



Global Heritage Fund

## GHF Göbekli Tepe Project Prospectus



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**Project Director:**

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## **GHF Göbekli Tepe Project**

GHF's primary focus is to support the emergency conservation of the exposed 10,000-year-old architecture in addition to the implementation of a visitor management system for this fragile ancient archaeological site near Şanlıurfa in southeastern Turkey.

The circa 150m long and 300 m wide Early Neolithic hill of Göbekli Tepe (Belly mound) is situated about 15 km northeast of the modern city of Şanlıurfa in south-eastern Turkey at the highest point of an elongated range of hills. Since 1995, archaeological work by the German Archaeological Institute has been carried out under the direction of Prof. Dr. Klaus Schmidt. Göbekli Tepe was not a settlement but a sanctuary, probably a regional center where communities met to engage in complex rites. The annual excavation seasons to date have produced no residential buildings or fortifications but instead have revealed monumental, megalithic stone circles dating to the Pre-Pottery Neolithic period (10th - 9th millennium B.C.), one of the most important periods in human history at the dawn of sedentary and farming communities.

The global significance of Göbekli Tepe – its large exposed yet unconserved excavated areas and its increasing popularity with Turkish and international tourists (over 1,800 in 2009) – along with its recent publicity in the international press indicate that a comprehensive site preservation program is urgently required. GHF funding and expertise in archaeological conservation will help ensure excellence in planning, site conservation and community engagement to ensure long-term sustainable conservation and development of Göbekli Tepe.

Primary goals of the GHF Göbekli Tepe Project are:

1. Site Conservation and Management Planning
2. Monument Conservation
3. Planning and Conservation for Site Shelter
4. Community Development

It is estimated that GHF funding will be \$800,000 over 4-5 years, excluding costs associated with GHF experts, management, travel and operations.

Expected outcomes:

1. Stable archaeological site
2. Sustainable site management
3. Increased site investment and income diffusion into local community
4. UNESCO World Heritage nomination

Past annual funding for Göbekli Tepe averaged approximately \$80,000 per year until 2010, when the site received special designation within the German Archaeological Institute (DAI) in 2011 as a top project. DAI has committed to support research and archaeological investigation until 2021 but cannot support site conservation.

Critical archaeological conservation funding is thus needed to stabilize the entire site, especially Göbekli Tepe's temples, walls and engraved sacred stones showing its importance as a major Early Neolithic sanctuary site for communities to engage in complex rites possibly as ancient as 10th - 9th millennium B.C. Funding is also required to conserve the site in preparation for a site shelter structure that would protect the exposed archaeology in a manner suitable to tourism and visitor viewing. Investments in site interpretation, visitor pathways and infrastructure are also required for touristic purposes.

GHF has secured in-country co-funding from the Vehbi Koç Foundation and expects further co-funding to come from private corporations and foundations in Turkey, as well as the Şanlıurfa Municipal Government and the Turkish Ministry of Culture and Tourism. The municipal government should be expected to invest in a regional museum and site infrastructure including roads, parking, visitor facilities and other needed amenities, while the MOCT should be approached to fund the majority of site shelter costs (approximately \$1.5-\$2M) and visitor pathways in partnership with the regional government and Şanlıurfa city municipality.

**GHF Summary Budget (2011-2015):**

<b>Category</b>	<b>Amount</b>	<b>GHF % Total Funding</b>
1. Scientific Conservation Planning	\$80,000	100%
2. Site Management Plan	\$50,000	50%
3. Monument Conservation	\$480,000	80%
4. Shelter Structure Preparation	\$120,000	80%
5. Community Development	\$120,000	100%
<b>Total</b>	<b>\$850,000</b>	



**Above:** Göbekli Tepe seen from the air in autumn 2004, view from the east. Visible are the main excavation area at the southern slope of the mound and parts of the temporary modular roof system, which has to be replaced within the next few years by a new roof, as the temporary roof doesn't allow visitors to see the unearthed monuments very clearly.

