

QUR'ANIC BOTANIC GARDENS NETWORK
AND
MASTER PLAN FOR QUR'ANIC BOTANIC GARDEN IN DOHA,
QATAR

PROJECT EVALUATION

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December 2008



UNESCO OFFICE IN DOHA



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شبكة حدائق النباتات القرآنية
والمخطط الرئيسي لحديقة النباتات القرآنية
الدوحة – دولة قطر

تقييم المشروع

الخلاصة:

يعرض التقرير المبين تقييم لمشروع شبكة الحدائق النباتية القرآنية المقترحة والمبين في وثيقة مكتب اليونسكو بالدوحة (مقترح مشروع لعام 2006). تأسيس حدائق نباتية جديدة مصممة لتدخل فيها عناصر صحراوية وقرآنية ، تعتبر من إحدى المراحل الأساسية في عملية تطوير هذه الشبكة.

هذا التقرير يراجع أيضا المخطط الرئيسي للحديقة النباتية القرآنية الجديدة بالدوحة - قطر. حيث تعتبر هذه الحديقة العنصر الأول في الشبكة المقترحة. تقييم الاقتراح لهذه الشبكة والحديقة في الدوحة مبني على دراسة وثائق المشروع وزيارة للموقع والمقابلات الشبه منظمة ودراسة الخبراء.

ويعتبر تطوير الحديقة التجريبية في الدوحة خطوة نحو الإنجاز الكامل لشبكة الحدائق النباتية القرآنية وهذا مرغوب فيه جدا من المنظور الثقافي والإيكولوجي ومرحب به ترحيبا واسعا في المنطقة. تطوير الحديقة في الدوحة بتعدد أدوارها الوظيفية هي خطوة طموحة من الممكن إعتبارها حاسمة في النجاح المرجح لهذه الشبكة. حيث يجب أن يكون تصميم وتطوير المواقع متكامل مع التخطيط التعليمي والأبحاث وأهداف الحفظ من البداية. ويتعين النظر بعناية للكوادر البشرية القادرة والمؤهلة على التعامل مع جميع المجالات.

فكرة شبكة الحدائق النباتية القرآنية، بالتوازي مع الحديقة الجديدة، يمكن أن تتم بشكل فعال جدا في حال إن العمل الجاري في المنطقة لدعم ودمج الحدائق النباتية القائمة تم أخذه بعين الاعتبار.

يعتبر مشروع شبكة الحدائق النباتية القرآنية معقدا وشاملا وهو فعليا مخطط للحفاظ على الموارد النباتية في المنطقة بطريقة مناسبة إجتماعيا. وهذا سيساعد على التطبيق والبناء على الإستراتيجية العالمية لحفظ النباتات (GSPC) مفسر بسياق العربية. ومطلوب ممارسات عمل قادرة على دمج مناهج فكرية مختلفة.

ونوصي بأن تكون الى أقصى حد ممكن عمليات التخطيط , لكل من الحديقة التجريبية والشبكة, واسعة النطاق ومصممة بطريقة حيث تكون عملية التخطيط بحد ذاتها تعليمية.

سيكون من المهم ضمان أن الخبرة الإقليمية منسقة بشكل فعال و يكون هناك آليات لتطوير بروتوكولات ومعايير مشتركة . ويقدم هذا التقرير سلسلة من التوصيات كنتيجة للتقييم.

Executive Summary

This report presents an evaluation of the proposed Qur'anic Botanic Gardens Network as set out in the UNESCO Doha project document (Project Proposal, 2006). One of the key stages in the eventual development of the Network is the establishment of new botanic gardens designed to incorporate 'Desert' and 'Qur'anic' Garden elements. The evaluation also reviews the Master Plan for the new Qur'anic Botanic Garden in Doha, Qatar, as pilot garden development within the proposed Network. The evaluation of the Network proposal and the garden in Doha are based on review of project documents, a site visit, semi-structured interviews and an expert survey.

The development of the pilot garden in Doha as a step towards the overall achievement of the Qur'anic Botanic Gardens Network is highly desirable from cultural and ecological perspectives and is broadly welcomed within the region. Developing the garden in Doha with its multi-functional roles is an ambitious undertaking that can be considered crucial to the likely success of the Network as a whole. Site design and development need to be integrated with the planning of education, research and conservation objectives from the outset and human capacity to deliver on all aspects needs to be considered carefully.

The development of the Qur'anic Botanic Gardens Network conceptually can proceed very effectively in parallel with new garden development if ongoing work within the region to support and integrate existing botanic gardens is taken into account. The overall Qur'anic Botanic Gardens Network project is complex and is effectively a blueprint for the conservation of plant resources throughout the region in a culturally appropriate way. As such this will help to implement and build on the Global Strategy for Plant Conservation (GSPC) interpreted in an Arabic context. Working practices that blend different intellectual approaches will be required. To the extent practicable, it is recommended that planning processes both for the pilot garden and the network are widely inclusive, designed so that the planning is in itself a learning process.

It will be important to ensure that regional expertise is effectively coordinated and that there are mechanisms for developing common protocols and standards. A series of recommendations is presented in this report as an outcome of the evaluation process.

Acknowledgements

BGCI would like to thank all the people who freely gave their time and expertise to contribute to this evaluation. The questionnaire responders and interviewees are listed in ANNEX 4). The evaluation team is also grateful to the staff at the UNESCO Office in Doha who facilitated the evaluation process through the provision of information and related documentation, and organised BGCI's evaluation mission to Doha (Qatar), as well as to Sharjah and Dubai (United Arab Emirates). A special thank you goes to Nadine Loufti for the translation of the executive summary into Arabic.

1 Introduction

1.1 The Qur'anic Botanic Gardens Network

The United Nations Educational, Scientific and Cultural Organization (UNESCO) deploys its actions in the fields of Education, Natural Sciences, Social and Human Sciences, Culture, Communication and Information. Its Natural Sciences sector works in an interdisciplinary context and implements major international environmental programmes. In 2006, UNESCO developed a Main Line of Action 'Enhancing linkages between cultural heritage and biological diversity conservation' which was approved by UNESCO's Member States.

Pursuing this Main Line of Action, UNESCO Doha launched the Qur'anic Botanic Gardens Project in 2006 – henceforth referred to as the 'Project'. In view of the limited botanical expertise and facilities, as well as loss of natural habitats and associated native fauna and flora, the Project aims 'To establish a network of botanic gardens in the Arab region influenced by scientific and aesthetic concepts from the Islamic garden cultures and from the Holy Qur'an' (Qur'anic Botanic Gardens Project – Project Proposal, 2006). In this spirit, the Project combines these cultural elements with a call for *ex situ* conservation of the native flora of the Arabian Peninsula (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates, Yemen) and the plants referenced in the Holy Books of Islam, namely the Holy Qur'an and the Sayings of the Prophet Mohammed (Al Hadith). In terms of garden design, the Project seeks to reflect two major concepts of Islamic gardening philosophies, one based on desert environments including wadis, baadiyas, and raudhas, and one characterized by planned gardens, such as Persian concepts of sunken beds, chahar bagh, gulistan and bustan.

The Project suggests establishing a network of botanic gardens in the region as 'centres of excellence for botanic education, research and conservation' (Qur'anic Botanic Gardens

Network – Terms of Reference for Evaluation, 2008). This network endeavours to make a major contribution to capacity building and biodiversity conservation, ‘especially because of the lack of true botanic gardens in the entire Arab region’ (Qur’anic Botanic Gardens Network – Terms of Reference for Evaluation, 2008).

To initiate the implementation of the Project, UNESCO Doha commissioned the development of two Master Plans, one in Sharjah (United Arab Emirates) in 2007 and one in Doha (Qatar) in 2008. These Master Plans are based on guidelines that have been elaborated by a team of international experts (Qur’anic Botanic Garden in Sharjah – Guidelines for Developing the Master Plan; and Guidelines for the Qur’anic Botanic Garden in Qatar).

1.2 Purpose of the Evaluation

In line with UNESCO’s evaluation policy, Botanic Gardens Conservation International (BGCI) was selected following a tender competition to undertake a formative and summative evaluation of the Project. The assessment aims to examine progress and achievements of the Project to date to inform decisions on its future implementation. The main objectives are to assess the relevance, effectiveness, efficiency, utility and sustainability of the Project. This will include assessment of the Project deliverables and processes and their requirements for transferability to other sites in the region. The specific objectives set down in the Terms of Reference for Evaluation are made available in ANNEX 1.

As mentioned in section 1.1, two Master Plans have been developed as pilots of the Qur’anic Botanic Gardens Network. This evaluation report includes an assessment of the Master Plan for Qatar. The evaluation of the Master Plan for Sharjah is provided as a separate report.

