

TENTATIVE LIST OF WORLD HERITAGE SITES
IN THE STATE OF QATAR



CONTENTS

1. Experts nominated by UNESCO	2
2. Experts nominated by the Local Authorities	2
3. Background	3
4. Map showing the location of the sites described	5
5. Site A: Archaeological Site of Al-Zubarah Town and its Cultural Landscape	6
5.1. General data	6
5.2. Description	7
5.3. Protection and management provided by the Member State	10
5.4. Justification for outstanding universal value	13
5.5. Authenticity and integrity	14
5.6. Comparison with other similar properties	14
5.7. Bibliography concerning the site and its context	14
6. Site B: Khor Al-Adaid Natural Reserve	15
6.1. General data	15
6.2. Description	15
6.3. Protection and management provided by the Member State	20
6.4. Justification for outstanding universal value	21
6.5. Authenticity and integrity	22
6.6. Comparison with other similar properties	22
6.7. Bibliography concerning the site and its context	23

The designation employed and the presentation of materials throughout this publication do not imply the expression of any opinion whatsoever on the part of UNESCO concerning the legal status of any country, territory, city, area or its authorities, or concerning the delimitation of its frontiers or boundaries.

For more information on UNESCO Programmes in the fields of Education, Science, and Culture please visit our Web-portal: www.unesco.org

The cover shows features at the sites described by this study – the archaeological site of Al-Zubarah and its cultural landscape, and Khor Al-Adaid natural reserve (graphic by Guido Licciardi).

1. EXPERTS NOMINATED BY UNESCO

GUIDO LICCIARDI guido.licciardi@tin.it
Expert for the study of cultural properties
PHD IN CULTURAL HERITAGE PRESERVATION

HENNING SCHWARZE h.schwarze@world-habitat-society.org
Expert for the study of natural properties
ECO-GEOGRAPHER; MANAGER WORLD HABITAT SOCIETY (GERMANY)

BENNO BÖER b.boer@unesco.org
ECOLOGICAL SCIENCES ADVISOR - ARAB REGION (UNESCO)

SIMON ASPINALL hudhud10@gmail.com
Expert for the study of natural properties
ECOLOGICAL CONSULTANT (UNITED ARAB EMIRATES/U.K.)

2. LOCAL EXPERTS INVOLVED IN THE MISSION

DARWISH AHMED
Representative of the Qatari Natural Authority
SUPREME COUNCIL FOR THE ENVIRONMENT AND NATURAL RESERVES

MOHAMMED AL-BLOUSHI
Representative of the Qatari Cultural Authority
QATAR MUSEUMS AUTHORITY

MOHAMMED AL-OBAIDLI, FAISAL AL-NAIMI
Field experts for the study of cultural properties
QATAR MUSEUMS AUTHORITY

KHALID HELAL AL-ENZI, SALIM AL SAFRAN
Field experts for the study of natural properties
SUPREME COUNCIL FOR THE ENVIRONMENT AND NATURAL RESERVES



3. BACKGROUND

In an era of global economy, the civilizations of the world have re-discovered the importance of protecting their tangible and intangible heritage, cultural roots and traditions, and are also paying increasing attention to the natural environment in which they and others live. People have become more and more conscious of their shared legacy and consider the preservation of existing heritage a common responsibility.

The protection of heritage and environment are among the most important of UNESCO's activities. One of the best-known programmes organised by this organisation is the "World Heritage List", an international inventory of property of outstanding universal value, the handing down of which to future generations is not only in the interest of the Member State, but of all mankind.

The legal base of this list is the "Convention concerning the protection of the World Cultural and Natural Heritage", adopted by the XVII Session of the UNESCO General Conference, held in Paris from 17 October to 21 November 1972, and remains the most important reference for the international policies on the protection of the cultural and natural heritage.

The following paragraphs are the preamble of the convention and clarify its aims:

"The General Conference of the United Nations Educational, Scientific and Cultural Organization meeting in Paris from 17 October to 21 November 1972, at its seventeenth session,

Noting that the cultural heritage and the natural heritage are increasingly threatened with destruction not only by the traditional causes of decay, but also by changing social and economic conditions which aggravate the situation with even more formidable phenomena of damage or destruction,

Considering that deterioration or disappearance of any item of the cultural or natural heritage constitutes a harmful impoverishment of the heritage of all the nations of the world,

Considering that protection of this heritage at the national level often remains incomplete because of the scale of the resources which it requires and of the insufficient economic, scientific, and technological resources of the country where the property to be protected is situated,

Recalling that the Constitution of the Organization provides that it will maintain, increase, and diffuse knowledge by assuring the conservation and protection of the world's heritage, and recommending to the nations concerned the necessary international conventions,

Considering that the existing international conventions, recommendations and resolutions concerning cultural and natural property demonstrate the importance, for all the peoples of the world, of safeguarding this unique and irreplaceable property, to whatever people it may belong,

Considering that parts of the cultural or natural heritage are of outstanding interest and therefore need to be preserved as part of the world heritage of mankind as a whole,

Considering that, in view of the magnitude and gravity of the new dangers threatening them, it is incumbent on the international community as a whole to participate in the protection of the cultural and natural heritage of outstanding universal value, by the granting of collective assistance which, although not taking the place of action by the State concerned, will serve as an efficient complement thereto,

Considering that it is essential for this purpose to adopt new provisions in the form of a convention establishing an effective system of collective protection of the cultural and natural heritage of outstanding universal value, organized on a permanent basis and in accordance with modern scientific methods,

Having decided, at its sixteenth session, that this question should be made the subject of an international convention, adopts this sixteenth day of November 1972 this Convention."

