LAO/UNESCO PROJECT OF EXCAVATION AND CONSERVATION

VAT PHOU CEREMONIAL ROAD

PRELIMINARY DATA AND RESULTS

2004

ITALIAN FUNDS IN TRUST
MINISTRY OF INFORMATION AND CULTURE
CULTURE AND INFORMATION SERVICE OF CHAMPASAK PROVINCE
LERICI FOUNDATION
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Introduction

The archaeological and conservation activity carried out in the Ceremonial Road, is an integral part of a wider project, titled: “Capacity Building in Cultural Resource Management through the Preparation and Implementation of Conservation and Management Master Plan for the Preservation of Vat Phou and Surrounding Archaeological Landscape within a Framework of Sustainable Development of Champassak, Lao PDR”.

It is important to underline that the area under WH protection is very vast and is characterised by different type of features, human, natural and archaeological, that summed together, are producing a “cultural landscape”. The Master Plan, approved by the Lao PDR, is articulated through a plan of activities in the field of conservation, of research and of development, to be carried out in harmony with the preservation of the cultural landscape and to improve the intrinsic beauty of this area.

The Italian Government has granted UNESCO for the implementation of this project, for three phases: 1996-1997, 1998-1999 and 2003-2004, focusing in particular the aspect of research and the technical training. During the III phase has been carried out the following sectors of interventions:

1. Exhibition Hall arrangement;
2. On-site training on archaeological area maintenance;
3. On-site conservation project - Topography and archaeological mapping;
4. Computer training by using AutoCAD program;
5. Meetings and seminars with National, Provincial and District Authorities;
6. Revision of Master Plan

The present report is concerning the archaeological activity carried out in the Ceremonial Road. (for the others, see report n° 1). The ceremonial road project has intended to demonstrate in practice, a sample of restoration that the local staff can applied in future in other areas, according with the principle of soft conservation and archaeological research National and international experts worked in a strict relationship, and in a close spirit of enthusiastic collaboration.

Special thanks are expressed to the staff of Conservation and Construction Unit of Vat Phou protected area, headed by Mr. Amphol Sengphachanh. (Architect), to Mr. Noppharat Vongsoothi (Engineer) and to Mr. Amnath Phady (Hydraulic Engineer) for their constant dedication in the graphic and levelling documentation.

With great pride we thank Mr. Khamchanh Xaymongkhoun, Mr. Bountham Phagkham, Mr. Khamseng Vongsy and Mr. Sisamay Silaphet, for their immediate capacity in learning restoration of stone material and for the difficult job done to finish in time the project.
Our feelings of friendship and affection to Mr. Bounlap Keokalya (UNESCO National Coordinator), to Mr. Thongkun Boriboune (Director of Vat Phou and Champasak protected area); to Mr. Oudomsy Keosacsith (Deputy Director of Vat Phou Archaeological Area) for their continuous support during this project and also in the past researches.

To our old friend, Mr. Phonephane Sichanthongthip (Topographer, Ministry of Information and Culture, Vientiane), again thanks for his vivid collaboration.

To Mr. Thonglith Luangkhoth, PhD candidate in Archaeology and History of Vat Phou area, and officer of Ministry of Information and Culture, words are not enough to express our high consideration for his constructive suggestions and involvement concerning all the aspects of the project.

To all the workers, for their tireless, patient and intelligent work, our deep gratitude.

This report has been written at the end of the project. The final report will be delivered after the data study.

Background

The ceremonial road was selected as sample of conservation because located on the main access of the monumental area, because for its deteriorated condition, because could provide new historic data about the construction of Vat Phou complex. Moreover, the quantity of broken pillars and displaced slabs, gave the possibility to train a team of restorers and gave the possibility to the local architect and engineers to deal in practice, with the complete process of a conservation work, involving papery and informatics documentation, stratigraphic tests to understand the building technique and its relative chronology, and to deal with of reassembling collapse architectural material. The project was conducted from 8 December 2004 to 16 February 2005, covering a surface of 864 m². The project was directed to the re-habilitation of the causeway and was not including the lateral galleries. The galleries were only cleaned by the high vegetation to have a more detailed picture of the road setting. The deteriorated condition of the galleries, requires a specific restoration and excavation project. The aim of project was fully reached in terms of local staff training and the ceremonial road is now visible to the visitors. (Ph. 1)
Ceremonial road
General description

For "Ceremonial road", it is intending a causeway, sided by boundary stones or marker stones placed to a regular distance, usually built to mark the way to the shrine and to indicate a spiritual way toward the divinity. In Khmer architecture, the ceremonial road is an important feature to underline the religious and monumental importance of a temple and it began to be in use during the so-called “angkorian” period.

