that time. The participants were noticing the difference in the colourfulness between Niou Gate and temples in Nara.


Kiyomizu-dera Temple


Nijo-jo Castle

- In the afternoon, the party went to Nijo-jo Castle, which was the place where the last Edo Shogun returned political power to the emperor. This castle was divided into three areas: the Honmaru (main circle of defense), the Ninomaru (secondary circle of defense), and the garden of Ninomaru Palace. The restoration of the first gate before Ninomaru, called Karamon, was just finished this summer. They also experienced the squeaking floors called "Nightingale floors," which were used as a security device at Ninomaru. Walking through the garden, everybody went up to the Honmaru Palace site, they saw a pleasant view from the top and thought of the view from Honmaru.

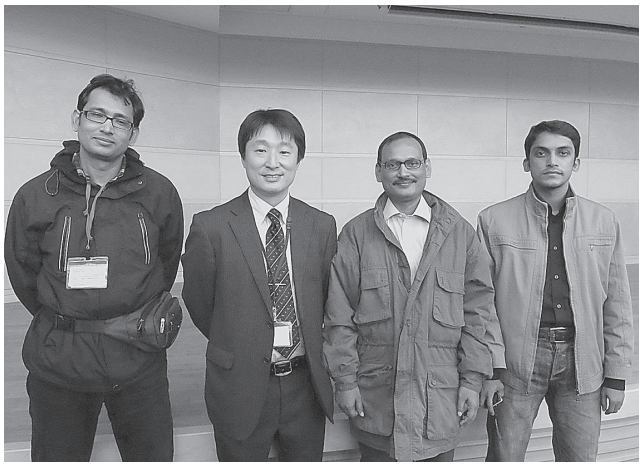
25 November (Mon.)

■ **On-site Training: Exhibition of Buddhist Art in Practice**

NOJIRI Tadashi, TANIGUCHI Kosei, ONISHI Seiji (Nara National Museum)

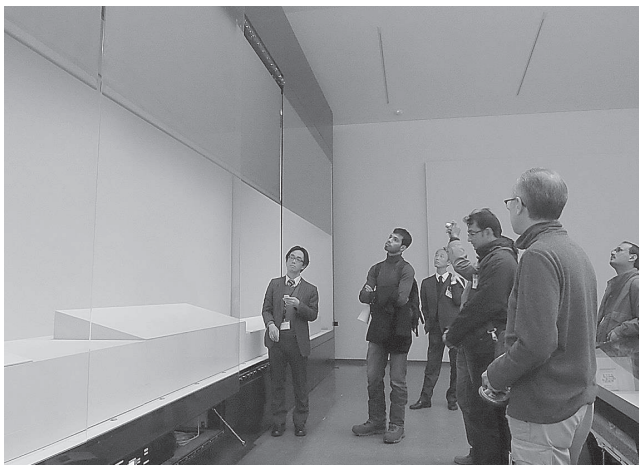
- At Nara National Museum, the participants received a lecture from Mr Nojiri about the overview of the museum, such as how it was established 120 years ago, the number of collection, and the reason why the structure of the museum was built in Western style. Dr Rahman was curious about the fact that there were a lot of museum collections entrusted by surrounding temples and shrines and asking questions about the system.
- Then, the participants went to a different hall and listened to a PowerPoint presentation on the Buddhist arts from Mr Taniguchi. They learned that there were five categories of museum collections and also learned the system and the work assigned to the curators. The picture of making Japanese paper attracted Mr Mahfuz, and he was taking a lot of pictures of it.
- In the afternoon, the participants were taken to one of the exhibition rooms where there was the special exhibition of Shosoin Treasure House. On that day, there was a group from a maker of the museum showcase, Glasbau Hahn (Germany), and with an expert from the company, they had a tour of showcases with Mr Onishi. He explained and demonstrated its seismic isolated structure, how to open and close the showcase, and how to operate humidity control system, and so on. After a few

A lecture by Mr Nojiri



With the lecturer, Mr Taniguchi

At the museum in the middle of taking down the exhibitions



Explanation on how the showcases can be opened and closed by remote control

questions, they moved around and took pictures of those showcases. Since earthquakes may occur in Bangladesh, they seemed to be thinking of the importance of preparing for an emergency.

26 November (Tue.)

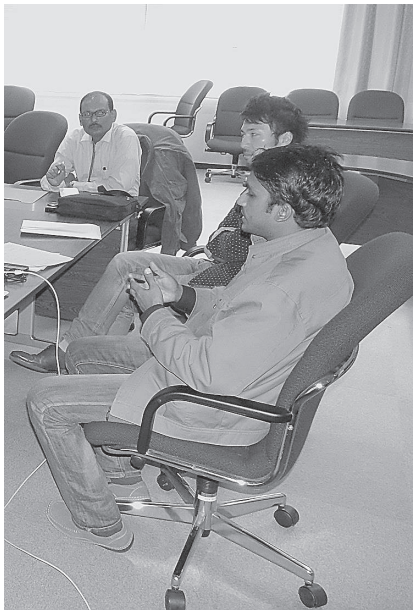
■ **Conservation Science of Archaeological Remains II**

WAKIYA Soichiro (NNRICP)

- The participants' presentation about their observations of the salt damage of the archaeological sites they visited through the Kyushu on-site training.
- A participant asked why the type of the salts crystallised on the right and left sides of the Motomachi Stone Buddhas are different. The lecturer replied that on the right-hand side, the salt crystallised at high humidity is calcium chloride, while on the left-hand side, the salt crystallised in the comparatively dry environment is sodium sulfate. Depending on the environment, different salts can appear at the same archaeological site; therefore, the countermeasures should also differ, depending on the type of salt.
- They knew that all these objects like stone, soil or kneaded roof tiles are permeable, and the same phenomenon will appear.
- The lecturer introduced the procedures of the environmental research method for preventing salt damage as follows:

(i) First, analyse the salt contained in the kneaded roof tiles. Immerse the lower half of a kneaded roof tile in fresh water, and leave it in a place that keeps out rain for a few days. After that, if any salt is crystallised on the surface of the kneaded roof tile, it can be confirmed that the kneaded roof tile contains a salt. Further analyse the confirmed salt by using the X-Ray Diffraction method in the lab of a university, etc.

(ii) Next, analyse the components dissolved in the groundwater. Bring the groundwater sampled from around the archaeological site to the waterworks department or other organisation that has water



Presentation by participants

Participants discussing the experimental results of salt weathering

quality testing equipment, in order to analyse the components dissolved in the groundwater.

(iii) Review the type of salt which affects the archaeological site through steps of (i) and (ii).

(iv) The characteristics of salts differ from each other; specifically, those crystallised under the circumstance of relatively lower humidity (sodium chloride, etc.), those crystallised under relatively higher humidity (sodium sulfate, etc.), and those crystallised even under low humidity (precipitated in winter). The "Types of Salts" which indicates the identified salt types and the review of countermeasures as well as the "List of Salt Characteristics" were given by the lecturer to the participants.

(v) Since the crystallisation amount of salts differs depending on environment, the temperature, humidity. of an archaeological site should be monitored throughout a year.

(vi) The lecturer gave suggestions about the countermeasures for the characteristics of each salt as follows:

- First, the results of the experiment made on November 18 were shown to the participants. The participants observed the three stone blocks in the experiment described above; (i) one, the full surface of which was treated with water-repellent; (ii) one, the upper half of which was treated with water-repellent; and, (iii) one that was not treated with water-repellent. Block (i) was the most stable; block (ii) had broken into several large portions due to the crystallisation of salt inside the block; and block (iii) had become finely crushed to powder from the surface. It is, effective against salt damage to apply a water repellent agent to what is separated from the ground (represented by stone block (i)). The experimental results also indicated the likelihood that, the surface of archaeological remains in contact with the ground, could collapse on a large scale if applied with the water repellent agent. Meanwhile, in cases in which the surfaces of each of the stone blocks under conditions (i) to (iii) were wrapped with pulp paper to absorb salt to induce it to crystallise inside the pulp paper, and when the papers were periodically replaced, the three blocks showed no deterioration on their surfaces.

27 November (Wed.)

■ **Writing Final Report**

The participants prepared their reports of the training programme.

28 November (Thur.)

■ **Closing Ceremony**

After each participant successfully submitted his final report, the closing ceremony for programme was held. Deputy Director Takahashi awarded a certificate of completion with a word of appreciation for their hard work. He encouraged the participants, who had been playing the important roles in each area, to get involved in developing institutions after they go back to Bangladesh. He also wished them to be a bridge between Bangladesh and ACCU Nara. After receiving the certificate, Dr Rahman made a brief address on behalf of all the participants. In his speech, he appreciated the kindness of Japanese people. Looking back the first day, he said that he had thought he would have lectures in this office at ACCU Nara for 24 days from that day on. Yet, he could go to many different sites every day, and "I felt like I was living in the ancient time," he said as he reflected on the days at NNRICP, where

he could see Nara Palace Site. He was thankful of the lecturers for giving the lectures and trainings in a comprehensive way, so that he could learn well and bring back to share with the colleagues in Bangladesh. He closed his speech with hope to maintain a cooperative relationship with ACCU Nara.

Closing Ceremony at ACCU Nara office

III. Country Reports by Participants

At Nijo-jo Castle

Md. Ataur Rahman
Department of Archaeology
Ministry of Cultural Affairs

Present Situation and Needs for Cultural Heritage Preservation in Bangladesh

One of the main and most important sources of history is archaeology, which describes past human culture with material evidence. The socio-cultural lives of the past are depicted in the cultural materials of our ancestors. These artifacts also indicate their tastes, achievements, livelihoods and skills. To express our past glory we need to promote, uphold and preserve our archaeological resources. When a nation becomes psychologically weak due to poverty and other problems, it has the scope to regain energy only by unveiling its heritage. Therefore, the inspirations of national heritage are able to ensure the advancement of a nation with historical hierarchy. In this way, we can easily mention the past glory of Bangladesh with the rich archaeological materials discovered recently.

It used to be commonly thought that Bangladesh is a land of new alluvium, making it impossible to compare the cultural heritage of this land with those of other South Asian countries. But recent research has changed this idea. The result of this research has announced that some soil in Bangladesh is very old. The geological term for this is Pleistocene soil. Archaeologists have found quite a few Stone Age tools through exploration and excavation. It was an important point to reach the decision that Bangladesh is not detached from the cultural continuity of South Asia that started 30,000 years ago. In this process the glorious past of Bangladesh has gradually been uncovered. Nowadays, the people of this land are very much disheartened about the chaotic condition of its socio-political arena. We can say that if the people of Bangladesh get a chance to know their own bright heritage, they could be inspired.

Bangladesh has an exceptionally rich cultural heritage. It is evinced in various forms, like the small artifacts of prehistoric people of the remote past as well as gigantic monuments like Paharpur monastery of the historical era. Their various forms and nature exhibit the diversity in race and religion of the ancient people who lived in the largest delta in the world. Here we find vestiges of the Neolithic hunter-gatherers, Hindus, Buddhists, Muslims and Christians. So this multifarious heritage undoubtedly testifies the richness of our colourful chequered history.

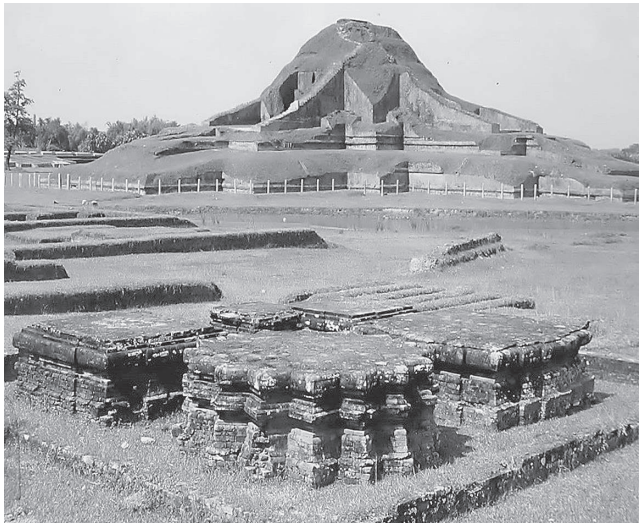
Although these cultural remains are spread all over the country, its northern and eastern portions are rich in the earliest evidence. The southern part, which has been recently formed by alluvial deposition, possesses comparatively less ancient culture. The earliest evidence of human habitation comes from Chagalnayya in Feni, Sitakundu Hill in Chittagong, Chunarughat in Sylhet and Lalmai-Mainamati Range in Comilla. These sites have yielded Neolithic artifacts of fossil wood. Of these the greater assemblage comes from several hillocks of Lalmai.