According to the Convention, each Member State shall submit to the World Heritage Committee, institutional body within the UNESCO World Heritage Centre based in Paris, a "tentative list", which is an inventory of property forming part of the cultural and natural heritage suitable for inclusion in the World Heritage List. This inventory shall include documentation about the location of the property in question and its significance.

On the basis of the "tentative list" submitted by Member States, the World Heritage Committee shall analyse the sites and decide if they have an outstanding universal value.

The State of Qatar has become Member State of the Convention in 1984 and at the beginning of 2006, through its National Authorities in charge of the protection of cultural and natural properties, respectively the "Qatar Museums Authority" and "Supreme Council for the Environment and Natural Reserves", contacted UNESCO Office in Doha asking technical assistance for the development of the Qatari "tentative list".

The UNESCO Office in Doha thereby established a team of international experts and invited national experts to plan and institute field surveys in Qatar. This report is the final product of the respective field surveys, and includes two templates the State of Qatar may wish to use for the development of its national "tentative list".

The inclusion of the two properties "archaeological site of Al-Zubarah town and its cultural landscape" and "Khor Al-Adaid natural reserve" is hereby proposed to the State of Qatar by the UNESCO Office in Doha. As to whether these candidate sites are accepted as such is entirely the decision of the State of Qatar. The State of Qatar alone can decide on which sites are included in the country's "tentative list", and may include as many sites as it chooses, including, or not, either of the two sites recommended here.

At the end of this report, there is an annex explaining the attributes each World Heritage Site should possess. The properties the State of Qatar would wish to include in its "tentative list" should respect these attributes, and their description should be prepared according to the two "templates" presented here. These should then be submitted to UNESCO, noting, however, that there is no time restriction whatsoever for submission.

4. MAP SHOWING THE LOCATION OF THE TWO SITES DESCRIBED



Plate 1. © United Nations map (modified by Henning Schwarze, 2006).

5. SITE A. ARCHAEOLOGICAL SITE OF AL-ZUBARAH TOWN AND ITS CULTURAL LANDSCAPE

5.1. GENERAL DATA

Name of property:	Archaeological site of Al-Zubarah town and its cultural landscape
Type:	Cultural property
State, Province:	The State of Qatar, Madinat Al-Shamal
Geographical coordinates:	N 25° 58', E 51° 01'; (Centre of the proposed World Heritage Site)

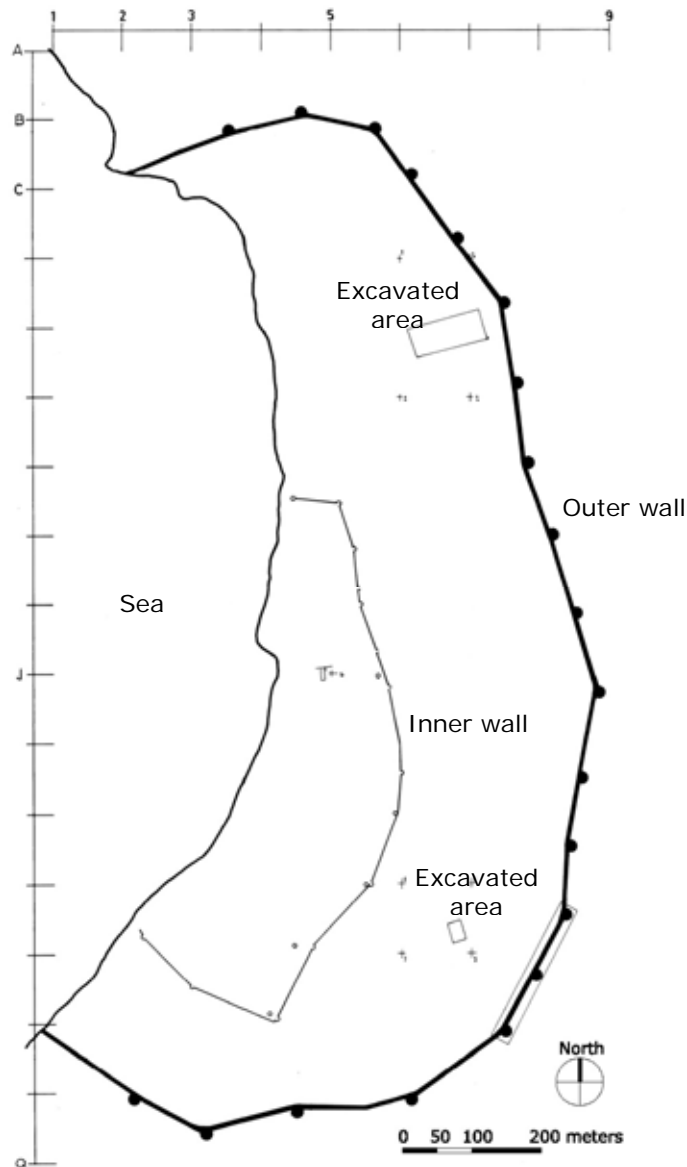


Plate 2. Old Al-Zubarah town, State of Qatar. Map of the archaeological area (© Qatar Museums Authority; reproduced by UNESCO Office in Doha).

5.2. DESCRIPTION

The core of the proposed World Heritage Site “archaeological site of Al-Zubarah town and its cultural landscape” could link three adjacent properties:

- i) the archaeological site of Al-Zubarah town;
- ii) the old ruined fort of Qal’at Al-Murair; and
- iii) the fort of Qal’at Al-Zubarah.