Samples are known from Preah Vihear and Phnom Rung, cliff-top temples similar to Vat Phou, placed in axial orientation.

In Champassak protected area, samples of ceremonial road are found in Nang Sida and Tomo temple, both having a special religious meaning. Sometime the causeway, was embellished with sculptures of lions or Naga (holy snake, protector between the Earth and the Heaven), placed to the entrance.

In Vat Phou, according with past reports, (E. Aymonier, "Le Cambodge II", Ernest Leroux Editeur, 1901; L. Finot, BEFEO, II 3, 1902, pp. 241-242; H. Parmentier, BEFEO, XIV, 2, 1914 pp. 3, 10-11) Naga and Lions were both present, and some of them are kept in the storeroom.

The ceremonial road is quite impressive for its length and for its setting. It is divided into two defined stretches. The first one began from the centre of the cruciform platform/embankment facing the W side of the baray, where probably was placed a monumental gopura.

This stretch is situated on a plain surface, is 300 m in length and sided by two smaller barays. (ph.2) Few marker stones are still standing, many are lost and floor and naga body, have been heavily displaced when a new asphalted road was built, around 1967.

Four small brick shrines were situated along the road, maybe sheltering different divinities. Fragments of a Lakshmi have been found few years ago, near the ruins of the second shrine, on north side. (ph.3)

At present, the sculpture has been restored during this project and displayed in the Exhibition Hall.

This first stretch ends to the first terrace, were steps introduced to the large esplanade, were two quadrangular buildings are placed.

The second stretch of the causeway is rising from the west side of the esplanade that is delimited by L shape galleries or portico, with tile roofing. (ph.4).

The galleries are flanking the causeway for its entire length, sizing 107 m. and are showing distinctive construction technique:

South Gallery: south side: composed by laterite rectangular blocks (h. 30 x L. 50 cm)

Three rows of sandstone blocks were topped the wall. Blocks collapsed on the floor, still keeping their original trend, showed four rows of laterite and three rows of sandstone blocks. (ph.5)

Their approximate height, if re-assembled together, reaches a high of around 1.40 m. This high, summed with that one of the still three standing blocks, (from the paved floor) is presumed to reach around 2.40 m. Wedge stones are inserted in the texture. (ph.6)

South Gallery: north side: composed by sandstone blocks from its north face, this wall was visible for three rows. From the south side, only one row. The max height preserved of its north side, is 1.30 m. the pillars were placed on its head.
Floor: paved by sandstone slabs. floor w. 3.30-3.40 m.

North Gallery, north side: Composed by laterite blocks, topped by sandstone. In correspondence with the entrance facing the North Hall the wall is showing brick foundation and elevation. On the head of the brick wall, again rows of sandstone.

North Gallery, south side: H (max pres.) m. 1.30 ca, made by sandstone blocks.

Floor: paved by sandstone slabs. Wideness 2.80 m

Roof: Many fragments of round-edge and flat roof tiles, of terracotta finial and trilobate e lotus shaped tile, have been found on the space and on the slabs of the road’s pavement. It possible that the framework of the superstructure was in wood (truss-beam roof?) and was built as a stepped gable roof, the higher one in correspondence of the openings. (fig.2). At present most the galleries elevations are collapsed. and the standing ones are leaning inward.

An open portico, as above described, was facing the causeway. Sandstone pedestals with molding decoration, slightly trapezoidal in shape, with a central carved hole to insert the column, have been found during the cleaning of the galleries. It possible that the colonnade was composed by two types of columns: sandstone pillars placed in correspondence of the gallery’s access and wood pillar inserted in sandstone pedestal, along the long side. (base 50 x 50 cm; h max 55 cm.) (ph.7)

Two types of sandstone pillars have been found.