Of the historical age, the earliest remains come from Mahasthan in the Bogra district and Wari-Bateshar in the Narshingdi district. The extensive ruins of Mahasthangarh represent Pundranagar, the provincial capital of Pundravardhan Bhukt, which dates back to the 4th century BC. Around the citadel huge suburbs were developed, covering an area of roughly 80 km on its three sides (north, south and east). The city flourished in the succeeding periods of the Guptas, the Senas and the Muslims. Within the fortified citadel and its extensive suburbs, many structural remains of monasteries, temples, mosques and numerous movable objects like stone sculptures, coins, ornaments, terracotta images, household objects of every day use, toys, etc. have been discovered.

Of the important establishments so far exposed in and around the citadel, Bairagi Bhita, Parashu Ram's palace, Mankali Mosque, Ziat Kund, Lakshmindarer Medh, Govinda Bhita, Bhasu Bihar, Bihar and Godai Bari are worth noting. These cultural materials represent the socio-religious scenario of two-and-a-half thousand years of northern Bangladesh. Of course, most of the heritage is still covered by earth. The lofty mounds of Baro Tengra, Kanjirhari, Salibahan Rajar Bari and Kacher Angina definitely contain important establishments of the period that are yet to be unearthed.

The twin village of Wari-Batashar in the district of Narsingdi has yielded artifacts of petrified wood of the prehistoric era and a large variety of cultural objects including water reservoirs, small rooms, Northern Black Polished Ware, punch-marked silver coins, iron glums, and weapons and semi-precious stone beads of the early historic period. The city was founded in 450 BC and was an important centre of commerce and trade for a few centuries. The recent discovery of some architectural remains in Bhat Bhita (Magura), Damdam Pirsthan (Manirampur, Jessore) and Bharat Bhayna (Keshabpur, Jessore) have proved that the southern part of the country was inhabited during the early historic period.

The most imposing Buddhist monument is the gigantic monastery at Paharpur known as Sompur Mahavihara in the Naogaon district. This is the second largest single monastery south of the Himalayas and was erected by Dharmapala, the great Pala emperor, in the 8th century AD. The oblong monastery consists of 177 monastic cells in four wings with an imposing gateway complex in the middle of the northern wing. At the centre of the open courtyard stands the colossal cruciform temple built in three receding terraces. The lowest one is adorned with 63 stone sculptures, belonging mostly to the Brahmanical pantheon, while the others feature panels of terracotta plaques.

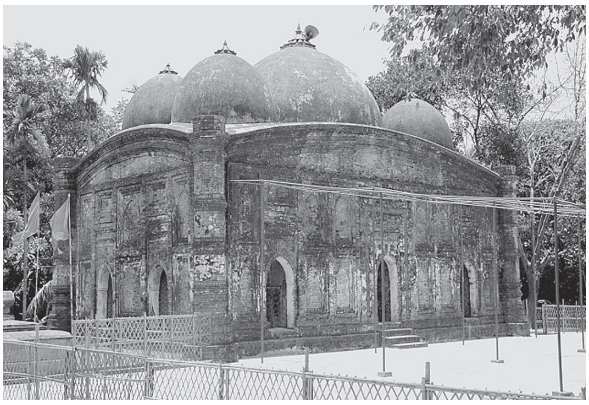
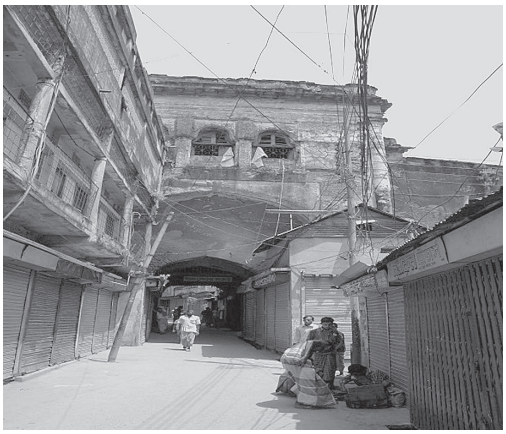


A series of similar but less extensive monasteries and stupas have been exposed at Salban Vihara, Ananda Vihara, Rupban Mura, Itakhola Mura, Charpatra Mura and the Tri-ratna Stupas at Kotila Mura in the Lalmai-Mainamati hill range in Comilla, as well as at Bihar and Vasu Bihar near Mahasthan, at Sitakot in Dinajpur, and Harish Chandra Rajar Bari at Savar near Dhaka. Apart from these building remains, numerous movable objects have been discovered from the excavations as well as surface finds from different corners of the country. These are life sized sculptures of Buddha of stone and bronze, as well as many miniature Buddhas, punch-marked silver coins, copper cast coins, semi-precious stone beads, terracotta plaques, terracotta objects, bronze mirrors, bronze lamps, iron axes and so on. All these objects faithfully reflect the socio-cultural and religious aspects of early medieval Bengal.

A series of stone sculptures of Visnu, Siva, Ganesha, Durga and other Brahminical images of varying sizes discovered in different corners of the country show the great development of Hindu art during the Sena period. But the architectural remains of this period are very scanty. Only a few sporadic vestiges are noticed in and outside the citadel of Mahasthan, such as Bairagir Bhita, Govinda Bhita and the upper structure of Lakshindarer Medh.

The art and architecture of the Muslim period, covering more than five centuries, may be broadly divided into two distinct phases: the pre-Mughal and the Mughal. Pre-Mughal art and architecture of the country developed a strong indigenous trend, clearly manifested in an exuberant surface decoration on monuments with this region's traditional art of terracotta, and the introduction of a string curvilinear roof form, drawn from the common thatched huts. Notable among them are a series of massively built mosques and tombs within the old city of Khalifatabad, now known as Bagerhat, in the south, founded by a saint ruler known as Ulugh Khan Jahan in the 15th century AD. The city plan centers around a magnificently built 77 domed mosque, popularly known as the 'Shait-Gumbad Masjid', which is the largest of its kind in the country.

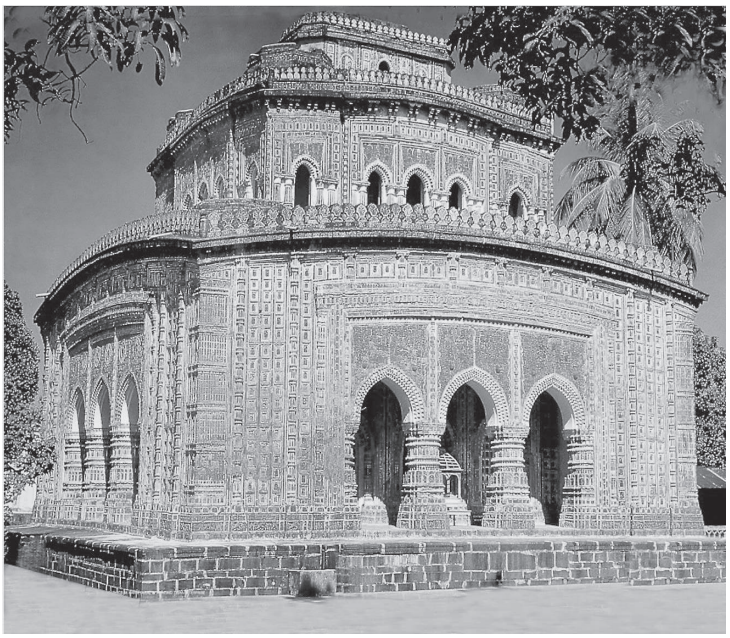
Numerous massive buildings in the city such as Bibi Begni Mosque, Singar Mosque, Chunakhola Mosque, Khan Jahan's Tomb, the Nine-domed Mosque and Ranavijaypur Mosque bear a striking resemblance to the more famous Tughlaq architecture near Delhi. Other important examples of this period are the Mosque of Baba Adam near Dhaka, Sura Mosque in Dinajpur, Small Golden Mosque at Gaur in Nababganj, Bagha Mosque in Rajshahi and Kusumba Mosque in Nawgaon, Jor Bangia Mosque, Galakata Mosque, Noongola Mosque, Pathagar Mosque, Satgachia Mosque and Monohar Mosque in Barobazar in the district of Zhenaidah, Qutb Shah Muhammad Mosque in Mymensingh and the Atia Mosque in Tangial. All these religious buildings are either profusely embellished with beautiful terracotta floral panels or richly relieved with stone carvings.


At the other end the Mughals abandoned most of the indigenous elements in architecture and introduced a uniform, provincial style. Their important creations, mostly concentrated in and around Dhaka, their new provincial capital, are the incomplete Lalbagh Fort, the tomb of Bibi Pari, Sat Masjid, Mosque of Haji Khwaja Shahbaz, Khan Mohammad Mridha's Mosque, Kartalab Khan's Mosque, Bara Katra, Chhota Katra and a series of river forts at Idrakpur in Munshiganj, and the Hajiganj and Sonakanda Forts at Narayanganj. Erected picturesquely on river banks, these fortresses guarded the water route of Dhaka against the recurring raids of the Magh and Portuguese pirates.

During this period numerous temples were built by local wealthy people and Zaminders. Of these the 17th century Bishnupur temples and the 18th century Kantajee Temple are the most elaborate and significant in terns of terracotta decoration.

With the advent of British rule in 1757, architecture acquired a new dimension. Monuments in a European renaissance style appeared, initially in the religious buildings like the British churches of Dhaka and a few other outlying areas. Subsequently this style was applied to secular buildings also, as we see in the Wiseghat locality in old Dhaka. In the late 18th and early 19th centuries another style of building with semi-octagonal or rounded corners and tall Doric columns became popular. An example of this architecture is seen in the Former State Bank Building at Sadarghat. During the same period another group of buildings with a defensive character, popularly known as Kuthis, were built in different parts of the country. The Dutch, the French and the English who were engaged in the indigo and silk manufacturing trade built these buildings.



The new architectural elements introduced into almost all buildings erected during the 19th century were the semi-circular arch, the triangular gable supported on semi-corinthian columns, and other foliated motifs in plaster. Typical of this plaster are the Ahsan Manzil (Pl. 13) of the Nawabs of Dhaka and many other *Zamindar* palaces elsewhere. In the late 19th and early 20th century a new hybrid Mughal and European style emerged, particularly under the influence of Lord Curzon, which provided all the necessary European requirements but outwardly maintained the fading Mughal architectural elements. Notable monuments of this hybrid style are the Northbrooke Hall, Curzon Hall, Fazlul Huq Hall, Dhaka Hall, Dhaka Medical College and the Salimullah Muslim Hall.

The government of Bangladesh has been taking a keen interest in the preservation and promotion of this glorious cultural heritage with its limited resources. At present, about 450 sites have been enlisted as national heritage. Of these, Paharpur Monastery and the Bagerhat group of monuments have been inscribed on the UNESCO World Heritage List. A few more sites such as Mahasthan, Mainamati, Kantaji Temple, Sitakot Vihara, the Gour group of monuments and Lalbag Fort are included in the World Heritage Tentative List. But besides these declared national heritage sites, there are many more sites that are yet to be declared and need proper attention for their preservation for posterity. In this context it is worth mentioning that the government of Bangladesh has recently drawn up a cultural policy for the proper management, preservation and promotion of our age old cultural heritage. We hope this newly framed policy will definitely help in achieving our goal.

Bangladesh has been overpopulated for the last 10 years. We are struggling with issues of cultivation land, habitation and working space. In one sense, it's a matter of promoting the practice of archaeology and conservation of ancient monuments as well. In spite of all these obstacles, we the staff here in the

Department of Archaeology on behalf of the Ministry of Cultural Affairs of the People's Republic of Bangladesh, are trying our best to protect the archaeological heritage of the nation. The Department of Archaeology has already announced the declaration of more than 450 protected archaeological monuments, as I mentioned before, and posted signboards at the sites. But the weather here isn't suitable for the protection and conservation of those monuments. Most of the ancient buildings here are made of brick and lime mortar. In the rainy season the structures get damp and are sometimes damaged due to too much moisture. We have already taken necessary steps for the treatment and conservation of such monuments. For example, as a regional director of the Dhaka division I have already supervised the conservation work at Lalbag Fort, Ancient Eidgah at Dhanmandi, Khelaram Data Temple, Sat Gambud Mosque, Khan Muhammad Mridha Mosque, Tomb of Haji Khaja Shahbaj, Panam City, Ancient Bridge at Panam, Baliati Palace and Teota Jaminderbadi Temple.

