

**SUSTAINABLE MANAGEMENT PLAN
for the
KHONSU TEMPLE, LUXOR**

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**Cultural Heritage Tourism Project in Egypt (APS)
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**Awarded to
THE AMERICAN RESEARCH CENTER IN EGYPT (ARCE)
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**By the
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State for Antiquities.**

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Description of the site

Khonsu Temple is located within the Karnak Temple Complex on the East Bank of Luxor, Egypt. One of the largest temples in Egypt, Khonsu Temple is located in the southwest area of the Karnak Temple Complex (see Figure 1). The Temple is dedicated to the god Khonsu, who is the son of Amun and Mut. The temple consists of several main areas including the Main Court, Portico, Hypostyle Hall, Bark Shrine area and the Holy of Holies (see Figure 2). Also included are twelve side chapels in various states of preservation. The temple has been attributed to Ramesses III as the principal builder, however, many other succeeding rulers added architectural elements throughout the temple until the Roman Period. It is also interesting to note that while ARCE worked on the flooring in the temple, reused blocks attributed to Thutmosis III and other earlier periods were found. It has been suggested by Chicago House, who recorded the blocks, that there could have been an original Khonsu Temple built by Thutmosis III which was dismantled and reused by Ramesses III for his Khonsu Temple project. Further study on the inscriptions are warranted but early findings seem to support this hypothesis.

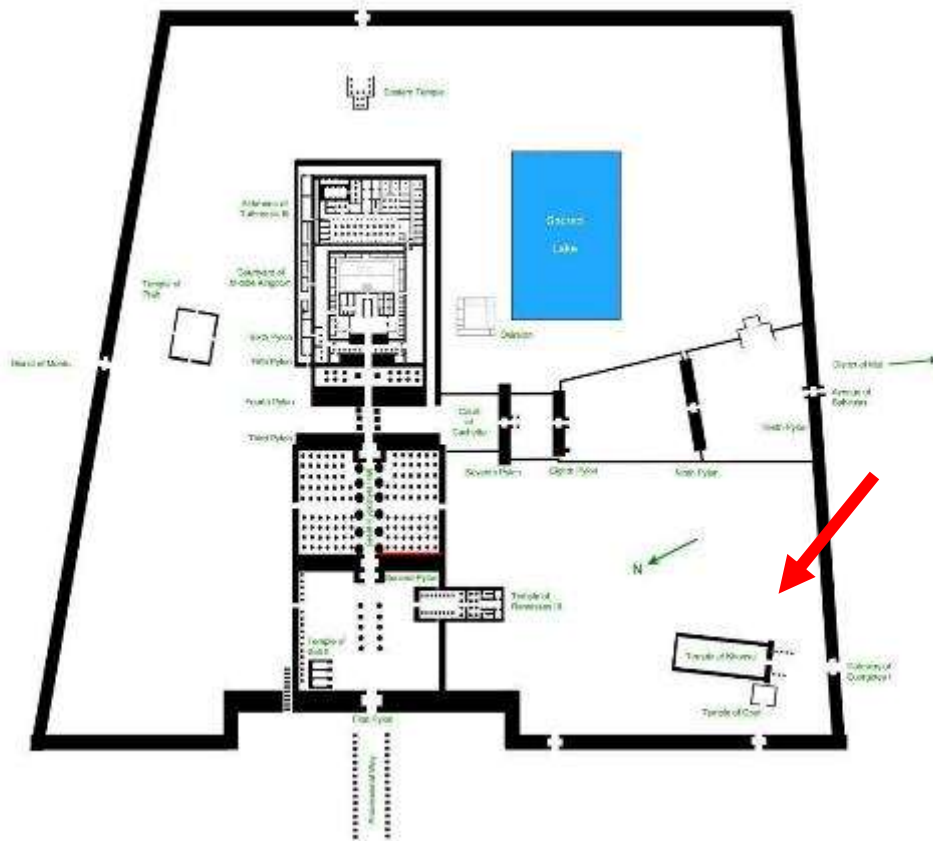


Figure 1: Location of Khonsu Temple within the Karnak Temple complex

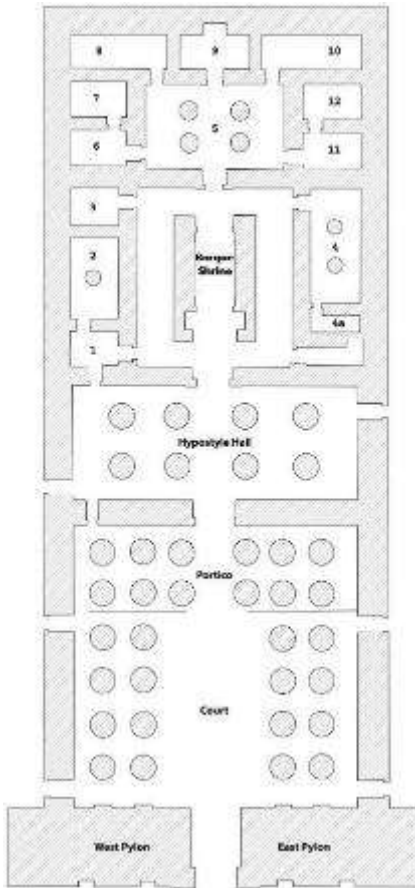


Figure 2: Khonsu Temple general layout

Site ownership

The Egyptian Ministry of Antiquities is solely responsible for all of the archaeological sites. On-site guardians have been placed in each location. The size of the site management team is dependent on the size of the site.

