Conservation and Restoration Project of the Western Causeway of Angkor Wat Phase Ⅱ

(APSARA and Sophia University)

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1) Holding the committee on technical exchange and training and implementing on-site survey (fig. 1)

In cooperation with APSARA Authority, Sophia University Angkor International Mission is preparing to begin restoration work on the unrestored areas of the Western Causeway of Angkor Wat. In March 2015, experts from Cambodia and Japan held mutual study tours to their respective countries, and the persons in charge from each country have held meetings to discuss technical issues and start their studies (fig. 2).

Firstly, from March 11 through 15, 2015, seven Japanese specialists studied various archaeological sites in Siem Reap, exchanging opinions with the APSARA technical team (fig. 3). The study focused in detail on the current state of the Western Causeway itself. In addition, the team also exchanged opinions with personnels in charge when they visited the site of collapsed the wall of Angkor Thom, which are being restored by APSARA Authority, as well as West Mebon, where restoration work is carried out by EFEO in cooperation with APSARA Authority (fig. 4). The Japanese technical team studied various issues including masonry, soil and sand, ground condition, as well as equipment being used for restoration, new materials in use, and consolidation methods.

Secondly, from March 22-27, 2015, seven experts from the Department of Conservation of the Monuments in the Angkor Park and Preventive Archaeology (DCMA) including the Director-General visited Japan. Their invitations were extended by the Ministry of Foreign Affairs of Japan, the Japan Foundation, Sophia University and other organizations. They exchanged views with Japanese experts to further discuss technical issues. Subsequently, in order to inspect major ongoing restoration work of cultural properties in Japan, they visited three temples in Kyoto, where they received explanations from personnels responsible for the protection of these cultural properties. They studied various issues including approaches to the protection of architectural and cultural properties, methods of guiding tourists around such sites, and safety measures for construction sites (fig. 5).

2) Equipment provided by Japanese ODA

At the recommendation of the ICC plenary session on December 6, 2012, Sophia University and APSARA Authority were requested to deal with to the unrestored areas of the Western Causeway (Area 2 and Area 3) (fig. 6).

On December 15, 2013, the Japanese government signed an exchange of notes setting an upper limit of ¥94.70 million (=Nearly one million US dollars) on "the Project for the Improvement of the Equipment for the Restoration of the Western Causeway of Angkor Wat" (the documents were signed on behalf of Japan by His Excellency Ambassador Kumamaru). The project aims to "raise the value of Angkor Wat as a tourist resource while securing the safety of visitors".

The actual equipment donated by the Japanese government to APSARA Authority will be one tower crane, one wheel crane, two small cranes, two generators, two trucks, and various stone processing tools (fig. 7). The equipment is expected to arrive at the field in Angkor Wat in November this year.

3) Preparations for the restoration of the Area 2 and Area 3 of the Causeway

Looking back, it was in 1993 that Sophia University received a request from the Government of the Kingdom of Cambodia to participate in the restoration of the Western Causeway of Angkor Wat.

Sophia University and APSARA Authority agreed on an approach of *"the restoration of Angkor Wat by Cambodians for Cambodians"* and between 1996 and 2007, restoration work on the first phase was carried out with the concurrent aim of training staff (human resources development). The scientific data collected from this restoration project is practical and effective and will perform a useful role when work to restore the second phase (Area 2 and Area 3) is implemented (fig. 8).

The Area 2 is a straight section of approximately 90 meters in length and the Area 3 is an area around the terrace (fig. 9). The restoration work will be completed over around six years. Currently experts are investigating the various technical issues.

4) Follow-up on the recommendations

Our responses to the recommendations of the ICC Technical Committee meeting on June 5, 2014, are as described below:

Note that Sophia University carried out ground-level survey in approximately 1000 points of the stone-pavement along the entire 200-meter length of the Western Causeway before the start of work on the first phase in 1996, after the completion of the first phase in 2007, and in 2012. As a result, no major changes were observed with regard to the second phase where restoration work is to be carried out.

On the recommendation a.: Boring survey was conducted in August 2014 in three stations around the Western Causeway. (fig. 10, 11)

On the recommendation b.: This is currently under discussion by experts

On the recommendation c.: This is currently under discussion by experts

On the recommendation d.: This is currently under discussion by experts

On the recommendation e.: In order to ensure safety, Sophia University is considering the construction of a temporary detour. (APSARA Authority is to look into one-way tourist flow) (fig. 12)

On the recommendation f.: Adequate archaeological investigations should be held before and after the dismantling work.

5) Future six-month plan (fig. 13)

1. Required equipment is expected to arrive from Japan in around November this year.
2. Supporting base and other preparations for installing the cranes will be done in advance.
3. After the arrival of the equipment, training sessions on equipment usage will be held.
4. Training for stonemasons will begin.
5. Discussions will continue with regard to the technical issues. A report on this matter will be presented at the next ICC meeting.