Some plans have already been put in place for the preservation, conservation and protection of many other sites here in the upcoming year. But lack of proper financial support and technical anomalies act as a bar to all this work. We are really struggling with poor funding and lack of appropriate manpower. The local people are not aware of those sites and monuments. Now and then they destroy our cultural heritage because of their daily needs but also because of ignorance. Sometimes they think these archaeological monuments are not valuable; or worse, as dust and waste rather than as more valuable than gold. It's very harmful for our heritage. To get rid of all those obstacles we need proper financial support as well as professional manpower.

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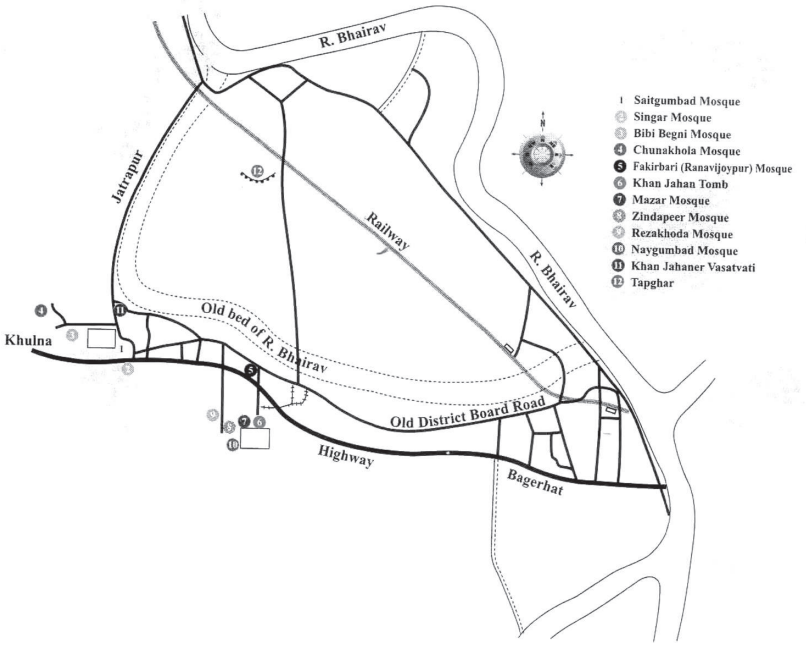
"Present Situation and Needs for Cultural Heritage Preservation in Bangladesh"
Based on the Historic Mosque City of Bagerhat

Mosque City of Bagerhat: The medieval Historic Mosque city of Bagerhat, situated in the south-western part of Bangladesh, is one of the most exciting sites of archaeological interest in Bangladesh, lying about 33 km south-east of the divisional headquarters of Khulna. A good number of old mosques, reservoirs, non-descript structural vestiges and cultural mounds are scattered around the site. The lost town, however, appears to have had a length of 6.5 km from east to west and 3.5 km from north to south. It has been a World Cultural Heritage site (323 BGD) since 1980.

Bangladeshi Heritage: Unity in diversity: The cultural heritage of Bangladesh is one of the richest in the world. As a product, as well as a mirror of the mind of the people, the cultural heritage of the nation is a unique record of its history and also an integral part of the universal heritage of mankind. This is an outcome of centuries of political, religious, economic, cultural and social activities of past generations. The cultural heritage of Bangladesh, reflecting the creative genius of the people, was enriched by the great civilization that flourished in the region for well over two millennia.

The Department of Archaeology: The Department of Archaeology is one of the oldest organizations of the sub-continent, devoted to the reconstruction of the past human history of the country through archaeological exploration and excavation. Simultaneously, it is equally engaged in the preservation, presentation and promotion of the nation's glorious cultural heritage. At present the department owns 405 heritage sites. Of these, two have been inscribed on the World Cultural Heritage List and five in the tentative list.

Historical Background: In the first half of the 15th century, Ulugh Khanjahan founded a city of unknown name not far from the present town of Bagerhat. Later, it became a mint town of the independent Sultans of Bengal, and was then called Khalifatabad. His city was founded in the midst of the wild and inhospitable Sundarbans, a vast marshy and impenetrable tract along the coastline of southern Bangladesh. The inscription on his tomb identifies this man as "Ulugh Khan-i Azam Khanjahan," suggesting he was an ethnic Turk ("Ulugh") and a high-ranking officer ("Khan-al 'Azam") in the Bengal sultanate. Khanjahan also turned his men to stupendous works of architecture. Surveys have credited him with having built over 50 monuments around Bagerhat, while oral tradition claims for him 360 mosques and as many large tanks. Some 126 tanks in Bara Bazar, ten miles north of the town of Jessore, are also attributed to him, as is the construction of numerous roads in the Bagerhat region. The unparalleled masterpiece of the Bagerhat complex is the Saithgumbad mosque, which, with its 67 domes and measurements of 157 by 106 feet, is even today the largest mosque in Bangladesh.



Mosque Heritage of Bagerhat and Barobazar: The mosque is the physical embodiment of the social reality of Islam and hence the paramount institution by which community identity and solidarity are expressed. A total of 188 dated mosques built in the course of 600 years of Muslim rule in Bengal have survived into the present. Of these, fully 117 were built in the relatively short span of a hundred years, from 1450-1550. Most are located in the western portion of the delta, especially near the old Muslim capitals of Gaur, Khalifatabad Bagerhat and Shahar Muhammadabad (Barobazar).

Common Problem of Cultural Heritage protection in Bangladesh :

Statement of significance: Bagerhat, therefore, is of enormous archaeological significance. The city has acquired cultural significance as it gives an insight into Muslim cultural life. In its use of a range of buildings, typologies and design *vocabulare*, such as various types of domes, round-shaped corner turrets, decorated mihrabs and glazed tiles, Bagerhat is of high architectural and design significance. There are many aspects of the Sultanate period still to be explored and which could provide new insight into medieval history.

Climate Change: Climate change poses significant risks for Bangladesh. Bangladesh is located in the tropical monsoon region and its climate is characterized by high temperatures, heavy rainfall, excessive humidity, and fairly marked seasonal variation. This type of environment is not suitable for sustaining tangible cultural properties in the long run. These environmental factors, several biological activities and human-created factors are also responsible for deterioration of tangible cultural properties. Bangladesh occupies a significant proportion of the archaeological heritage and historical record.

Therefore, Bangladesh needs a multidisciplinary effort in the areas of settlement archaeology, field archaeology, historical architecture and cultural heritage management, geographical survey, GIS, database management and computing archaeology, etc. to reach its goals. The goals are as follows:

Salinity, Efflorescence and Deterioration of Bricks and Brick ornamentation:

There are many undulations in the Historic Mosque City of Bagerhat, and some depressions also, and rainwater is stored in those depressions.

Waterlogging Problem: Waterlogging is one of the vital degrading factors in the deterioration of bricks and terracotta ornamentation of the Historic Mosque City of Bagerhat. Waterlogging was found to have a greater impact in the north-west corner of the wall of the mosque.

Harmful Biological and Chemical Agents: Flora and fauna such as algae (living and nonliving), moss, lichen, plants, different types of grass, birds, termites, insects, etc. often have a detrimental effect on the brick and terracotta of monuments.

Flaking: One of the main causes of the deterioration of bricks and decorated bricks of Bagerhat and other monuments is flaking. The causes of flaking are heavy rainfall, high temperature and humidity, air pollution, the chemical reaction of salt, and human attacks, etc.

Rising Damp: Most of the monuments and historic buildings have been affected by too much damp due to lack of sunlight, and thus they absorb water all year round.

Problems of Rainwater Disposal and Lichen Growth: The rain that falls onto the domes runs to the flattish areas above the curvilinear cornice and then dribbles over the face of the building.

Human activity: Man is another deteriorating agent of cultural heritage. Anthropogenic causes and activities are as follows:

a. Lack of knowledge for proper treatment; b. Lack of scientific display and storage systems and incorrect conservation practices; c. Vandalism, theft and lack of security; d. Lack of funding; e. Lack of proper and scientific digital documentation.

Recommendations and Needs:

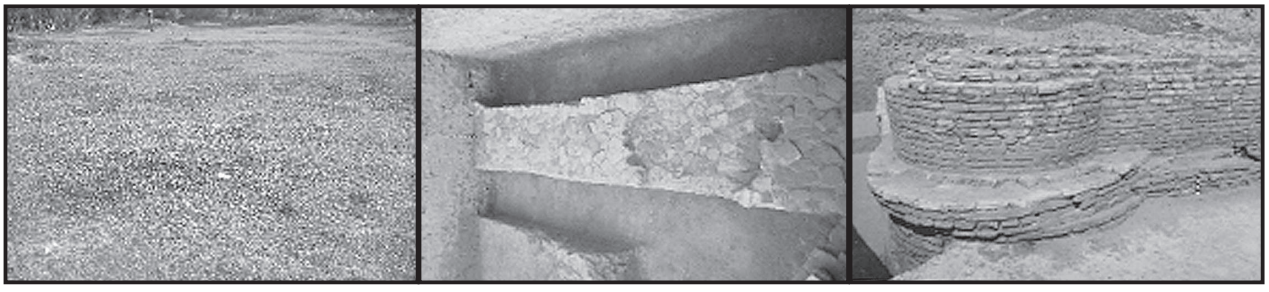
The Ministry of Cultural Affairs tries to preserve our national heritage, and the Bangladesh government is coming forward to create some grounds for effective restoration and protection of our cultural resources.

1. Nationwide preservation awareness programs through workshops, seminars and refresher courses to safeguard the rich cultural and documentary heritage of the country should be arranged. 2. Conservation police should be prepared by updating current national legislation following the various instruments of UNESCO ICCROM. 3. Necessary infrastructure should be set up for both the preservation and handling of cultural properties. 4. Policies should be updated and implemented. 5. A comprehensive national inventory of the cultural heritage held by the DOA. 6. Funds for carrying out archaeological activities like excavation, exploration, conservation, restoration, and maintenance of cultural heritage should be increased. 7. The DOA should be strengthened for effective management and to safeguard the national cultural heritage. 8. Initiate research projects, particularly on the impact of global climate change on cultural heritage and its landscapes.

Archaeological Investigations in and Around Bagerhat: Throughout the old city of Khalifatabad there is considerable scope for archaeological investigation.

The Original Road Network of Khalifatabad: Only the surviving medieval road is in a good state of preservation, some of which can still be traced. This unusual aspect of the archaeology of Bagerhat should be investigated, not only because it is an interesting detail, but also because it might lead to further discoveries.

Khan Jahan's Residence: The most important of the possible sites for archaeological excavations is Khan Jahan's Residence, where there are many cultural properties and structural remains. The DOA has been undertaking systematic archaeological explorations, excavations and research at Khan Jahan's Residence since 2008. Five seasons of archaeological excavation have already been carried out. This is the most important archaeological discovery in the region, which is expected to shed significant light on the past cultural landscape of Bangladesh.



Bara Ajina Mound: The site locally known as the Bara Ajina Mosque is a mound strewn with brickbats in the same way as most of the other sites. The columns are very similar to those of the Shait Gumbad Mosque.

Present Conservation Status of Monuments: Bangladesh possesses about 405 protected archaeological sites. About 20 more sites have been proposed for immediate protection. Apart from these, there are about 2,000 heritage sites which are yet to be protected. All these sites, both protected and unprotected, have different degrees of values in terms of history, aesthetics, architecture, art, and economics, and they are used for social, spiritual, scientific and educational purposes. Of these two sites the Ruins of the Buddhist Vihara at Paharpur and the Historic Mosque City of Bagerhat were inscribed on the World Cultural Heritage List in 1985 due to their outstanding universal values. In addition, five more sites have been included in the Tentative List. The DOA has been managing the protected heritage sites based on tradition and national legislation.