The buffer zone of this site could be identified considering other properties surrounding the core zone, including:

- (i) the well-preserved traditional wells representing sustainable ways of managing underground water;
- (ii) the ruined forts - ancient coastal defensive systems;
- (iii) other relevant tangible evidence of human activities nearby the site;
- (iv) other relevant natural features, such as the ecologically valuable sea-grass beds in the shallow inshore waters close to the proposed site.

The archaeological site of Al-Zubarah town (Plates 2 and 3) is the largest area of early human presence in Qatar. It is located in the northwest of the peninsula, between the Zubarah fort and the sea and consists of an old fortified coastal town. Now completely abandoned, it has cast light on the history of the country and its people, showing evidence of a long-standing community where rich oyster banks and trading connections in and beyond the Gulf ensured prosperity. Archaeological investigation by the Qatari Authorities unveiled evidence of trade with China, West Africa, Persia, and Mesopotamia (Iraq), amongst other countries.



Plate 3. Aerial view of Old Al-Zubarah town, State of Qatar. (© Qatar Museums Authority).

The *forma urbis* of the town shows a remarkable capability in urban planning: it was based on a grid-based scheme known as “gridiron plan”, a type of city theorized by the Greek Hippodamus of Miletus, in which streets run at right angles to each other. The original town, more than 2000 metres long and 600 metres wide, was surrounded by a long enclosure wall and guard towers (thin line in Plate 2). A separate quarter and a wider, more external wall, was added in a second phase of urban development (thick line in Plate 2) and eventually, during a third phase, houses were built outside the walls themselves.

The age of foundation of this settlement is not yet clear. There is little written material detailing the history of the town. Moreover, less than 5% of the site has been excavated to date. It is probable that fresh excavations, were they to be permitted, would uncover valuable materials to shed further light on interpretation of the town’s own history. In previous decades, the Qatari Authorities carried out research which showed the town to have already been in existence at the time of Islam in the VII Century AD. In addition, there is an interesting hint in the book *Geographia* written in the 1st century AD by the great Greek geographer Ptolemy. He recorded in the area the existence of a town called “Qadra” or “Cadara”. However, although apparently extremely likely, there is as yet no conclusive evidence that this town could be identified with that of Al-Zubarah.



Plate 4. Qal’at Al-Murair, State of Qatar. The fort after the preservation works carried out by Qatari Authorities (© Qatar Museums Authority).

An account written by Hamad bin Nayem bin Sultan Al-Muraikhi Al-Zubari Al-Qatari in April 1638 AD, describes Al-Zubarah as a harbour of 150 houses and 700 inhabitants, owning several boats and livestock, with multicultural inhabitants, such as “Naim, Musallem, Twar, Hawajer, Bedouins, Lisaud, freemen and slaves”. Then, by 1765 AD, the Al-Khalifa and Al-Jalahima groups, both of the Al-Utubi tribe, moved from their homeland of Kuwait to Bahrain in search of pearls. At that time, the Persians already occupied Bahrain so the Al-Utubi moved to Al-Zubarah town, already in existence. The Sheikh ruling the settlement agreed to let the tribe settle inside the town in exchange for paying ordinary taxes for trading. However, they refused and built their own fort, Qal’at Al-Murair (see Plate 4), about two kilometres south of Al-Zubarah town. Later, the Al-Utubi provided their fort with additional walls and they built a seawater canal used as harbour connecting Qal’at Al-Murair and Al-Zubarah town with the sea. This canal, still partially visible, represents an outstanding example of early engineering ability in the Arabian Peninsula.

By the end of the XVIII century AD, both Al-Zubarah town and Qal’at Al-Murair became flourishing centres of trade and pearling, and were recognized points of reference for the entire Arabian Gulf. This power and prominence made the towns targets of invasions from Bahrain, which was still under Persian control. In response, the Al-Khalifa invaded Bahrain in 1783 AD, claiming sovereignty over the island. Thereafter, little by little, the Al-Khalifa migrated to Bahrain where they established a sheikhdom that still endures today. Unfortunately, this migration caused the gradual decline both of Al-Zubarah town and Qal’at Al-Murair, and, finally, their complete abandonment.



Plate 5. Old Al-Zubarah town, State of Qatar. Ruins of an old “madabe” or “mudbasa” used to produce “debis”, which is a date-based syrup and part of the traditional diet (© Qatar Museums Authority).

Within the archaeological area of Al-Zubarah town, besides ruins of houses and public buildings, many evidences of “madabes” can be found. These structures were used to produce “debis” (‘dibbs’ or ‘tibbs’), which is a date-based syrup and part of a traditional Gulf diet. The rooms have parallel channels 10 cm deep into the floor which are linked together by a perpendicular canal near the entrance that funnels into an underground pot in the corner (Plate 5). During the process of making “debis”, palm fronds were laid on the channels, creating a smooth, flat base. The dates were then put in sacks made of palm leaves and laid on top of each other in piles that could reach two metres high. The weight of the upper sacks thus squashed the dates in the lower sacks and their thick juice ran into the channels of the so-called ‘mudbasa’ and eventually into the sunken collecting pot.

In the vicinity of Al-Zubarah town lies Qal’at Al-Zubarah (see Plate 6), a well-preserved typical Arab fort. H.H. Sheikh Abdullah bin Qassim Al-Thani, a member of the current Ruling Family of Qatar, built this in 1938 AD on the ruins of an older castle that had been destroyed. The soldiers used the sturdy fort as a station until the mid 1980s AD, when it was turned into a museum to display some of the finds uncovered in the nearby Al-Zubarah town.