1.3 Background on the Evaluator: Botanic Gardens Conservation International

Botanic Gardens Conservation International (BGCI) is the world’s largest network of botanic gardens and affiliated institutions, bringing together the expertise of over 600 botanic garden members. Within North Africa and the Middle East, BGCI has 34 member gardens. The mission of BGCI is *to mobilize botanic gardens and engage partners in securing plant diversity for the benefit of people and the planet.*

At a global level, BGCI has been closely involved in the development and implementation of the Global Strategy for Plant Conservation (GSPC) under the auspices of the Convention on Biological Diversity and is the lead facilitating agency for two targets of the GSPC; Target 8 relating to *ex situ* conservation and Target 14 relating to education and public awareness (see ANNEX 2 for a list of GSPC Targets).

BGCI is involved in developing and supporting regional botanic garden networks. As part of its Investing in Nature Programme (2002-2007) funded by HSBC, BGCI specifically set out to establish an Arab Botanic Gardens Network in the Middle East and convened two regional meetings to facilitate this process. BGCI has also been directly involved in the planning, design and establishment of new botanic gardens in countries such as Jordan, Oman and Saudi Arabia. Key documents produced by BGCI to guide technical development and conservation planning by botanic gardens include the *Darwin Technical Manual for Botanic Gardens* and the *International Agenda for Botanic Gardens in Conservation*, both of which are available in Arabic.

2 Methodology

2.1 Introduction

To evaluate the Qur'anic Botanic Gardens Network, BGCI, capitalising on its international experience and worldwide network of botanic garden members and affiliated institutions, drew up a methodological framework and questionnaire survey. This involved analysing the specific objectives of the project and identifying the key questions that needed to be asked in order to determine how successfully the objectives had been met. The relevant data sources were also identified, as were the methods of data collection.

2.2 Approach to Data Collection

The data collection involved a triangulation process which included - Document Reviews, Semi-Structured Interviews and Surveys.

Document Reviews – A large range of documents, publications and letters were consulted and reviewed during the evaluation process. These included:

- *Qur'anic Botanic Gardens Project – Project Proposal to Establish a Network of Botanic Gardens in the Arab Region Influenced by Scientific and Aesthetic Concepts from the Islamic Garden Cultures and from the Holy Qur'an*
- *Guidelines for the Qur'anic Botanic Garden in Qatar*
- *Qur'anic Botanic Garden, Qatar – Master Plan Manual* (version 11 July 2008)
- Other relevant documents provided by the UNESCO Office in Doha, including documents recording the development process of the project (e.g. copies of emails and letters) as

well as other important background documents (*Workplan for the Development of a Master Plan Aimed at the Establishment in Qatar of a Botanic Garden Based on the Holy Qur'an and the Islamic Garden Cultures*; UNESCO mission report, United Arab Emirates, September 7-9, 2007; Request for Proposal).

Semi-Structured Interviews – During a mission to Doha, Sharjah and Dubai in July 2008, face-to-face semi-structured interviews were conducted with project stakeholders. These included staff at UNESCO Doha Office, the landscape architects for the project, members of the International Advisory Committee and staff of relevant institutions. Three additional stakeholders were interviewed in the United Kingdom.

Surveys – Following the evaluation mission, a questionnaire survey was prepared and sent to all the members of the International Advisory Committee represented on both committees – the Qatar project (comprising 12 experts) and the Sharjah project (comprising 26 experts). The survey was also sent to 16 relevant experts known to BGCI, who are likely to have an interest in the aims of this initiative. Three additional experts were interviewed in the United Kingdom. The surveys included a mixture of open and closed questions. Responses were collated to enable conclusions and trends to be drawn.

The questionnaire survey form is given in ANNEX 3 and the experts who participated in the consultation process and provided their views and comments are named in ANNEX 4.

3 Evaluation of the Qur'anic Botanic Gardens Network

3.1 Introduction

As highlighted in section 1.2, this evaluation offers an analysis and recommendations for the future implementation of the Qur'anic Botanic Gardens Network. It reflects BGCI's own assessment in conjunction with the results from the stakeholder consultation mentioned in section 2. This part of the report aims to provide an assessment of the relevance, effectiveness, efficiency, utility and sustainability of the Qur'anic Botanic Gardens Network with recommendations for future implementation.

3.2 Evaluation

3.2.1 Relevance

A stated aim of the Project is to pursue 'important objectives in the fields of: environmental conservation; scientific; culture; and education and recreation'

(Qur'anic Botanic Gardens Project – Project Proposal, 2006, p 14). This is further expanded upon to read 'establishing a network of botanic gardens in the region, including centres of excellence for botanic education, research, and conservation (Qur'anic Botanic Gardens Network – Terms of Reference for Evaluation, 2008). As originally conceived, function and design of each new botanic garden would be integrated to include, i) a 'Qur'anic Garden', as a means mainly to reflect the public awareness and education objective; ii) a 'Desert Garden', to encompass the conservation component of the garden by establishing *ex situ* collections of plants from the region; and iii) research facilities whose architecture would reflect Islamic/Persian aesthetic and functional principles; the latter would also be applied in the design of the 'Qur'anic' and 'Desert Garden'.

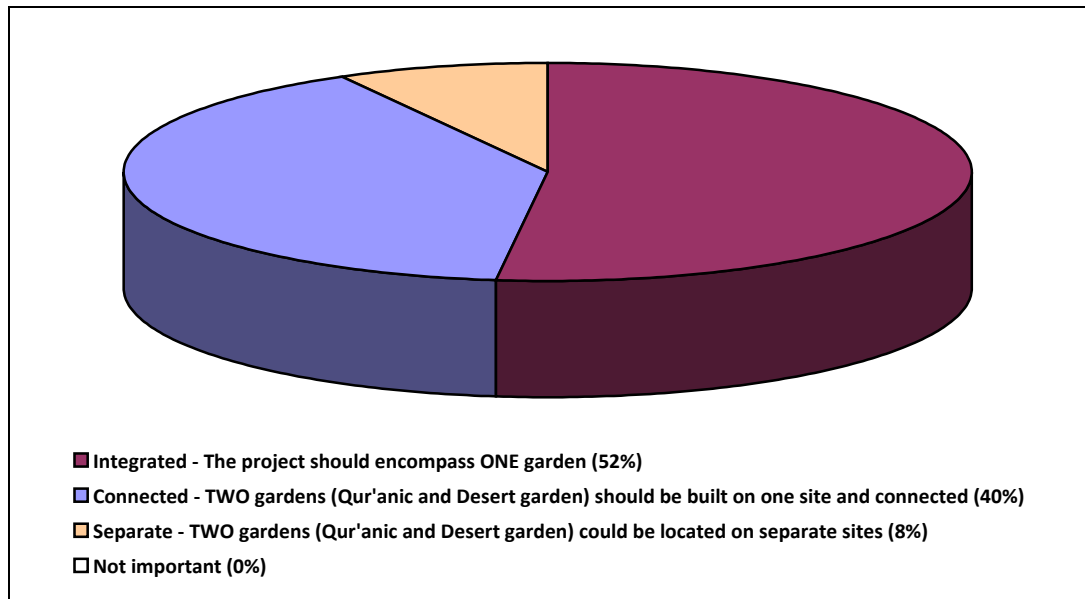
While it is a highly commendable approach to integrate conservation, science and education and the cultural and religious foundations of the region, a major challenge remains in the operational integration of function and design:

There is a long history in the region of developing gardens using Persian garden design concepts. However, it was pointed out during the stakeholder consultation to undertake the evaluation that there are no established historical fundamentals, records and models for designing 'Qur'anic' gardens. Including 'science' into the garden's remit and calling it a 'Qur'anic Botanic Garden' which is used by the Project to encompass also the above-mentioned 'Desert Garden', could be a source of a major confusion as far as the role of such a garden is concerned. Articulating clearly the connectivity issues in terms of function and design between the two garden components will be critical. For example, how the botanical display of plants referenced in the Holy Qur'an is related to Islamic medical traditions, and how these are reflected combining traditional garden design concepts and specific ecological requirements of individual species, needs to be carefully considered. Given the potential 'oasis' nature of the 'Qur'anic Garden' in a desert environment, a strong link between the two gardens would seem to be highly desirable.

In terms of function and design, the stakeholder consultation clearly highlights (52% of all the stakeholder responses) the importance of the garden designed as a functional entity to include the 'Qur'anic' and the 'Desert Garden' (see Fig 1). A large number of stakeholders (40%) also drew attention to the need of ensuring functional connectivity should the two gardens be built as individual entities, while only a few experts (8%) were of the opinion that the gardens could be located in separate sites. None of the stakeholders consulted thought that this question was

of no importance. The discussion on garden function and design and its implications for the associated facilities is of particular relevance to the Master Plan for Qatar as explained and assessed in section 4 of this report.