## 1. Introduction

The 'Neolithic revolution' in southwest Asia saw the emergence of the first large, permanently settled communities. Permanent settlements dating to 12,000-10,000 years ago currently under excavation are producing unexpected monumentality and extraordinarily rich symbolism that challenge our interpretive abilities. The results of recent excavations don't turn our picture of World History upside down, but they are adding an exciting and colorful new chapter between the period of the hunter and gatherers of the ice age and the new world of the food producing cultures, a chapter which had not been expected to exist to such a great extent even recently. However, the discoveries at Göbekli Tepe raise significant but difficult questions:

1. How does the art and architecture relate to the emergence of human cognitive and cultural skills with symbolic representation?
2. What is the relation between these first permanent communities and their production of symbolic architecture and sculptural representation?
3. Are we seeing the earliest evidence for what we may call religious representations that involve deities and understandings of the cosmos?

## 2. Site Significance

Monolithic T-shaped pillars, each weighing several tons, were erected at Göbekli Tepe to form large circles in whose center another pair of pillars towers above all (see map below of the enclosures and the pillars in situ). The arms and hands depicted on their sides allow us to understand them as anthropomorphic. Furthermore there are large-sized reliefs added to these pillars showing wild animals like cats of prey, bulls, wild boars, foxes, birds, scorpions, spiders and snakes. These reliefs open the view upon a new and unique picture language not known before and interpretation of which is still an important focus of research discussion.



**Above:** The extent of excavations 1995-2009.

Dr. Schmidt estimates that occupation of the site may have lasted approximately 1500 years and that during this time the tendency to build enclosures containing T-shaped and relief carved stones started with the construction of large examples and that these reduced in size over time. It is clear to John Hurd, GHF's Director of International Conservation, that there is a significant change in sophistication of construction technology of the mortars during this time.

As Dr. Schmidt points out, this earliest part of the Göbekli Tepe site may represent the peak of Stone Age technology which then declines towards the end of the site's life as the introduction of agricultural activity develops. This would mean that Göbekli Tepe is not the start of a stage of human development but in fact an end, implying that these advanced stone technologies started at a much earlier time.

### 3. State of Conservation and Requirements

Until now little formal conservation has been achieved, but the archaeological team has taken steps to preserve the mortared and plaster-daubed walls by introducing an outer dry stone protective lamina which is providing very efficient temporary protection to the ancient



Above: Regional map of Turkey and the site of Göbekli Tepe.

walls. Clearly this cannot remain in place as the outer lamina is somewhat unsightly and alters the dimensions of the main structures. Over the upper smaller enclosures is a simple and functional metal shelter structure, which is serviceable.

Some limited stone conservation has been achieved with unset monoliths supported by raking shores and anchored cables, and one large broken stone has been rejoined using an epoxy resin adhesive. This repair urgently requires further attention in order to prevent free moisture from entering at the edges of the repair during winter 2011 and John Hurd recommends that a temporary hydrophilic plaster be applied across the crack to control water ingress that may contribute to hydrolysis and swelling of the adhesive over time.

While archaeological research has gone ahead for many years, the conservation of what has been excavated has not kept pace and there is now a considerable backlog of work needed both in repair and reassembly of broken stones as well as in the conservation of mortars, plasters and extraordinary “terrazzo” floor coverings.

Project members Andreas Gotz and Eduard Knoll have a continual program of stone repair and it is important that they start training local people in the techniques used for stone repair or the conservation will continually fall behind the archaeological research. John Hurd, as GHF International Conservation Director, is happy to lead the conservation of the earth mortars and plasters, should the project director request this, and this also will need to produce local conservators to continue the work during the whole season. During the spring season of 2012, both the stone conservators and the earth conservators should conduct intensive training courses to ensure that work can continue for the whole season.



**Above:** Carved vulture with a scorpion. Some peoples have revered vultures for carrying the flesh of the dead to the heavens. Photo: Berthold Steinhilber, DAI.

### **Conservation requirements:**

An urgent conservation requirement is the need to gather pertinent data in order to start the process of understanding risks to the site and its archaeological features. To that end, the



first requirement is the establishment of weather stations in at least two contexts, on the open hill and in the deepest excavation trenches. These need to monitor all normal climatic measurements and Hurd proposes that these store data in electronic memories which can be transferred from time to time by USB connections into team computers. A member of the archaeological team will need to be identified to coordinate this activity, and the data must then be used to interpret and define the risks to the site.