The Qal’at Al-Zubarah is a regular square courtyard with one-metre thick massive walls on each side. Three of the corners have large circular towers topped with Qatari-style battlements. The fourth contains a striking rectangular tower with traditional triangular-based ledges with slits called machicolations that - in the event of an attack - were used to shoot over the heads of the enemies.

Eight rooms on the ground floor, originally used to accommodate soldiers, now house exhibitions of pottery and archaeological findings from the neighbouring Al-Zubarah town, show-casing coins from West Africa, pieces of pottery (see Plates 7 and 8), Chinese porcelain, Thai celadon and jewellery made with semi-precious stones.



Plate 6. Qal'at Al-Zubarah, State of Qatar. The fort after the preservation works carried out by Qatari Authorities (© UNESCO; photo by Guido Licciardi).

The ground floor also features “iwan”, which are small porticos overlooking the courtyard through square arcades. In the courtyard, there is a four-pillar canopy covering a 15-metre deep well that served as a water supply for the soldiers. The second floor of the fort consists of a wide promenade with a few rooms ‘tucked’ inside the corner towers. The walls of these rooms, and the promenade, feature groups of gunfire holes angled in different directions thereby allowing the soldiers to shoot enemies attacking from all sides. Wooden rung stairs that are still in the towers enabled the men to climb up to the roof and patrol the surrounding area with a clear all-round view.

Al-Zubarah town, Qal'at Al-Murair and Qal'at Al-Zubarah feature the traditional Qatari technique of making buildings. The walls, which are thick to isolate the heat and keep the buildings cool, were built by overlapping raw pieces of coral rock and limestone, joining them with mud mortar and covering them with gypsum-based plaster. This plaster, often decorated with geometric patterns, protected the walls from natural elements such as wind and humidity.

The roof is made of four layers. The first consists of a series of “danchal” wood poles, often protected by bitumen. The second is a layer of “basgijl”, which are woven bamboo strips. A close net of mangrove branches makes up the third layer, and the roof is then finished with a layer of compressed mud, protecting the buildings from the blazing sun during the hot season. One of the most interesting features of this technique is the building of architraves using poles of “danchal” wood held together with a rope, to increase the adherence of the mud mortar and plaster.

5.3. PROTECTION AND MANAGEMENT PROVIDED BY THE MEMBER STATE

The archaeological site of Al-Zubarah town, Qal'at Al-Murair and Qal'at Al-Zubarah belong to the State of Qatar and their legal protection is provided on the base of the Law No. 2 promulgated in 1980. However, their conservation state and management are cause for concern and require the introduction of modern techniques and greater protection.

The archaeological site of Al-Zubarah town consists of long walls and two excavated areas. The first area was excavated between 1982 AD and 1984 AD. Excavation on the second one began in 2002 and is still continuing today. Less than 5% of the town has been researched and excavated. Some of the artifacts uncovered during the first season are on display in the Al-Zubarah fort. However, there needs to be an improvement in preservation of those structures uncovered thus far. The area is only partially fenced with a net, and access remains easy; until recently people could even drive over the archaeological ruins with 4WD vehicles (see Plate 9). There is no proper surveillance and the site is greatly threatened by illegal excavations. While the Local Authorities are planning new excavations, securing the site should undoubtedly be the immediately priority.



Plates 7 and 8. Old Al-Zubarah town, State of Qatar. Old vases found during the excavations carried out by the Qatari Authorities (© Qatar Museums Authority).



Plate 9. Old Al-Zubarah town, State of Qatar. Improper use of the archaeological area: tyre marks of 4WD vehicles (© UNESCO; photo by Guido Licciardi).

As for Qal'at Murair, the conservation status of this site is much better than for the preceding site. Appropriate preservation works were carried out when the structures were excavated. However, as at Al-Zubarah town, protection could be improved upon: the area is only partially fenced with netting, and the gates are always open. Again there is insufficient surveillance and people formerly drove over the ruins with 4WD vehicles.

Qal'at Al-Zubarah, on the other hand, is very well-managed. There is a keeper living beside the fort and the conservation state of the structure is extremely good indeed. The exhibits housed on the ground floor of the fort are very well done, but they need to be better protected from breakages by handling or even from theft (see Plate 10). The number of visitors to this site is apparently increasing.

Finally, the whole site may be under threat from a planned highway connecting the State of Qatar to Bahrain. The proposed infrastructure would link the southern side of the site and could catalyse speculative development in the area. Some companies are already planning to establish new residential and commercial quarters in the area.

UNESCO recommends the Member State improves the protection of the site, carrying out extensive preservation works in the application of the Charter of Venice and the Nara Document on Authenticity. Moreover, UNESCO suggests the State of Qatar produces and implement a professional management plan for the whole site. UNESCO is ready to assist the Member State in reaching these objectives, if required, and would happily recommend qualified expertise.



Plate 10. Qal'at Al-Zubarah, State of Qatar. Museum exhibit of finds uncovered in the old Al-Zubarah town. The conservation, protection and display of these finds needs to be improved (© UNESCO; photo by Guido Licciardi).



5.4. JUSTIFICATION FOR OUTSTANDING UNIVERSAL VALUE

Considering the criteria expressed in section II D, article 77 of the Convention concerning the protection of the World Cultural and Natural Heritage, the proposed cultural World Heritage Site of “archaeological site of Al-Zubarah town and its cultural landscape” could:

- (i) (ii) (iii) (iv) (v) (vi) (vii) (viii) (ix) (x)

(ii) exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town planning or landscape design;

The property “archaeological site of Al-Zubarah town and its cultural landscape” is an outstanding example of socio-economic transformation of land and demonstrates how the State of Qatar was a major marshalling yard in the Arabian Gulf, with trading connections linking China, West Africa, Iraq, Persia, and the West. Moreover, the old Al-Zubarah town shows how an Arabian civilization dealt with urban settlements. The *forma urbis* shows a remarkable capability of urban planning, with a grid known as “gridiron plan”, a type of plan theorized by the Greek Hippodamus of Miletus, in which streets run at right angles to each other.