Fig 1: Stakeholder views on the relationship between the Qur’anic Garden and the Desert Garden in the Qur’anic Botanic Gardens Network model



To maintain the highly relevant overall vision of the Project, a further challenge remains in communicating the Project concept as unambiguously as possible while retaining high levels of creativity in the implementation. This will be particularly vital, ultimately, if and when the Project is applied to regions beyond the Arabian Peninsula, the Middle East, North Africa and West Asia to include for instance Indonesia and other countries in Southeast Asia where different environmental conditions though strong cultural links prevail.

The broader relevance of the Project can be seen as contributing to international obligations for biodiversity conservation for example through the Convention on Biological Diversity (CBD) to which countries throughout the region are Parties. A particular focus of the CBD is the Global Strategy for Plant Conservation (GSPC) with its 16 targets to be met by 2010 (see ANNEX 2). The Plant Conservation Strategy for the Arab World being developed by the IUCN/SSC Arabian Plant Specialist Group which reflects the GSPC targets also gives relevance to the project.

Recommendation:

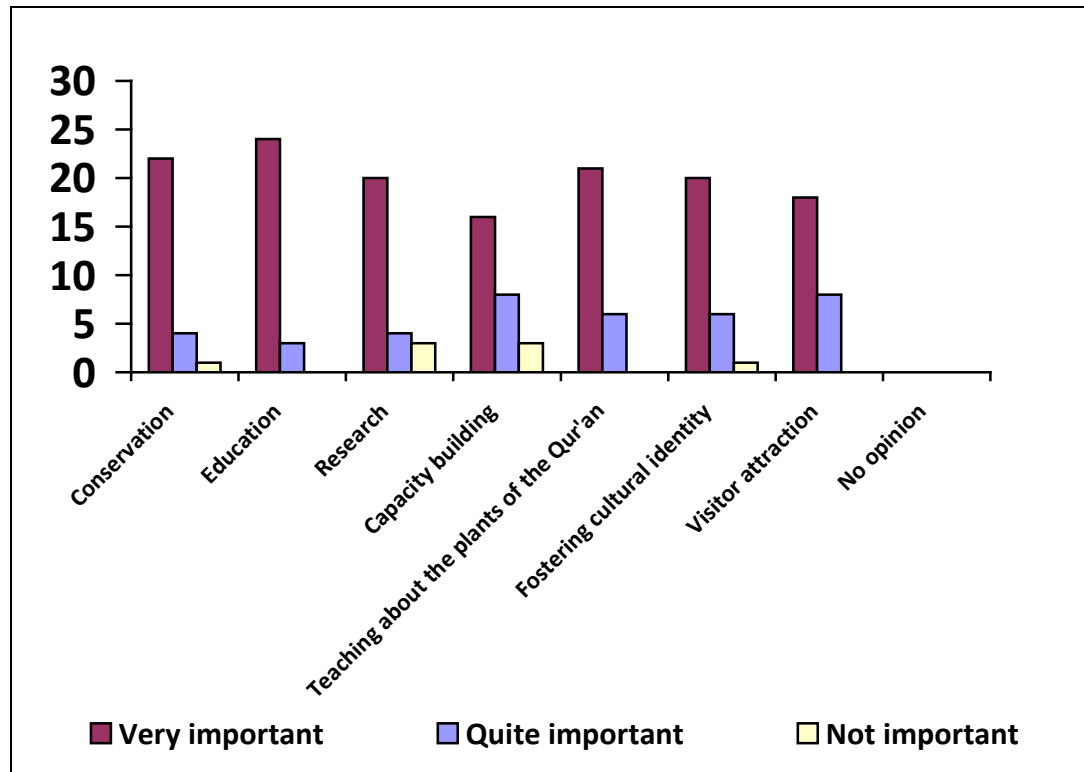
- *To ensure the successful integration of function and design of new gardens in the region to form part of the Qur'anic Botanic Gardens Network it will be important to fully capitalize on the lessons learnt in conceptualizing and implementing the initial pilot garden projects. A short but concise rationale of the functional relationship between the 'Qur'anic Garden' and the 'Desert Garden' will inform the planning process for new gardens and will help to promote the Qur'anic Botanic Gardens Network to other regions of the world while ensuring cohesive identity.*

3.2.2 Effectiveness

The ambitious endeavour of the Qur'anic Botanic Gardens Project has indeed been motivated by the continuing loss of plant diversity which is apparent globally and locally, and by the lack of botanical institutions which can address this conservation crisis at the regional level. Around the world botanic gardens have become important agencies for plant conservation particularly over the past 30 years. An overview of existing botanic gardens in the Arabian Peninsula, the Middle East, West Asia and North Africa indicates the limited number of botanic gardens within this broad region. This is shown in ANNEX 5 based on information provided by GardenSearch, the global database of botanic gardens maintained by BGCI. While some countries have one or few botanic gardens and/or affiliated institutions with potential to tackle plant conservation challenges (e.g. Saudi Arabia, Egypt), there are other countries with no entry of any botanic garden in GardenSearch (e.g. Yemen, Bahrain).

It therefore does not come as a surprise that the stakeholder consultation unanimously confirms the importance of the Project to develop a network of functional botanic gardens in the region. Developing the capacity for environmental education, plant conservation and research, through botanic gardens at regional and national scales was considered to be particularly important (see Fig 2). Focusing to a large extent on species occurring in arid ecosystems as a predominant feature of the region, the potential contribution of the Project to conservation outcomes at global level is equally apparent.

Fig 2: Stakeholder views rating the importance of the Qur’anic Botanic Gardens Project



The stakeholder consultation also highlights the opportunities of the Project for environmental education and public awareness of the importance of the Holy Books of Islam in promoting the need for conservation using examples of plants cited in the Holy Qur’an and the Hadith.

As mentioned above, at present the number of botanic gardens that are effectively operating in the region is very small. This is partly because of inadequately allocated resources for botanic gardens in addition to the lack of experts in the region with the required experience to develop and manage botanic gardens.

From BGCI’s recent experience supporting botanic garden development in Jordan and Oman there is still a need for major input from outside of the region – particularly when the ambition to develop a ‘centre of excellence’ is being pursued. Therefore, when looking at the development and on-going management of the proposed botanic gardens it is extremely important to investigate and decide very early on in the planning process how the institution will actually be staffed. In the example of the Oman Botanic Gardens, there has been a definite

policy to develop the garden so that it will be staffed ultimately with Omani nationals – both in terms of management and horticultural work. While it may be necessary to partly staff it with expatriates for some time, and even this is not guaranteed, the desire to have in-country staffing has been seen as very important.

Given the lack of expertise immediately available for even a small number of gardens, there is an obvious need for a very serious effort to build capacity within the region. This needs to be thoroughly thought through before the botanic garden commences development. In numerous countries BGCI has considerably helped build the capacity of botanic gardens and is prepared to further assist in the design and establishment of specific training modules. This would involve both the organisation of courses and targeted workshops and the possible organisation of staff exchanges with other institutions.

The idea of creating a single botanic garden as an institution regarded internationally as a ‘centre of excellence’ is without a doubt a big challenge. Aiming at establishing a number of new botanic gardens in the Arab region and setting up ‘centres of excellence for botanic education, scientific research and conservation’ poses an even greater challenge. BGCI has been supporting the establishment of the Arab Botanic Gardens Network for several years (see section 1.3). The Project plays a valuable role in the development and operation of botanic gardens in the region. The potential of the network in terms of encouraging existing gardens and those in development to work together, however needs to be further explored.

Recommendations:

- *It is important to first create an operating example of a ‘centre of excellence’ to be a model botanic garden that can function both independently and collaboratively.*
- *A continued involvement with the Arab Botanic Gardens Network should be considered. Funding for a small secretariat (one staff person) would greatly facilitate this process.*
- *Interaction with relevant organisations/institutions already operating or in the process of being developed should be further enhanced, including links with universities and conservation organisations. Specifically, contacts should be maintained and strengthened with the IUCN/SSC Arabian Plant Specialist Group which has 87 members from 11 countries.*

- *The establishment of a capacity building action programme addressing all dimensions of botanic garden involvement needs is to be addressed from the outset of the project as this will be crucial to the development of any new garden conceived under the Qur'anic Botanic Gardens Network.*

3.2.3 Efficiency

As discussed earlier in section 3.2.2, the Project's development process to date suggests that further scope remains to fully capitalise on the recent experience gained by other garden developments e.g. in Jordan, Oman, Egypt and Saudi Arabia. While UNESCO took advantage of the second conference organised by BGCI of the Arab Botanic Gardens Network – hosted by the Royal Botanic Garden of Jordan under the leadership of Her Royal Highness Princess Basma Bint Ali of Jordan, in March 2007 – to present the Qur'anic Botanic Gardens Project, regular information exchange and communication between the project planners and the members of the Arabian botanic gardens network will be essential to further promote the Project in the region.

