Al-Ahsa Oasis, an Evolving Cultural Landscape

Kingdom of Saudi Arabia

NOMINATION DOCUMENT FOR THE INSCRIPTION ON THE WORLD HERITAGE LIST

January 2017
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NOMINATION FILE PREPARED BY
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Al-Ahsa Oasis, an Evolving Cultural Landscape
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RC Heritage & IPOGEA

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5.d Existing plans related to municipality and region in which the proposed property is located (e.g., regional or local plan, conservation plan, tourism development plan)  
5.e Property management plan or other management system  
5.f Sources and levels of finance  
5.g Sources of expertise and training in conservation and management techniques  
5.h Visitor facilities and infrastructure  
5.i Policies and programmes related to the presentation and promotion of the property  
5.j Staffing levels and expertise (professional, technical, maintenance)  

6) Monitoring  
6.a Key indicators for measuring state of conservation  
6.b Administrative arrangements for monitoring property  
6.c Results of previous reporting exercises  

7) Documentation  
7.a Photographs and audiovisual image inventory and authorization form  
7.b Texts relating to protective designation, copies of property management plans or documented management systems and extracts of other plans relevant to the property  
7.c Form and date of most recent records or inventory of property  
7.d Address where inventory, records and archives are held  
7.e Bibliography  

8) Contact Information of responsible authorities  
8.a Preparer  
8.b Official Local Institution/Agency  
8.c Other Local Institutions  
8.d Official Web address  

9) Signature on behalf of the State Party  

List of figures  
List of photographies
Since 2008, with the inscription of Al-Hijr Archaeological Site (Madain Salih), the Kingdom of Saudi Arabia has become an active member of the World Heritage community. The relevance of our rich and multiple cultural heritage has been acknowledged with the inclusion of other three major Saudi cultural sites on the UNESCO World Heritage List. The State Party — pursuing its efforts for the preservation and the recognition of its heritage — is honoured to nominate now a fifth site for inscription on the UNESCO World Heritage List.

Al-Ahsa Oasis, an Evolving Cultural Landscape has universal significance as the largest oasis in the world. It is the extraordinary result of the combined action of nature and man throughout the millennia. Human activity, and traditional know-hows, made it possible to profit of the meagre water resources of the Arabian Peninsula and to develop a thriving human settlement based upon the sustainable use of the natural resources.

Located in the Eastern Province of the Kingdom, near to the Gulf shores, Al-Ahsa Oasis, an Evolving Cultural Landscape has not been only preserved as a memory of the past, but has continued to live and to evolve to adapt to the needs of a modern society. Al-Ahsa today is the largest agricultural oasis on the planet with more than two million date palm trees, and in the meantime a large metropolitan area home to almost two million people. The Outstanding Universal Value of this property lies in this extraordinary capacity to evolve and develop while preserving the essence of the oasis concept.

Al-Ahsa Oasis, an Evolving Cultural Landscape site is a unique, extremely fragile and non-renewable resource that depends on the continuous work of man to counter an aggressive and severe natural environment. This nomination document and the accompanying management and technical guidelines aim at ensuring the protection and sustainable development of this precious cultural heritage, promoting its social and economic development to make it a model for the development of sustainable settlement and agricultural practices in the Kingdom and in the region at large.

The nomination to the UNESCO World Heritage List of Al-Ahsa Oasis, an Evolving Cultural Landscape is part of a large revitalization and development project for the Eastern Province of Saudi Arabia launched by the Saudi Government. The preservation and revitalization of the oasis agricultural landscape is accompanied by a vast plan for the expansion of the city of Al-Ahsa towards the Gulf coast to reduce residential and development pressure from agricultural lands.

The Saudi Commission for Tourism and National Heritage is proud to participate — in close partnership with the Municipality of Al-Ahsa, the Governorate of Al-Ahsa and the Agricultural and Water management institutions that daily manage the property — to this national endeavour by placing the preservation of the oasis cultural landscape at the heart of the project.

H.R.H. Prince Sultan b. Salman b. Abdulaziz Al-Saud
President & Chairman of the Board
Saudi Commission for Tourism and National Heritage
Al-Ahsa Oasis, an Evolving Cultural Landscape has been inhabited since the fourth millennium BCE. Al-Ahsa and its oasis have always been one of the major human settlements of the Arabian Peninsula, a halt for caravans crossing the desert and a bridge connecting Arabia with the Gulf and the rest of the old world.

The modern city of Al-Ahsa — resulting from the merging of all the settlements of the area, and notably of the twin cities of Al-Hofuf and Al-Mubarraz — counts today almost 1.5 million people and is one of the largest urban poles of the modern Kingdom of Saudi Arabia. The city has a long-standing tradition of hospitality and has been for centuries a thriving commercial centre exporting agricultural products to the surrounding countries.

The presence of underground water and the development of the oasis explain its origin and development. Al-Ahsa Oasis is the largest oasis of the world and is still the centre and the very reason of the existence of the city.

The daily activity of the Municipality of Al-Ahsa aims at preserving the oasis and at developing its agricultural, economic and cultural significance. The nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape to the UNESCO World Heritage List is both a source of pride for our community and a challenge, reminding us that the long-term sustainable development of the city can only be based upon the knowledge and respect of the oasis cultural landscape. The life of the residents of Al-Ahsa is strongly connected to the oasis and it is our duty to preserve and nurture this link with suitable sustainable development plans.

As mayor of Al-Ahsa, in close cooperation with the Saudi Commission for Tourism and National Heritage and the local community, I am committed to act for its safeguard and development.

H.E. Adel M. Al-Mulhim
Mayor of Al-Ahsa
1) IDENTIFICATION OF THE PROPERTY

1.a Country (and State Party if different)
1.b State, Province or Region
1.c Name of Property
1.d Geographical coordinates to the nearest second
1.e Maps and plans, showing the boundaries of the nominated property and buffer zone
   - Twelve property components
   - Seven buffer zones
   - Tables showing names of the components, region, coordinates, and areas.
1.f Area of nominated property (ha.) and proposed buffer zone (ha.)
1.a. Country (and State Party if different)

Kingdom of Saudi Arabia

The Kingdom of Saudi Arabia constitutes the bulk of the Arabic Peninsula, and covers an area of approximately 2,150,000 km². The country is geographically the second-largest state in the Arab world.

Saudi Arabia is bordered by Jordan and Iraq to the north, Kuwait to the northeast, Qatar, Bahrain, and the United Arab Emirates to the east, Oman to the southeast, and Yemen to the south.

It is the only country of the peninsula with both a Red Sea coast (to the west) and a Gulf coast (to the east).
1.b. State, Province or Region

Eastern Province
Al-Ahsa Governorate

Eastern Province
The Kingdom of Saudi Arabia is divided into 13 administrative Provinces (Emirates), each region including a number of governorates and centres.

The Eastern Province is the largest in Saudi Arabia with a surface of 672,522 km², and is divided into 11 Governorates. The province counts some 4.1 million inhabitants (29% of foreigners), about 15% of the Saudi population.

The capital of the Eastern Province is the city of Dammam, but in this region, are located many other large and medium cities like Al-Ahsa, Al-Jubail, Al-Khobar and Al-Qatif.

Al-Ahsa Governorate
Al-Ahsa is a Governorate of the Eastern Province, though it has its own annual budget and its own local government — unlike the other governorates of the region. It includes the Oasis of Al-Ahsa and the two twin cities of Al-Hofuf and Al-Mubarraz.

Al-Ahsa Governorate area is about 534,000 km², representing 24% of the total area of the Kingdom’s total area and 67% of the Eastern Province, with an estimated population of 1,500,000 people.

[Fig. 3] Administrative Provinces of Saudi Arabia – base-map.histgeo.ac-aix-marseille.fr, RCHeritage, 2016
1.) Identification

Kingdom of Saudi Arabia
January 2017

[Fig. 4] Topographic map of the Eastern Province, SCTH, 2015
Al-Ahsa Oasis, an Evolving Cultural Landscape

[Fig. 5] Al-Ahsa Governorate (sub-region), RC Heritage, 2015
### Table 1

<table>
<thead>
<tr>
<th>Id n°</th>
<th>Name of the component part</th>
<th>Region(s) / District(s)</th>
<th>Coordinates of the Central Point (CP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NP-001</td>
<td>Eastern Oasis</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipalities of Al-Hofuf, Al-Mubarraz, Al-Wazziyah, and Al-`Umran</td>
<td>Lat.: 25°24'07.80°N  Long.: 49°37'50.05°E</td>
</tr>
<tr>
<td>NP-003</td>
<td>As-Seef</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipality of Al-Hofuf</td>
<td>Lat.: 25°22'42.67°N  Long.: 49°34'32.57°E</td>
</tr>
<tr>
<td>NP-004</td>
<td>Qasr Ibrahim</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipality of Al-Hofuf</td>
<td>Lat.: 25°22'44.12°N  Long.: 49°35'12.51°E</td>
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<td>NP-005</td>
<td>Suq al-Qaysariyah</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipality of Al-Hofuf</td>
<td>Lat.: 25°22'35.08°N  Long.: 49°35'20.93°E</td>
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<td>NP-006</td>
<td>Qasr Khuzam</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipality of Al-Hofuf</td>
<td>Lat.: 25°22'04.89°N  Long.: 49°34'36.90°E</td>
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<tr>
<td>NP-007</td>
<td>Qasr Sahood</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipality of Al-Mubarraz</td>
<td>Lat.: 25°24'50.88°N  Long.: 49°35'00.12°E</td>
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<tr>
<td>NP-008</td>
<td>Jawatha archaeological site</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipality of Al-Mubarraz</td>
<td>Lat.: 25°28'49.40°N  Long.: 49°40'13.75°E</td>
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<td>NP-009</td>
<td>Jawatha Mosque</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipality of Al-Mubarraz</td>
<td>Lat.: 25°28'11.31°N  Long.: 49°40'42.53°E</td>
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<td>NP-010</td>
<td>Al-`Oyun village</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipality of Al-`Oyun</td>
<td>Lat.: 25°36'14.70°N  Long.: 49°34'14.97°E</td>
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<tr>
<td>NP-011</td>
<td>`Ain Qinas archaeological site</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipality of Al-`Oyun</td>
<td>Lat.: 25°35'32.41°N  Long.: 49°35'59.85°E</td>
</tr>
<tr>
<td>NP-012</td>
<td>Al-Asfar Lake</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipality of Al-`Umran</td>
<td>Lat.: 25°31'54.16°N  Long.: 49°47'39.69°E</td>
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<tr>
<th>Sector</th>
<th>A</th>
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<td>ii</td>
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<td>001 002 003 004 005 006 007 008 009 010 011 012</td>
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<td></td>
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1.c) Name of Property

The property nominated for inscription on the List of Word Heritage Sites will be known as:

_Al-Ahsa Oasis, an Evolving Cultural Landscape_

1.d) Geographical coordinates to the nearest second

1.d.1) Table I

Table showing the name of each component part, its region and/or nearest town, and the coordinates of its centre point (Cf. left/previous page).

The second table below presents the sub-divisions in sectors, buffer zones, and nominated components.

1.e) Maps and plans, showing the boundaries of the nominated property and buffer zone

In the following pages are presented the maps and satellite photos precisely locating _Al-Ahsa Oasis, an Evolving Cultural Landscape:_

i) Topographic (geo-referenced) map

ii) Location Map

iii) Plans and maps of the property

**NB:** On the 19 maps showing the nominated property, the coordinates are presented as below:

- The centres of the twelve components of the nominated property (NP-001 to NP-012) are named: CP-001, CP-002, and so on, until CP-012.

- The North, West, South, East-most points of the twelve components of the nominated property are named: N-001, W-001, S-001, and E-001, and so on, until E-012.

- The North, West, South, East-most points of the seven buffer zones (BZ-i to BZ-vii) are named: N-i, W-i, S-i, and E-i, and so on, until E-vii.
1.) Identification

Location of Al-Ahsa Oasis, an Evolving Cultural Landscape nominated site

[Cf. original ASD maps in the next four pages]
1.) Identification

(Fig 8) Topographic Plan of Al-Ahsa (Al-Uyun sector), scale 1:50,000, Serie 4925-13, Ministry of Petroleum and Mineral Resources, Aerial Survey Department (A.S.D.), First Edition, 1983
Al-Ahsa Oasis, an Evolving Cultural Landscape

[Fig. 9] Topographic Plan of Al-Ahsa (Ayn Umm Hishah sector, aka Al-Asfar Lake), scale 1:50,000, Serie 4925-12, Ministry of Petroleum and Mineral Resources, Aerial Survey Department (A.S.D.), First Edition, 1983.
1.) IDENTIFICATION


Kingdom of Saudi Arabia
January 2017
Al-Ahsa Oasis, an Evolving Cultural Landscape

1.) Identification

[Fig. 12] Schematic plan showing Sectors A-C, Buffer Zones i-vii, and Nominated Property components 001-012, RC Heritage, 2016
Al-Ahsa Oasis, an Evolving Cultural Landscape

[Fig. 13] General map: Sectors, Buffer Zones, Nominated Property components, RC Heritage (satellite image, Google Earth Pro), 2016
1.) Identification

[Fig. 14] The seven buffer zones (i-vii), RC Heritage, 2016
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[Fig. 15] Buffer-Zone-i, RC Heritage, 2016
1.) Identification

[Fig. 16] Buffer-Zone-ii, RC Heritage, 2016
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[Fig. 17] Buffer-Zone-iii, RC Heritage, 2016
[Fig. 18] Buffer-Zone iv, RC Heritage, 2016
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[Fig. 19] Buffer-Zone-v, RC Heritage, 2016
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1.) Identification

[Fig. 20] Buffer-Zone-vi, RC Heritage, 2016
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[Fig. 21] Buffer-Zone-vii, RC Heritage, 2016
1.) Identification

[Fig. 22] Nominated Property: the twelve components (001-012), RC Heritage, 2016
Al-Ahsa Oasis, an Evolving Cultural Landscape

[Fig. 23] Component NP-001, Eastern Oasis, RC Heritage, 2016
1.) Identification

Component NP-002, Northern Oasis, RC Heritage, 2016
Al-Ahsa Oasis, an Evolving Cultural Landscape

[Fig. 25] Component NP-003, As-Seef, RC Heritage, 2016
1.) Identification

[Fig. 26] Component
NP-004, Qasr Ibrahim,
RC Heritage,
2016
Al-Ahsa Oasis, an Evolving Cultural Landscape

[Fig. 27] Component NP-005, Suq al-Qaysariyah, RC Heritage, 2016
1.) Identification

Fig. 28: Component NP-006, Qasr Khuzam, RC Heritage, 2016
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[Fig. 29] Component NP-007, Qasr Sahood, RC Heritage, 2016
1.) Identification

[Fig. 30] Component NP-008, Jawatha archaeological site, RC Heritage, 2016
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Fig. 31 Component NP-009, Jawatha Mosque, RC Heritage, 2016
1.) IDENTIFICATION

[Fig. 32] Component NP-010, Al-'Oyun village, RC Heritage, 2016
Al-Ahsa Oasis, an Evolving Cultural Landscape

[Fig. 33] Component NP-011, ‘Ain Qinas archaeological site, RC Heritage, 2016
1.) Identification

[Fig. 34] Component NP-012: Al-Asfar Lake, RC Heritage, 2016
Al-Ahsa Oasis, an Evolving Cultural Landscape

[Fig. 35] Ikonos Satellite image, 2014, SCTH-NUH (extract from original A0 map, 1:50,000 scale), RC Heritage, 2016
1.f) Area of nominated property (ha.) and proposed buffer zone (ha.)

The nominated property is made of twelve separate components covering a total area of 8,544 hectares.

The buffer zone is made of seven separate zones covering a total area of 21,556 hectares.

The total area of the Serial Site is: 30,100 ha.

1.f.i) Table II
Table showing: name of the component part, region, coordinates of the centres, and areas of the separate nominated components and the buffer zones.

1.f.ii) Table III (a-d)
Table(s) showing: name of the component part, region, coordinates of the centres, coordinates of the separate nominated components, and coordinates of the buffer zones.
### Table II

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<th>Id n°</th>
<th>Name of the component part</th>
<th>Region(s) / District(s)</th>
<th>Coordinates of the Central Point (CP-)</th>
<th>Area of the Nominated Components of the Property (ha)</th>
<th>Area of the Buffer Zone (ha)</th>
<th>Id n° of the Buffer Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>NP-001</td>
<td>Eastern Oasis</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipalities of Al-Hofuf, Al-Mubarraz, Al-Wazziyah, and Al-`Umran</td>
<td>Lat.: 25°24’07.80”N Long.: 49°37’50.05”E</td>
<td>3,885 ha</td>
<td>5,825 ha</td>
<td>BZ-i</td>
</tr>
<tr>
<td>NP-002</td>
<td>Northern Oasis</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipalities of Al-Mubarraz, Al-Wazziyah</td>
<td>Lat.: 25°29’10.68”N Long.: 49°35’25.93”E</td>
<td>2,010 ha</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NP-003</td>
<td>As-Seef</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipality of Al-Hofuf</td>
<td>Lat.: 25°22’42.67”N Long.: 49°34’32.57”E</td>
<td>108 ha</td>
<td></td>
<td></td>
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<tr>
<td>NP-004</td>
<td>Qasr Ibrahim</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipality of Al-Hofuf</td>
<td>Lat.: 25°22’44.12”N Long.: 49°35’12.51”E</td>
<td>1.97 ha</td>
<td>226.70 ha</td>
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<td>NP-005</td>
<td>Suq al-Qaysariyah</td>
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<td>Lat.: 25°22’35.08”N Long.: 49°35’20.93”E</td>
<td>0.93 ha</td>
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<td>NP-006</td>
<td>Qasr Khuzam</td>
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<td>Lat.: 25°22’04.89”N Long.: 49°34’36.90”E</td>
<td>0.67 ha</td>
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<td>NP-007</td>
<td>Qasr Sahood</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipality of Al-Mubarraz</td>
<td>Lat.: 25°24’50.88”N Long.: 49°35’00.12”E</td>
<td>1.20 ha</td>
<td>14.80 ha</td>
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<tr>
<td>NP-008</td>
<td>Jawatha archaeological site</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipality of Al-Mubarraz</td>
<td>Lat.: 25°28’49.40”N Long.: 49°40’42.53”E</td>
<td>284 ha</td>
<td>4,462 ha (342+4,120)</td>
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<tr>
<td>NP-009</td>
<td>Jawatha Mosque</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipality of Al-Mubarraz</td>
<td>Lat.: 25°28’11.31”N Long.: 49°40’13.75”E</td>
<td>0.08 ha</td>
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<td>NP-010</td>
<td>Al-`Oyun village</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipality of Al-`Oyun</td>
<td>Lat.: 25°36’14.70”N Long.: 49°34’14.97”E</td>
<td>63.35 ha</td>
<td>191 ha</td>
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<tr>
<td>NP-011</td>
<td>`Ain Qinas archaeological site</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipality of Al-`Oyun</td>
<td>Lat.: 25°35’32.41”N Long.: 49°35’59.85”E</td>
<td>18.80 ha</td>
<td>56.50 ha</td>
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</tr>
<tr>
<td>NP-012</td>
<td>Al-Asfar Lake</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipality of Al-`Umran</td>
<td>Lat.: 25°31’54.16”N Long.: 49°47’39.69”E</td>
<td>2,170 ha</td>
<td>10,780 ha</td>
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<td><strong>Total area (in hectares)</strong></td>
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<td></td>
<td></td>
<td><strong>8,544 ha</strong></td>
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### Table III.a

<table>
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<th>Id n°</th>
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<th>Coordinates of the Central Point</th>
<th>Coordinates of the Nominated Components of the Property</th>
<th>Coordinates of the Buffer Zone</th>
<th>Id n° of the Buffer Zone</th>
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### Table III.b

<table>
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<th>Coordinates of the Nominated Components of the Property</th>
<th>Coordinates of the Buffer Zone</th>
<th>Id n° of the Buffer Zone</th>
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<tr>
<td>NP-003</td>
<td>As-Seef</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipality of Al-Hofuf</td>
<td>CP-003: Lat.: 25°22'42.67&quot;N Long.: 49°34'32.57&quot;E</td>
<td>N-003: 25°23'04&quot;N 49°35'01&quot;E W-003: 25°22'50&quot;N 49°34'07&quot;E S-003: 25°22'13&quot;N 49°34'23&quot;E E-003: 25°22'56&quot;N 49°35'05&quot;E</td>
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<td>NP-005</td>
<td>Suq al-Qaysariyah</td>
<td>Eastern Province, Al-Ahsa Governorate, Municipality of Al-Hofuf</td>
<td>CP-005: Lat.: 25°22'35.08&quot;N Long.: 49°35'20.93&quot;E</td>
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<td></td>
<td>S-ii: 25°22'00&quot;N 49°34'33&quot;E E-ii: 25°22'29&quot;N 49°35'27&quot;E</td>
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<tr>
<td>NP-006</td>
<td>Qasr Khuzam</td>
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### 1. Identification

#### Table III.c

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<th>Region(s) / District(s)</th>
<th>Coordinates of the Central Point</th>
<th>Coordinates of the Nominated Components of the Property</th>
<th>Coordinates of the Buffer Zone</th>
<th>Id n° of the Buffer Zone</th>
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</thead>
<tbody>
<tr>
<td>Id n°</td>
<td>Name of the component part</td>
<td>Region(s) / District(s)</td>
<td>Coordinates of the Central Point</td>
<td>Coordinates of the Nominated Components of the Property</td>
<td>Coordinates of the Buffer Zone</td>
<td>Id n° of the Buffer Zone</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td>W-010: 25°35'36&quot;N 49°35'51&quot;E</td>
<td>W-v: 25°36'22&quot;N 49°33'55&quot;E</td>
<td></td>
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<tr>
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<td></td>
<td>S-010: 25°35'44&quot;N 49°34'07&quot;E</td>
<td>S-v: 25°35'44&quot;N 49°34'41&quot;E</td>
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<td>E-010: 25°36'19&quot;N 49°34'49&quot;E</td>
<td>E-v: 25°36'05&quot;N 49°35'12&quot;E</td>
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<td>E-012: 25°31'04&quot;N 49°49'31&quot;E</td>
<td>E-vii: 25°32'18&quot;N 49°53'15&quot;E</td>
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</table>
2) **Description**

2.a) Description of property
   i.) Introduction
   ii.) Al-Ahsa Oasis
   iii.) The Nominated Property
   iv.) The Buffer zone

2.b) History and development
   i.) Creation and Evolution of the Oasis System
   ii.) Evolution of the Oasis of Al-Ahsa
   iii.) History of Al-Ahsa Oasis after Islam
   iv.) Evolution of Cities and Villages in the Oasis
Al-Ahsa Oasis, an Evolving Cultural Landscape

Nomination File Section two
2.a) Description

2.a) Description of property

2.b) History and development

i.) Introduction
   i.1) Geography, Geology and Climate
      i.1.1) Geographic Introduction
      i.1.2) Geologic Introduction
      i.1.3) Climate and Rainfall

   i.2) Topography
      i.2.1) Saudi Arabia and the Eastern Province
      i.2.2) The topography of Al-Ahsa Region

   i.3) Conceptual Presentation: Evolving Cultural Landscape
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      i.3.2) Oases and Sustainability
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ii.) Al-Ahsa Oasis
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ii.5) The Ecosystem and the Origin of the Oasis
   ii.5.1) The Sand Desert
   ii.5.2) Lagoons and Seacoast
   ii.5.3) The Rocky Desert
   ii.5.4) The Ecotone of Al-Ahsa

iii.) The Nominated Property
   iii.1) Presentation
   iii.2) Description of the twelve Components’ Boundaries
   iii.3) Natural Features
      iii.3.1) Springs
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iv.) The Buffer zone
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      iv.2.1) Sector “A”
      iv.2.2) Sector “B”
      iv.2.3) Sector “C”
   iv.3) The Larger Regional Setting of the Property
2.a) Description of Property

i.) Introduction

i.1) Geography, geology and climate

i.1.1) Geographic Introduction

The Arabian Peninsula is bounded on the West by the Gulf of Aqaba and the Red Sea, on the South by the Gulf of Aden and the Arabian Sea, and on the East by the Gulf of Oman and the Arabian Gulf. The subcontinent measures 2,100 km from north to south along the Red Sea coast, and nearly 2,000 km across at its maximum width from the westernmost region of Yemen to the easternmost point in Oman. Saudi Arabia occupies about two-third of the Peninsula.

The Peninsula lies on a tectonic plate that detached from Africa in the Miocene and still moves eastward of about 1.6 cm per year. The littoral is characterized by tropical and sub-tropical ecosystems, while the basin-shaped interior is dominated by alternating steppe and desert landscapes. The peninsula can be subdivided into different zones:

1. Central plateau, the Najd. More than 760 m high, it extends across much of the Arabian Peninsula. It slopes eastwards from the massive, rifted escarpment along the coast of the Red Sea, to the shallow waters of the Gulf. The interior is characterised by cuestas and valleys, drained by a system of wadis.

2. A crescent of sand and gravel deserts east of the central plateau: the Nefud in the North, which is stony; the sandy Rub’ Al-Khali or Great Arabian Desert in the south; between them, the Dahna.

3. The Hejaz, ranges of mountains, paralleling the Red Sea coast on the West but also at the south-eastern end of the peninsula (Oman). The mountains show a steady increase in altitude westward as they get nearer to Yemen where are located the highest peaks and ranges.

4. Stretches of dry or marshy coastland with coral reefs on the Red Sea side (Tihamah).

5. Oases and marshy coastland in Eastern Arabia on the Gulf.
i.1.2) Geologic Introduction

The Arabian Peninsula represents a single uniform block of ancient rocks known as the Arabian Shield, separated from the larger mass of East Africa to the West and the folded system of the Iranian highlands to the East. Morphologically, the block is made up of pre-Cambrian, metamorphosed rock: highly deformed sediments. More recent sedimentary rocks accumulated over the block, particularly in the eastern part of the peninsula. Related to this structural unity of the region is its almost uniform climatic pattern due to this morphology. In all interior area, ultra-dry climates normally prevail. Extremely hot and humid conditions are typical of all the coastal lands. Meteooric precipitations are present in the highlands of Yemen and in the Oman mountains, nowhere else does the average annual rainfall exceed 200 mm.

The structural and climatic unity is not matched by uniformity of landscapes. Arabia surprises for its environmental variety and its scenery. Mountain peaks, plateaus engraved by the beds of ancient rivers, rocks and pinnacles displaying spectacular erosions, encircle vast tracts of sand desert stretching to the coasts, where dunes alignments are the backdrops of lagoons with a tropical vegetation. The sand desert of the Nefud extends for 74,000 km² in the North East at an altitude of about 1,000 m. It is characterized by sand dunes 100 m high, reddish in colour. The Southern part of the Arabian Shield is occupied by the largest sand desert in the world, having an extension of about 1,000 x 500 km. It reaches an altitude of around 600 m. with very fine and soft sands, proceeding to the East the altitude decreases to about 300 m and the soil, still sandy, is more compact. This desert, impracticable and hostile, is called, for this reason, “the Empty Quarter” (Al-Rub’ Al-Khali).

i.1.3) Climate and Rainfall

The mountains, plains and sands of Arabia are a dry landscape today as no river surfaces in the entire Arabian Peninsula. However, its landscape is dissected by numerous dry riverbeds or wadis, that flow after heavy seasonal rain. These riverbeds are more deeply cut than could be accounted for by today’s rainfall, and are the product of a wetter climate in the past. The water of Eastern Arabia today comes principally from springs in the oasis of Al-Ahsa, Al-Qatif and Bahrain. This water is held under pressure in the rock and comes to the surface in the oasis.
through cracks and faults in the rock. In the springs of Al-Ahsa, the water is warm (29-39 °C), and radiocarbon data show that it fell as rain between 24,000 and 30,000 years ago in an earlier wet period. Al-Ahsa Oasis is situated within the subtropical arid zones of the northern hemisphere, extending from Northern Africa through the Arabian Peninsula, Iran and Afghanistan to Mongolia. This aridity of climate, whose potential evaporation exceeds precipitation, is characterized by very hot, dry summers and cool, relatively dry winters. The oasis is situated within the air-mass divergence zone where the air masses are already heated at high altitudes, leading to the absence of clouds, high solar radiation and high summer temperatures. During the winter season; therefore, the circulation may move so far to the south that occasionally a cyclonic weather situation may develop, leading to sporadic precipitation during the winter season. The whole of the province of Al-Ahsa belongs to Von Wissmann’s Climatic Province I: hot and humid, with little variation of high temperature and humidity (yearly average 27-31 °C and 70-75%), rainless for most of the year; though the rains that do fall sporadically are apt to be heavy. The region is relatively overcast with frequent fog and dew.

Annual precipitation is estimated for the whole province at about 12 cm or somewhat less. The oasis of Al-Ahsa itself has a warm and humid climate in summer, though less humid than the coastal reaches, but its winter weather is quite mild and rather pleasant. Evaporation of the drainage water is less marked in mid-winter, so that the water accumulates in large catchment areas north of Al-Hofuf and Al-Mubarraz, and in the wadis along the chain of sabkha-s. The sands surrounding the oasis tend to reduce the humidity somewhat.

Temperatures
Temperature during summer is markedly higher than in winter; the coldest month is January in which the mean temperature is 14.35 °C. The minimum and maximum temperatures are 8.3 °C and 20.4 °C respectively. The hottest month is July in which the mean temperature is 34.17 °C, the minimum and maximum temperatures being 25.6 °C and 42.74 °C respectively.

Absolute extreme temperatures range from zero during some nights of December and January to more than 50 °C in some days in July and August. The temperature variations increase during summer days due to the absence of cloud and high radiation and low relative humidity, as well as the differences of the wind temperature and speed between daytime and nighttime. In winter these variations decrease because of the high humidity, presence of some clouds and smaller differences in the wind speed and temperature between the day and the night.

Precipitation
The annual rainfall total is of 61.83 mm. This amount is markedly not enough to sustain cultivated plants’ consumptive use requirements. The rainy season usually occurs in winter months from December to April, while the summer months are absolutely dry. The highest mean amounts fall in January, March and April, 18, 15.06 and 10.26 mm respectively. The absolute maximum daily rainfall also occurs in January, March and April.

These amounts occasionally replenish the soil moisture and supplement the irrigation supplies which otherwise have to be obtained from groundwater flows originating in the interior and Western Highlands of Saudi Arabia.

At no time the precipitation is sufficient in itself to support vegetation and both wild and cultivated plants derive their water
requirements from groundwater. Both extremes of high and low temperature impose physiological strains on plants and animals and through their effect on the germination of seed, flowering of plants and natural breeding cycles of animals, produce a marked seasonal agricultural regime.

i.2) **Topography**

i.2.1) **Saudi Arabia and the Eastern Province**

Al-Ahsa oasis is located in the Eastern Province of Saudi Arabia, the largest of the 13 provinces that make-up the kingdom of Saudi Arabia, with a surface of 672,522 km², and a population of more than 4.1 million people (2010). The Eastern Province is sub-divided into 11 Provinces and its capital is the city of Dammam. The region counts many urban centres (Dammam, Al-Qatif, Al-Jubail, Al-Khobar and Al-Hofuf), and is home to most of Saudi Arabia oil production. The kingdom’s main oil and gas fields are located in the Eastern Province, onshore and offshore. Notable among these is the Ghawwar oil field, the largest conventional oil field in the world located immediately West of Al-Hofuf and Al-Ahsa oasis.

i.2.2) **The Topography of Al-Ahsa Governorate**

Al-Ahsa Metropolis, enclosing the oasis, is roughly 25 km long from North to South, and some 18 km wide from East to West. Al-Ahsa is situated between the rock desert of Al-Ghawwar scarp — part of the Shedum Plateau, the eastern edge of the greater As-Samman plateau — in the West, and the sand dunes covering the adjoining plain in the East. Most parts of the oases lie between 100 and 125 metres above sea level.

The plain between the escarpment and the coast has a very low gradient towards the east and is largely covered by the sand dunes of Al-Jafurah desert. Westwards the steep scarp of Al-Ghawwar rises to an altitude of 250 metres above sea level. The oasis owes its existence to large karst springs at Al-Ghawwar scarp foot.
Al-Ghawwar scarps and the plain towards the Gulf essentially developed in the Upper Pliocene. The Quaternary mainly produced an erosive activity of wind and its ensuing deposition. The Shegdum Plateau is dotted with numerous karstic features including sinkholes, solution cavities and caves.

Beside the green watered palm groves, and the densely built urban areas, the main geographic features of Al-Ahsa plain are the hills, the low-lying depressions (sabkha-s), and the sand dunes of Al-Jafurah that are briefly presented below.

**The Hills (jabal)**
The most important isolated hills — standing about 100 m above the plain — are:

- **Al-Kharma** situated south of Al-Ahsa, it extends for some 40 km on the N-S axis for a width of about 20 km with an elevation of 250 metres above sea level;
- **Al-Bureiqah**, divided into a northern and a southern part, marks the eastern limit of the oasis. The hills are situated in the northeast of Al-Shaibah village and are about 15 km long and 8 km wide, reaching 220 above sea level, some 80/90 meters above the oasis level;
- **Jabal al-Qarah**, about 10 km east of Al-Hofuf, is a completely isolated erosional remnant of the front of the escarpment. At its peak, it reaches 205 metres above sea level, and is composed of limestone, marls and clays of Hofuf Formation. Jabal al-Qarah is characterized by an alternation of small plateaus and near-vertical cliffs.
- Other smaller hills are found in the North and in the South, like Jabal al-Arba’a (the four hills), some 10 km south of Al-Qarah.

Jabal al-Qarah hosts the famous Al-Qarah caves that have developed in the Upper Miocene to Lower Pliocene Hofuf Formation. The caves, with their cool protected passages, have been gathering places for locals during centuries. The main entrance to the cave is located at the eastern edge of the hill, overlooking the date plantation of Al-Ahsa. The cave has approximately 28 linear passageways totalling about 1.5 km in length in a rectangular area of 132 x 216 meters.
The low-lying depressions (sabkha-s)
The low-lying depressions known as sabkha-s are saline flats underlain by clay, silt and sand, and often crusted with salt. They serve as catchment basins for the highly saline Al-Ahsa water that accumulates there, especially in winter, and represent drainage areas for the adjacent irrigated oasis. Most of the sabkha-s are now reclaimed, covered and served by the 1970s Irrigation and Drainage Project or by built up areas. The main sabkha-s are:

- Al-Asfar, part of which is occupied by Al-Asfar Lake. Located in the North-East of the oasis, some 100 metres above sea level, it lays, on average, about 10 metres below the general land surface, it extends for some 10 km with an area of about 6,000 hectares.

- As-Sifalah located to the north of Al-‘Oyun with an area of about 5,000 hectares. This sabkha is still exploited for salt at a daily production rate of the order of a few tons. Its surface is covered with salt and considerable aeolian sand as well as holding saline water in the deeper spots.

- At-Taraf located in the southern part of the oasis, about 11 km to the east of Al-Hofuf. It consists of many scattered depressions and it extends towards the south, to the vicinity of Jabal al-Arba’a.

There were also other smaller sabkha-s between Al-Hofuf and Al-Mubarraz, and around As-Seef that are now reclaimed and utilized for urban purposes.
The Sand Dunes

The northern, eastern and southern boundaries of Al-Ahsa fade into Al-Jafurah desert. The sands surrounding the oasis, due to the periodically strong North, North-west and Southern winds, are mobile and have been encroaching upon the cultivated land and endangering the oasis for many centuries. The wide belt of drifting sands of Al-Jafurah desert is part of a mobile sand complex affecting the whole Gulf coastal region. Al-Jafurah widens rapidly to the South where it eventually merges with the sand area of Al-Rub’ Al-Khali (the Empty Quarter). The main groups of sand dunes which come from Al-Jafurah are; Kanzan in the north which rises about 125 metres above sea level, and Murayqib which is located at the eastern part of Al-Jishshah village and rises about 130 metres above sea level. Further south are chains of dunes rising about 175 metres above sea level such as Al-Midba’ah dune.

The impact of the sand dunes on the oasis of Al-Ahsa has been very important over the last thousand years, and part of the oasis has been covered by an active sand dune field advancing southward, along a 12 km large front. This dune has notably covered earlier settlements and gardens North of Al-Qarah area, in the area of Jawatha, an important historic settlement of Al-Ahsa Oasis at the dawn of Islam.

i.3) Conceptual Presentation: Evolving Cultural Landscape

i.3.1) The Landscape Concept and the New UNESCO Vision

Cultural heritage is an evolving field of study subject to constant revision over time. For over forty years the UNESCO Convention has developed a continuous conceptual reflection based on the considerable and extensive experience of ICOMOS scientists and international experts. This historical evolution has gone from considering heritage as a work of art independent of its context and as an original outcome of individual ingenuity, to viewing a monument as architectural achievements inserted in the contest of the historic cities. Subsequently, UNESCO has extended the concept of cultural heritage to the territory as a whole developing the concept of “landscape” underlining its relevance for the peoples who generate, safeguard, and transmit it.

The 18th ICOMOS General Assembly, held in Florence in November 2014, was notably dedicated to “Heritage and Landscape as Human Values” and received a strong favourable response from the experts and the scientific community. In the final “Symposium Declaration” the assembly notably acknowledged that:

“(…) landscapes are an integral part of heritage as they are the living memory of past generations and can provide tangible and intangible connections to future generations (…). Landscapes currently face unexpected threats that need be managed by applying new approaches to safeguarding the relationship between cultural and natural heritage by sharing practical experiences. (…) In many landscapes concepts such natural and cultural have lost much of their meaning being replaced by a bio-cultural understanding where not only settlement and agriculture, but also species and habitats are determined and preserved by people”.

A new different conception of cultural heritage is emerging, in which knowledge and natural resources form a whole, in the context of an incipient environmental evolution process. The knowledge of Nature becomes a resource, and Mankind is part of nature: by gathering and transmitting knowledge, we interpret and shape nature and ourselves, thus creating the landscape that is both the cause and consequence of our social living. Every landscape is the product of a culture, produced by intervening upon nature (even simply created by seeing a significance in it) thus establishing a social, productive or symbolic universe. We can then attribute a shared definition of landscape as a “relationship between the community and the environment expressed in rules for its management and transformation”. The sense of identity transmitted through the awareness of this process is carried onto certain characters of the territory, customs and representations.

The new concept of Landscape has brought into the debate on heritage the themes of “multiculturalism and diversity”, and the notions of “evolution and change”, and has introduced in the strategy of conservation the notion of “management”.

The whole planet Earth is undergoing a continuous metamorphosis: rivers incessantly carve the slopes, hew their beds and silt the plains. Mountains carry on raising producing new layers, which will be progressively eroded. Human activity directs, encourages or hampers such tendencies. It spreads or destroys vegetable and animal species, contributing to the production of humus, or otherwise promotes desertification. Every action, every creation is subjected to the physical process of entropy, and exists in a state of fragile and dynamic balance. Humans had to deal with the unpredictability of the environment and the variability of climate since the earliest times of mankind.

These conditions have moulded locally-adapted skills, capable of responding to adversities with appropriate means for gathering and distributing water, for protecting soil, and for recycling and economically using energy. In the past, the very conditions of scarcity and climate variability have prompted a profound knowledge in resources management and caused the invention of low-cost technologies and processes that were not wasteful. In different climates and environments, incredibly tenacious cultures have been able to use locally available materials and renewable resources. They have used solar energy and other natural processes: thermal insulation for protection from the cold and heat, hydrodynamic for the collection and distribution of water, biological knowledge for the creation of humus and farmland. They have managed to control the force of the winds, to use the law of gravity and to take advantage of the minimum moisture factors to trigger autocatalytic interactive processes to amplify positive phenomena. These are the processes that have created the “landscapes”.

i.3.2) Oases and Sustainability

Encyclopaedias traditionally define oases as “areas situated in a desert environment, made suitable to human life by the presence of water and vegetation”. But such kind of definitions are simplistic, both in relation to the historical role of oases and their symbolic meanings for culture and imagination, and in terms of accurate geographic and ecological analysis. The most advanced research — based on the concepts of ecosystems and cultural landscapes — considers oases to be ingenious human
creations, unique models of harmonious interaction with the environment. A more convincing and sensitive definition of oasis could be:

“A human settlement in an arid geographical environment that uses the scarce resources available locally to increase the growth of positive interactions and to create a fertile and self-sustainable environmental niche whose characteristics contrast those of its unfavourable surroundings.” [Laureano]

Small hollow harvests moisture, a stone casts a shadow, a seed takes root. In this way positive trends are established: plants generate their own protection against the sun’s rays, concentrate water vapour, attract insects, produce biological matter, build the soil from which they can draw their nutrients. This mechanism creates a biological system used by other organisms, which contribute to it in their turn. A symbiosis is established, a microcosm, the fruit of co-existence. Though the scale may vary, in each instance the same principle, the self-driven and self-renewing virtuous cycle known as the “oasis effect”, is at work.

The peculiarity of oases resides in their ability to create or accurately manage their own water resources. Oases are established in areas where there is no meteoric water and use different devices to produce the resources they require. Oases are autocatalytic systems that increase the available resources instead of depleting them. By combining the condensation of moisture, the creation of fertile soil, and the cultivation of fruit, vegetables, grain and fodder, a small original supply of water can be amplified and used over and over in an interactive cycle of water production, water use, evaporation, transpiration, and condensation in soils.
The techniques used to achieve this result depend on the topography of the site and on the nature of existing water sources, and involve a wide variety of solutions that exploit local water resources or non-apparent water present in the atmosphere, the ground, and the subsoil. Underground tunnels that drain the subsoil or siphon off moisture in the soil, “air wells” that extract humidity from the atmosphere, stone mounds that use the difference between day-time and night-time temperatures to condense airborne moisture, underground dams for capturing the micro flows of dry streambeds, or great artificial channels, are just a few of the tools that have been invented and refined over the centuries. Crops and produce are cultivated on three levels: climate protection is provided by tall trees (in the Sahara and Arabia the date palm, *Phoenix dactylifera*; in the deserts of Central Asia the black poplar, *Populus nigra*), in the shade of which fruit orchards are the second level and fields of grain, and vegetable gardens the third. A human settlement so designed creates and preserves soil that is capable of optimal yields without the addition of chemical fertilizers or pesticides, and permits therefore the development of bio-agricultural practices and the production of high-quality organic grain, and, where grazing is foreseen, meat for distribution to local markets.

Oases integrate these devices with architectural and soil-management techniques. A state-of-the-art oasis, for example, features dwellings that are self-sufficient in terms of energy, water and waste management; that use traditional and innovative materials for thermal insulation, draw on geothermal power for heating, use ventilation and optimal summer and winter sun exposure for cooling, and employ techniques for water collection on terraces and roof gardens and thoughtful integration of architecture and greenery to enhance the cycle of drinking-water production and waste-water disposal.

### i.3.3) The Evolving Urban Oasis of Al-Ahsa

The oasis of Al-Ahsa is not a natural product of chance: it is a carefully designed and managed ecosystem; the result of a comprehensive program for the organization and management of desert space that contrasts the aridity by creating viable microenvironments. Its creation has required a complex of highly elaborate knowledge that combines an assortment of skills with a refined awareness of place. Geographical and social components are both essential to its making. These two aspects, inextricably linked to each other, contribute to the realization of the oasis landscape.

The evolution of Al-Ahsa landscape explains how very ancient human communities were born and worked, and it enables us to understand the techniques, procedures and principles permitting the establishment of harmonious and balanced relationships between human presence and land management. Al-Ahsa is an agro-system whose most remote origins actually coincide with the very beginnings of agriculture. However, it would be a mistake to confuse the oasis with just the cultivated space. Buildings, waterworks at small and large scale, environmental management systems, are all fundamental components. The oasis is a microcosm in which living species act in symbiosis, a bio-cultural landscape in which the harmony between nature and culture allows to amplify the local resources in a self-generating cycle of positive reactions.
i.3.4) A New Frontier for Heritage Conservation

Today, all over the planet entire ecosystems are at risk of collapse. Oases can show us how to better handle the interaction with the environment by improving its resources without depleting them. Oases use knowledge and techniques, known on a regional scale, that originate from the use of everyday materials and objects. They are made up of fragile components that are subject to the attack of the contemporary transformations, and have a reserve of ingenious solutions and devices for the production of energy, resources, recycling, to keep microclimate and soil management under control. They constitute entities quantitatively small but which encompasses the knowledge that permits humankind to survive in arid areas, which cover 41.3% of the earth’s surface and are home to 34.7% of its inhabitants with a population of over 2 billion people.

Climate change, the collapse of ecosystems, cataclysms, the end of civilization, are conditions that the people of the desert have already faced many times. Survival was assured by the communities, like the ones of the Oases, who were able to bring together the necessary knowledge needed to create places for living in extreme environments. The Oasis encloses local knowledge and the wisdom of the communities: ancient techniques developed by different adaptive survival experiences, and local skills that have allowed the creation and management of landscapes on the entire surface of the planet. The Oasis model enables the development of low-energy solutions and resources able to adapt to environmental variability and to react to emergencies and disasters in a flexible and multifunctional manner.

Such model corresponds to the UNESCO new perspective on landscape perceived as a community-based approach. The concept of landscape, whether urban, or rural, is increasingly becoming a new paradigm for harmonious development, offering an approach that can integrate economic, social and environmental processes.

The application of the “oasis model” in the same environmental conditions produces accomplishments that look very similar, but have nevertheless different and specific evolution. Through the interaction of specialized groups, the oasis is capable to solve difficult environmental problems by progressively associating new solutions with elements drawn from other contexts, sometimes distant in space and in time. Thus, its complexity increases until it evolves into a complete package of skills, adapted technologies, knowledge (both tangible and intangible) that includes social, legal and economic norms. Oases exemplify the relation between humanity and landscape: the close interpenetration and the indissoluble bond between knowledge, values and constant evolution.
ii.) Al-Ahsa Oasis

ii.1) Introduction

Since Antiquity, Al-Ahsa has been the most famous and largest oasis in the world. Greek and Roman geographers, and medieval Arab scholars and travellers, portrayed it as a densely cultivated and opulent region. Its earliest mention is found in the Geography of Strabo, (born in Greece in 63 BCE), who described it as an important centre of agricultural production. He mentioned its harbour “Gerrha”, where desert caravans arrived loaded with the products of Arabia such as spices, aromas, dates and others, from the oasis and connected Al-Ahsa with the Mesopotamian civilizations in the North, and with the Indus Valley civilization in the South.

The role played by this oasis in the international trade of the oldest civilizations granted the wellbeing of its inhabitants. Strabo compared them to the Sabaeans for their opulence and described them as the richest among all desert tribes “possessing a large quantity of gold and silver objects, such as cups, tripods, basins and vessels, to which one may add the magnificence of their dwellings, with doors, walls and ceilings decorated with ivory, silver and gold”.

Today, its palm groves are among the largest at the global scale and the only ones preserving, on a vast scale, the historical characteristics of cultivations and hydraulic system based on traditional techniques remained unchanged, within a continued technological evolution, for thousands of years, until the 1970s.

Beginning from 1970, substantial works on the irrigation system have been carried out in tune with the traditional layout and principles. Al-Ahsa is today a large city that has added modern extensions to its traditional villages and is set in the midst of extensive palm groves. In order to see the whole oasis on an aerial photograph or a map one must consider a territorial extension covering a square area measuring about 30x10 km. These are the dimensions of a metropolis, or of a territorial park or an entire region. Three sides of this vast area border with an immense sand desert, encroaching over the oasis with extensive alignments of dunes.

The oasis landscape consists of sands, rocky flat-topped hills, urban spaces, saline depressions and an enormous area devoted to cultivation, organized according to a geometrical network which looks like the street pattern of a modern city. The visual impact of this structure is the result of irrigation and draining systems, methods of cultivation grown over a 5,000-year long period. In order to appreciate the specificity and relevance of this site, Al-Ahsa should be considered in the context of the “oases categories”. Oases are the greatest challenge with which mankind confronts hostile environments in order to survive the desert. They are the product of ingenuity and tenacity by human communities, and the oasis is a landscape based upon the skilful use of local resources. Al-Ahsa, the place of origin of the earliest experiments in the creation of the oasis, has continued to evolve, through our era of rapid change — the “Oil Age” that has seen developments that have profoundly influenced the water and cultivation system — without overlooking its ancient principles, but rather expanding them with new solutions and innovations.

The issue of the expanding desert has been tackled with measures like dunes containment and tree plantations (about three million new plants). Today, confronted with the global climatic change issue, and on the verge of great economic and
social transformations, the actions carried out in the 1970s are being reconsidered. The possibility of covering the channel network and extend the urban areas in a different direction than the oasis to protect the palm groves, is being studied; and a new plan to completely reclaim the water drainage lakes by means of a project destined to recycling water on a great scale, unequalled in other desert areas, is being designed.

Al-Ahsa is an extraordinary example of evolution through time of an oasis landscape. It plays a role of laboratory and paradigm for the entire mankind for its capacity to endure, while confronted with global challenges and modern requirements. The techniques and procedures for the creation of fertile soils, for agricultural production, water management, recycling, energy saving, survival in the desert, constitute an example of good practices for the entire planet, providing a patrimony of knowledge applicable to the new frontiers of human diffusion to extreme environments, including extraterrestrial ones. The oasian landscapes preserve skills and knowledge that today turn out to be crucial before the challenges imposed by global warming, desertification and ecosystems management.

ii.2) Geographic Presentation

The oasis of Al-Ahsa extends approximately from latitude 25°21’ North to longitude 25°37’ East, in the North-Eastern part of the Arabian Peninsula. The cultivated area extends for about 180 km² of palm groves and oasis gardens. It has the shape of an “L”, with the longer part stretching for 25 km in a North-South direction and the shortest, 18 km, in an East-West direction with an estimated total area of more than 30,000 acres under cultivation. Al-Ahsa is the largest oasis in Saudi Arabia. Villages and traditional settlements are integrated within the palm groves. The modern city extends to the margins of the agricultural area, chiefly in the south-western part. Here, inside the corner of the big “L” is found the most important urban conglomerate: Al-Hofuf. The other main villages, Al-`Oyun and Al-Jishshah are respectively situated to the northern and eastern extremities.

The oasis does not have a regular or even quasi-regular shape. The palm belt forms everywhere salients and entrants, with some patches of cultivation entirely surrounded by urban areas or sands. The network of irrigation and drainage canals establishes the continuity across the expanse of the oasis. These run throughout the area in a widespread pattern. They follow the typical natural drainage of desert basins made of a series of sabkha-s, salty evaporation depressions, which extends from Al-Hofuf in the South to Al-`Oyun in the North creating a highly saline water-collecting basin filling especially in winter. The general trend is towards a northward tilt for the longer part of the “L” and towards the West and North for the shorter part, to reach the lower points where the presence of water, still almost permanent, forms two evaporation basins. The largest is Al-Asfar Lake to the North East of Al-Hofuf, which extends toward South East for 10 km. The other is As-Sifalah, north east of Al-`Oyun. The most important break in the continuity of the oasis is the gap that separates the Northern extremity consisting of the palm grove of Al-`Oyun, extending for 5-6 km². This includes the two traditional villages of Al-Marah, on the South West and Al-`Oyun, in the North West. Inside the corner of the “L” a vast area is occupied by alignments of dunes and fields, part of the process of advancement of the desert. It is the Jawatha area, of relevant historical importance, now almost entirely occupied by the Jafurah desert sand, and the site of an important project
aimed at fighting the expansion of the desert. The soil, outside the cultivated area, is dominated by a blanket of wind-blown sand of a mean thickness of over 30 m only interrupted by sabkha-s, the arid saline depressions, and by mesas, or hilly formation with flat tops.

The villages within the palm groves have retained their traditional layouts. Those on the edges have undergone a substantial expansion over the last years creating vast areas of new urban development, which generally have occupied the empty spaces of small sabkha-s. Thus a mosaic landscape has appeared; a landscape composed of vegetation, modern urbanization, traditional villages, dune alignments, rock pinnacles and outcrops displaying spectacular erosion effects.

ii.3) Geologic Presentation

The interior of the “L” shape of Al-Ahsa oasis forms what ARAMCO geologists have called the “Central Plain”. This is a flat area running north to south, fanning out from the north, where it is only 8 kilometres wide immediately north of Al-‘Oyun, and becoming wider as it proceeds southward. Most of the oasis lies at an elevation of 100-125 m, but the two parts are not uniform in height within the Central Plain: the Eastern part is in a 10 to 20 meter deep hollow, which continues south-southwest of Al-Hofuf for some 40 kilometres. In general the surface of Al-Ahsa slopes gently downward from the West to the East and from South to the North. To the West, the oasis is limited by Al-Ghawwar rocky scarp formed by the border of the Summam Plateau, a great rocky desert. Its borders are crossed by the canyons and wadis that went in the Central Plain whose

hills and mesas are the relics of the Summam Plateau saved by
the erosion.

Geologically, the sediments in the area are constituted by:
- Gravel and dune sands of the Quaternary;
- Conglomerates, sandstones, sandy limestone, marls and shales of the Neogene;
- Marine limestones, cherts and shale of the Eocene.

The characteristic horizon of the region is the Hofuf phase of the Neogene (Hofuf Formation), said to be Pliocene in age, and consisting of:
- Summan sandy limestones,
- Series of marls, sandstones, sandy limestones and shales,
- Sandstone conglomerate.

Al-Hofuf bed rests uncomfortably on basal continental Miocene limestone. The limestone, exposed practically everywhere in the oasis district, has been and still is widely used by the people of Al-Ahsa for construction purposes, both in manufacturing lime and in blocks for rubble walls.

ii.4) Al-Ahsa in the Climatic Evolution of the Arabian Peninsula

Climatic conditions have been different in the past. A recent project, called Palaeodesert Project, launched in 2012, has shown successive climatic fluctuations between humid and extremely arid periods. Scientific research, carried out with environmental analyses and archaeological researches, have
enabled to reproduce the palaeo-climate up to 500,000 years ago, demonstrating the existence over time, of a Green Arabia. Also the level of the sea greatly varied. During the latest period of the last Ice Age, 18,000 years ago, the sea level of the Gulf decreased to 110 meters below the present level, leaving only a small water area inside the Hormuz Strait. After 14,000 BC, the Gulf slowly refilled until it reached a level similar to the today in about 6,000 BC. In the so-called Neolithic “moist phase”, after 4,000 BC, the sea level was about 2 meters higher than today.

During humid periods, river and lakes were present over the whole of Arabia enabling the presence of human populations. This confirms the role of Arabia during prehistory as an area of exchange between Africa and Eurasia, as demonstrated by the finding of fossil mammals, hominids, as well as of early Homo sapiens of our species, in Arabia.

The climatic deterioration of later times has had a considerable impact on human organization, in relation with the environment:

- During the Pleistocene, groups of hunters and gatherers occupied the most favourable areas or survived thanks their mobility and to cultural and technological adaptation to changing conditions.
- It has been proved that during the Holocene period human groups learned to live in extreme aridity by virtue of their pastoral life-style accompanied by the acquisition of new knowledge and skills.
- The earliest people of the Neolithic period progressively put together various technologies and knowledge refining their ability to build and manage a liveable environment in extreme conditions.
During the Chalcolithic period, the expansion of international relations and the need to guard strategic sites or halting sites along caravan routes, have offered strong reasons for living in a desert environment, and led to the creation of the oasis. Al-Ahsa possessed the ideal conditions for this development.

**ii.5) The Ecosystem and the Origin of the Oasis**

Al-Ahsa is situated at the centre of three ecosystems:

1) The sand desert;
2) The lagoons and the seacoast;
3) The rocky desert.

Each of these mighty ecosystems has created the prime natural conditions, moulding human capacities in such a way as to play a decisive role in their work for the creation of the oasis.

**ii.5.1) The Sand Desert**

The vast expanses of sand that represent an isolated stretch of the sandy deserts called “Erg” in the Sahara, are the most extremes environments of arid areas. The uniform geography consisting of changing expanses of sand offering no shelters or geographical reference points, the difficulties of finding pastures or communications, the inaccessibility of water resources, the frequency of sand storms, the lack of visibility, erosion and burial caused by the sand, the impossibility of cultivation or building, make such environment redoubtable even for the most experienced desert experts. This is the realm of the proudest groups of Nomads to whom the domestication of the camel gave a formidable instrument for tackling these enormous fearful wastes.

However, these sand deserts have not always existed. Such great heaps of sand have come about precisely by virtue of the silt carried there by great rivers, existing in distant geological eras. Deserts are the remains of dried-up Paleo-seas, -lakes, and collapsed inland river networks. With no connection to major bodies of water, they were forcibly evaporated or submerged by their own silt. River networks continue to flow underground and contribute, along with condensation, to the preservation of humidity in the sand creating a special ecology enabling specific life forms and adapted biodiversity to extreme situations. Biological diversity is accompanied by cultural diversity expressed by the acquisition of skills utilized by the most tenacious nomads privileged with knowledge of desert ecology: the action of winds, the shifting of sands, the distribution of moisture, places of sudden vegetation growth, water points, orientation, and possibility of passage. Underground fluxes slowly follow general slopes and at times reach the borders of great basins where a series of depressions and salty extensions are the memories of an ancient water system.

**ii.5.2) Lagoons and Seacoast**

At Al-Ahsa sabkha-s, marshes and lakes offer today an image of what was the ancient landscape of Green Arabia, anticipating, some 40 km before the coast, the marine component of its environmental and cultural landscape.
Today the water in these marshes doesn’t reach the sea, but the memory survives of fairer connections with rivers flowing to coast in pre-historical times. The coast has undergone various fluctuations through times. Consisting, as it is, of lagoons, marshes and stagnant water, the landscape is here similar to that of the flat area of Al-Ahsa. This environment provides specific opportunities, very useful in times of scarcity, with the “mangrove ecosystem”, with a high nutritional and protective value for fish and bird life, crustaceans and shellfish. Shallow waters are also suitable for archaic human navigation based on light reed boats easily carried across strips of sand between tracts of lagoon water. Experience in lagoon navigation has encouraged marine understanding, as a premise to more daring forms of navigation along the Gulf coasts.

This constitutes further material for the store of skills, which will enable human groups to take a leap forward in the organization and the engineering of the oasis habitat. According to some studies, the domestication of the camel, a fundamental step forward for the development of greater nomadism through the deserts, occurred precisely in a coastal environment of this kind, where the camel, differently from the horse, by virtue of its long neck enabling it to keep the head above water, could easily cross the shallow waters between the Gulf islands.

ii.5.3) The Rocky Desert

The rocky surfaces of the continental shelf with their mountains and layered plateaus, and their erosion furrows, are desert environments that offer the best of possibilities for human presence and survival. The roughness of the relief, its nooks and crannies, provide shelters against the wind and shade against the unmerciful sun. Here the soil accumulates encouraging forms of vegetation. At the foot of the cliffs, around isolated hills, within narrow and deep canyons, peculiar climatic situations occur.

From the various altitudes where the rock layers form steps, springs of water issue and generate pools of water. The dry riverbeds have flat surfaces suitable for pastures and fields. Rocky surfaces and heaps of ruined stones condense the
moisture at night preserving from evaporation the water that seeps through. Such conditions have allowed the establishment of Stations for the great caravans following the Incense Route, and later Pilgrimage Route and the network of lanes connecting these oases that have contributed to writing the history of Arabia. They also permitted the existence of simpler and more ancient trails used with small desert donkeys, the earliest means of transport in these wastes before the domestication of the camel. Here were developed and perfected over time the agro-pastoral skills of transhumant shepherds and farmers; their botanical knowledge of places ideal for cultivation; their capacity to manage micro environments, to understand the behaviour of water, from flush floods to subtle atmospheric underground moisture cycles; their tendency to mobility and to exchange; their social cohesion by lineage.

ii.5.4) The Ecotone of Al-Ahsa

The rocky plateau, the sand desert and the lacustrine-marine lagoons meet in Al-Ahsa oasis. The limit of the oasis is formed by the rocky scarp of the Arabian shield that has a drop in altitude of about 100 m. From the edge of the plateau, crossed by perennial rivers whose beds are today wadis and canyons that traverse it, the waters running off from the great expanse of the Arabian shield and from its underground geological layers are naturally conveyed towards Al-Ahsa. The number of springs, the sources and quantity of drinkable fresh water provided, are the primary factor for the existence of the oasis and of its size and shape.

Springs, wells, and water pools are distributed along a North-South axis corresponding to the longer part of the “L” formed by the oases distributed along the contour line of 145 m above the sea level. They condition the positions of the villages and of the principal palm groves deriving from the network of springs and streams flowing naturally in the East-West direction and captured by a series of depression and lakes with a northward drainage, sloping toward the coast.