Management structure and responsibilities

The MoA concession for conservation work at Khonsu Temple has been with ARCE from 2007 to the present, contingent upon permission from the Permanent Committee which approves work by foreign missions on an annual basis. As with many government entities, the Ministry of Antiquities consists of an organization that is vertical in structure. Small sites are overseen by local guards whereas larger sites utilize a vertical structure with an upper manager at the top, followed by inspectors and local guards responsible for protection of the site. The responsibilities seem to be mixed and is dependent on the site. Several sites have their own maintenance crew while other sites do not. Khonsu Temple is part of the

Karnak Temple Complex and has adequate staff to maintain and oversee all activities. The complex has a maintenance/labor crew on site daily headed by Rais Mahmoud Farouk.

With funding from USAID, ARCE began conservation work in 2007 associated with the groundwater lowering installation. ARCE has conducted successful conservation field schools at Khonsu Temple from 2007 to 2018. ARCE started the advanced conservation field school in October of 2015 with a minimum of 17 MoA conservators, focusing on 6 side chapels, cement removal and replacement with lime mortar and structural repairs.

ARCE described in their initial proposal for funding from USAID the objectives and purpose of the project. Annual Work Plans were generated to describe the work to be performed and the objectives to be met for each year of the project. Ultimately, however, responsibility for management of the site rests with the MoA, while ARCE proposes interventions by means of applications for annual permission to work on the site. Maintenance and protection of the site is shared by ARCE and the MoA only for the duration of the permission to work.

Statement of significance

Several aspects makes this temple unique. First, the Main Court and Portico is inscribed with the name of High Priest Herihor who even placed his name in a kings cartouche although he was not considered a king. This was a time period where the last pharaoh Ramesses XI was weak and the priests ultimately took over power of the state, referred to as the “Priest Kings.” Not much is known about this time period and the Main Court at Khonsu Temple is Herihor’s largest building project to survive and provide important information of the end of the 20th Dynasty and the start of the Priest Kings of the 21st Dynasty. Second, the side chapels have been blackened over time and due to reuse since ancient times. ARCE Conservation Field Schools cleaned and conserved the walls exposing original color not found in many places in the Karnak Temple Complex. The images can be further studied and are an attraction to visitors. Finally, the images and inscriptions revealed in this temple can augment information from previous excavations, to develop a more complete history of the temple up to modern times.

ARCE has placed all documentation of the conservation work in a data base for eventual access to scholars and visitors.

Present and projected visitor use

Although there are signs leading the visitor through a doorway between the 1st and 2nd pylon of Karnak Temple, and ending with a sign pointing the way through the stone block storage area, not much has been marketed regarding this unique temple. Tourist guides (who control the time spent by visitors in the temple) generally set the agenda on what will be viewed. It is important to note that many tour guides have reached out to ARCE to show their clients the chapels before they are opened to the general public. ARCE has also had tour requests from ARCE chapters and both U.S. and foreign educational institutions. Since the section of Khonsu Temple containing the side chapels is closed, there is little traffic within the temple, which is estimated at approximately one to two small groups per day. With the opening of the total temple accompanied by some publicity, visitor projections should increase dramatically.

Management objectives

To guarantee the sustainability of USAID's commitment to the preservation of Khonsu Temple, ARCE's objective is to train MoA personnel in the conservation and maintenance of the site, as well as protection from wear and tear resulting from environmental conditions and mass tourism.

Parking is readily available and abundant in the area before entering the Karnak Visitors Center.

One of the main objectives of the plan would be to direct the flow of visitor traffic to enter Khonsu Temple at the First Pylon (rather than the side entrances) to view the information panel at the entrance. This can easily be accomplished by placing an existing barrier at the two side entrances. It would then be preferable for the visitors to see the Main Court and work their way up to the Hypostyle Hall for another information sign before descending to the Sacred Bark and Holy of Holies areas where the side chapels can be accessed. It would be preferable to open two or three side chapels instead of all seven at a time due to the following reasons:

- Tourist respiration and humidity factor effecting the walls
- Local guardians would be able to watch tourists more carefully to make sure no touching of walls or leaving graffiti would take place.

Another major management objective would be the oversight and the performance of maintenance. ARCE constructed and presented to the Karnak management team over 90 combination trash receptacles and ashtrays. Some of these are throughout Khonsu Temple. With the increase in visitors, the receptacles require emptying at shorter intervals.