At global level, UNESCO has sought to build on the expertise and experience of relevant gardens such as the Desert Botanical Garden, Phoenix (USA), however the potential to capitalise on the work of other major gardens of great importance in terms of their *ex situ* conservation policies and collections of plants from arid environments such as Alice Springs Desert Park (Australia), Arizona-Sonora Desert Museum (USA) and Karoo Desert National Botanic Garden (South Africa) should be further explored. Operating in similar extreme environmental conditions, these botanic gardens provide a tremendous opportunity to build on experience and lessons learnt in an effort to use resources efficiently and cost effectively. Capitalising on, as much as possible, previous and current experience is a vital necessity to achieve this.

In order to assess the fiscal probity in terms of efficient use of resources, a proper financial audit would have been required which goes beyond the scope of this evaluation.

Recommendation:

- *Take further advantage of related experience gained and lessons learnt in the region and internationally to contribute to maximised efficiency and cost-effectiveness in the use of resources.*

3.2.4 Utility

The Qur'anic Botanic Gardens Project has no doubt generated lively attention in the region. Following the meeting of the Arab Botanic Gardens Network (see section 3.2.3), UNESCO communicated interest from participants of the meeting from Morocco, Palestine, Jordan and Lebanon in establishing related gardens in their countries (Qur'anic Botanic Gardens Network – Terms of Reference for Evaluation, 2008).

The 16 experts not represented on either of the two International Advisory Committees who were additionally consulted for this evaluation (see section 2.2) showed that with exception of one expert, all stakeholders were aware of the Project. One expert pointed out the potential interest in the Project of major Islamic institutions, e.g. the Asqar University in Cairo, Egypt. Similar interest has been indicated by Iran gathered from recent correspondence with UNESCO. While stakeholders did not specify information needs of particular concern, lack of overall communication and flow of information on the Project following the meeting of the proposed network of Arabian botanic gardens in Amman, Jordan in 2007, was pointed out repeatedly.

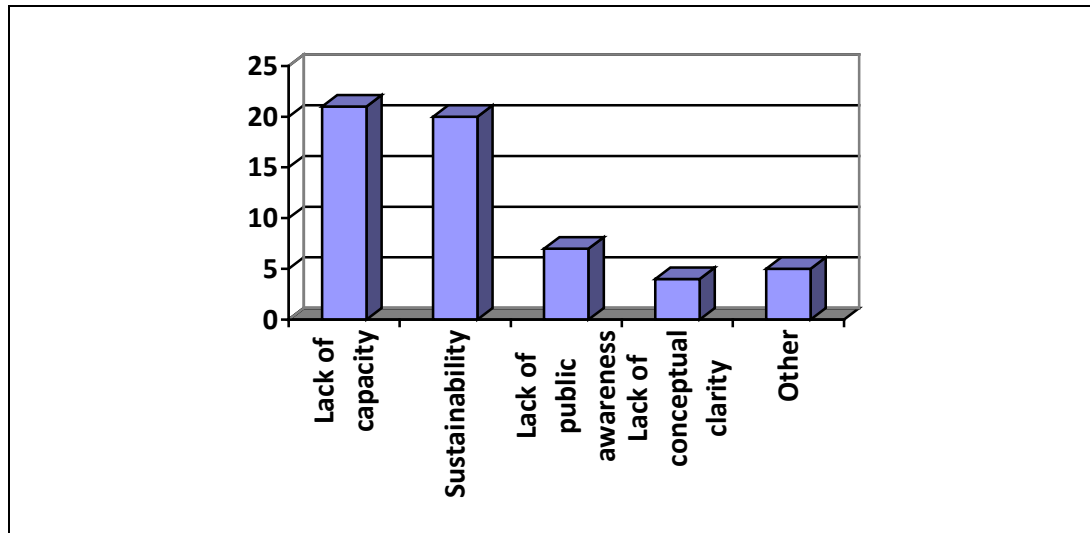
Recommendation:

- *Following a proposed wide publication of the evaluation results of the Qur'anic Botanic Gardens Project, UNESCO may like to consider organising an international seminar with relevant stakeholders to debate the linkages between biodiversity conservation, botanic gardens and Islam, which will offer an opportunity to showcase progress and challenges in implementing the Project.*

3.2.5 Sustainability

As with most botanic gardens today, the gardens conceived under the Project face a tremendous challenge to generate sufficient resources and income to sustain their work. Lack of capacity to manage the gardens, as well as overall issues of sustainability, in particular financial viability were raised as major potential threats during the stakeholder consultation (see Fig 3).

Fig 3: Challenges and Threats to the Qur’anic Botanic Gardens Project



Therefore, a lasting source of funding must be identified and guaranteed to sustain education, research and conservation work. The gardens may be able to raise a limited amount of income through sources such as ticketing, events and concessions. How much these latter activities are going to be regarded as important parts of the gardens’ operation will need to be further determined. Overall, it should be noted however, that the gardens envisaged under the Qur’anic Botanic Gardens Project offer an enormous potential to become sites of cultural importance and thereby could significantly facilitate resource mobilisation.

As far as possible structures that will help to make the botanic gardens sustainable are concerned, the following possible options should be considered:

- i) Part of a government department (e.g. related to Conservation or Education): While this provides an easier connection with the government as a funding body it also can cause serious delays in the running of the garden as a business. This is of particular significance if the materials needed to operate the botanic garden are not locally or regionally available. However, many government funded botanic gardens in the world operate this way, using minor contractual arrangements for work such as cleaning and catering.
- ii) An independent but government supported institution, with a Board answering to the government: This provides a greater degree of

independence but can still be strongly influenced by government procedures and opinions. This organizational arrangement is used widely and has the advantage of involving representatives from different parts of the community.

- iii) Part of a university: The benefits include the university being able to: use the botanic garden as a teaching and research resource; provide a source of staff; and, give the botanic garden further academic, scientific, and cultural credibility. This could be of particular significance given the limited amount of expertise otherwise available. One major weakness could be the amount of support the botanic garden would receive within the university/department at any one time. It is also still necessary to consider how the commercial aspects of the botanic garden will be addressed. However, there are again many examples of botanic gardens structured in this way.
- iv) An independent company/institution/charity fully responsible for its own management and income but still receiving some government support: This provides far greater freedom for the institution but puts activities such as research, conservation and education at greater risk as their importance can depend on total funds available. A variation that could be considered is that the activities of the botanic garden are split into two areas. One section is responsible for the Horticulture, Science and Education and one that is responsible for the commercial aspects and (non horticultural) maintenance. This would recognise the importance of horticulture, research and education while still encouraging the gardens commercial development. It is assumed that such an arrangement would still have to have a 'Director General' over-seeing the entire institution.

Recommendation:

- *Consider how the newly conceived botanic gardens will relate to government and other institutions taking into account both those aspects of the botanic garden that will always require financial support and those capable of producing funding for the garden or running contracted businesses.*

3.3 Overview of Recommendations for the Qur'anic Botanic Gardens Network

Relevance:

- *To ensure the successful integration of function and design of new gardens in the region to form part of the Qur'anic Botanic Gardens Network, it will be important to fully capitalize on the lessons learnt in conceptualizing and implementing the initial pilot garden projects. A short but concise rationale of the functional relationship between the 'Qur'anic Garden' and the 'Desert Garden' will inform the planning process for new gardens and will help to promote the Qur'anic Botanic Gardens Network to other regions of the world while ensuring cohesive identity.*

Effectiveness:

- *It is important to first create an operating example of a 'centre of excellence' to be a model botanic garden that can function both independently and collaboratively.*
- *A continued involvement with the Arab Botanic Gardens Network should be considered. Funding for a small secretariat (one staff person) would greatly facilitate this process.*
- *Interaction with relevant organisations/institutions already operating or in the process of being developed should be further enhanced, including links with universities and conservation organizations. Specifically, contacts should be maintained and strengthened with the IUCN/SSC Arabian Plant Specialist Group which has 87 members from 11 countries.*
- *The establishment of a capacity building action programme addressing all dimensions of botanic garden development requires to be addressed as the linchpin of any new garden conceived under the Qur'anic Botanic Gardens Network.*

Efficiency:

- *Take further advantage of related experience gained and lessons learnt in the region and internationally to contribute to maximised efficiency and cost-effectiveness in the use of resources.*

Utility:

- *Following a proposed wide publication of the evaluation results of the Qur'anic Botanic Gardens Project, UNESCO may like to consider organising an international seminar with relevant stakeholders to debate the linkages between biodiversity*

conservation and Islam, which will offer an opportunity to showcase progress and challenges in implementing the Project.