The hydrographic network has no clear hierarchical trend, and its directions are determined by gravity lines following the continuous slopes. The particular mix of environments that determine the landscape of the Central Plain affects it. The plateau is present in the Central Plain with its offshoots, areas not affected by erosion, which form mountains and hills with the typically flattops or spectacular scenic inselbergs with wind-sculpted rocks.

Salty marshes and lacustrine areas anticipate the proximity of the sea. The desert is perceived everywhere with the presence of sand in the form of mounds and small dunes blown by the wind. The sand permanently occupies the vast area of Jawatha within which it advances with rows of mobile dunes. The three environments: plateau, sand desert and lagoon, merge together creating a leopard skin pattern landscape, with mountains, springs, hills, changes of altitude, gradients, depressions, swamps, sabkha-s, mounds and alignments of dunes.

This peculiar ecotone situation: the meeting and transition between different physical environments, natural and human biological communities, has created the spectacular landscape of Al-Ahsa.
2.a) Description

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[Photo right page] Al-Ahsa Oasis from Jabal al-Qarah, IPOGEA, 2015

[Fig. 42] "Plan of a cave in Jabal al-Qarah", Hotzl et al., 1978

[Fig. 42] "Plan of a cave in Jabal al-Qarah", Hotzl et al., 1978

Al-Ahsa Oasis from Jabal al-Qarah, IPOGEA, 2015
Al-Ahsa Oasis, an Evolving Cultural Landscape
iii.) The Nominated Property

iii.1) Presentation

The nominated property, *Al-Ahsa Oasis, an Evolving Cultural Landscape*, is a serial cultural landscape covering a total surface of 8,544 ha, and is composed of twelve properties surrounded by seven buffer zones (some buffers include more than one nominated properties) covering a total area of 21,555 ha.

Its large surface adequately represents the totality of the landscape, and includes the linear area of the drainage canal linking the Eastern Oasis to Al-Asfar lake area (*Cf. Operational Guidelines Annex 3.a and 3.c*).

Its component parts reflect cultural, social and functional links over time that provide the necessary landscape, ecological and habitat connectivity of the nominated property (*Op. Guid. § 137.a*), and each of its twelve components contributes to the definition of the OUV of the cultural landscape (*Op. Guid. § 137.b*).

The property is proposed as “cultural landscape” illustrating the essential and distinct cultural elements of the Gulf region of the Arabian Peninsula. According to the UNESCO Operational Guidelines (*Annex 3*), *Al-Ahsa Oasis, an Evolving Cultural Landscape* is an organically evolved landscape that developed by association with, and in response to, its natural environment, reflecting this process of evolution in its form and components.

It is an example of continuing landscape (category II.b) retaining an active social role in Saudi Arabia Eastern Province’s contemporary society. Associated with a traditional way of life, *Al-Ahsa Oasis, an Evolving Cultural Landscape* continues to evolve while exhibiting, at the same time, significant material evidence of its historic evolution.

iii.2) Description of the twelve Components

Boundaries

The boundaries of *Al-Ahsa Oasis, an Evolving Cultural Landscape* include all those areas and attributes, which are a direct tangible expression of the Outstanding Universal Value of the property, and all the elements of the morphology of the oasis (gardens, canals, springs, wells, drainage lake…).

The boundaries of the twelve components composing the property are briefly described below.

Component 01 (NP-001): Eastern Oasis

It comprises a large sector of the Eastern Oasis of Al-Ahsa for a total surface of 3,885 ha. The site presents an irregular crescent-shaped area, extending for some 9 km on the North-South axis and for some 12 km on the East-West axis. It includes dense palm groves and garden areas and is delimited by a network of canals separating it from the buffer zone that surrounds Component 01 on almost every direction. On the Northeast, it includes Jabal al-Qarah, while the modern village of Bani Ma’an in the Southwest is excluded from the nominated property. Its centre is a small rocky outcrop located in the Western half and rising to 179 meters, some 30 meters above the surrounding oasis.
A linear zone, including the main drainage canal connecting the Eastern Oasis with Al-Asfar Lake (until the highway tunnel), prolongs the site to the Northeast.

Component 02 (NP-002): Northern Oasis
It comprises the major part of the Northern Oasis of Al-Ahsa for a total surface of 2,010 hectares. On the Eastern side, it is delimited by the main drainage canal running North-South, and the network of canals form the 1970s project also defines the boundaries on the Southern, Western and Northern sides. The site presents a rather compact, roughly round, shape from which have been carved away a central exclave for Al-Qurayn village and three large areas respectively on the Southern, Western and Northern sides, where historic villages and their modern extensions are located. The centre of the component is located at the intersection of main water canals.

Component 03 (NP-003): As-Seef
It coincides with the central sector of the As-Seef Oasis in Al-Hofuf, covering an area of 108 ha of densely cultivated palm groves. The large historic cemetery of Al-Hofuf defines most of its Eastern border, while on the West, North and South the perimeter follows the irregular shape of the oasis, leaving an outer protective green belt of 150-200 meters to form a protective buffer from the nearby urban settlements. On the Northeast, the modern King Khaled Road crosses the extremity of the palm grove marking the limit of the nominated property.

Component 04 (NP-004): Qasr Ibrahim
It includes the historic complex of Qasr Ibrahim, the main architectural vestige of the Ottoman occupation phase of Al-Hofuf. It covers a surface of almost two hectares in the city centre of Al-Hofuf. The area covers a small strip of land outside
the historic defensive wall of the complex to guarantee the protection of the outer side of the walls and to avoid encroachments on the historic compound. The centre of the large courtyard is the zone centre. The site is included within the large buffer zone of As-Seef/Al-Hofuf (Buffer-Zone-ii) that protects its immediate urban surroundings.

Component 05 (NP-005): Suq al-Qaysariyah
It is entirely dedicated to the Qaysariyah Market, a main feature of the urban fabric of Al-Hofuf recently rebuilt by the Saudi Antiquities after a devastating fire. The site covers an area of 0.93 hectares and is composed of three architectural units extending for some 250 m on a North-South axis along King Abdul-Aziz Road, the main urban artery of the centre of Al-Hofuf. Its immediate surroundings are included in the large As-Seef/Al-Hofuf buffer zone.

Component 06 (NP-006): Qasr Khuzam
It is entirely dedicated to Qasr Khuzam in Al-Hofuf, an historic fort originally located South-West of the historic walled city and now integrated in the modern development of Al-Hofuf. The site covers a surface of 0.67 hectares. As for Component 04, the boundaries run outside the fortress wall to protect the outer facades. To protect its immediate surroundings from unsuitable urban developments, As-Seef/Al-Hofuf buffer zone extends South-West to surround the fort in every direction.

Component 07 (NP-007): Qasr Sahood
It comprises Qasr Sahood in Al-Mubarraz, originally located outside the western city wall. Roughly rectangular in shape, the property covers 1.2 hectares and, as done for the other forts, includes a thin strip of land outside the four fortress walls to protect its external facades. Buffer-Zone-iii surrounds the fort in all directions safeguarding the transition between the nominated property and the modern city.

Component 08 (NP-008): Jawatha Archaeological Site
Jawatha Archaeological Site is a large plot of desert land of 284 hectares entirely fenced and belonging to the SCTH. Its limits strictly follow the perimeter of the parcel. Located between Jabal al-Bureiqah and Al-Ahsa National Park, near the historic mosque of Jawatha, the site is surrounded by a vast buffer zone extending over the nearby hill and Al-Jafurah desert.

Component 09 (NP-009): Jawatha Mosque
It is the smallest of the twelve components of Al-Ahsa Oasis, an Evolving Cultural Landscape nominated property, covering only 0.08 hectares. Jawatha Mosque property only includes the restored mosque and its surrounding perimeter wall; Buffer-Zone-iv surrounds it in all directions.

Component 10 (NP-010): Al-’Oyun Village
It is composed of two distinct, though connected, parts: Al-’Oyun traditional village and Al-’Oyun palm groves, the
northernmost part of the greater Al-Ahsa oasis. It covers 63.35 hectares. Its boundaries follow the round shape of the village in the North and comprise the section of the oasis closer to the village until the main water drainage canal crossing Al-`Oyun oasis from Southwest to Northeast. Its North, East, South and West borders are delimited by water canals and parcel limits. A complete ring of buffer circles it in all directions extending particularly in the Southeast.

Component 011 (NP-011): `Ain Qinas Archaeological Site

It is entirely dedicated to `Ain Qinas archaeological site, excavated in the 1970s and belonging to the SCTH. The area, covering 18.8 hectares, is entirely fenced. A large buffer surrounds it in all directions.

Component 012 (NP-012): Al-Asfar Lake

Extending over 2,170 hectares, it includes Al-Asfar Lake, a drainage zone collecting the waters from the oasis and sheltering a unique natural ecosystem, and the northernmost part of the main drainage canal of the Eastern Oasis, from the Highway to the lakeshore. It includes the perimeter of the mangrove area and the lake and follows the winding limits of the watered areas and their immediate sandy surroundings. In the Southeast, the electric line marks the regular boundary of this component of Al-Ahsa Oasis, an Evolving Cultural Landscape nominated property. A large buffer protects the lake in all directions.

iii.3) Natural Features

iii.3.1) Springs

Until 1969, there were 336 wells in the oasis area and 162 springs (including 35 large springs). Some of the wells reach a depth between 100-180 meters, while a few go deeper reaching a depth of some 250 meters. All springs were originally artesian, but the artesian pressure has fallen since the expansion in the use of pumps and the introduction of modern drilling rigs to the region has reduced the volume of free flow. Hydrological and economic changes took place even before the 1950s, so the complexity of the irrigation system and landholding pattern increased, and traditional technical reaction to change introduced even more rigidity into the farming scene.

Morphology of the Springs

Most of Al-Ahsa springs are found in two main groups within the oasis, but springs are scattered throughout the oasis area. Generally, the main springs lie very close to the 145 m contour line that runs in a South-Southwest to North-Northeast direction.

The first group is located east of Al-Hofuf and consists of 22 springs scattered between Al-Hofuf and Bani-Man village.

The second group is located around the village of Al-Mutairifi on the middle-western border of the oasis. It consists of seven springs.

Other main springs are Ain Al-Harrah near Al-Mubarraz, Ain Al-Jauhariyah near Battaliyah and Ain Nasser near Al-Shabah.

In the past, the springs of the oasis were 1-3 meter deep pools, oval or round in shape with diameters ranging from a few metres up to 90 metres. By the 1960s, many springs were silted up or blocked by palm trunks which used to be thrown into the outlets
of the spring to reduce the natural discharge and to avoid the gardens being over-flooded. The more common way used to control the natural discharge was to build a small temporary stone wall or earth dam sluice across the outlet (Jussah) permitting to raise the water level. Flow was not controlled until after the new engineering works were completed in 1972. Since, most wells were tapped and controlled.

The Discharge of the Springs

Investigations carried out in 1963/64 by Wakuti Engineering measured the discharge of all springs in Al-Ahsa oasis that was estimated at 14.1 m³/s and detailed as follows:

1) The 336 wells — some free flowing, others pumped — presented an average discharge varying from 0.5 to 10 l/s, for a total well discharge of about 1.7 m³/s.
2) The 83 small springs, with a discharge ranging between 0.5 and 20 l/s, produced a total discharge estimated of 0.3 m³/s.
3) The 43 large springs had an average discharge from 25-1,100 l/s, the total discharge of these springs was estimated at 12.1 m³/s.

Since, water discharges have certainly continually decreased for many reasons:

- The original surveys and estimates of available water were based on the assumption that 42 of the existing 162 springs would be tapped to supply the project whereas, in fact, only 32 springs were used. This might account for the difference between the consultant’s forecasts of the amount of water that would be available and the discharge rates actually experienced since the project’s completion.
Extensive withdrawals of water from the Neogene aquifer, and/or other connected aquifers, were made until recently for oil production purposes in the adjacent areas west of Al-Ahsa oasis. In the following years, water withdrawal for land reclamation purposes within and around the oasis, and particularly drilling activities south-east of Al-Hofuf, in the Qatar Road area, has continued. These new wells provide irrigation water for the new development of field crops and vegetables outside the oasis proper. By 1967 there were already 887 wells in and around the oasis, most of which were pump assisted. In the past there was no proper urban sewage system in Al-Hofuf and Al-Mubarraz and each household, in addition to its own hand dug well for domestic water, sank a shaft up to 20 m deep for the disposal of sewage. Now, a sewerage system, to which the villages are also connected, takes all waste waters eastwards to the edge of the oasis, thus preventing recharging of the aquifers from the infiltration of this waste water. Finally, the continuously increasing demand for groundwater for domestic and industrial activities in the numerous and rapidly growing villages and urban areas within the region consumes vast amounts of water.

### iii.3.2) Plantations

Al-Ahsa oasis is one of the most important agricultural regions in Saudi Arabia, and the leader in date production. It also yields large quantities of vegetables, fruits and alfalfa, and is the only rice producing area in Saudi Arabia.
In traditional agriculture, crop production was highly labour-intensive as all work was carried out by hand or using animals to some extent. The high population provided the necessary cheap labour force. The situation has now completely changed and the oasis has undergone a rapid modernization of its agricultural production notwithstanding the contemporary rise in labour costs.

There are no statistic records for earlier periods but the data on the main crops produced in Al-Ahsa oasis in the 1960s and 1970s approximately show what used to be the traditional balance among the different agricultural output. The oasis is increasingly characterised by intercropping, which means that the whole area dominated by date palms (*Phoenix dactyliphera*) also produces fruits and vegetables along the traditional pattern of the so-called 3-level agriculture: palm trees (first level) fruit trees (second level) vegetables (third level). Indeed the proportion of fruit trees to date palms often reaches one to one.

**Date Palm Trees**
The relevance of date palm for survival in the desert environment is such that it has rapidly become part of the myths and religions of mankind. Many scholars believe that the first palm trees in the world have been domesticated in this very area. The region of “Dilmun” was the Sumerian Paradise, an island-oasis, were the hero Gilgamesh went looking for the tree of life.

The date palm is not a simple product of nature, but is the result of the selection operated by the people of the desert, the combined action of mankind and nature, like the very concept of “oasis” of which the palm is one of the fundamental components because it allows other plants to grow in the shelter of his shadow, contributing to the creation of fertile soil.

Dates are the most important crop in Al-Ahsa oasis and they occupy about 93% of the total cultivated land. The dates produced in the oasis include some of the best varieties found in the Arabian Peninsula, particularly the *khlas*. Palm dates in the past, as well as in recent times, remain the main staple diet in the Eastern Province and in Al-Ahsa Governorate, particularly for the Bedouins, where dates make-up the main ingredient in many local dishes such as bread and rice, allowing for the lower-quality dates to be used for animal feeding. In addition, palm trees contributed in many other ways to the livelihood of the people of the oasis: they were used in construction, as firewood, as well as in local handicrafts mats, baskets, hand fans and rope weaving.

More than 20 varieties of date are produced today in the oasis. *Khlas* dates, the most valuable, appear to have relatively low salt tolerance and were mainly grown near to springs where water of low salinity was available and soil water logging least developed.

**Other Crops**

**Cereals**

Many cereals are known to have been traditionally grown in the oasis, the most important of them being rice. Other cereals that were and still are grown in the oasis are: wheat, barley, maize and sorghum. Cereal crop cultivation goes far back into the history of the area, but imported grain is reported to have increased during the twentieth century. As a result, local production remained small until the Second World War when the area under grains increased and cereal cultivation was found on about 3,500 farms because of the unavailability of imports. The cultivation of other crops usually shared some of the
agricultural processes following or going hand in hand with the processes practised in the palm and rice cultivation.

Rice
Al-Ahsa oasis was particularly famous in the region for producing and exporting rice, the Hassawi variety being characterized by its red colour, and rice still has a special importance in the Hassawi diet. Rice is usually cultivated in date palms edged basins (called *dwahi*) in a rotation with some vegetables such as onion, okra, egg-plant, beans and tomatoes. The crop is sown between late May and early June and harvested in about five months after sowing. Less valuable rice varieties could be grown on the more extensive lower lands furthest from the water sources that received water which had become more charged with soluble salts and were most prone to water logging. Rice is sensitive to cold weather so it is cultivated only in the period between June and November; the rice plots are usually put under vegetables in winter. The crop was usually sown in nursery plots and then transplanted to the main plots. Weeding and fertilizing were carried out usually 3-4 weeks after transplantation. The fertilizing of the rice plots was similar in type to that of palm trees, but the process was repeated two months after transplantation. At the harvest stage the crop heads were cut by hand and collected together. The crop was then threshed by a group of donkeys treading the grain on a circular platform, the animals tied to a central pole. The rice was later hand winnowed in the wind. Rice because of its high demand for water was irrigated once every 2-3 days and at the heading stage was permanently inundated. Here too, a considerable amount of labour went into land preparation, crop husbandry, irrigation and weeding.

Alfalfa
The Hassawi strain of alfalfa is the only one to have been grown in the oasis for as long as folk memory extends, and like other local strains grown in the region has consistently been proved superior to a wide range of imported alfalfa varieties. The area under this production has for many years been second only to that under date palms. Alfalfa is usually grown for about three to five years before reseeding in irrigated basins. Traditionally, animal manure were used to fertilise the crop but chemical fertilizers have been utilised in the past thirty years. Alfalfa was not only produced for the farmers’ own livestock but has also always been sold as a cash crop.

Fruits and Vegetables
In the past, fruits and vegetables were grown to meet local needs. They were generally not grown separately but usually planted among the palm trees. They had no commercial significance as most landholders grew fruit and a small range of vegetables for their own use, in modern times, specialised production for sale developed and today fruits and vegetables are next to dates in importance as cash crops.

The most important fruits grown in Al-Ahsa are grapes, figs, peaches, apricots, lemons, limes, pomegranates, and watermelons. The most important vegetables are tomatoes, onions, okra, egg-plants, carrots, peppers, cucumbers, lettuces and pumpkins. Traditionally small amounts of many others, such as chard, parsley etc. were grown for household consumption. In the oasis as a whole the range of vegetables and tree crops has always been fairly extensive but the range appears to have been quite small on any particular holding.
iii.4) Water Management in Al-Ahsa

The existence and the evolution over time of the oasis of Al-Ahsa is due to production techniques and water management skills and recycling, stretching for over 5000 years, that remained virtually unchanged until the introduction of the electric pumps in the 1960s and the subsequent large-scale reorganization of the water system.

Compared to other oasis systems, Al-Ahsa presents a remarkable availability of water. This natural condition explains why its water distribution is similar to the large-scale networks of canals used by the first river civilizations of Mesopotamia and Kazakhstan to whom Al-Ahsa was connected by trade and political relations. Al-Ahsa Oasis, therefore, remains a living testimony of those ancient systems. It presents, however, also a series of specificities, differentiating Al-Ahsa from the previously quoted examples, which make this oasis unique:

- The water supply of Al-Ahsa is not provided by the flowing of a river that runs continuously according to the gradient slope, but from water holes, springs and wells distributed in a timely manner in the territory. Water, therefore, is found at a lower level than the land. Over time, the population has created lifting systems to raise the water to the required level, and built networks of channels to direct it to the lower areas to water the crops. When more advanced animal-drawn lifting devices were developed, also the higher neighbouring lands could be irrigated. The very origin of this system explains why land ownership and proximity to water in Al-Ahsa does not guarantee the right of use, a right that responds to different rules of ownership. These considerations explain the development of long channels across the oasis, and why the waters of eastern sources are conducted to far away lands to the West and North.

- The excess water in a desert with a morphology characterized by depressions and water networks without runoff causes the creation of marshy areas with stagnant water and a high concentration of salts. It was therefore necessary to develop drainage techniques to reclaim these areas, creating, through continuous evolution, a historical system of recovery and reuse of water that is unique to Al-Ahsa Oasis and that until today can inspire new modern recycling projects.

- The irrigation water of Al-Ahsa gushes out from deep water sources devoid of loam and nutrients such as is the case for the Nile and the Mesopotamian waters. Thus Al-Ahsa agriculture requires fertilization. Large-scale usage of manure and soil fertility management techniques, therefore, developed over time.

Irrigation methods have been developed in traditional ways and continuously through the centuries almost without significant changes until modern times marked by the advent of the Oil Era.

In the early 1970s, a vast project of transformation of the oasis was launched, the “Al-Hassa Irrigation and Drainage Project 1967-1972”. It was conceived to address and overcome the growing problems caused by encroaching sands, to increase the amount of cultivated land, to improve drainage, and to cope with the social and economic changes induced by the oil boom. Since the 1970s, therefore, the characteristics of the water network of Al-Ahsa result from both the historic system of canals and from the modernization project.
iii.4.1) Historic Canals and Irrigation

Depending on the size and location of the farms, the plots of the oasis were traditionally irrigated by one of the two methods described below: “Saih” irrigation or “Mugharraf” irrigation

**Saih Irrigation**

In this method the water’s natural flow from a spring is diverted into channels following the general slope direction. By this gravity flow method, the water is used to irrigate successively farms nearest the spring and then at increasing distance from the source. The water leaving the spring was channelled through a main canal which was tapped by subsidiary irrigation canals called “masqa”, and diverted into the farm plot field channels. Surplus water was carried away by a channel called “munajja” to a larger canal called “thabr”. From the thabr water could then be diverted for re-use twice or three times more on low-lying farms. In some cases this already used water was mixed with pure water called “hurr” before being used for irrigation. Surplus water eventually founds its way in and around the oasis: the “sabkha”, salt-flat area.

Over the years, a very complex network of canals and channels was developed to distribute water from more than 160 springs and 330 wells to holdings, and the total length of distribution system was far longer than what was technically necessary for the area under cultivation. The occupation of land was not completed simultaneously, and during centuries of waxing and waning prosperity each landholder’s irrigation system had to be fitted into the previously existing pattern. Canal and channel construction and maintenance became more and more demanding of manual labour, not only because of the great distances involved but also because inter crossings had to be constructed with many small aqueducts called “nabah”, carrying one farmer’s water over another’s and to keep separate the clean water (hurr) from the charged water in the thabr and “tawiyih” (recycled) canals. Every landholder was responsible personally for opening and closing the “gate” (jussah), allowing water to enter from the masqa, on the understanding that other farmers also needed enough water from the masqa to irrigate their farms. The irrigation times and cycles which developed, varied according to the location of the farm in relation to the masqa and size of the farm. The farms adjacent to the subsidiary canals had a better chance of obtaining more pure water for irrigation and this location gave the farmer more economic power. Thus farms which had ample water were usually unfortunately over-irrigated, which led sometimes to waterlogging, particularly where impermeable layers lay near the surface.

**Mugharraf Irrigation**

This method differs from saih only really in the way in which groundwater is extracted, although this has consequential effects on other aspects of the irrigation system. Where the land lay higher than the level to which artesian water pressure rose or even higher than the distribution canals, the soils were often suitable for cultivation but the water would have to be raised mechanically. For small landholdings only slightly elevated, manpower was sufficient to lift water from wells and canals. Donkey power was used where the farms were larger and required more irrigation water as well as where the ground surface was pronouncedly higher than the level of irrigation canal. The distribution systems were similar in type, but on a smaller scale than the saih system because the quantity of water available was more limited. The mugharraf method was practised where the water level was not high enough in the
canals to supply the irrigation water to the farms. It was less suitable than saḥ for perennial crops such as date palms with large perpetual requirements. This method has gradually disappeared since the 1950s as a result of the introduction of engine-powered pumps to lift the water from canals to farms, thus lessening the intervention of human and animal labour and allowing an extension of the cultivated area on higher lands.

Traditionally, in Al-Ahsa Oasis the donkey provided the most important means of lifting water, and of pack and draught transport for agricultural and other purposes. Its manure was used for fertilizer. Al-Ahsa donkey breed was regionally famous. However, tillage and other labour was carried out by manual labour and with hand tools, and the density of planting of palms and the complex and extensive network of irrigation channels and canals were responses to this high input of manual labour. These factors, as well as the small size and fragmented distribution of farm holdings and plots, have long proved obstacles to the use or introduction of new technologies to improve the agriculture of Al-Ahsa oasis.

iii.4.2) Modern Water Canalisations

In 1960, the World Bank prepared a report for the Kingdom of Saudi Arabia’s Ministry of Agriculture (Approach to the Economic Development of Saudi Arabia Report (World Bank), World Bank, 1960). This report included recommendations that the stabilisation of the sand dunes and the improvement of irrigation and drainage at Al-Ahsa be undertaken “at the very earliest possible opportunity”. (I.B.R.D 1960). As a result of these recommendations the Ministry of Agriculture and Water commissioned the consultant firm Wakuti to survey the oasis in
order to obtain data on which to base a development project. As a result of these findings the Ministry of Agriculture and Water decided on:

1) Immediate strengthening of the sand stabilisation measures, among which were the levelling of the sand-dunes, covering the levelled area with a layer of soil 15 to 20 cm thick and planting suitable trees such as Tamarix, Accacia, Eucalyptus, etc.

2) Commissioning a design for an irrigation and drainage system by Wakuti.

3) The award at the end of 1966 of the construction contract to Phillip Holzmann, the work to be supervised by Wakuti. Construction was to start in 1967 and to be completed in five years.

Between 1967-1971, the construction phase of new distribution and drainage systems were completed. At the completion of the project, Al-Ahsa Oasis was supplied mainly through a new integrated water distribution net, drawing on 32 springs and managed by Al-Hassa Irrigation and Drainage Authority (HIDA). Additional irrigation water was and is taken from private wells. The 32 springs can be divided into two groups and three single springs. Generally, the springs are located along the axis Al-Hofuf, Al-Mubarraz and Al-Mutairifi village. The main springs lie very close to the 145 m. contour line which runs in a South-Southwest/North-Northeast direction. A group of 22 springs lies between Al-Hofuf and Bani-Ma`an village, Al-Mutairifi village group having seven springs. The single springs are `Ain Al-Harrah, located near Al-Mubarraz, `Ain Al-Jauhariyah, located near Al-Battaliyah village and `Ain Nasser, located near Al-Shabah village. Also, a number of less important springs and wells are scattered all over the oasis.
Under the new system of irrigation, there are two main distribution systems, one by gravity toward lower oasis levels designed to supply 16,000 hectares. The other one by lifting-up to higher levels, requiring three reservoirs, in order to supply 3,650 hectares.

In the former system, there are two main distribution canals, each one with sub-main and lateral canals. In the latter, there are no main canals, the laterals being fed from sub-main canals supplied directly from the reservoirs. In both cases, these are laid out to maximise hypothetical hydraulic efficiency with no reference to existing landholdings. All final distribution is by gravity flow, the only pumps required being those supplying three reservoirs.

The main canals, measuring 155 km, run along the contour lines in the irrigation area, while the sub-main canals (total length 265 km) cover the area between the main canals. They follow the incline of the terrain in general as determined by topography and they feed the lateral canals which carry the water to the plots.

The main and the sub-main canals cannot be tapped directly for irrigation, all water being distributed through the sub-main canals to the lateral canals, located at intervals of 150 m. with lengths varying between 600 and 1,000 m (total length 1,100 km).

**The New Drainage System**

The natural drainage is generally aligned to the East and North-East. The main directions of the new drainage system follow the natural slopes within the oasis. The drainage water discharges into two evaporation lakes located north and east of the oasis.
As one of the main aims of the new Irrigation and Drainage project was to provide for permanent leaching of the soil to reduce salinity, which was one of the biggest problems facing agriculture in the oasis, the establishment of a drainage system as efficient as the irrigation system was essential.

The new project includes two main drainage systems to parallel the distribution systems. There are two main canals for drainage, each with sub and lateral canals which run alongside the irrigation canals. The main drainage canal, D1, runs from Al-Hofuf in a northerly direction and drains the whole north oasis. The second main drainage canal, D2, starts east of Al-Hofuf and runs East draining the entire eastern oasis before turning north to the evaporation lake. The total length of the drainage canals is 1,320 km. with 140 km of main drainage canals, 180 km of sub-drainage canals, and 1,100 km of lateral drainage canals. All these canals were meant to be of earthen construction except for the connections between the upper and lower levels which are built in concrete, and the places where the drains cross the sand dunes which are enclosed concrete canals. The lateral drainage canals were constructed at intervals of about 150 m. parallel to the irrigation canals. These flow into sub-drainage canals which in turn flow into the main drainage canals.

iii.4.3) Land Parcel and Agricultural Exploitation

One of the characteristics of the agricultural land in Al-Ahsa Oasis is the small size of farms. This is a result of physical and sociological factors.

The main limiting physical factor was the restricted availability of groundwater relative to the growing demand over centuries.

A second factor is the topographic setting of the area which determined the direction of water flow and the availability of cultivable lands, this partly diminished by the advance of moving sand. The climatic factor, produced very high rates of evapotranspiration and therefore of water demand; periodic strong winds resulted in moving sand dunes.

The main sociological factor is the distribution of the holdings benefit, in accordance to the Islamic Jurisprudence. This system normally results over time in smaller holdings, as well in a more complex distribution pattern of water.

Technological limitations affected the ability of farmers to cultivate extensive units because they were depending on primitive tools and human effort supplemented only by animals. Therefore, the unit of cultivation by a single family was small, although where a landowner could employ hired or seasonal labor the ownership unit could extend over several cultivation units.

Until very recently, also the dependence on transportation by pack or draught animal transport discouraged the build-up of large scale transport and marketing systems, which, in turn, discouraged any attempt to build up large farms. Lastly, the main reason for cultivation was to produce crops for domestic and family consumption, mostly by the resident villagers but also by those Bedouins who controlled permanently cultivated land in the oasis. Up to about 1960, most families would have thought it shameful to sell surplus fruit or vegetables which were regarded normally as gifts to relatives, neighbours and the poor. Production was mainly subsistence rather than commercially orientated (even though a large volume of dates was sold outside the oasis); to most holders of land there was little point in trying to expand their holdings beyond that which they
needed for their families’ consumption. Some notable families, however, did build up fairly large holdings but even then this was mainly done to support the family group including retainers and servants.

Five main types of land ownership are found in Al-Ahsa Oasis:

a) Individual independent ownerships;

b) Multiple water-right ownership by several individuals who owned precisely delimited separate plots in one area, these plots being irrigated in common, but worked and harvested separately.

c) Joint ownership, where a group of people owns unequal shares of a certain unit of land which is worked, irrigated and harvested in common and the crop is usually divided among the owners in proportion to ownership of land.

d) “State lands”. These lands, which are different from endowments (Waqf) as they are controlled by bayt al-mal (the Monetary Institution), are considered Government properties taken over from the Ottomans after their political, military, and administrative withdrawal from Arabia. They fall under the administration of the Saudi Ministry of Finance, and some are attended by the Saudi Ministry of Agriculture and Water.

e) Waqf properties.

Thus most of the cultivated land in Al-Ahsa is still found in large holdings varying from 500 to 1,000 maghra-s (local measurement equivalent to 6x6 m.) medium holdings 300 to 500 and small holdings 50 to 100 maghra-s. With regard to “State Land”, by the time that traditional systems were becoming affected by the development of governmental bureaucratic administration i.e. between the 1910s and 1950s, in practice most of this land either:

a) Belonged to the Ministry of Finance which administered land which had been taken from the Ottoman administration in Al-Ahsa following the conquest of the region by King Abd al-`Aziz.

b) Came under the control of the Ministry of Agriculture and Water as formerly uncultivated land which could be granted to would-be farmers.

Another type of tenure is the Waqf. There are two types of endowment lands: the first refers to a piece of land given to endow a religious institution such as a mosque, madrasah (school) or cemetery. The second is an endowment of land in the names of certain respected person or persons on conditions that he or they should give the landlord’s proportion of income to the poor annually as alms. Traditionally, therefore, land was owned under a system which conformed with Islamic Law and which had evolved during a long period in which customary practices were observed by tribally-organised village and Bedouin communities.

Apart from the limited period when the oasis fell under the Ottoman administration there was no central authority or administration to regulate matters until the Kingdom of Saudi Arabia developed its national Government agencies and policies. Ultimately, land was equated with water rights and the survival needs of the inhabitants of the oasis.
iii.4.4) Social Implications

The most important factor in determining how agricultural land was taken up and occupied in holdings and plots was the availability of irrigation water, the quality of soil being of secondary importance. The outstanding characteristic effect of the linking of water rights to specific land units was that the size of the holding was restricted by the water permitted to flow to that holding’s plots for specific limited periods which were also determined and limited in their periodicity. In this way the farm-owner could not enlarge his holding by the purchase of another piece of land because that purchase would not include any transfer of water rights. At the same time a potential purchaser would also not be allowed to apply water from his original water-right source onto a newly acquired parcel of land because his right to irrigation water was restricted both by time and for a particular plot of land. The only ways in which the size of farms could be changed, therefore, were by the sale, gift or other transfer of a complete water-right, together with the whole plot of land associated with that particular right, by the opening up of a new water source and the associated exploitation of virgin land, or by the division, through inheritance, of water-rights and associated plots.

The possibility of exploiting unused water sources thereby creating new water rights and irrigable land seems to have been exhausted decades or even centuries ago. During the early period of the agricultural occupation of the oasis this process of creating new irrigable plots must have taken place. There is also evidence that as sand dunes advanced over cultivated land, particularly in the north eastern part of the oasis, it was also possible, for a time at least, for displaced villagers to move onto, presumably, unoccupied land. The division of property by inheritance, on the other hand, certainly led to a division of holdings between those heirs who wished to farm independently, although it seems, from local traditions, that water-rights and the associated plots were, if possible, not divided. Another aspect of water rights in Al-Ahsa is that there appear to have been no written rules or regulations for reference in cases of disputes. Local communities developed an institution headed by an elected official through an elder counsel voting system with the aim to regulate or administer water rights, even though the springs and the water sources were not private property. No individual or official seems to have had the right to offer to increase or decrease the amount of water allotted to any plot or landowner. The increase or decrease of the amount of water was the sole responsibility of the elected official. This traditional institutionalized management is somewhat similar to systems developed by Arabs in the falaj systems of Oman. Actually, the distribution of water and the looking after of the main canals leading from the main water sources were the responsibility of this particular official who utilized specific springs. Another factor, which added to the complexity, is that as the springs differed in their size and strengths of flow so customs and norms varied from one spring watered area to another. The interrelated issue of water rights and holding plots in Al-Ahsa oasis was a product of the evolving traditions and norms of Hassawi society. The end result of a combination of these historical and social processes of the occupation of the oasis by irrigation farmers, and the irrigation technology was the creation of what was a very rigid and inflexible system.
In time, land exploitations resulted in the rise of the groundwater table, in the increase in the soluble salts content of irrigation water, as well as in the expansion of the area of salinised land. The farmers’ tendency towards over-irrigation, which produced increasing soil and water salinity, resulted from average irrigation periodicity of twice a week in winter and three to four times a week in summer. This periodicity was dominated by the perceived requirements of the dominant crops, date palms, alfalfa and rice, on sandy loam soils which when well maintained have a low water holding capacity, and given the high evaporation and transpiration rates. By the early 1950s the agricultural areas in the oasis were estimated to total 16,000 hectares. The combination of over-irrigation and the successive reuse of irrigation water which passed from plot to plot built up the soil salinity. In the absence of a good drainage system, the area actually carrying crops was much smaller. Wakuti surveys (1963) indicated that the total irrigated area in Al-Ahsa was then about 8,000 ha. Furthermore, in 1965, the area actually under cultivation was estimated at just 4,000 ha. This situation appears to have developed as a result of the combination of the joint impact of sand movement and the deteriorating conditions of soil and drainage in the oasis. The general dominant characteristic of agriculture in the oasis until the 1970s’ was its traditionalism. Traditional farming practices and agricultural tools were used. In addition, most of the farms in Al-Ahsa oasis were too small to be economically viable. 52.1% of the farms are below 5 donum-s in size and account for 14.1% of the total cultivated land, while 76% are below 10 donum-s, and comprise 31.2% of the total land under cultivation. Moreover, the proportion of land date palms is higher in the smallest farms. It should be realised that, until the 1950s, agriculture was of a subsistence nature, based upon dates, for which small size of farms was traditionally not a disadvantage. Size became an issue only because of modernization: in the changing economic situation, small farms make it more difficult for farmers to obtain adequate financial returns in comparison with returns provided by non-agricultural activities.

Land use in Al-Ahsa is due to several main factors:

1) The long period that Al-Ahsa has been settled (at least 2,500 years);
2) The tremendous number of natural flow springs and the importance of their water in such a hot, arid zone resulted in a complex pattern of settlements and water distribution.
3) The fact that according to the Islamic law of inheritance, when a landowner dies, all he owns is divided among his heirs. Consequently land holdings were split between them, unless they came to some other arrangements, such as holding the land jointly or selling the land;
4) The prestige attached to holders of date gardens on account of the relaxation available in their shade and the relief from the harsh climate. Date gardens provide pleasant surroundings for social and business discussions.
5) The contribution that the palm grove supplies to the persistence of the urban and agriculture ecosystem of Al-Ahsa;
6) The sense of identity and attachment of the inhabitants to the bio-cultural landscape of the oasis;
7) The persistence, also in presence of modern transformations, of the traditional social system that shaped the domestic and rural environment.
Al-Ahsa Oasis, an Evolving Cultural Landscape

[Photo left] Harvest of dates in Al-Ahsa oasis, Aramco Archives, s.d.

[Photo right] Harvest of dates in Al-Ahsa oasis, F. Cristofoli, 2015
iii.5) Al-Ahsa Oasis and its Settlements

iii.5.1) The Main Urban Sites

The evolution of the historic settlements in the oasis is briefly outlined in § 2.b. In the following pages is presented the current situation in the city and in the villages, focusing on the areas included in the Nominated Property.

Al-Hofuf

Located in the Eastern Province of Saudi Arabia, Al-Hofuf has since the 1970s merged with the nearby city of Al-Mubarraz and has become one of the major urban centres of modern Saudi Arabia. Al-Ahsa Municipality (Amana) is in charge of the ensemble of the oasis and of the administration of the city. The modern city counts almost one million inhabitants, while some 1.5 million people reside in the larger oasis area. A new Master Plan for the development of the city towards the East has been recently approved and will further modify the larger urban environment of the oasis. The area occupied by the historic quarters of Al-Hofuf represents today only a small fraction of the urbanized surface of the contemporary city.

The Al-Hofuf components of the Nominated property includes exclusively the main historic emergencies that have been preserved until today: Qasr Ibrahim, Suq al-Qaysariyah and Qasr Khuzam.

The urban part of Buffer-Zone-ii includes, beside the historic cemeteries located between the gardens and the city, the ensemble of the historic Al-Kut quarter in the Old City, and two “extensions” outside its former limits: one within what used to be Ar-Rifa`ah quarter to include Suq al-Qaysariyah and the neighbouring urban sector that has preserved the original urban layout and part of the traditional built fabric, and the other in what used to be an empty market area between Al-Kut and An-Na’athil quarter, an area that has been progressively filled in with administrative buildings since the 1930s and notably includes Al-Amiriyah School, the first historic school of Al-Hofuf.

It should be pointed out, however, that only a careful reading of the aerial pictures permits to identify on the field the original historic settlement, as the present-day city bears few traces of the past. Only the position of the main road axes reminds the location of the walls that encircled the city and Al-Kut quarter. Similarly, apart from the nominated buildings, only few mud brick structures and historic mosques have resisted the dramatic transformation brought about by modernity and the exploitation of oil, even though urban sectors that show the original urban fabric characterized by low-density low mud structures still exist and are included in the Buffer-Zone-ii perimeter.

Unfortunately, not much of the historic architecture in Al-Ahsa oasis survived, and our knowledge of the city’s architecture, it is mainly based on the rich documentation provided in the early 20th century by European photographers and by the earlier descriptions of 19th century travellers. The city’s traditional architecture was distinctive from that of Najd and central Saudi Arabia, and, as noted by Geoffrey King, “the cooling towers, arch forms, plaster decoration and woodwork… linked the oasis town with the coast and the mercantile architecture that characterized much of the more impressive buildings of the Gulf”.

In the recent years, the very surroundings of Qasr Ibrahim have also been transformed with the construction of a recent Governor compound south of the fort, of a modern bank
building West of it and with the demolition of Qasr al-Abid, situated immediately outside the city walls that used to provide protection to the North of the city.

The modern quarters of the city now extend West of as-Seef gardens, partially erasing the original landscape relationship that existed between the gardens and the historic urban settlement. As-Seef gardens constitute no more a green belt “surrounding” the city, but a sort of “green” area within a large metropolitan that almost includes the main bulk of Al-Ahsa Oasis.

The change of scale partially reduces the significance of as-Seef gardens/oasis, notwithstanding the fact that this sector has been able to preserve almost intact its original surface as shown by the comparison of historic aerial views. Only the opening of a large road heading North towards Al-Mubarraz through its easternmost part has partially affected its integrity.

Al-Mubarraz

Similar remarks can be done about the city of Al-Mubarraz, once an independent urban centre and now but a part of the large conurbation of Al-Hofuf/Al-Ahsa. In Al-Mubarraz, the loss of urban relevance of the historic nucleus is amplified by the overall “disappearance” of the city as an independent entity and by its merging with Al-Hofuf/Al-Ahsa.

The small buffer zone surrounding Qasr Sahood does not follow the historic limits of the Old City of Al-Mubarraz, but defines a entirely independent urban zone that comprises part of the historic city East of the fort (that used to be located outside the Western city wall) in what was formerly Al-`Utban Quarter, and part of the modern development of the city dating from the early 1970s West and North of the fort.

In Al-Mubarraz too, the original urban nucleus can only be identified on aerial views for its traditional fabric, but very few traditional mudbrick houses have been preserved. Only the different scale of the urban fabric betrays the original urban nucleus and explains the location of the fort. Qasr Sahood, entirely preserved and listed as a major national heritage site, is no more an external fort protecting the settlement from the Nomadic raids, and is nowadays immersed within the modern city fabric.

### iii.5.2) The Villages

The incredible growth of the urbanized territory in and around Al-Ahsa Oasis in the past thirty years has had a profound impact also on the 50 historic villages of the oasis.

The built-up areas now almost entirely surround the great oasis forming an almost continuous urban sprawl covering tens of square kilometres. The small villages that developed on the fringe of the oasis have now outgrown and created a built-up continuity with Al-Hofuf/Al-Mubarraz built areas. Only the villages located within the oasis, like Al-Battaliyah, have partially preserved their original layout. Yet, even these villages have mostly been completely rebuilt and have kept only scant traces of their original buildings. Apart from Al-`Oyun, even the villages that have preserved a circular plan did not manage to preserve their historic mudbrick structures.
iii.5.3) The Archaeological Sites: ʿAin Qinas and Jawatha

The Nominated Property counts two archaeological zones entirely fenced off and belonging to the Saudi Commission for Tourism and National Heritage: ʿAin Qinas and Jawatha. The two sites are covered with sand and have not been fully excavated, though archaeological soundings have been carried out in these sites in the past.

ʿAin Qinas

The mound-spring of ʿAin Qinas is located in the northern half of Al-Ahsa Oasis. The mound is oval in shape, measuring about 250 meters in maximum diameter; it rises slightly over three meters above the surrounding topography. A similar, though smaller, mound stands only 50 m to the North. The main mound was researched and partially excavated in winter 1972 to demonstrate prehistoric, interregional interaction in northeastern Arabia, in relation to the adjoining nuclear region of Southern Mesopotamia.

Five meters of spring zone deposits yielded cultural material ranging from a-ceramic lithic to ceramic (Neolithic) components. The stratigraphic column at ʿAin Qinas consists of 14 main strata with additional subdivisions in levels 12 and 13.

The mound spring of ʿAin Qinas, like similar such systems, represents a stratigraphic sequence relevant for palaeoclimatic interpretations. Increased cultural occupancy can be seen to have occurred during moderate phases of flow.
**Jawatha Site**

Jawatha archaeological site includes a number of distinct archaeological sites. In the western part are remains of ancient agricultural practices with irrigation structures connected to the nearby water sources (notably Jawatha and Kuwaikib springs at the southeast of the site and Um Qunnais spring at the south and southwest of the site); and, next to Jabal Ash-Shu’bah and Jabal Bureiqah, are found evidences of a river flow and possibly covered irrigation channels of the typology found in Oman. Settlements were located close to the highlands east of the cultivated areas.

Desert sands have covered agricultural lands and villages and surrounding residential areas, and have likely caused the migration of people from this area to the south where new settlements were later created. Four survey excavations carried out in November 2003 by Al-Ahsa Antiquities Office, have revealed parts of the ancient irrigation system.

The archaeological and historic studies have shown a succession of civilization settlement periods, and have highlighted the relation of Jawatha with other centres of civilizations and demonstrated its religious importance in the early Islamic period.

The site shows the path of a buried river connecting Jawatha to `Ain Qinas springs. It notably contains:

- `Obeid pottery coinciding with the first settlement periods in eastern Arabia during the 5th and 4th millennium BC.
- Dilmun pottery dating back to the period from 2500 BC to 500 BC. There are 58 pieces constituting 9.8% of the total pottery shards.
- Gerrha/Thaj pottery and ceramics named after the Jarha/Thaj dating back to the periods from 500 BCE to the 3rd century CE. It includes Greek, Hellenistic, Parthian, and Saluki eras coinciding with the prosperity of Gerrha. Gerrha pottery (86 shards) constitutes 14.52% of the total pottery shards.
- Tanukhid pottery and ceramic that were used during the prosperity of the center of civilization in eastern Arabia when some southern tribes immigrated and settled in the east. This pottery dates back to the period between the second half of the 3rd century BCE and the first half of the 7th century CE. It includes pottery that coincides with the Roman, Byzantine, and Sassanid eras. It is classified into two types:
- Tanukhid pottery coinciding with the Roman era (74 shards - 12.5%),
- Tanukhid pottery coinciding with the Sassanid era (200 shards - 33.78%) and the Tanukhid ceramic coinciding with the Sassanid era (13 shards - 13%) of the ceramic shards.
- Early Islamic pottery and ceramic (130 pieces - 13%) of the pottery shards.
- Jawatha Mid-Islamic pottery (29 pieces - 4.89%).
- Jawatha Late Islamic pottery and ceramics (15 shards - 2.52%).

Jawatha Mosque

Jawatha (Abd al-Qais) Mosque is one of the most prominent features of the original settlement. The mosque — built over the traditional site where stood the second mosque in Islam to hold a Friday prayer after the Prophet's Mosque in Madinah — was built in 1436 CE and probably restored in 1750. It has been recently reconstructed by SCTH. Remains of arches, forming a colonnade surrounded by a deck built of bricks with an outdoor courtyard surrounded by a high wall, were preserved and have been included in the recent reconstruction works.

It resembled the building typology found in Al-Battaliyah Mosque, while its reconstruction in the 18th century showed similarities with Al-Jabri Mosque first construction in Al-Hofuf. The upper mosque, built after the sand shifted over the lower mosque and the city disappearance, proves the religious and symbolic importance of this site for Islam and for Al-Ahsa residents who preserved the memory of its location after the sands had covered the mosque and the city completely, thus permitting to preserve the historic name of “Jawatha” — while most names of historic sites in Hajar territory have disappeared and their location is unknown.

Archaeological documentation shows that the mosque was located in a historic residential area. The establishment of Al-Ahsa National park has unfortunately lead to the destruction of most of the evidence of what should have probably included also the Bayt al-Mal (Treasure House), the governor residence, and a market connected by roads and alleys. In historic sources, Jawatha is often described as a fortress for the Bani Abdul Qais tribe, and it is likely that the settlement boasted a fort that couldn’t be identified in the soundings.
Al-Ahsa Oasis, an Evolving Cultural Landscape
iii.6) Monumental and Urban Heritage

A UNESCO 1976 Report already pointed out the relevance of the main fortresses of Al-Hofuf and Al-Mubarraz considering that:

“The town of Hofuf, the long-time capital of the al-Ahsa oasis area, has a number of imposing architectural landmarks of some historical interest. Three of these are worthy of retention not only as examples of traditional fortified residences of the rulers of the past, but also as dominating urban monuments in the town scene.”

Since then, the Saudi Arabian Antiquities have acted to preserve and restore these monuments that are now included in the Nominated Property of Al-Ahsa Oasis, an Evolving Cultural Landscape.

These three fortresses that are described in detail below shares similarities in shape, function and buildings techniques, but were actually built in three different historic periods.

iii.6.1) Qasr Ibrahim

“Perhaps the most beautiful and famous building in all of eastern Arabia” [Philby, 1922]

Qasr Ibrahim consists of a square enclosure with a very large central courtyard. The rooms alongside the inner side of the wall are used as barracks. Its most striking features are the large dome and the tall minaret of the mosque with their characteristic Ottoman shapes. The fort combines Islamic and military architecture features and covers approximately 16,500 m².

The history of the fort is not well documented. It seems that it was originally built during the Jabrid period (1440-1549 CE), but it was certainly enlarged and transformed in 1556, during the Ottoman period, by Ali b. Ahmed b. Lawand Al-Burayki, the Ottoman Governor, who constructed Al-Qubbah Mosque. In 1801, the Saudi Governor Ibrahim b. Ufaysan — from whom it took its present name — renovated the fort.

Al-Qubbah Mosque

Al-Qubbah Mosque is situated in the southwest corner of Qasr Ibrahim has a large semi-spheric dome. It is unique in the Kingdom in terms of its construction and style. According to the inscription above its main entrance, the mosque was erected in 1569-1570 (976 AH). Built of mud brick and stone covered with a local plaster, the mosque sits on an elevated brick platform within the courtyard of the castle. The south and west walls of the mosque are adjacent to the castle walls, while the north and east walls of the mosque remain open to the courtyard. These north and east walls are treated by a portico of pointed arches supported on large circular columns and roofed by a series of circular domes; some of these arches are decorated with circular lobes. The mosque has two outdoor mihrab-s: one, within an undecorated pointed arch, is on the qibla side of the northern portico, and the second is located to the east of the mosque and it is freestanding.

The mosque is accessed through two doors situated in the eastern and northern walls. The main access is on the eastern wall, decorated with incised plaster decorations depicting Coranic verses and geometric patterns on the arch intrados; it directly faces the qibla wall in the axis of the mihrab.

The prayer hall is composed of a single square space roofed with a dome supported on squinches each of which is topped by a
small circular dome visible from the exterior. The qibla wall to the west is preceded by an elevated platform and holds an arched mihrab topped by a muqarnas semi-dome. Three built-in steps adjacent to the wall define the minbar towards the right of the mihrab. Six ground floor rectangular windows flanking the two entrance doors and the mihrab light the prayer hall. Additional arched windows are located above the mihrab, above the entrance, and below the dome. These are covered with carved plaster mashrabiya screens.

The mosque has a single minaret located at the northeast corner of the mosque. It forms a salient curvilinear feature within the portico where its entrance is located. The minaret ends in a slightly pointed dome decorated with a metallic crescent.

**Other Ottoman Features**

Besides the mosque, the other main architectural feature typical of the Ottoman period castle was the Turkish hammam, the only one existing in Al-Hofuf and in the eastern part of Arabia. The hammam was a square-shaped building ceiled with a large round dome. There used to be a main water pool around which were located smaller rooms and corridors. Water was drawn from a well located inside the hammam that was heated and then distributed to the main bath room. Today, only the cold room remains, while the hot and warm rooms have been demolished.

Other interesting structures are the domed storage rooms with the underground room used for storing ammunition, accessible from a staircase opening on the storage gallery. The plan of this structure does not follow the orientation of the rest of the courtyard.

**Military Architectural Elements**

Apart from its main monumental elements, Qasr Ibrahim is important because it played a major role as central fortress and seat of the ruling Ottoman authority between the 16th and the 18th centuries.

A high and solid wall, with four round towers at each corner and three other semi-towers in the centre of each wall, surrounds the castle. Only on the Western side, where is the main entrance, a more complex protected entrance replaces the round semi-tower. All the corner towers are filled at the ground level and do not have inner rooms. A dry moat used to surround the wall to add an additional defence. Along the western wall were located external stables for the horses that have been demolished during the restoration works.

Once re-conquered in the Third Saudi Period, the fortress was restored and new barracks and structures were added.
relatively regular galleries now run along the Western, Northern and Eastern walls. The one on the Western side is likely from Ottoman period, while the other two were restored and modified in the 19th and 20th centuries. On the Eastern side, two external staircases lead to three upper rooms opening on a small arched gallery.

The last major feature of the fort is the monumental well, located in the middle of the western wall between the service room at the north and the main entrance at the south. A watchtower protects the well that is 51 meter deep. A pulley was erected at a later stage to draw the water. North of the well was a large water reservoir that was directly filled in from the well through a canal.

**Modern Restoration and Current Situation**

The fort has been renovated in late 1980s and it currently hosts a series of exhibition galleries with historic photos of the oasis and of Al-Hofuf and different objects presenting the life in the oasis until the discovery of oil. Qasr Ibrahim is open to the public and guarded.
Al-Ahsa Oasis, an Evolving Cultural Landscape

[Fig. 48] Qasr Ibrahim plan, survey drawings, SCTH, 2016
2.a) Description

Kingdom of Saudi Arabia
January 2017

[Fig. 49] Qasr Ibrahim section-elevation, survey drawings. SCTH, 2016

[Photo next page] Historic photo of Qasr Ibrahim, Aramco Archives

IBRAHIM PALACE
iii.6.2) Suq al-Qaysariyah

The main historic market of the city of Al-Hofuf was originally built in the mid-19th century and then enlarged and modernized between 1917 and 1923 when it became a large monumental bazar. This building was destroyed by a fire in 2001 and has since been reconstructed by SCTH in its original location and with its original shape.

The complex develops along As-Suwaiq Street with a long continuous arcaded façade crowned by a crenelated cornice. It is composed of two independent blocks connected by an arch spanning Al-Hadadeen (Blacksmiths) Street. The reconstructed Suq al-Qaysariyah covers some 6,500 m² and counts 422 shops, some 1,800 m² of covered corridors and a mosque. Almost 40% of the site is municipal owned.

Al-Qaysariyah continues to play a central role in the city's life and acts has a powerful memory of the historic settlement of Al-Hofuf. The complex occupies a large plot of land along the main north-South axis that crosses the Old City and has several inner lanes dedicated to specialized trades.

In Suq al-Qaysariyah, are located a traditional café and cloak shops selling precious cloak decorated with gold and silver embroidered strips locally known as “Mishlah” or “Bisht”. This traditional handicraft is typical of Al-Hofuf and highly estimated across the kingdom and the Arabian Gulf States.
Al-Qaysariyah, plan with the layout of the shops, SCITH, 2015
iii.6.3) Qasr Sahood in Al-Mubarraz

Located outside the historic city walls of Al-Mubarraz, Qasr Sahood was built to protect the city from attacks coming from nomads’ raids. It is the one of the three surviving examples of qusur in Al-Ahsa region, and was built in the 18th century, when Al-Mubarraz was the capital of the Bani Khaled rulers. In the Ottoman period, it was used as a military barracks. It owes its name to the huge cannon that once stood in the fort.

This imposing fortress covers some 118 x 83 metres, and has a rectangular plan with four strong round irregular towers in the four corners and two additional round ones in the centre of the longer sides, on the North and South. A powerful square tower protects the entrance, situated on the Western side. The high continuous wall surrounds a vast rectangular enclosure where are located, on the western side, the fortress mosque, water well, guardroom and military facilities. The rest of the area forms a large, almost square, open courtyard.

The fortress walls and towers have an impressive thickness, more than five meter at the basis and almost two at the top, where a continuous passage runs along the whole wall perimeter from the inside, protected by a parapet on both sides, to the exterior and towards the courtyard. The towers have a characteristic irregular shape with a very thick blind round wall on the ground-floor, where the small rooms open only towards the courtyard. At the upper level, the tower rooms, accessible from the long wall corridors, have openings to shoot in every direction from where the defendants could fire at the enemy and flank the walls. The towers also have a second floor upon which lies an accessible terrace surrounded by a continuous parapet with protruding fire openings protected by the characteristic “nose-shaped” parapets.

The fort is built in mudbricks with layers of stone in the basement. In Qasr Sahood, however, wood has been used to a greater extent than in the other examples to reinforce the walls, acting as a load distributor for the floor joists, and over and under window openings. Even the round columns and the stone-shaped capitals of the ground-floor buildings are in fact made of wood logs laid alternatively and plastered.
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[Fig. 51] Qasr Sahood, plan and elevation, survey drawings, SCTH, 2016

First Floor Plan

Sahud Castle
Qasr Khuzam is located southwest of the old city of Al-Hofuf in what used to be an open desert area. It was constructed in the early 19th century during the First Saudi State, along the trade route connecting Al-Ahsa with the Northern Arabian Gulf to host a military garrison. It was later modified in the early 20th century when it became a weapon warehouse. The fort is now found in a dense modern neighbourhood that developed South of the as-Seef gardens.

It is a typical fortress with a regular rectangular shape. It used to be surrounded by a deep moat that has been filled in the 1970s. It has four round towers in each corner and two central semi-towers in the middle of the southern and northern walls. Its only entrance is located in the centre of the northern façade, in the form of a typical “L” shape to avoid direct access to the interior. It is protected by the north central tower. The fort is essentially a large enclosure surrounded by a 6.3 meter high wall. Along the wall, at some 4.3 metres from the ground, runs a continuous passage with loopholes from where the soldiers could fire on to the assailants. The upper path runs above the entrance arch and permits the access to the towers. The external walls are crowned with a crenelated parapet to protect the soldiers. The six towers have no ground floor rooms, but only upper level rooms and an accessible terrace at some 10.5 m from the ground level. The tower openings are armed with typical protruding parapets protecting the soldiers from enemy fire. In the courtyard, are found only two more recent structures: an administrative building and a stable. Near the North wall is a guardhouse and near the south wall are some toilets. The fort has been restored by the Saudi Antiquities in the 1980s and is accessible to the public.

The structure of the outer walls is made of traditional mud-brick with masonry under courses, and is mud plastered on both sides. Floors and roofs are for the most part supported by palm beams placed at 30-40 cm, but much closer on stairways and critical openings, covered with plaited palm leaves or matting covered with an average 15 cm thick layer of clay and rubble of which the upper part used to be mixed with lime.
[Fig. 52] Qasr Khuzam, plan and south elevation, survey drawings, SCTH, 2016
iii.6.5) Al-Battaliyah Mosque

Located some 7 km from Al-Hofuf, the village of Al-Battaliyah counts among the most important traditional villages of the oasis. The modern settlement has preserved the round layout of the historic village, even though most of its original houses have been replaced by modern constructions in the past 30 years.

Southwest of the historic core of the village, amidst the palm groves, is situated Al-Hassan Mosque, one of the most important historic constructions of the oasis. The mosque was originally built in the 10th c. CE and modified since. At-Turath Charity Foundation has conducted an architectural study of the mosque and carried out its restoration. Restoration work has required rebuilding the collapsed parts of the mosque using traditional construction materials from the local environment.

The mosque has a regular rectangular shape with five arcades on the each side of the central door, and opens on a large square courtyard surrounded by a wall.
iii.6.6) **Al-Fakhriyah and Al-Mardiyah Palaces**

Among the palm groves of Al-Ahsa Oasis are found two interesting privately-owned mansions presenting similar architectural characteristics: Al-Fakhriyah and Al-Mardiyah Palaces. These two properties, currently in a dilapidated state, are both listed as national monuments. They were built at the beginning of the 20th century and represent a transitional style based upon the use of local architectural elements and traditions.

Al-Fakhriyah Palace is owned by the late prince Abdullah b. Jalawy b. Turkey b. Abdullah Al Saud, the grandson of Imam Turkey b. Abdullah who fought with king Abdul-Aziz in many of the Kingdom’s unification battles. During his rule, Al-Fakhriyah palace was used as a rest house for His Excellency and as a meeting place to receive representatives of the local community. Surrounded by a well-kept agricultural farm, the palace is located 7 km from Al-Hofuf near Al-Hillila winding road. The place covers a surface of about 555 m² on two levels.

Al-Mardiyah Palace, built by Turkish masons, is located within a palm-date farm in Al-Fudhul village. Its ground floor gallery shows richly decorated arches; while on the upper level a large terrace opens towards the palm grove.
iii.6.7) Al-`Oyun Village

The village of Al-`Oyun, that owes its name to the many water springs that watered the area ("`Oyun" is the plural of "`Ain", eye, or water spring), is included in the Component 010 of Al-Ahsa Oasis, an Evolving Cultural Landscape nominated property, and lies at the northern limit of Al-Ahsa Oasis. An earlier settlement was identified north of the current location of the village but was abandoned due to threat of being taken over by the drifting sand dunes. The population of this settlement moved some 2 km south and founded the village of Al-`Oyun, probably at the beginning of the 19th century.

Al-`Oyun is the most complete example of the traditional villages of the oasis, and has been able to preserve until today not only its general layout (the circular wall that surrounded the village has been demolished), but also its direct relationship with the nearby date palm gardens.