The other principal conservation requirements center around the stone, mortars, plaster and terrazzos in equal importance, with monoliths occasionally damaged, and historic evidence of support of broken elements employing earth mortared support walls as collared buttresses.

The conservation challenge mainly addressed by the author is the consolidation and protection of the earth mortars, plasters and artificial stone floors. The mortars and plasters are very vulnerable to weathering and erosion through the action of wind and rain and especially in the rare event of a violent rainstorm, which would, in a short period, do widespread damage. Climate change must be engaged as a serious risk at Göbekli Tepe.

#### **Conservation materials research and testing:**

1. Field laboratory
2. Permissions and consents
3. Mortar and plaster characterization
4. Microscopy
5. Mass spectrometry

#### **Proposed Conservation Interventions:**

1. Temporary protection
2. Stone conservation intervention
3. Mortars and plasters
4. Artificial stone floors
5. Monitoring
6. Shelter preparation
7. Pre- and post shelter condition monitoring

GHF sees the need for training to be given starting in the spring season of 2012 and operating on two levels: Internships and academic placements (Schmidt may choose to encourage conservation interns from Turkey and elsewhere). Local workers will require training to perform general conservation activities during the intervention phases and post-excavation phases. The training of local archaeological workers to a higher level of conservation skill can be an important part of the GHF *Preservation by Design*® model for community development.



**Above:** Pillar 18, the eastern central pillar of enclosure D, is a well preserved example of the T-shaped pillars with a height of 5.5m. Photo: Nico Becker, DAI.

#### **4. Shelter Structure – Rationale**

The entire archaeological site at Göbekli Tepe is subject to seasonal rainfall and due to the sunken context of the central circular ensemble, puddles of water frequently gather around the fragile archaeological structures. The seasonal wetness and drying is destabilizing the entire site as the soils on which the stones are established swing between a liquid limit (flow) and desiccation. Further to this, the changes in moisture content of all of the materials tend to mobilize very damaging soluble salts, and this needs to be controlled. There are only two main options here, backfilling and recovering or sheltering.

Given the importance of the site, sheltering was selected as the first option and a shelter structure has been designed with careful attention to the climatic, conservation and aesthetic needs of the site.

An international meeting was held on site on 10-11 May 2010. Fourteen experts attended, and GHF was represented by expert Turkish conservation architect, Yavuz Özkaya. Özkaya, together with GHF Conservation Director John Hurd, was undecided about the need for a shelter structure, pending further research. As a result of the meeting, Özkaya reported that he approved the need for a shelter structure and also approved the design, subject to detailed analysis. Since that time, the design architect of the structure, Edward Knoll, has invited Özkaya to join the shelter design team to enable detailed comment. Hurd, considering all aspects of the conservation challenges at the site, is convinced that a shelter structure is the best solution; he feels that the design is exceptionally good, but also will observe the details closely.

#### **Shelter Structure Principles:**

More and more of the discovered circular areas are excavated down to their foundations during the ongoing progress of archaeological work, and the increasing public interest causes a growing stream of visitors to the site. Therefore it is time to build facilities for the tourists, which not only satisfy public curiosity but which are also sufficient for the protection of the ancient structures. To assure both, plans are in development to cover large parts of Göbekli Tepe with roofs for protection that also include walking floors for the visitors to allow contact-free access to the archaeological site.

A major capital investment at the site is the design and construction of a shelter structure over an area of 2000m<sup>2</sup> to protect the structures and excavated features there. Consolidation of the stone walls will complete the efforts for conservation of the site over the next decades. New display panels will provide an overview of the history and importance of the site through an effective presentation to the visitors.

There are already a number of types of roofs existing over various archaeological excavations throughout the world. Every one of these roofs is designed for the specific circumstances found at the dig, and this same approach also must be used for the canopy over the Göbekli Tepe excavation. The dig is nowhere near completion, and as such the highest priority consideration must be given to the already excavated monuments as well as preparation for the ground yet to be explored.