(iii) bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared

The whole site of “archaeological site of Al-Zubarah town and its cultural landscape” represents a remarkable example of harmonious coexistence of different cultures and ethnic groups from the Arabian Peninsula. When the site was inhabited, it was a centre where people from all around the Gulf lived, exchanging culture, traditions and running a self-sustained economy based on trading connections.

(iv) be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;

The site “archaeological site of Al-Zubarah town and its cultural landscape” features the Qatari traditional building technique, whose examples are endangered by the fast urban development of the country. The walls, which are thick to isolate the heat and keep the buildings cool, were built by overlapping raw pieces of coral rock and limestone, joining them with mud mortar and covering them with gypsum-based plaster. This plaster, often decorated with geometric patterns, protected the walls from natural elements such as wind and humidity. The roof is made of four layers. The first consists of a series of “danchal” wood poles, often protected by bitumen. The second is a layer of “basgijl,” which are woven bamboo strips. A close net of mangrove branches makes up the third layer, and the roof is then finished with a layer of compressed mud, protecting the buildings from the blazing sun during the hot seasons.

(v) be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change;

The whole site of “archaeological site of Al-Zubarah town and its cultural landscape” illustrates a sustainable way of land use and is representative of traditional Gulf cultures. Ruins of “madabes” could be found in the site. They are rooms used to produce “debis”, which is a date-based syrup at the base of a traditional Gulf diet. These structures are exceptional in demonstrating unique interaction of humans with the environment. The series of old wells surrounding the site shows a sustainable way of using underground water. Moreover, the forts within the site show a traditional way of patrolling the coast. This comprehensive cultural landscape is endangered and would be vulnerable to damaging impact from the planned highway connecting the State of Qatar to Bahrain. This infrastructure would link the southern side of the site and could catalyse speculative but damaging urban development in the area.

5.5. AUTHENTICITY AND INTEGRITY

The proposed site “archaeological site of Al-Zubarah town and its cultural landscape” respects the attribute of authenticity, as stated by the section II D, articles 79-86 of the Operational Guidelines of the Convention concerning the protection of the World Cultural and Natural Heritage. The few preservation works carried out by the Qatari Authorities respected the principles and the ethic expressed by the Charter of Venice adopted in 1964, and the Nara Document on Authenticity adopted in 1994. These works respected traditional techniques and materials. In addition, the site preserves exceptional authentic archaeological material that remains to be uncovered, less than 5% of the whole area having been excavated to date.

With reference to the attribute of integrity, as stated by the section II d, articles 87-85 of the Operational Guidelines of the Convention concerning the protection of the World Cultural and Natural Heritage, most of the structures are still covered by a protective layer of sand. It is well known that the worst decay affects the ruins when they are exposed to the elements without adequate maintenance, but since most of the structures in the site are covered their integrity would still be largely preserved. However, there is no proper surveillance and unfortunately the site is threatened by illegal excavations (treasure-hunting). Local Authorities are planning new excavations but the comprehensive preservation of the site should be the immediate priority.

5.6. COMPARISON WITH OTHER SIMILAR PROPERTIES

The proposed site “archaeological site of Al-Zubarah town and its cultural landscape” could be compared with the World Heritage Site of Qal’at Al-Bahrain (Bahrain), an ancient harbour that was the capital of the ancient Dilmun civilization. These two settlements were linked by close trading connections.

According to UNESCO, Qal’at al-Bahrain is a typical tell - an artificial mound created by many successive layers of human occupation. The strata of the 300x600-metre tell testify to continuous human presence from about 2300 B.C. to the 16th century AD. About 25% of the site has been excavated, revealing structures of different types: residential, public, commercial, religious and military. These testify to the importance of the site, a trading port, over the centuries. On the top of the 12m high mound there is the impressive Portuguese fort, which gave the whole site its name, qal’a, meaning fort. The site was the capital of the Dilmun, one of most important ancient civilizations of the region. It contains the richest remains inventoried of this civilization, which was hitherto only known from written Sumerian references.

5.7. BIBLIOGRAPHY CONCERNING THE SITE AND ITS CONTEXT

- Al-Baghdadi, T. *Islamic Art Collection of Sheikh Faisal bin Qassim bin Faisal Al-Thani*. Doha: Sheikh Faisal bin Qassim bin Faisal Al-Thani Museum, 2002.
- Al-Kulaifi, M. J. *The traditional Architecture in Qatar*. Doha: National Council for Culture, Arts & Heritage, Department of Museums & Antiquities, 2003.
- Al-Kulaifi, M. J. *The architectural Heritage and the Museums in Qatar*. Doha: National Council for Culture, Arts & Heritage, Department of Museums & Antiquities, 2003.
- Al-Kulaifi, M. J. *Architecture of the old palace, Qatar National Museum*. Doha: National Council for Culture, Arts & Heritage, Department of Museums & Antiquities, 2003.
- Batanouny, K.H. *Ecology and Flora of Qatar*. Doha: University of Qatar, 1981.
- Bulloch, J. *A Portrait of Kuwait, Qatar, Bahrain and the U.A.E . Post Falls : Century Publishing, 1984.*
- Collas, E.; Taylor A. *Gulf Landscapes*. Dubai: Motivate Publishing, 1992.
- De Cardi, B.; et al. *Qatar Archaeological Report: Excavations 1973*. Oxford: Oxford University Press, 1978.
- Danson, J. *Spices and frankincense in the Arabian peninsula*. Dubai: Motivate publishing, 1985.
- Ministry of Foreign Affairs. *Qatar*. Doha: Department of Information & Researches, Ministry of Foreign Affairs, 2000.