Situated to the South of the large modern settlement of Al-`Oyun, the historic village preserves many mud-brick and stone houses with examples of two-level houses and preciously decorated arcades. Though most traditional houses lay in ruins, the village new constructions have generally maintained the village original scale.

The walled village used to cover a surface of 43 hectares, but it began to extend beyond its walls since the 1950s. Until the 1980s, the urban growth took place towards the North and the West at a relatively “regular” pace, but from the 1980s onwards, the very scale of the village has been completely transformed following the establishment of industrial activities and workshops in the North. The modern village covers now some 1,775 ha and has partially merged with nearby Al-Marah village.
Al-Ahsa Oasis, an Evolving Cultural Landscape

[Image left] Satellite view of Al-`Oyun, Google Earth, 2016
iii.6.8) Other sites in the Buffer Zone

Though relatively little remains of the historic fabric and buildings of Al-Hofuf, some structures included within Buffer-Zone-ii deserve attention and offer an insight into the city’s life in pre-oil Arabia. Among them are mosques, traditional houses, and the first modern school of Al-Hofuf. In the area formerly occupied by Al-Kut quarter, are found two historic mosques that, though partially modified and transformed to adapt to contemporary needs, have largely preserved their historic features.

Ad-Dibs Mosque and Al-Jabri Mosque

Al-Jabri Mosque: It was built in 880 AH (1475 CE) at the end of the Jabrid period by Said-ad-Din Al-Jabri. Constructed of white limestone, the rectangular structure covers some 1,400 m², with four colonnades surrounding the mosque. It has retained the original domes and arches, and has recently been restored by Al-Turath Foundation.

Ad-Dibs Mosque: Its name derived from the nearby molasses warehouse. The mosque's official name is Al-Fatih Mosque, attributed to Muhammad Al-Fatih, the Ottoman Sultan who ordered its construction in 962 AH (1555 CE). The mosque, located in the immediate vicinity of Qasr Ibrahim, has preserved its original mudbrick walls and its general layout.

Al-Amiriyah School

The first modern school of the region opened in Al-Hofuf in 1941. The school was attended by the urban elite and by members of the Royal Family. It was one of the first schools in the Gulf region and presents some similarities with other historic schools in Kuwait and in Dubai. The school, developing on two levels and with two courtyards, is characterized by its elegant arches protecting the corridors that give access to the classrooms. This large monumental structure has been recently restored by Al-Turath Foundation. Located in the centre of the Historic city, the School now hosts a small museum presenting the traditional education methods and its most illustrious students.

Al-Mulla House

It is a typical example of traditional house of a wealthy Al-Hofuf merchant family. Recently restored by SCTH, the two-level house develops around a square courtyard. The house has...
notably preserved its original doors and decorated plasters and a traditional date press (madbasa) in the ground-floor near the kitchen.

**Minor Forts and Remains**

Apart from the main monuments and features presented above, scattered remains of traditional historic buildings can still be found in the oasis, though often abandoned and in an advanced state of decay, or incongruously included in the rapidly developing modern urban quarters. Within the property buffer zone are notably found the remains of other historic forts, built in the 18th and 19th c., to protect the main communication axes, and some historic rural mosques and houses. Among the historic mosques located within Component 01, the two mosques of the village of At-Tehamiyah deserve to be mentioned. This village, located at the South foot of Jabal al-Qarah, used to be surrounded by a wall on its southern side and was settled by important Ottoman families. The two historic mosques of At-Tehamiyah, the Eastern and Western, date from the Ottoman period and still contain precious plaster decorative elements. They have been recently restored under the supervision of Al-Turath Foundation.
iv.) The Buffer zone

iv.1) Concept and Role

Al-Ahsa Oasis, an Evolving Cultural Landscape nominated property — composed of twelve components — is surrounded by seven separate buffer zones covering a total surface of 21,555 ha.

The UNESCO Guidelines for the implementation of the 1972 World Heritage Convention (§.104) affirm:

“For the purposes of effective protection of the nominated property, a buffer zone is an area surrounding the nominated property which has complementary legal and/or customary restrictions placed on its use and development to give an added layer of protection to the property. This should include the immediate setting of the nominated property, important views and other areas or attributes that are functionally important as a support to the property and its protection. The area constituting the buffer zone should be determined in each case through appropriate mechanisms. Details on the size, characteristics and authorized uses of a buffer zone, as well as a map indicating the precise boundaries of the property and its buffer zone, should be provided in the nomination.”

Accordingly, the buffer zones proposed for Al-Ahsa Oasis, an Evolving Cultural Landscape have been drawn to achieve an ensemble of results, and notably to:

- Prevent possible encroachments on the nominated property
- Direct and control planned development projects
- Preserve the visual integrity of the site

The buffer zones size and boundaries, and their very scope, depend on the specificity of each component of the Nominated Property; therefore, the seven zones present different characteristics, ranging from oasis garden to desert zones, from urban sectors to natural landscapes.

iv.2) Description of the Boundaries

The buffer zones have complementary legal restrictions providing an additional layer of protection to the property. Though composed of seven distinct and separated sub-zones, Al-Ahsa Oasis, an Evolving Cultural Landscape buffer zone can actually be divided into three larger sectors, named “A”, “B” and “C”, which almost present territorial continuity and cover the vast majority of the larger oasis territory surface.

Indeed, Buffer-Zones-ii, -iii and -iv can be considered as “extensions” of the larger Buffer-Zone-i, separated only by small urban sectors (Sector “A”).

Similarly, Buffer Zones v and vi can be considered as a connected and covering the largest part of the northern part of the oasis (Sector “B”).

While Buffer-Zone-vii, the largest among them, forms a third sector with distinct characteristics relating more specifically to the natural elements of the cultural landscape (Sector “C”).

The functions and scope of the seven sub-zones are detailed in the following paragraphs.
iv.2.1) Sector “A”

Buffer-Zone-i

It encompasses the two major sectors of Al-Ahsa oasis, the Northern oasis and the Eastern oasis. Buffer-Zone-i covers an area of 5,825 hectares and also comprises most of the canal draining the Eastern oasis and bringing the water to Al-Asfar Lake.

The perimeter of Buffer-Zone-i generally follows the very limits of the green area of the oasis and includes some built-up areas within the palm groves that have been excluded from the nominated property (Components 01 and 02).

In the East, it runs, from North to South, along the highway that follows the path of the 1970 canal, extending to include the village of Al-Battaliyah and its recent developments, then turns East to follow the limit of the plantation and agricultural lands excluding the built-up areas of the villages and recent urban developments of Al-Kilabiyah and Al-Miqdam villages. The boundary then surrounds Jabal al-Qarah, incorporating the twin Jabal Abu Hasis hills and the built-up areas occupied by the historic villages of Al-Qarah and Thuwaythir.

In the East, following roads and water canals, the perimeter includes the largest part of the gardens creating a “ring” surrounding the Eastern Oasis nominated property (Component 01). Further east, it extends as a 75 metres wide stretch of land all along the drainage canal leading to Al-Asfar Lake until it passes below the highway in the vicinity of Al-Asfar Lake.

In the South, the perimeter follows an irregular path to include the ensemble of the oasis gardens and to exclude new urban developments. The southern limits of Component 01 are not continuously surrounded by a buffer zone, as in the north.

In the Southwest, Buffer-Zone-i follows the limits imposed by the road network that is based upon the 1970 canal grid. In this sector, the buffer zone also includes the village of Bani Ma’an, almost entirely developed in recent years (its ancient springs are included in Component 01).

On the West, from South to North, the boundary follows at first the highway path, then turns eastward to include a strip of
gardens and to exclude modern developments. Then, after following again the highway limit, it prolongs westwards to include a sector of palm groves extending towards the urban areas of Al-Mubarraz. The boundary then runs along the limit of the built up extension of Al-Mubarraz creating a “bottleneck” west of the main 1970 draining canal connecting the northern and the eastern sectors of the oasis.

Around the Northern Oasis (Component 02), Buffer-Zone-i notably includes four built up areas that correspond to the traditional villages of Ash-Shi’bah, Al-Qurayn, Ash-Shuqayq and Al-Julayjilah, and provides an almost continuous “belt” around the nominated area 02 following the limits of the oasis watered areas.

The main function of BZ-i is to control the future urban and infrastructure developments that might negatively affect the integrity of the oasis, in order to guarantee a smoother transition between the preserved core and the rapidly growing outer sectors.

The management of this zone implies that agricultural areas are preserved as such, and that village development plans are re-adapted to comply with the nomination criteria and expectations. The planned development of the new city of Al-Hofuf, that opens large tract of desert land East of the oasis to urbanisation (Cf. Master Plan 2030), permits to ease the pressure for further extensions of the existing villages, and provides an opportunity for a re-definition of the principles directing the regional development to better preserve the agricultural and oasis values and lands.

Buffer-Zone-i is composed of two types of plots:

- Oasis gardens forming a crown around the nominated parts of the oasis (components 01 and 02). These gardens show characteristics similar to the ones found in the nominated property, and constitute an essential part of the overall cultural landscape. The buffer zone gardens, however, are located on the fringe of the oasis and are therefore in direct contact with the oasis larger surroundings. Their vegetation often appears less coherent and dense and they are more directly menaced by the urban growth and development of the region.

- Urban areas (traditional villages and modern extensions) located within and around the oasis green areas. Though the majority of the recently developed urban areas of Al-Ahsa region remain outside the buffer zone, BZ-i comprises a relatively large population that has, purposefully, not been included in the nominated property.

Buffer-Zone-ii
The buffer zone covers a surface of 226 ha and encompasses four distinct nominated properties (components 03, 04, 05 and 06). It contains two distinct sectors with different land uses and characteristics: a belt of watered gardens belonging to the as-Seef oasis of Al-Hofuf, and urban districts of Al-Hofuf.

The Northern, Western, and part of the Southern boundaries of Buffer-Zone-ii, follow the limits of the watered gardens of as-Seef oasis.

The Eastern limits, from North to South, follow the path of the former historic wall of Al-Kut neighbourhood in Al-Hofuf, then extend eastward (in what was the historic Rifa’i quarter of the city) to include the urban sector surrounding the Qaysariyah.
market, where still remains a dense traditional urban fabric and some examples of earthen architecture houses.

The Southern limits include the historic school of Al-Hofuf, and then follow the road axis marking the southern limit of the historic Al-Kut neighbourhood and of the ancient walled city. At the Southwest edge, the buffer zone perimeter extends southward to surround Qasr Khuzam with a protective buffer composed of recent, regular low housing.

BZ-ii is composed of two different parts that answer to different needs and play different functions:

- On the one side, BZ-ii includes the external “ring” of as-Seef nominated property and forms a transition zone between the heart of this urban oasis sector and the surrounding built-up areas.
- On the other, BZ-ii comprises a relatively large urban sector covering the historic areas of Al-Hofuf and its main historic cemetery. This complex urban zone does not only “protect” the three monumental “nominated properties” found within its limits, but includes also additional minor architectural emergencies and surviving elements of the traditional urban fabric that complement the attributes of nominated properties components 04, 05 and 06.

Buffer-Zone-iii

This small urban sector is essentially a “buffer” protecting the immediate surroundings of Qasr Sahood from unsuitable developments plans. It is the smallest of the seven buffer zones of Al-Ahsa Oasis, an Evolving Cultural Landscape, with a surface of just 1.2 hectares. The buffer surrounds in all directions Qasr As-Sahood (Component 07) located immediately West of the original core of Al-Mubarraz.

The boundaries, that follow clear street alignments, include:

- On the East, part of the urban fabric of the old Mubarraz, composed of low and dense housing and narrow streets;
- On the South, a sector of old Mubarraz, but also two large modern plots occupied by low density structures built in the past 30 years near the fort, and a large low construction hosting commercial venues;
- On the West, two blocks of regular housing units planned for ARAMCO Saudi employees and built in the 1970s and 1980s.
- On the North, a large square plot adjacent to the fort, hosting public facilities.

Buffer-Zone-iv

This large buffer zone is composed of two distinct zones (the National Park and the Anti-desertification Project) and plays two very different roles.

Its north-western part surrounds Jawatha Archaeological area. It includes the eastern site of the hill and acts as a “buffer” preserving the natural landscape views from Jawatha.

Its second part is formed by the large desert area set apart for Al-Ahsa National Park, and almost reaches the north-eastern limits of BZ-i. The desert areas of BZ-iv is not part of the contemporary oasis landscape and therefore has not been included in the nominated property, but materialize the very continuous struggle between the activity of man to settle and cultivate the land and nature that tries to take over the fragile oasis environment. It constitutes therefore an important “secondary attribute” for the nominated property that
contributes to the very Outstanding Universal Value of Al-Ahsa Oasis, an Evolving Cultural Landscape.

The National Park was established in the 1960s and extends over areas that were once part of the oasis but has been covered by the sands in the last thousand years. Historic sources and the analysis of the topography show that for the past few centuries, Al-Ahsa oasis has been in a state of retreat due to an active sand dune field 35 km long, advancing southward along a large front.

A 1960 ARAMCO survey showed that individual efforts by the inhabitants of the oasis wouldn’t be able to keep the gardens, the villages and main drainage canals of the eastern part of the oasis from being overrun by the sand. The survey indicated that some 14 villages and many gardens were about to be overcome by the moving sand, and villages such as Al-'Umran and Ash-Shamaliyah would be inundated by the sand field within few years.

If Al-Ahsa oasis was to survive, the entire sand field movement had to be stopped. A first proposal in the 1950s, suggested stabilizing the dunes by covering them with a layer of asphalt. This suggestion was rejected, but the Ministry of Agriculture and Water carried out further studies in 1960 to find more permanent and convenient solutions.

As a result, initial fieldwork to implement the Sand Stabilisation Project was started in 1962. By the end of 1967, three belts of vegetation, each some 50 to 100 metres wide and 8 km-long, were completed, and 1,800 ha of land were planted with approximately 6 million trees and shrubs. The planting of two further belts of trees was started in 1975 using new “dry farming” systems. This method is based on utilising the very moisture present in the sand dunes, and uses one metre long Tamarix cuttings which are planted directly in the dunes without any levelling, covering with soil, or construction of wells and irrigation canals being necessary. More than 1,300 ha have been planted using the dry farming method.

This large zone covers a vast stretch of Al-Jafurah desert and part of the Southern Jabal al-Bureiqah and includes two separate nominated properties (Components 08 and 09) for a total surface of 4,691 ha.

- Buffer-Zone-iv notably comprises the entire area of Al-Ahsa Natural Park, where the 1960s and 1970s sand stabilization project developed to save the oasis from the risk of being overrun by the desert dunes. Its northern, eastern, southern and western limits follow exactly the park fence that separates the National Park from the desert on the North, from the sabkha and watered oasis areas on the East, and from the planted areas hosting a public park on the South.

- On the North-West, the buffer zone surrounds the large archaeological site of Jawatha and comprises the eastern side of Jabal al-Bureiqah until the mountain ridge.

iv.2) Sector “B”

The two buffer zones included in sector “B” are relatively close from the geographic point of view, but conceptually very different as they are separated by a gap of thousands of years. Buffer Zones v and vi do refer to two very different landscapes that formed throughout the millennia in this area.

Buffer-Zone-v

Is entirely composed of garden areas or of plots set within the main water distribution and drainage canal network that are not
currently cultivated (in the SE part). It forms a coherent protective zone around nominated property 10 (Al-‘Oyun historic village and gardens) to favour its survival as a traditional agricultural settlement in an area where modern urban development and industrial plants menace the very survival of the oasis.

- Covering 191 ha, Buffer-Zone-v comprises the largest part of Al-‘Oyun oasis, the northermost extension of Al-Ahsa Oasis, and surrounds from all directions the nominated property of Al-‘Oyun. It notably provides a buffer for the historic round village in the North-West, separating it from the recently developed modern settlement.

- The main drainage canal leading to the northern As-Sifalah sabkha marks the separation from the nominated property in the central zone and the very limit of the buffer perimeter on the North-East. The southern limit follows the path of one of the main canals.

Buffer-Zone-vi
This buffer zone does not refer to present-day oasis and is therefore not connected to the actual position of water drainage canals and gardens. It is meant to provide a protection from encroachments and unsuitable human activities around the archaeological site where have been discovered the oldest traces of human presence in Al-Ahsa region, the `Obeid culture site of `Ain Qinas.

- Extending over an area of 56.5 ha, it surrounds the archaeological area of `Ain Qinas providing a regular buffer 200-300 meters wide that reaches the drainage canal on the North and a secondary water canal on the North-East.

- The Western, Southern and Southeastern boundaries follow desert roads and paths, and property fences.

iv.2.3) Sector “C”
The third sector of the buffer zones concerns the area of Al-Asfar Lake (component 012). Its function is to protect the landscape and the wet areas in the vicinity of the lake where most of the oasis waters drain.

Buffer-Zone-vii
The buffer zone aims not only at protecting the natural landscape from unsuitable developments of infrastructure and settlements, but also at protecting its natural fauna and its hydrological role in the eco-system of the oasis. From the management point of view, the entire zone is already defined as a natural area in the 2030 Master Plan and is therefore legally protected.

BZ-vii is the largest buffer zone of all, covering a total surface of 10,780 ha.

- It includes the lake and the neighbouring lowlands and sabkha areas in a regular square delimited by the new planned highways and roads that will connect Al-Ahsa urban area to the new developments along the Gulf coast.

- The already existing highway marks the southern limit of Buffer-Zone-vii. The entire buffer zone territory is protected as a natural area by local Municipality regulations.
iv.3) The Larger Regional Setting of the Property

UNESCO and ICOMOS recent recommendations underline the importance of the large “setting” of World Heritage properties, beyond the actual areas included in the formal buffer zones. The “setting” provides the larger territorial background and might play an important role when the preservation of the integrity of the views from and towards the property, and the management of the property are concerned.

Art 112 of the Operational Guidelines notably underlines:

“…An integrated approach to planning and management is essential to guide the evolution of properties over time and to ensure maintenance of all aspects of their Outstanding Universal Value. This approach goes beyond the property to include any buffer zone(s), as well as the broader setting. The broader setting, may relate to the property’s topography, natural and built environment, and other elements such as infrastructure, land use patterns, spatial organization, and visual relationships (…).”

In the case of the cultural landscape of Al-Ahsa Oasis, an Evolving Cultural Landscape, because of its very size, the “concept of “setting” might appear less relevant as it tends to coincide with the very property large buffer zones. Yet, the “setting” is relevant at two different scales:

- At Al-Ahsa level, the “setting” of the property comprises the ensemble of the area included in the Al-Ahsa 2030 Master Plan that sets the new guidelines for urban development. The protected perimeters of the nominated properties and buffer zones are compatible and take into full consideration the foreseen planning regulations for the larger “setting” of Al-Ahsa oasis.
- At the larger scale, the nomination of some 8,544 ha surrounded by buffer zones covering a total area of 21,555 ha, has a significant impact on the “regional” interaction between the property and the entire Eastern Province of the Kingdom of Saudi Arabia. The decision to nominate Al-Ahsa Oasis for inscription on the UNESCO World Heritage List, marks a step in a new direction for the development of this part of the kingdom where the transformations brought about by the discovery and exploitation of oil have radically altered the traditional urban and natural landscape in the past 50 years. The attention to Cultural Heritage and to the oasis protection is part of a comprehensive national strategy aiming at developing the Gulf coastal areas as a tourist destination and at providing to the region residents new entertainment and cultural activities. The integration of the property and buffer zone limits in the strategic planning documents will permit to control the heritage impact of these plans on the site.
Al-Ahsa Oasis, an Evolving Cultural Landscape
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i.) Creation and Evolution of the Oasis System

i.1) Origins and Spread

The term “oasis” derives from the Greek, but it has a much older origin, being present in the Egyptian language as wahat, a word that is still used today, in Arabic, to designate oases. The ancient Greek geographer Strabo (64 BCE - 24 CE) is the first to give a geographical description of oases in his presentation of Egypt. Strabo wrote:

“The Egyptians call oases inhabited places surrounded by vast deserts, like islands in the open sea.” [Geography, Book xvii, Chapter 1, 5]

From this text already emerge the defining characteristics of oases:

- Man-made settlements (inhabited places);
- Typical of arid zones (surrounded by vast deserts);
- With which they contrast by virtue of their fertility and liveability (like islands in the open sea).

In ancient Egypt the word oasis appears in the late Old Kingdom on inscriptions of the Sixth Dynasty (2350-2200 BCE). The inscriptions describe a “Region of Oases” joined to the Egyptian Kingdom by a route that, passing from one oasis to the next, permitted to travel West and South. The Egyptians considered as oases only those locations characterized by apparently non-existent or scarce water resources. They clearly distinguished the areas of the western desert — which include the oases of Baharya, Dakhla, Farafra, Kharga and Siwa, indicated by the term “oasis” — from the Nile Valley. The latter, in fact, although depending on systems of irrigation and crop management, benefited from the plentiful water supply of a large river.

The oases are formed by small-scale local communities possessing environmental understanding specific to sites made habitable by applying techniques whose invention and preservation requires considerable effort. The establishment and dissemination of oases requires a combination of specialized knowledge and technical expertise related to the water, and strong motivation. Oases are never original creations; they associate different skills and elements that already exist, by using them in a new way. Oases are the fruit of the union of the environmental know-how of nomadic hunter-gatherers and herdsmen, with the techniques of farmers and, often, fishermen. These are supplemented by the roles of the patriarch, the military commander, politician, religious leader, or merchant. These figures, often combined in one person, are the proponents of the oasis project; they fix the objectives and channel the forces that spur settlement in given places. The drive to create oases may be due to:

- Climate change and environmental pressures in places that have already been settled;
- The need to settle in areas that can be mined – flint, salt, copper – or along the roads leading to them;
- The organization of existing or prospective trade routes;
- The control of thresholds and exchange points between different ecosystems;
- The establishment of hermitages and places of spiritual retreat or religious diffusion.
i.2) Neolithic Pre-Oases

The origin of the oases depends on the possession of qualified expertise and on the combined use of animals and plants suitable for the purpose — conditions that were first met in the early Bronze Age around the third millennium BCE. However, some of the characteristics specific to oases were already present in the earlier Neolithic cultures, which developed after 10,000 BCE in those areas where the advent of agriculture imposed the use of special techniques and skills.

The earliest Neolithic farming sites, such as Jericho in Palestine, Çatalhöyük in Turkey and Beida in Jordan, are located in areas that are now desert and that present many features characteristic of oases:

- Jericho lies in a depression at 200 m below sea level, a situation typical of many oasis settlements;
- Çatalhöyük has raw-hearth constructions closely connected to each other, in keeping with a climate-protection model that is still found today in the oases;
- The inhabitants of Beida used farming and soil-protection techniques that were later developed by successive cultures (Dilmun, Moab, Ammon, Dedan, Liyhan, Nabataean) to create oases and caravan cities across Arabia.

I.3) Climate Viability and Oases Genesis in Sahara and Arabia

The process of global warming has, as a general trend, progressed continuously since the end of the last Ice Age. However, this process has been interrupted by moments of abundant rainfall, which, taking place especially at high elevations, caused mountain water tables to refill, wadis to run and lakes to form in depressions. The alternation over time of dry and wet phases forced human populations to cope with the desert in natural environments in which dune cordons and barren salt depressions were found near marsh areas, or in the vicinity of real lakes rich in fish and shellfish.

Semi-nomadic groups with their flocks of sheep and goats co-existed with, and developed parallel to, the first Neolithic experiments in settlement, from which they remained separate partly because they continued to bear Palaeolithic cultural values, and partly because they were forced to find sustenance in situations that precluded agriculture. Nomads and semi-nomads represented a reserve of knowledge and lifestyles that could become strategic in moments of crisis, and they played a major role in the design, implementation and dissemination of new techniques. When the number of nomads and semi-nomad increased, these groups became crucial for the history of arid areas because of their mobility, capacity of adaptation and role
in transferring knowledge and artefacts. When the current desert situation was set, in the late third and early second millennia BCE, their contribution to the creation of oases was fundamental.

The dynamics of nomadism and settlement, considered in the light of climatic variability, explain the apparent paradox of the presence in the Sahara and Arabia of the world’s highest concentration of prehistoric artworks, and the large number of sites where tumulus, aceramic sites, flint tools, pottery and grinding stones have been found.

i.3.1) Rock Art and Climate Change

An immense legacy of paintings and graffiti adorns exposed rock faces and rock shelters across the whole Sahara: along the Atlas Mountains; in the Adrar and Dhar Tichit regions of Mauritania, on the Adrar des Iforas massif in Mali, in the Air Mountains of Niger, in the Tibesti Mountains and on the Ennedi Plateau in Chad, in the Uwanayat Mountains and on the highlands of Nubia; in the Ahaggar Mountains and on the Tassili n’Ajjjer highlands of Algeria, or in the Fezzan region of Libya.

Rock art is also widely present in all the Arabian Peninsula, from Jordan to Oman and Yemen. In Saudi Arabia, the sites of the Hail Region (Rock Art in Hail Region of Saudi Arabia — inscribed on the UNESCO World Heritage List in 2015) count among the biggest and richest rock art complexes of the world. The Hail Region World Heritage Site comprises two properties, Jubbah, which is situated in the Great Nafud Desert, and Shuwaimis, which is about 300 km southwest of Hail, in the volcanic plains of Harrat Khaybar, north of Madinah. The study of rock art and associated artefacts and cultural finds in Jubbah and Shuwaimis in Hail Region of Saudi Arabia suggest intensive human activities during the Neolithic period (7000-3000 BCE). The frequency of drawings depicting cattle figures suggest that when they were created the region had a relatively cool and wet climate and grassy, perhaps savannah-type, vegetation.

Rock art documents, in extraordinarily vivid scenes, the life of nomadic hunters and pastoral groups, the earliest experiments in domestication, the advent of the two-wheeled cart and the dissemination of the date palm and the dromedary. The recurrence of certain themes and styles suggests that a unified cultural area stretched across the Sahara from the Atlantic to Sudan and to Arabia.

Rock art was made at the nodes of a network of seasonal resting places distinguished by the presence of water and shelters and made sacred by regular rituals and ceremonies. In an environment where climatic alternation was extreme, these locations became niches where human life could thrive, sanctuaries of a vanishing world. During wet phases the population returned to the great plains, to the beds of the wadis and to the shores of the large lakes.

As countless wet and dry periods came and went over thousands of years, conditions gradually became more arid. The reconstruction of the alternate expansion and contraction of Lake Chad, which has nearly vanished today, provides confirmation of this process. Climatic studies conducted on Arctic core samples or backed-up by dendrochronology studies of the cypress trees of the Tassili n’Ajjjer, have shown that the last heavy rains occurred in the early third and second millennia BCE, and that the current extreme drought began immediately after. Basins dried up, and the dwindling pasturanelands and fauna were placed under excessive pressure to meet the needs of the
large cattle herds and their human keepers. The answer of the human groups to the modified climatic conditions was diversified and led to different outcomes.

i.3.2) **Human Answers to Climate Change**

In Africa, some groups retreated southward to the more humid areas of the sub-Sahara zone, following the courses of the great perennial rivers of the region. The Nilotic-Sudanese peoples and the Fulani (Peul) herdsmen of the Niger Basin descend from those who chose this option. The Fulani are still today the largest nomadic ethnic group in the world and inhabit several territories over an area larger in size than the USA. They are traditional nomadic, pastoralist, trading people, herding cattle, goats, and sheep across the vast dry hinterlands of their domain keeping somewhat separate from the local settled farmer populations. When circumstances allow it they settle and create sedentary communities but they come back to the nomadic life when conditions change. This alternating migratory behaviour has been verified in recent research analysing the mobility of the Kanemubu people from the eastern shore to the southern shore of the Lake Chad during the end of the 19th century and the middle of the 20th corresponding to a “dry period” in the region (Ishiyama, Shun 2012).

In other situations the great Neolithic cultures did not disappear completely. Herders found new forms of adaptation developing practices of nomadic cultivation and settlement. In Mauritania remains of Neolithic villages cover an area of some 400 km² along the rocky slopes (dhars) at the edges of an ancient lake area between Tichit and Oulata. From the middle of the 4th millennium to the 2nd millennium BCE, the area was home to a Neolithic culture organized in a system of villages whose 2 meter-high stonewalls still remain. These communities might actually be the “link” connecting the civilization of the rock art cultures to the Saharan kingdoms of the Garamantes, mentioned by Herodotus in the 5th century BCE, who still controlled trans-Saharan trade in Roman times. Archaeological research at Tadrart Acacus, in Libya, permits to recreate the structure of Garamantian villages, which appear to be very similar to that of the surviving raw-earth architecture of the oases of Morocco, Algeria and Arabia.

The oasis of Azougui, in the desert of Mauritania North of Tichit, shows how the different options taken in this area have been able to produce various and amazing results. The spatial organization of Azougui is very light and people live now in round straw huts similar to the skin tent of the Tuareg. Here nomadic practices and agrarian cultures merged to create a space organized according to climatic and seasonal rhythms. The elements of the landscape, far from being “natural”, are
actually carefully arranged in accordance with traditional knowledge and customs. The oasis is located along the north-south axis of the western trans-Saharan caravan route, on a site used in ancient times by prehistoric cattle-herding peoples. Azougui was the first place in the Adrar region of Mauritania where the date palm was cultivated, and it preserves some of the most archaic species of these plants. It became the dynastic capital of the Almoravid Dynasty, great caravan nomads who, by controlling trans-Saharan trade, were the first to establish a single political entity extending from Ghana to Andalusia across Mauritania and Morocco. The specificity of Azougui is the mobility of its spatial layout, based on nomad social organization. Azougui could be defined as a “nomadic oasis” that uses alternatively the successive layers of cultural development from prehistoric times to the present.

In some situations, the ecological collapse was faced through cooperation between nomadic and sedentary peoples, by establishing alliances and symbioses, and by the pooling of expertise and specialized resources: in this context oases were created.

i.3.3) The Evolution in the Arabian Peninsula

In Arabia, during the early parts of the Mid-Holocene, the second half of the 5th millennium BCE, periods of heavy rains at high altitudes recharged mountain water tables, that flowed into the wadis and filled the lacustrine basins in the depressions. With the alternating of humid and arid phases, sterile salty depressions turned into irrigated prairies, or into lakes plentiful with fishes and crustaceans bringing pastoral life to hitherto desolated areas. Since the environment changed seasonally and cyclically, nomadism appeared as the most viable form of existence.

In this period, the tribal modes of organisation were established as a sustainable and prevailing social identity with the specific Palaeo-Bedouin territoriality and environmental knowledge and adaptation to semi-arid regions known until today.

As noted by Hans Georg K. Gebel & Hamzeh M. Mahasneh, “networks of these pastoral “green-desert” cultures during these optimum times (2nd half of the 5th millennium BCE) existed from the Sinai to the regions East of present-day Riyadh, belonging to a “Mid-Holocene Green Saharo-Arabian Pastoral Belt” stretching from the Sahara to Oman/Yemen. The long-distance contacts of the pastoralists groups created similar cultural and ideological milieus. Early Egypto-Mesopotamian links may have used such pastoral networks via the Al-Jawf/Al-Naqab/Sinai regions for a direct exchange”.

The existence of extensive burial fields and fortified wells testify a large human presence of aceramic, Late Chalcolithic pastoral society before 4000 BCE. These “sepulchral landscapes” characterized Arabia’s 5th millennium BCE from south-eastern Jordan in the West to Yemen in the East. New archaeological searches conducted by Georg Gebel show that these extensive and rather unknown partly megalithic burial fields were also connected to water management systems. This indicates that they were not only regional centres of commemoration and identity for mobile pastoral groups benefitting in these mid-Holocene times from moisture episodes on the Arabian Peninsula, but that they also represented meeting places for watering flocks and for social transactions. The hydraulic competency and social structures of these well cultures, which used water troughs, channels and dams at hydrologically
favoured places (high aquifers, seasonal lakes, barraged wadis),
may have led to Arabia’s earliest oasis socio-economies, a
forced adaptation to sedentary life when the climate became
colder and drier during the 4th millennium BCE.

In the Nafud desert, the rock art site of Jubbah in the Hail region
lies near an ancient lake and is strictly linked to the formation
of the oasis. Around 4000 BCE, Jubbah Lake began to dry out.
Huge masses of sand progressively accumulated, converting the
green grassy region of the Nafud into a desert. Pastoral and
herder groups, which had been attracted to Jubbah by the
availability of a permanent water body and natural rock shelters,
were obliged to migrate elsewhere with their herds of
domesticated cattle, sheep and goats or to find new adapted
solutions. The creation of the oasis in Jubbah permitted the
continuous occupation of the site and it seems that during the
Bronze and Iron Ages there has even been an increase in human
occupation and cultural activities in Jubbah and Shuwaimis in
Hail Region. The presence of about 2,000 camels and date
palms figures in the Hail Region petroglyphs testify that the
desert conditions were established and that the oasis had been
created. Similarly, the sites of Janneein, Milithiya and Yattib in
Hail Region, with high concentrations of camel figures and
Thamudic inscriptions, testify to the increased human activities
during the same period (Bednarik and Khan 2002, 2005).

i.3.4) The First Oases

These finds permit to consider the hypothesis that oasis culture
actually developed for the first time in the first half of the 4th
millennium BCE in Arabia. The recent discovery of previously
unknown and possibly complex shepherd cultures dating from
the Late Chalcolithic (or from the transition period from the Late
Chalcolithic to the Early Bronze Age) have convinced the
German archaeologist George Gebel that the origin of Arabian
oasis economy was not triggered by Mid-Holocene climatic
optima as previously thought, but that what happened was in
the fact quite the opposite: the oasis economy, with its shadow
horticulture enabled by the microclimate created by the “roof”
of the newly domesticated date palm and the channel irrigation,
represented a forced adaptation of local shepherd populations
to the new sedentary life-mode, following the loss of pasture
land due to increased aridity. Thus, according to Gebel’s
hypothesis, the shepherd cultures, together with their well-
building technology, are the origin of oasis cultures. These
communities, which settled down in hydrologically favourable
locations, became sedentary gardeners at these locations. The
fortified wells may have been the central element of the Arabian
Peninsula’s first oasis living quarters in the Early Bronze Age.
The pastoral well, as the focus of social life, became the heart
of the oasis genesis. The introduction of oasis economy
completed the sedentary life trajectory on the Arabian Peninsula
that started in the Neolithic for the more favoured parts of
the Middle East.

Depending on their specific ecological conditions, not all
regions may have successfully participated in this transition. Dry
areas of the Arabian Peninsula have probably continued to
sustain mobile pastoral groups, although witnessing a reduction
of their populations. Other areas, however, maintained large
populations who had to find new solutions to preserve living
conditions throughout the climate change period. Among these
areas of the Arabian Peninsula can be counted the site of Al-
Ahsa, favoured by several conditions that have led to the
creation of the oasis and of its specific forms and evolution.
ii.) Evolution of the Oasis of Al-Ahsa

ii.1) The Origins of the Oasis

Al-Ahsa is situated in the great alluvial plain at the confluence of a series of wadis crossing the Arabian Plateau from West to East, flowing through the plain from the North towards the coast. Up to the 5th millennium BCE, wadis had perennial courses that filled-in large lakes and swamps in the plain of Al-Ahsa where they formed an endorheic inland delta formed by the river meanders, islands and lake expanses. In some moments of exceptional floods these found outlets to the sea, following the natural slope of the plain toward the North and the coast. The river and lake network was full of fish and shellfish and favoured the presence of a rich wildlife and birdlife. The elevation differences in the alluvial plain created dry ranges between wide swampy areas, useful land passages for the spread of wildlife. The entire plain was surrounded by mountains and isolated hills offering high and sure observation sites to check the movements of animals, with many caves and cavities with meanders providing optimal shelters and, on the slopes, sources of drinking water and flowing torrents. In the area are also found mini canyon systems, isolated pinnacles and erosion surfaces with spectacular formations, used as local landmarks and shelters or meeting places frequented by early men, who left prehistoric rock art. The geographical situation and the natural morphology has provided optimal conditions for cyclical migrations of populations of hunter-gatherers who first created settlements in the flood plain and then, by cultural interactions and exchanges, acquired a diversified knowledge.

ii.1.1) The ˜Obeid Culture

In Al-Ahsa area such archaeological remains have been found near Jawatha, one of the most important Stone Age archaeological sites, and one of the ancient landmarks of prehistoric times in eastern Arabia. The site had abundant fresh water during the late Pleistocene (70,000 - 15,000 BCE), and witnessed communities of fruit gatherers, hunters, and fishermen during the early Palaeolithic. Researches have shown the presence of an ancient freshwater lake and traces of human settlements around this water sources.

In Al-Ahsa, the presence of water springs, the abundance of fishes, shellfishes, and wildlife satisfied the population food requirements. The connection of the river network to the coast permitted them to interact with an area of extensive relations extending to Mesopotamia and to the Indian Ocean. The internal position of the site, on the edge of Al-Rub’ Al-Khali also favoured relations stretching from central Saudi Arabia to Africa. These geographical conditions, favourable for both continental and marine situations, are typical of the culture of ˜Obeid — crucial for the development of the Mesopotamian civilization — which developed during the Neolithic period from 6000 BCE to the Chalcolithic period 4000 BCE, and is named after the site of ˜Obeid, near Ur on the Euphrates where it was identified for the first time.

To ˜Obeid culture we owe the first Mesopotamian water networks to route water to lands lacking it. These populations created drainage canals permitting the draining of swamps and marshes, mostly concentrated near the river delta. The surplus was collected in reservoirs. The introduction of the hoe and the sickle attests the development of agricultural practices carried out along the canals in developed settlements. The breeding of
cattle and goats played an important role. It is at this stage that horticulture, based on onions and pulse, appears associated to arboriculture and the cultivation of date palms that were to form the basis of the three-levels agriculture of the oasis. The possibilities of transportation by river and lagoons allowed the 'Obeid culture to spread in a wide area, from the Tigris and Euphrates rivers along the coasts of the Gulf, encompassing the area of the Bahrain, the ancient Dilmun, up to Oman, the old Megan. Here artefacts were found dating to 3800 BCE associated with copper mining whose production was practiced in the last 'Obeid period. Seafaring is attested in the same period by findings in Kuwait.

ii.1.2) 'Obeid Sites in Al-Ahsa
A pre-ceramic Neolithic settlement was found near Al-Hofuf, probably of pre-'Obeid culture, dating back to 6000 BCE. Further north in Al-'Oyun, the site of 'Ain-Qinas has revealed a stratigraphy showing a longstanding settlement, from 5400 to 3600 BCE, lasting throughout the long history of the civilization of 'Obeid. The site is located less than a kilometre from the current village of Al-Marah; it has two tells, one 3.8 m high and 250 m in diameter, the other, smaller, located in a raised plain surrounded from all sides by sabkha except in the South where the altitude of the surface increases. 500 m East and 1 km to the North still exist traces of permanent lakes. The excavations carried out by Abdullah H. Masry in 1972 found 14 stratigraphic levels. Levels 1-4 have provided 'Obeid type pottery. The lowest levels were completely pre-ceramic and provided tools and flint weapons. The tell has two enclosures, one inside the other with the edges overlapping in its northern part. The inner enclosure is situated on the flat top of the Tell. It has an elliptical shape with an opening towards the South and consists of a stone and raw earth wall 95 cm high, and 40 cm thick. The biggest enclosure is made of reeds, palm leaves and other perishable material. It has a circular shape and encompasses an area of 700 m². Both enclosures are associated with the first 4 stratigraphic levels, the latest occupation of the site. Below level 14, the oldest, the most archaic, a well was found dug into the virgin soil, only associated with the last three levels, the most primitive used. All subsequent levels are linked to the presence of spring water. The tell was therefore a water point used over a long period from the beginning of the 6th millennium BCE to the early 3rd millennium BCE. The first period of this long history is characterized by climatic fluctuations during which nomadic peoples have used the especially dug well at alternate moments. With the onset of warm and dryer weather the presence of people became stable and the settlement area around the resurgence of water became protected by a wall and a fence. The archaeological finds confirm all the typical aspects of the 'Obeid culture based on the coexistence of different groups with different socio-economic forms of life and characterized by interregional interactions.

Al-Ahsa, with its water availability, its geographical location and, above all, its varied environmental context (tree savannah, extreme desert, swamps and lagoons) was for three thousand years an ideal site for this pre-oasis culture. The great biodiversity, the presence of different ecotones, niches and micro specific environments, had a reflection of cultural diversity, such as the development of the different skills needed in each case. The progressive adaptation and specialization moulded different groups with the necessary knowledge for survival (subsistence adaptation): farmers with grain and
2.bj History

[Fig. 53] ‘Obeid culture: Excavated strata at ‘Ain Qinnas, Riyadh National Museum

[Photo up-right] ‘Obeid pottery from Riyadh National Museum

[Photo right] View of a dig and stratigraphy, SCTH, 2014
animals, builders of raw earth houses; nomadic herders living in tents with their animals; traders, fishermen who lived in huts with stone bases and globular roofs thatched with rush. Each group was organized in family clans which developed and greatly expanded their skills in their own industry: agricultural, pastoral, maritime.

In these ever-changing climatic conditions, the appropriate adaptation was always found to insure survival. Differences between groups were not ethnic or ideological and, according to necessity, the nomadic groups could make a sedentary option, go back to the wilderness of the desert or practice maritime activities. When, driven by environmental pressures, or by new economic opportunities created by geopolitical conditions, and thanks to advances in capacity and knowledge, the choice was cooperation and alliance in stable places, they would then create the oasis.

ii.1.3) The Civilization of Dilmun

At end of the `Obeid period, cultural and political changes concerned the entire Middle East area with consequences for the whole world. The period of the great transformation of the 4th millennium began, leading to the foundations of the great city-states of Mesopotamia. The development of civilizations saw the growing role of mineral resources (such as the processing of bronze), an advances in navigation; the spread of writing and calculating led to the intensification of trade and to the creation of centralized social systems especially in coastal areas.

Fishermen’s navigating skills, the propensity to terrestrial mobility of nomads — to which the domestication of the dromedary provided an extraordinary new key instrument for mastering the deserts — and the agricultural capacity of settled people were the key factors for the organization of stable societies capable of tackling difficult routes both marine and terrestrial.

This was the period of the Dilmun culture that controlled the trade routes of the Gulf, from Mesopotamia to Oman, and the tracks through the Arabian desert to the Red Sea and Africa. Described by the Sumerians as a sacred place, the island paradise where the plant of immortality grew, the first oasis garden, place of origin of the date palm. This was Dilmun, identified with Bahrain, and Al-Ahsa, located just 40 kilometres away and connected to its lagoons by a network of waterways, was an integral part of it.

Dilmun prospered in 2700-1700 BCE as a major trading centre with a network of relationships that reached Afghanistan and the Indus Valley. From the inscriptions on Sumerian tablets we know that in the ports of Magan copper was traded, along with precious stones of Mohenjo Daro, teak wood, ebony and ivory from Africa which was exchanged with gold, silver and sesame oil from Ur. To exchange these commodities in addition to pearls that were its only valuable resource, Dilmun had only one item of large production: dates. Two tablets from Nippur dating back to the Kassite period attest that Dilmun exported dates in large quantities and that its dates were much appreciated in Babylon.

Since Mesopotamian agriculture was a great producer, Al-Ahsa dates had to be of very considerable appeal. Al-Ahsa adds to the maritime specialization of its culture, the indissoluble pastoral and agricultural component of the specific environment of the desert. On the base of new interregional economies, a growing integration and cohesion between groups emerged.
with the development of techniques of channelling, water diversion, water management and drainage work. The planting of palm groves determined an agricultural intensification and a social complexity that led to the creation of the oasis.

ii.2) Summary of the Oasis Historical Development

The genesis of the oasis as an ensemble created using know-hows originating from various sources and used in new ways, through alliance and symbiosis, can be summarized as follows:

- As early as the Neolithic Age, there were experiences that anticipate the creation of oases, using elaborate techniques to deal with difficult situations.
- From the 4th-3rd millennium BCE, under pressure from climatic and environmental changes, oases were established in an effort to protect social investments in structures, settlements, forms of society, staging points and ritual sites made in more favourable times and under better environmental conditions. To ensure existence under the changed conditions, specialized skills were incorporated that permitted the exploitation of a new range of opportunities and determined an intensification of agriculture. Nomadic populations that had remained on the margins of the age’s great city-building processes chose an agro-pastoral lifestyle and, driven by motives and pressures related to that choice, interacted, allied, established symbiosis with, or assimilated, other groups, opening to all the package of specific concepts that will lead to a leap in complexity and establish the oasis as a complete system for the support of lives and livelihoods. Through
oases, these groups ensured physical and economic survival in hostile but mineral-rich areas that had become strategic in the Chalcolithic Period.

- The oasis as settlement device was used to create safe havens for refugee populations or communities seeking protection, hermitages and holy places where inhabitants could safely cultivate and disseminate religious piety and mystical passion.

- The oasis network became the basis for securing commercial exchanges over caravan routes that, thanks to the intercontinental extension of desert areas, enabled information and goods to circulate throughout the entire Afro-Eurasian landmass.

ii.3) Trade, Development and the Mythic City of Gerrha

The classical age of the Arabian overland trade (500 BCE - 400 CE) brought great prosperity to Al-Ahsa region, and many sites that can be identified in the area date to this period.

Overland trade was principally related to the transport of spices and aromatics from the kingdoms of Southwest Arabia. As a result, important caravan cities developed at favourable locations throughout Arabia. One of the most celebrated among them was the city of Gerrha, commanding the land route from Southwest Arabia to Iraq and acting as a transhipment point for goods from India, continuing towards Northwest Arabia and the Mediterranean.

Though the actual location of this mythic city is not known, and there are multiple competing hypotheses, it is possible that it actually coincided with the settlement of Hajar — which became the largest within the oasis in this period — because Al-Ahsa Oasis was certainly one of the major points along the land route crossing Arabia.

This historic period is marked by a vigorous development of agriculture and a substantial increase in population. A possible location for the city of Gerrha could be found near Jawatha that belongs to this period but has been deeply altered by later agricultural activity. This large settlement occupies a zone that has since been mostly covered by the shifting sands of the desert and is now inhabited and not exploited as an agricultural area.

Its relevance for the early history of Arabia and Islam proves that Jawatha was a major urban centre and the large archaeological area included in the nominated property certainly preserves significant vestiges that are not yet fully excavated and documented.

Located north of present-day Al-Kilabiyah village, the town owed its existence and development to the tribe of Bani Abdul Qais, which migrated, long before the advent of Islam, from Hejaz to eastern Arabia and settled there. Archaeological evidence, including numerous types of burial mounds (tumuli) on the highlands north and west of Jawatha, confirms the existence of settlements buried under the sand.

According to the results of the researches and archaeological soundings carried out by the Saudi Antiquities in 1420/21 AH (2000), Jawatha's area earliest human settlements date from the Stone Age and in this area communities of fruit gatherers, hunters, and fishermen probably lived during early Palaeolithic.

During pre-historical period, Jawatha was already a commercial centre of the Hajar territory of Bahrain located along the main caravan routes. Archaeological evidence proves that the settlement exchanged products from southern Arabia and Persia
and distributed them to the Arabian Peninsula. In the first half of the 1st millennium BCE, Jawatha, first under the Chaldeans (who imposed their rule over the region with Nabonassar from 605 to 592 BCE) and later under the Achaemenids (from 562 to 331 BCE), was a halt along the trade routes of eastern Arabia. Jawatha’s commercial role continued during Alexander of Macedon invasion (335-324 BCE) and the rise of the Seleucid and Parthian Empires, but was affected by the transformation of trade routes in the Roman Empire.
ii.4) The Sassanid Period, 228-622 CE

The Persian Sassanid dynasty replaced the Parthians in 225. Their king Ardashir invaded Eastern Arabia in 228 and founded some new cities. The Sassanid army notably controlled sea trade diverting Indian Ocean trade route from the Red Sea to the Gulf.

Their control of navigation and waterways permitted them to attack and invade Yemen from the sea in the 6th century CE, a period in which also Nestorian Christians settled in the Gulf area.

ii.5) The Ancient Canals and the First Settlements

The story of Al-Ahsa revolves around the organization and management of the water system. The historical phases of the organization of the landscape correspond to the technological developments of this social and economic system.

During the ongoing process of climatic warming, alternating with more or less humid phases, which characterized the Holocene, until the present desertification, people developed increasingly more sophisticated techniques and solutions. Changes in environmental conditions have been decisive but it is the human community, with its interventions for the creation of liveable conditions, that shaped the landscape.

In the environmental and climatic conditions of Al-Ahsa, the driving factor of the process of settlement and exploitation of the environment has been the construction of canals for the control of water resources deriving from the original springs, wells and ditches.

This system, articulating and extending with increased complexity over time, became a gigantic organization of the space, which today has become one of the most spectacular landscapes in the world, an example/model of water and sewage management.
ii.5.1) The earliest temporary wells and settlements of the `Obeid VI-III millennium

The oldest prehistoric finds in Al-Ahsa attest an occupation of sites in present Al-Hofuf belonging to a pre-ceramic Neolithic culture dating from before 6000 BCE; in Jawatha and at `Ain-Qinas, sites belonging to the `Obeid V-IV millennium culture up to the first half of the second millennium BCE, have been identified. At `Ain-Qinas, excavations have uncovered a well used for alternate periods from 5400 to 3600 BCE. In the last phase, with the progressive establishment of a desert environment, this settlement became stable and a double fence, one of stones and the other in rushes, protected the water point.

The findings identify the places of a pluri-millennial route which from Al-Ahsa put in communication through the Arabian plateau the earliest peoples of southern Mesopotamia to the North, and the South Arabic people with Bahrain, the coast and the Gulf routes. Settlement sites are located along this axis by water points and by rock slopes or hills destined to become the centres of future oases creation.

This prehistoric environment was characterized by wetland, and copious water flowed from the hills to the water holes populated by wild animals. The lakes and wetland areas in Al-Ahsa area
Rendered image of the oasis landscape in the ‘Obeid period, IPOGEA, 2016.
may have continued across the lake to As-Sifalah up to the coast and it is likely that the communication route from Al-Ahsa had also been a water way easily sailed by the rush boats of the ‘Obeid period. Archaeologists have demonstrated the existence of a river, now buried, linking Jawatha with Al-Qannas (‘Ain Qinas) site. This is likely the ancient Muhallum river of which a historical mention is found in the chronicles of the ancient Bahrain and still lingers in the memory of the local people to this day. The river run across the depressions that still extend northward and enabled to reach the coast, thus establishing the easiest way of communication with Bahrain.
Al-Ahsa Oasis, an Evolving Cultural Landscape
ii.5.2) **The creation of the oasis in the Chalcolithic and the civilization of Dilmun**

With the onset of the arid period, around the third millennium BCE, settlement sites stabilized around water points and rocky hills. The first oases were created exploiting the water supplies provided by the ejection cones of the rocky escarpments and hills, that acted as community-gathering sites. Around these, progressively emerged permanent settlements in which the presence of caves provided secure defensive shelters and grain storage sites. Starting from water points, the first channels appeared to divert the water from sliding along the maximum slope line to the right and to the left of this, following the contour lines, extending the irrigated area. This technique could be used in the slopes whereas in the plain, because of the differences in altitude, the channels were extended to irrigate the more depressed areas, often far from water holes. The limit to the crop was set by the presence of salt marshes and swamps.

The spread of the date palm, along with water and cultivation techniques used on a large scale from the Mesopotamian civilization, and the establishment of a marine trade through the Gulf with the Indus Valley civilization, allowed the consolidation of the Dilmun culture that extended from Bahrain.

![Fig. 58](image) The creation of the oasis in the Chalcolithic and the civilization of Dilmun, IPOGEA, 2016
Al-Ahsa Oasis, an Evolving Cultural Landscape

Fig. 59: Rendering of the oasis landscape in the Dilmun period, IPOGEA, 2016
to Al-Ahsa. The waterway connection between these two areas became the strategic axis on which a unified civilization, Hajar-Bahrain, to which Al-Ahsa provided the celebrated supply of agricultural products and palm trees. It is possible that the mythical city of Gerrha, mentioned by Pliny as the port of the Attene region, identified as “Bahrain”, might not have been located on the coast in the site of present-day Al-`Uqair, but in Al-Ahsa. In fact, Pliny located Gerrha at 50 Roman miles from the coast, and this distance corresponds exactly to a river route leading from the Gulf to a river port that may now be buried under the sands of Jawatha or near the present hill of Al-Qarah.

[Fig. 60] Shards and seals from Dilmun period, Riyadh National Museum

[Photo right] Caves in Al-Ahsa Oasis, IPOGEA, 2016

[Photo next page] Al-Ahsa oasis arid landscape, IPOGEA, 2016
Al-Ahsa Oasis, an Evolving Cultural Landscape
ii.5.3) The channels and drainage systems in the Hellenistic period

With the domestication of the camel, around the first millennium BCE, the busy caravan route through Arabia began to play a crucial role in the context of trade west-east in the Hellenistic age. Al-Ahsa became then the point of contact with the Hadramout towards the South, and to the Dedanite civilizations, Libyanite and Nabateans, to the North. Al-Ahsa was mentioned by Greek and Latin authors as the largest and richest centre of production of dates in the world. The excavation of large ducts and the use of primitive water-lifting machines, enabled the progressive expansion of crop fields. The typical pattern of the oasis, with gravitational water supply and walled gardens, became established.

Watered plots took the shape of a fan spreading off from the water points under the gravitational lines. From the main groups of sources along the North-South escarpment, four oases systems appeared, spreading like a fan West welded in part to each other to the East terminal.

Cultivated fields consisted of regular particles enclosed by walls of raw earth or in reed pens. Settlement is found in a higher position where the soil was not cultivated because difficult to

![Fig. 61] The channels and drainage systems in the Hellenistic period, IPOGEA, 2016

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Kingdom of Saudi Arabia
January 2017
Rendering of the oasis landscape in the Hellenistic period, IPOGEA, 2016
irrigate. The need to dispose of the accumulation of water, and the incipient concentration of salinity, led to the development of a practice that evolved in a peculiar and unique feature in Al-Ahsa: the drainage system. Drainage formed long linear channels leading to the lakes and evaporation depressions. They were either resulting from the rectification of the ancient river system or newly excavated canals that acted also as a barrier system against the advancing sands.
Al-Ahsa Oasis, an Evolving Cultural Landscape
ii.5.4) The water-lifting systems and the network of large-scale pipes in the Islamic period

In the international context of Islamic civilization, with the expansion of trade and the development of water management techniques and legal regulations, Al-Ahsa reached the maximum integration and size. The process of cover-up and abandonment of villages and cultivated areas, forced the inhabitants to take charge of the population that was forced to abandon their land. Regulations, and allocation of agricultural areas to new groups, lead to the cultivation of the interstitial areas remained uncultivated because placed at a higher level. These areas were now exploitable through the use of large-scale water-lifting techniques with wheels and pulleys driven by animals, chiefly donkeys, but also camels.

Al-Ahsa became the most renowned place for the large-scale use of hydraulic structures operated by animal force so that the breed of donkey of Al-Ahsa became renowned throughout the Muslim world. The topography of Al-Ahsa, made up of different elevation levels dotted with higher places that cannot be irrigated and where depressions collect unhealthy water, is the reason and origin of the huge network of channels that characterizes the oasis until today. Land ownership in Al-Ahsa
Al-Ahsa Oasis, an Evolving Cultural Landscape

[Fig. 65] Rendering of the oasis landscape in the Islamic period, IPOGEA, 2016
does not imply the ownership of water and a water owner with neighbouring lands at a higher level was forced to develop its own network of channels to reach areas to lower altitude. With the development of lifting machinery it became possible to flush these areas too. The expansion of land needing to be irrigated generated new water demand and therefore a greater extension and an increasingly more elaborate system and practice of water recovery and recycling through the different gardens. Settlements developed into defensive walled systems. The spatial organization model repeats the typical organization of the oases: hill, springs, village, palm grove. The close correlation with the irrigation and drainage canals, one of which surrounds the village on one side and the other on the other side, determined the structure of the area and its urban form and explains the peculiar circular shape of historic Al-Ahsa villages, reminiscent of the Baghdad of Al-Mansur. Progressively in this period, the oasis loses its “patchy” look to become increasingly more extensive complex of units integrated with water supply systems dotted with pools of water and immersed in a giant palm grove.
Al-Ahsa Oasis, an Evolving Cultural Landscape
ii.6) The “Contemporary” Oasis

ii.6.1) The Oasis in the 1970s: the “Wakuti Project”

From the time of first settlement of the oasis, until the late 1960s, agriculture in Al-Ahsa Oasis was characterised by the application of traditional technology to irrigated cultivation. Where water was available from free-flowing springs, the limitations imposed by traditional technology were mainly visible in the sectors of water distribution and of land cultivation. Where on the other hand, groundwater was available at shallow depths, but lower than the land surface, additional technological limitations of water extraction methods were apparent.

The topography of the oasis did not permit a regular uniform pattern of irrigation and cultivation throughout the oasis. This lack of uniformity, which also affected soil development, further encouraged small-scale land use. Al-Ahsa region differs from some of the river plains bordering the Gulf, such as those found in Khuzistan in South-Western Iran and at Basrah in southern Iraq, where large areas of flat land with low relief are found. The irrigation practices in those areas could be based on fairly simple gravity type, whereas in Al-Ahsa Oasis, where the topography even in a relatively smaller area is less uniform and where all water is of sub-surface origin, both gravity and Mugharraf irrigation were practised.

[Fig 67] The Oasis in the 1970s: the “Wakuti Project”, IPOGEA, 2016
The technology for the construction of traditional distribution canal was characterized by making use of natural water courses flowing from springs at different controlling points. The main building efforts were paid to strengthening the weak banks of the watercourses, and to constructing aqueducts and small bridges for the water channels. The materials used in these activities were stones, mudbricks, soil and date palm timber. The pattern of channels therefore reflected a human use of natural physical features rather than an imposition of a totally artificial net of engineering works. This piecemeal minor modification of the natural topographic features was carried out over many centuries by hundreds of individuals and families each seeking to maximise, independently, the productive potential of small plots of irrigable land essentially for subsistence purposes. Over the centuries, many separated water sources were tapped and used, and whilst some observances developed to avoid conflict over competition for water and land, no general cooperation or coordination either evolved or were imposed by any authority until 1967.
ii.6.2) The Oasis Today

Irrigated farming methods, which developed over centuries, continued relatively unchanged until recently. Traditional subsistence farming faced increasing pressure in the early 1950s from three forces:

1) Shifting sands continued encroaching on farmland and villages;
2) The lack of efficient ground water irrigation distribution and drainage resulted in increasing soil salinity and waterlogging;
3) Economic and social changes, at the regional and national levels, brought about by the oil boom radically altered the relative status of agriculture.

In the late 1960s, the sand stabilization and irrigation and drainage projects were launched, determinating the first large oasis transformation.
2.b) History

[Photos left]

[Photos right]
Al-Ahsa Oasis landscape, SCTR, 2014
Sand Stabilization Project, IPOGEA, 2016

[Photo next page] Aerial view of the oasis and Jabal al-Qarah, IPOGEA, 2016
Al-Ahsa Oasis, an Evolving Cultural Landscape
iii.) History of Al-Ahsa Oasis After Islam

iii.1) The Ommeyad and Abbasid Periods, 661-750 CE and 751-10th century CE

Following the spread of Islam in Arabia, the town of Hajar, in Al-Ahsa Oasis became the political centre of Eastern Arabia, reflecting the new power of the Abd al-Qais tribe in Islam. The town of Hajar, is known only from literary sources.

The shift of the capital from Damascus to Baghdad in 750 CE by the Abbasids, led to the surge of maritime trade in the Gulf, whose well-established ports maintained their pre-Islamic links with the East. Eastern Arabia prospered and Al-Uqair, the port of Al-Hajar, was connected to Iraq, India and China. In this period, Al-Ahsa region was very prosper, and its Governors were appointed from Baghdad. During Abbasid rule, all of Arabia prospered: the pilgrimage roads were developed and improved, copper mines exploited, and agriculture flourished.

During this period, developed the site of Jawatha, whose relevance increased when the tribe of Bani Abd al-Qais converted to Islam, the first people to accept the call of Islam in Eastern Arabia. Jawatha became a strong Islamic centre from which Islam was introduced to the rest of Eastern and Central Arabia. Arab sources dating from the early Islamic period mention the city as urban centre belonging to Bahrain’s administrative region. Jawatha also occupies an important place in Islamic history because its mosque was the third in Islam and the second where Friday prayer was held following the first Friday performed at the Prophet’s Mosque in Madinah. At his time, Jawatha was a military stronghold renowned for its fortifications.