To reduce the funding required in lighting, Solatubes¹ were installed throughout the side chapels. There are no cables or light fixtures to replace however, it is clearly important that the solatube light domes on the roof require the cleaning of the dust otherwise the lighting in the chapels will fade with the layering of the dust. Also, a light solar powered air exchange unit was developed and installed to reduce humidity caused by visitors. If the solar panels are not cleaned, the fans will cease to work and there will be no air exchange. Since the solar panels and the solatube domes are next to each other, it is a simple task to wipe the dust off these units at the same time. Nevertheless, it is clear that management must give directions and ensure the maintenance and cleaning is performed.

Conservation

From 2007 to 2018 ARCE focused on conducting Conservation Field Schools to assist in building the capacity of Upper Egyptian Ministry of Antiquities conservation employees. Within this time, several areas in the temple were documented, conserved and cleaned including the following:

- Cleaning the west wall and columns in the Main Court.
- Installing new flooring and filling in flooring in the center axis of the temple as well as the Main Court, Hypostyle Hall and Chapel 4.
- Cleaning walls and repairing flooring where required in the side Chapels 1, 2, 3, 6, 7, 11 and 12.

¹ Solatube utilizes natural sunlight through reflective tubes where the light is filtered and distributed throughout with a diffuser lens. See www.solatube.com

- Removing cement patching and replacing it with a lime mortar in the interior:
 - Main Court
 - Portico
 - Hypostyle Hall
- and the exterior:
 - North wall
 - East wall
 - West wall
- Installing new concrete roof sections over Chapels 9, 10 and 11.
- Installing new walkways parallel with the East wall running up to the front entrance.
- Installing reinforcement in the west side (north & south) architraves in the Bark Shrine area.
- Partial rebuilding of a Contra Temple on the North exterior of the temple.
- Documenting the existing condition of Chapel 4.

Physical Protection Needs

Much more conservation work remains to be done in Khonsu Temple. The focus of this plan is, however, on the areas that have already received conservation treatment. Sweeping floor dust usually contributes to the accumulation of dust on the walls, especially in the side chapels. Preferably, a type of natural sweeping compound that would be compatible with stone, e.g., natural material such as sawdust or clean sand would assist in keeping the dust down while sweeping. Eventually, with time, the walls will need to be dusted. This should be done by a professional conservator with a special tool to remove the accumulated dust from the wall surface. Monitoring will have to be performed by the inspectorate to determine the occurrence of the sweeping and dusting.

Monitoring of any moisture and/or salts efflorescence should be recorded and acted upon if required. Several areas that has shown the presence of moisture should be checked of the surrounding area condition. In many cases, weep hole vents were installed by the conservators in the wall to keep areas dry. The lime mortar is easily removed and can be repaired along with the information provided in the original conservation work data base. The periodic checking to make sure the air exchange units are functioning properly will also assist in keeping the moisture at an acceptable level.

Budget Projection

There are ample personnel resources associated with the Ministry of Antiquities in Karnak Temple to carry out simple routine maintenance tasks. The budget for the personnel is already included in the Karnak Temple complex budget. Karnak Temple management holds full responsibility for day to day operations.

Lighting and air exchange units were fabricated and installed for reduced maintenance, but nevertheless still require periodic cleaning and dusting. Likewise, signage at the temple requires cleaning from dust and bird droppings. At the minimum, the lighting, air exchange units and the signage should be cleaned once a month. This takes no special cleaners. Water, and for more difficult encrustations, regular bar

soap will work. No additional personnel is required therefore, cleaning as part of routine maintenance basically costs nothing.

The Karnak Temple complex budget should include funds for the replacement of an air exchange unit, sign cover or a solatube part. Although costs are minimal to start, with time these maintenance costs will increase. They will also increase at a faster rate if regular cleaning is not performed. The cost per month does not take into account future inflation or value of the Egyptian Pound relative to the dollar. The costs reflect the replacement of solatubes and air exchange units with time.

Budget Time Frames (assuming monthly cleaning rate) in USD

Year 1 – 3	Cost per Month	\$ 20.00
Year 4 – 6	Cost per Month	\$ 45.00
Year 7	Cost per Month	\$ 65.00
Year 8	Cost per Month	\$ 70.00
Year 9	Cost per Month	\$ 20.00
Year 10	Cost per Month	\$ 30.00

Major Vendors

Target for Architectural Design, Archetectural Models, and Laser Cutting – Mr. Hesham Ezak
107 Fustat Apartments – El Khaiala Road – Saleh Salem – Cairo
Mob: +20 1001122406 Office: 02/ 29186424

- Signage

Electric Abanoub

Saleh Salem Street - Luxor

- Solar Panels
- Batteries

Taqa Misr - Muhammad El-Saadawy

7 El Shaheed Sayed Zakaria Street - Sheraton Al Matar, Cairo

Mob: +20 10000370370 Office 02/22697106

- Solatube