Sustainability:

- *Consider how the newly conceived botanic gardens will relate to government and other institutions taking into account both those aspects of the botanic garden that will always require financial support and those capable of producing funding for the garden or running contracted businesses.*

4 Evaluation of the Master Plan for the Qur’anic Botanic Garden in Qatar

4.1 Introduction

Following UNESCO’s presentation of the Qur’anic Botanic Gardens Project at the second conference organised by BGCI of the Arab Botanic Gardens Network – hosted by the Royal Botanic Garden of Jordan, under the leadership of Her Royal Highness Princess Basma Bint Ali of Jordan, in March 2007 – Maersk Oil Qatar approached UNESCO in April 2007 and offered financial support for the development of a Qur’anic Botanic Garden in Qatar. This was also discussed with Qatar’s First Lady and chairperson of Qatar Foundation, Her Highness Sheikha Mozah Bint Nasser Al Missnad. A joint agreement between Maersk Oil Qatar, Qatar Foundation and UNESCO to develop the Master Plan for the Qur’anic Botanic Garden in Qatar was signed on 16 April 2007.

UNESCO established an International Advisory Committee (IAC) in 2007 to elaborate a set of guidelines to provide a vision for the project and to advise the contracted party on the establishment of the Master Plan. The meeting of the IAC was held from 30 June – 4 July 2007 at Shahaniya Farm. The ensuing document – Guidelines for the Qur’anic Botanic Garden in Qatar – published in November 2007, set out the rationale and vision for a Qur’anic Botanic Garden in Qatar: ‘Provide the people of Qatar and the Gulf Region with a Centre of Excellence for Research and Education, promoting the conservation of natural and cultural heritage, emphasising the teachings of the Holy Qur’an and the Hadith. This will also function as a prime recreational destination’. The Guidelines present vision statements and objectives for conservation, research and education as well as environmental sustainability, and technical specifications for a number of the components envisaged in the Qur’anic Botanic Garden, including ‘Research centre’, ‘Qur’anic Botanic Garden’, ‘Arabian Desert Botanic Garden’, ‘Sheikha Mozah’s Rose Garden’, and ‘Qatar Natural History Museum’.

During a UNESCO mission (7-9 September 2007) to Dubai and Sharjah (United Arab Emirates), staff members met with a landscape architect to discuss the development of the Master Plan for the Qur'anic Botanic Garden in Qatar. The landscape architect was subsequently recommended by UNESCO Office in Doha to be considered as a candidate for the development of the Master Plan. The mission outcomes further suggested organising 'a meeting with partners of the project and discussing with them the technical requirements of the master plan' (UNESCO mission report, United Arab Emirates, September 7-9, 2007).

As the total costs of the Master Plan were set at a price below USD 100,000 no Open International Competition was required according to UNESCO regulations. Out of 10 invitations to submit a tender for the Master Plan development, six interested parties sent a proposal to the UNESCO Office in Doha. Three companies submitted a proposal within the undisclosed price threshold. Ralph Oliver of London was selected as the winning company to develop the Master Plan for the Qur'anic Botanic Garden in Doha.

Following recent correspondence (6 November 2008) with the UNESCO Office in Doha, BGCI was informed that the location of the 'Qur'anic Garden' is newly suggested to be developed next to Texas A&M University in Education City. The Qur'anic Botanic Garden in Doha was officially inaugurated by Her Highness Sheikha Mozah Bint Nasser Al Missnad on 17 September 2008.

4.2 Findings

4.2.1 Master Plan Development Process

Guidelines for the Qur'anic Botanic Garden in Qatar

In considering the overall aim of the Qur'anic Botanic Gardens Project, the Guidelines for the Qur'anic Botanic Garden in Qatar state that 'The Botanic Garden, in particular the Qur'anic section, should demonstrate the basic principles of Islam and provide an 'oasis in the desert' for peaceful reflection and tranquil contemplation in an aesthetically pleasing and sustainable environment' (p 4). The Guidelines also reiterate that the garden should play a role in conservation, research and education, articulated as 'visions' in the document.

The Guidelines make a commendable effort to engage with the material and logistical requirements of delivering on these visions, although we would have expected to see a firmer evidence base for them. We would argue therefore that a further and more detailed account of these 'visions' would be helpful, as explained below.

The *Conservation Vision* states to ‘focus initially on *ex situ* conservation through seed storage and field gene banks’ (p 5). While details are given on requirements for seed storage and living plant material to be maintained in the field gene bank, and the importance and role of representing the species’ genetic diversity is highlighted, no guidance is provided on how this is to be achieved in the establishment of *ex situ* collections. Given the tremendous differences in plant species diversity between the countries of the Arabian Peninsula, Middle East, North Africa and West Asia (see ANNEX 6) ranging from a few hundred (e.g. Qatar) to several thousand (e.g. Saudi Arabia), the establishment of genetically representative collections of the native flora will be a challenging task at least for some countries, let alone the establishment of *ex situ* collections representing the regional diversity in species and genetic variability within species. Collaboration will be essential based on a gap analysis of existing *ex situ* collections for example those maintained by the agricultural sector and the Millennium Seed Bank (MSB) Project which has a particular focus on arid land plants. In terms of *ex situ* conservation through seed storage, the expertise of and coordination with the MSB Project (United Kingdom) should be sought.

While a list of plant species to be represented in the Qur’anic Botanic Garden has been compiled with the input from a wide ranging team of international experts, a number of species do not seem to be representative of the dryland and a range of other ecosystems of the region (e.g. the palm garden list includes species from China, Mexico and the United States). This contradicts the *ex situ* conservation collection vision stated in the Guidelines. As such, the listings should be reviewed and amended to better reflect the conservation vision of the Qur’anic Botanic Garden (see also section 4.2.3.3). The preparation of a Living Collections Policy will be important for this review.

The *Research Vision*, highlighting the herbarium as a core element of a botanical research institution, aims to compile around 100,000 specimen sheets. It will be important to identify priority species for herbarium collections and to develop a time frame within which this work will be accomplished. The Guidelines provide information about the physical requirements for the proposed herbarium and various laboratories. This needs to be accompanied by a vision for the work that will be carried out within the laboratories and a proposed prioritisation of work to determine exactly what facilities are needed and by when. Details are also provided about the size and numbers of rooms, number of volumes of books, equipment, etc. It would be useful to know what these specifications are based on as it is not clear that these recommendations are evidence-based.

The *Education Vision* appears to focus on providing information on plants and environmental sustainability. However, if the garden is to encourage sustainability, which implies behaviour change as well as awareness raising, then we would argue that the garden's education vision adopts a broader framework. We would recommend a re-evaluation of the guidelines in line with BGCI's own guidelines on Environmental Education and Education for Sustainability. While indeed BGCI's guidelines are referred to in the document, it is unclear whether and to what extent they have been adopted. The Education Vision, in its present guise, does not clarify its plans for teaching about plants and the Qur'an. In our view, this is an important aspect of the garden's function. We would recommend that this aspect be given careful consideration, especially since the Guidelines state that 'the Qur'anic section itself should have a sacred character that induces peace, reverence and meditation' (p 12).

We commend the *Environmental Sustainability Vision*, which aims at establishing the Qur'anic Botanic Garden as a model for sustainability. We would support moves to make this one of the driving forces behind the design for the garden.

In conclusion, while we believe that the Guidelines overall provide important and pertinent fundamentals to develop the Master Plan, it nonetheless can also be argued, that the various sections differ tremendously as far as the structure and level of detail is concerned which gives the document a somewhat heterogeneous appearance. For future Guidelines' development it is therefore suggested to present the information in a more structured way, e.g. using the following sections: a) Strategic Plan; b) Facilities Plan; and c) Operating Plan.