The settlement continued to exist up to the 9th century CE (Ibn Khurdadhabeh mentioned it among the towns of “Bahrain” in 864 CE), but there are no more mentions of it in the following centuries, when the town declined in importance and gradually disappeared. Hajar is thought to be the most ancient city in the oasis and was listed among the major centres of the coastal region (then known as “Bahrain”) by Arab chroniclers. This city was conquered and destroyed in the 10th century CE by Abu Taher Sa’id al-Janabi, leader of the local sect of the Qarmatians that took over the oasis and ruled over the region in the following 150 years. The encroachment of sand dunes upon the town and its arable land probably also contributed to its end.

Today little remains from the early Islamic Era. The mosque, which was probably located inside the town centre, and was built partly of local stones and partly of brickwork, has been recently reconstructed by SCTH above ruins of later mosques.

iii.2) The 10th century CE

In the 10th century CE, after the destruction of Hajar, Al-Ahsa became the capital of a powerful independent Qarmatian State that raided widely in Arabia, Syria and Iraq before being defeated by the Abbasid.

The Qarmatian capital Al-Ahsa, is quoted in the historic sources since the 10th century CE (Yaqut Al-Hamawi in 1224 CE wrote that “al-Ahsa town was built by Abu Tahir Sa’id al-janabi in 929 CE to serve as a capital for his dynasty”). It is not clear, though, if the new city developed over — or in the immediate vicinity of — Al-Hajar, or in a new location.
Under the Qarmatians, Al-Ahsa prosperity was maintained to some extent by the encouragement of agricultural production. During this period large areas north of Al-Ahsa oasis, which today have been abandoned (like Jawatha) were under cultivation. Around 1030 CE, the Persian poet and philosopher Nasir-i Khosraw visited and described the city of Al-Ahsa:

“Lahsa (Al-Ahsa) consists of a town together with outlying quarters surrounded by four strong walls made of clay. Each wall is separated from the opposite one by a distance of one farsakh [6 km. approximately]. There are several springs in the town, each capable of turning five water mills. The water is so well utilised that none of it runs outside the walls. Within the walls this fine town possesses all the amenities of a great city, and it has a population of 20,000 fighting men. Formerly, al-Ahsa had as its sovereign a nobleman called Abu Sa’id. He discouraged the people from prayer or fasting and told them to adhere to his own sect, though he recognised the prophecy of the Prophet Muhammed and the validity of the mosque. His tomb is in the interior of the town and over it a beautiful shrine has been built.

Abu Sa’id’s descendants are now ruling Lahsa from the seat of government in Lahsa town. Sitting upon thrones in council they handle their affairs. They are assisted by six vazir [Ministers] who decide all matters together with the council.

When I was at Lahsa, these princes possessed 30,000 slaves who had been bought in Abyssinia and were employed free in cultivation and gardening for the people … Some of the mills at Lahsa were owned by the state. In these, corn was ground into flour for the people without charge. The upkeep of these mills and the wages of the workmen were charged to the state…”

The town’s sphere of influence at that period was great. The Qarmatians, from their seat at Al-Ahsa, dominated most of Eastern and Central Arabia. They even invaded and raided Makkah in 929 CE, massacring many pilgrims and carrying back the holy Black Stone with them to Al-Ahsa with the intention of diverting the pilgrimage from Makkah to Al-Ahsa. Twenty years later they returned it to Makkah after receiving a ransom.

The fortune of Al-Ahsa, however, did not last long as it was intimately linked to the rise of the Qarmatian State in Eastern Arabia; it is assumed that it flourished with the growing power of that state and that it declined with the waning power of the Qarmatian dynasty. An Arab army marched against the city and, after a year’s siege, stormed its four walls and carried off a great quantity of booty. By 1078 CE, the Qarmatians were driven from Al-Ahsa oasis by the Al-`Uyuni dynasty and disappeared. With their disappearance, their capital lost much of its raison d’être and started to diminish in importance, so that by the time of Abul Fida in 1321 CE, Al-Ahsa town seems to have gone into decline and was described as “a small town devoid of walls”.

According to some local historians, the original location of the city of Al-Ahsa might coincides with the one of present-day Al-Battaliyah village, but this theory is disputed. Some ruins in the vicinity of Al-Battaliyah village that were still visible in the 1980s, notably two sites known as Qasr Qrameit (Palace of Qarmath) and Al-Quhaibat (the Bawdy House) might have supported this claim.
iii.3) Local Rulers: Uyunids, Usfurids and Jabrids

Between 1073 CE and the Ottoman conquest in 1549 CE, Al-Ahsa was ruled by three local Arab dynasties: the Uyunids, the Usfurids and the Jabrids.

- The Uyunids (1073-1253 CE) were members of the Abd Al-Qais tribe from the northern area of Al-Ahsa. They ruled a vast zone comprising also the coast and Bahrain Island, and settled in Al-Qatif.
- The Usfurids (1253-1440 CE) belonged to the Bani Usfur, a clan of Bani ‘Amr. They ruled the oasis of Al-Ahsa from Al-Qatif.
- The Jabrids (1440-1549 CE) were originally settled in the desert of Al-Ahsa. They were reputed just and popular rulers who controlled the coast, Bahrain and parts of Oman and Najd.

With the economic decay of Iraq under the Seljuqs and Mongols (11th-13th centuries CE), the main routes of international trade moved back to the Red Sea and Egypt, leaving the Gulf and Al-Ahsa alone. Al-Ahsa concentrated on agriculture.

In the 14th century CE, Hormuz Island became the major trading emporium, and in the early 16th c., the Portuguese, established military and commercial positions in Hormuz, Oman and Bahrain.

iii.4) The First Ottoman Period, 1549-1680

Following the establishment of the Ottoman Empire, Ottomans took over the power in the region. They used both historic ports of Al-Uqair and Al-Qatif, while they left Bahrain to Hormuzi influence. In the region, the Ottomans had to face the ambitions of the Safavids of Iran, as well as the appearance of the European powers in the Gulf and notably the presence of the Portuguese.

By the middle of the 16th century, the conquest of Eastern Arabia by the Ottoman Empire was completed and Al-Hofuf was then chosen to become the administrative capital of the Province. Information relating to the origins and early urban history of Al-Hofuf is scarce and incomplete. It is generally accepted that it does not occupy the same location of the ancient city of Al-Ahsa, while it is also known that there has been a global southward movement of the human settlements in the oasis, possibly caused by moving sand dunes encroaching from the north.

It is generally considered therefore that both Al-Hofuf and Al-Mubarraz towns were established at a relatively late date. However, the discovery by Vidal (in the 1950s) of early Islamic pottery on the surface a few hundred yards from Al-Hofuf city wall, suggests that the area around Al-Hofuf might have already been inhabited during the Qarmatian period and that it gradually grew into a commercial centre on the ancient caravan route between the Gulf area and central Arabia.

Under the Ottomans, Al-Hofuf grew and developed rapidly as an administrative and military centre because Eastern Arabian Province of the Ottoman Empire was on the front line of defensive military operations against the Portuguese. Al-Hofuf became also an important military centre, a function that gave the oasis a role unique among the settlements of Eastern Arabia. Yet, the province was also a vital region for the Ottomans for its agricultural products, and as major trade centre connecting central Arabia and the Gulf region.
[Fig. 69] The Uyunids, Usfurids and Jabrids’ territories, Al-Ahsa Museum
In Al-Hofuf, the Ottoman power developed Qasr Ibrahim — probably founded before their conquest — and made it their headquarters, with a diwan building, a domed mosque and a Turkish bath. A battalion of Ottoman Janissaries was stationed at Al-Ahsa, as demonstrated by a painting representing one of them that can be seen on the walls of the diwan building (see image right column). Other Ottoman forts, materializing the power of the new rulers, were built at Al-ʿUqair and Al-Qatif.

Under Ottoman rule, a full land registration was undertaken and custom revenues systematized. Local people were enrolled as volunteers and received training in firearms for the first time. Tribal Sheiks were made salaried governmental officials and were in charge of keeping order in the desert, while formal Ottoman courts were introduced.

The Ottoman hold on Eastern Arabia weakened during the 17th century, and was terminated by Bani Khalid tribe in 1680.

iii.5) Bani Khalid Rule, 1680-1792

The Bani Khalid brought back traditional tribal rule to Al-Ahsa. They made Al-Mubarraz their seat of government and Qasr Sahood was probably built in this phase. Bani Khalid interests were essentially inland, while the coast was ruled by the ʿUthub, who developed in Kuwait, Qatar and Bahrain during the 18th c., a period of maritime warfare among the Gulf coastal states to which nor Al-Ahsa neither Al-Qatif played much role.

The Bani Khalid dynasty decision to make the town of Al-Mubarraz the capital of their state challenged the dominant position of Al-Hofuf that nevertheless continued to thrive under the impetus of its well-established trade and of its religious functions. Very little is currently known about the origin of the city of Al-Mubarraz, the second largest town in the oasis, that is generally considered, from the Arabic root of its name, to indicate the gathering place located few miles from the city from where the caravan journeys started, where the travellers inspected their supplies before initiating the long journey across the desert. The first mention of the city of Al-Mubarraz dates to 1573, when the Ottoman Administration listed it among the settlements of the oasis.

As a seat of government for the Bani Khalid dynasty, Al-Mubarraz became a garrison town with several fortifications, while a powerful governorship and commercial functions
developed to service the new government of Bani Khalid. From Al-Mubarraz, the Bani Khalid dynasty controlled most of eastern and central Arabia. This acquisition of administrative functions was very important for the growth of Al-Mubarraz, since its traditional occupations were restricted, and most of its trade was of a transit nature. During the Bani Khalid rule the city extended and shrank according to the political pressures and, when the power of the Bani Khalid State diminished in 1790, Al-Mubarraz suffered a major setback in its growth. Apart from the fortress, no other major surviving built structure can be attributed to the Bani Khaled rule period.

iii.6) The First and Second Saudi States, 1792-1871

The First Saudi State (1792-1818) overthrew the former rulers in the early 1790s. Eastern Arabia was then governed from ad-Dir`iyah and acted as the only access to the sea and international trade for the Unitarian State. Al-Ahsa Oasis was also a base for the Saudi State operations in support to the Qawasim and into Oman. Much fortification was undertaken at the time throughout the oasis. Some of these forts, ruined and partially modified in the following century, still exist.

The Al-Saud dynasty put an end to the state of Bani Khalid that had governed the oasis from Al-Mubarraz for almost 120 years, and set up their regional capital once again in Al-Hofuf that regained the political role it had in the 16th century. This decision favoured the growth of the town, while at the same time Mubarraz, stripped of its previous function as a capital, stagnated and started to decline. The choice of Al-Hofuf as capital of the region essentially depended on its strategic position from which it was possible to keep an eye on the movement of their enemies (the Turks and the Bani Khalid) who were eager to recapture Al-Ahsa oasis. With its strong fortifications and walls built by the Turks in the sixteenth century and its good supply of water, Al-Hofuf appeared like a suitable location, strategically placed and yet secure and easy to defend. Indeed, the years between 1792 and 1818, were a relatively difficult and unsettled period, in which the city of Al-Hofuf went through many social upheavals and violent outbreaks that limited its development and growth.

After the fall of ad-Dir`iyah to Mohammed Ali, the Governor of Egypt, in 1818, Al-Ahsa reverted to Al-Humaid rule.

Saudi control was applied again during the period of the Second Saudi State (1843-1871), when Al-Ahsa oasis played once again the role of gateway to the outside world, permitting diplomatic contacts with the British and the arrival of the first industrial goods.

It was a time of political stability and flourishing economic growth that led to the rapid expansion of the city of Al-Hofuf and to the creation of its current “historic core”. In 1862, the city already had acquired the shape that remained visible until the city’s large development in the 1970s and 1980s, with three large residential quarters, (Al-kut, Ar-Rif’a and An-Na’athil) surrounded by a long city wall. The British traveller Palgrave visited the city in 1862 and described it as:

“a large oval shape and the public square, an oblong space of about 300 yards in length by a fourth of the same width, occupies the meeting point of the three quarters.”
iii.7) **The Second Ottoman Occupation, 1871-1913**

In 1871, the Ottomans, led by Medhat Pasha the energetic reforming wali of Iraq, returned to Eastern Arabia with a modernized army and a newly centralized civil administration. Al-Hofuf continued to serve as a capital for Eastern Arabia. In this period, the new Ottoman power materialized in the construction of a new, large municipality building in Al-Hofuf, and in the renovation and redevelopment of Qasr Ibrahim as an army barrack and office complex. Port facilities were also improved both at Al-`Uqair and Al-Qatif, guard towers built and customs office set up. During the second Ottoman occupation, schools and hospitals were founded in Al-Hofuf.

According to Lorimer, in 1908, Al-Hofuf was:

> “oblong with a length from North to South of 1 to 1.5 miles and a breadth of ½ a mile.”

iii.8) **The recovery of Al-Ahsa, 1913**

At the turn of the 20th century, a new force inspired by a vision of a reunified Arabia, emerged in Najd: the young Abdul-Aziz Al-Saud and his followers. King `Abdul-Aziz first succeeded in capturing Riyadh and Southern Najd in 1902, and Al-Qasim in 1906. In 1913, he infiltrated the city of Al-Hofuf by night and defeated the Ottoman garrison. Soon after, he also took Al-Qatif.

In the 1920s, development continued in Al-Hofuf with the construction of a royal palace outside Qasr Ibrahim in 1920 and with the growth of As-Salihiyah suburb that was now safe (though outside the city wall) under the new pacified rule of King `Abdul-Aziz.

Despite the changing governments in Al-Ahsa oasis, Al-Hofuf continued to fulfil the function of regional capital until 1938, when its position was challenged by Dammam, where oil had been discovered and began to be exploited.
Al-Ahsa Oasis, an Evolving Cultural Landscape

[Photo] Historic photo of Al-Amiriya school in Al-Hofuf, Aramco Archives
iv.) Evolution of Cities and Villages in the Oasis

“The last chalky plain is that over which the houses of Hofuf and the dome and minaret of the mosque can be seen on the far or Western side. It is a landscape of whites, as the chalky sandstone of the houses is the same colour as the country around, with a dark-green background of palms from a separate group of flowing wells to the North and West of the town”. [Cheesman, O.B.E., 1926, In Unknown Arabia, London, MacMillan and Co, Limited, p.59]

iv.1) Human Settlements in Al-Ahsa Oasis

iv.1.1) Introduction

Al-Ahsa Oasis, an Evolving Cultural Landscape is first and foremost a large cultural landscape where are found exceptional natural and cultural features that have actively impacted on it throughout the centuries.

Within the large gardens and palm groves constituting the property, however, are also found significant human settlements where the population of the oasis concentrated throughout the millennia in which this area was actively transformed to develop into a major agricultural resource supporting a large human community, and became part of a large regional network of human settlements along the Gulf coastal region connected to the central Arabian areas by a long-lasting network of caravan routes and commercial axes. Though little is known of the early location and evolution of the cities and villages of the oasis, where only few archaeological researches have taken place until now, the existing settlements show an interesting ensemble of architectural and urban features that contribute to the outstanding relevance of the property.

Inhabited since high antiquity, human presence in the area constantly moved and shifted its location to adapt to climatic changes, to the progressive transformation of the landscape resulting for the continuous human activity, and to the destructions caused by the wars that affected a region that has played for a time a relevant economic and political role in the Arabian Peninsula.

The origin and evolution, the location and distribution, form and structure of the settlements, as well as the selection of construction materials, have been continuously influenced by both the human and the physical factors represented in the oasis. The relevant factors guiding the establishment of human settlements in the oasis area include geology, geomorphology, climate, type of soil, water resources, and the division of the inhabitants into nomads and settlers, rural and urban. The main driving principles have been:

- Settling close to some of the many abundant water wells and springs;
- Not wasting precious fertile and watered land for residential use;
- Setting in defendable and protected sites.

Early settlements developed therefore on higher lands that couldn’t be watered by gravity in the vicinity of natural springs, while their location has often shifted to answer to the security needs of the population, and to the will of the ruling authorities that took over the region throughout the ages.

The location of most villages and urban centres that dot today’s oasis landscape likely does not pre-date the 13-15th century,
while the earlier built elements that can be identified essentially date from the 19th and early 20th centuries with rare remains from the 16th, 17th and 18th centuries.

iv.1.2) Historic Trails and Routes in the Oasis

The richness of water and the development of agriculture permitted the development of human settlement in the region. The cities and villages of Al-Ahsa Oasis were connected to the rest of the Arabian Peninsula by a network of caravan routes developing since high antiquity. Until the 1960s, when the Kingdom of Saudi Arabia created its modern network of roads, there were three main tracks out of the oasis:

- Eastwards from Al-Hofuf to Al-Uqair port, which was then the main port of Al-Ahsa,
- Westward, from Al-Hofuf to central and western Arabia,
- Northeast from Al-Hofuf to Al-Qatif oasis, and then on to the neighbouring countries.

While within Al-Ahsa oasis itself, there were two main local axes:

- The first one led north from Al-Hofuf through Al-Mubarraz and Al-Mutairifi to Al-'Oyun. A side road went to Al-Shabah and Al-Julajilah, while a branch of the latter led to the villages around the Jabal al-Qarah, and to Al-'Umran settlements. These two branches met at Al-Qarah village.
- The second, east from Al-Hofuf to Al-Fudhul via Al-Jafar to Al-Jishshah, leading eventually to Al-Uqair port.
iv.2) Population and Main Cities of Al-Ahsa Oasis

The large population that dwelled in the oasis concentrated, after the 16th century, in two main urban centres located in the South-West of the oasis and in some 50 villages spread all over the oasis and its immediate surroundings.

The historic evolution and characteristics of the two cities of Al-Hofuf and Al-Mubarraz, now connected to form a single continuous urban zone, and of the main villages are briefly presented in the next pages.

Though there are no precise official historic statistics of their population in the past centuries, travellers estimated that the cities passed from 15,000 (Al-Hofuf) and 10,000 (Al-Mubarraz) at the beginning of the 19th century, to 25,000 (Al-Hofuf) and some 20,000 in Al-Mubarraz in 1908 (though Lorimer estimated at 25,000 the residents of Al-Hofuf and to just 8,500 the ones of Al-Mubarraz).

The residents of the ensemble of the oasis at that time were estimated to 67-80,000 almost equally divided into the two religious communities that provide Al-Ahsa with its unique sectarian and doctrinal diversity. Though most villages were inhabited by only one of the two communities, the cities had a mixed population with the Shiite communities residing mostly in the Eastern part of the historic cities closer to the palm grove and gardens, and the Sunnis in the Western parts, though there has never been a strict segregation between the religious groups living in the old towns within a harmonious, consistent and coherent social fabric, providing cultural richness unique to this region.
iv.2.1) Al-Hofuf

Origins and Early Development

Al-Hofuf lies on high ground in the south-western corner of the oasis, far from the disease bearing marshes, and was provided of a good supply of fresh water, from springs and wells. Its very geographical position explains its existence and success.

Though probably founded already in the Qarmatian period, the city of Al-Hofuf developed in the Ottoman period, when it became the regional capital of the Ottoman province.

The original nucleus of the city is located in what became Al-Kut quarter, and the first description of the city in 1819 by Sadlier probably refers only to this zone when he says that the city was surrounded by a high wall in stone and mud “of unusual height and thickness” (Sadlier 1819), surrounded by a dry ditch. Within this zone, accessible through two gates, was found the fortified citadel, Qasr Ibrahim, located in its Northern part. Immediately south of the citadel was found the Government Seray. In the middle of its eastern wall, was located the main gateway, well fortified and with a room over the top commanding a view of the whole town, opening on the road from Al-'Uqair.

The whole space of the quarter, up to the inner line of the walls, was densely inhabited in 1862; Its urban fabric was divided by rectangular streets running from gate to gate and from side to side. The towers, mostly round, were provided with winding stairs, loopholes and machicolations below the battlements.

By the mid of the 19th century, the town had considerably grown and had developed into a much larger oval-shaped city including three distinct quarters connected by large empty areas where were found the commercial souks. Described by Palgrave who visited it in 1862-63, Al-Hofuf had by then approximately the shape of an irregular hexagon, enclosed by a wall of widely varying height that was preserved until the late 1950s. Its three well-defined quarters were: Al-Kut, Ar-Rif’ah and An-Na’athil. According to Palgrave’s account, both new quarters — and especially An-Na’athil quarter — contained not only residential areas but also many plots of date garden. Al-Kut, the most densely inhabited quarter where resided the governor and other governmental officials, had become a city within a city, surrounded by a stone wall with stout bastions at intervals of about 150 yards and a moat.

The city had several fortified gates, by which alone the city could be entered or left. The principal gates were: Bab al-Jishshah, through which travellers from Al-‘Uqair enter the city;
Bab Najd in the south-west, opening on to the road to Central Arabia; and Bab Mubarraz on the north which leads to Al-Mubarraz and Al-Qatif. The main street of the old town separated the northern half of Ar-Rifa’ah quarter from Al-Kut. The southern portion of the main street separated the northern half of Ar-Rifa’ah quarter from An-Na’ athil. The southern part of Al-Kut wall used to form the boundary between this quarter and an-Na’ athil.

In the early 20th century, Al-Hofuf was divided into six quarters: Al-Kut, An-Na’ athil, Ar-Rifa’ah ash-Shamaliyah, Ar-Rifa’ah al-Wusta, Ar-Rifa’ah Al-janubiyyah, and As-Salihiyah. The quarters, both in Al-Hofuf and Al-Mubarraz, were also subdivided into smaller districts often known only to the inhabitants of the quarter itself. Each of these subdivisions consisted of a cluster of houses and was called a fareej. Division of each quarter into fareej-s was based on ethnic affiliation, occupation or on geographical location.

The earliest Friday Mosque for which there is evidence was built in 1555 by Sultan Mohammad Al-Fatih and was called Masjid ad-Dibs. Though largely modified, the mosque, located in Al-Kut quarter, still exists. The other main mosque of the original nucleus was the large domed mosque inside the citadel, the most prestigious and striking architectural feature of the city and of the entire Eastern Province (see description in Chapter 2.a).

Neither Al-Hofuf nor Al-Mubarraz had historic Turkish bath, apart from the one inside Qasr Ibrahim, likely because the local population (of both sexes) used to bath at the main natural springs in the vicinity of the two urban sites: ‘Ain Umm al-Khuraisan and ‘Ain Fuhairiyah for Al-Hofuf, and ‘Ain al-Harrah (the Hot Spring) for Al-Mubarraz.
Souks and Commercial District

Outside the eastern wall of Al-Kut, lied Suq al-Khamis (Thursday Market), a broad street varying in width from to 20 meters, and more than 600 metre long, running from the Bab Mubarraz on the north to the Town Hall on the south.

In the 19th century, during the other days of the week, commercial activity was essentially concentrated in Al-Qaysariyah. The qaysariyah (or bazaar) of Al-Hofuf was located in the north-eastern part of the city, next to Ar-Rifa’ah quarter. Around it clustered several alleys, roofed with palm-leaves against the heat. All the travellers who visited the area used to praise the merchandise of these shops for it included different varieties of local and foreign products.

The modernization of Suq al-Qaysariyah took place between 1917 and 1923. The renewed Al-Qaysariyah was quasi-rectangular in shape, consisting of single-storey buildings with several narrow lanes, and arcades along the main street. Each lane in this covered market contained several small shops. The shops on the front of this market used to sell dry household goods while the two parallel streets sold cloth. The southern side of this market was occupied by cloaks traders, rug and bedding along the northern and eastern sides, and metal vessels and antiques in the centre. Al-Qaysariyah had no residence apartments above its shops and was completely reserved for trade. This major monumental commercial ensemble was destroyed by a large fire in 2001 and has been recently reconstructed by the SCTH on the basis of the original plan, re-acquiring its central commercial role.

On the other side of the Market Street, opposite Al-Qaysariyah were located the hardware shops, grocery and grain wholesalers. To the south of these shops was the meat market. Jewellers, silversmiths and goldsmiths shops, the coffee pot makers and menders and dry goods stores were found at the southern end of the Market Street along both sides of the street. The coffee shops, basketry shops, the camel market and the sheep market were situated at the northern end of the Market Street outside the town wall. Barber shops occupied a small lane behind Al-Qaysariyah. Then came the bakeries and the blacksmiths’ shops. Each one of these pursuits occupied a separate lane outside the main commercial area but close to its eastern side.

Within the Market Street there were some areas reserved for selling fresh vegetables, alfalfa, wool and skins in the open air.

On Thursday, every week, Market Street was crowded with thousands of people not only from Al-Hofuf itself but also from the different parts of the oasis and the surrounding desert.
People used to bring their products to the market to be sold by bargain, then they would buy what they needed before they returned to their areas. Thursday Market was, in fact, the biggest periodic market held in Al-Ahsa oasis.

The early 20th century and the first extensions of the city
The growth of the population gave rise to the two first extramural suburbs, As-Salihiyah and Ar-Ruqayiqah. Construction of As-Salihiyah started at the end of the 19th century by the Turkish officers who could no longer find accommodations in overcrowded Al-Kut. The neighbourhood, characterized by rectangular block plan and wider streets, developed in the 20th century when it attracted some other inhabitants apart from the officials, since after King Abdul Aziz drove the Turks out of Al-Ahsa oasis in 1913 the area outside the fortifications had become safe.

Ar-Ruqayiqah, a former Bedouin encampment just outside the southwest corner of Al-Hofuf wall, also developed in the first half of the 20th century.

The town traditional cemeteries were located opposite the northwest corner of the wall, South-Southeast of As-Salihiyah and East of town.

Traditional Houses
Most of the traditional houses in Al-Hofuf used to have two or three stories and practically all of them had walled roof terraces traditionally used as eating or sleeping places. They were built around a central courtyard, and often one street door gave access to a small yard around which clustered a whole compound of several three or four storied houses inhabited by members of the same extended family and usually mutually accessible from the roof level.

The houses of the wealthy people were adorned with columns and plaster ornaments surrounding the courtyard. Generally speaking, the different features of a house - the mortar, the whitewash, the decoration and the general elegance - reflected the economic condition and social status of the owner. Many of the larger houses of Al-Hofuf were provided with wells (20 or 25 feet deep) for their domestic water supply, the ones that didn’t used to get their water from several public wells found in all quarters. These public wells had roofed enclosures built round them and were provided with basins, spillways and sometimes ablution facilities.

The walls, whether of earth or stone or of both mixed, were very generally coated with very fine white plaster. Roofing beams were usually of mangrove, tamarisk or palm trunks. Over these rests a network of smaller branches of mangrove and tamarisk, then a layer of reed matting, often plastered and then covered with mud to form the base of the next floor. Windows are provided with a wooden frame. Interior plaster surfaces, particularly around windows and doors, are at times provided with geometric designs carved with a knife into the plaster before it sets.
iv.2.2) Al-Mubarraz

“The Fort of Mooburuz is three-quarter of a mile to the North of Foof, its bourjes are lofty and it surrounded by a deep dry ditch; it has but one gate; its suburbs or open village is not so extensive as that of Foof, and may contain 10,000 souls…” [Sadlier, 1819]

Mentioned for the first time in 1573, the city of Al-Mubarraz developed in the 18th century when it became the capital of the Bani Khaled state. In the 19th century the city lost importance and its population likely decreased. References to a Friday mosque in Al-Mubarraz do not appear before 1670.

A wall with some fortified towers in the same style of the ones found in Al-Hofuf, encircled the historic town, but this wall was considerably lower, not as thick, and had no moat. The gates of Al-Mubarraz were similar to those of Al-Hofuf, though Al-Mubarraz had only one main thoroughfare stretching from Dirwazat al-Harah in the north to Dirwazat al-Maksab in the south. In the late 19th century, there were eight gates giving access to the town. While covering an area almost as large as the one of Al-Hofuf, Al-Mubarraz was probably always less populated and less densely built, ad so it appeared still in the mid 20th century when Vidal described it.

The commercial district of Al-Mubarraz occupied the centre of the town, nearer to the southern wall than to the northern one. It consisted of permanent shops as well as temporary ones. As in Al-Hofuf, the permanent shops were concentrated in a covered-market called Al-Qaysariyah located at the centre of the market area between the meat market and the date market. The qaysariyah of Al-Mubarraz consisted of a maze of narrow arcades and exhibited almost the same features as those of Al-Hofuf, but without the elegance of the arched and colonnaded front. Shops were smaller and specialization was not as marked as in Al-Hofuf.

In the early 20th century, Al-Mubarraz had six residential quarters: Al-‘Utban, As-Siyasib, Ash-Sha’abah, Al-Muqabil, Al-Qudaimat and Al-‘Uyuni which was located in the heart of the town. North and East of the town are located the historic cemeteries and the stone quarries where limestone and the best quality of pottery clay in Al-Ahsa used to be obtained.
According to Vidal, Al-Mubarraz used to have a less cosmopolitan appearance than Al-Hofuf and although many of its inhabitants engaged in trade and in the professions, its population included a large number of agricultural workers like the oasis villages.

iv.2.3) The Evolution of the Cities from the 1950s to the 1970s

The development of urban centres in the Eastern Province was traditionally depending on local migration from traditional rural areas to the cities. In 1934, the Eastern Province counted only one principal city, Al-Hofuf, while Dammam was a small fishing village on the south side of Tarut Bay and the town of Al-Khobar did not exist yet.

In 1938, oil was discovered in commercial quantities in the Eastern Province in areas distant from Al-Ahsa, and this discovery rapidly affected the established pattern of life in the oasis. Major changes began to overtake the traditional economy of the oasis and to modify the long-established settlement pattern. Oil operations in the Eastern Province have resulted in the establishment and rapid growth of several new settlements such as Dhahran, Al-Khobar, Abqaiq, and Ras Tanura, as well as in the rapid expansion of existing settlements such as Dammam. These settlements were based on non-agricultural functions and had very little functional linkage with their agricultural and pastoral hinterlands.

In 1953, Dammam replaced Al-Hofuf as the capital city of the Eastern Province. This administrative decision immediately caused a decrease in the available jobs in Al-Hofuf City and lead to the partial decline of the economic status of the town that, in turn, entailed an adverse effect on agricultural development of the oasis, particularly during the period from the 1950s to the late 1960s. Al-Ahsa decline in status, however, was only relative and essentially concerned the rural districts since Al-Hofuf and Al-Mubarraz urban centres grew at the expense of the farming areas.

Since 1970, however, a reverse process set in motion. Following the development of the sand dune stabilisation project and the creation of the new canal network on the one hand, and the parallel discovery and exploitation of the new large Al-Ghawwar oilfield in the vicinity of Al-Ahsa oasis, the town of Al-Hofuf became again attractive. The development of the giant Ghawwar oilfield, only 20 km west of Al-Hofuf, had a tremendous impact, direct and indirect, on the oasis. It provided not only considerable employment and income for the town’s
residents, but also led ARAMCO to build a hospital and a technical training school, while ARAMCO itself, constituted a new and growing market for the farm produce from the oasis. Agriculture began to revive while Al-Hofuf witnessed a phase of rapid urban growth that within few years completely modified it original structure. The largest increase of population took place between 1960 to 1970 due to the widespread effects of regional growth, the centralization of offices and employees at Al-Hofuf attached to new projects such as the sand stabilisation and Al-Ahsa irrigation and drainage scheme, and other nationally-financed projects for agriculture, urban and industrial development.

The shift from agriculture to tertiary and industry resulted in a significant migration of labour from the rural areas to the towns; the urban centres of Al-Ahsa oasis, Al-Hofuf and Al-Mubarraz, rapidly merged into one continuous urban area during the 1970’s, while four sizeable towns developed form some of the oasis villages: Al-‘Oyun in the north, At-Taraf in the east, Al-Jishshah in the north-east, and Al-‘Umran beside Jabal al-Qarah.

In this first urban development phase, until 1974, the new urban immigrants (including many newly settled Bedouins) tended to build on the cheaper areas located on the edges of Al-Hofuf and Al-Mubarraz and on the public land distributed to low-income families public. This settlement pattern led to the actual physical merging of the two cities.

iv.2.4) Urban Growth after 1974

After the oil boom of 1973, the city’s population and relevance continued to grow. Urban expansion of the merged Hofuf/Mubarraz city took now place according to modern Saudi
Al-Ahsa Oasis, an Evolving Cultural Landscape

urban rational planning principle as a low-density extended urban area. The historic walls were demolished, and the city population had to accommodate a foreign worker population to carry out the development and construction works.

The city’s development started along the main communication axes that were being created: to the North towards Dahran, to the South-East towards Qatar, and to the West, towards Riyadh. The modern network of highways connecting Al-Ahsa to the rest of the Kingdom and to the Arabian Gulf countries, Qatar, United Arab Emirates and Oman to the East, and to Kuwait, Iraq and Jordan in the north, gave Al-Ahsa a nodal position in the Kingdom’s communication network and helped the city to retain its importance as a trading centre.

In the 1980s and 1990s, notwithstanding the development of industry and tertiary, the oasis has remained one of the major national concentrations of agricultural production, supported by government investment in agricultural projects and subsidies. Urban development, therefore, couldn’t take place towards the East, where were located the oasis garden. The modern planned city grew taking into consideration a series of planning constraints and had to integrate the presence of the railway path, of the new ring-road and of large plots of land belonging to ARAMCO and the Government where developed later the National Guard compound.

In the 1990s, Al-Ahsa metropolitan area increased from 7,650 hectares to 22,870 hectares (Cf. Figure next page).
iv.2.5) Al-Ahsa 1450 AH Master Plan (2030)

The growth of Al-Ahsa urban area continues and a new Master Plan has been prepared to direct and control it. The 2030 Master Plan foresees a major change of the traditional urban development patterns. The new city is being developed in the East, beyond the oasis towards the Gulf coast. In this previously desert area, the new Municipality compound and a large Date Market have already been built. By 2030, the city will cover a surface of 38,000 hectares. It is expected that the new areas set for the city will drastically reduce the pressure on the rare empty land within and around the oasis and favour a reduction of the density in the oasis villages.
Al-Ahsa Oasis, an Evolving Cultural Landscape

Al-Ahsa Master Plan 2030, Al-Ahsa Municipality, 2015
iv.3) The Agricultural Villages

iv.3.1) Introduction
Apart from the two cities described above, the inhabitants of the oasis used also to dwell in some 52 villages scattered in and around the oasis. The Eastern part of the oasis has always been more densely settled and its villages counted probably the double of the residents found in the northern oasis villages. Tentative population estimates suggest a population of 90,000 rural residents in 1937, while no precise data are available for earlier periods.

Little archaeological and historic research has ever been carried out on the oasis villages and little is known about their origins and foundation date. The dramatic transformation of the built environment that has taken place in the past 30 years has unfortunately erased most of the original mud and stone structures; only scant examples of these structures survive, making a comparative analyses of the constructive techniques, to identify the period in which they were built, impossible.

The description and analyses of the historic villages presented below, therefore, are essentially based on information acquired by local researchers and foreign travellers before the transformation caused by the exploitation of oil in the 1940s and 1950s.

iv.3.2) Settlement Patterns and Location of the Villages
The centrality of agriculture in the development of the oasis has inevitably favoured the development of a rural culture at the expense of the urban one that was limited to Al-Hofuf and Al-Mubarraz. The village type of rural settlement traditionally prevailed in the oasis.

Villages developed on non-cultivated areas, mostly on high ground to save arable land, and were often relatively close to each other for safety and security. According to Ibrahim Al-Abdullah (1976), three distinct features are found in the oasis the villages:

1) String of villages at the edges of the oasis;
2) Villages and hamlets inside the date gardens within the oasis;
3) An absence of settlements in the northeast corner of the oasis, just outside the date gardens.

A relevant number of villages was located within the very gardens and date plantations, notwithstanding the fact that garden environment was not always healthy and favoured malaria and other insect-related maladies. This choice, however, was certainly due to the political instability that characterized the oasis region throughout history, and notably to the risk of attacks on the settled population from the desert Bedouins.

iv.3.3) Village Structure and Main Features
Village economy was almost exclusively based on agriculture (essentially date palm and fodder crops), with farmers and animals living in the villages. Because of the security conditions, almost no isolated farms existed.

Commerce and crafts were not practiced in any specialized way in Al-Ahsa villages that did not have business districts or buildings to host such activities. The internal structures of the villages consisted mostly of simple houses built along the
narrow lanes connecting together the different parts of the village, though some villages reserved a space inside the village where the inhabitants of could gather to celebrate certain occasions such as marriage. Larger villages often also had special 'Eid prayer sites, usually located outside the village wall on levelled land, that were used twice a year for the prayers of 'Eid al-Fitr and 'Eid al-Adha.

Some of the villages used to be surrounded by circular mud walls for protection and had therefore a very distinctive round-shaped plan. Both Philby and Vidal report that more than a dozen villages had such walls, like Al-Jishshah, Al-Jafr and At-Taraf, Al-Fudhul, Al-Qarah, and Al-'Oyun. Al-'Oyun and Al-Markaz defensive system included also moats filled with water as additional obstacles against attackers. These villages were mostly located on the limits of the oasis close to the desert. Villages located on the slope of Jabal al-Qarah used to have defensive walls only on the open side, as the rugged rocks of the hill guaranteed their protection on the other. Walled villages used to have a number of gates opening towards the fields, closer springs, nearby villages, or towards the trade route (as in Al-Jishshah, Al-Jafr and At-Taraf which were located along Tariq as-Sultani, an old trade route connecting the Arabian Gulf with Central Arabia. Villages located inside the date garden belt, such as Al-Battaliyah or Al-Jubail, on the contrary, relied upon the thick date garden for protection and were not surrounded by walls.

The only noticeable buildings in the villages used to be the mosques that usually occupied strategic locations close to the majority of the houses, and had religious as well as educational functions for the village communities. At the architectural level, mosques didn’t greatly differ from the average houses and were generally square or rectangular shape, with half of the structure roofed to be used during the winter and the rainy season and the other half left open for use during the hot season. Only some of the mosques had minarets.

Most village houses were built only for shelter and privacy, on one level in limestone or mudbricks; only the largest villages contained a substantial number of two-level houses (sometimes even with an additional room on the roof); however luxurious buildings were completely absent. As far as building materials are concerned, most houses in the villages were built of sun-dried bricks made from the local clay, though in a number of villages, such as Al-Jishshah and At-Taraf, limestone was the most frequently used material.

As in the towns, cemeteries were always located outside the village wall on a well-drained patch of land near the gates. Some of the villages, which were close together, established their cemeteries in central areas between two or even three villages.

Following the establishment of a strong central government under the Al-Saud, guaranteeing peace and stability, large garden houses created by the wealthier families of Al-Ahsa, began to develop in the oasis. These houses are generally used for short periods of residence as places to retire in the afternoon during the warmer months. They slowly became actual settlements because around them grew a nearby compound with a few barastis and masonry buildings.
iv.4) The Population and the Social Fabric

The traditional social structure of Al-Ahsa oasis was rather simple, as the population of the hamlets and the smaller villages used to consist only of agricultural workers, while the vast majority of landowners lived in the cities. In larger villages, however, there used to be few families of landowners who dominated the village economically and socially.

In 1974 (Population Census 1977), the overall population of the oasis reached 250,000 inhabitants, of whom some 100,000 lived in Al-Hofuf. Between 1935 and 1974, therefore, the population of the city doubled, and in the following years it exponentially grew.

In 1982, the Ministry of Planning estimates the population of Al-Ahsa oasis at about 600,000, and, Al-Abdullah, estimated the city’s population in 1982 at between 250,000 and 300,000 people (estimate figures for the city give the numbers of 55,000 in 1951, 63,000 in 1960, and 78,000 in 1970).

In the 1980s, also developed local industries (cement plant, brick factories, clothing factory, date processing and packing plants, dairy factories, soft drinks factory, and many smaller others), and the local university, founded in 1975, became a centre for scientific research.
3)

JUSTIFICATION FOR INSCRIPTION

3.1.a Brief synthesis
3.1.b Criteria under which inscription is proposed (and justification for inscription under these criteria)
   Criterion (iii)
   Criterion (iv)
   Criterion (v)
3.1.c Statement of Integrity
3.1.d Statement of Authenticity
3.1.e Protection and management requirements
3.2 Comparative Analysis
   i.) Introduction
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   iii.) Comparative Forms
   iv.) Conclusions
3.3 Proposed Statement of Outstanding Universal Value
3.1) Justification

3.1.a) Brief synthesis

Summary of factual information

Al-Ahsa Oasis, an Evolving Cultural Landscape is a serial cultural property covering a total surface of 8,544 ha. It is composed of twelve components — surrounded by seven buffer zones covering an area of 21,555 ha — adequately representing the totality of the landscape.

Al-Ahsa Oasis, an Evolving Cultural Landscape is an organically evolved landscape that developed by association with, and in response to, its natural environment, reflecting this process of evolution in its form and components. It is an example of continuing landscape retaining an active social role in Saudi Arabia Eastern Province contemporary society.

The twelve components of Al-Ahsa Oasis, an Evolving Cultural Landscape include all the elements of the morphology of the oasis (gardens, canals, springs, wells, drainage lake), vast archaeological zones, and a selected ensemble of architectural vestiges within the oasis historic settlements that materialize its relevance as a major traditional settlement throughout the past 500 years. The components reflect cultural, social and functional links over time that provide the necessary landscape, ecological, and habitat connectivity of the nominated property, with each component contributing to the definition of its Outstanding Universal Value.

Summary of qualities

Al-Ahsa Oasis, an Evolving Cultural Landscape is a unique cultural landscape resulting from thousands of years of interaction of nature and man and of a unique geographic and geological position. The association between the large watered date palm groves and the urban environment with its historic emergencies creates an exceptional cultural landscape presenting, through its continuous practice, a unique evolution of an ancient cultural tradition. The landscape bears testimony to the sedentary human occupation of the area throughout the millennia and to the evolving sustainability of this area until the present day. The attributes supporting criterion (iii) include tangible architectural elements, notably the successive fortresses and religious sites of the different rulers of the area in the past 500 years, and agricultural and landscape elements that have shaped the oasis landscape throughout the millennia.

Al-Ahsa Oasis is the largest oasis in the world with more than 2.5 million palm trees. It constitutes a spectacular example of oasis demonstrating the shared values, social cohesion and technical know-how of the communities that have settled in the area. Al-Ahsa Oasis, an Evolving Cultural Landscape is the result of thousands of years of human endeavour to create a landscape that until today preserves material traces representative of all the stages of the oasis history, since its origins in the Neolithic to the present.
The exceptionality of Al-Ahsa lies in the perpetuation of a great oasis throughout the millennia in the place of its genesis, shaping its landscape in an uninterrupted development. The landscape still maintains all the characteristics that have led to the creation of the first oasis experiences: the geo morphological and water conditions, and the socio-cultural landscape composed of nomadic, sedentary and marine-lacustrine environments. Al-Ahsa landscape preserves skills and knowledge that turn out to be crucial to face the challenges posed by global warming and desertification. The physical remains of the different phases of the oasis evolution, the different kind of natural environments visible within the property, and its peculiar ecotone — a meeting and transition between physical environments, natural and human communities — are the main attributes conveying the Outstanding Universal Value of Al-Ahsa Oasis, an Evolving Cultural Landscape serial property.
3.1.b) Criteria under which inscription is proposed (and justification for inscription under these criteria)

The property has the potential to meet three of the six cultural heritage criteria: (iii), (iv) and (v).

Criterion (iii)

"Be a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared."

Al-Ahsa Oasis, an Evolving Cultural Landscape is an exceptional testimony to the oasis cultural tradition, a symbol of the relevance of the age-old oasis agricultural techniques for the development of the Gulf region civilizations. The unique role the oasis of Al-Ahsa has played for hundreds of years — and continues to play in the modern kingdom of Saudi Arabia — is witnessed by the many fortresses, historic mosques, springs and canals that dot the modern city and the orchards. The Qaysariyah market, dedicated to food, spices and textiles, is a proof of the continuity of the traditional commercial exchanges linked to the agricultural output of the oasis that are still active and still play a relevant economic role. The continuity of the oasis agricultural tradition is represented by a permanently evolving landscape with an agricultural organization based upon the distribution of spring water through a network of open-air canals that grew and changed throughout history. The nominated property materializes the vivacity and modernity of this specific land-use tradition and shows its continuing relevance at the local and regional scale.

Al-Ahsa Oasis, an Evolving Cultural Landscape is a unique cultural landscape resulting from thousands of years of interaction of nature and man and from a unique geographic and geological position. This large cultural landscape is composed of different zones covering the oasis orchards, mountain caves, villages, mosques and springs, but also archaeological sites and a small section of the historic centres of Al-Hofuf and Al-Mubarraz with the main monuments embodying the political control over the area and its commercial role throughout the centuries.

Although most of the ancient sources have dried up, the region remains a major agricultural and commercial pole and has become a major urban area inhabited by 1.5 million people that continues to produce dates and other agricultural products exported throughout the world. The vestiges of the palaces, fortresses, mosques, markets and houses, though often in a ruinous shape, preserve a complete catalogue of the architectural elements composing the urban settlement of Al-Ahsa from the early Islamic period to the Saudi Kingdom. The ensemble of the urban and architectural sites included in the nominated property, the historic Mosque of Jawatha, the Ottoman Qasr Ibrahim, the 18th century Qasr Sahood, and the Saudi period Qasr Khuzam and Suq al-Qaysariyah, are an exceptional testimony to the flourishing civilizations that developed in Al-Ahsa oasis and that made this Eastern Arabian oasis the major economic and agricultural pole of the entire Gulf region.
In the 1970s, the modification of the water output from the sources, and the deepening of the water table caused by human presence and activity in the area, obliged the Saudi authorities to launch a major hydraulic and agricultural project that has permitted the very survival of the site, though modifying the traditional irrigation system. A new network of canals was laid across the area to irrigate a surface of some 120 km², where palm dates and other agricultural products continue to be grown. In the meantime, a desertification control project of an unprecedented scale was also launched to arrest the progression of the dunes on the settlement. These relatively recent modifications of the oasis landscape represent a new phase in the history of the site and an “adaptation” of traditional know-how to modern technology. Far from reducing the relevance of the site, these interventions prove the continuity and the persistence of the agricultural tradition in the Kingdom of Saudi Arabia and the persisting vitality of the region.

The association between the urban environment with its historic emergencies and the large watered date palm groves creates an exceptional cultural landscape that continues to live and evolve presenting through its continuous practice a unique evolution of an ancient cultural tradition.

From the site of ‘Ain Qinas, dating to the earliest prehistoric culture in the area, through the development of successive cultures from the Neolithic, the iron Age, the great development of the region at the beginning of Islam and in the Middle Ages, until the Ottoman and Saudi periods, Al-Ahsa Oasis, an Evolving Cultural Landscape bears testimony to the sedentary human occupation of the area throughout the millennia and to the evolving sustainability of this area until the present day.

The complex traditional property and water management systems still existing in as-Seef area in Al-Hofuf proves the effectiveness of age-old oasis management mechanisms that still persist in the nominated property and forms an integral part of the cultural and legal intangible traditions related to the oasis of Al-Ahsa, with specific social relationships relating to the traditional management system of this sector.

**Attributes**

The attributes supporting criterion (iii) include tangible architectural elements — notably the successive fortresses and religious sites of the different rulers of the area in the past 500 years — and agricultural and landscape elements that have shaped the oasis landscape throughout the millennia.

The architectural, urban and landscape evidence of the oasis cultural tradition are not mere vestiges of a past world, but are part of the very contemporary life of the city of Al-Ahsa, one of the largest urban areas of the Kingdom of Saudi Arabia and a major agricultural production centre of dates at the global scale.

These tangible elements are complemented by the persistence of intangible elements, including songs, music, food and social practices, that are still present in Al-Ahsa and that characterize the life of the local community until today. These intangible attributes contribute to the definition of a conservation and development policy aiming to preserve the agricultural role of the oasis, and to scientifically verify the relevance and the possibilities of traditional know-hows for the sustainable development of the region.

The main tangible attributes expressing the Outstanding Universal Value of Al-Ahsa Oasis, an Evolving Cultural
Landscape as a testimony of the oasis agricultural and cultural tradition are:

- The oasis gardens and irrigated plots extending over more than one hundred square kilometres.
- The 2.5 million date palm trees that make Al-Ahsa oasis the largest in the world.
- The “urban oasis” of As-Seef and its traditional management mechanisms.
- The historic springs, water-lifting mechanisms and canals pre-dating the 1970s hydraulic works that permitted the development of the oasis.
- The modern network of canals and water distribution plants that have permitted the survival of the oasis until today.
- The archaeological sites proving the historic depth of the human presence in Al-Ahsa.
- The main fortresses and historic buildings (civil and religious) that materialize the economic and social relevance of the oasis in the past 500 years.

Criterion (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.”

Al-Ahsa Oasis, an Evolving Cultural Landscape is an outstanding example of a cultural landscape illustrating significant stages in human history. It is the largest oasis in the world with some 2.5 million palm trees and a complex and evolving network of water canalizations.

It constitutes a spectacular example of an outstanding type of landscape, the oasis, stretching back through many millennia and actively modifying its surrounding natural environment. The oasis landscape demonstrates the shared values, social cohesion and engineering knowledge of the communities that have settled in the area. The transformation of the landscape of Al-Ahsa territory/oasis throughout the millennia materializes different phases of human history, from the Neolithic until the Islamic period, in which human communities have progressively modified the territory to rationally exploit its water resources. The creation of the largest oasis in the world is the result of thousands of years of human endeavour and its material attributes can still be identified in the contemporary landscape as a continuous succession of layers.

The site of Al-Ahsa is characterized by the presence of several conditions that were necessary for the creation of the first oases and for their evolution. The special features of the site, and its historical vicissitudes, have led to the creation and development of a type of oasis with outstanding characteristics and an imposing extension.

The geographical situation and natural morphology of the region provided optimal conditions for cyclical migrations of hunter-gatherer populations who created the first settlements in the flood plain. These people, via cultural interactions and exchanges, progressively acquired a diversified knowledge that, with the instauration of the desert, led to the creation of the oasis and of its peculiar forms and evolution. Throughout the centuries, a unique geo-cultural landscape was created; a
landscape that until today preserves traces representative of all
the stages of the oasis history, since its origins to the present.

Within Al-Ahsa Oasis an Evolving Cultural Landscape borders
are notably found vestiges and remains of:
- The pre-oasis landscape and the `Obeid culture from
  the VIth to IVth millennium BCE;
- The creation of the oasis in the IIIrd millennium BCE;
- The evolution of the channel and drainage systems that
  took place in the Hellenistic period;
- The large scale oasis development dating from the
  Islamic period;
- And the modern evolution of the oasis.

Attributes
- The environmental remains at Al-Asfar lake of residual
  pre-oasis prehistoric landscapes evoking the environ-
  ment that characterized the ancient period of Green
  Arabia.
- The original system of springs and the archaeological
  relics of fortified wells and ancient waterways dating
  from the `Obeid period.
- The vestiges of the traditional systems of irrigation with
  the farms watered by the two ancient traditional
  methods: Saih Irrigation and Mugharraf Irrigation
  typical of the first period of the oasis creation.
- The complex network of canals, based on a main canal
  tapped by subsidiary irrigation canals called masqa,
  and diverted into the farm plot field by parallel
  channels.
- The system of re-use and re-cycling water that could
  be diverted for re-use in the field twice or three times
  more on low-lying farms.
- The drainage system with the surplus water carried
  away by a channel called munaja to a larger canal
  called thabr.
- The modern irrigation system with its large network of
  canals and irrigated areas.
- The geo-cultural landscape composed of palm groves
  and integrated settlements.

Criterion (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."

Al-Ahsa Oasis, an Evolving Cultural Landscape is an
extraordinary example of human interaction with the
environment and of its ability to endure, confronted
with global challenges and modern needs. From the
origin of the oasis in the alternation of more or less
humid phases that characterized the Holocene,
through the installation of the desert, and until the
present days, people have skilfully made use of the
natural environmental opportunities and developed
knowledge and solutions increasingly more
sophisticated. The exceptionality of Al-Ahsa lies in the
perpetuation of a great oasis throughout the millennia
in the place of its genesis shaping its landscape in an
uninterrupted development. The landscape still
maintains all the characteristics that have led to the creation of the first oasis experiences: the geo-morphological and water conditions, and the socio-cultural landscape composed of nomadic, sedentary and marine-lacustrine environments. Al-Ahsa Oasis techniques and procedures for the creation of fertile soils, for agricultural production, water management, recycling, energy-saving, survival in the desert, constitute an example of good practices for the whole planet. Al-Ahsa landscape preserves skills and knowledge that turn out to be crucial to face the challenges posed by global warming, desertification, and ecosystems collapse.

The remains and landscapes of the oasis of Al-Ahsa testify, over a very long period, to the capacity of the civilizations of the Arabian Peninsula to develop a sustainable and positive relationship with the desert environment exploiting the water resources to create a green and fertile environment. The site of Al-Ahsa illustrates the main significant phases in the human settlement of the Arabian Peninsula and its interaction with the desert landscape, demonstrating a longstanding, sustainable use of water resources for the cultivation of palms and other crops in an arid desert region.

Al-Ahsa oasis is an outstanding example of traditional human settlement developed in a desert environment exemplifying the intimate link between landscape, natural resources and the human efforts to settle the land. The rich water table close to the surface permitted the initial growth of an oasis settlement. Water, originating from surface springs, was progressively distributed to the territory of the oasis with hydraulic mechanisms developed in Arabia and operated by donkeys and camels, in a continuous and progressive evolution whose origin might reach back to the second millennium BC. Some of these springs, wells and water-lifting techniques are still visible in the site, living memory of age-old farming techniques.

The oasis landscape has continuously evolved, gradually transforming the natural landscape with a skilful use of the natural resources that gradually permitted to water larger and larger territories and produce significant wealth for the residents. Notwithstanding the dramatic changes brought about by the development of modern Saudi Arabia and by the discovery and exploitation of the nearby oil fields, Al-Ahsa Oasis, an Evolving Cultural Landscape has managed to resist and to develop until today, continuously evolving to exploit in the best possible way the natural water resources until the present day. The oasis landscape proves the capacity of the human communities and of the successive cultures that resided in the region to positively interact with the environment in order to develop a large agricultural and commercial settlement. The major hydraulic plans realized by the Kingdom of Saudi Arabia in the 1970s, and the on-going plans to convert open concrete canals into closed pipes, are but the last effort to adapt to the evolving climate, to the progressive drying up of the springs, and to the rapid demographic growth of the region. The recent modification of the water table level and of the hydro-geologic system caused by climate change and by human activities has imposed the adaptation of the age-old canals to modern technologies to continue exploiting the land to grow palms and other crops.

The property also proves the on-going efforts made by the Kingdom of Saudi Arabia to preserve and protect the Oasis of Al-Ahsa. The major projects for re-cycling the oasis drainage
waters, for the preservation of the natural environment of Al-Asfar Lake, and the plans to counter desertification in the National Park, make Al-Ahsa Oasis, an Evolving Cultural Landscape an extraordinary laboratory for the research and application of sustainable techniques in an environment severely affected and threatened by the major geo-physical and climatic changes brought about by modern development.

Attributes

- The natural environment lying at the intersection of: plateau, sand desert and lagoon.
- The nomad landscape of the great desert, with mountains, springs, hills, caves, canyons, spectacular rock formations, changes of altitude, gradients, depressions, swamps, sabkha-s, mounds and alignments of dunes.
- The settled landscape of the palm grove, with its springs and its large-scale irrigation systems, the cultivated plots and the villages, whose spatial pattern is still well visible, that make up the large oasian basin.
- The marine/lacustrine landscape in Al-Asfar lake offering a unique vision of a paleo-desert environment where dune chains and completely dry surfaces blend with ponds and lagoons providing an extraordinary immersion in a landscape otherwise vanished in other oases.
- The peculiar ecotone: a meeting and transition between physical environments, natural and human communities.
- The geo-cultural landscape with the integration of the agro system and the urban ecosystem forming a giant oasis landscape.
3.1.c) Statement of Integrity

The integrity of Al-Ahsa Oasis, an Evolving Cultural Landscape is conveyed by two main elements: the physical presence of more than 2.5 million palm trees, and the presence of the water canals network that sustains the oasis agricultural activity. The extraordinary continuity of the agricultural activity shows the persistence of the oasis principles and mechanisms from the earliest settlements to its most recent evolution and extension.

The nominated property shows the sustainable evolution of the oasis and of its associated human settlements, where the physical and functional relations between the natural landscape, the water springs, the water canalization system, the villages and the cities create a continuously evolving human-created oasis environment. Al-Ahsa Oasis, an Evolving Cultural Landscape remains today the largest agricultural area in the Arabian Peninsula, and a working and living environment that has developed in direct continuity with its origins and its past.

The nominated property’s twelve components possess an evident topographical integrity presenting the ensemble of the elements that characterize and make an oasis possible: water springs, caves, mountains, flatlands, modern and historic canals and water-lifting mechanisms, human settlements and natural drainage areas. The continuing use of the oasis as major agricultural zone where high-quality dates are produced and exported throughout the world, and the persistence of traditions and built elements from the past eras, are authentic in use preserving both the agricultural and the settlement/commercial integrity of the oasis functions.

Throughout the millennia, while constantly evolving, the integrity of relationships between the palm groves, the water sources and canals, the human settlements and the natural landscape has remained constant, adapting to the needs of the human societies that developed in the area. Water distribution and water abstraction modifications in the past 40 years have aimed to maintain the very agricultural function of the oasis: the large-scale anti-desertification project and the re-organization of the water distribution techniques with the creation of a new network of canals realized by the Kingdom of Saudi Arabia since the late 1960s have permitted to keep the oasis alive and the continuity of its agricultural role. The extraordinary integrity of this urban/oasis landscape can still be fully appreciated when observing from an elevated point the “sea” of palm trees and gardens that extends in every direction almost endlessly.

The sheer size of the property permits to ensure the complete representation of all tangible attributes of the cultural landscape and of the social processes conveying its Outstanding Universal Value.

The oasis constitutive elements, and the agricultural and social network constituted by the springs and the water canals and the human settlements, are contained within the boundaries of the property and clearly manifest their significance and exceptionality. The unique scale of Al-Ahsa Oasis, the largest oasis in the world, is mirrored by the very size of the nominated property. Its historic depth and the complexity of traditional oasis agricultural methods is represented by the major archaeological zones included in the nominated property covering thousands of years of human settlement, and by the persistence of traditional oasis agricultural crops beside the dominant date palm, including the red rice variety typical of Al-Ahsa. The integrity of the property is reinforced by the continuity of human presence in the oasis villages and by the existence of
both traditional historic souks (like Al-Qaysariyah in Al-Hofuf) and modern markets for the exchange of the agricultural products of the oasis.

The tangible attributes that convey the Outstanding Universal Value of Al-Ahsa Oasis, an Evolving Cultural Landscape are: the geo-morphology of region with its mountains, springs, caves and drainage areas; the palm grove itself; the water canals and the agricultural plots parcels; the archaeological sites that prove human presence in the area since the Neolithic; the urban monuments and the souks that witness the relevance of the oasis throughout modern history; and the modern network of canals realized since the 1960s that have permitted its survival and development until today. Landscape views from the high spots and from the main road axes, and intangible attributes relating to food traditions, work songs and clothes, contribute to expressing the property’s OUV. All the integrity aspects (composition, relationships and functionality of attributes) necessary to sustain the OUV are represented, and the serial site as a whole, with its twelve components, allows the expression of the significance of the property to the highest degree.

Justification of Integrity

Introduction

Al-Ahsa Oasis, an Evolving Cultural Landscape is a serial property composed of twelve independent components. The site covers some 85 km² of the oasis, from its northern limits in Al-‘Oyun to Al-Hofuf urban sites, from Al-Asfar Lake to the core areas of the northern and eastern parts of the oasis. Within the nominated property limits are located: archaeological mounds and remains, ancient water canals and springs, monumental fortresses and urban elements, the associated residential areas of the farmers and urban residents, large palm groves, the surviving elements of the original earthen canals, and the modern elements composing the last water distribution system of the oasis.

The limits of the serial nominated property define an extraordinary cultural landscape composed of an integrated ensemble comprising a large agricultural oasis with its natural elements and its associated commercial and urban organization. The boundaries of the components of the nominated property show the morphology and topography of Al-Ahsa oasis and reflect a sustained natural, anthropic and economic ensemble that continues to produce important agricultural outputs and manages to preserve its characteristics through a permanent evolution.

The setting of the twelve components of the nominated property is protected by seven carefully designed buffer zones that includes not only the areas necessary to prevent possible encroachments on the nominated properties, but also small urban sectors of Al-Hofuf and Al-Mubarraz, and the area of Al-Ahsa National Park that represent an important “secondary” attribute enriching the OUV of the property. In this zone, since the 1960s, a major landscape protection plan is being implemented merging traditional know-hows and modern techniques, to preserve the green areas against the natural action of the desert.