- Ministry of Foreign Affairs. *Qatar in the history*. Doha: Department of Information & Researches, Ministry of Foreign Affairs, 2005.
- Edens, C. *Chiefdoms and Early States in the Near East*, on "Monographs in World Archaeology", 18. Madison: Prehistory Press, 1994.
- Edens, C. *Khor Ile-Sud, Qatar: The Archaeology of Late Bronze Age Purple Dye Production in the Arabian Gulf*, on "Iraq", 61. London: The British School of Archaeology in Iraq, 1999.
- Fouad, I. *Qatar and the Sea*. Doha: Qatar National Printing Press, 1997.
- Hawkins, D.F. *Primitive Rock Carvings in Qatar*, on "PSAS, Proceedings of the Society of Antiquaries of Scotland", 17. Edinburgh: Society of Antiquaries of Scotland, 1987.
- Jongbloed, M. *The Living Desert*. Dubai: Motivate Publishing, 1988.
- Kapel, H. *Atlas of the Stone-Age Cultures of Qatar*. Moesgard: Jutland Archaeological Society, 1967.
- National Council for Culture, Arts & Heritage, Department of Museums & Antiquities, 2003. *Survey of old buildings in the State of Qatar*. Doha: National Council for Culture, Arts & Heritage, Department of Museums & Antiquities, 2005.
- Taha, M. *Qatar in Prehistoric Times*. Doha : National Council for Culture, Arts & Heritage, Department of Museums & Antiquities, 2003.
- Tixier, J.; et al. *Mission Archéologique Française à Qatar*, Tome 1. Doha: Ministry of Information, 1980.
- Tixier, J.; et al. *Mission Archéologique Française à Qatar*, Tome 2, Doha: Ministry of Information, 1988.
- Vine, P. *The heritage of Qatar*. London: Immel Publishing, 1992.
- Ravindran, C. P. et al. *Qatar*. Doha: GEM Advertising and Publications: 2002.
- Rice, M. *The Archaeology of the Arabian Gulf*. Florence: Routledge, 1994.
- Zahlan, R. S. *The creation of Qatar*. London: Croom Helm, 1978.

6. SITE B. KHOR AL-ADAID NATURAL RESERVE

6.1. GENERAL DATA

Name of property:	Khor Al-Adaid natural reserve
Type:	Natural property
State, Province:	The State of Qatar, South East of Qatar
Geographical coordinates:	N 24° 42' 50"; E 51° 24' 55" (Centre of the proposed World Heritage Site)

6.2. DESCRIPTION

The Khor Al-Adaid area, also known regionally as the 'Inland Sea', is located in the south-east of the State of Qatar. The area presents a remarkable landscape formed by a globally unique combination of geological and geomorphological features. These features themselves create a diverse scenery of exceptional, undeveloped natural beauty, in what remains predominantly a 'wilderness area'. Each landscape unit on its own, notably the Arabian Gulf, large mobile dunes, the tidal embayment system, inland and coastal *sabkha*, recently discovered "salt hummocks", stony deserts, elevated mesas and rocky outcrops, as well as the transition between each of them, contribute to the unique character of Qatar's southern territory.



Plate 11. Khor Al-Adaid, State of Qatar. Scenic landscape with sand dunes after seasonal rainfall (© UNESCO; photo by Henning Schwarze).



Plate 12. Khor Al-Adaid, State of Qatar. Campsite (© UNESCO; photo by Henning Schwarze).



Plate 13. Khor Al-Adaid, State of Qatar. Scenic landscape: Small mesa or butte (© UNESCO; photo by Henning Schwarze).



Plate 14. Khor Al-Adaid, State of Qatar. Rocky islet with active Osprey nest (© UNESCO; photo by Henning Schwarze).

This intrinsic attractiveness, of a largely uninhabited area, is added to by the presence of a diverse native terrestrial flora and fauna alongside a varied and sensitive marine ecosystem. The flora present in the area is typical of those habitats represented and supports species and communities mostly widespread on the Arabian Peninsula, yet not occurring in the same combination in any other single locality. The fauna includes several species which are internationally rare and/or threatened, for example Dugong and Turtles, with populations of certain species of bird being of national and regional importance, e.g. long-distance migrant waterfowl winter, and regionally declining breeding species also resident, including Ospreys nesting on islets. Terrestrial areas continue to support Arabian Gazelles, while there are plans to reintroduce Arabian Oryx within the hinterland of Khor al-Adaid.

The Inland Sea is a large tidal embayment with a convoluted shoreline, about 15 kilometres from north to south and up to 12 kilometres from east to west. It is connected to the Arabian Gulf by a relatively narrow, deep channel, about 10 kilometres in length. There is no comparable lagoonal system of this type known elsewhere in the world. The diverse water quality and bottom substrates create an exceptional variety of aquatic and semi-aquatic habitats of considerable importance for some endangered marine species, particularly turtles and dugongs. Furthermore there are several valuable archaeological sites and a diversity of cultural heritage sites to be found in the area. The rocky desert of the Al-Adaid area clearly supported bedouins and their grazing stock. Pre-historical use of the small islands in the khor has also been revealed. Traditional farming and fishing settlements existed in the area, but this lifestyle is now virtually lost. Some grazing of camels still continues.