Recommendation:

- *Future guidance to establish the master plan of a proposed garden should be made available in a cohesive structure using e.g. the sequence of a Strategic Plan; Facilities Plan; and Operating Plan.*

4.2.2 Evaluation of Master Plan Manual – Qur'anic Botanic Garden, Qatar (version: 11 July 2008)

Overall Design

Recent correspondence with UNESCO revealed that the 'Qur'anic Garden' will be located at Education City in Doha. The 'Arabian Desert Botanic Garden', hereinafter referred to as the 'Desert Garden' however, will remain outside Education City at Shahaniya Farm (at a distance of ca. 20 km from Education City),

owned by His Highness, Sheikh Faisal Bin Qassim Bin Faisal Al Thani. No subsequent detailed plans are available to the evaluators to fully appreciate this change and assess the design for and connectivity of the 'Desert Garden' with the 'Qur'anic Garden'. In the same vein, newer versions of the Master Plan will also have to contextualise the linkages with the other garden components as mentioned in the Guidelines, the Sheikha Mozah's Rose Garden and the Qatar Natural History Museum once their location has been decided upon.

We understand that the decision to move the 'Qur'anic Garden' to Education City is mainly to facilitate easier access to the garden by the population of Qatar. It is believed that greater numbers of people will visit Education City than Shahaniya Farm. Nevertheless, we are concerned about this dichotomy. It is recalled here, that according to the Guidelines for the Qur'anic Botanic Garden in Qatar, the 'Qur'anic section should be the focal point of the whole garden. It should be located almost in the centre of the plot, and should be clearly identifiable from a distance' (p 12). In the questionnaire survey carried out by BGCI, stakeholders were asked their views on the relationship between the 'Qur'anic Garden' and the 'Desert Garden'. As discussed in section 3.2.1, a significant majority of the stakeholders consulted for the evaluation thought that the garden should be designed in an integrated manner, while a similarly important proportion thought that the two gardens should be connected.

We are concerned that the building of two gardens on separate sites without any clear connections between them may result in a reinterpretation of the Qur'anic Botanic Gardens Project by other countries and states in the region who may decide to build only 'Qur'anic Gardens'. This would contradict the overall endeavour of the Qur'anic Botanic Gardens Network to integrate and advance equally education, research and conservation.

Recommendations:

- *Due consideration needs to be given to how the 'Qur'anic Garden' and the 'Desert Garden' as well as the other garden components will be linked and coordinated in terms of their operations and promoted as a joint venture.*

'Qur'anic Garden' Design

From our discussions with the landscape architect for the Master Plan, we understand that the design of the 'Qur'anic Garden' is based on the 114 Suras of the Qur'an and that the outline of the garden has seven points, a number which is highly symbolic in Islam. We note however that there are only 106 sections in the

garden, including the central area. If this is to become part of the garden's metaphor, then it would be essential that the equivalent number of sections be incorporated into the design.

The design of the garden is innovative with a number of sections, archways and walkways, however, the full spirit of the architectural creation may be possible to be appreciated only from an aerial view. The design may provide an interesting experience for people visiting the garden, however from a functional and operational perspective we have a number of concerns.

The sections do not allow a visual overview of the garden and for some people this may result in frustration and for others possibly a sense of claustrophobia. We understand that more archways have been included to provide a clearer view into other areas of the garden, although the sense of a labyrinth will still remain. A detailed map of the garden will therefore be an essential item for all visitors. As a very large percentage of people visiting botanic gardens seem to have problems reading maps, any maps prepared will need to be fully trialled to ensure visitors do not become disorientated and anxious about trying to locate certain sections of the garden.

For families, the design presents another challenge which is to ensure that their children are kept close by. Likewise with school groups, it may not be possible to allow younger children to explore the garden independently. The layout of the garden could result in people becoming separated from each other quite easily and this would present a management issue for the garden, in terms of reuniting people. The number of maps needed for visitors will be high and this in turn may present a litter problem.

Garden staff will also need to be competent in map reading otherwise they may end up working in different sections from the ones they were instructed to work in.

The top of the outside wall will be accessible to visitors. However, it does not appear to be sufficiently high enough to allow visitors a complete overview of the garden design. This assumption is supported by the illustration entitled 'Entrance view of Qatar Qur'anic Garden'. As stated earlier, unfortunately the aesthetic design of the garden as a whole may not be fully appreciated by visitors unless they had an aerial view.

As we are evaluating a draft version of the Master Plan, we do not know the number of staircases that will be installed in the outer wall. However, we would

recommend at least four staircases be installed so that visitors do not have to walk too far before they can choose whether or not to descend. We understand that there are discussions about installing a lift in the outer wall to ensure accessibility for those people less able to climb stairs and/or wheelchair bound or pushing a stroller. Thought needs to be given about whether a second lift is installed half-way around the wall. If not, wheelchair/strollers users will have to decide whether they a) travel around the whole wall or b) travel part of the way around the wall and turn back. Due to safety requirements only adults will be able to look over the wall and view the garden. Unless assisted, people in wheelchairs and small children will not benefit from this view. We therefore recommend that view holes be incorporated into the walls to enable people of all heights to see the garden.

The top of the internal walls of the garden will also be accessible to visitors. Again, we understand that the designer has not yet made the final decision about the number of staircases that will be installed. We understand that the walls will slope from the outside of the garden to the middle of the garden and this will mean that at no time on the top of the internal walls will people be walking on a flat level. Walking up or down a slope can be tiring for people, especially in exposed heat, and may not be conducive to people wanting to enjoy a view of the garden. In which case, the designer may want to consider including rest features on the walkways. As with the external walls, we recommend that view holes be incorporated to enable people of all heights to view the garden.

At the centre of the garden is a shade structure in the shape of a pentagon. A restaurant will be housed on the roof of the pentagon and in the centre of this space there will be a square pool with a fountain. We note that following a meeting between UNESCO and Maersk Oil Qatar, to discuss the Qur'anic Botanic Garden in Qatar, the Managing Director of Maersk Oil sent a fax to UNESCO (3 April 2007) highlighting, among other things, that they had discussed using the Maersk star in the creation of the garden fountain. We are unaware whether the proposed design matches Maersk's expectations.

Two restaurants are proposed for the garden – one on top of the pentagon, as mentioned above, and one housed in the outside wall of the garden, alongside the library. The seating area for this restaurant will also be placed on top of the wall. This would provide a pleasant experience for dinners, however thought needs to be given about access for people with disabilities.

It is proposed that the main facilities of the garden will be housed in the outside walls (toilets, library, medicine house, essence house, children's house, education

room, audio visual room, centre of excellence for botanic research, education and conservation). No final decisions have been taken about where these facilities will be located. Given the design of the garden, it may be necessary to duplicate certain facilities, such as tool storage areas, otherwise time may be wasted by staff in walking back and forth to collect tools. The designer has acknowledged that toilets will also need to be located in various sections of the gardens.

The Master Plan proposes a range of interesting activities for children and the public. However, we are unclear whether these activities are consistent with the aim of the garden which is to ‘...provide an ‘oasis in the desert’ for peaceful reflection and tranquil contemplation...’ (Guidelines, p 4). Further information needs to be provided whether – and to what extent – consideration has been given to how Muslim and non-Muslim visitors to the garden may be accommodated, so as to optimise their experience of the visit and at the same time safeguard the spiritual integrity of the landscape.

Recommendations:

- *The design of the garden may need to be revisited and evaluated from an operational and visitor attraction perspective. Consideration could be given to removing internal walls to create a more open garden that would enable facilities to be more centrally located.*
- *If it is the intention to reflect all the Suras in the design of the ‘Qur’anic Garden’ we recommend that there is a corresponding number of sections (114).*
- *Further consideration should be given to accessibility for all within the garden. This may include building more than one elevator into the outer walls, creating seating on the ground floor in one of the restaurants and building view holes at lower levels into the outer walls.*
- *Further work should be undertaken to ensure the successful reconciliation of the two potentially contradictory aspirations of providing a space for ‘exploration’ and an ‘oasis in the desert for peaceful reflection and tranquil contemplation’.*

4.2.3 Evaluation of the Function of the Qur’anic Botanic Garden

The ‘Qur’anic Garden’ component was originally designed to be the focal point of the Qur’anic Botanic Garden located at Shahaniya Farm. However, as mentioned above, the ‘Qur’anic Garden’ has been relocated to Education City. The present Master Plan available to the evaluators does not yet reflect this change which brings about important implications in terms of the central functions of the Qur’anic Botanic Garden. It states that ‘The Centre of Excellence for Botanic Research, Education and Conservation will be incorporated within the outer walls of the Qatar Qur’anic Garden’ and list information related to proposed centre of excellence from the Guidelines document. Therefore, only an initial assessment of the Master Plan pertaining to education, research and conservation is provided.

4.2.3.1 Education, Communication and Public Awareness

Education has been identified as one of the principle aims of the Qur’anic Botanic Garden in Qatar (Guidelines – p 7). Indeed the site offers opportunities for the successful delivery of education, communication and public awareness programmes, which would support the implementation of Target 14 of the Global Strategy for Plant Conservation. There is clearly enormous potential for educating and communicating with a wide range of different audiences and encouraging life-long learning.