The attributes that could convey OUV are directly related to the oasis and to the perennial struggle of man against nature to preserve and develop human presence and agriculture in a hostile natural environment. The integrity of the different elements of the property is discussed below.
Structural Integrity of the Oasis

The concept of physical integrity of the oasis should be considered with respect to the actual number of palm trees and to the total surface of the agricultural plots, directly connected to the preservation of the agricultural and commercial activities of the oasis.

The water control and distribution systems that created Al-Ahsa Oasis are entirely comprehensible and partially preserved within parts of the oasis, including traditional earthen canals and water-lifting methods, showing a remarkable continuity in function and use that might span even few millennia. The location and size of the great oasis have slowly evolved throughout the past thousands of year, essentially as a result of the progressive extension of the watered surfaces and the subsequent extension of the cultivable lands on the one side, and of the shifting of desert sands covering previously cultivated zones on the other. In the past 40 years, the drastic modification of the output of the natural springs has led to the creation of a new network of canals and to the recent reshaping of the hydraulic equipment of the oasis. However, neither its function nor its actual size and shape have been altered.

The successive actions taken within the oasis to re-organize water distribution and water drainage from the gardens were necessary to permit the very survival of the oasis and of its agricultural function after the modification of the water table levels and the urban and population “boom” the region witnessed since the 1970s with the large-scale exploitation of oil. These interventions have not affected the physical integrity of the oasis but have, on the contrary, permitted its survival and the perpetuation of the agricultural activities.

Considered as an evolving cultural landscape, the integrity relating to composition and use of the property is very good with no significant encroachments over the oasis land and the preservation of its natural features and urban settlements. The extraordinary changes brought by the discovery and exploitation of oil in the Eastern Province of Saudi Arabia, and its impact on the social and urban fabric of Al-Ahsa Oasis, have produced profound changes in the size and aspect of the urban settlements; but these changes should be considered within the evolving dimension typical of cultural landscapes. The continuous renewal, adaptation, and evolution of the society and of the economic dynamics of the region has always implied changes in the urban and infrastructure networks that have constantly adapted to integrate the oasis into the contemporary Gulf environment without jeopardizing neither its physical integrity nor its constitutive attributes.

Landscape Integrity

The integrity of the large oasis landscape is a major strength of the nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape. The nominated property’s boundaries include remarkable views providing authentic images of what the oasis cultural landscape was throughout the past thousands of years until the oil period and the subsequent economic and urban boom.

The analyses carried out in the framework of the preparation of the World Heritage Nomination, and the images presented in Chapter 2, show how the modern landscape has preserved the traces of its successive evolution across the ages. The possibility to read in such a complete manner the transformation and the evolution of the natural environment caused by human endeavour and know-how proves the very integrity of the oasis.
landscape and is probably the strongest evidence of the Outstanding Universal Value of the nominated property. The integrity of the oasis landscape should be understood also in a dynamic perspective integrating the recent and on-going physical evolution of the oasis necessary to sustain its agricultural function. The integrity of the morphology of the site, with the different sectors of the oasis, the water distribution and drainage canals, the natural emergencies, the marshes and wetlands and the residential areas, is reflected in the preserved views of the oasis, of Jabal al-Qarah and of the extraordinary natural environment of Al-Asfar Lake, that have been preserved notwithstanding the evolution of the urban settlements and the changes of size and scope of modern Al-Ahsa.

**Integrity of Uses**

Agricultural activity carried out in Al-Ahsa Oasis, an Evolving Cultural Landscape continues to be a major element of the regional economy and of the city’s reputation; the date and food production of the oasis is still exported to the rest of Saudi Arabia, to the neighbouring Gulf countries, and to the rest of the world. Integrity of use in the agricultural sense is excellent with thousands of landowners and workers daily attending to the date-palm plantations. The development and preservation of the oasis agricultural functions are included in the Kingdom’s national strategies and are integrated in the national agricultural plans of the Saudi Government. Large efforts have been put by the central government since the 1960s for the development of new water drainage network. Al-Ahsa Oasis remains a living agricultural region that still represents the largest cultivated area in the Arabia Peninsula and whose vitality is further complemented by the nodal position of Al-Ahsa in the national road network that favours the distribution of the products throughout the kingdom and beyond. Al-Ahsa Oasis is a living place with a strong continuity of its social and commercial attributes, inhabited by a proud local community rooted in its cultural traditions, renowned for its a traditional openness deriving from its historic commercial role and showing a remarkable integration between its religious communities, with still active traditional souks and a specific local know-how for pottery and cloth making, and a distinguished local cuisine making use of the local products from the oasis (date-bread, red rice, etc.).

*Development of the Human Settlements of Al-Ahsa*

The integrity of the oasis cultural landscape is reinforced by the supportive functions of residence and trade (the forts, the mosques the markets). The nominated property includes important historic elements, created by the successive rulers of the oasis, that preserve and materialize the intimate link between the oasis, considered as a major food production resource with a relevant economic role, and the urban centres and souks where resided the regional political power and the traders. The preserved and restored fortresses of the Ottoman, Bani Khaled and Saudi rulers, the main traditional souks, the remaining villages and springs within and around the oasis, the archaeological settlements from the Neolithic and the early Islamic period, and the religious and social structures built for the population of Al-Ahsa Oasis, an Evolving Cultural Landscape convey a complete understanding of the anthropic component of the cultural landscape of the oasis and of its economic and strategic role for the entire Arabian peninsula throughout the past centuries.

Though the overall scale of the urban centres, and the very evolution of the urban fabric surrounding the monumental
emergencies included in the nominated property, has witnessed since the 1980s a dramatic change, the existing regulations have permitted to save these structures and imposed limited heights in the immediate surroundings of the nominated property components, mostly preserving their relevance at the city scale. The comprehensive vision for Al-Ahsa Oasis, an Evolving Cultural Landscape proposed in this file, the driving principles of the new 2030 Master Plan for the city, and the careful monitoring and the thorough implementation of the regulations in force ensure that, in the coming years, the nominated historic monuments and the relationship between the city and the oasis will be preserved and developed through their integration into the city’s economic development.

Control of threats
The state of conservation of the different components of the property is remarkable and their maintenance is guaranteed by effective municipal management system and by the regular work of the different administrative organizations responsible for antiquities, agriculture, water, infrastructure and urban planning at both the central and the regional and local levels. The ensemble of the nominated property is protected by the existing regulations of the different concerned ministries and by Al-Ahsa Central Municipality (Amana) for the control of urban development. The existing management regulations permit to monitor and control not only the physical elements of the property, but also the commercial and economic processes essential for its sustainability and long-term preservation.
3.1.d) Statement of Authenticity

The authenticity of Al-Ahsa Oasis, an Evolving Cultural Landscape concerns primarily the relationship between the natural landscape and the human activities in the oasis; a dynamic and continuously evolving relationship that initiated some 5,000 years ago, when the natural landscape began to be progressively transformed into a man-made oasis, and continues until today. Al-Ahsa Oasis, the largest oasis in the world, is an authentic environment where the specific dynamics of the oasis ecosystem are present at a scale unique for historical depth and sheer dimensions. The nominated property is a lively and evolving complex eco-system that continues to dominate the regional landscape and to play a relevant economic and social role.

The nominated property, composed of oasis gardens, canals, hills and caves, of villages and urban areas, and of large natural elements (parcels of desert and drainage lakes) in an evolving symbiotic relationship, has preserved both its coherent original geo-morphology and its economic and social function as main agricultural hub of the Arabian Peninsula and important economic centre connected since high antiquity to the rest of the Gulf and to the world.

The twelve components comprising the serial cultural landscape of Al-Ahsa Oasis, an Evolving Cultural Landscape exhibit a pattern directly depending on, and originated by, the oasis organisation of the territory. The transformation of the water distribution techniques, brought about by the 1960s and 1970s large-scale plans implemented by the Government of Saudi Arabia, are but the last step in a millenary history of interaction between nature and man aiming to manage and transform the natural landscape into a sustainable agricultural environment capable to support large human communities.

Al-Ahsa Oasis, an Evolving Cultural Landscape has largely preserved its unique oasis ecosystem and, notwithstanding the development of modern infrastructures and the rapid growth of the modern city, shows an extraordinary authenticity of use reinforced by the presence of archaeological evidences, historic monuments and preserved pre-historic landscape elements that set it apart from all other oasis in the world.

This serial nominated property boasts the largest number of date palm trees in a single oasis (more than 2.5 millions) and still occupies the same vast plain where Neolithic human groups began to settle attracted by the abundance of waters and by a favourable natural environment. Located between the Arabian desert and the Gulf coast, Al-Ahsa Oasis, an Evolving Cultural Landscape still lies at the centre of a network of commercial exchanges permitting to export its agricultural output to the other countries of the Gulf and beyond.

The very “evolution” of the oasis landscape is authentic in the sense that oases are fragile environments that need to be continuously adapting and reacting to the natural entropic forces that could overrun the man-made ecosystem and lead to the desertification of the site. The large hydrologic projects on the one side, and the anti-desertification program on the other, have not only permitted the survival and the development of the oasis in the past 40 years, but have also continued the very dynamics of constant development of technological and management know-hows that permitted, throughout the millennia, the creation of the oasis. Drainage canals, re-use of water, and carefully attended date palm groves, prove the authenticity and the continuity of this property that has
preserved its original layout and its main natural and landscape features (springs, canals, hills, caves, sabkha-s and drainage lakes) and continues to house large human communities. The evolving relationship between the oasis gardens, the urban areas and their large natural surroundings is completely conforming to the oasis’ original layout and structure.

Authenticity of function and use of the oasis environment is expressed by the actual size of the serial nominated property and its buffer zones, and is visually expressed at the large scale by the well-preserved views from the orographic emergencies and from the main road axes that materialize the connections between the different elements composing the oasis eco-system.

Justification of Authenticity

Introduction

When dealing with cultural landscapes — composed of natural features, agricultural fields and built-up areas with living communities — the concept of authenticity should consider not only the physical elements, but also the social and economic elements that contribute to the definition of the identity of the evolving cultural landscape of the oasis.

The authenticity of Al-Ahsa Oasis, an Evolving Cultural Landscape relates to the ensemble of the attributes that have been identified in § 3.1.b for the three proposed criteria. Notably, authentic are the environmental elements, the vestiges of the original irrigation systems, the re-cycling of water, the archaeological sites and the monumental structures, but also the modern canal network, the 2.5 million palm trees, the settled landscape of the palm groves, and the geo-cultural landscape with the integration of the agro system and the urban ecosystem forming a “giant oasis” landscape.

The Oasis Landscape

Despite the incredible development of Al-Ahsa urban areas, the exponential growth of its population, and the impact of modernity and oil economy on the society, the cultural landscape of the oasis has been able to preserve both the authenticity of its physical extension and overall visual appearance, and of its economic and agricultural function.

The oasis landscape creatively mixes continuity and evolution, tradition and modernity, preserving the geo-morphology that permitted its creation and development throughout the past millennia. Even though today dates are transported by truck along modern roads to a new market located in a still in-the-making modern extension of the city, Al-Ahsa Oasis still produces high-quality dates, vegetables and fruits, and its gardens continue to belong to a very large number of small private owners that inherited them from their forefathers. The continuity of ownership and use strongly contributes to the authenticity of the property. Al-Ahsa oasis is the living witness of the origins of human settlements in the region, but also of its permanence until the present as a lively agricultural sector.

The natural landscape of the nominated property possesses aesthetic and historic values and constitutes an important element reinforcing the authenticity of the site. The preserved Al-Asfar Lake area, in particular, shows a sustained physical configuration on the same location that evokes pre-historic landscapes that vanished elsewhere in the Arabian Peninsula.

In the past fifty years, the oasis has been inevitably influenced by the transformations related to the oil exploitation on the one
side and by the new canal network established in the 1970s on the other. But the new irrigation system, created following the progressive drying up of the historic springs, has actually permitted the survival of the agricultural identity of the oasis, that continues to play its traditional leading role as the largest date producer in the word. Furthermore, the legal and customary rules of land ownership and the government planning decisions have preserved the oasis from the encroachments of modern urban settlements and have permitted to maintain the authenticity related to Al-Ahsa oasis extraordinary size and scale.

Although the new irrigation network has partially affected the traditional aspect of the site, modern canals have mostly followed the path of historic ones and the connection between the gardens, the mountains and the drainage areas has remained unchanged and authentic. Though the original earth canals have been transformed into concrete ones, water continues to be distributed to the gardens and to be drained away, and the evolution of the oasis canal network does not affect the site geomorphology.

Al-Ahsa Oasis, an Evolving Cultural Landscape has preserved its authenticity evolving in a continuous dialectical relationship with the surrounding settlements and preserving the memory of the social practices related to the oasis ecosystem.

**Built and Archaeological Heritage**

At the architectural and urban level, the physical fabric of the two cities of Al-Mubarraz and Al-Hofuf and of the oasis villages has been deeply transformed by the rapid development that followed the discover and exploitation of oil in the region. Yet, the most important elements that materialize the link between the agricultural landscape and the communities that lived and thrived in the oasis have been preserved and are included in the nominated property. The Forts protecting the oasis from external and internal enemies, the main historic mosques, as well as the historic market of Al-Hofuf — where agricultural products and local traditional productions were exchanged with products coming from the Gulf coast and central Arabia — are authentic vestiges of the different dynasties that ruled over this region in the past 500 years. Restored architectural properties, transformed into museums and open to the public, maintain references to their traditional uses and functions and exemplify traditional building techniques and designs, demonstrating a satisfactory degree of authenticity.

At the urban scale, the historic neighbourhoods of Al-Hofuf included in the buffer zone, though in a poor state of conservation, still include important religious and civil buildings in their historic urban fabric. Al-`Oyun village, on the other hand, is an authentic ensemble exemplifying the unique typology of villages that existed in Al-Ahsa oasis until the 1970s. Though lying in ruins, the village has preserved both its historic layout and a series of standing structures offering a very precise and authentic glimpse of the pre-oil era oasis architecture and lifestyle.

Similarly, the large archaeological zones included in the nominated property, partially excavated and partially still to be researched, provide the authentic vestiges and material evidence of the most ancient occupation phases of the oasis, from the `Obeid to the Islamic period.
Conclusion
The authenticity of the nominated property relates to the preservation and continuous vitality of the oasis, with its palm groves, water canals and urban settlements. The communities living in and around the oasis perceive *Al-Ahsa Oasis, an Evolving Cultural Landscape* as an authentic and unique environment and a source of pride, giving residents of Al-Ahsa a direct and intimate connection with their long history and underlining their cultural identity.

It is considered that the serial nominated property of *Al-Ahsa Oasis, an Evolving Cultural Landscape* meets the conditions of authenticity because its cultural values are credibly expressed through the attributes expressing its Outstanding Universal Value.
3.1.e) Protection and management requirements

The attributes of the nominated property are partially tangible and partially intangible, and refer both to the natural and landscape elements (geomorphology of the oasis, structure and evolution of the irrigation system, agriculture) and to architectural and urban elements, (historic mosques and fortresses of Al-Ahsa, traditional urban fabric around Qasr Ibrahim and the Qaysariyah, or in the historic village of Al-‘Oyun).

The Management Plan aims at protecting and developing these attributes, conveying the Outstanding Universal Value of Al-Ahsa Oasis, an Evolving Cultural Landscape, that refer to various aspects of the oasis heritage and are managed by distinct municipal and governmental institutions. The management system proposed for the property aims to guarantee that all concerned stakeholders become acquainted with the principles of the World Heritage Convention and act jointly for the protection and sustainable development of the property.

Overall Protection and Management Framework

The property covers a very vast territory encompassing natural areas, agricultural parcels and urban sectors. The ensemble of the property is included within the limits of Al-Ahsa municipality. Its management is the responsibility of many different entities in charge of specific aspects of the property. In order to permit the preservation of the attributes demonstrating its Outstanding Universal Value, and its sustainable development, the coordination mechanisms that existed between the concerned institutions have been enhanced and reinforced in the framework of the nomination. The management scheme for Al-Ahsa oasis aims to define effective coordination mechanisms between the authorities in charge of the protection and development of the landscape and agricultural parcels, and the institutions in charge of architectural heritage preservation, urban and tourism development.

The new property management system being developed creates an overarching site management committee, the “Higher Committee for Al-Ahsa Oasis”, guaranteeing the effective coordination among the stakeholders necessary for its long-term preservation. An advisory Scientific Committee, that could be convened when necessary, assists the Higher Committee in its tasks.

A “Site Management Unit”, reporting directly to the Mayor of Al-Ahsa and under his administration, is created within Al-Ahsa Municipality to daily manage the property under the supervision of the Higher Committee and in close coordination with SCTH local and central offices. The formal responsibility of the site will be entrusted to the head of the SMU.

Small private landowners — who inherited the agricultural parcels from their forefathers — own most of the oasis gardens included in Al-Ahsa Oasis, an Evolving Cultural Landscape serial nominated property. Monuments, archaeological zones, mountains and deserts are public properties. The urban sectors included in the buffer zones have a mixed private and public ownership pattern. The existing legal framework guarantees the protection of the serial property and ensures that its Outstanding Universal Value is maintained over time.
The protection of the architectural, urban and archaeological heritage of Al-Ahsa Oasis, an Evolving Cultural Landscape is the responsibility of the Saudi Commission of Tourism and Antiquities with its central departments in Riyadh and a local branch in Al-Ahsa. The recently approved Saudi Law of Antiquities gives the SCTH the legal basis to enforce its mandate. Archaeological areas, whether excavated or still untouched, are entirely fenced and not accessible. The main monuments of the oasis are preserved and guarded by SCTH and have mostly been restored or repaired in the past years. SCTH is also in charge of the definition of a cultural tourism strategy that could build upon the extraordinary natural, agricultural and architectural qualities of the site without jeopardizing the sensitive ecosystem of the oasis, and without affecting its attributes.

The preservation of the agricultural lands and the control of the use of water resources are made possible by the existing Law of Agriculture and by the municipal regulations that notably forbid urban encroachments over palm groves and agricultural parcels. The same regulations apply to the oasis gardens included in the nominated property and to the ones lying in the buffer zones; the urban oasis of As-Seef is also fully protected by the existing building regulations that are rigorously enforced by the Municipality, and by its traditional ownership pattern.

Al-Hassa Irrigation and Drainage Authority is in charge of the distribution and drainage of water for agricultural use. The authority manages an immense network of modern canals and builds upon the expertise of highly qualified technical personnel.

The Municipality of Al-Ahsa, through its planning, project and road departments, is in charge of the urban development and of the road network. The 2030 Master Plan sets apart a vast zone for the extension of the city east of the present urban centre, beyond the limits of the Oasis. This planned extension, currently being developed, permits to significantly reduce demographic pressure from the historic neighbourhoods and villages, and to decrease the risk of large-scale speculative operations. The new Master Plan also defines the area of Al-Asfar Lake, included in the serial nominated property, as a natural protected area where building and opening of new roads are not allowed. The municipal urban regulations direct and control the urban environment, and constitute a coherent and binding legal framework completing the provisions of the Saudi Antiquity Law. The historic neighbourhoods of Al-Hofuf and the historic village of Al-`Oyun are in the process of being registered as urban heritage sites to increase their legal protection. While the vast area of Al-Ahsa National Park, part of the property buffer zone, is public-owned, fenced and protected by the Law against encroachments and development schemes.

The reinforcement of the human resources of both Al-Ahsa Municipality and Al-Ahsa SCTH branch, foreseen by the management plan, and the establishment of regular training programs for the ensemble of the personnel involved in the oasis management, will permit the regular monitoring of the property according to the strategy outlined in chapter 6, and favour the implementation of the revitalization and conservation strategy outlined in the nomination.
Specific Long-Term Expectations for the Protection and Management of the Property

The preservation of the complex eco-system of Al-Ahsa Oasis, an Evolving Cultural Landscape could be achieved only if the ensemble of the concerned stakeholders, and the civil society at large, will be able to develop a new sensitivity and to adopt a new approach to development where sustainability and culture, in a broad sense, play a larger role.

The very preservation of Al-Ahsa Oasis until today — in a region where the pace of development was so rapid, and the lure of “modernity” so strong — is a positive signal proving that the cultural relevance of the oasis for the local community is well acknowledged. Paradoxically, however, threats for its long-term protection might originate also from the on-going renewed attention to the oasis heritage, as ill-conceived plans aiming to “capitalize” on heritage as a pure economic commodity might seriously affect the integrity and authenticity of the property. The management system proposed for the property, and the double role of the SCTH — that is in charge of both tourism development and heritage protection — permit to consider that the authenticity and the integrity of Al-Ahsa Oasis, an Evolving Cultural Landscape will be preserved and that the development strategies to be designed for Al-Ahsa Oasis will respect the World Heritage Convention principles.

The long-term resilience of the property — that developed continuously evolving and continuously modifying its landscape to adapt to climatic changes — and the importance and continuity of central and local government support policies to preserve the agricultural function of the oasis are positive indications for the long-term preservation of Al-Ahsa Oasis, an Evolving Cultural Landscape. The strong political commitment to heritage preservation from the highest authorities of the Kingdom, the strategic option look for World Heritage recognition made by SCTH and the Saudi government, and the management principles proposed for the property are very positive step in the direction of a sustainable future where vulnerabilities and threats might be positively addressed and adverse changes mitigated. It is expected that the dynamics generated by the process of nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape will contribute to its long-term revitalization and preservation.

The property management strategy being developed promotes awareness-raising initiatives to present the Oasis Outstanding Universal Value to the local communities, training and upgrading of the capacities of the personnel involved in heritage management, support to scientific researches on the property, and the creation of interpretation centres. These activities will contribute to generating a virtuous circle and to the long-term sustainability of the oasis. In this framework, cultural and eco-tourism projects, respectful of the attributes and of the values of the property, could also play a positive role and contribute to the preservation and long-term protection of the property.
Al-Ahsa Oasis, an Evolving Cultural Landscape
3.2) Comparative Analysis

i.) Introduction

Studies of individual oases are numerous, but researches that take account of oases as a whole are few. The absence of a precise and shared definition of “oasis” on the one side, and the lack of existing data on the subject on the other, make it difficult to compare and evaluate the different oases.

Also the comparison within the UNESCO World Heritage List proves complex, because even though various oases are World Heritage sites, none of them is actually inscribed as an “oasis cultural landscape”.

To approach the comparative study in a methodologically coherent manner, we will, as a first step, define the very concept of oasis; then, we will establish a typological categorization of the oases. Only once their different types are identified and defined, it will be possible to assess their characteristics and origins, and analyse in which way the other oases of the world differ or resemble to Al-Ahsa Oasis, an Evolving Cultural Landscape.

ii.) Types of Oases

The archetypal image of the oasis is a small clump of vegetation lost in the immensity of the desert. Although oases with such picturesque and scenic aspect do exist, most oases do not resemble this model. Oases differ in relation to:

- Climatic location,
- Origin,
- Size, shape and space of relationship,
- Geo-morphological situation,
- Water resources,
- Space agricultural plot,
- Types of architecture and urban form,
- Ecosystem management methods,
- Function in the network of exchanges and inter-regional relations.

ii.1) Climatic Differentiation

Climatic conditions determine a first major distinction at the macro-scale. The difference at this macroscopic level is defined by temperature, which permits to divide the arid areas of the planet into “hot deserts” and “cold deserts”. The former include the Sahara Desert and Arabia; the latter the Asian deserts to the north and east of the Himalayas.

Following the differentiation of desert climates, a distinction can be drawn between “hot oases” and “cold oases”. Hot oases, in addition to dealing with aridity and broad temperature ranges, are confronted with high temperatures. Accordingly, they are
based on plants and animals capable to withstand these conditions. Hot oases are specific of Sahara and Arabia. Their area of distribution coincides with the limits of two fundamental components of the oasis space: the date palm and the dromedary.

The cold oases are present in part of Iran, Asia and China. Central Asia is completely cut off from oceanic influences and consequently receives very little precipitation. This results in condition of extreme aridity, and in the presence of low temperatures determined by the region’s latitude and altitude. In cold oases, the poplar (*poplus nigra*) carries out the palm’s role in soil protection, dried fruit such as grapes and apricots make up the nutritional value of dates, while the domesticated Bactrian camel, perfectly suited to freezing temperatures and rocky soils, provides the means of transport.

Al-Ahsa Oasis is situated in the climatic area that embraces the Sahara and Arabia, and is therefore a warm oasis, as confirmed by the presence of the dromedary and palm: the indicators of this category of oases.

Thus, comparisons will be drawn mainly with the oases of the region, and partly with Iran, that presents conditions relative to two types of oasis.

### ii.2) Origins

According to the genesis of the oasis described in Chapter 2, we will compare Al-Ahsa with other places belonging to the first sedentary Neolithic phase that anticipates the intensification of agricultural techniques necessary for the creation of the oases.

The areas of Jericho in Palestine, Çatalhöyük in Turkey and Beida in Jordan are all more ancient than the “Neolithisation phase” of Al-Ahsa. However, while all the three are original places of cultivation and sedentarisation — anticipating characters later used in Al-Ahsa —, only Jericho can be said to be an oasis. Both Çatalhöyük and Beida, due to their geographical situation, cannot be defined as oases because these sites are now only “archaeological sites” that had developed the characters we find in Neolithic pre-oasis times, when the desert climate was not yet established. Jericho was an oasis, but its importance is related to its archaeological aspects, and nowadays it has almost lost its oasis character.

The same considerations may be made for sites like Dar Tichit in Mauritania, which remains as a purely archaeological site without direct connection with the contemporary oases of Oualata and Azougui. These latter also have different oasis characters from the case of Al-Ahsa. Azogui, as mentioned above, is a privileged place for the most ephemeral aspects of the nomadic component of the whole oasis, while Oualata has mostly a medieval layout.

The oasis of Jubba in Arabia and the Egyptian oases of Baharya, Dakhla, Farafra, Kharga and Siwa, present important elements of continuity from prehistory until the creation of the oasis. However, they differ in size and type of water system. None of these shows the specific relation of the lagoon-sea component, fundamental among the set of specializations that have contributed to the realization of the oasis of Al-Ahsa. Furthermore, both the domestication of the date palm (at first), and of the camel (afterwards) have probably followed a diffusion from East to the West. African oases are therefore subsequent to the oasis of Al-Ahsa.
It appears therefore that one of the singularities of Al-Ahsa oasis is the fact it has been able to perpetuate a great oasis in the very place of its genesis, preserving its landscape until today. Al-Ahsa still possesses all the characteristics that led to the creation of the first experiences of this kind, the geo-morphological and water conditions, and the socio-cultural landscapes: nomadic, sedentary and marine-lacustrine.

- The “nomadic landscape” is the one of the great desert, which surrounds and encroaches on the extensive palm grove. Parts of this landscape are also the hills, caves, canyons, the spectacular rock formations, the springs and pools of water that were the gathering places and the first settlements during periodical migrations.

- The “sedentary landscape” is the one of the palm grove, with its springs and irrigation system on large scale, the cultivated plots and the villages, whose spatial pattern is still visible, that make up the large oasis basin.

- The “marine lacustrine landscape”, a key component in the formation of the oases of the origins, may still be seen in Al-Asfar Lake, northeast of Al-Hofuf and in As-Sifalah sabkha, northeast of Al-`Oyun. These areas still offer a unique vision of what a palaeo-desert environment looked like, where dune chains and completely dry surfaces blend with ponds and lagoons, offering an extraordinary immersion in a landscape otherwise vanished in other oases.

ii.3) Physical Classification (Dimension, Form)

From the point of view of their size and shape, oases can be divided into:

- Small isolated oases, formed by water points, palm groves and fortresses in the desert, placed at the foot of isolated hills or in the middle of dune fields,
- Serial oases along the rocky escarpments to the base of alluvial cones,
- Linear oases along the course of a wadi,
- Archipelago oases that surround the edge of a depression,
- Oasian basins with various plants and city-villages,
- Urban oases, cities and regional capitals with an oasian character,
- Giant oases, an oasian basin with large-scale agriculture.

Al-Ahsa is an oasis that covers a very large surface. The comparison on a map at the same scale of the Oasis of Al-Ahsa with well-known urban areas like Manhattan, NYC, or with other oases like Figuig in Morocco, Al-`Ula in Saudi Arabia, Al-`Ain in the United Arab Emirates, or the historical oasis of Siwa in Egypt, offers a very immediate and evident reminder of the very size of Al-Ahsa oasis.

- The comparison with Manhattan shows how extensive the oasis of Al-Ahsa is, with a total surface, including cultivated and urbanized areas, covering some 30x20 km, for an area of 12,000 ha, with almost 3 million palm trees and a population of about 1,600,000 inhabitants. The agricultural area is enormously larger
than Central Park in New York and much larger than any other oasis in the world.

- The comparison with the most widespread type of oasis, like the one of Figuig, is significant. Figuig, inscribed on the Moroccan UNESCO Tentative List, is representative of many oases in the world composed of an important palm grove and habitat. However, with an area of 2,700 ha, 200,000 palm trees and a population of about 12,000 inhabitants, Figuig can hardly be compared with Al-Ahsa, being merely as big as one of the many villages that constitute the former. Figuig also differs from Al-Ahsa for its geographical characteristics and water supply. It is a foothill oasis that exploits the water supply of wadis with a water system based on collecting tunnels called *khettara*.

- A more appropriate comparison, from the geomorphological point of view, may be made with the oasis of Siwa, which is placed in a depression with surface water resources gushing from underground. Siwa oasis is inscribed on the UNESCO Tentative List of Egypt. It is universally known for having been the seat of the oracle of Ammon, and for the visit to this oracle made by Alexander the Great before his conquest of Persia. However, with its area of 5,000 ha, 300,000 palm trees and a population of 23,000 inhabitants, it has dimensions not comparable with Al-Ahsa.

- Al-‘Ain Oasis in the UAE has a total population comparable with Al-Ahsa. It is an oasis of archaic origins inscribed on the UNESCO World Heritage List in 2011 as Cultural Sites of Al Ain (Hafit, Hili, Bidaa Bint Saud and Oases Areas). It consists of a series of separate palm groves incorporated in a single urban area inhabited by more than 600,000 people. However, its area of 1,200 ha, and the number of palm trees (147,000) are largely inferior to the ones of Al-Ahsa. Morphologically, Al-‘Ain is a wadi oasis characterized by the presence of a surface systems of water channels called *falaj* and underground water catchment tunnels. It has important archaeological finds and historical vestiges, including the site of Hili, with typical fortified wells dating from the Chalcolithic period, and mausolea with important reliefs, places of origin of the earliest oasis. However, Al-‘Ain was inscribed in the WHL not as an oasis landscape, but as an archaeological site.

- A dimension closer to the oasis of Al-Ahsa is found in the oasis of Al-‘Ula in Saudi Arabia, but only for what concerns the oasis extension in length. Indeed, Al-‘Ula is a wadi oasis characterized by a very elongated and narrow shape. Covering some 4,700 ha, with 260,000 palm trees and 32,000 inhabitants, Al-‘Ula’s total area — palm grove and dwellings — is much smaller than the one of Al-Ahsa.

This rapid comparison of the size of the oases permits to state that Al-Ahsa is indeed the largest oasis in the world. It belongs to the category of oases formed by an oasian basin, with the characteristics of an urban oasis and so extended to be rightly defined as a “giant oasis”.
3.) JUSTIFICATION

MANHATTAN, NYC, USA

Al-Ahsa Oasis, KSA

Al-'Ain Oasis, UAE
Comparative schemes

Size comparison (at the same scale) of the oasis of Al-Ahsa with well-known urban areas and other oases:

- Manhattan, NYC, USA;
- Al-`Ain oasis, UAE;
- Siwa oasis, Egypt;
- Figuig oasis, Morocco.

[Fig. 77] “Oases” size, comparative framework, IPOGEA, 2016
ii.4) Geo-Morphology, hydro-agricultural and architectonical space

From the point of view of geography and natural morphology, oases can be divided into two categories: the “Mountain Oases” and the “Plains and Depression Oases”.

ii.4.1) Mountain Oases

Oases located on high mountain slopes benefit from plentiful water from perennial runoff, or from the capture of springs. Use is made of natural caves, rainwater harvesting pools and small catchment tunnels. Fields are laid out on embankments and terraces where the soil is often created artificially. Branch canals and switch dams provide irrigation of slopes that would otherwise remain dry. In cold deserts these waters may come from summer glacier melt.

This typology can be further subdivided into groups with specific characteristics:

- Pedemountain or Foothill Oases are located at the mouth of the narrow gaps crossing mountains and foothills, often in parallel valleys perpendicular to major mountain ranges. The valleys collect the water that falls on the surface of the massive mountain chains, even in conditions of extreme aridity. The oases exploit this opportunity by using the concentration of moisture in the soil for cultivation, using dams and cisterns to tap occasional floods or producing water by means of catchment tunnels. Foothill oases can also be situated on low reliefs on the plains. These hills contain water resources that rise up by capillary action through layers of limestone. Reached by means of caves and hollows, this is often the only water free from salinization and has the additional advantage of flowing at an elevation higher than the level of the crops, to which it is channelled by gravity alone. These situations were used in archaic oasis settlements in which the hill itself became the fortified stronghold of the oasis.

- Wadi Oases (Canyons or Great Alluvial Beds) utilize semi-perennial water resources. This type of oases is located along small streams whose flow may be so slight that it forms a low, muddy channel, or near large rivers that are subject to unexpected and destructive floods and suddenly change their course, preventing the establishment of settlements in their immediate vicinity. These oases are based on the technique of small water intakes and allocation dams dividing the main course into smaller streams. With this technique it is possible to irrigate areas located at the sides of the natural watercourse, in positions higher than the riverbed. Wadi oases using the sporadic resources of desert riverbeds, and the waters contained in sediments and groundwater flows, use elaborate methods for diverting the flow of floods that may come as rarely as once every ten years. With allocation systems and underground weirs, waters are kept in the sediments themselves and drawn from wells. At higher elevations, the wadi courses are true canyons with palm groves, or other cultivations, occupying the entire streambed except for a narrow central band intended for the flow of floodwaters. Under peneplain conditions, the beds widen and the oases are organized in long cultivated strips.
**Persian Qanat**

To this large group belong notably many of the Iranian oases that have been recently added to the World Heritage List within the *Persian Qanat* serial site (inscribed in July 2016): the Gonabad Oasis in the Region of Razavi Khorasan, situated on a high plateau at an altitude of 1,000 m and surrounded by mountains ridges where the water converge; the Ferdows Oasis, in the region of South Khorasan at an altitude of 1,293 m; the oases of Meyman and Ardestan in the Esfahan Region at an altitude respectively of 2,005 and 1,219 meters; and the Oasis of Jupar in the Kerman Region located at 2,044 m above the sea level. These oases are very important because they contain the world’s longest qanat system. However, both their size and the population they host are much smaller than the ones found in Al-Ahsa. They also lack the extended hydraulic system of channels found in Al-Ahsa. Furthermore, from the comparative perspective these oases — which present average temperatures ranging from 15 to the 20 °C — are “cold oases” and are therefore completely different from “hot oases” like Al-Ahsa.
3.) Justification

Oasis of Aït-Ben-Haddou

Examples of “Mountain hot oases” can be found on the high Moroccan Atlas, along the wadi Dades, South-East of Ouarzazate. For latitudinal reasons, these oases, located at an altitude of 1,254 m above the sea level, have more elevated temperatures permitting the growth of date palm. They utilize semi-perennial water resources and are located along small streams whose flow may be so slight to form just a low, muddy channel, or near large rivers that are subject to unexpected and destructive floods and suddenly change their course, preventing the establishment of settlements in their immediate vicinity. Such oases are based on the creation of small water intakes and allocation dams dividing the main watercourse into smaller streams.

In these oases, the geo morphology and the water systems differ from the ones of Al-Ahsa Oasis that benefits of another kind of water resources and presents a greater availability of water. The Oasis of Aït-Ben-Haddou is located on the foothills of the southern slopes of the High Atlas in the Province of Ouarzazate. Aït Ben-Haddou Ksar — a group of earthen buildings surrounded by high walls, typical of the traditional pre-Saharan habitat — constitutes a striking example of the architecture of southern Morocco and was included in the World Heritage List in 1997. This unique architectural ensemble, built with the techniques of southern Morocco traditional earthen architecture, bears no meaningful similarities with Al-Ahsa settlements.

[Photos right] Morocco, “Ksar of Ait-Ben-Haddou” nomination file, photos from Unesco website
ii.4.2) Plains and Depression Oases (marshes, salt lakes, sabkha-s)

Al-Ahsa Oasis morphology is that of a flat plain surrounded by a scarp and interrupted by marshes, salt lakes and sabkha-s. This is the most common context in which oases are created. In vast arid areas, moisture accumulates in natural depressions formed by dried-up lakes, endorheic outlets of wadis, or sabkha-s and hollows, located hundreds of meters below sea level. This water can be reached easily due to the low elevation of the site, a circumstance that proved ideal for the creation of oases. A canal network and conduits radiating off into the desert bring water to the edges of the depression, allowing the creation of cultivations that could be irrigated by gravity alone. Along the path of the conduits, and amidst the web of canalizations, a common juridical oasis space was established on the basis on family ties, alliances and water pacts.

This is the case of many oasis-cities that can be compared with Al-Ahsa. These sites can be differentiated among them on the basis of a series of technical criteria.

Hydro-agricultural system

From the point of the hydro-agricultural system, the oasis can be based upon:

- upland sources,
- uptake of the slope,
- dams and terracing,
- rivers and wadi water intakes,
- channels,
- springs of water,
- wells,
- uptake tunnels,
- partition systems,
- distribution channels,
- sewer systems on a large scale,
- water-lifting techniques,
- drainage and recycling,
- hydro-agricultural industrialization.

Spatial pattern

From the agricultural and architectonic spatial pattern and network, they can be:

- nomadic,
- tree graphs,
- orthogonal meshes,
- circular depressions.

Settlement typology

From the settlement typology, they can be:

- fortresses,
- villages,
- systems of villages,
- oasis cities.
The Oasis of Bam

The oasis is located on the southern edge of the Iranian high plateau, in Kerman Province, South-eastern Iran, near the Pakistani border. Bam lies at an altitude of 1,060 metres above sea level in the centre of a valley dominated to the north by the Kafut Mountains and to the south by the Jabal-e Barez Mountains. Water from Jabal-e Barez Mountains supplies the seasonal Posht-e Rud River that skirts Bam City between Arg-e Bam and Qal’eh Doktar. The Chelekhoneh River and its tributaries gather water from the central parts of the Jabal-e Barez Mountain range. Water from the Kafut Mountains also supplies the catchment area. Bam is inscribed on the World Heritage List since 2004, jointly with its surrounding Cultural Landscape, as an exceptional testimony to the development of a trading settlement in the desert environment of the Central Asian region.

The city of Bam represents an outstanding example of fortified settlement and citadel in the Central Asian region, built in mud bricks. The cultural landscape of Bam is an outstanding representation of the interaction of man and nature in a desert environment, using the qanat system. Bam differs from Al-Ahsa for its hydro-agricultural system, based on qanat and dams with wadi water intakes, and for its agricultural and architectonic spatial network.
The Old Walled City of Shibam

The site, located in the Hadramaut Region of Yemen, is an important caravan halt on the spice and incense route crossing the Southern Arabian plateau. The city, characterized by its high dwellings reaching up to seven storeys, developed on a fortified, rectangular grid plan of streets and squares. The city is built on a rocky spur dominating the wadi bed few hundred metres below. The dense urban layout of Shibam expresses an urban response to the need for refuge and protection by rival families, as well as their economic and political prestige. The domestic architecture of Shibam, its unique visual impact rising out of the flood plain of the wadi, and its functional design, materials and construction techniques, are an outstanding but extremely vulnerable expression of Arab and Muslim traditional culture.

The surrounding landscape of spate irrigated land, which has been and still is — in agricultural use, constitutes an integrated economic system involving spate agriculture, mud generation and the use of mud for building construction that no longer exists elsewhere in the region. Surrounded by a fortified wall, the historic city of Shibam is one of the oldest and best preserved examples of urban planning based on multi-storeyed construction.

Shibam is inscribed in UNESCO list for its urban plan and its earthen architecture and for its setting that preserves the last surviving and comprehensive evidence of a traditional society that has adapted to the precarious life of a spate agriculture environment (criterion v). Its agricultural and architectural environments completely differ from the ones found in Al-Ahsa.

[Photos right] Yemen, “Old Walled City of Shibam” nomination file, photos from Unesco website
M’Zab Valley

The valley is located 600 km south of Algiers, in the heart of the Sahara Desert. It forms an extraordinarily homogenous ensemble in the desert, mark of a sedentary and urban civilization possessing an original culture that has been capable to preserve its cohesion throughout the centuries. The main difference between this site and Al-Ahsa Oasis lies in their agricultural and architectonic spatial patterns and networks. The most relevant element of the M’Zab Valley site are its historic cities (El-Atteuf, Bounoura, Melika, Ghardaïa and Beni-Isguen) founded between 1012 and 1350 CE, and not, like in Al-Ahsa, its evolving geo-cultural landscape. M’Zab Valley cities have conserved practically the same way of life and the same building techniques since the 11th century CE, depending as much on a specific social and cultural context, as on the need to adapt to a hostile environment, responding to a historic need for withdrawal and to a defensive imperative.
Old Town of Ghadames

Located in Libya’s Nalut Region, Ghadames is known as “the pearl of the desert” and stands in an oasis. It is one of the oldest pre-Saharan cities and an outstanding example of a traditional settlement. It was inscribed on the World Heritage List in 1996 and has been included in the List of World Heritage Sites in Danger in 2016. Its domestic architecture is characterized by the vertical division of functions: the ground floor is used to store supplies; the first floor, overhanging covered alleys that create what is almost an underground network of passageways for the family; and the open-air terraces at the top are reserved for the women. Its architectonic characteristics are outstanding, and its surrounding oasis contributes to its uniqueness and outstanding value. However, its oasis environment and its agricultural landscape are completely different from the ones found in Al-Ahsa.

[Photos right] Libya, “Old Town of Ghadamès” nomination file, photos from Unesco website
Nizwa
Nizwa, Oman, is the largest city of the Ad-Dakhiliyah Region and has been the capital of Oman. Nizwa lies about 140 km from Muscat and has a population of about 700,000 people, including the two areas of Burkat Al Mooz and Al Jabel Al Akhdar. It is one of the oldest cities in Oman and it was once a centre of trade, religion, education and art. Its Grand Mosque was formerly a centre for Islamic learning. Nizwa acquired its importance as an important gathering point at the base of the Western Hajar Mountains. Set amid a verdant spread of date palms, it is strategically located at the crossroads of routes linking the interior with Muscat and the lower reaches of Dhofar, thus serving as a hub for a large part of the country. Nizwa is an important and great urban oasis but its dimension and the character of its geo-cultural landscape cannot compete with the ones of Al-Ahsa.
iii.) Comparative Forms

The next pages present a series of tables, summarizing the characteristics of a selected group of oases that are compared with Al-Ahsa. They permit to rapidly grasp the characteristics of these oases and to compare them with the ones of Al-Ahsa Oasis. Comparative sheets have been drawn for the following oases:

Reference
- Al-Ahsa Oasis

(A) Comparative Dimensions
1. United Arab Emirates/ Emirate of Abu Dhabi/ Al-`Ain
2. Egypt/ Matruh Region/ Siwa
3. Morocco/ Eastern Region/ Figuig
4. Saudi Arabia/ Region of Madinah Al-Munawwarah/ Al-`Ula

(B) Mountainous Regions
5. Iran/ South Khorasan Region/ Ferdows
6. Iran/ Esfahan Region/ Meymah
7. Iran/ Esfahan Region/ Ardestan
8. Iran/ Kerman Region/ Jupar
9. Iran/ Razavi Khorasan Region/ Gonabad
10. Morocco/ Souss-Massa Region/ Aït-Ben-Haddou

(C) Plain and Depression Regions
11. Iran/ Kerman Region/ Bam
12. Yemen/ Hadhramaut Region/ Shibam
13. Algeria/ M’Zab Region/ M’Zab
14. Libya/ Nalut Region/ Ghadames
15. Oman/ Al-Dakhiliyya Region/ Nizwa
16. Saudi Arabia/ Region of Tabuk/ Taima
17. Saudi Arabia/ Region of Ar-Riyadh/ Ad-Diri’yah
### 3.) Justification

**Saudi Arabia/ Eastern Province/ Al-Ahsa**

*Sheet 1: Oasis matrix / Sheet 2: Characteristics of the oasis*

<table>
<thead>
<tr>
<th>Abacus</th>
<th>Microhydro / Hydro / Irrigation agricultural system</th>
<th>catastrophe</th>
<th>Feet of the mountain or hill</th>
<th>Wadi</th>
<th>Plain</th>
<th>Depressions</th>
<th>Sand</th>
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- **Coordinates**: 5°21'31.3"N 49°39'41.0"E
- **Altitude**: 130 m above sea level
- **Country**: Saudi Arabia
- **Type of oasis**: plain - depressions - sand
- **Environment**: The oasis of Al Hasa is situated in the midst of the sandy desert in an area where water accumulates, this is caused by the presence of a depression and the presence of desert plateaus that constitute a barrier to the flow of deep waters.
- **Medium temperature**: 32.00 °C average elevation
- **Average rainfall**: 111 mm annual
- **Architecture and urban form**: Oasis town
- **Hydraulic devices**: Springs and pools of water; superficial channels; lifting systems; integrated system use
- **Surface oasis (Ha)**: 12000
- **Urban population**: 600,000 hab
- **Agricultural space plot**: Orthogonal plot
- **Number of the palm**: 3,000,000
- **Economy**: date palms, fruit trees, vegetables.
- **Notes**: There are more than 60 artesian wells, it is part UNESCO’s World Heritage Tentative List 08/04/2015 for the oasis.
[A] Comparative Dimensions

Photograph: Al-Ahsa oasis aerial view, Aramco Archives, s.d.
1. United Arab Emirates/ Emirate of Abu Dhabi/ al-'Ain

Sheet 1: Oasian matrix / Sheet 2: Characteristics of the oasis

<table>
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<th>Morphology</th>
<th>Hydro agricultural system</th>
<th>Water source</th>
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<th>Water source</th>
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<th>Fertigation systems</th>
<th>Distribution channels</th>
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<th>Lifting systems</th>
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</tbody>
</table>

Abacus

Coordinates: 24°12'58.5"N 55°46'02.5"E
Altitude: 279 m above sea level
Country: United Arab Emirates
Type of oasis: wadi - plain
Environment: the oasis of al ain is situated on the edge of a sandy desert, at a point where the water accumulates. This is due to the presence of a geological emergency which conveys the Wadi and the relative water at a point with a lower medium temperature: 29.30 °C average elevation
Average rainfall: 72 mm annual
Architecture and urban form: oasis town
Hydraulic devices: springs and pools of water; superficial channels; lifting systems; integrated system use
Surface oasis (Ha): 1200
Urban population: 600,000 hab
Agricultural space plot: circular depressions
Number of the palm: 147,000
Economy: date palms, fruit trees, vegetables.
Notes: Inside it is cultivated more than 100 varieties of dates, it is part UNESCO's World Heritage List 2011 for the Cultural Sites
## 2. Egypt/ Matruh Region/ Siwa

Sheet 1: Oasian matrix / Sheet 2: Characteristics of the oasis

<table>
<thead>
<tr>
<th>Coordinates</th>
<th>29°11'59.3&quot;N 25°31'18.7&quot;E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altitude</td>
<td>(-718) m above sea level</td>
</tr>
<tr>
<td>Country</td>
<td>Egypt</td>
</tr>
<tr>
<td>Type of oasis</td>
<td>depression - sebkha</td>
</tr>
<tr>
<td>Environment</td>
<td>the Siwa Oasis was born in the vicinity of lakes and salt depressions. Taking advantage of the depressions and the waters to give birth to palm groves that surround qufte areas.</td>
</tr>
<tr>
<td>medium temperature</td>
<td>21.70 °C average elevation</td>
</tr>
<tr>
<td>Average rainfall</td>
<td>9 mm annual</td>
</tr>
<tr>
<td>Architecture and urban form</td>
<td>villages systems</td>
</tr>
<tr>
<td>Hydraulic devices</td>
<td>springs and pools of water; superficial channels; lifting systems; integrated system use</td>
</tr>
<tr>
<td>Surface oasis (Ha)</td>
<td>5000</td>
</tr>
<tr>
<td>Urban population</td>
<td>23,000 hab</td>
</tr>
<tr>
<td>Agricultural space plot</td>
<td>tree graph</td>
</tr>
<tr>
<td>Number of the palm</td>
<td>300,000</td>
</tr>
<tr>
<td>Economy</td>
<td>date palms, olive trees, fruit trees, vegetables.</td>
</tr>
<tr>
<td>Notes</td>
<td>Inside are cultivated olive trees, there are about 200 sources, it is part UNESCO's World Heritage Tentative List 01/11/1994 for the archeological area</td>
</tr>
</tbody>
</table>

### Abacus

<table>
<thead>
<tr>
<th>Morphology/ Hydro/ agricultural system</th>
<th>Mountain</th>
<th>Plain</th>
<th>Depressions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Camps</td>
<td>Alps</td>
<td>Sebkha</td>
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<td>Updated sources</td>
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<td>Uptake of the slope</td>
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<td>Trema and terencing</td>
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<tr>
<td>Rivers and well water tanks</td>
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<tr>
<td>Channels</td>
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<td>Yellow</td>
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<tr>
<td>Springs of water</td>
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<tr>
<td>Wells</td>
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<tr>
<td>Uptake tunnels (tanks opus eot)</td>
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<tr>
<td>Particles systems</td>
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<td>Yellow</td>
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<tr>
<td>Distribution channels</td>
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<tr>
<td>Lower systems on a large scale</td>
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<tr>
<td>Lifting systems</td>
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<tr>
<td>Drainage and recycling</td>
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<tr>
<td>Hydro-agricultural industrialisation</td>
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</tbody>
</table>
3. Morocco/ Eastern Region/ Figuig

Sheet 1: Oasis matrix / Sheet 2: Characteristics of the oasis

### Abacus

<table>
<thead>
<tr>
<th>Morphology</th>
<th>Hydrogeological system</th>
<th>Fault of the mountains or rift Wadi Plain</th>
<th>Impressions</th>
<th>Soil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upland sources</td>
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<tr>
<td>Uplift of the slope</td>
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<tr>
<td>Dams and diversion</td>
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<tr>
<td>Rivers and wadi water intakes</td>
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<td>Channels</td>
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<td>Springs of water</td>
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<tr>
<td>Wells</td>
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<tr>
<td>Water intake networks (fields</td>
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<tr>
<td>Partition systems</td>
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<td>Distribution channels</td>
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<td>Water systems on a large scale</td>
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<td>Lifting systems</td>
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<td>Drainage and recycling</td>
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<tr>
<td>Hydro-agricultural industrialization</td>
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</tbody>
</table>

### Coordinates

32°05’58.4”N 1°14’08.3”W

### Altitude

898 m above sea level

### Country

Morocco

### Type of oasis

Depression

### Environment

The Figuig oasis is located east of the Jebel Crouz in contact with the eastern Atlas and the Saharan platform to a large basin of 850 to 900 m altitude, mountainous circle defined anticlines of Jebel Melas and Jebel Zenaga.

### medium temperature

19.30°C average elevation

### Average rainfall

137 mm annual

### Architecture and urban form

of villages systems

### Hydraulic devices

Water uptake from Wadi; superficial channels; fogaira; the water distribution system

### Surface oasis (Ha)

2700

### Urban population

12,577 hab

### Agricultural space plot

Orthogonal plot

### Number of the palm

200,000

### Economy

The agriculture, primarily the cultivation of the date palm and olive trees, are the economic heart of Figuig along with tourism, crafts and livestock.

### Notes

Agricultural production includes mainly date palms, olive trees, onions, turnips, tropical fruit trees and vineyards; some open spaces instead are planted with barley. It is a part of UNESCO’s World Heritage Tentative List 30/05/2011 for the oasis.
### 4. Saudi Arabia/ Region of Madinah Al-Munawwarah / Al-‘Ula

**Sheet 1: Oasian matrix / Sheet 2: Characteristics of the oasis**

<table>
<thead>
<tr>
<th>Abacus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphology</td>
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</table>

| Hydromorphology:
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</thead>
<tbody>
<tr>
<td>Water uptake from Wadi: superficial channels; the water distribution system; terracing systems.</td>
</tr>
</tbody>
</table>

### Coordinates

26°36'38.0"N 37°55'26.9"E

### Altitude

710 m above sea level

### Country

Saudi Arabia

### Type of oasis

Wadi-Canyon

### Environment

The oasis of Al Ula is located in the region of Medina, within a riverbed of a Wadi, nestled between the mountains.

### Medium temperature

22.30 °C average elevation

### Average rainfall

59 mm annual

### Architecture and urban form

Of villages systems

### Hydraulic devices

Water uptake from Wadi; superficial channels; the water distribution system; terracing systems.

### Surface oasis (Ha)

4700

### Urban population

32,413 hab

### Agricultural space plot

Orthogonal plot

### Number of the palm

260,000

### Economy

The agriculture, primarily the cultivation of the date palm and olive trees, are the economic heart of Figuli along with tourism, crafts and livestock.

### Notes

Agricultural production includes mainly date palms, olive trees, onions, turnips, tropical fruit trees and vineyards; some open spaces instead are planted with barley.
3.)JUSTIFICATION

[B] Mountainous Regions
5. **Iran/ South Khorasan Region/ Ferdows**

*Sheet 1: Oasian matrix / Sheet 2: Characteristics of the oasis*

### Abacus

<table>
<thead>
<tr>
<th>Morphology</th>
<th>Hydrological system</th>
<th>撤水灌</th>
<th>Part of the mountain \ or hill</th>
<th>Plain</th>
<th>Depressions</th>
<th>Sand</th>
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<tbody>
<tr>
<td>Mountain</td>
<td>Upland depressions</td>
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<td>Upland of the slope</td>
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<td>Upland</td>
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<td>Dunes and dunes</td>
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<td>oasis</td>
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<td>Rivers and wadi water \ inflows</td>
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<td>Wells</td>
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<td>Upstream trenches (Irrigation)</td>
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<td>Partition systems</td>
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<td>Distribution pipes</td>
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<td>Irrigation systems</td>
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<td>Drainage and recycling</td>
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<td>Hydro agricultural \ industrialisation</td>
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</table>

### Characteristics of the oasis

- **Coordinates**: 34°01'07"N 58°10'20"E
- **Altitude**: 1293 m above sea level
- **Country**: Iran
- **Type of oasis**: mountain foot - Wadi
- **Environment**: the oasis of Ferdows is located at the foot of a mountain ridge where one wadi flows, from which draws water.
- **Medium temperature**: 19.10 °C average elevation
- **Average rainfall**: 97 mm annual
- **Architecture and urban form**: of villages systems
- **Hydraulic devices**: Water uptake from Wadi; superficial channels; the water distribution system; qanat
- **Surface oasis (Ha)**: 3500
- **Urban population**: 25,968 hab
- **Agricultural space plot**: tree graph
- **Number of the palm**: 0
- **Economy**: It is one of the most important producers of saffron in Iran. Other agricultural products include: Grape, Pistachio and pomegranate.
- **Notes**: Some of the longest and oldest Qanats of the world are located near Ferdows. Qanats as registered in world heritage site 15/07/2016 (administered by UNESCO) are among these Qanats.
6. Iran/ Esfahan Region/ Meymah

Sheet 1: Oasian matrix / Sheet 2: Characteristics of the oasis

### Abacus

<table>
<thead>
<tr>
<th>Morphology Hydro Agricultural system</th>
<th>Mountain</th>
<th>Floor of the mountain on hill</th>
<th>Wind</th>
<th>Plane</th>
<th>Depressions</th>
<th>Sand</th>
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</thead>
<tbody>
<tr>
<td>Upland savannas</td>
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<td>Upland of the slope</td>
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<tr>
<td>Deserts and terraces</td>
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<tr>
<td>Rivers and wadi water flow</td>
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<tr>
<td>Channels</td>
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<tr>
<td>Springs of water</td>
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<tr>
<td>Wells</td>
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<tr>
<td>Upland terrains (Ridg, quarry ends)</td>
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<tr>
<td>Irrigation systems</td>
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<tr>
<td>Distribution channels</td>
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<tr>
<td>Irrigation systems on a large cable</td>
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<tr>
<td>Irrigation systems</td>
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<td>Drainage and recycling</td>
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<tr>
<td>Hydro agricultural Industrialization</td>
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</tbody>
</table>

### Coordinates
33°25'46.6"N 51°10'53.0"E

### Altitude
2005 m above sea level

### Country
Iran

### Type of oasis
Mountain foot - Wadi

### Environment
The oasis is located at the foot of a mountain ridge where one wadi flows, from which draws water.

### Medium temperature
16-40 °C average elevation

### Average rainfall
83 mm annual

### Architecture and urban form
Villages systems

### Hydraulic devices
Water uptake from Wadi; superficial channels; the water distribution system; qanat.

### Surface oasis (Ha)
2000

### Urban population
17,000 hab

### Agricultural space plot
Tree graph

### Number of the palm
0

### Economy
It is one of the most important producers of saffron in Iran. Other agricultural products include: Grape, Pistachio and pomegranate.

### Notes
Qanats as registered in the world heritage site 15/07/2016 (administered by UNESCO) are among these Qanats.
### Coordinates
33°22'34"N 52°22'10"E

### Altitude
1219 m above sea level

### Country
Iran

### Type of oasis
mountain foot

### Environment
the oasis of Ardestan is located at the foot of a mountain ridge where convey the waters

### medium temperature
18.20 °C  average elevation

### Average rainfall
88 mm annual

### Architecture and urban form
village

### Hydraulic devices
Water uptake from superficial channels; the water distribution system and qanat

### Surface oasis (Ha)
2200

### Urban population
14,698 hab

### Agricultural space plot
tree graph

### Number of the palm
0

### Economy
It is one of the most important producers of saffron in Iran. Other agricultural products include: Grape, Pistachio and pomegranate.

### Notes
Qanats as registered in world heritage site 15/07/2016 (administered by UNESCO) are among these Qanats.

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**Abacus**

<table>
<thead>
<tr>
<th>Morphology</th>
<th>Hydric agricultural system</th>
<th>Mountain</th>
<th>Foot of the mountain or hill</th>
<th>Well</th>
<th>Plain</th>
<th>Depressions</th>
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<tbody>
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</tbody>
</table>

- Uplifted surfaces
- Uptake of the ridge
- Dams and reservoirs
- Rivers and water intakes
- Channels
- Sources of water
- Wells
- Uptake trenches (fords, qanat miq)
- Partition plates
- Distribution channels
- Lower systems on a large scale
- Lifting systems
- Drainage and recycling
- Hydro-agricultural irrigation systems
8. Iran/ Kerman Region/ Jupar

Sheet 1: Oasis matrix / Sheet 2: Characteristics of the oasis

**Coordinates**: 30°03'56"N 57°06'54"E

**Altitude**: 2044 m above sea level

**Country**: Iran

**Type of oasis**: mountain foot

**Environment**: The oasis of Jupar is situated on a plateau at 2044 m altitude, at the foot of a mountain ridge from where the waters converge.

**Average rainfall**: 157 mm annual

**Architecture and urban form**: Of villages systems

**Hydraulic devices**: Water uptake from superficial channels; the water distribution system and qanat.

**Surface oasis (Ha)**: 2300

**Urban population**: 3,830 hab

**Agricultural space plot**: tree graph

**Number of the palm**: 0

**Economy**: It is one of the most important producers of saffron in Iran. Other agricultural products include: grape, pistachio and pomegranate.