**Above:** Mock up of a proposed shelter structure.

The shelter design at Göbekli Tepe builds on the guidelines and specific needs of the archaeological work:

1. The focal point of the dig revolves around the T-shaped pillars situated in the middle of each of the various circles that have been uncovered. The roof will be used for protection against the elements; rain and snow in the winter are endangering the ring walls and over time lead to erosion. The roof also will be used to stabilize several of the pillars by securing them with cables. The roof therefore must be strong and well grounded.
2. The pillars supporting the roof have to be reduced to a minimum in order to not destroy the overall impression of the circular structures, but the close proximity of the excavated remains leaves almost no room for placing the required supports. Due to this, the only possible placement for support pillars is directly between or behind the stone walls of the enclosures, with the exact positions being determined by the archaeologists.
3. The construction of the canopy must allow for an expansion of the roof as the dig itself progresses; this means that the roof will literally grow along with the archeological work. It must not only cover the ground excavated but also be flexible enough to allow for the different heights of the areas being examined. Future excavation has to be covered by the same flexible roof system.

4. The pathway loop for the visitors should allow for an all-encompassing sightseeing experience. The goal is to achieve this while absolutely protecting the archaeological remains from being touched or harmed in any way. The pathway must wind through the dig with no further supports on the ground, and they must also allow for future expansion of the excavations.
5. The foundations of all supporting structures have to be limited to the smallest possible size in order to keep disturbances to the archaeologically important layers to an absolute minimum.
6. The peaceful, almost mystical mood of the place shall be accentuated through the use of directed light.

**These parameters lead to the following construction system:**

1. The pillars supporting the roof should stand irregularly at the locations determined by the archaeologists on the project. The roof area will only be supported by the few and sporadic pillars. A structural system, with the usual orthogonal grid spacing, is, in this case, not practical. The normally used pillars/carrying system cannot fulfill the given demands on the ground.
2. The visitor's pathway will be hung at various points from the roof construction. Additional pillars on the ground will be avoided.
3. The pillars for the roof will be attached with hinges to minimize the size of the foundations to a minimum (no fixed support using a foundation size of 1 square meter). The spatial reinforcement of the overall supporting structure will be carried out by reinforcements between the pillars and the roof construction. Through this process, the demands concerning earthquakes are dealt with. In the case of the already excavated areas, the canopy of areas C and D can be built on solid rock.
4. The planned system is going to consist of shoring that will be developed as bar construction.
5. The closed roof membrane will be interspersed with light cupolas (down shafts with reflecting surfaces) placed over the most important pillars of the dig. As a result, the reliefs will appear three-dimensional in the evenly sided light of the day.
6. Through the construction of a one-sided inclined roof, a cost efficient building of the canopy can be planned, with the uniform measurements of all prefabricated parts. Indeed, a development of the style of roof through waves or several small, graded roofs is easier but would lead to higher costs.

## **5. Community Development**

In all GHF projects, community development is focused around opportunities in the following four focal areas:

1. Training and Capacity Building
2. Income and Employment Generation
3. Social Development
4. Site Development

At Göbekli Tepe, community development activities will include:

- |                                              |                                                               |
|----------------------------------------------|---------------------------------------------------------------|
| 1. Stakeholder engagement                    | 7. Heritage education for local youth                         |
| 2. Conservation training                     | 8. Water, sanitation and waste removal for local village      |
| 3. Language training                         | 9. Regional cultural asset marketing and promotion            |
| 4. Conservation employment                   | 10. Site visitor center, pathways, signage and interpretation |
| 5. Handicraft development                    |                                                               |
| 6. Entrepreneurship training and development |                                                               |

The Provincial Governor and the Mayor of Şanlıurfa will be investment partners for the site visitor center and other infrastructure.

## 6. Strategic Partnerships

Strategic partnerships with the following organizations and institutions are critical to building multiplied technical and financial investment in the Göbekli Tepe Project:

- |                                                       |                                            |
|-------------------------------------------------------|--------------------------------------------|
| 1. German Archaeological Institute (DAI)              | 5. The Vehbi Koç Foundation                |
| 2. The Turkish Ministry of Culture and Tourism (MoCT) | 6. Middle East Technical University (METU) |
| 3. Şanlıurfa Municipality                             | 7. Harran University                       |
| 4. Şanlıurfa Provincial Government                    | 8. Anatolian Artisans                      |
|                                                       | 9. Village of Örencik                      |

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