Plate 15. *Khor Al-Adaid, State of Qatar. Weathered limestone karst* (© UNESCO; photo by Henning Schwarze).



Plate 16. Khor Al-Adaid, State of Qatar. "Salt hummock" (© UNESCO; photo Henning Schwarze).



Plate 17. Khor Al-Adaid, State of Qatar. Osprey chick trapped in fishing lines in its own nest (© UNESCO; photo by Henning Schwarze).



Plate 18. Khor Al-Adaid, State of Qatar. Typical recreational activities during evenings and weekends (© UNESCO; photo by Henning Schwarze).

6.3. PROTECTION AND MANAGEMENT PROVIDED BY THE MEMBER STATE

The area of Khor Al-Adaid has been submitted to the national environmental legislature and approved for protection. Khor Al-Adaid is formally declared as a wetland sanctuary by Ministerial Decree and commercial fishing is banned (although recreational fishing is permitted). Hunting of terrestrial fauna (reptiles, mammals, birds) is not allowed in the area of the reserve and islands and within the borders of villages. In other areas, hunting is allowed during a hunting season. Damage to terrestrial vegetation and 'rawdat' is restricted by law. The Qatari Supreme Council for the Environment and Natural Reserves (SCENR) and its rangers keep a lodge, boats and 4WD vehicles at Khor Al-Adaid, enabling the enforcing authority to prevent damage to the environment and prevent violation of the regulations.

A feasibility study aiming for a potential national park system in the State of Qatar recommended the Khor Al-Adaid area be immediately established as the first national park of the State of Qatar. In this context, the property was called a "world-class" site. Furthermore the area was identified as a wetland of international importance for designation under the Ramsar convention. The Inland Sea region has also been identified as an 'Important Bird Area' by the international non-governmental conservation organisation *Birdlife International*.

At present, the property is basically only affected by recreational activities in the area and there are currently no known development plans. These recreational activities, such as dune-driving, permanent and temporary camping sites, open fires and picnicking, and the resulting litter problem, are mostly limited to the north-eastern part of the property, whereas the south-western part, bordering the Kingdom of Saudi Arabia, which is a restricted area, is unaffected.

There is no existing formal management plan for the area, although SCENR has plans to introduce one. This would plan to be implemented in tandem with the nomination of the property as a World Heritage Site. The objectives of a management plan would obviously aim to limit impacts and threats to the environment, develop sustainable, environmentally-friendly tourism and generate environmental awareness, something to which the site already lends itself.

It is suggested that this property be progressively nominated for a World Heritage Site. The development of community awareness, political support, scientific information, and the management plan can be introduced simultaneously.

6.4. JUSTIFICATION FOR OUTSTANDING UNIVERSAL VALUE

Considering the criteria expressed in the section II D, article 77 of the Convention concerning the protection of the World Cultural and Natural Heritage, the proposed cultural World Heritage Site of "Khor Al-Adaid natural reserve" could:

- (i) (ii) (iii) (iv) (v) (vi) (vii) (viii) (ix) (x)

(vii) contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance.

The area presents a remarkable landscape and offers world-class scenic beauty in both the terrestrial and marine environments. The juxtaposition of large mobile dunes reaching the sea coast, where they spill into the sea, together with the large tidal embayment, in an arid tropical environment, has no known parallel in the Middle East or indeed elsewhere in the world. The terrestrial part comprises perfect barchans and parabolic dunes, cliff-edged *rowdat*, wadis, mesas, limestone outcrops and karstic landforms, *sabkhat* and islands in the embayment system itself. The development of these features is the result of both ancient and present-day geological and climatic processes. The area's attractiveness is added to by the presence of representative floral and faunal communities typical of such habitats on the Arabian Peninsula. The landscape of the marine portion of Khor Al-Adaid, which is represented by the succession of the narrow and deep channel to the large shallow northern basin, is of extraordinary natural beauty. There is no similar large lagoonal system in other countries of the Arabian Gulf. It also presents a range of sensitive habitats: coral communities, rocky substrate with fleshy algae, sandy bottom with seagrass meadows, mussel beds and algal mats.

(viii) be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features.

The area is the scene of outstanding examples of significant on-going processes in the development of landforms. The sabkha flats, salt-crust desert extending from the Khor up to Mesaieed is different from the classic sabkhas, which are composed of calcium carbonate and derived from the sea. That in the Khor Al-Adaid area has built eastward by quartz sand being delivered from dunes by the dominant north-northwest shamal winds. In turn more sand dunes traverse this flat surface into the sea and are thus continually prograding the sabkha in a seaward direction. Nowhere else in the world can this rapid process of *sabkha* formation be observed and studied. There is a finite source of sand, and it is ultimately foreseeable that all the available supplies will have reached the sea and the *sabkha* system will stop expanding. This is why this on-going process is of considerable importance. The pisolites found in the area - coated shells with calcium carbonate precipitation - are the only ones known to exist in a matrix of quartz sand. In addition, the hyper-saline ground waters in the more landward parts of this *sabkha* contain very young primary dolomite crystals. Dolomite is common in ancient limestones, but this is one of the few areas in the world where it is presently actively precipitating beneath the surface around quartz sand. This *sabkha* is therefore a unique place for field studies of the chemical processes that form this mineral, which remains one of the largely unsolved mysteries of modern geology. In addition, the area comprises a large number of recently discovered "salt hummocks". Each of these hummocks or mounds is covered by a salt and gypsum crust, which may represent a former

sabkha surface, corresponding with a former sea level. In this case it would be a strong indication of post-Pleistocene to late Holocene sea level fluctuations. Raised beaches here also attest to this phenomenon. Lastly, the area is the scene of progressive filling-in of the lagoon, as can be inferred from satellite images. Tidal currents keep it open near the entrance today, but if the shallow marine areas farther inland are filled, tidal currents would diminish and the rest of the inland sea might accrete entirely. Examining the satellite images in the vicinity of Umm Said (Mesaieed) shows an area that may, in the past, have been similar to Khor Al-Adaid. The Khor Al-Adaid area provides an instructive outdoor classroom for presently active geological and geomorphological processes, which, indeed, already attract national and international visitors, including both 'sight-seeing' tourists and academics.