**Notes**: Qanats as registered in world heritage site 15/07/2016 (administered by UNESCO) are among these Qanats.
9. Iran/ Razavi Khorasan Region/ Gonabad

Sheet 1: Oasian matrix / Sheet 2: Characteristics of the oasis

| Coordinates | 34°21’10”N 58°41’01”E |
| Altitude    | 1050 m above sea level |
| Country     | Iran                   |
| Type of oasis | mountain foot - Wadi |
| Environment | the Gonabud oasis is located in a plateau to 1000-1050 m altitude, surrounded by mountain ridges, where the waters converge. |
| medium temperature | 16.10 °C average elevation |
| Average rainfall | 178 mm annual |
| Architecture and urban form | of villages systems |
| Hydraulic devices | Water uptake from Wadi; superficial channels; the water distribution system; qanat |
| Surface oasis (Ha) | 3700 |
| Urban population | 36,367 hab |
| Agricultural space plot | tree graph |
| Number of the palm | 0 |
| Economy | It is one of the most important producers of saffron in Iran. Other agricultural products include: Grape, Pistacio and pomegranate. |
| Notes | Some of the longest oldest Qanats of the world are located in Gonabud. Qanats of Urome, Moun, Chahak and Shinn as registered in world heritage site 15/07/2016 (administered by UNESCO) are among these Qanats. They contain 427 water wells with a length of 33113 meters |
10. Morocco/ Souss-Massa Region/ Aït-Ben-Haddou

Sheet 1: Oasisian matrix / Sheet 2: Characteristics of the oasis

<table>
<thead>
<tr>
<th>Abacus</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Morphology/ Hydro agricultural systems</strong></td>
<td><strong>Location</strong></td>
</tr>
<tr>
<td>Upland oases</td>
<td>Mountain</td>
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<tr>
<td>Upland oases</td>
<td>Uplands</td>
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<tr>
<td>Upland oases</td>
<td>Uplands and terracing</td>
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<tr>
<td>Upland oases</td>
<td>Rivers and wadi water relations</td>
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<tr>
<td>Upland oases</td>
<td>Channels</td>
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<tr>
<td>Springs of water</td>
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<td>Wells</td>
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<tr>
<td>Upland oases (Wadi; access routes)</td>
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<tr>
<td>Oasis systems</td>
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<tr>
<td>Distribution channels</td>
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<td>Contour systems on a large scale</td>
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<tr>
<td>Lifting systems</td>
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<tr>
<td>Drainage and recycling</td>
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<tr>
<td>Hydro agricultural industrialisation</td>
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</tr>
</tbody>
</table>

**Coordinates:** 31°03'N 7°08'W

**Altitude:** 1254 m above sea level

**Country:** Morocco

**Type of oasis:** Wadi - Canyon

**Environment:** Aït-Ben-Haddou is located along the caravan route between the Sahara Desert and the current city of Marrakech. It is located on a hillside along the Wadi Ouarrazate.

**Medium temperature:** 18.70 °C average elevation

**Average rainfall:** 112 mm annual

**Architecture and urban form:** of villages systems

**Hydraulic devices:** Water uptake from superficial channels; water intakes wadi, Spring

**Surface oasis (Ha):** 3650

**Urban population:** 6,000 hab

**Agricultural space plot:** tree graph

**Number of the palm:** 90,000

**Economy:** the economy is based on the cultivation of the date palm, olive tree, vegetables and forage.

**Notes:** The Kasr of Aït Benhaddou has been a UNESCO World Heritage Site since 1987.
[C] Plain and Depression Regions
11. Iran/ Kerman Region/ Bam

*Sheet 1: Oasian matrix / Sheet 2: Characteristics of the oasis*

### Abacus

<table>
<thead>
<tr>
<th>Morphology Hydro</th>
<th>Hydrological systems</th>
<th>Foot of the mountain or hill</th>
<th>Well</th>
<th>Depression</th>
<th>Sandal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Campen</td>
<td>Alluvial</td>
<td>braek(s)</td>
<td>Alluvial</td>
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<td>Inland sources</td>
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<td>Uplands of the hills</td>
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### Characteristics

- **Coordinates:** 29°03'59"N 58°24'17"E
- **Altitude:** 1020 m above sea level
- **Country:** Iran
- **Type of oasis:** Wadi
- **Environment:** The oasis is located at the foot of a mountain ridge where one wadi flows, from which draws water.
- **Average temperature:** 19.20 °C average elevation
- **Average rainfall:** 97 mm annual
- **Architecture and urban form:** Oasis town
- **Hydraulic devices:** Water uptake from superficial channels; the water distribution system and qanat.
- **Surface Oasis (Ha):** 3300
- **Urban Population:** 85,388 hab
- **Agricultural Space Plot:** Orthogonal plot
- **Number of the palm:** 200,000
- **Economy:** The agriculture, primarily the cultivation of the date palm. Other agricultural products include: Grape, Pistachio, pomegranate and saffron.
- **Notes:** Qanats as registered in world heritage site 15/07/2016 (administered by UNESCO) are among these Qanats.
## Yemen/ Hadhramaut Region/ Shibam

*Sheet 1: Oasis matrix / Sheet 2: Characteristics of the oasis*

### Abacus

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<tr>
<th>Morphology Hydrological system</th>
<th>Mountains</th>
<th>Foot of the mountains or hill</th>
<th>Wind</th>
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<th>Depression</th>
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### Sheet 1: Oasis matrix

- **Coordinates:** 15°53'35.8"N 48°37'34.5"E
- **Altitude:** 76 m above sea level
- **Country:** Yemen
- **Type of oasis:** mountain foot-wadi
- **Environment:** the oasis is located at the foot of a mountain ridge where one wadi flows, from which draws water.
- **Medium temperature:** 23.70 °C average elevation
- **Average rainfall:** 64 mm annual
- **Architecture and urban form:** oasis town
- **Hydraulic devices:** Water uptake from superficial channels; the water distribution system
- **Surface oasis (Ha):** 1140
- **Urban population:** 7,000 hab.
- **Agricultural space plot:** circular depressions
- **Number of the palm:** 90,000
- **Economy:** the economy is based on agriculture, mainly on the cultivation of the date palm.
- **Notes:** It is part UNESCO’s World Heritage List 1982 for the Old Walled City
### 3. Justification

13. Algeria/ M’Zab Region/ M’Zab

*Sheet 1: Oasis matrix / Sheet 2: Characteristics of the oasis*

<table>
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<th>Abacus</th>
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<td>Morphology</td>
<td>Hydro-agricultural system</td>
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<td>Upland sources</td>
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<td>Uptake of the slope</td>
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<td>Dunes and terracing</td>
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<td>Rivers and wadi water</td>
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<td>Irrigation systems</td>
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<td>Distribution channels</td>
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<td>Source systems on a large scale</td>
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<td>Lifting systems</td>
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<td>Storage and recycling</td>
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<tr>
<td>Hydro-agricultural Industratization</td>
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</tbody>
</table>

**Coordinates**: 32°29’N 3°40’E

**Altitude**: 550 m above sea level

**Country**: Algeria

**Type of oasis**: Wadi - Canyon

**Environment**: M’Zab is a deep, narrow oasis valley located within the Sahara, consisting of five walled towns, crossed by a wadi.

**medium temperature**: 21-30 °C average elevation

**Average rainfall**: 61 mm annual

**Architecture and urban form**: oasis town

**Hydraulic devices**: Water uptake from superficial channels; water intakes wadi, Spring

**Surface oasis (Ha)**: 4850

**Urban population**: 360,000 hab

**Agricultural space plot**: tree graph

**Number of the palm**: 290,000

**Economy**: the economy is based on the cultivation of the date palm.

**Notes**: The valley of Mzab was inserted in 1982 in the list of UNESCO World Heritage Site, in recognition of an example intact of a traditional human habitat perfectly adapted to its surroundings.
14. Libya/ Nalut Region/ Ghadames
Sheet 1: Oasian matrix / Sheet 2: Characteristics of the oasis

### Coordinates
30°08'N 9°30'E

### Altitude
330 m above sea level

### Country
Libya

### Type of oasis
plain-depression

### Environment
Two mountain ranges overlook the city; in the south and the east Palmyra is exposed to the Syrian Desert. A small wadi crosses the area, flowing from the western hills past the city before disappearing in the eastern gardens of the.

### Average temperature
22.10 °C average elevation

### Average rainfall
33 mm annual

### Architecture and urban form
oasis town

### Hydraulic devices
Water uptake from superficial channels; Spring and pools of water

### Surface oasis (Ha)
2050

### Urban population
16,080 hab

### Agricultural space plot
tree graph

### Number of the palm
100,000

### Economy
The economy is based on the cultivation of the date palm,

### Notes
The historic center of the city, surrounded by walls, was declared a world heritage site by UNESCO 1986
15. Oman/Al-Dakhiliyya Region/ Nizwa

Sheet 1: Ohioan matrix / Sheet 2: Characteristics of the oasis

<table>
<thead>
<tr>
<th>Morphology, Hydro-agricultural systems</th>
<th>Desert sands</th>
<th>Front of the mountains or hill</th>
<th>Well</th>
<th>Plain</th>
<th>Depression</th>
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Coordinates: 22°56'N 57°32'E
Altitude: 492 m above sea level
Country: Oman
Type of oasis: mountain foot-wadi
Environment: Ancient capital of the country, Nizwa lies in a lush oasis fed by a wadi which has its source in the nearby Hajar Mountains, whose barren peaks surround the town on all sides.

Average temperature: 25-10°C average elevation
Average rainfall: 97 mm annual
Architecture and urban form: of villages systems
Hydraulic devices: Water uptake from superficial channels; the water distribution system, falaj
Surface oasis (Ha): 2500
Urban population: 76128 hab
Agricultural space plot: tree graph
Number of the palm: 160,000
Economy: the economy is based on agriculture, mainly on the cultivation of the date palm.
Notes: the irrigation system falaj are part of the UNESCO sites 2006 (World Heritage List)
### 16. Saudi Arabia/ Region of Tabuk/ Taima

Sheet 1: Oasian matrix / Sheet 2: Characteristics of the oasis

<table>
<thead>
<tr>
<th>Coordinates</th>
<th>9°49'01.5&quot;N 39°52'41.3&quot;E</th>
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<tbody>
<tr>
<td>Altitude</td>
<td>851 m above sea level</td>
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<tr>
<td>Country</td>
<td>Saudi Arabia</td>
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<tr>
<td>Type of oasis</td>
<td>Wadi-Plain</td>
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<tr>
<td>Environment</td>
<td>Tayma is a large oasis with a long history of settlement, located in northwestern Saudi Arabia at the point where the trade route between Medina and (al-Jawf begins to cross the Nefud desert.</td>
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<tr>
<td>medium temperature</td>
<td>21..80 °C average elevation</td>
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<td>Average rainfall</td>
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<td>Urban population</td>
<td>36279 hab</td>
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<td>Economy</td>
<td>the economy is based on agriculture, mainly on the cultivation of the date palm.</td>
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<td>Notes</td>
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</table>

- Apland source:
- Valley of the slope:
- Intra and topography:
- River and well water intake:
- Canals:
- Springs of water:
- Wells:
- Uplift tunnels (asphalt, concrete):
- Porous systems:
- Distribution channels:
- Lifting systems:
- Drainage and recycling:
- Hydro-agricultural irrigation systems:
17. Saudi Arabia/ Region of Ar-Riyadh/ Ad-Diri’yah

Sheet 1: Oasian matrix / Sheet 2: Characteristics of the oasis

Abacus

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<th>Fort of the</th>
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Coordinates: 24°45'34.5"N 46°32'54.9"E

Altitude: 622 m above sea level

Country: Saudi Arabia

Type of oasis: wadi

Environment: Diriyah is a town in Saudi Arabia located on the north-western outskirts of the Saudi capital, Riyadh. Diriyah was the original home of the Saudi royal family.

Medium temperature: 24.30 °C average elevation

Average rainfall: 166 mm annual

Architecture and urban form: oasis town

Hydraulic devices: Water uptake from superficial channels; the water distribution system,

Surface oasis (Ha): 1800

Urban population: 73235 hab

Agricultural space plot: tree graph

Number of the palm: 100,000

Economy: In this area, it is developed the tertiary and secondary sectors, agriculture is based, mainly on the cultivation of the date palm.

Notes: the At-Turafi District in ad-Diri’yah are part of the UNESCO sites 2010 (World Heritage List)
iv.) Conclusions

Al-Ahsa is a hot oasis of the plains. It boasts depressions and dune fields, an agricultural network, orthogonal ducts, an architecture of village and town oasis, and a spatial configuration typical of an oasis basin, likely one of the largest in the world.

Its water system is based on channels, pools of water, puddles, distribution systems, distribution channels, water sewage systems on large-scale, lifting systems, drainage and recycling systems, and a recent industrialization of farming based upon a modern network of canals permitting the development of intensive hydro-agriculture. The existence of underground catchment tunnels (*qanat*) in historic period is mentioned in the written sources but has fallen into disuse. The characterizing element of Al-Ahsa oasis is the large-scale network of surface canals, water-lifting systems and special feature to connect the irrigation canals to drainage channels. Historically, the linear development of the irrigation canals is due to the morphology of the terrain that presents different altitudes, imposing a broad extension of canals to irrigate fields located in lower positions distant from the water spring.

Water-lifting systems made it possible to irrigate even larger areas in the Middle Ages, thanks to the enormous spread of lifting techniques operated by donkeys. Palm groves could then be extended realizing the continuity of the oasis over a extremely vast territory. The presence of marshy areas and brackish water has perfected the drainage techniques, applied already in historical times to irrigate the fields, and determining the unique water recycling techniques typical of Al-Ahsa. The contemporary evolution of drainage systems and pumps with lifting methods has led to a large-scale water control system, completely unknown in other oases. The great extension of the water network ranks Al-Ahsa in a very special typology of oasis with a water distribution system similar to the ones of the great hydraulic civilizations of Mesopotamia. Unlike these, however, the water of Al-Ahsa does not come from river floods but from springs and pools. It is pure water that does not benefit from the silt and sediment components which allowed the waters of the Tigris and Euphrates to fertilize Mesopotamia. In Al-Ahsa, the inhabitants had to implement specific techniques, typical of oasis situations, for the creation of soil and for their fertilization (mixing burnt palm leaves and trunks with animal dung to make manure).

The complex water system of *Al-Ahsa oasis, an Evolving Cultural Landscape*, dotted with pools of water and circular settlements immersed in a giant palm grove, is unique for its size and determines an original and unique geo-cultural landscape. The large nominated serial property of Al-Ahsa preserves the memory of the past history of the oasis and is a model for the future management of these fragile ecosystems.
3.3) Proposed Statement of Outstanding Universal Value

a) Brief Synthesis

Located in the Eastern Province of the Kingdom of Saudi Arabia, Al-Ahsa Oasis, an Evolving Cultural Landscape is a serial cultural property constituted of twelve components covering an area of 85 km². It is an organically evolved landscape that developed by association with, and in response to, its natural environment, and an example of continuing landscape retaining an active social role in Al-Ahsa contemporary society.

Al-Ahsa Oasis, an Evolving Cultural Landscape includes all the elements of the morphology of the oasis (gardens, canals, springs, wells, drainage lake), vast archaeological zones, and a selected ensemble of architectural vestiges within its historic settlements that materialize the relevance of the oasis as a major traditional settlement throughout the past 500 years. The association between the large watered date palm groves and the urban environment creates an exceptional cultural landscape presenting, through its continuous practice, a unique evolution of an ancient cultural tradition bearing testimony to the sedentary human occupation of the area throughout the millennia and to its evolving sustainability until the present day.

Al-Ahsa Oasis is the largest oasis in the world with more than 2.5 million palm trees, and it preserves material traces representative of all the stages of the oasis history, since its origins in the Neolithic to the present. The landscape still presents all the characteristics that led to the creation of the first oasis experiences: the geo-morphological and water conditions, and the socio-cultural landscape composed of nomadic, sedentary and marine-lacustrine environments. The physical remains of the different phases of the oasis evolution, the different kind of natural environments visible within the property, and its peculiar ecotone — a meeting and transition between physical environments, natural and human communities — are the main attributes conveying the Outstanding Universal Value of Al-Ahsa Oasis, an Evolving Cultural Landscape serial property.

b) Justification for Criteria

Criterion (iii)

Al-Ahsa Oasis, an Evolving Cultural Landscape is an exceptional testimony to the oasis cultural tradition, a symbol of the relevance of the age-old oasis agricultural techniques for the development of the Gulf region civilizations. The unique role the oasis of Al-Ahsa has played for hundreds of years — and continues to play in the modern kingdom of Saudi Arabia — is witnessed by the many fortresses, historic mosques, springs and canals that dot the modern city and the orchards. The Qaysariyah market, dedicated to food, spices and textiles, is a proof of the continuity of the traditional commercial exchanges linked to the agricultural output of the oasis that are still active and still play a relevant economic role.

The continuity of the oasis agricultural tradition is represented by a permanently evolving landscape with an agricultural organization based upon the distribution of spring water through a network of open-air canals that grew and changed throughout history. Al-Ahsa Oasis, an Evolving Cultural Landscape materializes the vivacity and modernity of this specific land-use
tradition and shows its continuing relevance at the local and regional scale.

**Criterion (iv)**

*Al-Ahsa Oasis, an Evolving Cultural Landscape* is an outstanding example of a cultural landscape illustrating significant stages in human history. It is the largest oasis in the world with some 2.5 million palm trees and a complex and evolving network of water canalizations. It constitutes a spectacular example of an outstanding type of landscape, the oasis, stretching back through many millennia and actively modifying its surrounding natural environment. The oasis landscape demonstrates the shared values, social cohesion and engineering knowledge of the communities that have settled in the area. The transformation of the landscape of Al-Ahsa territory/oasis throughout the millennia materializes different phases of human history, from the Neolithic until the Islamic period, in which human communities have progressively modified the territory to rationally exploit its water resources. The creation of the largest oasis in the world is the result of thousands of years of human endeavour and its material attributes can still be identified in the contemporary landscape as a continuous succession of layers.

**Criterion (v)**

*Al-Ahsa Oasis, an Evolving Cultural Landscape* is an extraordinary example of human interaction with the environment and of its ability to endure, confronted with global challenges and modern needs. From the origin of the oasis in the alternation of more or less humid phases that characterized the Holocene, through the installation of the desert, and until the present days, people have skilfully made use of the natural environmental opportunities and developed knowledge and solutions increasingly more sophisticated. The exceptionality of Al-Ahsa lies in the perpetuation of a great oasis throughout the millennia in the place of its genesis shaping its landscape in an uninterrupted development. The landscape still maintains all the characteristics that have led to the creation of the first oasis experiences: the geo-morphological and water conditions, and the socio-cultural landscape composed of nomadic, sedentary and marine-lacustrine environments. Al-Ahsa Oasis techniques and procedures for the creation of fertile soils, for agricultural production, water management, recycling, energy-saving, survival in the desert, constitute an example of good practices for the whole planet. *Al-Ahsa Oasis, an Evolving Cultural Landscape* preserves skills and knowledge that turn out to be crucial to face the challenges posed by global warming, desertification, and ecosystems collapse.

c) **Statement of Integrity**

The nominated property shows the sustainable evolution of the oasis and of its associated human settlements, where the physical and functional relations between the natural landscape, the water springs, the water canalization system, the villages, and the cities create a continuously evolving human-created oasis environment. *Al-Ahsa Oasis, an Evolving Cultural Landscape* remains today the largest agricultural area in the Arabian Peninsula, and a working and living environment that has developed in direct continuity with its origins and its past. The twelve components of the nominated property possess an evident topographical integrity presenting the ensemble of the elements that characterize and make an oasis possible: water springs, caves, mountains, flatlands, modern and historic canals and water-lifting mechanisms, human settlements and natural
drainage areas. The continuing use of the oasis as major agricultural zone where high-quality dates are produced and exported throughout the world, and the persistence of traditions and built elements from the past eras, are authentic in use preserving both the agricultural and the settlement/commercial integrity of the oasis functions.

Throughout the millennia, while constantly evolving, the integrity of relationships between the palm groves, the water sources and canals, the human settlements and the natural landscape has remained constant adapting to the needs of the human societies that developed in the area. Water distribution and water abduction modifications in the past 40 years have aimed to maintain the very agricultural function of the oasis. The large-scale anti-desertification project and the reorganization of the water distribution techniques, with the creation of a new network of canals realized by the Kingdom of Saudi Arabia since the late 1960s, have permitted to keep the oasis alive and the continuity of its agricultural role.

The extraordinary integrity of this urban/oasis landscape can still be fully appreciated when observing from an elevated point the “sea” of palm trees and gardens that extends in every direction almost endlessly. The sheer size of the property permits to ensure the complete representation of all tangible attributes of the cultural landscape and of the social processes conveying its Outstanding Universal Value. The oasis constitutive elements are contained within the boundaries of the property and clearly manifest their significance and exceptionality. The unique scale of Al-Ahsa Oasis, the largest oasis in the world, is mirrored by the very size of the nominated property. Its historic depth, and the complexity of traditional oasis agricultural methods, are represented by the major archaeological zones included in the
The nominated property, composed of oasis gardens, canals, hills and caves, of villages and urban areas, and of natural elements (parcels of desert and drainage lakes) in an evolving symbiotic relationship, has preserved both its coherent original geo-morphology and its economic and social function as main agricultural hub of the Arabian Peninsula and important economic centre connected since high antiquity to the rest of the Gulf and to the world. The twelve components comprising the serial cultural landscape of Al-Ahsa Oasis, an Evolving Cultural Landscape exhibit a pattern directly depending on, and originated by, the oasis organisation of the territory. The transformation of the water distribution techniques, brought about by the 1960s and 1970s large-scale plans implemented by the Government of Saudi Arabia, are but the last step in a millenary history of interaction between nature and man aiming to manage and transform the natural landscape into a sustainable agricultural environment capable to support large human communities. Al-Ahsa Oasis, an Evolving Cultural Landscape has largely preserved its unique oasis ecosystem and, notwithstanding the development of modern infrastructures and the rapid growth of the modern city, shows an extraordinary authenticity of use reinforced by the presence of archaeological evidences, historic monuments and preserved pre-historic landscape elements that set it apart from all other oasis in the world.

This serial nominated property still occupies the same vast plain where Neolithic human groups began to settle attracted by the abundance of water and by a favourable natural environment. Located between the Arabian Desert and the Gulf coast, Al-Ahsa Oasis, an Evolving Cultural Landscape still lies at the centre of a network of commercial exchanges permitting to export its agricultural output to the other countries of the Gulf and
beyond. The very “evolution” of the oasis landscape is authentic in the sense that oases are fragile environments that need to be continuously adapting and reacting to the natural entropic forces that could overrun the man-made ecosystem and lead to the desertification of the site. The large hydrologic projects and the anti-desertification program continue the very dynamics of constant development of technological and management know-hows that permitted the creation of the oasis. Drainage canals, re-use of water, and carefully-attended date palm groves, prove the authenticity and the continuity of this property that has preserved its original layout and its main natural and landscape features (springs, canals, hills, caves, sabkha-s and drainage lakes) and continues to house large human communities. The evolving relationship between the oasis gardens, the urban areas and their large natural surroundings is completely conforming to the oasis’ original layout and structure. Authenticity of function and use of the oasis environment is expressed by the actual size of the serial nominated property and its buffer zones, and is visually expressed at the large scale by the well-preserved views from the orographic emergencies and from the main road axes that materialize the connections between the different elements composing the oasis eco-system.

**e) Requirements for Protection and Management Necessary to Maintain Potential Outstanding Universal Value**

The strategy for the preservation and revitalization of *Al-Ahsa Oasis, an Evolving Cultural Landscape* has been drawn by the Saudi Commission for Tourism and National Heritage (SCTH) in coordination with Al-Ahsa Municipality and the ensemble of the local stakeholders. Laws and regulations relative to cultural heritage, agriculture, environment, planning and tourism protect the Outstanding Universal Value of the oasis. The preservation of this large property is the responsibility of many different entities in charge of sectorial aspects. An effective management system is in place for the property and a Management Plan is being adopted, based upon a new holistic vision of the oasis landscape and on the development of a closer coordination among the authorities in charge of the protection and development of the landscape and agricultural parcels, and the institutions in charge of architectural heritage preservation, urban and tourism development.

Long-term protection and management requirements for the property promote awareness-raising initiatives to present the oasis Outstanding Universal Value and the obligations deriving from World Heritage status to the local communities, training and up-grading of the capacities of the personnel involved in heritage management, support to scientific researches on the property, and the creation of interpretation centres. It is expected that these activities, jointly with cultural and eco-tourism projects, will contribute to the long-term sustainability of the oasis.
Al-Ahsa Oasis, an Evolving Cultural Landscape
4. \textbf{State of Conservation and factors affecting the Property}

4.a) Present state of conservation
   4.a.1) The Natural and landscape features
   4.a.2) The Oasis Eco-system
   4.a.3) Urban settlements

4.b) Factors affecting the property
   (i) Development pressures (e.g. encroachment, adaptation, agriculture, mining)
   (ii) Environmental pressures (e.g. pollution, climate change, desertification)
   (iii) Natural disasters and risk preparedness (earthquakes, floods, fires, etc.)
   (iv) Responsible visitation at World Heritage sites
   (v) Number of inhabitants within the property and the buffer zone
4.a) Present State of Conservation

Al-Ahsa Oasis, an Evolving Cultural Landscape comprises both the oasis itself and the urban areas and monuments of the settlements of the oasis. The criteria and the attributes sustaining its OUV (and therefore the elements that need to be preserved and whose current state of conservation needs to be assessed) do refer not only to architectural and urban elements, but also to landscape aspects, including environmental, agricultural and geological elements.

The analysis of the state of conservation of the property presented in the following pages identifies three distinct areas: the state of conservation of the natural and landscape features (lake, mountains, caves, springs, etc.), of the oasis eco-system (gardens, canals, palms...), and of the urban fabric & architectural structures.

The overall assessment of the state of conservation of the site should be considered in relation with the holistic vision of the nomination of the oasis, and with the driving concept of this nomination: the idea of “evolving” landscape.

Al-Ahsa landscape is the outcome of a delicate, interactive balance among complex factors — social, architectural, agricultural and environmental — each of which is an inseparable part of the system. It is considered that the three main components of Al-Ahsa oasis geo-cultural landscape — the geo morphological system, the agro-system and urban and social landscape — present a well-preserved integrity and quality. However, the assessment of the state of conservation of Al-Ahsa Oasis, an Evolving Cultural Landscape depends on the very meaning we attribute to the term “landscape”. By definition, a landscape can never be a “static” category, subjected to museum conservation, but is an “evolutionary” phenomenon in constant transformation. To assess the possibility of its preservation and its very state of conservation, therefore, means identifying the “directions” of its ongoing transformation.

The proper evolution and maintain of Al-Ahsa landscape in the fragile condition of the desert has been achieved thanks to the commitment to social values sustained over time and to the constant application of environmental awareness and local knowledge. Both these factor still persist in Al-Ahsa until today.

4.a.1) The Natural and landscape features

Within the serial nominated property are found some major natural emergencies that contribute to the OUV of the property.

The protection of the landscape is not included in the Saudi legal framework, but the largest part of the Nominated Property is protected as agricultural land. Mountains and desert areas belong to the state and cannot be built in.

The large-scale development of the modern city, that now almost surrounds the oasis gardens, has transformed the larger setting of the oasis and produced a new environment, where traditional oasis elements mix with modern canals, a modern road network, and a large modern city. The result is an urban-oasis environment of unprecedented scale, a unique “giant oasis” landscape.
4.a.2) The Oasis Eco-system

The serial nominated property contains some 6,000 hectares of oasis gardens forming a complex eco-system composed of natural elements, cultivated fields, canals and paths. Though the nominated property comprises only a portion of the entire oasis, the ecological assessment should take into consideration the ensemble of the oasis and of its larger ecosystem.

Al-Ahsa irrigation and drainage scheme was developed in 1971. In 1988, the scheme included 1,482 km of open concrete channels that distribute water extracted from the Neogene aquifer to 22,000 farms covering some 7,096 ha. The average annual water use for irrigation was 328,000 ML. The total annual recharge from rainfall to the Neogene aquifer was estimated to be 500,000 ML.

A-Ahsa Oasis irrigation network is dependent on water extracted from aquifers and discharges excess water via an extensive drainage scheme to As-Sifalah and Al-Asfar Lakes. The system of lakes includes a large reed lake, and Summer and Winter lakes. The reed lake has been created by nutrient rich inflows and the Summer lake overflows into the Winter lakes during periods of low evaporation and high inflows. The lake system has a history of discharging to Arabian Gulf.

At the time being, the overall ecological situation of the oasis is largely satisfactory as witnessed by the quality of Al-Asfar Lake waters and environment. A rich fauna and flora is present in this area: numerous fishes and fish-eating migratory seabirds might be seen from its banks, and large mangroves develop on the lake shores. The absence of smell provides another, empirical, proof of the overall good quality of the waters discharged in the lake from the oasis gardens. The extraordinary landscape of Al-Asfar lake, that reminds of the pre-historic period when the Arabian Peninsula was greener, is monitored by Al-Ahsa Municipality and by the Drainage Authority. The strict regulations set by the Drainage Authority and the centralized system effective since the 1970s, have permitted to control pollution and avoid excessive discharge of pollutants in the canal network that reaches the marshes and lakes surrounding the oasis. The regulations are strictly enforced by the local authority and its highly qualified technical staff.

Al-Ahsa Municipality, with the support of specialized international consultants and firms, has recently launched a series of initiatives for the study and upgrading of the ecological situation in the oasis and in Al-Asfar Lake. In 2013, international experts carried out an in-depth investigation of the viability of the lake, aiming at developing an understanding of water quantity and quality aspects, and the potential strategies for optimising its potential. According to these studies, Al-Asfar
Lake is a long established and functional ecosystem that shows some resilience to considerable pollutant loads entering the system. In addition, the lake system supports significant bird life. Inflows to the lake are mainly dependent on surplus irrigation water with some contributions from leakage from water supplies to urban areas, stormwater and effluent from wastewater treatment plants. There is sufficient water available to ensure the viability of Al-Asfar Lake.

The analyses revealed that improving the quality of water entering the lake will allow its ecosystem to recover in a relatively short timeframe. This process can be readily facilitated by continuous monitoring of the water quality in the D2 drain and by the installation of the treatment train to improve the quality of water entering the lake.

Al-Ahsa Irrigation and Drainage Authority (HIDA) utilizes water from a variety of sources, including wells, and treated wastewater. In the past years, a new strategy — based on the reuse of treated wastewater — has been developed to reduce water consumption. The treated wastewater is checked for compliance with standards established to protect health of humans and livestock and to protect the farms. HIDA uses real time water quality data from online instruments (Electrical Conductivity, pH, Cl₂, Turbidity) along with tests performed by its laboratories to determine compliance.

The agricultural output and vitality

The Kingdom of Saudi Arabia produces nearly a million tonnes of dates annually, accounting for 15 % of the global date production. With 2.5 million date palms, Al-Ahsa Oasis is Saudi Arabia’s most important date palm oasis. The persistent relevance of the oasis as major agricultural area at the national level is mirrored in the attention paid for its management and control by the ministry of Agriculture that implements specific and advanced strategies to improve the quality of the plants and to control pests.

Traditional date palm farming techniques and the know-how of local farmers are now supplemented by modern techniques that aim at improving quality and output of the oasis. Palm trees reproduction normally occurs by propagation by seedlings or by vegetative propagation by offshoots. The latter method has always traditionally been favoured in Al-Ahsa because, whilst there is only a limited natural growth of offshoots, propagation is true to type and best quality date palms can be selected. In this method the shoots appearing at the lower part of the trunk are cut and planted usually at six metres spacing. This method also works best when date palms are well maintained and numerous since the growth of offshoots becomes less vigorous when palms are neglected and as they grow older, and because it takes 4 to 6 years for offshoots to grow to a stage of suitability for planting.

Palm tree cultivation consists of several labour-intensive and time-consuming processes. The application of fertilizers as a process accompanies hoeing and cleaning and all are carried out after the date harvest when the farmer has ample time for crop husbandry. The farmer usually divided his date garden into two parts to be fertilized alternately every two years because annual application was expensive in time, labour and materials. Before the introduction of artificial fertilisers, local organic materials were used, animal manure mainly from cows and donkeys, and derived from the burning of the leaves and dry parts of the plant. Palm trees have to be cleaned and trimmed
Organic agriculture offers substantial opportunities for small farmers in the Kingdom. The shift from severe competition at local conventional markets to an organic niche market offers attractive price premiums in a growing market environment. However, the benefits of organic agriculture are not confined to business opportunities. In addition to market considerations, organic is environmentally friendly and protects the Kingdom’s valuable resources by strengthening soil fertility, biodiversity and other ecosystem services.

In June 2009, H.E. the Minister of Agriculture took the decision to convert the “Qassim Agriculture Research Center” into the “Organic Agriculture Research and Development Centre”. As Saudi Arabia’s first organic research and development centre, its main research areas are soil science, horticultural science, plant protection, and biodiversity.


The term “organic agriculture” is associated with strict standards and rules. By introducing the first National Regulation & Standards for Organic Agriculture in 2011, Saudi Arabia has shown its commitment for developing a strong organic sector. In order to cope with the growing demand for healthy food products that also help safeguard the scarce water and soil resources, organic farming is seen as a viable development strategy for the agricultural sector.

in the following ways if production is to be maximised. The removal of dead fronds is necessary to protect the tree from infection by insect pests which otherwise risk to severely damage the palm. The selective removal of the fronds is done to encourage fruiting. The removal of thorns which may injure the dates during their development also makes easier the hand pollination of the palms, so this process is usually executed before the pollination period.

Hand pollination was and is extremely demanding of skilled labour. It is known that palm trees can survive water deficiency for many consecutive years because of their extensive rooting systems. This is particularly true in Al-Ahsa where the natural water table is generally high. However, yields are adversely affected. It is noted also that the date palm is not severely affected by over-irrigation. Because of the high traditional density of the palms ploughing between the trees was not practised. The most famous date variety produced in Al-Ahsa oasis is the renowned “Khlas” Date.

The massive production of dates, and the very quality of Al-Ahsa dates, is a proof of the extraordinary vitality of the oasis as a major agricultural centre at the national and international scale and of its extraordinary “state of conservation” as a living and
[Fig. 78] Selected operational areas (Al-Khadoud and Sodah) indicating position of red palm weevil in Al-Hassa, in Massoud, M. A., 2011
The quality of the dates produced in the oasis, the famous Khlas variety, is celebrated across Arabia. Already in the 19th century, Palgrave noted:

"Here and for many leagues around grow the dates entitled “Khalas”, – a word of which the literal and not inappropriate English translation is “quintessential” – a species peculiar to Hasa, and the facile princeps of its kind. This fruit itself is rather smaller than the Kaseem date, of a rich amber colour, verging on ruddiness, and semi-transparent. (...) In a word, it is the perfection of the date." (PALGRAVE, W.G., 1865, Narrative of Year’s Journey Through Central and Eastern Arabia (1862-63), London, p.173).

Of the estimated 64 million date palms of the Arab world, some 14 millions grow in Saudi Arabia and almost 3 millions in Al-Ahsa. There are approximately 240 to 360 varieties of dates. Many residents and dates connoisseurs from throughout the Middle East, Asia and Africa consider the “khlas” to be the very best dates of the world.

For centuries, Khlas dates have been exported to India, Zanzibar and throughout the Middle East — but, like all premium date varieties within the Kingdom, the khlas is primarily for domestic consumption. Khlas dates are large, with firm texture, a pronounced yellow colour, good translucence and complex favour.

Hofuf is home to what is widely considered as the best khlas dates that each family prepares according to its own style. In some families, after washing and drying the dates, they are sprinkled with aniseed or with toasted sesame seed.


productive landscape. Present-day production builds upon thousands of years of know-how to create, maintain and develop Al-Ahsa Oasis.

The agricultural production in Al-Ahsa Oasis, monitored by the Ministry of Agriculture and subsidized by the Saudi government, makes a relatively limited use of pesticides and chemicals and focuses on alternative techniques for the control of palm pests. Among these, the red palm weevil (Rhynchophorus ferrugineus - RPW), a key pest of date palm that was first recorded in Al-Ahsa in 1992. RPW-infested palms in the early stage of attack can recover with insecticide (trunk injection), but palms in the late stage of attack have to be eradicated. The Directorate of Agriculture, from the Ministry of Agriculture, is operating the RPW control programme in Al-Ahsa. The programme uses a pheromone-based Integrated Pest Management strategy in over 60 operational areas, with varying degrees of success. Besides mass trapping of adult weevils in food baited pheromone traps, the detection of infested palms, use of chemical treatment (preventive and curative), eradication of severely infested palms, elimination of RPW breeding sites, implementation of quarantine regulations etc, are the other important components of this pest-control strategy.

The presence of certified “organic” producers in Al-Ahsa Oasis is extremely limited, but the growth of the organic sector in the Kingdom is expected to play an important role in the future of the oasis agricultural life. Organic farming is an important factor in the promotion of modern and innovative irrigation systems that increase water-use efficiency and seems therefore particularly relevant in Al-Ahsa Oasis context.
4. a. 3) Urban settlements

Nominated Properties

The nominated property excludes the vast majority of the urban settlements of Al-Ahsa Oasis, cities and villages alike. The urban areas are essentially included in the buffer zones, to reduce the number of residents within the nominated property and to acknowledge the drastic modifications that transformed the settlements in the past 50 years.

Only the round village of Al-`Oyun and some scattered minor settlements within the oasis are actually included in the nominated property.

Al-`Oyun Village

Al-`Oyun historic core (NP-010) is composed of one or two-level historic houses, mostly very dilapidated and lying in ruins, of few traditional two-level houses preserved in good conditions and still partially inhabited, and of a large number of traditional stone buildings that have been modified and transformed by modern additions, coating plasters and new openings. A precise survey of the historic core is being prepared in the framework of the Nomination to launch the village rehabilitation and revitalization. These drawings will permit a more precise assessment of the actual physical conditions of the settlement.

At the urban level, on the contrary, the village has remarkably preserved its original circular structure with its street network, the original open spaces, and its relationship with the surrounding palm groves. Historic sources underline that a defensive wall and a moat surrounded the village of Al-`Oyun, with several gates leading to the nearby gardens. The moat and the wall are not preserved, but the village urban plan clearly shows its former presence. Descriptions from the early 20th century state that the village counted some 500 houses, with a population partially of bedouin origins.

The northernmost settlement in the Hasa Oasis and a place of some importance; it is surrounded by a deep moat and is the headquarter of a Nahiyah, but there is no bazaar. Ayun receives much of the surplus water of the oasis from the southward; and the moat, which is generally dry, can easily be filled in times of danger. [Lorimer, 1908, pp.645-46]

The strict relationship of Al-Ahsa villages with the gardens was the main characteristics of all the oasis minor settlements that entirely depended economically from the agricultural work, and whose residents were mostly field labourers. The remarkable state of conservation of Al-`Oyun village and its surrounding gardens offers a precious insight on the living patterns that characterized the oasis until the recent past and the massive development of the new cities and modern neighbourhoods.

The traditional houses of Al-`Oyun presented elegant arcades on both the ground floors, opening onto the courtyards, and at the upper level. The interior stonewalls were plastered and often decorated with vivid colours (blue, red, orange). More elaborated arches, belonging to more prestigious mansions, are sometimes found within the ruins.
Buffer Zones
In the property buffer zones, are included large urban sectors of Al-Hofuf and Al-Mubarraz, the two twin cities of the oasis, and oasis villages located amidst or around the palm tree gardens.

Al-Hofuf historic core
Apart from the preserved monumental features of the city (see below), the remaining historic urban fabric and architectural elements of the city of Al-Hofuf are generally in a rather poor state of conservation. As happened all over the Kingdom, the development of the modern city in the 1970s and 1980s lead to the progressive abandonment of the historic houses that have often been razed and replaced by modern concrete structures. Relatively large urban sectors of the ancient quarter of Al-Kut, however, and the neighbourhood East of the Qaysariyah, have survived and still preserve their original urban fabric and a number of original stone and mudbrick houses. These buildings, now partially inhabited and partially re-adapted and transformed into modernized housing units, do preserve the original scale, and building materials, and constitute an important memory of the pre-modern city.

The buffer zone, relying As-Seef oasis with the historic cemetery and the old city, defines a “historic core” where new conservation and re-use strategies at the urban level can be launched. The attention to traditional architecture and urbanism is a very recent phenomenon in Saudi Arabia. The process leading to the nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape for inscription on the UNESCO World Heritage List is a major opportunity for the local community to reconsider its own history and traditional way of life, and to reconnect the life of the contemporary residents of modern Al-Ahsa with their rich heritage.

This process has already permitted to realize the potential that these urban sectors have for a sustainable growth of the city as the remaining housing stock, jointly with the preserved and restored monuments, still offers interesting opportunities for renewal. The current knowledge about these urban sectors, however, is still insufficient, and the Municipality and the National Urban Heritage Centre are just beginning to establish a precise inventory and survey of these neighbourhoods and to elaborate new strategies for their recovery and rehabilitation. Preliminary studies and architectural surveys will be launched in the coming months to provide the necessary scientific basis for the development of coherent urban rehabilitation schemes.

The new urban regulations, and the recently approved national Antiquity Law, offer a powerful legal framework for the actions aiming at the preservation and upgrading of these historic quarters, while in the meantime the modern planning options for the development of the metropolis towards the East and the coast, permit to reduce the real estate pressure on the historic core of the city. These positive pre-requisites are a good omen for the future rehabilitation of the historic city.

Building upon the visionary strategy of HRH Prince Sultan Bin Salman, a new attention to heritage and urban preservation is developing in the Kingdom, and Saudi civil society begins to reconsider the future of the cities. Within this framework, the preservation and rehabilitation of Al-Hofuf historic core becomes, for the first time since the oil boom, a realistic possibility to be developed.
“Al-Hofuf Center Project” is part of the program of Historic City Centres carried out by the SCTH in collaboration with the Ministry of Municipalities and Rural Affairs (MoMRA). This ambitious program aims to rehabilitate and develop “city historic centres” including the Jeddah Historic Area, At-Taif, Al-Majma and Al-Hofuf historic centres, preserving their historical features and transforming them into tourism and historical attractive location.

The Nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape, and the debates between SCTH and the urban elites and administrators, have permitted to reinforce this approach and to begin planning medium and large scale urban solutions based upon the sustainable re-use of the city’s historic areas. Al-Ahsa Municipality has already developed contacts with Amana Jeddah to jointly discuss and review the efforts paid for the recent inscription of Historic Jeddah, the Gate to Makkah on the World Heritage List, in order to learn from this experience and to evaluate its relevance for Al-Ahsa. SCTH will support the Municipality of Al-Ahsa in the definition of the project and will contribute to its implementation in the nominated properties and in the buffer zones to verify the interventions respect the Outstanding Universal Value of the site and follow internationally set standards for the conservation of historic cities.

In the coming years, under the direction of Al-Ahsa Municipality and the Urban Heritage Centre, new plans will be developed for the historic core, at first within the UNESCO buffer zone, and later extending to the ensemble of the surviving historic areas of the twin cities.

Al-Mubarraz

The buffer zone includes part of Al-Mubarraz old city, but in this urban sector only few historic buildings remain. On the Eastern side, the surroundings of Qasr as-Sahood present a well-kept urban ensemble that has preserved the original fabric, but where only few structures date from the pre-oil period. Similarly, the modern, regularly planned plots West of the fort, built in the early 1970s for ARAMCO employees, are well-preserved witnesses of the early development of the city.

The buffer zone also includes three large plots with public buildings and large department stores lying North, South and South-West of the fort. The future evolution of these areas, originally outside Al-Mubarraz city wall, need to be carefully monitored to underline their “seam” role between the historic and the modern city.

Beyond the buffer zone, the larger urban setting of Al-Mubarraz still presents “pockets” of historic buildings and empty spaces. The nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape is an opportunity to re-plan their future development in the framework of a new approach to urban renewal respectful of the history of the city and of its architectural and urban specificities.

The Villages and the other Settlements

Following the discovery and exploitation of its rich oil fields, the region witnessed a dramatic development and a rapid population growth that have drastically modified the surroundings of the oasis. Where a series of isolated villages connected by paths across the fields characterized the landscape until the 1950s, a major almost continuous urban area now extends, home to a population of 1.5 million people.
The original settlements and villages developed around the oasis or within it in areas less favourable for agriculture. These villages, like the two cities of Al-Hofuf and Al-Mubarraz, have now often merged, losing most of their original features and patterns. However, Al-Julayjilah and Al-Qurayn villages — located in the northern oasis and included in buffer zone i — still present the original round plan of their historic core (though most of their housing units have been replaced or transformed). Similarly, the historic nuclei of Al-Battaliyah, Al-Qarah and At-Tuwaythir can still be discerned with some preserved historic houses, often dilapidated and in a poor state of conservation.

4.a.4) Monumental features

The nominated properties include a series of important monuments dating from the 16th to the late 19th/early 20th centuries that contribute to the OUV of the property and materialize the relevance of the oasis throughout the past centuries.

These monumental emergencies mostly belong to the public sector, to the Saudi Commission for Tourism and National Heritage (SCTH) that is also in charge of their maintenance and restoration, or to the Ministry of Islamic Affairs, Endowments, Da’wah and Guidance. A series of interventions for their preservation have been carried out in the past twenty years. These interventions have notably permitted the survival and the re-use of Qasr Ibrahim as city museum, the preservation of the other main forts and the reconstruction of the Qaysariyah market after the fire that ravaged the original building. In parallel, the Awqaf administration has carried out a series of interventions on the major historic mosques that have been upgraded and continue to be used by the local community.

Qasr Ibrahim

The restoration project, carried out in the 1990s, was conducted under the direction of the SCTH.

The complex has been thoroughly restored and transformed into a museum open to the public. Qasr Ibrahim counts among the foremost cultural heritage sites in the Kingdom of Saudi Arabia. The state of conservation of Qasr Ibrahim is entirely satisfactory. The fortress is guarded and the site regularly monitored by the local SCTH branch. The site is lit at night and regularly maintained.

The Saudi Authorities carried out the conservation and restoration project in compliance with international standards. Though not all the interventions are fully satisfactory, the overall authenticity of the site has been preserved. The restoration project permitted to study and get acquainted with local traditional building techniques and materials, even though modern technologies and materials have also been used.

Al-Amiriyyah School

This imposing structure, dating from the 1930s, has been recently restored by Al-Turath Foundation. The intervention has permitted to recover the original ensemble with its two large courtyards. The restored school hosts a small museum devoted to the history of learning and education. It is open to the public and guarded by SCTH personnel. The exhibits present the school traditional teaching methods with models and original furniture and images of its most famous and prestigious pupils.
4.) State of Conservation

Kingdom of Saudi Arabia
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[Photo below] Qasr Sahood in Al-Mubarraz, F. Cristofoli, 2015
The restoration has required the partial reconstruction of the buildings that was in a poor state of conservation. The restored building respects the original volumes and details of the original school. Al-Amiriyyah has become a landmark in the city centre of Al-Hofuf, and contributes to the development of the sense of belonging of the local community.

**Qasr Sahood and Qasr Khuzam**

The two square fortresses of Al-Mubarraz and Al-Hofuf have been restored by the SCTH, which owns the sites, and are completely preserved and protected. The large courtyard of Qasr Khuzam is often used for public and private gatherings and events. No final destination has been decided yet for Qasr Sahood. Both fortresses are guarded and can be accessed by the public.

**Jawatha Mosque**

Few traces remain of the 7th century mosque of Jawatha, but the excavations and the conservation works have permitted to identify the foundations of the original structure. The present-day mosque, that was recently restored by Al-Turath Foundation and is open to the public for prayer, dates from the 18th century. The conservation works have preserved the simple architectural features of this historic mosque with its whitewashed round pillars, internal walls and the palm wood beams ceiling.
4.b) Factors Affecting the Property

Introduction

The discovery and exploitation of oil had an enormous impact on the social and physical landscape of Al-Ahsa Oasis, and brought about a dramatic modification of Al-Ahsa society and built environment. Within two decades, the natural ecosystem created by the efforts and know-how of the local communities throughout millennia — which developed and evolved preserving its very features and characteristics almost unchanged until the 1950s — faced a complete transformation of its immediate surroundings.

The transformation of the economy brought about by the industrial exploitation of oil led to the transformation of Al-Ahsa from a rural and traditional society into an industrial and modern Saudi metropolis. In this process, the economic and cultural role of the oasis and its very agricultural output were threatened with a rapid decline. The survival of the oasis as a vibrant and productive agricultural entity until today is the result of political and technical decisions taken at the central level of the kingdom in the 1960s and 1970s; a tribute to its economic and social relevance for the local communities and for Saudi Arabia at large.

The most relevant and noticeable impact on the landscape has certainly been the rapid growth of the population and of the urban areas around the oasis. This transformation, however, has not affected the oasis itself. The regulations and the large-scale hydraulic plans supported by the central government have permitted the survival of the oasis gardens and have avoided the risk that urban development could take place at the expenses...
Al-Ahsa Oasis, an Evolving Cultural Landscape

[Photo above] Al-Mubarraz, the urban surroundings of Qasr Sahood, F. Cristofoli, 2015
of the agricultural lands. Differently from what happened in other urban oases, where the growth of contemporary neighbourhoods has progressively erased the green areas (like in Damascus where in the past 50 years the ghouta almost entirely disappeared covered by new constructions), in Al-Ahsa the surface of the oasis has not been reduced by modern developments. On the contrary, the hydraulic plans designed in the 1960s and 1970s aimed at increasing its surface ad extending agricultural land. This strategy, based on the confidence on modern engineering capacities and on the partial “refusal” of the traditional local know-how, has not proved entirely successful, but has permitted to preserve Al-Ahsa oasis that remains today the largest oasis in the world and an active and lively eco-system and agricultural environment.

The comparison of historic and contemporary aerial views of As-Seef gardens, the closer to the centre of Al-Hofuf, clearly shows that the “green” zone did not substantially shrink in the past 50 years, and proves the capacity of the oasis to survive and thrive even in the most densely urban areas (Cf. photos next page).

The issue we should ponder when considering *Al-Ahsa Oasis, an Evolving Cultural Landscape* state of conservation is: what are the pressures and driving forces acting in the direction of a destructive development?

Two large families of pressures, environmental issues and modernization, are active. Al-Ahsa oasis is faced with environmental problems such as the decline of water resources, sand invasion, salinization, and soil loss — issues made even more dramatic by the global warming, with its climatic extremes. To this first set of issues should be added the pressures more directly related to human intervention, often caused by harmful modernizations. Oasis society demands adequate levels of service and improved living conditions, but these very changes are likely to destroy the values intrinsic to that society. The lack of understanding of these values and the denial of the specific characteristics of the oasis universe, together with the need to keep up its overall system, can lead to the implementation of un-systemic, partial measures of modernization that could be inadequate or even calamitous. Specific factors found in the oasis are presented hereafter.

**Major Infrastructures, Water Works and Waste Water Disposal**

Major public infrastructure, great constructions and improvement of water and sanitation systems are often executed without taking into account the ecological balance upon which oases have depended for thousands of years. Immense amounts of external energy are expended to achieve momentary benefits that prove to be non-renewable and, in the long run, disastrous to the existence of the whole area. An example is the of use mechanical pumps to draw water from great depths. This practice lowers aquifer and exploits it at a rate greater than its capacity for renewal. The depuration of wastewater is achieved by discharging effluents into the sabkha-s that, because they are endorheic, are unable to carry it away, or by purification plants made with open-air, artificial pools, which breed insects and disease under arid conditions.

**New Developments, Constructions and Agriculture**

New buildings utilize massive imports of foreign technology and materials, with complete disregard for the specific conditions of local culture and climate. Similarly, actions of creations of parks and the management of caves and scenic geological areas are carried out in total ignorance of the environment, architectural, landscape, and cultural qualities and values,
Al-Ahsa Oasis, an Evolving Cultural Landscape

[Photo above-left] Aerial photo of As-Seef oasis, 1950s, SCTH archives

[Photo above-right] Satellite view of As-Seef oasis, Google Earth, Dec. 2015
introducing new architectural models and landscapes that completely overturn traditional quality. The creation of new working opportunities and jobs for the oasis residents determines a decrease in the interest for agricultural work and increases the risk of abandoning many farms. Furthermore, these developments do not take into account the environmental constraints, such as flood zones, sands and groundwater, or the presence of particularly fragile and critical areas where specific and adapted knowledge and skills are required for environmental management.

**Modernization of Canals and Agriculture**

In agriculture, the commitment of human labor required to permit the proper work of the oasis ecosystem is no more sufficiently profitable under the present circumstances. Yet, not enough attention has been paid, and not enough experiments have been conducted, to verify and determine if the same results could be achieved using non-destructive, innovative methods. Until now, the large-scale efforts made by the Saudi government have been limited to importing a mechanization and industrialization of agricultural production based on intensive monoculture and the unification of parcels — while, on the contrary, poly-culture and garden farming are the traditional keys to the maintenance of the oasis ecosystem.

It should be considered that any modernization of agriculture implies the consumption of large amounts of energy and water. Even projects that are attentive to conservation issues, such as the new proposal to bury underground the canal network, should undergo a more careful and holistic evaluation. In addition to the aesthetic damage these actions involve, consideration must be given to the negative impacts that immediate savings may bring in the long run, notably as far as the deposit and concentration of salts in soils and the increase of the water pollution are concerned. A network of open channels is well suited to the need of watering the soil to control salt concentration. Excess water is not wasted, but absorbed by the fields traversed by the canals, and evaporation loss is minimal in the traditional multi-level oasis system in which the palm creates shade. In this case, even water that evaporates is not wasted, but contributes to the maintenance of the humid microclimate under the trees, a fundamental component of the oasis ecosystem. Moreover, open-air drainage favours the aerobic purification of water, and because of the very linear development of the water-drainage canals, used waters reach the lakes already purified. The creation of underground closed pipelines for the water-drainage will prevent this natural process of de-pollution.

**Transformation of Legal Rules, Abandonment of Community and Social Practices**

Where modern law replaces traditional institutions of community law, identity risks to get lost and interpersonal relations are undermined. In particular, the disappearance of the rules related to water jurisdiction and administration, might disrupt the relations based on social cooperation and lead to the disappearance of indispensable maintenance skills.

At the landscape level, the decrease of common grazing lands and nomadic roaming grounds undermines the larger environmental space of oases, reducing the opportunities for nomadic grazing and livestock farming. This causes the concentration of animals in limited areas, overgrazing and over-exploitation of resources, which bring aggression against flora and fauna and consequent soil and environmental degradation. The use of processes and methods foreign to the oases leads to
the disappearance of local crafts and skills, with consequent
destruction of competencies and loss of identity of segments of
the population. The less advantaged social strata, the elderly and
the women, are particularly affected by the decline of their role
and position in the community.

Global Risks Associated with Major Changes and Investments
The main risks posed by large-scale interventions on oases are
linked to the massive habitat transformation caused by changes
in water supply, agriculture and landscape. All action in this
field must pay particular attention to the specific ecosystem and,
in the absence of precise estimates of the impact of the changes
that such action may cause, must adopt a precautionary
principle: in extreme and fragile environments, one can never
be sure of the negative long-term impact of actions causing
change. In this framework, the risks connected with proposals
for large investments and transformations should always be
carefully assessed. Al-Ahsa oasis is a complex geo-cultural
landscape with its own specific laws. Each transformation not
considered within its holistic aspects would upset the balance
upon which the existence of delicate ecosystems is based and
might trigger processes of environmental pollution and
destructive transformation.

Conclusion
Notwithstanding the radical transformation and the rapid pace
of the social and urban transformations the Saudi society faced
in the past 50 years, Al-Ahsa Oasis, an Evolving Cultural
Landscape has been preserved and continues to play its
economic and identity role for the local communities.

The nomination of Al-Ahsa Oasis, an Evolving Cultural
Landscape is not only based on the thousands of years of efforts
made by the human communities living in the area to settle the
desert and exploit the underground water resources, but also on
its very evolution until the present and on the role that the oasis
is called to play in the future as the essential pivot around which
a new vision — more ecologically-friendly and culturally-
sensible — for the development of the country can be imagined
and developed. The studies carried out for the preparation of
the UNESCO nomination, the new attention of the Saudi central
government to sustainable development, and the involvement
of the local elites in the oasis conservation are important
elements that create a new positive framework. The eventual
inscription of the property on the World Heritage List, and the
management and monitoring mechanisms requested to comply
with the 1972 World Heritage Convention could further support
this process and help designing the next steps to “direct” the
oasis evolution in a sustainable manner.
(i) Development pressures (e.g. encroachment, adaptation, agriculture, mining)

a) Encroachment

The existing laws and regulations fully protect the ensemble of the 12 nominated properties from all encroachment and new developments.

- The Law of agriculture protects the oasis gardens that cannot be transformed into residential areas.
- Al-Ahsa municipal development plans have integrated the “green” zones of the oasis in the global regional development plans and guarantee their preservation.
- Al-Asfar Lake, and its large surrounding buffer zone, is defined as a green protected area, where new constructions are forbidden, in the Municipal Master Plan.
- The ensemble of the archaeological areas and monuments belong to the SCTH and are protected by the Law of Antiquities, Museums and Urban Heritage from any development and encroachment.

Current regulations also protect the vast majority of the surface of the seven buffer zones surrounding the twelve components of the nominated property:

- The oasis gardens included in the buffer zones are protected by the same regulations applied within the gardens included in the nominated properties.
- The vast sector of Al-Ahsa National Park near Jawatha is entirely fenced and protected. It depends from the Ministry of Environment, Water and Agriculture.
- Jabal Bureiqah eastern sector (the buffer of Jawatha archaeological area) is a public land on which no construction is allowed.
- The desert and agricultural lands surrounding ‘Ain Qinas archaeological site are also protected. Their inclusion on the Municipal Master Plan as buffer zone will permit to formalize their status.
- The protection of the urban fabric and historic constructions within the urban sectors (both in the city and in the villages) included in the buffer zones is guaranteed by the Law of Antiquities Museums and Urban Heritage that explicitly forbids the demolition of historic structures within urban areas without the approval of the SCTH, and requests the approval of the SCTH for any development project in historic urban areas.

[Art. 9, al. 2] “Archaeological and urban heritage sites shall be preserved when carrying out projects for planning, expansion or improvement of urban or rural areas. In addition, easement rights shall be taken into consideration, including designation of construction-free areas, in coordination with the Ministry of Municipal and Rural Affairs. Planning projects, in which, or in the vicinity of which, there are archaeological and urban heritage sites, may not be adopted without the approval of SCTH.”

[Art. 22] “Archaeological and urban heritage sites may not be altered; the debris found thereat may not be used; and soil, rocks or any other material may not be removed therefrom without the permission and supervision of SCTH”.
[Art. 24] “The following activities may not be carried out within the limits of archaeological and urban heritage sites without the prior approval of SCTH: Whole or partial demolition; New construction or landscaping project. (...) SCTH shall, in coordination with the Ministry of Interior and the Ministry of Municipal and Rural Affairs, develop technical and procedural mechanisms for dealing with any dilapidated heritage building.”

Notwithstanding the legal provisions, development pressures on the buffer zones do exist as the villages and the infrastructure tend to expand and do not always take into consideration the dilapidated traditional buildings and neighbourhoods.

In the framework of the nomination process, SCTH is strengthening its coordination with Al-Ahsa Municipality and the other concerned stakeholders in the control of the evolution of the oasis landscape.

Furthermore, the Law of Agriculture allows constructions over 10% of the garden parcels. This provision, designed for the creation of residences and spaces for agricultural use, tends more and more to be used for establishing tourism-related structures that impact on the agricultural land and on the cultivated surfaces. In recent years, many restaurants and istiraha-s (rest guesthouses and facilities) have developed on the borders of the agricultural parcels situated along the main roads, offering food and temporary accommodation in the palm grove to city residents and Saudi visitors. These facilities do not always respect the existing regulations and progressively alter the agricultural character of the oasis. The nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape for inscription on the UNESCO World Heritage List imposes a more pro-active enforcement of the existing regulations and the definition of a sustainable tourism strategy to regulate the access of visitors and guests to the agricultural parcels.

In the past years, Al-Ahsa Municipality has launched two major projects on its territory to increase the appeal of the city for its residents and for the tourists: the creation of a large urban park on the top of Jabal Bureiqah and the tourist development of Al-Qarah caves, one of the most impressive natural elements of the area.

These sites are currently undergoing the development projects that were designed before the launch of the nomination process. The development plan for Al-Qarah, aiming at transforming the site into a major tourist attraction, is not entirely compatible with the conservation strategy proposed in the nomination. It has been agreed that the private developer will adapt the original plans to limit their impact on the natural scenery.

A third project is also being developed, in the framework of a private-public partnership project on public-owned land, to revitalize the park area surrounding Jawatha Mosque. Here a large-scale intervention for the creation of leisure areas and a small tourism market is on-going. The private developer in charge of the project collaborates with the SCTH and Al-Ahsa Municipality and is ready to adapt his plans to the requirements of the nomination process.

b) Adaptation and Agriculture

Al-Ahsa oasis is a complete eco-system created by human activity over a very long period of time to exploit the richness of the underground water of the region. In the case of Al-Ahsa Oasis, an Evolving Cultural Landscape nominated property,
4. State of Conservation

Panoramic view of Al-Ahsa eastern oasis (facing Jabal al-Qarah). F. Cristofoli, 2015
Al-Ahsa Oasis, an Evolving Cultural Landscape
agriculture is an essential component of the site and one of the very attributes demonstrating the Outstanding Universal Value of the property. The evolution of the water-distribution methods and networks throughout time is part of the very evolution of the oasis to which contribute the 1970s canal network and the on-going creation of new underground pipelines.