Conservation Policies:

a) To prolong the lifespan of the cultural heritage and, if possible, the artistic and historical, cultural, technical and craft activity based on humanistic and scientific studies and systematic research, conservation must respect the cultural content. b) Preserving the archaeological remains and environment. c) Restoring the monuments to their natural setting. d) Development of tourism. e) To take the appropriate legal, scientific, technical administrative and financial measures necessary for identification, protection, and conservation; methods and materials according to accepted norm of conservation. i) Historic building conservation. ii) Conservation of decorative features. iii) Historic landscape conservation.

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COUNTRY REPORT
"PRESENT SITUATION AND NEEDS FOR CULTURAL HERITAGE PRESERVATION IN BANGLADESH"

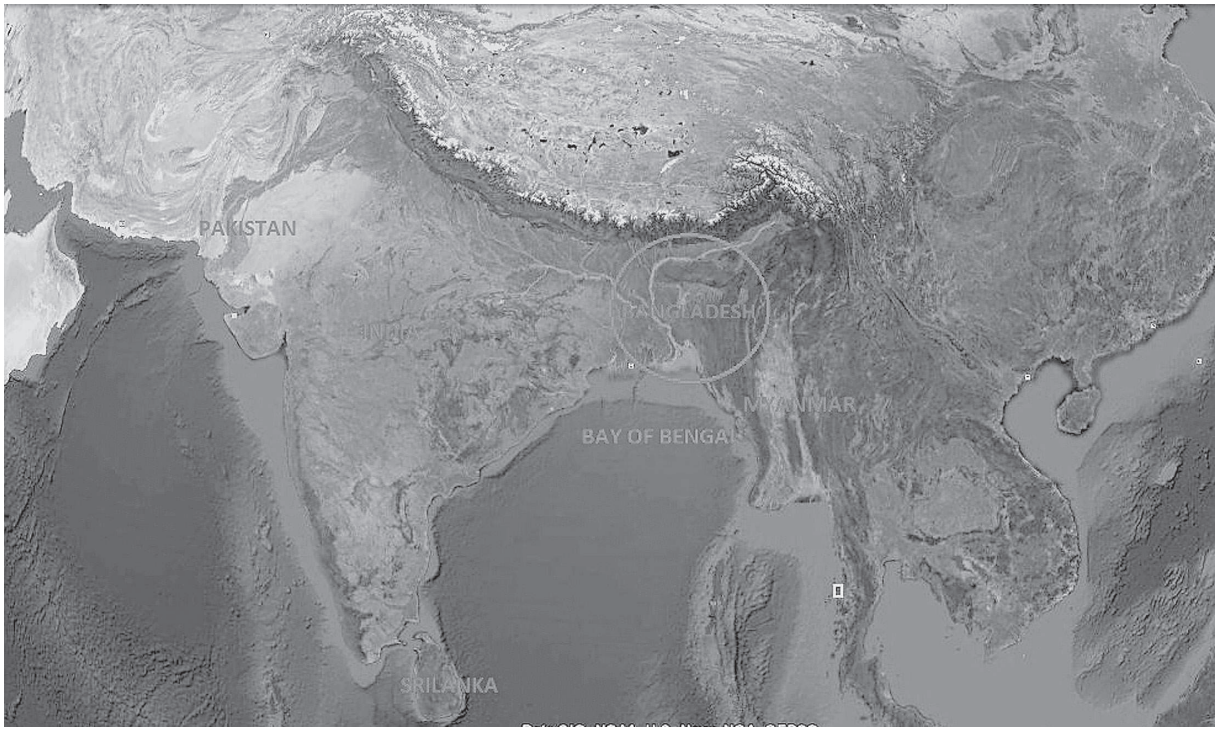

Fig. 1 Location of Bangladesh

Bangladesh is situated in South Asia, surrounded by India on three sides (east, west and north). To the south there is the BAY OF BENGAL. Bangladesh obtained her freedom from Pakistan in 1971 after a nine month war of liberation.

Bangladesh is in the low-lying Ganges Delta. There are 230 rivers in Bangladesh. Bangladesh is an agricultural-based country with a tropical climate. A major part of the coastline is marshy jungle, the Sundarbans, the largest mangrove forest in the world and home to diverse flora and fauna, including the Royal Bengal Tiger.

Fig. 2 The Sundarbans, the world's largest mangrove forest, deer and the Royal Bengal Tiger

Historically, Bangladesh has earned the reputation of being at the crossroads of many cultures. The ruins of magnificent cities and monuments left behind in many parts of the country by the vanishing dynasties of rulers still bear testimony to the richness of its cultural heritage. Bangladesh has always been known as a land full of nature's bounties as evident from the vast expanses of its lush crop fields, borderland hills thickly covered with virgin forests and innumerable rivers and their tributaries, making it the world's largest delta. Ancient chroniclers have described it as "a land of emerald and silver", "a garden fit for kings," or as "a paradise among countries." It is no wonder then that this country has always attracted settlers, traders and conquerors, who have turned the land into a vast melting pot of diverse races and cultures.

Despite destruction caused by natural calamities, the ever-changing courses of turbulent rivers, heavy high humidity, fast growing vegetation and expanding population, scattered throughout the country are countless ancient monuments and antiquities. Excavations at Paharpur, Vasu-Bihar, Mahasthan, Sitakot, Mainamati and other ancient sites, together with research, have greatly helped enrich our knowledge about the country's early history.

Fig. 3 Paharpur Vihara

Fig. 4 Mainamati Vihara

Fig. 5 Vasu-Vihara

Fig. 6 Shait Gumbad Mosque

Fig. 7 Kantaji Temple

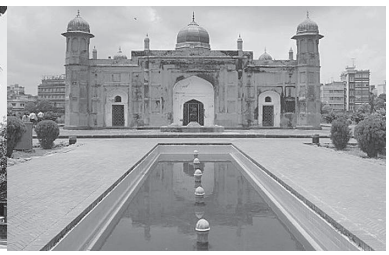

Fig. 8 Paribibi Tomb

In the absence of stone in the region, most of the ancient monuments and buildings were built with highly perishable mud, bamboo, reed or timber or with durable burnt bricks and mud mortar. It is, however, no small irony that whatever of these monuments were spared by nature were vandalized by waves of conquerors and treasure hunters.

As an architect in the Department of Archaeology, I document various archaeological monuments for proper preservation and conservation. We have around 3,000 monuments in our country, and these monuments are from various periods–the Buddhist period, Hindu period, Sultan period, Mughal period and Colonial period.

All year our architecture section is involved in the work of monument documentation. Recently we have been working on documenting a Hindu temple called KHELARAM DATAR MANDIR. This temple was constructed by Khelaram Data in the late Mughal period (17th century). This temple is situated at Nawabgonj, Dhaka .

Fig. 9 Location of Khelarm Datar Mandir, Nawabgonj, Dhaka, Bangladesh.

This two storey temple is highly decorated on four sides, and is
Bangladesh. On the g
three types of roofs:
a) Pitched roof
b) Gable roof
c) Shikhara.


Fig. 10 Three types of Roofs

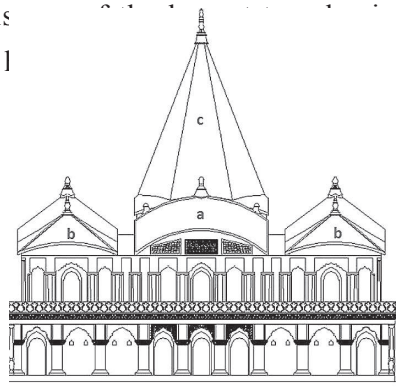

Fig. 11 After documentation of the three types of roofs

Some documentation of Khelaram Datar Temple:

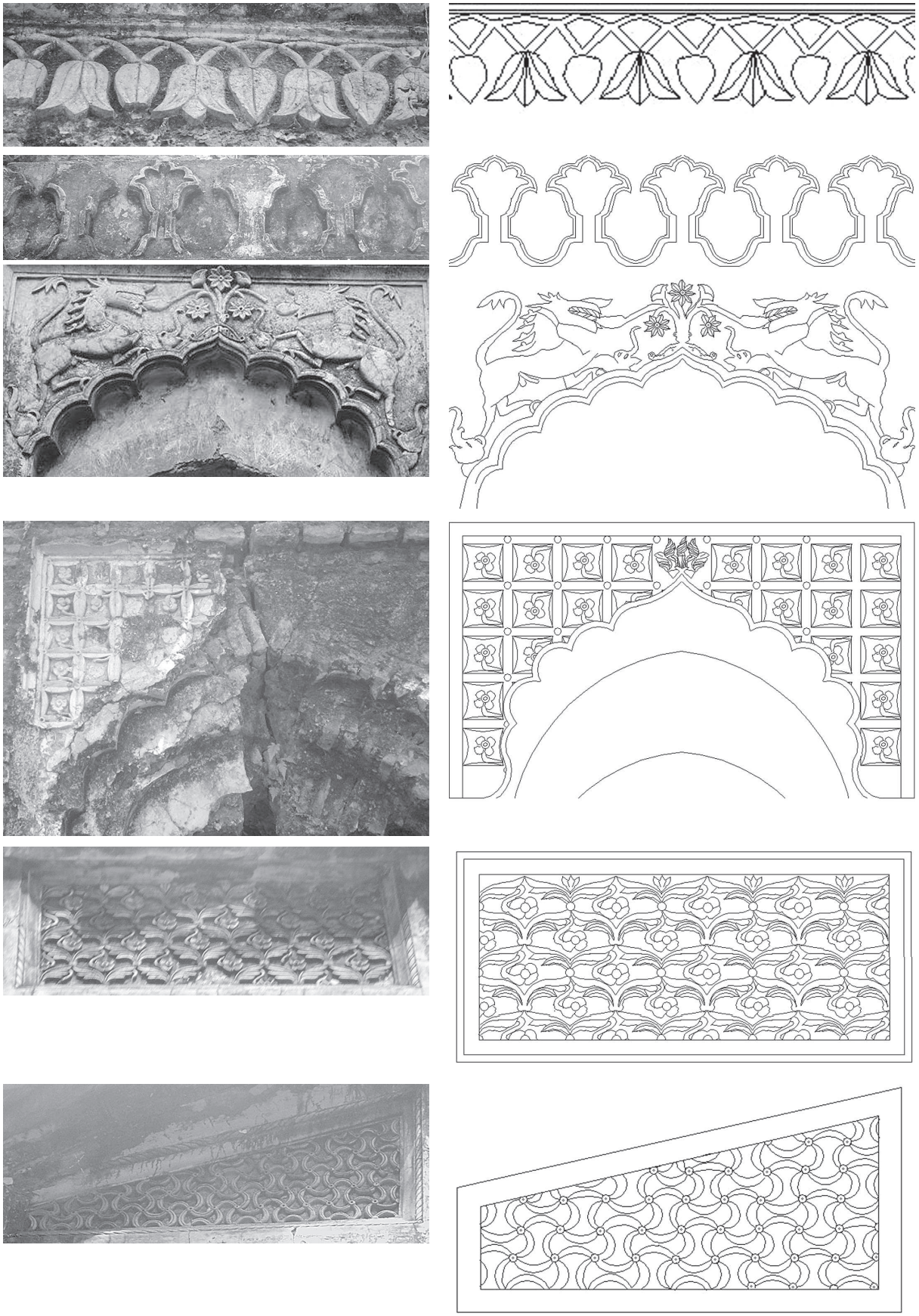

Fig. 12 (Left side) Photography documentation (Right side) Drawing documentation

Our method of documentation consists of both digital and analog systems. First, we visit the ancient site, fully survey the site and decide which part of the monument is essential to the documentation. We measure the monument with an analog system, for example, by hand using measuring tape. We measure every valuable decorated design, by firstly sketching it, then we take the measurement from the decorated design to sketch drawings. We take photos of the monument from various angles. These photos are very helpful for comparing the measurements from the sketched drawings. After taking all types of measurements and photographs, we then draw them. We now draw our drawings using various software, but in the past we drew them manually. When the full drawings are complete, we go to the monument and recheck the measurements and decorated design. After completing the documentation, we give the drawing documents to the engineers to carry out conservation and preservation of the ancient monument.