Several educational facilities are proposed for the ‘Qur’anic Garden’, including an Education Room, an Audio visual house, a library and a children’s house. There is some consideration to housing the educational facilities in the same location of the garden. This would be a sensible option however there is insufficient information to comment further on how the facilities will be coordinated and what the implications may be in terms of staffing or resources.

A crucial aspect of the ‘Qur’anic Garden’ will be signage and interpretation. A garden needs to create an environment in which visitors feel confident about exploring their surroundings. It is predicted that a very large number of directional signs will be needed for the Qur’anic Garden because of its intricate design. Each section will need to direct people to other sections, exits, toilets and staircases. Equally, the walkways on top of the walls will need to direct people to stairways and exits. Care should be taken to ensure that the informational signage is not excessive and does not distract visitors from their enjoyment of the garden.

We understand that the criteria for the layout of the Education Centre at the 'Qur'anic Garden' will be based on the Guidelines for the Qur'anic Botanic Garden in Qatar. While this is understandable as far as the designer is concerned, there is no clear account in the Guidelines about the thinking or rationale behind this decision. We suggest further thought being put into considering the vision for the 'Qur'anic Garden' and to looking at potential school visitor numbers, the peaks and flows of visits, the duration of visits and the types of activities relevant to the school curriculum. Such information would be valuable in identifying the facilities and equipment required. Advice could be sought from the Oman Botanic Gardens about how their schools' programme is being developed.

An important element to consider is the availability and professional capacity of staff in the region. In Oman, for example, an expatriate 'expert' on education and interpretation has been appointed to develop the education programme and train local staff. The post is for five years, following which time it is envisaged that the garden's education programme will be staffed entirely by nationals.

Recommendations:

- *A draft strategy for education, communication and public awareness should be drawn up for the 'Qur'anic Garden' which will be used to influence decisions about garden design and facilities.*
- *An overall interpretation strategy should be developed to ensure a consistency and coordination with signage, particularly information signage.*

4.2.3.2 Research

While the Guidelines for the Qur'anic Botanic Garden in Qatar provide a general idea of the key research areas, the development of the Master Plan would greatly benefit through the provision of specific information presented in a more structured manner such that it is possible to see not only what the department will be doing but also why in terms of the institution's mission. As presented, there is a wide range of information from general themes for research (e.g. work in plant taxonomy and ecology) to the finest detail (e.g. need for an ABI 3700 capillary DNA sequencer with printer). It would be very useful if the general themes in the Guidelines could be considerably expanded to give some idea of what

priority they would have in the garden's Research Programme. This information contained under the section of an Operational Plan, would provide additional guidance for the Master Plan development.

It would also be useful to clearly identify what connections will be sought with other institutions both regionally and internationally. An example of the latter would be the Millennium Seed Bank as stated in section 4.2.1.

As with the horticulturists, the number of botanical researchers in the region is very small. This is where the idea of multiple institutions in the region becomes an issue. Looking at the suggested numbers in the staff list, it may have to initially include several expatriates who will be playing a key role in training nationals from Qatar to build and strengthen in-country capacity.

In order to establish a centre of excellence in botanical sciences and research, it is suggested to form a research consortium to include both conservation organisations and governmental/education partners. The consortium should also link horticultural and agricultural facilities/departments. If students are to be used as volunteers, it would be worth identifying where students have been used as volunteers in the region previously. Regional conservation groups may also be a source of volunteers.

Recommendation:

▪ *Although ex situ conservation is at the core of the mission of botanic gardens, the integration of ex and in situ conservation measures remains an important objective to be promoted in the region. It would be of tremendous value if the botanic gardens could spearhead the development of research programmes aiming to integrate ex and in situ conservation. This will also be a direct contribution to Target 8 of the Global Strategy for Plant Conservation.*

The maintenance of the plant records, at least initially, should be with the research group. This is largely because of the need to ensure that plants are properly identified and labelled to ensure that the garden is truly a 'botanic garden' rather than a park or display garden. As it is planned to establish a regional network, it may be worth looking at promoting a common plant species record system used by all gardens in the region. E.g. BG Base has been in use for 20 years and has been developed specifically

for botanic gardens across the world. Oman Botanic Gardens is one of the gardens using it and it provides a chance for further cooperative activity.

Recommendations:

- *Provide further structure to the Research Vision in the Guidelines document that better explains the research priorities for the Qur'anic Botanic Garden in Qatar.*
- *Look at matching the numbers of research staff and the size of the facility with the likely number of people available to staff it.*
- *Identify where those staff are likely to be coming from and what will be required if it is desired to encourage the employment of local staff.*
- *Look at the incorporation of integrated conservation in the botanic gardens programmes so as to link both ex situ and in situ conservation in the region.*
- *Consider the use of a commonly used plant record system such as BG Base so as to further enable the networking among the gardens at regional and global levels.*

4.2.3.3 Conservation

The objective of the Qur'anic Botanic Gardens Project to conserve and display the flora of arid ecosystems as the characteristic natural feature of the region is a very commendable endeavour. While many of these species are particularly well adapted to survive under extreme environmental (arid and hyper-arid) conditions, they have been neglected in conservation efforts and are underrepresented in *ex situ* collections of botanic gardens specially in the region itself. However, the plant diversity of arid ecosystems calls also for a wide array of horticultural techniques and skills if they are to be successfully propagated, maintained and organized in *ex situ* conservation collections. This knowledge is presently limited in the region, and capacity building and training in this area is of vital importance. This is considered to be a major challenge for the botanic garden in its early stages, and needs to be addressed as an issue of primary concern during the current garden development process.

Recommendation:

- *Capacity building and training in horticultural techniques is of primary importance to establishing new gardens. Training opportunities need to be provided from the outset in the planning process of a new garden.*
- *The Master Plan for the Qur’anic Botanic Garden in Qatar should emphasize conservation in the context of the diversity of the species it aims to represent in ex situ conservation collections, latter including requirements for collection management (display, exhibition, thematic collections, collections for conservation), horticultural maintenance and related capacity building needs, as well as structural and organizational issues, including species acquisition, plant records system, plants labelling, etc. The conservation function needs to be aligned and coordinated with the larger vision of the garden that integrates education, research and conservation*

List of plant species for the ‘Qur’anic Garden’ and the ‘Desert Garden’

While a comprehensive list of plant species to be represented in the ‘Qur’anic Garden’ and the ‘Desert Garden’ has been compiled with the input from a wide ranging team of international experts, this record should not be seen as a conclusive and static inventory and be reviewed and amended over time as related, further scientific insights and knowledge are gained. It will be particularly important to maintain contact with the IUCN/SSC Arabian Plant Specialist Group who are finalising a regional plant species red list and compiling a database and reference collection for the region. While, as in the case of the Qur’anic Botanic Garden in Qatar, the Master Plan Manual has adopted the list of species as provided in the Guidelines, other planned botanic gardens may focus their *ex situ* conservation collections policy initially on priority species which are most at threat of extinction rather than aiming to represent the full species range of the region. Focused and prioritized *ex situ* conservation may be a practical choice in light of the capacity of the respective gardens as well as to manage limited funding. Target 8 of the Global Strategy for Plant Conservation (GSPC) of the Convention on Biological Diversity provides a guiding rationale to plan the garden’s *ex situ* conservation policy and collection.

Recommendations:

- *The Qur’anic Botanic Garden in Qatar, as well as other new gardens should design a species conservation programme carefully to take into account institutional capacity. It may be appropriate to prioritise species most at threat of extinction (in particular Critically Endangered and Endangered species) for scientifically rigorous ex situ conservation whilst at the same time cultivating other threatened species for targeted research for example on phenology, pollination studies and propagation techniques. The display and interpretation of threatened species, for example over-exploited medicinal species should also be considered.*
- *Species conservation programmes should take into account the International Agenda for Botanic Gardens in Plant Conservation and the requirements of the Global Strategy for Plant Conservation.*

Specific caution is called for in the use of the correct scientific names of the species as various misspellings have been noted. These need to be addressed to guarantee the quality and accuracy of the plant records in the data base management tools used by the garden as well as for the production of scientifically sound plant labels.

To enable regional and global conservation reviews and assessments, the garden should make the information about the *ex situ* collection available at global level, in formats such as entailed in PlantSearch of BGCI.