Although qualifying for World Heritage Status on the two criteria described above, the area also demonstrates significant, unique, ongoing ecological and biological processes in the evolution and development of terrestrial, coastal and marine ecosystems and their respective communities of plants and animals, which represents a third qualifying criterion by which nominated sites are judged for acceptance onto the World Heritage List.

6.5. AUTHENTICITY AND INTEGRITY

In general, the integrity of the property is demonstrated by the fact, that it includes all the elements of outstanding universal value of the area. Moreover, these are either mostly pristine or otherwise relatively undisturbed. The property is mostly uninhabited and the borderland in the south is remote and rarely visited. All areas essential for maintaining the beauty of the property are included in the property. The nominated area includes most of the mobile dune area, while the entire marine ecosystem is included in the area. Terrestrial habitats, other than sand dunes, include the stony hinterland which contains flora and fauna communities typical of the Arabian Peninsula. Also, the diversity of aquatic and semi-aquatic habitats demonstrates that the ecosystem remains healthy. The size of the property is sufficient for the ongoing functioning of the natural biological system to remain viable and for geological and geomorphological processes to operate undiminished.

6.6. COMPARISON WITH OTHER SIMILAR PROPERTIES

There is no similar assemblage of terrestrial and marine environments, with a large tidal embayment lying within an area of mobile dunes, and of *sabkhat* systems, anywhere else in the world. This assemblage depends on the significant continuation of ongoing processes in the development of landforms. These geological and geomorphological processes cannot be observed and studied in this juxtaposition elsewhere in the world. The interaction of processes and the appearance of *sabkha* ecosystems and salt hummocks were identified by international interdisciplinary experts as an area of global importance (Barth et al. 2005).

The varied ecosystem of Khor Al-Adaid is of international scientific interest and shows remarkable adaptations to the extreme environmental conditions: limited rainfall, very high seawater temperatures in summer (up to and occasionally more than 33°C.), very low sea temperatures in winter and high salinity. The location of Khor Al-Adaid coral communities is predicted by Sheppard (2003) to have the greatest temperature range within the Arabian Gulf. Phillips (2003) adjudged the seagrass beds, extending from Bahrain down the East coast of Qatar and along the coast of the United Arab Emirates, as being one the most productive in the world and as important feeding grounds for endangered species including turtles and dugongs.

A nomination on the Natural World Heritage list would be the first one in the State of Qatar and the second on the Arabian Peninsula. The IUCN Advisory Body evaluated a nomination file for the Hawar archipelago, Kingdom of Bahrain, and called for the establishment of a coastal Natural World Heritage Site with neighbouring countries which have a shared responsibility for the islands and surrounding waters.



The single natural World Heritage Site currently in the Arabian Peninsula is the (Arabian) Oryx Sanctuary, Jiddat al-Harasis/Yalooni, in the Sultanate of Oman. This site is landlocked in the interior of that country and is not ecologically comparable with Khor al-Adaid, Qatar. It was established on account of supporting the only free-living herd of Arabian Oryx within the species' original natural range, and on the presence of representative communities of flora and fauna characteristic of the country's extensive central desert. Having stated this, the possibility of reintroduction of Arabian Oryx to the Khor al-Adaid area, where they once occurred naturally, is currently under investigation.

6.7. BIBLIOGRAPHY CONCERNING THE SITE AND ITS CONTEXT

- Anon. *References Used in the Development of the Tentative List Document, Khor al-Adaid, State of Qatar.*
- Anon. *State of Qatar National Park Feasibility Study, Draft Report.* US: Department of the Interior, National Park Service (for Ministry of Municipal Affairs and Agriculture, Supreme Council for the Environment and Natural Resources & Qatar Liquefied Gas Company Ltd.), unpub., 2000.
- Aspinall, S.J., Al Enzy, K., Barth, H-K.³ & Boer, B. The Terrestrial Biodiversity of the Khor Al-Adaid, State of Qatar. Unpublished report to Cre-ocean, on behalf of SCENR. February 2005.
- Barth, H. K. H. Schwarze, W. Al-Malki, and I. Minz., *Tourism in the Khor Al-Adaid area, State of Qatar.* Report to the Qatar Tourism Authority, unpub., 2005.
- Evans, M.I. *Important Bird Areas in the Middle East.* BirdLife Conservation Series 2, BirdLife International, UK, comp., 1994.
- Phillips, R.C. *Hawar Island Seagrasses.* Report to UNESCO Field Office, Doha, Qatar, January 2003.
- Scott, D.A. (ed.), *A Directory of Wetlands in the Middle East.* IUCN, Gland, Switzerland & IWRB, UK [latter NGO now Wetlands International], 1995.
- Sheppard, C. A. Price, and C. Roberts, *Marine Ecology of the Arabian Region.* London: Academic Press: 359 pp. 1992.
- Sheppard, C. Predicted recurrences of mass coral mortality in the Indian Ocean. *Nature*, 425: 294-297. 2003.