Documentation is essential for ancient monuments. In our Department of Archaeology, the main problem is lack of people and money. In our country we have around 3,000 monuments, and it is very tough for us to preserve these ancient monuments with fewer people. Our documentation of ancient monument is always threatened by natural disasters like earthquakes, cyclones, tsunamis etc., because if the monuments are destroyed, it is very difficult or even impossible to reorganize the ancient monuments without proper documentation. For this reason, it is necessary to further develop the documentation section.

IV. Final Reports by Participants

With the staff and lecturers at the excavation site (Yakushi-ji Temple)

Md. Ataur Rahman
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Training Course on Preservation and Restoration of Cultural Heritage in the Asia and the Pacific Region 2013 (Individual Course), Bangladesh

Overview

The training program was conducted by the Cultural Heritage Protection Cooperation Office, Asia-Pacific Cultural Centre for UNESCO (ACCU Nara Office) and is a regular activity in order to develop knowledge on the preservation and restoration of cultural heritage in the Asia-Pacific region, especially in Bangladesh. ACCU Nara office was established in 1998 to promote the interests of the preservation and restoration of cultural heritage in the Asia-Pacific region.

Photo 1: Participants from the Ministry of Cultural Affairs, Bangladesh and ACCU staff in Nara, Japan

The individual course was conducted for 24 days, from Nov 5, 2013 to Nov 28, 2013. The main theme was "Research, Preservation and Utilisation of Archaeological Sites and Remains," which was of great value from a global point of view. Japan is a country that has preserved old wooden buildings and its cultural heritages for hundreds of years, since they play an integral role in maintaining the harmony of nature, people and buildings.

The types of activities undertaken during the individual course included on-site lectures at a number of sites that have received local, national and World Heritage protection. Locations visited, among others, were Historic Monuments of Ancient Nara World Heritage Site, Fujinoki Tomb as a national

historical site, World Heritage Buddhist Monuments in the Horyu-ji Temple area and Hoki-ji World Heritage Buddhist Temple, Ikaruga Cultural Property Center, Yakushi-ji World Heritage Temple, Nara Palace Site Museum, World Heritage Nara Palace Site (Heijo Palace Site), Osaka Museum of History and Palace Site, Kyushu National Museum, Motomachi Sekibutsu in Oita City, Kanenokuma Museum, Korokan Museum, Kyoto World Heritage sites, and Nara National Museum.

In addition, some of the lectures presented were: World Heritage Buddhist Monuments in the Horyu-ji Area, Documentation and Survey of Archaeological Remains, Museum Exhibition in Practice, Conservation of Archaeological Remains and Museum Institutions, Museum Institutions in Practice, Conservation of Archaeological Remains in Practice I, Conservation of Archaeological Remains in Practice II, Historic Monuments of Ancient Kyoto, Exhibition of Buddhist Art in Practice.

Ancient Nara as World Heritage and Cultural Properties City

At its meeting in Kyoto from November 30 to December 5, 1998, the 22nd Session of the World Heritage Committee approved the inscription of the Historic Monuments of Ancient Nara (Todai-ji Temple, Kofuku-ji Temple, Kasuga-taisha Shrine, Kasugayama Primeval Forest, Gango-ji Temple, Yakushi-ji Temple, Toshodai-ji Temple and Nara Palace Site) on the World Heritage List.

In 710 AD, with the completion of Heijo-kyo, which was modelled on the Tang capital Ch'ang-an (Sian), the capital was transferred from Asuka to Nara. And Nara flourished as Japan's ancient capital in the 8th century -a city where the cultures not only of Korea and China, but also of the Silk Road on the Eurasian continent came together. The ancient state of Japan took shape during this period as well. The historic monuments and structures, which exemplify the essence of the wooden architecture of that time, ancient remains, and cultural landscapes, are now designated as World Heritage. Nara was the capital of Japan from 710 AD to 794 AD, after which the capital moved to Kyoto.

Undoubtedly, Nara can be called the cultural heritage city of Japan. Many kinds of temples and shrines can be found in Nara. These buildings are mainly built from wood, except for the foundations (stone) and roof tiles (kawara). A few buildings still exist that use different materials for the roof, such as cypress bark (hiwadabuki), board (itabuki), and certain types of grass (kusabuki and kayabuki).

Various historical buildings can be found in Nara. For example, among the World Heritage Historic Monuments of Ancient Nara, there is the Great Buddha Hall, as well as goju-no-to, the greatest five-storied pagoda. There are other notable buildings as well, such as Todai-ji Temple, Kofuku-ji Temple, Kasuga-taisha Shrine, Kasugayama Primeval Forest, Gango-ji Temple, Yakushi-ji Temple, Toshodai-ji Temple and Nara [Heijo] Palace Site, which is the former palace of the Nara period.

Preservation system for cultural heritage in Japan

Cultural heritage has been created, developed and preserved throughout Japan's long history. It has been passed down from one generation to another and is now the precious asset of the Japanese people.

Cultural heritage includes (i) structures such as shrines, temples and private houses, (ii) Buddhist statues, (iii) paintings, (iv) calligraphy, (v) other skills called waza such as performing arts and crafts techniques, and (vi) traditional events and festivals.

In Japan, there are various types of cultural heritage, namely:

(i) Tangible cultural heritage
   a. Monument cultural heritage
   b. Cultural landscapes
   c. Groups of traditional buildings
   d. Folk cultural heritage etc.

(ii) Intangible cultural heritage
   a. Folk cultural heritage (rituals and customs) etc.

The preservation of cultural heritage is divided into several categories:

(i) National Treasures (ii) Province/Prefecture (iii) City/Municipality

Restoration of Cultural Heritage in Japan

The restoration of wooden structures in Japan actually begins at the time of construction, because the old buildings are usually designed to be maintained even after entering the next historical period. This is a major feature of Buddhist temples, in contrast to the building style used for Shinto shrines.

There are two types of restoration undertaken in Japan, namely:

(i) Total Restoration

(ii) Partial Restoration

On-site Training

World Heritage Buddhist Monuments in the Horyu-ji Temple Area:

Horyu-ji Temple is one of the world`s oldest surviving wooden structures, constructed about 1,300 years ago during the Asuka Period (mid 6th to beginning of 8th centuries AD). Today, Horyu-ji comprises the western precinct (Saiin Garan) which is cantered on the Five-Story Pagoda (goju-no-to). In December 1993, UNESCO declared Horyu-ji and Hoki-ji as World Heritages.

Photo 2: Views of selected ancient temples, historical buildings and recently established national museums in Nara, Osaka and Kyushu, Japan

Conservation of Archaeological Remains and Museum Institutions, Osaka Museum of History and Palace site:

During the training period, we visited Osaka Museum of History, which is one of the most modern museums in Japan. We also visited an on-going excavation at Osaka Palace site, Osaka. In the meantime, we also visited Kyushu National Museum, a modern museum in Japan, which used museum science technology.


Photo 3: Documentation, survey and excavation of archaeological remains


Photo 4: Conservation of Archaeological Remains in Practice I, Motomachi and other sites, Oita



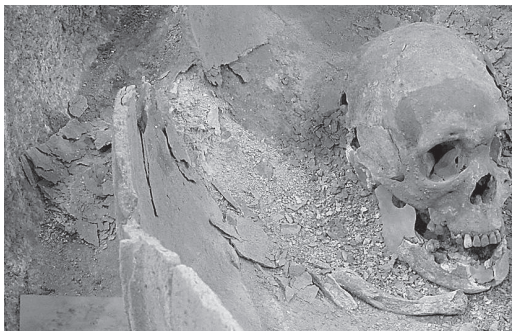

Photo 5: Conservation of Archaeological Remains in Practice II, Kanenokuma Museum and Korokan site, Fukuoka

All the above sites are greatly affected by the problem of salinity, and therefore, the existence of these objects is now at risk. However, scientists looking into this problem have already carried out some experiments, and research on this issue is ongoing.

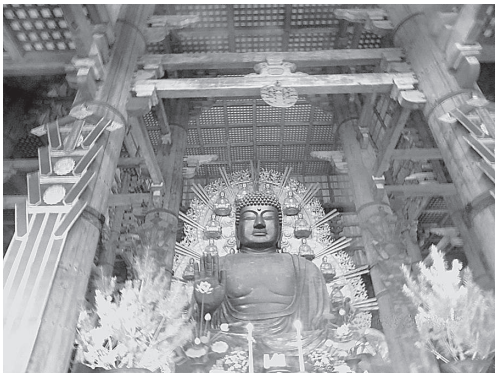

Photo 6: Great Buddha at Todai-ji Temple

Practical Training

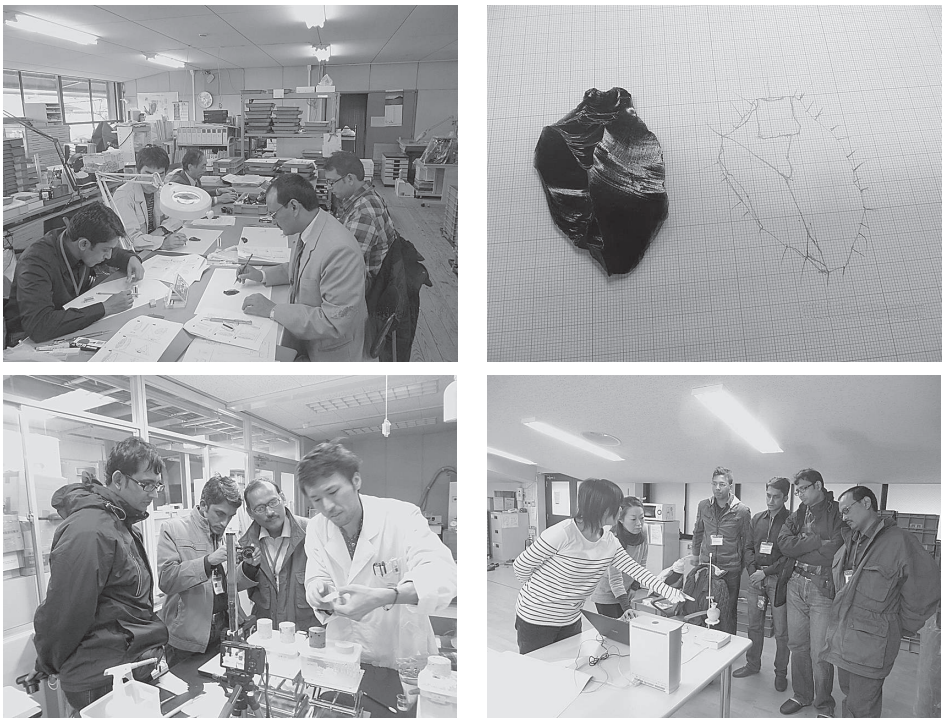

Photo 7: Recording/Documentation of artefacts (Actual Measurement I: Stoneware)

Photo 8: Practical experiment to find the reasons for salinity and likely measures for its solution (Actual Measurement II: Earthenware)

A laboratory experiment was carried out on the detrimental effects of salinity on ancient human objects. After one week, we found a difference between normal water solution, half chemical, and full chemical solution, which made us conclude that there is no permanent chemical solution for conservation, and then any solution would only be temporary. So, prevention measures are the best cure for chemical treatment.

Recommendations

There is a proverb, "Practice makes perfect." Training is the best technique for practice on the relevant topics. So training provides value for the participants and sharing knowledge can be beneficial to our archaeological field. All of the material provided was informative and helpful for the participants. However, we were not provided any soft copies of the classes, but instead provided with lecture sheets/materials presented in the classroom. Our opinion is that it would help the next participants if they provided soft copies of class lectures, which will help with knowledge sharing. In conclusion, we would like to express our sincere gratitude to ACCU Nara, who provided this training on preservation and restoration of cultural heritage.