One is composed from two halves: the pedestal and part of shaft, (H max 1.67 ; W base 43x37 D. hole 10cm, depth 8 cm) holed to insert the other half (H max 1.63 m,) made by a shaft with tenon (h. tenon 7 cm- d.7-8 cm) and capital.
The second type is a square monolith, with molded pedestal and capital. (h max 1.67- base 46 cm, shaft 30x 30 cm.) (ph.8)

The road, 107 m. long and wide 5.50 m. slabs with central hole are placed every 3.05m, on north and south edges. The boundary stones were inserted into these slabs. After the archaeological cleaning, the post slabs showed the following characteristics:

The slabs are part of the causeway pavement and are placed during the road construction.
The holed slabs are representing the outer limit of the road.
Sample of slab with central hole:

**D31:** square shape, 64x63 cm.; thick. 11 cm.
Broken in two parts, by root growing.
Carved central hole: d. 27 cm.
Tenon partly inserted into the ground.
Brick fragments and stone chips were employed as foundation layer under the slab. (ph.9)

**D29:** rectangular slab (ID SPD29), 54x85 cm. thick. 19 cm. d. D.hole: 23cm.
Central hole carved into the whole thickness of the slab. Stone bottom.
Carved surface to sustain the base of the marker stone 40x40cm (ph.10)

**D28:** pseudo quadrangular slab (ID SPD28) of 75x66 cm D.hole 23 cm.
Broken tenon still in place : (ph.11)
Coarse chiselled surface to fix the marker stone pedestal.

A continuous line of squared slabs, measuring 82x35x9 cm, overlapping the pavement, are posed between the pyramidal-shape marker pillars.
This line is producing a sort of walk side and it was made to prevent the movement of the naga blocks. The length of those slabs is not regular, but the width and the thickness are quite constant.

Condition before the archaeological intervention

The present condition of Vat Phou’s ceremonial road is definitely serious.
The floor is completely covered by vegetation and it is settle down in many spots. (ph.12)
The road, placed at the feet of the second terrace, has been particularly submitted to a strong deterioration, due to the presence of tree roots that detached the laterite blocks of the terrace. (ph.13)
Collapsed and deteriorated laterite blocks are covering this part of the road.
Sandstone slabs of pavement are detached by water infiltration (ph.14)
Each side of the road was originally flanked by 35 marker stones, inserted by a tenon into a holed sandstone slab. Only 4 pillars are still preserved, all the others are broken in different pieces lying and removed from their original position. (ph.15)
The entire pavement composed by large sandstone slabs, is covered by recent alluvial filling and only partial stretches of the road are visible.
The causeway entrance on east side is covered by stone blocks and pillars, collapsed from the north and south galleries. Rubble material in secondary deposition is covering the steps of the entrance. (ph.16)
The open air corridor between the road and the galleries was covered by a thick layer of alluvial silt deposit and by rubble from the galleries. The recent filling has changed the original sloping ground level, preventing the regular water down flow.

That has produced the movement and the detachment of the stones composing the naga body. (ph.17)

**Causes of deterioration**

The movement of the slabs, in many areas settle down, has been caused mainly from water erosion.

Being the road sloping, (5%) the rain water coming from the second terrace, is infiltrating between the spaces of the slabs. The road foundation has been washed off, and that has facilitated the growing of vegetation between the slabs. This is another cause of the displacement of the slabs.

Most of the marker stones lost the tenons and are broken in two or three parts. This is due to the cows or buffalos action. It is important to remember that until 1997, the site was not fenced and in the morning and evening herds were left free and often used the standing stone to scratch their body. The site has been moreover used continuously, even in post-Khmer period, as a Buddhist sanctuary.

Consequently some parts of the original structure have been modified by the new religious communities. Negligence and a strong growth of vegetation have in the end quickened the process of deterioration. (ph.18-19)

The main purpose of this field season’s intervention is to relocate, where possible, the mark pillars of the ceremonial road, and in the meantime to preserve the other features still in their original deposition, without reconstructing or replacing the collapsed fragments.

This follows a non-invasive method of intervention, more relevant to the ordinary conservation that in the future could be carried on by the local staff.

The work will follow the standard conservative procedures, together with an accurate recording of the possible interventions.

An accurate surface cleaning of the ceremonial road has been extended in the area included between the northern and the southern galleries, starting from the second terrace.