Thank you for your attention. (fig. 14)

fig. 1

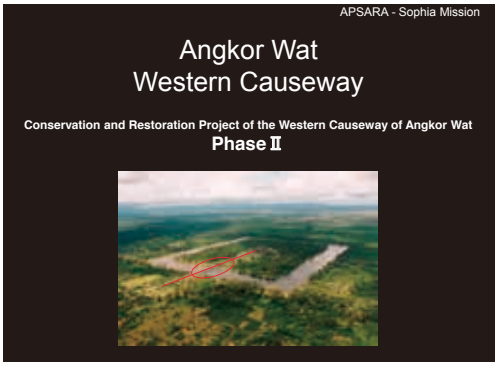

fig. 2

fig. 3

fig. 4

fig. 5

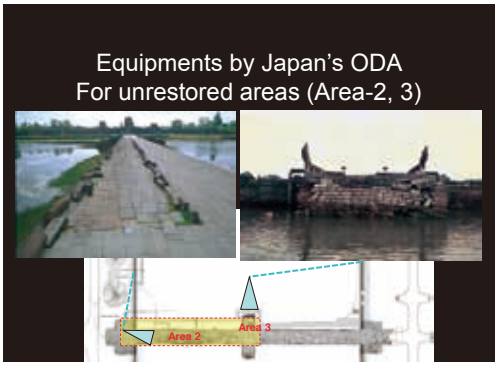

fig. 6

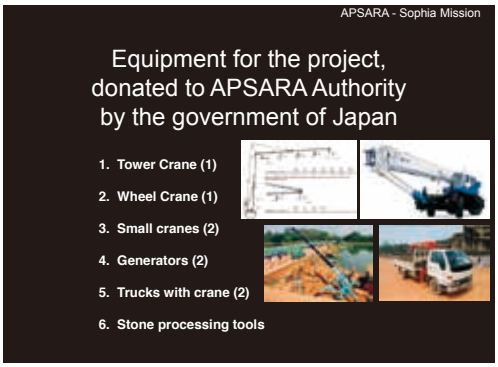

fig. 7

fig. 8

fig. 9

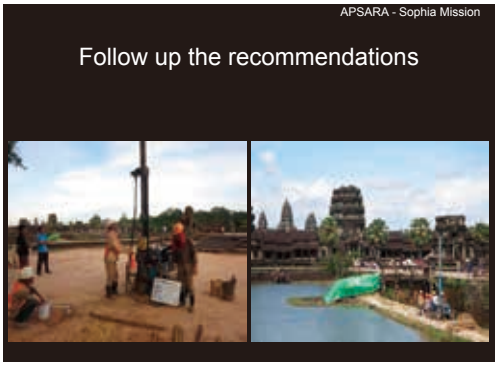

fig. 10

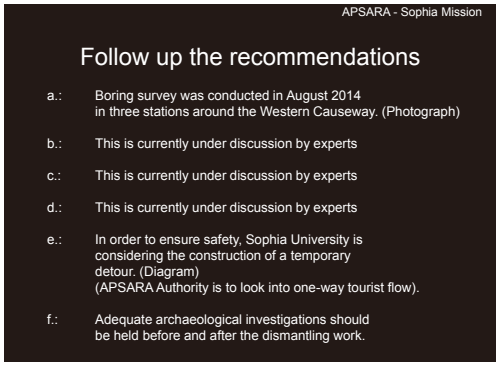

fig. 11

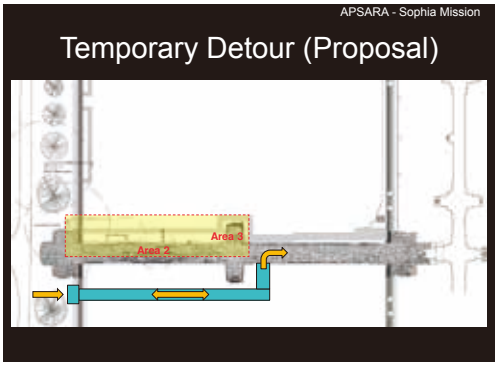

fig. 12

fig. 13

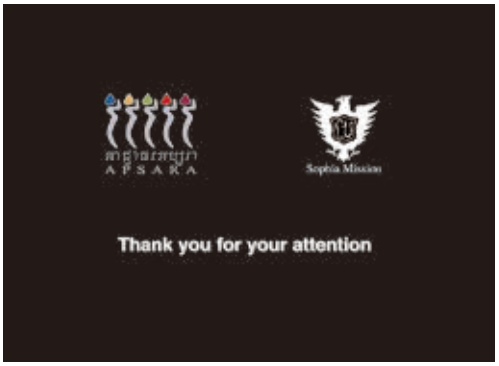

fig. 14