Sources:

i) Brochures
ii) Information from Training Course Lectures
iii) Lecture sheet
iv) Former Training Report from ACCU, Nara

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Field Officer
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Innovative Display, Documentation, Preservation, and Conservation from the Perspective of Ancient Nara, Kyushu, Kyoto, Fukuoka and Oita City

Introduction: Japan is known for its unique cultural heritage which has been preserved by the Japanese people since ancient times. The age-old social customs and historical traditions also give a unique pen picture of the country. The cultural property of Japan has been created, developed, and preserved throughout the long history of Japan. The people of Japan have passed it down from one generation to another and it is now a precious asset of the Japanese people. Archaeological activities in Japan have consolidated in a manner that exemplifies aspects of Japanese culture, history, and political economy. Archaeological research is strongly controlled in Japan and also guided by national policies and indirectly linked to the national learning movement of the 19th century. Nationalistic interests are served by prehistoric investigation, exploration that emphasises continuity of historical links across time and space. As with the national government, local government also enacts ordinances for the protection of cultural properties under the Law for the Protection of Cultural Properties, and designates local cultural properties. Even though the local authorities preserve and utilise their cultural properties, subsidising expenses necessary for management, repair and exhibitions, Japan has a rich and diverse cultural heritage in each local region, which collectively constitutes nationwide treasure. In recent years, people have begun to recognise this, leading to the revitalization of communities and the promotion of tourism.

Specifications of the Training Course: Individual Training Course for Bangladesh on Cultural Heritage Protection in the Asia-Pacific Region 2013 was conducted by the Cultural Heritage Protection Cooperation Office, Asia Pacific Cultural Centre for UNESCO (ACCU, Nara Office), which was established in1998 to promote the protection of cultural heritage in the Asia-Pacific region. This individual training course lasted for 24 days from 5th November to 28th November, 2013.

- Focal Point of the Training Course:
  - On-site Training: World Cultural Heritage Buddhist Monuments in the Horyu-ji Area
  - Practical Training for Photographic Documentation of Artefacts
  - Practical Training for Recording and Documentation of Artefacts
  - Documentation and Survey of Archaeological Remains
  - Practical Training for Documentation of Artefacts (Actual Measurement)
  - Practical Training for Museum Exhibitions
  - On-site Training for Conservation of Archaeological Remains and Museum Institutions: Osaka Museum of History, Kyushu National Museum
  - Conservation Science of Archaeological Remains
  - On-site Training for Exhibitions on Buddhist Art in Practice
  - On-site Training for Conservation of Archaeological Remains Practice at Oita, Kanenokuma Museum, Korokan Historical Museum, NNRICP
  - Buddhist Art in Practice

Inaugural ceremony of the training

Innovative Display System of Kyushu National Museum

Modern display at Kyushu National Museum

Kyushu National Museum

'The adventure begins with the building striving to be a museum that is one with the local citizenry'

Located in the south of Japan in the city of Dazaifu, Fukuoka prefecture, Kyushu National Museum opened in 2005. This museum is the most recent national museum to be established. This national museum welcomes more than 1,000,000 people each year. There are many diverse displays, comprising regular exhibitions, thematic exhibitions (which change periodically), and special exhibitions. In Kyushu, the focus is set on the concept of Japanese culture as seen from an Asian point of view, including education and research programmes. Next to the unique cultural exhibitions, the ongoing research and protection of Japanese cultural heritage and the transfer of knowledge to the younger generation are key goals. A digital overview of all galleries categorised by subject field shows 130 free standing display cases, which look fabulously modern and sophisticated. Many of the most precious treasures of Japan are shown in this newly-built museum, constructed as an earthquake-safe structure.

Museum with seismic isolation devices: Seismically isolated buildings are provided with devices that absorb vibration energy during an earthquake, thus preventing the energy from directly affecting the superstructure. While conventional buildings suffer from severe swaying due to vibrations during a quake, the swaying of buildings equipped with seismic isolation structures is limited. In addition to the threat to the superstructure itself, there is danger associated with secondary disasters caused by the movement, and overturning of furniture. The museum buildings have become safer, with a drastically

reduced risk of damage due to earthquakes. The museum has three kinds of seismic isolation devices that absorb and control seismic vibration.


Impressive and innovative displays

Laminated rubber isolators: Soft laminated rubber isolator sheets and steel plates are combined to safeguard the building from earthquakes. Soft rubber reduces the building vibration to slow shaking, lets the upper structure move horizontally, while the hard steel plates help support the heavy weight of the building itself.

Steel rod damper: When an earthquake hits the building the steel rod dampers help dissipate the energy through their elasto-plasticity, significantly reducing the amplitude of the swinging. The elastic slip-bearing function against earthquakes acts just like laminated rubber isolators so that the vibration is not directly transmitted to the superstructure.

Modern storage system: One of the most important roles of any museum is to conserve the cultural properties in good condition for future generations. The storage area occupies most of the second floor, and is specially designed for this purpose. Kyushu National Museum has state-of-the-art facilities for the conservation of irreplaceable precious cultural properties. The storage area is placed at the very centre of the museum so that external environmental fluctuations do not affect the precious objects, which are surrounded by offices and other functional areas. Exhibition galleries are placed above the storage area.

Air conditioning facilities: The temperature and humidity levels in the storage are strictly controlled by an air conditioning system. Independent air conditioning is used for the clearance, and inside the storage area of the museum, cryptomeria board, calcium silicated board, and glass wool are used as materials to help control the humidity and temperature.

Conservation studio: Conservation of cultural properties is facilitated by Kyushu National Museum. The Agency for Cultural Affairs has duly acknowledged these two organisations as designated conservation techniques for conserving cultural properties such as paintings, calligraphy, antique books and book documentation.

Scientific Approach for the Preservation of Cultural Heritage

Each cultural property is closely monitored and recorded to determine the state of conservation and

preservation. This knowledge is the focal point for the display and storage management for future generations. For monitoring the state of preservation of cultural properties, some high tech museums are equipped with major equipment or scientific machinery and tools. X-ray computed tomography scanners, computed radiography, radiographic X-rays, 3D printers, and fused deposition modelling 3D printers have recently been used for documentation and preservation of cultural properties.

Record Utilisation for Tangible Cultural (Movable) Heritage:

Invaluable and more specific data will be accumulated by using the latest high-precision measuring techniques and digital technology that can be manipulated in various fields. For this purpose some major equipment is used for digital documentation in Japan, such as 3D digitisers and fused deposition modelling 3D printers. For conducting onsite research on cultural properties outside of the museum, portable equipment enables researchers to examine cultural properties. Optical microscopes with free arm stands, handheld 3D optical digitisers, and portable X-ray fluorescence analysers are portable and thus very effective for onsite research activities. Energy dispersive X-ray fluorescence analysers, Raman microscopes and FT-IR microscopes are used for analysing materials, and for scientific research to investigate the materials and techniques used in the creation of cultural properties. For the safeguarding of cultural property through appropriate environmental control, temperature and humidity levels are a factor, so pest control measures also have to be carried out to protect cultural properties.

Restoring Cultural Properties

In the context of Japan, most of the archaeological restoration works are highly specialised operations based on a critical-historical process of evaluation and must not be based on conjecture. Qualified technicians carry out restoration work by using traditional restoration techniques and detailed knowledge gathered with the latest analytical equipment specially designed for archaeological relics, sculptures and artefacts.

Modern Display System of Ikaruga Cultural Property Center

Practical Experience Gathered on Archaeological Site Conservation

Scientific research and treatment of heritage resources can be categorised in terms of their performance and described in a series in which specific functions vary according to the task of the conservation professionals. The skills of conservators/restorers, craftspeople, applied scientists and research

scientists are developed through long and close experience with similar types of objects. The conservation science laboratory conducts basic research on the conservation of excavated objects and archaeological sites. From the perspective of Japan, this type of laboratory has already developed and applied many scientific conservation techniques and methods such as the vacuum freeze-drying method, decompression techniques, the resin film method, and the super water absorbent polymer method, and these techniques have been widely applied in other relevant fields.

Preservation of Historic Sites and Artefacts

Historic preservation works in Japan are carried out while safely retaining the existing monuments and historic sites. The preservation works also include measures such as regular inspections and cyclical and routine maintenance. Every heritage conservator of Japan is very careful about carrying out his or her duties as required while ensuring resource integrity, and checking for damage and deterioration due to water, chemicals, insects, rodents, plants, and microorganisms. The present conservation outlook of Japan is to preserve the historic authenticity and integrity of the cultural resources. Many heritage conservators believe that authenticity should refer mainly to the physical layout and features of non-organic materials. The present situation is that Japan places emphasis on protection, preservation, conservation and maintenance of the original fabric related to the particular historical area. The treatment aims mainly at prolonging the lifespan of the structure, using original materials, to keep it in its original position in the construction to trace the historical changes that have taken place over time. In the context of the history of Oita, we closely observed the deterioration problem with the Takase Stone Buddhas and the Motomachi Stone Cliff Buddhas. They are keeping an accurate record of the treatment of these ancient statues. They make regular inspections, particularly concerning the fabric of the historical area, and are careful about identifying and defining what should be conserved so that the authenticity of the properties is not lost. The significant historical value of these stone cliff Buddhas and the people of this traditional settlement lies in the fabric of the area.

One of the most important activities in archaeological excavation in Japan is documentation of the strata profile.

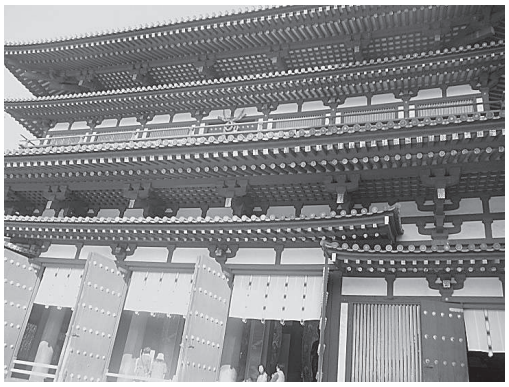
Reconstruction of Historic Sites, Places of Scenic Beauty

Suzaku Gate

Reconstruction means building anew. The term is widely used in reference to work that has been carried out using modern or old materials or both, with the aim of rebuilding dismembered or destroyed elements, or parts of them. Reconstruction must be based on accurate archaeological and architectural documentation and evidence. Japan has reconstructed many historic sites, including palaces and temples, based on the historical fabric and the site's importance. These include the Former Imperial Audience Hall,

Suzaku Gate, the Latter Imperial Audience Hall, State Hall Compound and East Palace Garden at Nara Palace site, Todai-ji Temple, Kofuku-ji Temple, and many buildings at the Nara Palace site that were partially reconstructed using the vast amounts of materials such as roof tiles, lumber and stone that were exposed/discovered through excavation. A full-scale replica of a Japanese diplomatic ship for envoys to China was also built. The Latter Imperial Audience Hall and surrounding buildings have been reconstructed with posts supported by foundation stone and pillars embedded in postholes. This is justified by the level of national and international interest.

Temple being reconstructed under a gigantic shed



View of the reconstructed Yakushi-ji Temple

Investigation of Deterioration, Biological Agents and Preventive Maintenance

By using thermography to determine temperature distribution, deterioration of historical buildings, monuments and stone statues can be measured and investigated. A search was done to find the cause of the deterioration of the Oita Motomachi Stone Cliff Buddhas by specially focusing on the conservation of the stone cliff Buddhas. The image of Bhaisajyaguru, the Usuki Stone Cliff Buddhas, the image of Cetaka Doji, and the image of Vaisravana were vulnerable to salt damage. Some protection measures against salt weathering are currently being implemented on the basis of environmental surveys, to ensure proper diagnosis of the deterioration, identification of the factors involved and the environmental impact, and later, implementation of conservation efforts. We visited the Kanenokuma archaeological site with a view to gaining more practical knowledge about site conservation in Fukuoka city. This prominent archaeological site dates back to the Yayoi period. The site is an ancient tomb where earthen jar-coffin graves have been found. These types of graves were prevalent in the northern part of Kyushu.

Recently, the site has gradually been affected by the problem of salinity. Some restored jar-coffins have deteriorated due to salt precipitation. The problem of deposits of some crystallised matter, believed to be salt, on the surface of the structural remains has been reported. We exclusively visited Korokan, designated as a national historical site, located in Fukuoka. The site has featured an open exhibition of structural remains since 1991, after building a cover to protect them. The Korokan site

remains are highly preserved in the condition in which they were discovered without using resin or other substances. The historic Korokan was at one time famous as a guesthouse for foreign diplomats; however, the exposed cultural materials are deteriorating, caused by microorganisms, vegetation. The site is affected by moss growing on the surface of the structural remains during the months when the groundwater level rises, and also by deposition of some crystallised matter believed to be salt during the dry season, but their impacts are not so serious. Museums are primarily responsible for the safekeeping of cultural properties, not only those in storage, but also objects on temporary display in the galleries. It is imperative to prepare oneself for the worst so that the cultural properties are handed down to future generations in their best possible condition. From an architectural point of view, the special feature of the Kyushu National Museum is the Seismic Isolation Structure (SIS), which prevents cultural properties from being damaged by tumbling over due to earthquake vibrations inside and outside of the storage area.