Adaptation, in the sense of the progressive and continuous modification of water management and water distribution techniques, is part and parcel of the very concept of “evolving” landscape proposed for the nomination of Al-Ahsa oasis, and not a “threat” to the preservation of the historic techniques. Within the oasis are still found traces and vestiges of the different techniques that have progressively been developed that provide a unique and complete overview of the evolution of the oasis system from its origins some 5,000 years ago until today. The continuous development of know-hows to progressively modify the natural landscape is the driving principle of the concept of “oasis”, an ever-adapting man-made environment capable to address the climatic conditions of the desert.

At the urban and planning level, the same concept of “adaptation” has led to the creation of a modern urban settlement that has mostly replaced and greatly extended the previous cities and villages of the oasis. This process has unfortunately led to the rapid substitution of the traditional urban environment with modern planning and architectural solutions. The few remaining historic neighbourhoods have been partially “adapted” to comply with modern needs often ignoring their original features and structures. This process, however, should be considered within the global transformation of the country that passed, within few decades form a scarcely inhabited and partially nomadic society to a heavily urbanized one. Now we have entered a new phase, where a new sensitivity is developing, an approach that permits to imagine new models of development capable to preserve and integrate the historic urban neighbourhoods and vestiges in the future built environment of the kingdom. The sustainable “adaptation” of the historic fabric and historic buildings to contemporary needs is one of the most interesting challenges the new generation of Saudi planners and architects should face.

c) Mining

Al-Ahsa oasis lies close to Al-Ghawwar oil field, the largest in the world producing some 5 million barrels/day (some 62% of the entire Saudi production). This giant oilfield has been exploited since 1951 by the state-owned ARAMCO Company. It covers an area of 280x30 km and its eastern side almost borders Al-Ahsa oasis. However, the oasis agricultural lands and urban areas, both in the nominated properties and in the buffer zones, are not threatened by the opening of new oil wells or by any other extractive and mining activity.
(ii) Environmental pressures (e.g. pollution, climate change, desertification)

a) Pollution


Air pollution is a cause for concern in both major urban areas and industrial zones. The ensemble of Eastern Province, where the largest oil fields in the world are located, has in the past suffered from air pollution related to the extractive activities. In recent years however, air quality in Saudi Arabia’s Eastern Province has benefited greatly from several initiatives and notably of the Aramco’s Master Gas System, which has significantly reduced the need for flaring, and permitted to recover more than 3,500 tons of elemental sulphur/per day from gas produced in association with crude oil. The air quality within the oasis is not polluted and does not affect the growth of the palm trees.

b) Climate Change

Climate change is an important and long-term global problem associated with greenhouse gas (GHG) emissions from energy use, industrial processes, transportation, agriculture, land-use change, and waste management. Because Saudi Arabia is mostly a hot and arid country, expected changes in the climate may be particularly important. The Intergovernmental Panel on Climate Change (IPCC), established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) in 1988, projects that average surface temperatures in the Arabian Peninsula region will likely increase by 2 °C by 2030-2050, with predicted increases in winter regional precipitation levels as well. Projections show that Al-Ahsa region will also be subject to the impacts of climate change that may notably impact on the long-term viability of Al-Asfar Lake. It is expected that, before 2100, the region will experience a 23% to 40% increase in rainfall, a 14% increase in evaporation, a 17% to 30% decrease in recharge to aquifers, and a 12% loss in soil moisture. Saudi Arabia’s total carbon emissions have risen in the past 20 years, but not at the same rate as the country’s energy consumption, and in terms of carbon emissions per capita, Saudi Arabia is not a regional leader. Saudi Arabia ratified the United Nations Framework Convention on Climate Change and became a signatory to the Kyoto Protocol in 2004, though as a non-Annex I country, the Kingdom is not required to reduce its emissions below 1990 levels. On November 4, 2016, the government of the Kingdom of Saudi Arabia has signed the Paris Agreement on Climate Change, that builds upon the Convention and, for the first time, brings all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so.

c) Desertification

Desertification is a process of land degradation which reduces its productivity. It can be measured by: the reduced productivity of desirable plants; undesirable alterations in the biomass and the diversity of the micro and macro fauna and flora; accelerated soil deterioration; increased hazards for human occupancy.
In the last hundred years, land degradation has intensified due to rapid social and economic changes and particularly those associated with the development of the oil industry. Overgrazing is the key factor in the continued desertification of the rangelands of Saudi Arabia. It is estimated that about eighty percent of the total rangelands of the Arabian Peninsula is used for domestic camels, donkeys, goats, cattle and sheep most of which roam more or less free. About 60% of the rangelands of Saudi Arabia are seriously degraded due to overgrazing and overcutting.

Since the 1960s, a pioneering project to fight against desertification in Al-Ahsa oasis has been launched by the government of Saudi Arabia. The project and its impact on the territory have been described in chapter 2. The mandate of Al-Ahsa National Park — established in 1962 as “soil stabilisation project” and turned into National Park in 1984 — that employs 173 people, is “to protect the oasis from the dangers of shifting sands, planting areas that exceed 4,500 Acres through forestation”.

[Fig 79] Sand Stabilisation Project at Al-Ahsa oasis, in Al-Jabr, 1984
(iii) Natural disasters and risk preparedness (earthquakes, floods, fires, etc.)

a) Earthquakes and Floods

Al-Ahsa Oasis, an Evolving Cultural Landscape and its buffer zone cover a very vast area located inland, some 50 km from the Gulf shore. The Eastern part of the Arabian Peninsula is not particularly prone to earthquakes that will in any case have a relatively minor impact on the oasis gardens, and only partially affect the massive and low structures of the oasis fortresses.

Saudi Arabia counts among the driest lands on earth, yet rain does occur in Al-Ahsa. These rare rains usually pour off as violent storms with a considerable percentage of the year total precipitation that can occur in just 1 or 2 hours. Rain outbursts produce strong streams descending from the mountains that can wash away constructions and people. However, the risk of floods does not seem particularly relevant, as this property does not include narrow wadis draining outburst of desert rain that could cause havoc, and there is no historic record of destructive floods in the area.

The Kingdom of Saudi Arabia is developing its risk preparedness strategy. The General Authority of Meteorology and Environmental Protection (PME) has notably set up an “early warning” alert (in Arabic and English) to announce to the population the risks of major meteorological phenomena, including heavy rains and hurricanes, in coordination with the General Directorate of Civil Defence. Fires are also a relatively minor concern for this property. The oasis gardens are regularly watered and the soil, humid because of the very oasis structure, does not favour the rapid spread of fire. The historic urban neighbourhoods were built with thick stone and mudbrick walls and relatively little wood, making them less prone to fires. Nevertheless, destructive fires did and do occur in Al-Ahsa, like the one that recently destroyed the Qaysariyah. The restored monuments included in the property strictly respect the fire-protection regulations and are all equipped with sprinklers and/or fire extinguishers.

b) Man-caused hazards

Al-Ahsa Oasis, located inland, has been spared and has not heavily suffered from the Gulf War pollution that affected the eco-system of the Gulf coastal region.

The prevention of risks related to oil extraction and exploitation is ARAMCO’s utmost priority and is consistently dealt with in the management of the extractive activity and in its social activities and programs for Al-Ahsa communities. Very effective protocols to guarantee the safety of oil wells and refineries in the region have been established to avoid incidents that could reverberate on the oasis ecosystem.
(iv) Responsible Visitation at WHS

The Eastern Province has been developing a series of ambitious plans to attract national and international tourism. Large-scale development plans (cf. Chapter 5) are planned along the Gulf coast, while many initiatives are taken at the municipal level to put Al-Ahsa on the regional tourism map. The national strategy designed by SCTH to develop the tourism sector in the Kingdom aims primarily at the national Saudi public, at visitors from the nearby Gulf countries, and at the large expat community living in the Kingdom. The city’s cultural and natural heritage is seen as an important opportunity for the development of the city’s tourism and economy. The implementation of this strategy is still in an early stage and until now the presence of tourists in the area remains relatively limited and entirely under control.

In the past years, Al-Ahsa municipality has launched a series of tourism and heritage projects and programs that have contributed to its transformation into a national tourism destination with a unique environmental and historical potential. The initiatives of Al-Ahsa Municipality notably concentrate on the most iconic natural and religious sites: Al-Qarah Caves, Jabal al-Bureiqah and Jawatha historic mosque. The number of visitors to these sites, notably from Al-Ahsa area, is expected to grow rapidly, reinforcing the interest of the local community and of the Saudi public at large for the oasis and its rich natural and cultural heritage.

SCTH, through its local branch in Al-Ahsa, has also executed a number of projects and activities in an effort to enhance tourism development and preserve urban heritage sites across the municipality under the umbrella of local Tourism Development Council chaired by HH Prince Bader bin Jalawi, the Governor of Al-Ahsa, who is also the Chairman of the Council. SCTH has notably restored a series of historic buildings that are open to the public. Statistics, however, show that visitors are still relatively few and their presence does not risk affecting the conservation of the built structures.

The nominated property is the first “cultural landscape” proposed by the Kingdom and represents, therefore, a new concept for Saudi Arabia. The 85 km² of the nominated property could, in theory, receive a large number of visitors without affecting the OUV of the site. In the framework of the preparation of the nomination, a reflection on sustainable and eco-tourism principles has been launched. The respect of the cultural tourism charter and of eco-tourism international standards will direct the initiatives for the oasis. Within this comprehensive approach, the quality of the agricultural products of the oasis, and of traditional food, as well as the uniqueness of the natural landscape, are meant to play a driving role that could mutually reinforce the preservation of the oasis as an ecological and agricultural environment.

The population of Al-Ahsa metropolitan area regularly visits the oasis and many facilities to cater for the local and national clientele have developed in the past years around and within the oasis. These activities are generally set within the palm groves where all palm trees are protected and cannot be eradicated. The development of cultural awareness campaigns focusing on the preservation of the natural environment, ecology, and traditional culture and heritage, will contribute to educate the public to the values of the site and to act for its preservation. Specific mechanisms to improve waste collection, to reduce littering, and to upgrade the quality of the public
Al-Ahsa Oasis, an Evolving Cultural Landscape

[Photo right] Tourists visiting Al-Qarah caves, websource, 2014
spaces within the oasis are being developed by the Municipality of Al-Ahsa.

School classes and special groups are also regularly visiting the Museums and the main historic monuments in Al-Hofuf and Al-Mubarraz. However, notwithstanding the efforts paid by the local and central branches of SCTH, the total number of visitors to the cultural sites does not exceed few thousands per year.

This situation is expected to change drastically with the implementation of the development plans currently underway. SCTH strategic plans for the development of tourism in the Kingdom give a major role to the Eastern Province and to Al-Ahsa Metropolitan area, and the number of tourists — both national, and international — will rise noticeably within few years.

The monitoring of the evolution of tourism development in the coming years will permit to devise the most convenient strategy for the sustainable conservation of the oasis that could favour the development of local economy without jeopardizing the oasis agricultural activity and preserving its complex eco-system.

At the time being, the few visitors of the oasis monuments and gardens cannot cause major threats to the historic buildings, to the surviving elements of the traditional urban fabric or to the natural environment and to the complex oasis eco-system. SCTH and Al-Ahsa Municipality will monitor the tourism initiatives proposed for the oasis to verify that they respect international standards and that the oasis is preserved from excessive tourist pressure.
(v) Number of inhabitants within the property and the buffer zone

a) Nominated Property (components)

The correct estimate of the number of residents within the twelve components of the nominated property is extremely difficult as their boundaries do not coincide with the Saudi census limits and include parts of villages and agricultural lands belonging to different administrative units.

Al-Ahsa Oasis, an Evolving Cultural Landscape nominated property covers a surface of 85 km². The limits of the nominated property have been defined on the principle to include as little residents as possible in order to limit the complexity of its management in case of inscription on the World Heritage List. Therefore, notwithstanding the fact that the oasis larger setting counts about 1.5 million people, less than 12,000 people actually reside within the property limits.

Looking more in detail at the twelve components, it appears that most of them do not count any resident. This is the case of the large natural area of Al-Asfar Lake (component 012), of the two archaeological areas, Jawatha and `Ain Qinas, (components 08 and 011), but also of the monumental buildings of Al-Hofuf & Al-Mubarraz and of Jawatha Mosque where, apart from night guards, no one resides within the properties (components 04, 05, 06, 07 and 09). The population of Al-Ahsa Oasis, an Evolving Cultural Landscape nominated property concentrates in the three largest components covering the vast majority of the oasis gardens including some scattered villages and communities, and in Component 010, Al-`Oyun Oasis and village.

The calculation of the residents within these components (Component 01 Eastern Oasis, Component 02 Northern Oasis, Component 03 As-Seef Oasis in Al-Hofuf and Component 010, Al-`Oyun) can only be based on estimates deriving form the statistical data of the current population divided per cities and villages.

The population of Component 01 can be roughly estimated at 8,000 people including the settlements south of Al-Qarah mountain and the residents within the garden parcels (the large Bani Ma`an village is excluded from this property).

The population of Component 02 likely counts less people (its villages having been included in the buffer zone) and a population of 3,000 people seems a realistic estimate.

Just some 300 people reside within the limits of Component 03 (As-Seef gardens), while it is estimated that some 500 people live in the village and gardens of Al-`Oyun.

The total population of the twelve components can therefore be (roughly) estimated at some 11,800 people.

The population trends and evolution show a very rapid growth of the number of inhabitants in Al-Ahsa metropolitan area. However, the strong demographic pressure might be partially reduced in the coming years by the large-scale plans of Al-Ahsa Municipality for the urban extension towards the sea that are currently being implemented. It is likely that part of the village residents, that cannot find cheap housing in the dense fabric of the villages (prevented to expand on the oasis gardens), will move towards the new city reducing, or at least limiting, the growth of the population within the nominated property.
b) Buffer Zone(s)

The population of the buffer zone is certainly much larger than the one of the nominated property, as it extends over some 215 km². Al-Ahsa Municipality residents were 1,314,500 people in the 2014 census, but the Municipality projections expect a relevant increase of the population by 2030 to reach two million people in the ensemble of Al-Ahsa Oasis metropolitan area (Cf. table here below).

The “village municipalities” listed above in reality count a number of sub-villages that have often merged to create a continuous built up area.

The detail of these settlements is relevant to calculate the residents within the buffer zone.

The population of the seven buffer zones is estimated in the table below.
Buffer-Zone-i
It is the most densely inhabited of the buffer zones. It notably includes the villages detailed in the table above. Its total population is estimated at 93,000 people, out of the almost 500,000 that resides in the ensemble of the villages.

Buffer-Zone-ii
The residents in the outer “ring” of As-Seef oasis likely do not exceed few hundreds, while the residents of the historic sectors included in BZ-ii are difficult to estimate precisely. The historic core of Al-Hofuf is rather dilapidated and not densely inhabited. It seems realistic to consider that the population included in the buffer zone does not exceed 3,500 people.

Buffer-Zone-iii
It covers a small, relatively densely inhabited sector of Al-Mubarraz. A rough estimate suggests that some 2,000 people live in this area.

Buffer-Zone-v
Though the modern village/city of Al-`Oyun has dramatically developed in the past years and now counts some 57,000 inhabitants, Buffer-Zone-ii includes exclusively scarcely inhabited plots in the oasis gardens surrounding the historic village and its population can be roughly estimated at just some 500 people.

Buffer zones iv, vi and vii
These last three buffer zones are quasi-uninhabited.

The total estimate of the residents within the seven buffer zones is therefore 99,000 people.

c) Estimated population located within:
- Area of nominated property: 11,800
- Buffer zone: 99,000
- Total: 110,800
- Year: 2014
Protection and Management of the Property

5.a Ownership
5.b Protective designation
5.c Means of implementing protective measures
5.d Existing plans related to municipality and region in which the proposed property is located (e.g., regional or local plan, conservation plan, tourism development plan)
5.e Property management plan or other management system
5.f Sources and levels of finance
5.g Sources of expertise and training in conservation and management techniques
5.h Visitor facilities and infrastructure
5.i Policies and programmes related to the presentation and promotion of the property
5.j Staffing levels and expertise (professional, technical, maintenance)
Al-Ahsa Oasis, an Evolving Cultural Landscape

Nomination File
Section Five
5.a) Ownership

5.a.i) Introduction

The serial nominated property of *Al-Ahsa Oasis, an Evolving Cultural Landscape* is located in Al-Ahsa Municipality, in Al-Ahsa Governorate, in the Eastern Province of the Kingdom of Saudi Arabia. The largest part of the twelve components of the nominated property and of its seven buffer zones is composed of privately owned parcels. Within the oasis, there are about 22,000 agricultural parcels and almost as many private owners, while the urban sector included in the property counts thousands of private owners and some public parcels. Roads, street, mountains and desert areas are public property.

The protection of the landscape and its sustainable development are based on the current legislation and on the existing land-use regulations. The coordination with representatives of the farm-owners and with the villages inside the property will be developed in the framework of the Management Plan being prepared by Al-Ahsa Central Municipality and SCTH.

The buffer zones limits have been drawn with the goal to protect the twelve nominated property components from urban or development encroachments, to preserve the agricultural use of the oasis area, and to protect selected views from and towards the site. The proposed seven buffer zones extend over a surface of 21,555 hectares. There is no full cadastral map of the entire area, but satellite images elaborated by the SCTH and Al-Ahsa Municipality, do show the present land use and the private properties limits within and around the Buffer Zone.

5.a.ii) Property Rights

The Saudi Arabian legal system gives private owners full control over their properties and foresees a limited role for the State and the local administration inside the private parcels. Building, land-use and agricultural regulations permit to control the development of the site and have been able to preserve the oasis of Al-Ahsa as a major agricultural area until now. However, more active interventions on the oasis landscape, and the actual implementation of corrective measures related to the nomination of *Al-Ahsa Oasis, an Evolving Cultural Landscape* on the UNESCO World Heritage List, will require the establishment of stronger and more effective coordination mechanisms with the private sector, Al-Ahsa Central Municipality, the Provincial Government, and the ensemble of the local and national stakeholders.

Rights per Sector:
- The public sector owns the mountains, the desert areas, and the area of Al-Asfar Lake.
- The public sector owns Al-Ahsa National Park.
- The public sector owns the large springs and the ensemble of the canal network.
- SCTH owns the large archaeological areas that have been fenced off since the 1970s, and the main monuments within the property.
- Part of the agricultural parcels are controlled by the Ministry of Endowments (Awqaf), notably in the As-Seef district near Al-Hofuf.
- Mosques are administered by the Ministry of Islamic Affairs and cemeteries by Al-Ahsa Municipality and the Ministry of Health.
The table above presents the situation of the religious endowments in Al-Ahsa Oasis.

The agricultural building code foresees that Al-Ahsa branch of the Ministry of Agriculture is responsible of approving the construction on agricultural parcels. Approval can be granted only if:

- The area of the building does not exceed 10% of the agricultural land according to ownership documents;
- The height of the building does not exceed 8 meters;
- The building is not used for commercial or industrial uses;
- The building is in a suitable location from the farm and is not on account of crops.

The Municipality of Al-Ahsa is in charge of the supervision of the work. The owner should follow what specified on the Municipality building permit.
5.b) Protective designation

The protective designation of the UNESCO nominated areas is based upon two parallel legal mechanisms: Saudi Antiquity Law and Municipal Building Regulations approved by Al-Ahsa Municipality on the one hand, and Laws, Decrees and Decisions by the Ministry of Environment, Water and Agriculture.

5.b.i) Environmental Protection

The need to conserve, protect and regulate all aspects of the environment in the Kingdom of Saudi Arabia was recognized in the 1970s, after a period of rapid industrial and urban growth. In 1981, the General Authority of Meteorology and Environmental Protection (PME) was established, and issued immediately the first set of standards designed to protect air and water, by limiting the concentration of pollutants.

The Environmental Protection Coordinating Committee (EPCCOM) was also created in 1981, and re-designated as Ministerial Committee on the Environment (MCE) in 1990. MCE coordinates the activities of governmental bodies involved in environmental protection and evaluates the measures submitted by MEPA.

In 1986, the Saudi Wildlife Authority (SWA) was created to “develop and implement plans to preserve wildlife in its natural ecology and to propose the establishment of proper protected areas and reserves for wildlife in the Kingdom” (Article 394: Royal Decree No. M/22).

In 1983, the Ministry created a separate Department of National Parks and established and administers the Asir National Park, the Kingdom’s first national park.

The 1992 Basic Law, often referred to as the “constitution” of Saudi Arabia, states:

Article 2 defines the Law’s objectives as:

1. Preserve, protect and ameliorate the environment and prevent pollution.
2. Protect public hygiene against the dangers of activities deleterious to environment.
3. Conserve, develop and rationalize the use of natural resources.
4. Make environmental planning an integral part of comprehensive development planning in all industrial, agricultural, and urban fields, etc.
5. Enhance environmental awareness, instil a sense of individual and collective responsibility for environmental protection and improve and encourage national voluntary efforts in this respect.

Article 2 also requires the concerned Authority (MEPA) to undertake such tasks as may protect and prevent degradation of the environment, and in particular to:

1. Review and assess the state of the environment, upgrade monitoring techniques and tools, collect information and conduct environmental studies.
2. Document and publish environmental information.
3. Prepare, issue, review, develop and interpret environmental protection standards. Draft environmental laws relevant to its responsibilities.
4. Ensure compliance by Public Authorities and individuals with environmental laws, standards and criteria, and take necessary measure to this end in co-operation and co-ordination with the Competent and Licensing Authorities.

5. Monitor new developments in the domains of environment and environmental management on regional and international levels.

6. Promote environmental awareness on all levels.

Article 5 requires the Licensing Authorities to ensure that environmental assessment studies are made as part of feasibility studies for any project that may have a negative effect on the environment.

Article 6 also notes that the party in charge of executing new or upgraded projects is required to use the best possible technologies congenial to the local environment as well as the least environment-polluting materials.

Article 7 specifies the efforts that shall be exerted with the object of disseminating environmental awareness in the education, media sectors, etc.

Finally, Article 32 of the Basic Law states that: “The State works for the preservation, protection, and improvement of the environment, and for the prevention of pollution”.

The Kingdom’s environment is relatively well protected from the legal point of view. However, the enforcement of the law is often difficult outside of the main industrial sites that are regularly inspected. Unfortunately, Saudi population is generally not yet aware of, and does not always respect, the environmental laws.

Saudi Arabia has signed a number of regional and international agreements, protocols and conventions dealing with various aspects of sustainable development. As the world’s largest producer of oil, the Kingdom takes a fairly protective position vis-à-vis atmospheric pollution. Very recently (November 2016), Saudi Arabia ratified the Paris Agreement of the United Nations Framework Convention on Climate Change.

The Public Environmental Law (No. M/34 dated 16 October 2001) creates a general regulatory framework for the development and enforcement environmental rules and regulations, and assigns general responsibility for this to PME. There are specific legal instruments designed to conserve biodiversity:

- Agriculture and Veterinary Quarantine Regulations, 1975;
- The Uncultivated Land Act, 1978;
- The Forest and Rangelands Act, 1979;
- The Water Resources Conservation Act, 1980;
- The Saudi Wildlife Authority Act, 1986;
- The Fishing Exploitation and Protection of Live Aquatic Resources Act, 1987;
- The Wildlife Protected Areas Act, 1995;
- The Wild Animals and Birds Hunting Act, 1999;
- Trade in Endangered Wildlife Species Act, 2000;

National Parks

National Parks in the Kingdom are managed by the National Parks Department which is part of the Ministry of Agriculture. Their establishment is part and parcel of a more general
government conservation strategy. Parks have been located so as to represent a variety of ecological niches where biodiversity is high, however, in practice, little conservation work is actually undertaken by the Park authorities and their emphasis is more related to general tourism, camping and the establishment of picnic sites.

5.b.ii) Agriculture and Landscape Protection: Laws & Regulations

In a country where the largest part of the territory is a desert, water management regulations have always been particularly important and one of the basic elements directing human relationship and settlements.

Prior to World War I, Islamic law governed the use of water in Arabia. Majallat al-Ahkam al-Adlia (abr. Majallat), which can be described as the codification of Islamic civil law under the Ottoman Empire, devoted several articles to the issue of water rights, including the use of water in agriculture.

In many respects the basic principles set out in the Majallat are still in effect in Saudi Arabia. Book X of the Majallat, which deals with joint ownership, contains several provisions devoted to water rights and use.

- Article 1234 declares a general principle that “water is free and jointly owned by the public”.

Some exceptions to this general principle are described thereafter.

- Article 1235 declares that water flowing underground is not the “absolute” property of any particular person, implying that certain rights may be acquired over such water supplies.
- Article 1236 provides that wells that have not been made by the labour of any particular person are free property of the public, implying that a well drilled by an individual shall be his property.
- Article 1239 makes a distinction between rivers with continuous flow and those with flow that is exhausted after passing through a limited number of properties. Rivers in the first category (that does not concern Saudi Arabia, where there are no rivers) cannot be privately owned while those in the second categories can be privately owned.

The right to take possession of water for drinking or irrigation is discussed in Section IV of Chapter IV of Book X.

- Article 1266 provides that all persons and animals have the right to take water for drinking.
- Articles 1267 and 1268 specify that this right extend to water over which other persons have absolute ownership and, under certain circumstances, allow people to enter the property of others for the purpose of taking such water.

The right to take water for irrigation is more restrictive.

- Article 1265 provides that everyone may irrigate his lands from rivers that are not owned by others and may dig canals for this purpose and construct mills; however, if the water used overflows and causes damage to other people, or if it is cut off completely and navigation becomes impossible, then such use shall not be permitted.
i) National Level

Article 1 of the Regulation Concerning the Protection of Water Sources issued by Royal Decree No. M/34 of the year 1400 H. (1979) states that all sources of water are public property provided that rights established according to Islamic law are not infringed upon.

Institutions Governing Groundwater

In 2001, the Ministry of Water was created to contain part of the Ministry of Municipalities and Rural Affairs (MoMRA) and part of the former Ministry of Agriculture and Water (MOAW). The new ministry was responsible for supervising the water sector, developing water-related policies, and setting up mechanisms and instruments aimed at managing the water resources and water services delivery in an efficient and sustainable way.

In 2004, the Ministry of Water also became responsible for the electricity sector and was restructured as the Ministry of Water and Electricity (MOWE) in order to ensure optimum coordination between the development of water desalination and electricity production.

MOWE has two main water programmes:

1) Water resources development, which includes all activities related to geological and hydrological studies, wastewater reuse investigations, well drilling and dam construction, and the preparation of the national water plan;

2) Drinking water supply.

Although MOWE deals with the water resources aspects of irrigation, in 2005 the Ministry of Agriculture (MOA), created the General Administration of Irrigation Affairs (GAIA) to be responsible for organizing, planning, monitoring, developing, operating, and maintaining irrigation and drainage projects.

The functions of the MOA do partially overlap with those of MOWE, since agriculture is by far the main water user in the country and the main cause of aquifer depletion. There is also some overlap between the two Ministries in the area of wastewater reuse.

ii) Local Level

The management of water resources in Al-Ahsa Oasis is the responsibility of Al-Hassa Irrigation and Drainage Authority (HIDA) that delivers approximately 328 million m$^3$ of spring water every year to about 22,000 farms covering a surface of more than 7,100 ha. HIDA is part of the Ministry of Agriculture (MOA) and is in charge of hydrological studies and data collection to improve the use of water for irrigation. It is also responsible for irrigation water conservation, estimation of crop water requirements, irrigation water distribution to the farms and the operation and maintenance of irrigation and drainage canal systems in the irrigation schemes managed by the MOA.

In the 1980s, cultivated areas have increased, causing water shortage issues. A new management scheme has been developed to expand the irrigated areas, overcome the water shortage, and conserve groundwater resources in the region. The scheme introduces automation to the irrigation system, the adoption of a scientifically based irrigation schedule, and improvement of on-farm irrigation methods to lesser water demands, and includes measures to increase reuse of wastewater and agricultural brackish water.
Al-Hassa Irrigation and Drainage Project is the largest irrigation network in the Kingdom of Saudi Arabia. There are about 1,482 km of open concrete canals delivering irrigation spring water to the farms. Agricultural drainage water is collected by 1,641 earthen lateral open canals. The two main drainage canals (D1 and D2) are connected to two evaporation lakes East of the city.

5.b.iii) Architectural and Urban Laws & Regulations

i) National Level

The 1972 Saudi Antiquity Law did not include provisions for the safeguard of “urban heritage”. The recently approved (June 2014) Law on Antiquities, Museums and Urban Heritage represents a major breakthrough for the preservation of Saudi heritage. The new law gives the Saudi Commission for Tourism and National Heritage the power to manage the rich heritage of the country and to deal with urban heritage.

The new legislation provides the legal framework for the preservation of Al-Ahsa oasis architectural and urban sites. As underlined by the head of the World Tourism Organization (UNWTO), Dr. Taleb Rifai:

“(…) the new Saudi legislation aims at protecting the country’s antiquities and heritage as well as to give the Saudi Commission for Tourism and Antiquities (SCTA) the mandate to ensure its preservation.”

Chapter Six of the Law is entirely devoted to “Urban Heritage”: Art. 45 requests the SCTH to establish an “urban heritage record” based on a three-level classification, while art. 46 and 47 define coordination mechanisms between SCTH, the Ministry of Municipalities and Rural Affairs (MoMRA) and the Ministry of Interior for the preservation and development of historic urban zones.

ii) Local Level

At Al-Ahsa Municipality level, planning tools and urban regulations direct the city’s development.

Al-Ahsa 2030 Master Plan sets the global strategy and the development principles for urban growth. The plan foresees a continuing rapid development of the city that will extend towards the South-East to comply with the land and housing needs of the population. The ensemble of the regional urban site is surrounded by a new ring road.

The “Indicative Plan Report for Al-Ahsa Metropolitan area”, dating from 2014, collects and organizes all previous studies, approved plans, circulars and regulations issued by the Ministry of Municipalities and Rural Affairs and Al-Ahsa Municipality. The Plan traces the urban history growth of the city and shows the progressive shifting of activities to farther areas (like Al-Hofuf airport) and the modifications this implied on land use. It defines, for each of the 94 districts of Al-Hofuf and 48 districts of Al-Mubarraz, the appropriate location for residential, commercial, industrial and governmental uses — these sites are shown on the land uses plans in the land uses atlas —, and fixes, for each sector, use allowed, conditional use allowed, building area, setbacks and building heights.
[Fig. 83] Al-Ahsa Master Plan, Al-Ahsa Municipality, 2015

Al-Ahsa Oasis, an Evolving Cultural Landscape
Concerning the agricultural lands, the document explicitly states:

- “Not to build on agricultural land located within the urban scope phase until the year 1450 A.H / 2030 A.D except after the approval of the Ministry of Agriculture”.

For the areas concerned by the nomination in Al-Hofuf and Al-Mubarraz — i.e. As-Seef oasis nominated property component 03, and buffer zones ii and iii (Al-Hofuf historic core and surroundings of Qasr Sahood in Al-Mubarraz) — the current regulation foresee for the “Agricultural Lands inside the Urban Context, As-Seef and ’Ain Murjan”:

a) The lots overlooking main streets and axis will take the conditions of these streets and axis.

b) Internal Lots will apply the following for usage:
   - Private Residential (Villas), Residential Compounds, Recreational, Rest Areas;
   - Residential Compound dwellings will not be sorted nor given ownership (for rent only);
   - It is necessary to preserve the current plantations, especially palms and ahsa’i Products and not to be demolished in the areas of As-Seef, ’Ain Murjan, Um Farsan;
   - Height: 2 floors (Ground Floor + First Floor) with no penthouse 50%;
   - Building Ratio: 30% of the total Lot area;
   - When planning the lots, the proposed road networks are to be considered, where expanding the current and proposed roads are taken into mind.
c) Internal Lots will apply the following for setbacks: Not to be less than 10 m from the street or the adjacent property.

The municipal Planning documents define Al-Hofuf historic core as a “special environment district” for which specific regulations exist. The 2009 plan for the historic centre notably identifies “priority heritage axes” and requalification areas for “public spaces and gardens”, including areas for popular arts and music events and areas for traditional cafes, though it does not directly address the requalification and restoration of the surviving historic built clusters.

In case of inscription on the UNESCO World Heritage List, the formalization of the perimeter of Buffer Zone-ii will impose some minor changes to the current regulations for the As-Seef oasis along King Khalid Street, and along the a small sector of the King Fahd road that surrounds the oasis on the north.

While a new requalification plan for Al-Kut neighbourhood and the surroundings of Al-Qaysariyah is being prepared by the Urban Heritage Centre in the framework of the nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape for inscription on the UNESCO World Heritage List.
5.c) Means of implementing protective measures

5.c.i) International Conventions


On 07/08/1978, the Kingdom of Saudi Arabia ratified the 1972 Convention concerning the Protection of the World Cultural and Natural Heritage. The Kingdom has submitted its first Tentative List to the World Heritage Centre on 25/09/2006, while the last version of the Tentative List, including ten new properties, has been presented on 08/04/2015.

In July 2007, Al-Hijr Archaeological Site (Madain Salih) became the first Saudi site to be inscribed on the UNESCO World Heritage List. In the following years, three more properties followed, bringing the total number of Saudi World Heritage Sites to four (all cultural properties).

5.c.ii) National Framework

The official institution in charge of the listing, protection, maintenance and restoration of cultural properties in the Kingdom of Saudi Arabia is the Saudi Commission for Tourism and National Heritage (SCTH).

i) SCTH structure

The Saudi Council of Ministers established the “Supreme Commission for Tourism”, SCT, with Resolution No 9, dated 16/04/2000. The resolution emphasized the role of tourism as one of the productive sectors of the kingdom, and opportunity for investment, development of human resources, and expansion and creation of new job opportunities for the Saudi citizens. Subsequently, in view of the importance of the Antiquities and Museums, another resolution by the Council of Ministers (No.78, dated 24/3/2008), was issued to integrate the Antiquities and Museums sector into the Supreme Commission for Tourism. According to this resolution, the name was changed to “Saudi Commission for Tourism and Antiquities” (SCTA).

On 29 June 2015, an administrative reform of the SCTA has been approved. The Council of Ministries has ratified the modification of the name of the Commission that becomes SCTH, “Saudi Commission for Tourism and National Heritage”.

This change underlines the importance of National Heritage as part of the Kingdom’s history and Saudi national identity. The reform enlarges the scope of the Commission, now officially in charge of urban heritage and of the handicraft sector. The reform of the SCTA implies a modification of the organizational chart of the organization (Cf. new SCTH Organizational Chart hereafter).

The SCTH Organizational Chart is divided into four levels of Administrative and Management Units:

- Administrative Unit directly depending from the Board of Directors;
- Support Unit directly depending from the SCTH President;
SCTH 2016 Organizational Chart

SCTH Board of Directors

BoD Secretariat

Assistant to the President

Planning & Follow-up

International Cooperation

SCTH President

Internal Auditor

President’s Office

Legal Affairs

Media & Public Relations

S.G for Handicrafts & Traditional Industries (BARE’)

V.P for Support Services

Financial Affairs

Human Resources

Information Technology

Procurements & Contracting

Administrative Development

Projects & Engineering Affairs

V.P for Regional Affairs

Riyadh

Makkah

Eastern Province

Al-Qassim

Hail

Tabuk

Al-Jawf

Al-Baha

The Northern Frontiers

V.P for Antiquities & Museums

Antiquities Registration & Protection

Research & Studies

Museums

The National Museum

World Heritage Unit

V.P for Investment & Tourism Development

Tourism Investment

Site Development

Licenses

National Center for Tourism Human Resources Development

V.P for Marketing & Programs

Marketing Communications

Tourism Information & Research Center (MAS)

Programs & Products

Organizational Unit directly affiliated to the Board of Directors

Basic Unit directly affiliated to the President of SCTH

Organizational/Support Unit directly affiliated to the President of SCTH

Organizational/Support/Basic Unit directly affiliated to 1st Level Occupation

Al-Ahsa Oasis, an Evolving Cultural Landscape
- First Level Administrative Units directly subordinate to the SCTA President (Antiquities & Museums, Tourism Investments & Development, Marketing & Programs, Regions, National Urban Heritage Centre, and Handicraft Program);
- Administrative Units depending from the first level functions.

According to the SCTH Chart, the preparation of the World Heritage nomination files and the responsibility for the preservation and management of World Heritage properties in the Kingdom, whether archaeological sites, cultural landscapes or urban areas, depends from the Antiquities and Museums Section.

ii) **The National Urban Heritage Centre (NUH)**

The National Urban Heritage Centre was established by the President of SCTH, HRH Prince Sultan bin Salman bin Abdul-Aziz Al Saud, to preserve, develop and invest in urban heritage without losing its originality and its significance for the Saudi cities at present and in the future (Cf. Figure next page, NUH Organizational Chart).

The National Urban Heritage Centre (NUH) scope of work directly refers to SCTH mission, which explicitly asks the organization to take over the task of maintaining and developing architectural heritage, including cities and historic districts, traditional industries and historical landmarks, and to make cultural and economic use of these assets.

The Centre seeks to preserve, develop and revive urban heritage. It contributes also to the current and future social structure and provides a livelihood for those who inhabit and live in.

The scope of the Centre is not limited to mud and stone that form traditional building, but extends to the “story of place”. Among its tasks are:
- Documentation, Classification and Registering Urban heritage;
- Studies and Publications;
- Rehabilitation, Development and Investment of Urban Heritage;
- Social Development and Education;
- Technical Support and Development;
- Financing.

In the framework of the nomination of *Al-Ahsa Oasis, an Evolving Cultural Landscape*, the National Urban Heritage Centre will develop studies and plans for the rehabilitation and development of the historic village of Al-‘Oyun and for the historic core of Al-Hofuf.

iii) **SCTH in Al-Ahsa**

SCTH organizational chart includes a “Provinces” unit in charge of the 13 administrative provinces of the Kingdom. Al-Ahsa depends administratively from the Eastern Province SCTH office. The local branch of SCTH is organized according to the organizational chart presented at page 312.

SCTH premises in Al-Ahsa are located in two different buildings; the Heritage Department is hosted in Al-Hofuf Museum, while all the other departments are located in a modern office building in Al-Hofuf. SCTH Al-Ahsa has a staff of 17 people, divided into seven departments, to which should be added the 15 people working for the Heritage department.
National Urban Heritage Centre
Organizational Structure

[Fig. 87] National Urban Heritage Centre Organizational Structure, 2016
5.) PROTECTION & MANAGEMENT

SCTH in Al-Ahsa Organizational Structure

![Organizational Structure Diagram]

[Fig. 88] SCTH in Al-Ahsa, Organizational Structure, 2016
The Heritage Department is responsible for the Museums and heritage sites open to the public. Its staff includes a director, two museum specialists, a photographer, an administrative assistant, a driver and 8 guards in charge of specific heritage sites.

The department supervises, guards, and monitors Al-Ahsa heritage. It is notably in charge of carrying out the fencing, providing interpretation and warning signs for heritage properties, supervising the archaeological sites, following-up maintenance, restoration, and cleaning works and controlling pests and termites. The Heritage Department also prepares media and periodical reports on Al-Ahsa heritage landmarks.

At the administrative level, the Heritage Department also follows-up the title deeds, vandalisms, mining committees, and pleadings at the governmental agencies. It records heritage in the area, and is in charge of recording and documenting the relics in the museum and in private collections. In addition, it receives official delegations in heritage sites and buildings.

iv) Local Regulations and Bylaws

The verification of the respect and of the implementation on the ground of the Law of Agriculture and of the Municipal regulations in the nominated properties and in their buffer zones is the responsibility of the Municipality of Al-Ahsa. SCTH will support the Municipality staff in this delicate task both in the oasis and in the urban areas.

5.c.iii) The Custodian of the Two Holy Mosques Program

The leadership of the Kingdom of Saudi Arabia has taken a special interest in cultural heritage, and many resolutions have been recently adopted in its favour. Among these, particularly relevant is the Royal Decree approving the National Project for Cultural Heritage (Cf. Volume 2, Annexes).

Due to the nature of the tasks carried out by the Saudi Commission for Tourism and National Heritage, the need to create a new administrative approach to manage, evaluate and follow-up SCTH projects became apparent. The new programme emphasizes SCTH role on: impacting the tourism industry, protecting and developing national heritage, highlighting heritage economic and social impact, and ensuring the integration of SCTH projects and initiatives with projects taken on by third parties.

In 2011, SCTH developed a new approach, known as “Comprehensive Development Program”, composed of two “branches”: the “Custodian of the Two Holy Mosques Program for attention to the Cultural Heritage of the Kingdom of Saudi Arabia”, and the “Tourism and Investment Development Project”. A purposely-created Ministerial Committee, appointed by His Majesty King Salman bin Abdul-Aziz, formally endorsed this proposal.

The objectives of the Custodian of the Two Holy Mosques Program (cf. Volume 2, Annexes) are:

- Emphasizing an awareness of the foundation and history of Saudi Arabia;
- The rehabilitation and operation of historic buildings and palaces belonging to the State during the reign of
the late King Abdul Aziz and transforming them into cultural centres conveying the phases and history of national unity;

- The protection and preservation of antiquities, national and international showcasing, and the repatriation of artefacts;
- To promote a special interest in sites associated with Islamic history;
- The rehabilitation and preservation of archaeological sites and historic routes, and their utilization in comprehensive development;
- Establishment, development and operation of museums in various provinces and regions;
- Development of historic villages, historic city centres, and traditional markets;
- Preservation and development of heritage buildings;
- Development of handicrafts.

The program has four main tracks:

1) **Museums** (63% of the budget). The aim is to increase the number of Museums in the Kingdom from the existing 23 to 61. It is foreseen notably to add 18 Museums by 2020, and among them the Museums n Al-Ahsa. The budget is 5 billion Saudi Riyals (1.25 billion Euros).

2) **Built Heritage** (15% of the budget). It focuses on the rehabilitation of some 40 villages. There are currently already 10 heritage villages and tourist areas completed and the number is expected to reach 28 by 2020, with 18 new projects being underway.

3) **Archaeological Sites**. The program foresees the rehabilitation of 82 new sites, with a global aim to reach 156 archaeological sites open to visitors (there are now about 75 open sites).

4) **Handicrafts**. Creative handicrafts Cities program. The aim is to upgrade the quality and to open shops in “Built Heritage Areas”.

For these four tracks, there are three “enablers” capable to favour the implementation of the four tracks for which a budget of 120 million Saudi Riyals has been planned:

- Awareness Initiatives;
- Human Resources to manage cultural heritage sites (900 staff to be employed and trained);
- Events at cultural Festivals (Janadriyah, Jeddah, Taif).

To support all these initiatives, three new Companies will be established:

- Company for Restoration;
- Company for Operating Cultural Sites;
- Company for Handicrafts (quality, marketing, etc.).
The Cultural Dimension
The Kingdom of Saudi Arabia

- The Kingdom of Saudi Arabia holds a very prominent place among the nations of the world, with its distinct status as the birthplace of Islam and the home of the Two Holy Mosques. The Kingdom has been graced with natural wealth and an abundance of human resources and plays a pioneering and constructive role in the political arena.
- Saudi Arabia also has a rich cultural dimension in addition to its Islamic, economic and political dimensions.

Its cultural dimension is reflected in the following:

1. It is the birthplace of Arabism and Islam, and the home of the Two Holy Mosques.
2. It possesses a cultural depth that goes back more than a million years as corroborated by numerous archeological and heritage monuments found all across the nation.
3. The various kingdoms and states founded on its lands have contributed to the development of human civilization.
4. Its distinct geographic location has enabled it to become a crossroads for trade over the ages.
5. It is a melting pot of cultures and a bridge for cultural communication.
5.d) Existing plans related to municipality and region in which the proposed property is located (e.g., regional or local plan, conservation plan, tourism development plan)

5.d.i) National Development Plans

In recent years, the Saudi Government has drafted a number of studies and projects concerning the development of the Eastern Province and the urban area of Al-Ahsa Governorate. Hereafter is presented a rapid review of the major plans being developed at different scales, from the National Tourism Strategy and the Al-Ahsa 2030 Master Plan, to the detailed proposals for the renovation of specific monuments and sites by the different authorities concerned.

i) SCTH and Saudi Arabia Tourism Strategy, an Overview

Since the late 1990s, tourism has been formally identified by the Saudi Council of Ministers as an important sector of the economy of the Kingdom. The subsequent establishment of the Saudi Commission for Tourism and National Heritage has led to the preparation of National and Provincial Tourism Plans. These plans have highlighted the significance of the Saudi Gulf coastline in securing the full potential of tourism for the nation’s future prosperity.

In the framework of the inscription of Al-Hijr Archaeological Site, Madain Salih on the UNESCO World Heritage List in 2008, the Kingdom created a pilot programme for the delivery of tourist visas and welcomed around 25,000 visitors annually to see Saudi Arabia’s ancient archaeological sites and vast landscapes of mountains, coastline, valleys, volcanoes and deserts. This programme, however, was halted in 2010.

In 2014, according to figures from the World Bank, the total number of tourist arrivals to Saudi Arabia topped 18 million, with a clear majority for Umrah goers and Muslim pilgrims. Besides religious tourism, considerable revenue has been generated from business travellers, who travel to attend conferences, exhibitions, and from heritage tourists. Tourism is also acting as a catalyst for revenue for the hospitality and employment industries. From 2004 to 2015, the numbers of hotel rooms and furnished condominiums have increased from 104,380 to 281,563 and 2,139 to 5,868, respectively. The number of global hotel companies entering the Saudi Arabian market has also been on the rise. These factors, in turn, have also led to an increase of employees in the tourism sector to 11,348, out of which 28% are Saudi Arabians. Furthermore, the sector is expected to employ up to 129,526 people by 2017 and nearly 1.7 million individuals by 2020.

Tourism is one of the most promising sectors, and the second highest contributor to the Gross Domestic Product (GDP) growth. The Saudi Arabian tourism industry has been valued at 21.33 billion USD as of December 2015.

The “Vision 2030” for the Kingdom of Saudi Arabia calls for large coastal areas on both the Red Sea and the Gulf, to be given over to tourism projects and for new investment in museums.
and historical sites to create attractions of the “highest international standards”.

The Saudi Arabian government continues to introduce and implement industry-driving policies to support sustainable tourism sector growth. Few prominent policies include the introduction of a single Schengen-style visa for the entry to all the Gulf Cooperation Council (GCC) countries, development of heritage and cultural sites, and conducting festivals. A number of festivals, conferences, and exhibitions are being held, in order to boost the business travel, besides the development of townships, such as Knowledge and Economic Cities, in potential growth centers in the Kingdom.

The tourism industry generated 650,000 and 420,000 direct jobs and indirect jobs, respectively, in 2015. By 2025, this industry is expected to create over 930,000 jobs. Government training initiatives, such as language training, are expected to support the growing demand.

The Saudi government spends USD 13.33 million/year on the preservation of heritage sites in order to develop its heritage tourism; and the Saudi Commission for Tourism and National Heritage (SCTH) has trained 31,000 Saudi citizens as a part of the ‘Takamul’ program, which aims at equipping people with skills that are required in the tourism industry. These training programs are essential to retain the quality of service offered, and the government plans to open three colleges specializing in tourism in Najran, Khamis Mushait, and Al-Ahsa by 2020.

**Al-Uqair Project**

Al-Uqair was identified as a Tourism Development Area with a high strategic priority for development already in 2003, and was the first tourism project adopted by the Saudi Government. The Government owns the land area, and the development project is conceived as a public-private partnership. The Public Investment Fund (PIF) and Al-Ahsa municipality carried out the feasibility study jointly.

The project was submitted to His Majesty the Custodian of the Two Holly Mosques in July 2006, upon which the project was announced as a large-scale, integrated and multi-use tourism destination. The higher authorities of the country approved the completion of the second phase of Al-Uqair Development Project including the establishment of Al-Uqair Development Company.

In 2011, the Council of Ministers gave its approval (No.301) regarding allocation of required financial support to relevant public authorities to build necessary infrastructure for the project, which includes major services to be stretched to the bounds of the project costing 1.25 billion Saudi Riyals.
The total area of the project is 100 million square meters, including a coastline stretching 24 km along the Arabian Gulf coast. The architectural and design plans are still in a preliminary phase, but foresee a number of recreation facilities and services designed to fulfill the aspirations of different groups of the society including families. The Al-Ahsa/Al-Uqair region is planned to become one of the key “short break” destinations for Saudi citizens. The long-term vision for Al-Uqair is to be a coastal destination for visitors from Riyadh, from the major urban centres in Eastern Province and from the nearby Gulf countries. The cultural heritage assets of the area will be presented within a combination of agricultural, desert and coastal landscapes that are major attractions in their own right. These landscape settings will be protected through the local planning process from activities inconsistent with landscape protection objectives.

The project will be executed in three phases through a 25 years period in order to be consistent with the operational and financial potentials of the company in charge of the project, as well as consistent with the requirements of the targeted tourism market’s growth. Al-Uqair project is expected to attract 50 billion Saudi Riyals in investments over the next 25 years once the infrastructure works are completed.

**Eco-Tourism Programs**

SCTH is devoted to the promotion of tourism as an industry and activity within the Kingdom of Saudi Arabia whilst upholding the country's Islamic heritage and its values. It will achieve this goal by working with a vast ensemble of stakeholders including the private sector, the Saudi people, and the government.

SCTH has signed a cooperation agreement with the Ministry of Agriculture related to tourism investments. The agreement notably concerns the cooperation in the development of comprehensive strategies for eco-tourism, agro-tourism and promotion of tourism activities.

In Al-Ahsa, SCTH is working to define a tourism strategy based on the *Istiraha* modular concept, i.e. a network of small lodging and daytime use facilities situated among the date farms of Al-Ahsa oasis. These structures are designed to blend in with, and help preserve, existing date farms while providing a comfortable and private environment for Saudi families to socialize.

**Old Mosque Caring Program**

The program, is carried out by SCTH and the Ministry of Islamic Affairs, in addition to relevant authorities, and aims at preserving historic mosques in the Kingdom, rehabilitating them and highlighting their religious, cultural and architectural importance.

Jawatha Mosque and Al-Battaliyah Mosque, both included in *Al-Ahsa Oasis, an Evolving Cultural Landscape* nominated property, have been restored by the Turath Foundation as part of this program and under the supervision of the Ministry of Islamic Affairs.

**Eastern Coast Tourism Route “Mahfol Makfoul”**

“Tourism routes” are part of “Live Saudi Arabia” program, which was launched by the King of Saudi Arabia to introduce Saudi citizens to the historic, and cultural tourism potentials of the Kingdom and to fully engage them in the tourism integrated experience in their homeland.

The Committee directing the projects sees the participation, besides SCTH, of Eastern Province Municipality, Eastern Province Police, local Commission for Promotion of Virtue And
Prevention of Vice (CPVPV), and a private tour operator, in addition to a number of Eastern Province tourist guides and artisans. The program is still in a preliminary phase and will be developed in the coming years.

ii) Transport Network and Development Plans

Al-Ahsa planned tourist development requires effective connections between the city and the rest of the Kingdom. Al-Ahsa is well served by the very developed Saudi highway network and is easily accessible from the capital Riyadh and the other main cities in of the Kingdom, and from the nearby GCC countries.

Al-Ahsa also lies on the Dammam-Riyadh railway line, a 449 km passenger line that connects Dammam with Riyadh, via Al-Ahsa and Abqaiq. Since 2014, the Saudi Railways Organization (SRO) operates trains between Al-Ahsa and Dammam. The Saudi Railway Master Plan 2010-2040 foresees a significant development of rail transportation in the Kingdom that will further improve the accessibility of the city.

In the framework of the city’s development plans, also Al-Ahsa Airport in Al-Hofuf has been recently upgraded, becoming since 2013 an International Airport with direct flights to Cairo, Dubai and Doha and national flights to Riyadh and Jeddah.

5.d.ii) Initiatives in Al-Ahsa

i) Tourism and Cultural Tourism Initiatives in Al-Ahsa

The Saudi government and Al-Ahsa municipality have been active in developing the tourist attractiveness of the city, implementing a series of tourism and heritage projects aiming at transforming the city into a major tourism destination for its unique environmental and historical potentials.

SCTH, through its local branch in Al-Ahsa, has executed a number of projects to enhance tourism development and preserve urban heritage sites across the municipality under the umbrella of local Tourism Development Council — chaired by HH Prince Bader bin Jalawi, the Governor of Al-Ahsa, who is also the Chairman of the Council.

The Tourism Development Council was established in 2012 and meets twice a year to discuss topics relevant to tourism and cultural heritage development. Its members include: The Mayor of Al-Ahsa, the Director of HIDA, the Director of King Faisal University, the General Managers of SCTH Al-Ahsa, of the Ministry of Commerce and Industry, of the Directorate of Agriculture, and of Al-Ahsa Social Development Centre, the President of ARAMCO Southern Region, the Secretary General of Al-Ahsa Chamber of Commerce, and representatives of the private sector.

SCTH Branch and Al-Ahsa Municipality are keen to enrich the tourism scene with several festivals that are organized in collaboration with a number of relevant authorities in both public and private sectors. Among these are: Al-Ahsa Country Festival, Hajr Suq Festival, Popular Sport Festival, Palm and Date Festival, Al-Ahsa Shopping and Entertainment Festival, and Saudi Aramco Cultural Program.
ii) Al-Ahsa, a UNESCO Creative City

Among the actions undertaken to boost the cultural scene and reinforce the attractiveness of the city at the national and international levels, Al-Ahsa applied for the status of UNESCO “creative city”, and in 2015, it became part of the international network of world creative cities.

The UNESCO Creative Cities Network (UCCN) was created in 2004 to promote cooperation with and among cities that have identified creativity as a strategic factor for sustainable urban development. The 116 cities from 54 countries which currently make up this network work together towards a common objective: placing creativity and cultural industries at the heart of their development plans at the local level and cooperating actively at the international level.

Al-Ahsa has an ancient tradition of handicrafts, considered as both cultural and social practices passed on from one generation to the next. Around fifty expressions of crafts and folk art have remained through out the city’s history and bear witness to Al-Ahsa’s scenic wealth, including textiles from palm trees, pottery, weaving and joinery. To continue growth in the sector, the city has implemented a specific National Project for Artisans and Handicrafts, as well as a Human Resources Development Fund aimed at reshaping the crafts and folk art sector. In cooperation with the Centre for Social Development in Al-Ahsa, the Palm Centre for Crafts Industries notably emphasizes capacity building and job creation for young women and men, training more than 450 people since its creation.

iii) Al-Ahsa Municipality Development Plans

The future development of Al-Ahsa is planned on the basis on projections foreseeing a substantial increase of the population (meant to reach 2 million people by 2025) and on development strategies aiming at diversifying the economic activities and reducing the predominance of oil-related economy.

In this framework, an ambitious urban Master Plan has been designed, and is being implemented, and a series of “tourism” projects have been launched to increase the appeal of the city for Saudi visitors.

Al-Ahsa 2030 Master Plan

This very ambitious urban development plan is based on a major extension of the city’s overall surface and in its development towards the Gulf coast and the planned Uqair tourism project. The new Al-Ahsa city will develop along the Uqair highway, East of the oasis. An external ring road connects the new extended metropolis to the highway towards Dammam. The new municipality building and the new date market have already been built at the junction of these two major axes.

The new extension is meant to reduce pressure on the oasis villages and to provide new land for the rapidly growing population of the region. The ensemble of the oasis gardens and canals are preserved for agricultural use and the area surrounding Al-Asfar Lake is identified as a natural reserve.

Al-Ahsa Tourist and Park Plans

Within the present limits of Al-Ahsa municipality, three main initiatives related to heritage and tourism are being developed. The three projects are private/public partnerships taking place in highly symbolic and renowned locations on land belonging
to the public sector. The three projects are briefly detailed below.

*Al-Qarah Caves Park*

The caves of Al-Qarah (described in chapter 2) are a unique rocky formation located at Southeastern edge of the Oasis. They represent a well-known tourist attraction for the residents of Al-Ahsa and for the large foreign community leaving and working in the Eastern Province.

A private investor, in coordination with Al-Ahsa Municipality, is currently completing a tourism development project in this site that will soon be inaugurated. The project foresees the construction of reception facilities for the visitors (a mosque, shops, and restrooms) at the base of Jabal al-Qarah near the caves, and the creation of a park with mythological figures and a “sounds & light” show in front of and inside the caves. The project aims at attracting a high number of visitors building upon the “heritage” significance of the area. The plans for the development of the site, that have been approved also by the SCTH that owns the caves, were designed before the launch of the nomination of *Al-Ahsa Oasis, an Evolving Cultural Landscape* for inscription on the UNESCO World Heritage List.

*Jabal Bureiqah Park*

In the framework of the large-scale investments for the development of Al-Ahsa, the Municipality has also supported the creation of a new large park located on the top of Jabal al-Bureiqah, overlooking the oasis and the cities of Al-Mubarraz and Al-Hofuf. The park, entirely fenced and accessible by car from the city, has a modern design characterized by green lawns and round paved plazas, with few palm trees and a waterfall running down from the mountain towards a small pond below.

The park offers facilities for picnics and playgrounds for children. From the top of the mountain, visitors will profit of a commanding view of the ensemble of Al-Ahsa and of its oasis.

*Jawatha Park*

A public/private development project is also being developed in the vicinity of the historic Jawatha Mosque restored by the SCTH. In this important historic location, once part of the oasis but now covered by the sand dunes, the investor has planned to built a large commercial and recreational park with heritage-related facilities, and a traditional market (*suq*) for the visitors. The preliminary plans have already been modified to keep a respect distance from the mosque, and the possibility to reconsider the development project to include a partial reconstruction of the original oasis landscape is being considered.
5.e) Property management plan or other management system

5.e.i) Current situation

Al-Ahsa Oasis, an Evolving Cultural Landscape is a very large and complex serial property extending over a total surface of some 300 km² (nominated properties + buffer zones). A number of different bodies and specific regulations are responsible of its management, but no unique, centralized structure actually exists for the ensemble of the nominated site. The very presence of the oasis, though, proves the effectiveness of the existing regulations and their actual capacity to control and direct development in and around the nominated property.

In the framework of the UNESCO application, the concerned stakeholders have begun a process of inter-department coordination to verify the current administrative arrangements, precisely define the responsibilities of each entity, assess the condition on the field, and put forward proposals and solutions to improve the situation and tackle the challenges related to the nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape for World Heritage status.

At the central level, the main stakeholders concerned by the management of Al-Ahsa oasis are:

- Saudi Commission for Tourism and National Heritage (SCTH),
- SCTH National Urban Heritage Centre (NUH),
- Ministry of Municipalities and Rural Affairs (MoMRA), represented by Al-Ahsa Central Municipality (‘Amana),
- Ministry of Agriculture,
- Ministry of Interior.

At the local level, the main stakeholders include notably:

- SCTH Al-Ahsa branch,
- Al-Ahsa Municipality,
- Al-Ahsa Governorate,
- Agriculture Department,
- Al-Ahsa Irrigation and Drainage Authority,
- Ministry of Religious Affairs (Awqaf),
- Al-Ahsa National Park,
- ARAMCO,
- Civil Defence and Security,
- Civil society (University, Engineers Association, Scientific societies, Chamber of Commerce, Land-Owners, etc.).

The discussions and the meetings held in preparation of the nomination have been a first important opportunity to coordinate initiatives and share information between local institutions.

The Oasis Higher Management Committee, under the direction of His Highness the Governor of Al-Ahsa, notably meets on monthly basis to coordinate the actions of the main stakeholders and to integrate the remarks made by the SCTH team in charge of the nomination file.

Meetings in 2016 aimed notably at mitigating littering in agricultural areas and minimizing the impacts of this situation in preservation of Al-Ahsa’s agricultural oasis. The meetings were attended by:
- HIDA, Maintenance Department Manager,
- Municipality, Municipal Council Delegate,
- Municipality, Cleaning Department Manager,
- SCTH, Delegate,
- Ministry of Environment, Water & Agriculture, Delegate at Al-Ahsa Governorate,
- Saudi Electricity Company, Delegate,
- Al-Ahsa Governorate, Delegate,
- Ministry of Commerce & Investment, Delegate,
- Ministry of Transportation, Al-Ahsa Branch Delegate,
- Municipality, Delegate,
- HIDA, Delegate (member of Rest-areas Committee),
- HIDA, Head of Drainage & Agricultural Roads Maintenance Division,
- HIDA, Head of On-Site Monitoring Division,
- Al-Ahsa Police, Delegate,
- Civil Defence, Delegate.

5.e.ii) Management Activities, and Administrative Schemes

The nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape imposes a fine-tuning of the present administrative mechanisms in place.

On the one side, the very property and buffer zone limits should be integrated in the planning database of Al-Ahsa Governorate and city; on the other side, the 1972 Convention principles should be presented and made known to the local institutions and to the population at large.