At first, only the superficial vegetation has been removed, to obtain a general view of the different features composing the ceremonial road and to proceed with levelling records.
Type of marker stone

The marker stone is a monolith with trapezoidal base and central cylindrical tenon. (Ph.20) The shaft is square in section and the capital is pyramidal shape, lotus-bud tipped. Moldings (grooves and ribs) are present on the pedestal and on the base of capital. The height of the marker stones is covering an average between: 1.55 and 1.64 m. Shaft: w. 30x30 cm. Pedestal :base 35 x 35 cm. Capital: h. 70 cm. Tenon: h20 cm. ; D 15 cm.

Surface: well polished
35 marker stones originally lined each side of the road
Only four markers have been found complete and still standing.

Scattered marker stone fragments.

After the archaeological cleaning, the inventory of the marker stones have been carried out. (see enclosed cards) and they have been positioned in the distribution map.(see map 3). 97 fragments have been recovered and inventoried, showing the joints to be reassembled. At the end of project, 42 marker stones have been restored and replaced in the original location. The distribution of fragments was random (see enclosed drawings).

Naga body condition

The naga body is placed on the ground behind the marker stoned. It is also representing the boundary between, the road and the open air corridor. The naga is dressed sometime on a laterite block that is utilised as foundation. The naga is composed by sandstone block of different size:

L.: between: 80-1.20 m
H.: 20 cm.
W. : 25-30 cm.

Semi round head, with two parallel carved lines, to imitate snake coils. (ph.21) Before the conservation project, the naga was detached from its original position- The naga body was placed after the embedding of the marker stones and an artificial filling made by silt mixed with minute inclusions of anthropic material, has been prepared as floor of the open air corridor.
Excavation plan:

The excavation was performed on the entire surface of the causeway to remove the filling covering the pavement. After levelling documentation to verify the road axis (9° NE) and elevation sloping, a grid with squares of 2x2 has been performed to record the road settlement. (see enclosed map)  
The grid is following Cartesian system of labelling.  
Two foundation tests (T1 and T2) were carried out on the south side of the causeway to evaluate the stratigraphic links between the road, the open corridor, the foundation of the north wall of the gallery and the depth of the south wall of the south gallery.  
Pottery fragments have been collected and recorded (see enclosed list) square by square.

Excavation result:

The stratigraphy of test 1 and 2 has shown that the road and the galleries has been built during the same period and not traces of previous remains have been found.

Conservation plan

Principle and Process

This conservation project can be define “archaeological conservation”

In conformity with the principle “to preserve the originality as much as possible not only of the outward appearance but also of the construction methods and techniques” have been applied the minimum modern technologies repairing the broken pillars, that could be lost for ever.  
The authenticity of the ceremonial setting has been maintained as much as possible and the slabs detached have been replaced in their original location.  
During the project a carefully documentation has be collected. All the scattered fragment have been registered before and after the replacement  
To refill the gap of lost slabs has been used only wet beaten soil .  
Glass fibre dowel have been employed to join the marker stones, reinforced by epoxy resin.  
Some fragment of naga body has been rejoin by epoxy. To re-line the naga, a simple filling of wet beaten soil has been prepared as foundation.  
Every factors replaced can be easily dismantled in case of a more deep restoration project, that must involving the replacement of the road foundation.
Restoration Equipment

- 8 m. glass fibre dowels (different diameters);
- 4 kg. epoxy resin adhesive;
- 1 Bosch driller + complete series of drilling points;
- 2 safety belts for crane;
- 4 cramps;
- 2 chain blocks;
- 10 syringes;
- 1 Makita stone cutter + 2 blades;
- 1 metal trolley;
- 2 tripods;
- Plastic gloves;
- Thinner 10 lt.;
- Lime mortar 10 kg;
- Silica powder 5 kg.

Excavation Equipment

- 60 trowels;
- 60 brushes different sizes;
- 3 grass scissors;
- 4 barrows;
- 3 crowbars;
- 20 buckles.

Graphic equipment

- 1 Theodolite (UNESCO Project);
- 1 Auto Level (Japanese Grant);
- 3 sets of A3 graph paper;
- 1 roll of polymeric tracing paper;
- Stationary (rubbers, pencils, leads, set squares, ink pens).

Mechanic Equipment

- Cargo track with crane (donated by Japanese Government’s Grant Aid Program)