Osaka Museum of History

'Explore it, feel it, think about it. Where people experience History...'

Visiting the Osaka Museum of History is an astonishing experience of walking through history, as Osaka has continued to play an important role in the history of Japan from ancient times through today. The museum was built at the edge of the Uemachi Plateau to profit from its historical importance as the location of the ancient Naniwa Palace, the medieval Osaka Hongan-ji Temple and the early modern Osaka Castle. The area became the centre of the downtown area of Osaka and has been modernised in the present age, but based on historical background, the location has been chosen in the most representative spot in Osaka. 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 as well as Japan. The displays of the museum make use of the unique character of its location, and combine new technology with materials and experience accumulated in the old Osaka Municipal Museum and materials excavated from around Osaka city, forming a basis for active ongoing research activities. Four periods of Osaka are introduced, with the main themes presented through dynamic visuals. Two courses have been laid out for touring the museum.

Highlight Course: The Highlight Course allows visitors to take in Osaka's history in about an hour by drawing attention to life sized reconstructions, scale models and key photographs and movies.

Complete Course: This course gives the visitors a more complete experience by taking them through the museum at a slower pace so that they can enjoy all of the individual exhibits.

Inspection of preserved ancient remains dating back about 1350 years, during the Asuka period: The area of the present-day museum was the location of the Naniwa Nagara-Toyosaki Palace. Excavations in this area revealed the remains of a warehouse and separate walls and water supply facilities for the palace. Most of these excavated remains have been kept visible for display at the museum.

The history and culture of Osaka is told as a trip through time, departing high in the sky above ancient Japan, and showing how Osaka evolved over time, with the people's activities depicted using a

compilation of graphics, pictures and screens. Development of the Landscape, Ancient Period, and the Age of the Naniwa Palace exhibits are on the 10th floor. On the 9th floor are displayed the medieval and early modern periods, especially the Age of Osaka Hongan-ji Temple. The 8th floor also represents the contemporary and modern period. Special features of these display room is Excavating the Past, Featured Exhibition Hall, and the Age of the Greater Osaka. The 7th floor mainly displays objects of the contemporary and modern age.

In Search of Buddhism: Nara National Museum

Historic Nara became first full-fledged capital of Japan in 710 AD. In 1899, the Imperial Museum of Nara was established under the supervision of the Imperial Household Ministry. In 1900, this museum was renamed as the Nara National Museum. In 2001, it was merged with three other national museums to form the Independent Administrative Institution National Museum. Nara National Museum is involved in the collection and preservation of cultural properties mainly associated with Buddhism, as well as conducting research and educational programmes on such cultural properties. The museum has introduced to the public the high artistic value and historical background of Japanese Buddhist culture, by keeping in mind that various cultural properties are tied together in an organic whole with the historical and cultural landscape of Nara. The number of objects in the museum's collections totals 1,834 including 13 national treasures and 111 important cultural properties. There are 1,951 objects on long term loan to the museum's collection, including 53 national treasures and 320 important cultural properties. These important artefacts include sculptures, paintings, writings, decorative arts and archaeological works.

Outstanding Features of the Museum: High-tech Display Cases

More recently, the museum has introduced a number of high quality earthquake-resistant showcases. Former storage houses were turned into galleries, with two wings added to the original buildings in 2010, with the introduction of a free standing wall and table cases in two galleries for temporary exhibitions. The free standing cases are equipped with isolators. The special feature of these cases is climate control with an RK-2 unit for clean air and related humidity control, which is suitable for sensitive ancient paper and fabric artefacts.

Gallery of Horyu-ji Treasures

This temple is the most famous oldest wooden building in the world. Originally founded in 607 AD, the temple building was reconstructed in the early 8th century. In addition, various historical treasures including Buddhist images are on display at the temple museum, Daihozoden. The gallery of Horyu-ji Temple was built as a complete earthquake compensation structure, which is equipped with the highest level conservatory technology. Today, the museum is also home to the digital archive of the complete Horyu-ji Treasures collection. It is considered the oldest and best known cultural heritage in Japan.

Nara Palace Site Museum

The Nara Palace Site Museum exhibits the results of excavations to the public. The museum consists

of galleries for the palace and its administrative office, unearthed artefacts, archaeological science exhibitions and special exhibitions. From the museum we know how the artefacts were used in the Nara period. The excavated materials also represent archaeological research on artefacts, how to protect the artefacts, and knowledge about display, temperature and humidity control systems.

Conservation of Archaeological Sites and Artefacts: An environmental investigation is also needed to find out the geographical conditions of the sites as well as the state of preservation of the remains. Prior to subjecting an archaeological artefact to conservation treatment it is very important to investigate the kind of environment it was unearthed in, so as to consider what kind of conservation treatment should be applied. As well as the environment in which to conserve it prior to and following such treatment, an investigation of the underground environment of the artefact can be carried out so that we can explore the factors behind the deterioration and weathering, and use the information to identify the state of deterioration or to consider methods of conservation. Traditional methods and techniques have always been valued for the conservation and repair of cultural properties, and the materials and technologies for conservation have been selected with care. For most of the artefacts unearthed from archaeological excavations we do not even know the method of manufacture, not to mention the traditional methods of restoration. The exhibition hall of this excavation site displays an opened excavated site and archaeological features in situ of epoxy resin. In addition, a film-based soil section is displayed in the museum. It also has three galleries -north, central and south. Features of pillars for wooden buildings are displayed in north gallery, and unearthed remains of large well frames and scale models of large palace buildings are in the north and central galleries. Remains of a unique building with a brick platform are displayed in the south gallery.

Nara Palace Site Museum... a new dimension for historic site museums

Excavated and Reconstructed Remains of Heijo-kyo Sakyo Sanjo Nibo Garden

This rare historic site, designated as a special place of scenic beauty and open to the public since 1992, has been preserved in good condition. It was discovered through archaeological investigation in 1975. Many archaeological features have been exposed by the excavation, such as buildings, fences, gutters, water supply and drainage systems, and planting curbs and a wall uncovered around a magnificent pond. The reconstruction works have been completed based on excavation data and other evidence from studies of similar surviving structures from the Nara period.

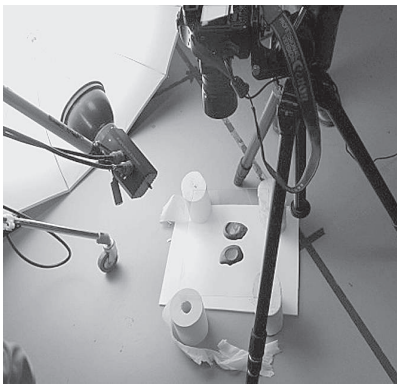
Drawing and Documentation of Archaeological Objects and Artefacts

Drawing is a vital part of the documentation and recording objects of cultural heritage. It provides information upon which appropriate and sustainable use may be identified and effective research, management, and maintenance programmes and construction works may be planned. Such methods might include written descriptions and analysis, photographs, photogrammetry, geophysical surveys, maps, measured plans, and drawings and sketches.

From this effective archaeological training course we came to know two kinds of drawing in the light of our investigation of the Imperial Palace Site, Nara. The documentation system of archaeological artefacts in Nara is similar to that used in Bangladesh. Basically the drawing methods are both three-dimensional and two-dimensional. We actually gathered some basic practical knowledge within a short time and greatly benefited from the class. The drawing expert focused especially on various types of drawing projections (horizontal and vertical) cross sections, the concept of drawing pottery, stone artefacts, and ceramics, especially the exterior and interior view of pottery. The process of drawing included measuring the diameter of the pottery, finding out the centre point, measuring and drawing the outline of the pottery, measuring the distance from the perpendicular line, and measuring the height from the ground. On the other hand, on the topic of "Method and Procedure for Stone Artefact Drawings," we learnt about the method of drawing a particular stone artefact: drawing the outline, drawing the ridge line, drawing a partial view, and identifying method of the connection of flaking.

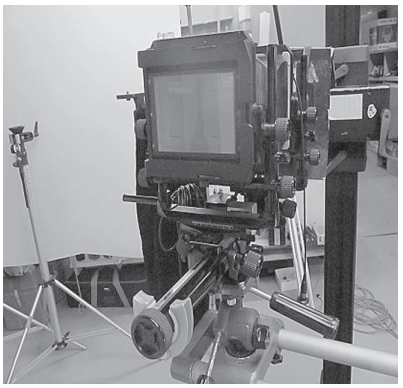
Photographic Documentation

Photographic documentation is a major part of documentation of archaeological artefacts and cultural properties. Photographs of cultural properties include photos used for work and documentary photographs obtained through research, conservation, preservation and restoration works. We obtained more practical knowledge from the photographic documentation class. Even though we were familiar with various types of cameras and lenses, we learnt a great deal on the following topics: proper handling and use, precautions in preparing digital photographs, camera angle, image processing, colour adjustment, gradation pictures, picture elements, high sensitivity of larger format cameras, resolution, digital photographic image saving format, JPEG format, TIFF format, file format, file management, storage location of digital data, data maintenance, photographs and exposure, function of shutter speed, exposure composition, ISO sensitivity, and lighting. For the first time in my life I acquired valuable practical knowledge of different types of lighting and their effects on the object, including forward light, oblique light, slide light, top light, back light, semi back light, and transmissive light, which would be much more effective, practical and obviously beneficial for us. In order to avoid the problem of shadow and the subject falling into the background by making the contour unclear, the subject is placed on a sheet of transparent glass that is raised from the background. If it is not, then brightness should be adjusted. 'The adventure begins with the building striving to be a museum that is one with the local citizenry' by shining auxiliary light on the background.



Photographic Documentation 1

Photographic Documentation 2



Photographic Documentation 3

What I Achieved from the Individual Training Course:

Being a participant, I highly benefited from the Individual Training Course. My learning of many satisfactory methods, techniques, required practical knowledge, and invaluable expertise and advice would not have been possible without the Individual Training Course. The active exchange of ideas and opinions, and the sharing of knowledge on modern scientific approaches personally encouraged me to learn something new. The success story of these types of training courses might be the influence on creating a collaborative network of individuals and institutions. As an archaeologist, this practical and effective course may lead me to play an important role in raising visual and cultural awareness and providing me with the ability to understand the various elements of our national cultural heritage. Professional development can be enhanced through this initial training course.

Shortcomings of the course: Although we acquired some satisfactory knowledge from the training, not enough time was allocated to the following topics: holistic approach to disaster management, methods of mitigating damage to cultural property, preventive maintenance, fire prevention and other security measures. These are important because cultural heritage protection and preservation as well as preventive archaeology are inseparable. I strongly hope that, if possible, ACCU Nara will be able to arrange an Individual Training Course on preventive archaeology on the basis of a holistic approach.

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Cultural Heritage Preservation and Restoration of Artefacts, Chemical Conservation and Display System

Cultural heritage is the connection between past and present, which will be passed on to future generations. Cultural heritage denotes or is related to things of special architectural, historical, cultural tradition or natural value that are preserved for the nation. It is therefore important to preserve and restore the cultural heritage for the country and for the whole world. Cultural heritage is categorised as movable, immovable, underwater or intangible.

The Individual Training Course on Preservation and Restoration of Cultural Heritage in Asia and the Pacific 2013, especially in Bangladesh, was held in Nara city, Japan from 5th November to 28th November. This training was carried out at excavation sites, and involved finding artefacts from archaeological sites, properly cleaning the artefacts, properly documenting both drawings and photographs, proper storage, proper chemical conservation and finally, displaying the artefacts.

During the training period we visited many excavation sites, museums and temples in Nara city, Osaka city, Kyushu and Kyoto. Nara was the ancient city of Japan. The ancient Japanese enthusiastically learned from China and Korea, and introduced the constitution of a law-based political system and constructed Nara as the capital. The state promoted Buddhism and constructed many temples. From this we can easily obtain many ideas and concepts on the preservation and restoration of Cultural Heritage in Nara city, Japan.