In the framework of the preparation of the nomination, a series of meetings with the local stakeholders have taken place to review the property limits, discuss the concept of World Heritage and, more in particular, to present the very driving concepts of the nomination: “cultural landscape” and “sustainable development”. Throughout the phase of preparation of the nomination, Riyadh central SCTH department in charge of the elaboration of the file and its consultants, in coordination with the National Urban Heritage Centre, have regularly met Al-Ahsa Mayor and high-level planning officials to review the property limits and discuss the implication of the nomination for the city’s future development.

Furthermore, a “Management seminar” was organized in Al-Hofuf in October 2016, to involve the ensemble of the local stakeholders and to exchange information and ideas for the property conservation and management.

i) Management Seminar

The First Management Seminar in Al-Ahsa was organized by the local branch of the SCTH, in the framework of the nomination process for inscription of Al-Ahsa Oasis, an Evolving Cultural Landscape on the UNESCO World Heritage List. The meeting — that will be followed a second seminar in March 2017 — represents a relatively new step in Saudi site management practice marking a more open and transparent approach. The seminar, which was attended by some 30 participants, aimed to achieve four main objectives:
- Presentation of the on-going work directed by the SCTH;
- Identification, gathering and coordination of local stakeholders;
- Information-sharing and presentation of proposed development schemes;
- Development of Saudi approach to World Heritage management and preservation.

**ii) Management: New Needs, New Challenges**

The nomination of a property that encompasses oasis gardens, large natural zones and urban areas imposes the re-organization of the existing management mechanisms to guarantee the preservation of the OUV and the sustainable development of the site. Contemporary site management practice, and theory, imposes a “holistic” approach to conservation and development. The management of the nominated property of Al-Ahsa Oasis, an Evolving Cultural Landscape requires multiple competencies beyond the mandate of the Saudi Commission for Tourism and National Heritage that has been the driving force for the nomination. It is therefore necessary to develop coordination mechanisms capable to involve all available expertise and all concerned stakeholders in the definition of the management strategy, and in the actual daily running of the site. This is notably the case for water and agriculture management and urban planning within the nominated property and in its immediate surroundings.

The site management structure to be created should face new needs and challenges resulting from the different status of the site. It should notably favour:

- Increased coordination with other Municipal and Governmental bodies;
- Inclusion of conservation considerations in the tourism strategy, to guarantee the continuity of the oasis role and environment;
- Integration of the planning initiatives in the oasis area within a heritage-oriented vision (transportation, roads, urban development plans, etc.);
- Integration of a sustainable heritage tourism offer in the management strategy (Istirahas, restaurants, heritage sites…)

The definition of the new management structure is being undertaken by the SCTH and the Municipality of Al-Ahsa with the support of all the other concerned stakeholders within the framework of the Nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape.
In the past year, in the framework of the elaboration of the Management Plan for the property, a positive coordination among the main stakeholders has developed on the field based on the close coordination between SCTH and Al-Ahsa Municipality.

iii) The New Management Scheme
The leadership of Saudi Arabia has taken a special interest in cultural heritage. The Kingdom of Saudi Arabia shows a strong and clear commitment to the preservation and development of heritage in all its elements (including “soft culture”), and the Custodian of the Two Holy Mosques, King Salman Bin Abdul-Aziz Al-Saud, closely follows and personally supports heritage-related projects.

Within this new positive political and cultural framework, Al-Ahsa region is called to play a preeminent role for its unique cultural and tourist potential that will permit its development as a major regional “hub” centred on heritage, and tourism, for the entire Gulf region.

The creation of the “Custodian of the Two Holy Mosques Program” (presented in Chap. 5.c and in Volume 2, Annexes) supported by an unprecedented budget and technical and financial means, creates a unique drive towards heritage, focusing on awareness initiatives and the development of local and national pride, and guarantees the effective coordination at the central Government level of all the concerned Ministries and Institutions.

The economic relevance of urban renewal for the Kingdom of Saudi Arabia — demonstrated in a recent World Bank study carried out in coordination with King Saud University and UNESCO — is mirrored by the re-organization of the Ministry of Rural and Regional Affairs with the creation of new departments devoted to “Projects” and “Heritage” that will permit to undertake major urban heritage development plans, in Riyadh and throughout the Kingdom, in coordination with the National Urban Heritage Centre of the SCTH.

The strategy defined at the central government level is reflected at the local level in Al-Ahsa by the new Management Scheme that has been recently formally approved by the Governor of Al-Ahsa in the framework of the Oasis UNESCO nomination (Decision Number 1/4827 dated 20/3/1438 A.H — cf. Volume 2, Legal Annexes).

The new scheme aims at better coordinating and integrating the management mechanisms that have guaranteed the vitality and the preservation of the nominated property until now. The World Heritage management system being designed aims notably at favouring the coordination between the various concerned stakeholders essentially at the Municipal and Provincial level, but also at the National level coordinating the field activities with the recently created MoMRA Departments and with SCTH headquarters in Riyadh.

It is composed of a “Higher Committee” (HC), and of a “Site Management Unit” (SMU) based at Al-Ahsa Municipality.

The Higher Committee is headed by His Highness the Governor of Al-Ahsa and oversees the management of Al-Ahsa oasis World Heritage Nominated Site. It meets on a regular basis at least every three months. It is composed of:

1. H.E. Mayor of Al-Ahsa (Vice-Chairman of the HC);
2. H.E. Director General of Irrigation and Drainage Project in Al-Ahsa;
3. H.E. Director of the Ministry of Agriculture branch in Al-Ahsa;
4. D.G. of the STCH branch in Al-Ahsa;
5. Chairman of the Chamber of Commerce of Al-Ahsa;
6. Selected Members of the local community.

The Higher Committee (HC) overviews the implementation of the plans proposed in the Action Plan and briefly outlined in the next pages, and verifies the congruity of the tourism and development plans proposed for the site with the UNESCO Convention objectives. The Action Plan will be completed in the coming months and submitted as “additional information” to the World Heritage Centre in the coming months.

The HC will closely coordinate with the “Tourism Development Council in Al-Ahsa Region” (established on 25/10/2014) bringing a specific attention to the definition of an ecologically and culturally conscious vision for the revitalization and development of Al-Ahsa oasis that should direct the economic and investment logic.

An independent “Scientific Committee” (SC) will be established in the framework of the nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape to assist the Higher Committee in its activity. The Scientific Committee is composed of distinguished members of Al-Ahsa university, of other Saudi experts, local researchers, international experts, and representatives of International organizations active in the region (ICCROM-ATHAR Regional Conservation Centre based in Sharjah UAE, and the UNESCO Arab Regional Centre for World Heritage based in Bahrain). It has a support role providing required technical expertise to the local leadership.
A new operational entity, the “Site Management Unit” (SMU), foreseen by the Decision number 1/2829 dated 20/3/1438 A.H (cf. Volume 2, Legal Annexes), will be in charge of the implementation of the development and conservation projects. The SMU depends directly from H.E. the Mayor of Al-Ahsa. Al-Ahsa Municipality remains also responsible of verifying the respect of all planning regulations and their congruity with the UNESCO World Heritage Convention standards and principles. Local and national plans concerning the nominated property, its buffer zone, but also its larger urban and natural setting, should be presented to the attention of the head of the SMU that will play the formal role of “Site Manager” vis-à-vis UNESCO and the international community. In case of competing goals and diverging conceptions that might jeopardize the integrity of the property, the Site Manager will immediately alert the Mayor of Al-Ahsa, in his capacity as Vice-president of the HC, to whom he will suggest possible alternative solutions. In case no alternative is found, the issue will be referred to the central authorities in Riyadh (MoMRA and SCTH).

The Head of the SMU is assisted in his managerial tasks by a small team composed of Municipality staff with specific expertise in Agriculture, Irrigation, and Cultural and Urban Heritage. In the coming years, the staff of the SMU will develop as needed to comply with the evolving situation on the field.

5.e.iii) Guidelines for the Management of the Nominated Property

The aim of the Management Plan is to ensure the protection and conservation of the precious cultural landscape of Al-Ahsa Oasis by the promotion of the social and economic development of the oasis and of its connected urban areas. This will ensure that this unique and millenary cultural landscape will continue to be active and play a social, economic and cultural role in the lives of the residents of the region and that as many people as possible could understand and share its Outstanding Universal Values.

i) Planning and Sustainability

The nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape for inscription on the UNESCO World Heritage List implies the definition of a “sustainable development” strategy centred on the preservation of the oasis landscape and traditions.

The regional development strategy designed by the Ministry of Municipalities and Rural Affairs and Al-Ahsa Municipality foresees that by 2030, Al-Ahsa will become a metropolis densely built-up and extending from the Oasis towards the Gulf coastline. This projection, however, is based upon development principles, foreseeing an almost unlimited growth, that do not seem entirely realistic in view of the current global economic situation. A revision of the development principles seems therefore necessary.

The UNESCO nomination process, emphasizing the concept of “sustainability”, is an important opportunity to partially reconsider the principles of the regional development scheme. The extension of new urban areas over hundreds of square kilometres requires enormous financial resources for the creation of infrastructure (roads, sewerage, electricity, water, etc.) and is based upon an out-dated vision and bypassed projection of economic growth. The recent “UN Habitat III” hat took place in Quito, Ecuador in October 2016 with the active
participation of the Kingdom of Saudi Arabia, identified new approaches and visions for the cities that might be usefully integrated into, and applied to, Al-Ahsa and Eastern Province development plans.

The participation of Al-Ahsa to the recent “World Cities Summit - Mayors Forum”, held in Singapore in July 2016, shows the attention paid by the Municipality to global development issues, and demonstrates the open approach of the city towards the rest of the world. During this Summit — a global event for city leaders to discuss urban issues and share best practices with one another — H.E. Adel Mohammed Al-Mulhim, the Mayor of Al-Ahsa, identified in “Economic development” and “Technology/Smart city developments” the top priorities for his city. The nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape, however, shows that the real “keys” for the future of Al-Ahsa probably lie in two other “priorities” identified by the World City Summit organizers, namely “Sustainable Development of the Environment” and “Climate Change Resilience”. In the coming years, especially in case of inscription of Al-Ahsa Oasis, an Evolving Cultural Landscape on the World Heritage List, these issues will acquire a more relevant status and contribute to the definition of the future of the city.

ii) Initiatives for the Conservation and Development of the Oasis

The Saudi authorities in charge of the property have identified a series of initiatives and programs for the conservation and development of the oasis that will contribute to its long-term preservation and at better integrating the oasis in the contemporary life of the region and of the entire Kingdom of Saudi Arabia.

The Management Plan Guidelines define the technical and administrative framework for these actions that will be realized on the medium and long-term within and around the serial nominated property.

The planned initiatives concern all the different elements of the property and will be implemented in the coming years by the local and central authorities under the supervision of the “Higher Committee”. These activities, planned and launched in the framework of the Nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape, concern distinct — but interrelated — fields, that depend from different administrations:

- Archaeological and heritage sites (SCTH),
- Traditional villages and urban neighbourhoods (Urban Heritage Centre),
- Oasis/Landscape initiatives (Al-Ahsa Municipality, Governorate, Water Management bodies, Etc.),
- Urban and oasis regulations and legal framework (Al-Ahsa Municipality, Al-Ahsa Governorate, Endowments, Etc.),
- Cultural Tourism initiatives (SCTH, Governorate of Al-Ahsa).

Landscape Initiatives

The landscape-level initiatives focus on the following issues:

- The punctual revitalization and re-creation of Al-Ahsa oasis traditional environment in a selected area, where original elements still exist, or in an entirely new sector where can be recreated the “traditional” oasis, to provide visitors and residents of Al-Ahsa with a clear
understanding of the oasis historic functions, mechanisms and specificities.

- Water pollution control and ecological revitalization in Al-Asfar lake, a major component of the oasis ecosystem and landscape.

- Heritage Impact Assessment of all planned and foreseen public and private development projects in and around the oasis, in order to verify their quality and compatibility with World Heritage standards and with the overarching goal of the oasis landscape preservation.

- Coordination with private owners and the private sector in the planning of modern tourist facilities in the oasis (centred on the environmental sustainability and traditional oasis agricultural practices).

Within the framework of the Management Plan for Al-Ahsa Oasis, an Evolving Cultural Landscape, the existing agricultural and urban regulations relative to the oasis areas and gardens will be revised, and completed wherever necessary, to improve on the medium-term, the appearance and the quality of the oasis environment. The nomination of large sectors of the oasis imposes to upgrade the existing regulations in order not only to preserve, but also to enhance, the current situation where the traditional oasis landscape risks to be progressively eroded and threatened by unsuitable urban developments and by the modification of the agricultural production. New regulations will notably be designed in order to control:

- The heights, colours and materials to be used in the fences surrounding the private agricultural parcels (traditional solutions and low-impact materials should, wherever possible, replace recent concrete block walls).

- The sensitive areas represented by the interaction between the oasis and the mountain areas, the roads, and the canals. Specific technical and planning solutions to enhance the overall visual integrity of the oasis will be designed for these particularly fragile zones.

- The development along the roads crossing the palm groves both in Al-Hofuf (As-Seef Oasis/urban regulation to be partially amended) or in the main oasis areas.

Architectural and Urban Heritage Initiatives
Two projects, focusing on the preservation and revitalization of the surviving elements of the original built fabric of Al-Hofuf and Al-`Oyun villages, will be launched in the framework of the implementation of the Management Plan for Al-Ahsa Oasis, an Evolving Cultural Landscape. These pilot projects aim at the revitalization of the traditional constructive and urban know-how and at the re-use of historic areas for residence and tourism-related functions. They will designed and supervised by the National Urban Heritage Centre and MoMRA.

The two selected areas are:

- The urban historic neighbourhoods of Al-Hofuf, in Al-Kut quarter and behind the Qaysariyah: These urban sectors still presents relatively well-preserved mud-brick urban ensembles, comprising houses, mosques and lanes, which will be restored and revitalized. The first step of the revitalization project is the precise survey of the remaining structures and of the ownership and social patterns of the neighbourhoods.

- The “circular” village of Al-`Oyun: The urban fabric of this village is the best preserved in the ensemble of Al-Ahsa Oasis and still shows the typology of the traditional villages of the oasis. The conservation,
restoration and revitalization of the village will permit the development of sustainable cultural tourism initiatives.

As discussed above for landscape preservation, the implementation of a comprehensive management plan for the nominated property imposes the upgrading of the existing Urban Regulations in order to better:

- Control the growth and the urban and architectural standards of the villages of the oasis (in particular those included within the nominated property);
- Control waste disposal and garbage collection (including the removal of construction waste);
- Revise the current regulations allowing the construction of new additions/constructions over 10% of the private agricultural parcels, in the framework of a general strategy aiming at the preservation and sustainable development of the agricultural and cultural values of the oasis;
- Increase the control of on-going transformation of agricultural parcels into hotels, restaurants and “rest-houses” to guarantee that the new structures do not negatively impact on the oasis landscape and on its overall agricultural function.

*Archaeology and Cultural Initiatives*

Within the framework of the World Heritage listing, a series of new important cultural initiatives will be initiated under the direction of the Saudi Commission for Tourism and National Heritage to increase knowledge about the oasis and present its unique heritage to the public.

In the next five years, the following activities will be initiated:

- Creation of a New Museum for Al-Ahsa;
- Launch of new archaeological excavation campaigns and researches to increase the scientific knowledge about the multi-millenary history of the oasis and of the region;
- Creation of a Visitors’ Centre, presenting *Al-Ahsa Oasis, an Evolving Cultural Landscape*, its environment and history, and its Outstanding Universal Value;
- Survey, listing and preservation, whenever possible, of the ensemble of the remaining “traditional” elements existing in the oasis both on public and private parcels: palaces, mud-brick houses, water canals, wells, springs…;
- Definition of new maintenance and re-use projects for the revitalization of the major heritage sites in Al-Ahsa (Qasr Ibrahim, Qasr Sahood, Al-Qaysariyah market, etc.);
- Control/coordination/supervision the on-going private sector projects in Jawatha area and in Al-Qarah caves to verify their compatibility with the oasis preservation and development.
- Organization of an International Scientific Conference on “Oasis and Development” to be held in Al-Ahsa.
Al-Ahsa Oasis, an Evolving Cultural Landscape

Al-Ahsa Regional Museum

Project Location

The museum is located on King Abdullah rd. adjacent to King Abdullah environmental park.
Coordinates:
N49 556956
E25 315643

Project value & Time frame
Value: SR. 53,000,000 (Phase I)
Duration: 24 Months

Museum Information
Number of floors: 2 floors
Number of Galleries: 8 Galleries
Plot Area: 32,350 m²
Total built-up area: 38,635 m²

Brief about the Project
The executive plan for the development of the Antiquities and museums sector approved by SCTH Board of Directors on 28/5/1426 A.H., includes a program for the establishment Regional Museums in each of the Kingdom’s region to comply with international standards and specifications, making these museums a civil landmarks and tangible testaments to the culture of these regions and its history. The museum building design takes into account to reflect local identity of the urban heritage of each region, and to include sufficient spaces to display the region’s artifacts, culture, national history, and the contribution of its inhabitants in the Kingdom’s establishment and unification, in addition to audiovisual and interactive displays directed to all age groups and especially children and school students, and displays that identifies the regions environment and natural culture. This program also includes the establishment of Al-Ahsa Museum aiming to provide an enclosure for new programs, and making it more active and connected to the educational process, and to provide high quality products on the cultural heritage tourism map of the kingdom.
iii) Sustainable Tourism Strategy and Local Community Participation

Sustainable and Cultural Tourism

The definition of a sustainable cultural tourism strategy for Al-Ahsa Oasis is among the priorities of the Site Management Plan being developed for Al-Ahsa Oasis, an Evolving Cultural Landscape. In the framework of the nomination, small-scale private sector initiatives will be supported and new coordination mechanisms established to assess the heritage compatibility of the large-scale regional tourism plan for the Eastern Province and the Gulf coastal areas with the preservation and development of the OUV of the property.

The tourism offer of the city is based on a holistic vision pursued by SCTH that integrates tangible and intangible elements, from the restored forts, to traditional clothes & food, and major heritage-related public festivals.

The attractiveness of the city for the Saudi public already profits of the renowned Al-Qarah Caves, and of the oasis restaurants and istiraha-s. Yet, the tourist offer is not yet taking full advantage of the cultural heritage strategy put forward in the nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape that aims at developing in the city residents and tourists a new sensitivity towards landscape protection and sustainable development, and an attention to heritage in a broad sense, inclusive of natural sites, agricultural landscapes and products, architectural vestiges, archaeological sites and museums.

The conservation and development plans foreseen for the coming years will greatly reinforce the cultural tourism appeal of the city and will permit to better present to the visitors the extraordinary and unique oasis landscape of Al-Ahsa.

Local Community Participation

The role of the civil society and of the local community in identifying and supporting the sustainable development projects for Al-Ahsa Oasis is essential in the framework of a UNESCO nomination and is a condition sine qua non for the actual preservation of the Oasis.

The city counts a number of grassroots organizations and hosts an active University where high-level local expertise on the oasis can easily be found. The finalization of the Management Plan is an opportunity to bring this expertise into the field and to develop participatory mechanisms for the management of the oasis. The October 2016 Management Seminar, to which have participated local academics and personalities, has been a first positive step in this direction. The Management Plan foresees the development of raising awareness campaigns for the village residents and for the school children, and the organization of public heritage events and festivals in Al-Ahsa and in the oasis villages aiming to reinforce the bonds between the residents of Al-Ahsa and their oasis.

Safety, Security and Risk Management

The development of a comprehensive strategy for the sustainable development of the oasis implies that the area is safe for residents and visitors alike, and that risk management measures are taken to counter eventual major cataclysms or pollution events.

The Site Management Unit will overview the realization of a risk management strategy in coordination with national security and civil defence.
Al-Ahsa Oasis, an Evolving Cultural Landscape
5.f) Sources and levels of finance

The budget for the preservation and revitalization of *Al-Ahsa Oasis, an Evolving Cultural Landscape* is managed by four main stakeholders in charge of the preservation and development of the site: SCTH, Al-Ahsa Central Municipality, the Ministry of Agriculture, and HIDA. Below are presented the 2015 budgets of SCTH, of Al-Ahsa Municipality and of HIDA for the development and maintenance of the water and drainage network.

5.f.i) SCTH Budget

The budget of the Saudi Commission for Tourism and National Heritage is allocated from the Ministry of Finance on a yearly basis. SCTH budget is subdivided into four sections:

1) Salaries;
2) Operational expenses;
3) Maintenance and cleaning;
4) Projects.

Since the year 2000, when SCT (then SCTA and now SCTH) was created, the governmental funding of this organization has constantly and significantly augmented. The total budget for the year 2006 was of 222 million Saudi Riyals (59.2 million USD; SCTH overall budget for 2009 was 374 million Saudi Riyals, raising to 413 million in 2010. In the last years, the growth of the SCTH budget has continued, from 468 million Saudi Riyals in 2011 to 808 million Saudi Riyals in 2015.

The creation of the SCTH implied a significant shift in the approach to the cultural heritage sector. The Antiquities Department of SCTH is responsible for over 6,300 cultural heritage sites, 65 museums and many excavated sites and has a yearly budget assuring its protection and maintenance.

With the Launch of the *Comprehensive Development and the Custodian of the Two Holy Mosques Cultural Heritage Program*, the budget allocated for SCTH in 2016 climbed to 1.1 billion Saudi Riyals to be spent on antiquities and cultural heritage development projects. This sum is scheduled to further significantly increase in the coming years: the planned budgets foresee 1.54 billion Saudi Riyals in 2017, 4.4 billion SAR in 2020, and up to 6.35 billion SAR in 2025.

The Antiquity Department budget for the year 2012 was 110 million Saudi Riyals for “programmes” and 191 million Saudi Riyals for “projects”, and in 2015, these sums reached almost 500 million Saudi Riyals (130 million USD).

The table next page presents the synthesis of the evolution of SCTH budgets in the period 2006-2015.

SCTH has two local branches in the Eastern Province, one in Dammam (Eastern Province Branch) and one in Al-Ahsa (Al-Ahsa Branch). In the second city, SCTH office counts some 32 employees. From this office depends directly the unit in charge of Heritage, archaeology and museum (with premises in Al-Ahsa Museum).

5.f.ii) Saudi Government Budget for Al-Ahsa

The major commitment for supporting the conservation, development and revitalization of *Al-Ahsa Oasis, an Evolving*...
Cultural Landscape comes directly from the central Saudi government. Through the Ministry of Municipalities and Rural Affairs (MoMRA), and the Al-Hassa Irrigation and Drainage Authority (HIDA).

i) Al-Ahsa Municipality

The Ministry of Municipal and Rural Affairs (MoMRA) has financed the implementation of the infrastructure works for the large-scale Al-‘Uqair tourism project and the development of the Master Plan for Al-Ahsa.

MoMRA directly finances the Municipality of Al-Ahsa.

In 2015, the budget of Al-Ahsa Municipality has been of 1,082 million Saudi Riyals (about 290 million USD). This budget is divided into four main items: salaries, operational expenses, operation maintenance and cleaning, and Projects

The Municipality of Al-Ahsa, in coordination with the SCTH, will support the cost for the planning and implementation of the restoration and revitalization projects for the historic cores of Al-Hofuf and Al-Mubarraz, and for the village of Al-‘Oyun foreseen in the framework of the nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape for inscription on the UNESCO World Heritage List.

ii) Al-Hassa Irrigation and Drainage Authority (HIDA)

The budget of HIDA for the management and development of the irrigation and drainage canals network amounts to 697 million Saudi Riyals in 2016.

In the past years, the budget of HIDA ranged from 282.5 million Saudi Riyals in 2008 to 700 million Saudi Riyals in 2015. The ongoing works on the network to bury part of the canals have required a substantial increase of budget in the past 3-4 years.

HIDA will collaborate with its technical expertise to the project for the recreation of a sector of “traditional” oasis in the Jawatha area that will be developed in the framework of the nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape in the next years. This project, still in a preliminary phase, will be supervised by SCTH and will be also supported by the private sector.
5.g) Sources of expertise and training in conservation and management techniques

5.g.i) Introduction

The rationale behind the creation of SCTH in 2000 was the need to change and reinforce the entire sector creating new dynamics to help Saudi Antiquities to overcome their gap with the international community. SCTH is not subordinated to a ministry, but combines the functions of Department of Antiquities, Ministry of Tourism and a statutory agency responsible for the development and promotion of the tourism industry. It reports directly to the prime Minister. Its status is further reinforced by the fact that its Board of Directors includes members of the Council of Ministers.

According to the studies commissioned by the SCTH to analyse the situation of the cultural heritage sector in the Kingdom, the country has a shortage of technical and professional expertise on the conservation and development of cultural heritage, particularly at the regional level, where the current staff often lacks basic scientific training.

The Provinces are generally understaffed, preventing the development of synergies with MoMRA and other governmental agencies. Apart from a core group of high-profile researchers with academic background directing the Department of Antiquities, Saudi Arabian Antiquities personnel has been relatively isolated from the international scene in the past, being only marginally involved in international training courses devoted to conservation and management of cultural properties.

The training and development of key staff, particularly in SCTH, in terms of the management and marketing of heritage properties and museums, have been set among the major priorities of SCTH programme. The President of SCTH, His Royal Highness Prince Sultan Bin Salman Bin Abdulaziz, conscious of the absence of familiarity with cultural heritage and sustainable cultural tourism policies within the Kingdom, has launched a programme of visits to European heritage cultural sites and parks designed for Saudi local administrators (at the Province and Governorate levels) with the goal to raise their awareness towards the development possibilities related to the management of cultural heritage. Missions to Spain, Portugal, Italy and France have been organized to analyse the approach currently followed in different European countries with respect to cultural tourism.

This kind of initiative is meant to be extended to other sectors of the administration and will be complemented by technical trainings for the Department of Antiquities and Museums personnel.

Since 2003, employees from the Department of Antiquities and Museums have attended various conferences, meetings and workshops related to World Cultural Heritage Sites within the country and abroad. Significant measures have already been taken to raise the quality of the staff in various sectors, from English and computer skills, to more technical conservation, preservation and management issues.

The Antiquities and Museums section of SCTH has organized various training courses for its employees in the fields of restoration, preservation & protection of monuments and sites,
inventory & database preparation, in collaboration with local training centres and foreign institutions. Every year, a large percentage of the technical SCTH staff follows internal training sessions focusing on project management organized by the SCTH Training Department.

5.g.ii) World Heritage Expertise

In the framework of the preparation of the nomination file for at-Turaif Neighbourhood in ad-Dir`iyah, SCTH technical staff was directly involved in the conservation and management debates, both at the national and international levels, that developed around the plans — designed by Ar-Riyadh Development Authority (with the support of leading international consultants) and supervised by SCTH — for the conservation, rehabilitation and reuse of the site. Saudi Arabian architects and engineers from SCTH have also taken part in regional training course on management organized by ICCROM, and two SCTH staff attended training programmes in Rome in 2011.

In 2006/07, SCTH staff attended a UNITAR training programme on World Heritage Nomination preparation held in Japan. Cooperation between SCTH and Japan, organized by the Japan International Cooperation Agency (JICA), has developed since and in the last years technical SCTH staff has followed a series of short period training programmes on museums and preservation in Japan.

The preparation of the nomination of Historic Jeddah, the Gate to Makkah has also been an important opportunity to develop technical skills and managerial experience for the local SCTH branch in cooperation with Jeddah Municipality.

5.g.iii) The Situation in Al-Ahsa

In the past years, the local branch of SCTH has supervised the restoration projects carried out on the main Forts of the oasis and the reconstruction of the Qaysariyah market acquiring an on-the-field experience of architectural conservation and of traditional building techniques and materials.

In the framework of the nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape, the Directors of SCTH Jeddah and of the Old City of Jeddah section of the SCTH have taken part to the management seminar organized by Al-Ahsa Municipality and SCTH. This meeting was an opportunity to exchange information and to share with Al-Ahsa colleagues the experience acquired in Jeddah in the field of site management and urban conservation. In the next months, the collaboration between the two cities (and the two regional branches of the SCTH) will be reinforced.

The nomination of Al-Ahsa Oasis is the first nomination of a “cultural landscape” in the Kingdom of Saudi Arabia. The conservation and management of this kind of properties is a particularly complex task. At the time being, there is no previous experience in this sector. Neither the employees and the technical personnel of Al-Ahsa Municipality, nor the ones of HIDA and of the SCTH (both in Riyadh and in Al-Ahsa) have received a specific training in conservation or management of cultural landscapes.

The technical staff of HIDA (Al-Hassa Irrigation and Drainage Authority) follows regular training programs set up in coordination with the United Nations Food and Agriculture Organization (FAO). The HIDA Staff has notably attended on-the-job training sessions in GIS management in Al-Ahsa in 2009, and training sessions abroad in 2014.
The planning personnel of the Municipality of Al-Ahsa takes regularly part to international conferences and events and is highly qualified. However, it has not yet developed expertise in the field of architectural and urban conservation, and in sustainable development and site management.

The participation of SCTH and Al-Ahsa Municipality personnel to international meetings focusing on Cultural Landscapes in the coming years and the involvement in specific training programs devoted to the subject by the specialized international institutions is a priority for the preservation and sustainable development of the Oasis.

5.h) Visitor facilities and infrastructure

5.h.i) Accommodation and Tour Operators
The national strategy to develop internal tourism in the Kingdom has already had a visible effect in Al-Ahsa, where the number of visitors greatly increased in the past 2-3 years. Tourism investments are growing accordingly, and new hotels and accommodations are being built in the city to cope with the increase in the demand of rooms. At present, Al-Ahsa has just seven licensed hotels offering a total of 668 rooms, a motel, and 65 furnished apartments with 1,664 rooms.

It is expected that in the next ten years the major development plans for the Gulf coastline, with the development of large modern coastal resorts, will radically modify the situation.

The tourism sector can count upon eleven tour-operators active in the city (and this number is expected to grow up to 16 by 2017) and almost 40 travel agencies.

In Al-Ahsa, there are 15 licensed tourist guides, and 17 are in the process to obtain operation licenses.

5.h.ii) Museums and Cultural Venues

i) Al-Hofuf Museum
Al-Ahsa Museum of Archaeology and Ethnography forms part of a network of six Museums established by the Department of Antiquities and Museums of the ministry of Education of the
Kingdom of Saudi Arabia in the early 1980s. Each local museum has its own collections, though they share the same design and shape. Beside the Museum in Al-Hofuf, Saudi Regional Museums are also found at: Al-'Ula, Tayma, Dumat al-Jandal, Najran, and Sabya.

The purpose of the Museum of Al-Hofuf is:
- To conserve and protect archaeological and historical sites of interest;
- To provide facilities for the recording and investigations of sites;
- To act as a collection centre for archaeological and historical artefacts;
- To investigate and record local culture and traditions;
- To collect artefacts of local traditional culture;
- To make available to the public the local archaeology, history and traditional culture;
- To act as an expression of the local’s community contribution to the history and culture of the Kingdom of Saudi Arabia.

The Museum depends from the Antiquities Section of the SCTH in Al-Ahsa, whose offices are situated within the same museum facilities, where are also hosted laboratories for restoration, and office space for external scientific missions.

ii) Planned Development

SCTH has a vast program for the modernization and upgrading of its regional museums. These are expected to comply with contemporary museographic standards and to develop outreach programs for residents and tourists.

The nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape is an opportunity to launch such plan for Al-Hofuf. In the framework of the project, a modern Visitors’ Centre will also be created and the existing Museum will be entirely renewed and transformed into modern office and research space for Al-Ahsa SCTH Antiquities section.

The establishment, development and operation of museums in various provinces and regions is one of the main objectives of “Custodian of the Two Holy Mosques Cultural Heritage Program” (cf. Volume 2, Annexes). The construction of the new Museum of Al-Ahsa has been approved and its design is now reaching its final stage. Located on King Abdullah Road, in the vicinity of King Abdullah Environment Park, the museum will cover a total built-up area of 38,635 m² and will be divided into eight galleries on two floors displaying, with the support of audiovisual and interactive displays directed to all age groups, the region’s artifacts, culture, national history, and natural environment. It will comply with international standards and is expected to become a civil landmark and tangible testament to the culture and the history of the city and of the oasis. The construction will take 24 months and cost 53 million Saudi Riyals.

iii) Other Cultural Venues in the Oasis

Within the oasis and its immediate surroundings are found a series of other cultural sites that are managed by SCTH Al-Ahsa Heritage Department and are open to the public.

These notably count: Jawatha Mosque, Qasr Ibrahim, Qasr Sahood, Qasr Khuzam and a series of other forts and minor sites.
within the nominated property, and the historic Port of Al-Uqair, located some 70 km East of the city.

iv) Visitors’ statistics
SCTH Heritage Department keeps regular record of the visitors of the heritage sites guarded by its staff. Statistics show that the number of visitors is still very low and that only during national holidays and in wintertime, the sites receive a relevant number of visitors. Statistics for the Museum do not detail the presence of school classes.

The most visited property is Al-Uqair (which is not included in the nominated property), followed by the Amiriyah School and by Qasr Ibrahim.

The low numbers recorded for the museum depends also on its current conditions, the building has not been renewed for many years and the exhibit, notwithstanding the quality of the information provided, does not respect contemporary standards anymore.

It is evident that, following the opening of the new Museum and an eventual inscription of Al-Ahsa Oasis, an Evolving Cultural Landscape on the UNESCO World Heritage List, these numbers will rapidly grow.

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5.i) Policies and programmes related to the presentation and promotion of the property

5.i.i) Funding Mechanisms to Support the Development of Al-Ahsa Oasis

To finance the large-scale conservation and development projects foreseen in the framework of the nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape, two major national programmes developed by SCTH to finance the private owners and facilitate the conservation and rehabilitation of urban architectural heritage are particularly relevant: the “Tamkeem Programme” and the “Credit Programme”.

i) Tamkeen Program

The Tamkeen Programme designed by SCTH aims at transferring the responsibility of urban heritage conservation and rehabilitation to the local level. Pilot projects concern both building rehabilitation works and training and knowledge transfer programmes. Municipalities and governorates already play a role in urban conservation projects, but there is a lack of coordination. The Tamkeen Programme is designed to:

- Build knowledge and transfer expertise and experiences to the partners in the provinces;
- Improve the information and database at the provincial level;
- Highlight the distinguishable elements in every province according to its climate and geographical nature, and cultural heritage diversity, in order to support domestic tourism;
- Establish a competing atmosphere between the provinces based on the distinguishing attributes and elements;
- Facilitate access to various funding resources;
- Spread and reinforce the awareness concerning the economic importance of tourism as a sector that offers job and investment opportunities to citizens.

Mechanisms of integration are built with the partners concerned by the protection and development of national cultural heritage and of tourism development in the regions, regardless of their different administrative statuses.

The program proposes different financing mechanism that can suit projects in Al-Ahsa Oasis:

- Council of Ministers resolution 209, issued 22/6/1430 AH, foresees the establishment of “domestic tourism development companies” and the participation of the public loan funds in funding domestic tourism projects.
- Promoting small and medium projects program offers the solutions to solve monetary, technical, or marketing obstacles for small and medium projects in tourism sectors.
- The National Project for Tourism Human Resources Development (Takamul) contributes motivating training and knowledge in the tourism sector, antiquities, museums and urban heritage.

The success of the Tamkeen Program will depend on the active participation of the local partners: Tourism Development
iii) The Credit Program

The Credit Programme is the result of an agreement between SCTH and the Saudi Credit and Saving Bank (Governmental Bank), supported by a Royal Decree stating that every owner who wants to restore his historic house can receive a loan without interest from the government if he presents a plan proposing the reuse of the structure for cultural-tourism activities.

The Credit Programme has already been applied to support the ongoing rehabilitation projects taking place in the city centre of Al-Ghat, where some 70 historic mud houses are going to be reused as heritage hotel. This programme is expected to play a pivotal role in financing the projects within Historic Jeddah, the Gate to Makkah World Heritage Site and could be applied to finance interventions in the historic core of Al-Ahsa too.

5.i.ii) Awareness Activities (National and Local)

The nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape has attracted a lot of interest in the local population; the press and the media have regularly reported national and local initiatives for its preservation and tourism development. Al-Ahsa elites are very attached to the preservation of the oasis and have closely followed the development of the nomination, the discussions, and the projects relative to its sustainable development and its cultural and agricultural significance. Two successful public events to present the ongoing nomination have been organized in Al-Ahsa in 2016 for members of the Universities, of Architects & Engineers associations, and for concerned residents.

On the other hand, the situation on the field shows that many residents of Al-Ahsa today pay little attention to traditional architecture and to the historic urban cores, or to the preservation of the oasis landscape. The concept of “cultural landscape” as defined by UNESCO and international documents, is unknown not only to the residents but also to the technical elites of the city.

The need of developing cultural awareness campaigns to present the OUV of the oasis and to define in coordination with the residents the most suitable approaches for its long-term...
sustainable survival is evident to the SCTH and to the other stakeholders.

The development of grassroots organizations focusing on the preservation of the oasis rich and multiple heritage should be encouraged. SCTH will work with the local partners to identify the most suitable strategy to raise local community awareness of the importance and exceptionality of the Oasis fragile ecosystem and to involve the community in the preservation and revitalization process.

5.i.iii) Scientific Research and Publications

Notwithstanding the importance of Al-Ahsa and its oasis from the historic, cultural, and natural point of view, relatively little scientific research on the Oasis has been carried out in the past 30 years. After the pioneering studies carried out in the 1950s, and the archaeological campaigns conducted by Dr. Al-Masry in the 1970s, that led to the creation of protected archaeological zones in Ain Qinas and Jawatha, only minor excavations have taken place and few historic and architectural researches have been done.

The nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape, is an extraordinary opportunity to develop new researches on the Oasis and its heritage in a new contemporary and holistic perspective. SCTH, the Urban Heritage Centre and King Faysal University are jointly developing research programs to be implemented in the coming years (Cf. § 5.e.iii and Action Plan guidelines, Volume 2).

5.i.iv) Museum and Visitors’ Centre

The nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape is an opportunity to redefine the museum offer in the city and to develop new concepts to present the oasis, its ecosystem and its cultural relevance to the local, national and international public. Two parallel actions are being developed by SCTH:

- The creation of a new Museum in Al-Ahsa,
- The creation of a Visitor’s Centre located within the oasis gardens to offer tourists and residents a more direct experience of the nominated property.

Both projects are still at an early stage, but they will be soon finalized, as the SCTH views Museums as a primary asset for investment due to their employment and educational potential as well as their important place in the heritage tourism sector. The Saudi Government is fully aware of the positive role such institutions could play in increasing the popularity of Al-Ahsa Oasis in stimulating an increased attendance, and will therefore finance their realisation.

5.i.v) Other Initiatives

SCTH, both at the central and local level in Al-Ahsa, has implemented a series of initiatives to promote the Oasis and its heritage before and during the preparation of the nomination file for Al-Ahsa Oasis, an Evolving Cultural Landscape. Among these:

In 2013, SCTH Branch in Al-Ahsa launched the “Discover Al-Ahsa” program, dedicated to the GCC tourists. The program aimed to attract GCC citizens to visit Al-Ahsa through organized
direct flights to the region in cooperation with tour operators from the United Arab Emirates and Qatar. Indeed, though the people of the Gulf knew Al-Ahsa for decades as a commercial and shopping destination, they are not generally aware of its rich heritage and of its recreational sites. This program is part of a global strategy aiming to marketing Al-Ahsa as a key tourist destination.

In 2014, SCTH Branch in Al-Ahsa licensed a group of tourist guides to escort visitors who wish to see Al-Ahsa oasis. The course is part of a national campaign to increase the number of tourist guides in the Kingdom, but it is also part of a strategy aiming at underlining the importance of tourism in creating jobs for citizens, and its relevance for the local communities.

In 2016, SCTH has developed its agro-tourism project (Aryaf) including farms from Al-Ahsa. The project offers trips to agricultural and rural areas to visit farms (all over the Kingdom there are already 76 farms registered) and enjoy services and activities. Agro-tourism can provide additional income to farmers and employment opportunities. The development of agro and eco tourism projects is particularly suitable and important for Al-Ahsa Oasis.

5.j) Staffing levels and expertise (professional, technical, maintenance)

The preservation and management of the cultural landscape of Al-Ahsa oasis is a complex endeavour that requires multiple skills and falls under the responsibility of a number of institutions already active on the field in Al-Ahsa.

Among these, notably, the Hassa Irrigation and Drainage Authority (HIDA), the local department of Agriculture, Al-Ahsa National Park, Al-Ahsa Municipality and the Al-Ahsa Branch of the SCTH.

In the context of this section of the nomination file, however, the focus is essentially on the capacities of the SCTH team.

The Heritage Department of Al-Ahsa is hosted in Al-Hofuf Regional Museum; the fast-growing tourism department is currently hosted in a modern office building rented by SCTH in the modern city. The Tourism premises, modern and well equipped, host 17 staff members.

SCTH Heritage Department counts a staff of 15 people, including 1 Director (archaeologist), 2 Museum experts, 1 administrative staff, and 8 site guards.

This office is run with a limited annual budget permitting to cover regular expenses, but not eventual projects that need to be financed from Riyadh headquarters. Al-Ahsa Museum is open, but the Museum is old and partially rundown. The current staff - that does not count any architect - cannot cope with the complexity involved in the ongoing projects aiming at achieving
World Heritage status for Al-Ahsa Oasis, an Evolving Cultural Landscape.

The staff of the Tourism department is composed of 17 people in charge of traditional tourism-related, but also of public relations and media.

SCTH, aware of the shortcomings of the current situation, and willing to protect the historical city heritage and to respect UNESCO standards for the protection of World Heritage sites, is working on developing substantially both the number of the staff and their overall professional qualifications. However, it is understood that the main bodies in charge of the management of the oasis cultural landscape will be the Municipality of Al-Ahsa, whose personnel will be slightly reinforced to add the new competences required by the management of a World Heritage Site.

SCTH Headquarters in Riyadh will also be directly involved in the management and preservation of the property notably via the National Urban Heritage Centre (NUH) that will follow up the conservation and revitalization of the historic cores of Al-Hofuf and Al`Oyun.

The NUH can counts upon highly qualified professional profiles with relevant degrees in architecture, planning and geography. Notably, the director of the National Urban Heritage Centre, Dr. Mishari al-Naem, is originally from Al-Ahsa and is therefore very familiar with the oasis and its historic urban centres, while Dr. Adnan al-Jabr, who participated in the realisation of the nomination file, is from Al-Mubarak and has an intimate knowledge of the property and of the UNESCO nomination.
### 6) Monitoring

- **6.a** Key indicators for measuring state of conservation
  - i.) Site Management and Monitoring
  - ii.) Monitoring Indicators
    - ii.1) Environmental Indicators
    - ii.2) Agricultural Indicators
    - ii.3) Conservation Indicators
    - ii.4) Planning Indicators
    - ii.5) Tourism Indicators
  - iii.) Key Indicators (UNESCO Format)

- **6.b** Administrative arrangements for monitoring property

- **6.c** Results of previous reporting exercises
6. Monitoring

6.a) Key indicators for measuring state of conservation

i.) Site Management and Monitoring

The UNESCO Operational Guidelines for the Implementation of the 1972 World Heritage Convention underline the relevance of monitoring mechanisms and state that

“An effective management system (should) include a cycle of planning, implementation, monitoring, evaluation and feedback” [Op. Guidelines, 2015, § 111]

Notably, each nomination for inscription on the UNESCO World Heritage List should:

“(…) include the key indicators in place and/or proposed to measure and assess the state of conservation of the property, the factors affecting it, conservation measures at the property, the periodicity of their examination, and the identity of the responsible authorities.” [Op. Guidelines, 2015, § 132.6]

Saudi authorities do not apply the concept of “monitoring” — the actual regular verification of the effect and impact of the policies implemented — as a standard “formalized” procedure to evaluate their performances and the effectiveness of the policies implemented on the field. In the Saudi Arabian system — where administration is strongly centralized and part of strategic planning is outsourced to international consultants — the feedback on the results obtained by national and local policies often takes place via non-formal communication channels between central and local authorities and the local constituency.

In Al-Ahsa Oasis, an Evolving Cultural Landscape, multiple stakeholders are involved in the management of the property and several management actions are conducted in parallel. At the time being, each institution has set its own follow-up and monitoring strategies:

- HIDA has a comprehensive follow-up system that verifies the ensemble of the technical parameters related to the extraction, distribution and evacuation of water within the oasis.
- The Ministry of Agriculture records agricultural production, the presence of parasites, the quality of the dates and the evolution of the market.
- Al-Ahsa Municipality’s procedures permit the follow-up of construction, and of the ensemble of the facilities it provides to the population (water, electricity, road, lighting, etc.).
- SCTH monitors museum visitors and the development of cultural tourism initiatives in the area.

The definition of “standardized” monitoring mechanisms for the cultural landscape of Al-Ahsa oasis is a major challenge. The nomination of Al-Ahsa Oasis, an Evolving Cultural Landscape, however, is a unique opportunity to establish such mechanisms and to set up a system that could be suitable for the Saudi governance methods and respectful of the Saudi society traditions.
The establishment of formal monitoring mechanisms, capable to “photograph” the actual situation on the field and the very daily impact of the policies implemented, is part and parcel of the overall property management system being designed and developed by the Saudi Commission for Tourism and National Heritage (SCTH) in coordination with Al-Ahsa Municipality and the other local stakeholders for the nominated property.

The monitoring of the cultural landscape of Al-Ahsa Oasis, an Evolving Cultural Landscape will be based on the regular and systematic data collection and on the establishment of scientific records permitting the analysis of the situation in all concerned sectors. The preparation of regular records will notably provide the site management team with essential data to develop site management and preservation models according to which funds and resources can be allocated, greatly contributing to the actual preservation and sustainable development of the oasis.

In the case of Al-Ahsa Oasis, an Evolving Cultural Landscape and, more in general of all cultural landscapes, monitoring should concern different elements that form the attributes of the nominated property. Beyond the physical built heritage, and the urban development, “monitoring” will concern the natural environment, the climatic conditions, and the ensemble of the elements contributing to the definition of its Outstanding Universal Value.

According to the format of the Operational Guidelines — and to facilitate the preparation of regular monitoring reports — key-indicators are identified to measure the state of conservation of the property. Key-indicators are meant to provide “scientific” data, not depending from political or human factors, allowing the almost “automatic” verification of the impact the actions taken have on site. For a complex and large site like Al-Ahsa Oasis, an Evolving Cultural Landscape, different sets of indicators are needed to tackle issues ranging from architectural conservation to agriculture, from climate and environment, to commerce, tourism and urban planning.

ii.) Monitoring Indicators

The relevance of establishing effective monitoring mechanisms for World Heritage nominated properties is fully acknowledged by the SCTH and by all local administrative bodies.

The establishment of the “Higher Committee for Al-Ahsa Oasis” and of a Site Management Unit within Al-Ahsa Municipality for the follow-up of the site will permit to have a more comprehensive and holistic vision of the oasis, bypassing the current administrative barriers between local, regional and national institutions and between the different stakeholders. The analysis of the data collected and of the key indicators will notably permit to draw conclusions that will be presented and discussed with the higher national level and with the ensemble of the concerned stakeholders. The key indicators, summarized in the table at the end of this paragraph, can be divided into different groups.

ii.1) Environmental Indicators

- The record of climatic data offers essential information to be crossed with site deterioration. Climatic data concern pluviometry, temperatures, humidity and
prevailing winds. Extreme climatic conditions like droughts, sand storms, etc., can severely affect the agricultural parcels, the built heritage and the human interaction with the property and should therefore be carefully recorded. Following extra-ordinary climatic events, a report detailing their impact on the property should always be drafted.

- Regular monitoring of the air and water pollution in the oasis and in the buffer zone to identify immediately risks for residents and visitors and their eventual impact on the plantations.
- Regular monitoring of desertification in the vicinity of the oasis, via the analysis of satellite images of the oasis at regular time intervals, analysis of soil salinity, etc., to be implemented in coordination with Al-Ahsa National Park scientific team.
- Regular monitoring of the amount of water pumped from the aquifers.
- Monitoring the number of fines for violations of the applicable laws and regulations concerning the ecological protection of the oasis (discharge of pollutants, use of pesticides, illegal discharge of garbage and construction material in the oasis, etc.). These data permit to verify the effectiveness of the management solutions and of the environmental control of the site.
- Regular monitoring of Al-Asfar Lake eco-system (quality and quantity of water, status of the mangroves, migratory species, etc.), to verify the impact of the environmental regulations and of the water re-cycling program.

### ii.2) Agricultural Indicators
- Regular monitoring of the phytosanitary conditions and pests in the oasis.
- Monitoring of the number of palm date trees in the oasis. It permits to verify and quantify the development or the diminution of agricultural activity.
- Monitoring of the agricultural output of the oasis, of the quantity and quality of dates (or any other crop). This data permit to verify the liveliness of the oasis as a major agricultural and economic resource, and to verify the effectiveness of the corrective measures made by the Ministry of Agriculture, and the other concerned bodies to control production and increase the quality.
- Monitoring of the price of dates sold on the market in Al-Ahsa. This is an indirect proof of the agricultural vitality of the oasis. It also permits to verify the market evolution on a yearly basis and to check the improvement of the quality of the agricultural production.
- Record of employees in the agricultural sector. The number of workers in the plantations provides an immediate verification of the economic situation in the oasis.
- Record of accidents for the agricultural sector employees. The monitoring of security conditions in the plantations gives useful feedback to the security teams (doctors, fire brigade, etc.).
- Record of building permits within the agricultural parcels. The monitoring of the number of new constructions within the agricultural parcels materializes development pressure on the agricultural land.
ii.3) Conservation Indicators

- The continuous updating of the available graphic and photographic documentation of the main historic monuments allows the precise verification of the rate of deterioration taking place in the different buildings of the nominated property. The regular review of these plans permits a scientific assessment of the quality of the work and the eventual re-definition of the conservation choices.

- Record of the number and kind of conservation and restoration projects realised on the historic buildings of Al-Ahsa oasis. It materializes the commitment and the efforts of the government for the preservation and valorisation of the cultural heritage of Al-Ahsa Oasis, an Evolving Cultural Landscape.

- Record of the number and kind of archaeological excavations and of scientific publications in and about Al-Ahsa oasis. This indicator permit to verify the scientific initiatives taken by SCTH and the effectiveness of coordination and outreach activities with other similar sits in the region and beyond.

- Record of the number and kind of maintenance interventions effectuated on the historic buildings of Al-Ahsa oasis. The monitoring of the maintenance activities carried out by the National Urban Heritage Centre and the SCTH on site permits to verify the long-term sustainability of the conservation and constructive methods used, and to ponder alternative technical solutions. The yearly check of the number, and kind, of interventions permits to fine-tune the yearly budget of the SCTH Al-Ahsa branch.

ii.4) Planning Indicators

- Record of the advancement of the planning projects designed by the central authorities and the Municipality in the vicinity of the nominated property and the buffer zone (through satellite images, site visits and regular updating meetings with the Municipality Planning Department and the concerned public-private companies). Notably the evolution of the implementation of the development of the 2030 Master Plan foreseeing the development of the new city towards the Gulf. The ratio between planned interventions and effectively realized projects permits to verify the actual effectiveness of Municipality and developers’ activities and to regularly review the work plan and the calendar.

- Regular review and analysis of satellite images concerning the buffer zone permits to verify the application of the urban regulations designed for this area; it should be accompanied by regular meetings with Al-Ahsa Municipality planning and building departments to verify the effectiveness of the coordination among stakeholders and the application of the Management Committee decisions.

- Record of the value of land parcels in the urban areas. This indicator permits to verify the impact of the urban development plan to relieve real estate pressure from the urban and oasis parcels.

- Regular update of the population statistics in the nominated property and buffer zone permits to monitor the evolution of the urban sector and to review and update the development strategies.
ii.5) **Tourism Indicators**

- The record of the number of visitors in Al-Ahsa Museum and in the other cultural venues of the area permits to follow up the evolution of the tourist presence in the nominated property. These data should be completed with analyses of the expectations of the tourists and of their degree of satisfaction. On the basis of these indicators, it is possible to review and modify the overall cultural tourism strategy.

- Record concerning the attendance at major public events organized in Qasr Ibrahim or in any other historic and natural site in Al-Ahsa oasis and in Al-Ahsa urban area permits to verify the quality and the success of the PR and raising awareness activities organized by SCTH and the local authorities.

- Record of number of licenses for opening and renewal of hotels & cafes, for tourist guides, and for any other tourist-related initiative in the oasis and in the urban areas, to verify the effectiveness and the evolution of the tourism sector in Al-Ahsa.

- Statistics of the occupancy rate of the hotels and economic turnover of the “istiraha-s”, and restaurants within the oasis. The regular monitoring of the evolution of the tourist presence on site will permit to adjust the development and tourism strategy of SCTH.

- Record of passengers in trains and planes to and from Al-Hofuf (collected at the Station and at the airport), and the regular estimate of the number of cars arriving in the oasis from the other cities of Saudi Arabia or from the neighbouring Gulf countries, permits to get a complete overview of the tourist flows towards the nominated property.

iii.) **Key Indicators (UNESCO Format)**

See table next page
<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>Kind</th>
<th>Description</th>
<th>PERIODICITY</th>
<th>LOCATION OF RECORDS</th>
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<td>Water consumption</td>
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<td>Environmental fines</td>
<td>Yearly</td>
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<td></td>
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<td>S.M.U.; National Park</td>
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<td>Price of dates</td>
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</table>
6.b) Administrative arrangements for monitoring property

The regular monitoring of Al-Ahsa Oasis, an Evolving Cultural Landscape nominated property will be one of the major tasks of each stakeholder involved in the daily management of this cultural landscape under the direction of the Site Management Unit in charge of the site.

The current procedures give each concerned institution the role to collect statistical data. In the framework of the Management Plan for the oasis, however, a more organized and centralized system will be established. The creation of a Management Committee, gathering the ensemble of the local concerned stakeholders, will permit to harmonize the data collection mechanisms and to carry out a preliminary review to verify the data and to improve the clarity of the statistical information collected.

One of the tasks of the Site Management Unit will be the elaboration of the ensemble of the statistic data and the preparation a yearly monitoring report presenting the State of Conservation of Al-Ahsa Oasis, an Evolving Cultural Landscape. This report will be approved by SCTH headquarters and transmitted to all the national and local stakeholders. The Yearly Report will also be presented to, and discussed with, the regular meetings of the World Heritage Sites section of the Saudi Commission of Tourism and National Heritage.

Monitoring data and the Annual Report will permit to regularly review and up-date the strategy for the sustainable development of the oasis on a yearly basis, verifying successes and failures of the property and of its management system.

On the basis of continuously processed data and of monthly statistics, the Site Management Unit will also, whenever possible, be able to intervene immediately or to alert the concerned authority to solve technical and management issues requiring immediate intervention.

Copy of all the data collected and of all intermediate and yearly reports on the State of Conservation of the property will be kept at SCTH Riyadh headquarters and at the Site Management Unit premises at Al-Ahsa Central Municipality.
6.c) Results of previous reporting exercises

No official monitoring report has been prepared yet for Al-Ahsa Oasis, an Evolving Cultural Landscape nominated property. The nomination of this site as a Cultural Landscape is a new initiative launched by the Saudi Commission for Tourism and National Heritage in coordination with Al-Ahsa Municipality and the other local and national authorities concerned.

However, as underlined in the previous pages, most municipal departments and local institutions already gather statistic data and monitor the oasis to verify their performances and identify gaps and future actions.

The local branch of SCTH in Al-Ahsa coordinates the initiatives related to the presentation of the property and to its tourist development. A series of technical studies focusing on the tourist potential of Al-Ahsa has been carried out in the past in the framework of the definition of the global tourism strategy of the Kingdom of Saudi Arabia. On the basis of the results of these studies have been launched the major project for the development of Al-Uqair coastal area, and the revitalization project aiming at developing tourist facilities for Al-Qarah cave in Al-Ahsa oasis.

Al-Hassa Irrigation and Drainage Authority (HIDA) is currently implementing an ambitious plan aiming at covering most of the water canals to reduce evaporation. This project results from a series of assessment missions and reports regularly carried out by this body and its technical consultants.

Al-Ahsa Oasis was included on the Saudi UNESCO Tentative List in April 2015. In the framework of the preparation of this nomination, a series of missions of international experts to assess the heritage significance and Al-Ahsa potential has taken place in 2014 and 2015.

At the invitation of His Royal Highness Prince Sultan bin Salman bin Abdul Aziz, president of Saudi Commission for Tourism and National Heritage, a delegation from the Arab Regional Centre for World Heritage (ARC-WH) based in Bahrain visited Al-Ahsa Oasis in December 2014. The delegation consisted of ARC-WH Director Dr. Mounir Bouchenaki, Vice-Director Sheikh Khalifa Al-Khalifa, and cultural heritage expert Dr. Kamal Bitar. The ARC-WH team visited again the site in October 2015 (cf. http://arcwh.org/arc-wh-visit-Al-ahsa-province).
7) **Documentation**

7.a Photographs and audiovisual image inventory and authorization form

7.b Texts relating to protective designation, copies of property management plans or documented management systems and extracts of other plans relevant to the property

7.c Form and date of most recent records or inventory of property

7.d Address where inventory, records and archives are held

7.e Bibliography
7. a) **Photographs and audiovisual image inventory and authorization form**

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7.b) Texts relating to protective designation, copies of property management plans or documented management systems and extracts of other plans relevant to the property

Copy of the Management Plan Guidelines is presented in Volume 2 of the nomination.

Al-Ahsa Municipality and SCTH guarantee the preservation and the management of Al-Ahsa Oasis, an Evolving Cultural Landscape nominated property. Different departments and governmental bodies are responsible of the preservation of its multiple components.

The protection of the cultural landscape of the oasis goes far beyond the simple preservation of its built heritage and concerns also the environment, the agricultural fields, the national Parks, etc. The relevant legal texts are briefly discussed in Chapter 5b.

In the framework of the preparation of the nomination, a series of administrative decisions concerning the property management have been issued. They are included (with an English translation) in Volume 2, Appendix.

7.c) Form and date of most recent records or inventory of property

The Department of Antiquities & Museums within the Saudi Commission for Tourism and National Heritage keeps an updated inventory of the archaeological and monumental sites of the Kingdom protected by the Law of Antiquities.

The mechanism of registration and the whole Antiquities inventory is currently being updated ad reformed to comply with modern international standards and to become an effective tool for the protection and management of the country’s rich cultural heritage.

In the framework of the preparation of the nomination file for inscription of Al-Ahsa Oasis, an Evolving Cultural Landscape on the UNESCO World Heritage List, a new series of graphic surveys of the main monuments in Al-Ahsa has been realized by a private company for the SCTH Al-Ahsa office.

These drawings, with plans, sections and 3D renderings, are included in Volume 2, Annexes.

They notably detail:
- Qasr Ibrahim
- Qasr Sahood
- Qasr Khuzam
- Qaysariyah Market
- Ameriyah School
In order to implement the strategy designed in the *Management Plan Guidelines*, and to comply with the provisions of the Law of Antiquities, the Urban Heritage Centre has begun recording the ensemble of the historic core of Al-Hofuf and the historic village of Al-‘Oyun. The urban survey drawings will permit to register these neighbourhoods as “built heritage sites” and to begin the studies for their conservation and restoration.
7.d) Address where inventory, records and archives are held

Saudi Commission for Tourism and National Heritage
Diplomatic Quarter,
P.O. Box 66680
Riyadh - 1158,
Saudi Arabia

7.e) Bibliography

7.e.1) Books

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8.b Official Local Institution/Agency
8.c Other Local Institutions
8.d Official Web address
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Al Malham Trading Tower, 7th floor,
Al-Ahsa municipality
P.O. Box 622
Postal Code: 31982
Saudi Arabia

Tel: +966 13 5623100
Fax: +966 13 5622574
E-mail: hajia@scth.gov.sa

8.c) Other Local Institutions

Al-Ahsa Governorate
Facebook page: https://www.facebook.com/pages/Al-Ahsa-Governorate/107706669259433

Al-Ahsa Municipality
Postal Code: 31982 - P.O.Box: 1790
E-mail: info@alhasa.gov.sa

HIDA, Hassa Irrigation and Drainage Authority
Al Mubarraz 36321, Saudi Arabia
Postal Code: 31982 - P.O.Box: 279
Official webpage: www.hida.gov.sa
8.d) Official Web address


Contact name: Prof. Ali I. Al-Ghabban
E-mail: GhabbanA@scth.gov.sa
9) Signature on behalf of the State Party

Kingdom of Saudi Arabia
January 2017
9) Signature on behalf of the State Party

His Royal Highness Prince Sultan bin Salman bin Abdulaziz Al-Saud
President & Chairman of the Board of Directors
Saudi Commission for Tourism and National Heritage
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