Fig. 1 Fujinoki Tomb, Nara, Japan


Fig. 2 Horyu-ji Temple, Nara, Japan


Fig. 3 Hoki-ji Temple


Fig. 4 Todai-ji Temple


Fig. 5 World's largest Buddha Statue

The city's historic monuments –Buddhist temples, Shinto shrines and the excavated remains of the great Imperial Palace– provide a vivid picture of life in the Japanese capital in the 8th century, a period of profound political and cultural change. We visited various World Heritage temples –Horyu-ji Temple, Hoki-ji Temple and Todai-ji Temple. The site of Horyu-ji Temple was huge and two styles of roof –Buddhist and Shinto– are found here. The world largest gilt-bronze Buddha statue is situated in the Todai-ji Temple. Fujinoki tomb was another wonder for us because of its structure, size, and the fact that it was fully made of stone. In the training period we also visited Kyushu and another ancient city, Kyoto.

Excavation Fields

Fig. 6 Yakushi-ji Temple excavation field

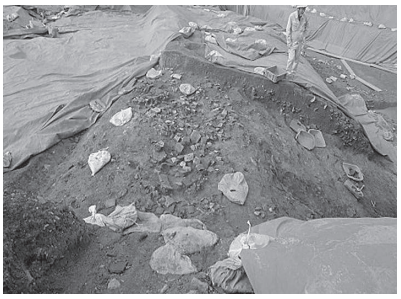


Fig. 7 Fukuoka-jo Castle excavation field

We visited many other excavation fields such as Yakushi-ji Temple, Osaka Museum of History site and Fukuoka-jo Castle site. The most interesting aspect was that we saw modern methods being used at Yakushi-ji Temple site. They used a rolling earth carrier system to carry the excavated earth from the site to the outside, which was time consuming. In Bangladesh, we manually carry the excavated earth from the site to outside, and this method was also used at Osaka Museum of History site and Fukuoka-jo Castle site. The method of excavating the archaeological sites is similar in both Bangladesh and Japan.

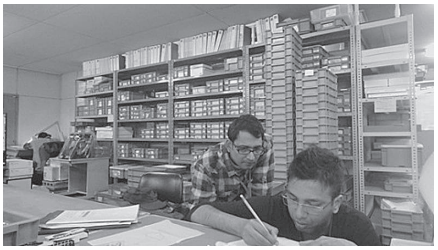
Documentation

After obtaining artefacts from the excavated field, it is very important to create proper documentation. At Nara National Research Institute for Cultural Properties, they document the artefacts in two ways:

-Drawing the artefacts
-Photographing the artefacts

Drawing the artefacts:

Fig. 8 Cleaning artefacts



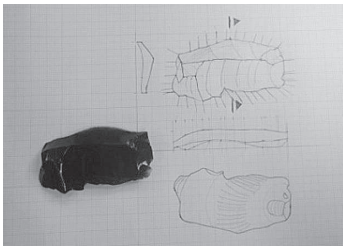


Fig. 9 Documenting the artefacts

The artefacts are firstly cleaned and dried properly. Then they are manually drawn on paper, including the top view, right view, left view, bottom view, and sections. All of the drawings are measured drawings. After the drawings are completed, they are all stored in a file. At NNRICP they used the manual method. The method of creating drawings is similar to that done in Bangladesh. In the pottery section NNRICP used the same drawing method. This section also used a 3D scanner for creating a 3D view of the pottery, which is more scientific and effective. They used a local instrument called a mako, which is more useful for recording the proper outline and inner line of the pottery, which is not found in our country.


Fig. 10 Documenting the pottery

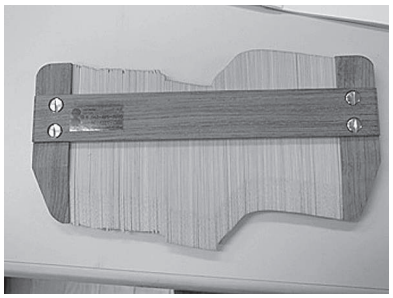


Fig. 11 Mako


Fig. 12 3D Scanner

At Kyushu National Museum, they used standard museum science methods for documenting their artefacts. Museum science is a fusion of medical science instruments used in museums for artefact documentation.

They used many more medical science instruments such as an X-ray computed tomography scanner, an X-ray diffract meter, a radiographic X-ray system, a computed radiography system, a 3D digitiser and an inkjet 3D printer. They also used portable equipment for onsite research of cultural properties: hand-held 3D optical digitiser, portable 3D digitiser, optical microscope with free arm stand, hand-held X-ray fluorescence analyser and portable scanning electron microscope. Using these methods, almost 95% accuracy is achieved for proper documentation. The storage system of Kyushu National Museum was much more secure than the other museums we visited.


Fig. 13 Various medical equipment used for documenting artefacts

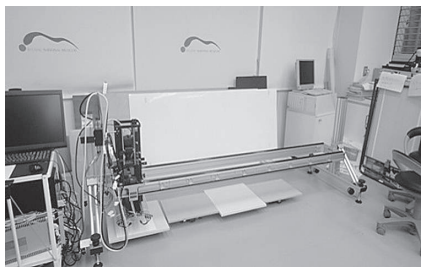



Fig.14 Storeroom

Photographing the Artefacts:


Fig. 15 Capturing the artefacts with a camera

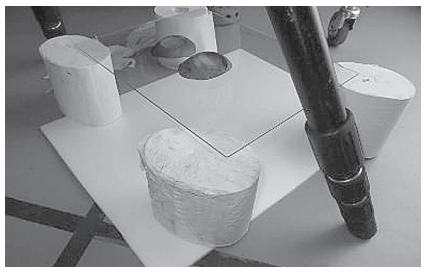



Fig. 16 Positioning the camera

At Nara National Research Institute for Cultural Properties, we had a class about photography, on how to capture pictures of artefacts both indoors and outdoors. When we take a picture of an artefact indoors, we must be conscious of the light and shadow. Photography is an important tool in the documentation of artefacts, and without following the light and shadow that exists indoors, the photo may be blurred or dark, which will not show the proper condition of the artefacts. When we take a picture of an ancient object or ancient building, we must follow the sunlight; otherwise the photo will not be clear. After the photo is taken, it should be stored in two ways: as a printout in true colour, which is kept in a file; and as a raw file on a computer hard drive. The photography system of Japan, including the camera and storage system, is similar to that used in Bangladesh.

Salinity Problems and Chemical Conservation:

Fig. 17 Salinity problems of Oita city and Fukuoka city

We had a tour of Kyushu and visited Oita city and Fukuoka city over three days. We observed many salinity problems in Oita city and Fukuoka city. In Oita city we visited the Motomachi stone-cliff Buddhas, Iwayaji stone-cliff Buddhas and Takase stone-cliff Buddhas. The Motomachi stone-cliff Buddhas were badly affected by salt, and some parts of the stone cliffs were almost completely destroyed. At this site three types of preventive methods had been taken. These experiments will run until 2015. This stone cliff is covered at the front, side and roof, and is temperature and humidity controlled, but the salinity problem has not yet been solved. Many more types of salt are found in this stone cliff, such as sodium sulphate, calcium sulphate, sodium nitrate, sodium chloride, etc.

The Iwayaji stone cliff Buddhas are almost 85% damaged by salt. It is very difficult to recover the stone cliffs. To protect the stone cliff, a roof has been installed over it. Some preservation techniques have been applied here, but a positive result has not yet been achieved.

The Takase stone cliff Buddha is the only site where almost total preservation by chemical treatment has been achieved. **Water repellent** has been used to get the proper result to prevent the stone cliff from deteriorating. There is a roof top on the monuments to protect them from rain.

Kanenokuma Site, Fukuoka city, is an ancient graveyard site. This site is totally covered by shade. It has also been badly affected by salt, in that many of the jar coffins have been totally demolished.

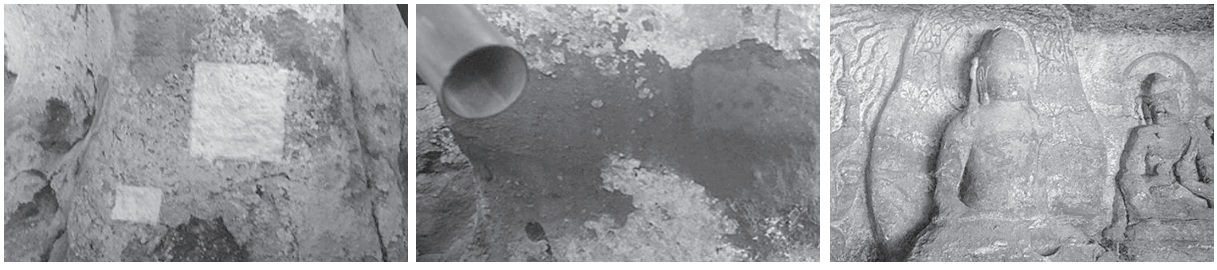


Fig. 18 Some salinity treatments: washi paper, gido and water repellent

Three methods to guard against salt damage at those monuments include the use of washi paper, gido and water repellent, and the experiment is ongoing. For chemical conservation of any monument, we must be mindful of the amount of salt in the stone or brick, the water level, the analysis of the salt, and the humidity, temperature and rainfall conditions.

The chemical conservation methods of Japan and Bangladesh are not so similar, especially in terms of field work, but the laboratory work shows some similarities.

Display Systems

Fig. 19 Excavated sites as display centre

An excavated historical site can become a display centre in itself; however, this is not believable if we did not visit Japan. As an architect, I was astonished to visit various excavated sites that were under cover, with proper humidity and temperature, and with pathways surrounding the site for visitors to get a feel for the archaeological aspects of the site. All types of modern techniques were used at these sites to show the excavation clearly, which was brilliant. Nara Palace Site Museum, Osaka Museum of History, the Kanenokuma site, and Fujinoki Tomb display centre use the same concept and give us a flavour of ancient archaeology.

Fig. 20 Showing lifestyles with reduced- and full-scale models. Display centre, Osaka Museum of History

Reduced-scale models can show ancient lifestyles and living patterns. Full-scale models also give visitors a feel for ancient lifestyles. On our visits to various display centres and museums, we saw that temples, palaces, warehouses, etc. presented small replica models to help visitors understand and visualise a particular ancient moment.

To increase interest in history and archaeological sites, there are many archaeological and historical

kids' corners found in many museums and display centres. Kids are the future generation, and these archaeological kids' corners help them to know about their own history and cultural habitats.

Fig. 21 Archaeological and historical kids' corner at Osaka Museum of History and Fujinoki Tomb display

View as an Architect Visiting Japan

As an architect visiting Japan, the displays of museums were especially interesting. Maximum display showcases are operated by electro-mechanical systems. Using a lighting system on the inner side of the showcase stimulates the mind, yet doesn't cause any harm to the relics. The shapes and sizes of the showcases are designed to follow the shapes and sizes of the relics, which increases the beauty of any museum. We visited Nara National Museum, Osaka Museum of History and Kyushu National Museum, all of which feature highly modern architecture.

Fig. 22 Display showcases at Nara National Museum

Nara National Museum | Osaka Museum of History | Kyushu National Museum

Recommendations

After 26 days of training, the course curriculum was very fruitful and essential for us. However, the course curriculum was slightly lacking in a number of areas, and if these were overcome, the course would be more delightful and successful. Therefore, I have some recommendations for this course:

Building measurement (of both wooden and brick structures) should be added to the course curriculum, for a duration of more than three days.

Documentation of artefacts should cover more than four days, which would be much more effective for the participants; two days training was not sufficient.
Many types of display centres and display arrangements were shown to us, but it would be more effective for the participants to show display arrangements that they will implement in their own displays.

Overall, the total duration of the course should be a minimum of two months for proper training, because with only a short time for training, it is necessary to skip many things.

We are glad to hear that you have a plan to give us such type of training in our country. I have a proposal by which you can give this training in three phases:

1st phase Documentation of artefacts and building measurements
2nd phase Salinity problems and chemical conservation
3rd phase Display design in various display centres and museums

If you accept this proposal, it will certainly help our department and enrich our people.

Finally, I would like to say that after taking the training we have enriched our professional skills in the preservation and restoration of cultural heritage. We are grateful to ACCU Nara for giving us an opportunity to take such training.

V. Appendix

1. List of Participants
2. List of Lecturers and Interpreters
3. Staff Members, ACCU Nara

Osaka-jo Castle and Osaka city

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