Recommendations:

- *The list of species to be considered in the ‘Qur’anic’ and the ‘Desert Garden’ respectively should be periodically reviewed in terms of comprehensiveness and the scientific orthography.*
- *The new garden should endeavour to integrate information on its species and specimens held in ex situ collections in a global database, such as in BGCI’s PlantSearch data base module.*

Species referenced in the Holy Qur’an

On the basis of the expert consultation to undertake this evaluation it is suggested to pay attention to the ‘talh’ (referenced in Al-Waqi’a 56). Scholars are undecided as to whether this is the banana plant or a species of *Acacia* (Plants of the Bible and the Quran, L. J. Musselman, 2007).

According to the same source, the listed taxa for mustard – *Brassica* – for which there seems to be no evidence that it was grown as a crop in ancient times, as well as for cucumber – *Cucumis* – require further scientific research related to their citation in the Holy Qur’an.

It has also been suggested to review whether it is useful to include *Terminalia catappa* as a shade-providing pathway tree; this is a deciduous to semi-deciduous species.

Recommendation:

- *The list of plants to be displayed in the Qur’anic Garden should be kept up-to-date regularly with latest scientific research findings on species referenced in the Holy Qur’an.*

List of species for the ‘Desert Garden’

As already stated in the evaluation report, from a conservation point of view, the value of the ‘Qur’anic Garden’ is tremendously amplified with the *ex situ* conservation collections of species from arid ecosystems.

While horticultural challenges (see above) will remain a key factor in the success of the garden, management and monitoring of potentially invasive species needs to be closely observed. One species – *Prosopis juliflora* – native to Mexico is notoriously known for its invasive potential in the drylands of the Old World, and it is strongly suggested that it be removed from the list of species to be conserved in the ‘Desert Garden’. It is pointed out here however that under controlled conditions, this species could be used as a ‘theme’ to raise public awareness about invasive species in arid ecosystems. In the same vein, while a wide range of other activities for educational purposes can be thought of, a display area for the theme of convergent evolution in regard to water stress could be created, exhibiting examples of the phenotype of Euphorbiaceae in the Old World compared to Cactaceae in the New World.

Recommendations:

- *The selection of species to be planted and conserved ex situ in the ‘Desert Garden’ needs to consider the potential of certain species to become invasive. Prosopis juliflora, an alien invasive species should be displayed*

under controlled conditions only primarily for public awareness and education.

- *The new garden should engage in the development of integrated practical programmes and projects linking ex situ and in situ conservation on the ground.*

4.2.4 Additional Key Considerations

Water

Irrigation is going to be a major aspect of the garden management towards achieving the highly commendable sustainability goal stated in the Master Plan Manual. Evaporation rates are anticipated to be high and open water bodies need to be designed so as to minimise evaporation to the extent practicable. It is considered to be important to conceive an overall 'irrigation' strategy that integrates water needs of both the 'Qur'anic' and the 'Desert Garden'.

The quality of water supply requires to be addressed in more detail. As the plant species to be displayed and conserved in the garden show tremendous differences regarding their need of water quality and composition (e.g. salinity), appropriate technology – such as a reverse osmosis system – needs to be made available to guarantee the adequate water quality. Related systems of considerable capacity may be required to provide sufficient clean water.

Further measures on waste water treatment and recycling are strongly encouraged not only in terms of environmental sustainability; it may considerably contribute to promote the garden as a model for wise use of water in the region and internationally.

Plant recycling and composting

While it is highly commendable that the Guidelines for the Qur'anic Botanic Garden in Qatar consider sustainable energy options, no plan is elaborated upon in the Master Plan regarding the recycling of accumulating plant material. Production of new soil material on the basis of a sound composting practice needs to be seen as an integral part of any major botanic garden development.

Staffing

The issue of ‘staffing’ requires serious attention as the rationale for staffing levels is not readily apparent. Given the range of facilities planned, the design of the Master Plan needs to reflect adequate provision of staffing needs.

It is possible that the majority of staff with some experience that are currently available in Qatar are expatriates (see also section 4.2.3.2). Even if it is decided that the majority of the staffing, and particularly the horticultural staffing is to be achieved by using expatriate staff, the capacity of the majority of the current expatriate staff is limited too. There will be a considerable need for capacity training among those (or in country staff) if it is intended to realise a Centre of Excellence. Existing capacity in the region, such as training opportunities provided by the Oman Botanic Gardens should be strongly sought for in the early days of the garden.

Garden Visitors

We believe that relocating the ‘Qur’anic Garden’ to Education City is beneficial in terms of visitor numbers as it will encourage university students to visit the garden as well as the general public and schools from Doha. The garden will also be located close to the Qatar Faculty of Islamic Studies and this may present opportunities for future collaboration.

However, while the ‘Desert Garden’ will be the main driver of *ex situ* plant conservation in Qatar situated at Shahaniya Farm close to a biosphere reserve and will present excellent opportunities for visitors to understand the relevant link between *in situ* and *ex situ* conservation, we have concerns that the distance of the ‘Desert Garden’ from Qatar may inhibit the number of visitors. The ‘Qur’anic Garden’ will be a major attraction in Qatar and care needs to be given to the promotion of the two gardens to ensure equal importance is attached by the public to both garden components.

The Guidelines for the Qur’anic Botanic Garden in Qatar (p 9) state that ‘Because women and family groups prefer seclusion, it would be appropriate to form semi-private glades for relaxation’. This is an important consideration and we would recommend that it is incorporated into the design of the garden. It is also worth noting that at Baghe Babur Garden, Afghanistan, families and women utilise separate areas of the garden on identified days. Likewise, a similar arrangement also takes place at Nezahat Gökyiğit Botanic Garden, Istanbul, Turkey. This could be something that staff of the ‘Qur’anic Garden’ could consider. In addition we

recommend that data in respect of the seasonal flow of visitors be collected. Comparative analysis of equivalent data from other, analogous, visitor attractions would be useful.

Access to the Qur'anic Garden and Visitor Parking

There are seven entrances to the 'Qur'anic Garden'. At a meeting in Sharjah, the designer mentioned that car parking would surround the Garden. Clear signage will be required inside and outside each exit to ensure that visitors are able to orientate themselves and know which section of the garden they are entering and exiting. Colour coding, would be useful to remind people where their car is parked.

Evaluation of the Site

We are unaware of any assessments that may have been carried out at either site. Therefore we recommend that an environmental impact assessment and an ecological survey be conducted to determine the environmental conditions.

Mozah Rose Garden and Qatar Natural History Museum

In order to fully capitalise on the added value of the Mozah Rose Garden as a national emblem and the Qatar Natural History Museum to advance education and awareness of the plant diversity in the region, all the components of the Qur'anic Botanic Garden in Qatar need to be planned in an integrated manner; the Master Plan should reflect how these relate to each other in terms of mission and functionality.

5 The Future – Summing up and Overview of Recommendations

5.1 Summing up

The development of the pilot garden in Doha, Qatar as a step towards the overall achievement of a Qur'anic Botanic Gardens Network is highly desirable from cultural and ecological perspectives and is broadly welcomed within the region. Developing the garden with its multi-functional roles is an ambitious undertaking. Site design and development need to be integrated with the planning of research, education and conservation objectives from the outset and human capacity to deliver on all aspects needs to be considered carefully. The development of the network can proceed in parallel if ongoing activities within the region are built on. The overall Qur'anic Botanic Gardens Network project is

complex and is effectively a blueprint for the conservation of plant resources throughout the region in a culturally appropriate way. As such this will help to implement and build on the Global Strategy for Plant Conservation (GSPC) interpreted in an Arabic context. Working practices that blend different intellectual approaches will be required. To the extent practicable, it is recommended that planning processes both for the pilot garden and the network are widely inclusive, designed so that the planning is in itself a learning process.

It will be important to ensure that regional expertise is effectively coordinated and that there are mechanisms for developing common protocols and standards. The following recommendations drawn from different sections of the evaluation report are presented together for further consideration.

5.2 Overview of Recommendations

A) Qur'anic Botanic Gardens Network

Relevance

To ensure the successful integration of function and design of new gardens in the region to form part of the Qur'anic Botanic Gardens Network it will be important to fully capitalize on the lessons learnt in conceptualizing and implementing the initial pilot garden projects.

A short but concise rationale of the functional relationship between the 'Qur'anic Garden' and the 'Desert Garden' will inform the planning process for new gardens and will help to promote the Qur'anic Botanic Gardens Network to other regions of the world while ensuring cohesive identity.

Effectiveness

It is important to first create an operating example of a 'centre of excellence' to be a model botanic garden that can function both independently and collaboratively.

A continued involvement with the Arab Botanic Gardens Network should be considered. Funding for a small secretariat (one staff person) would greatly facilitate this process.

Interaction with relevant organisations/institutions already operating or in the process of being developed should be further enhanced, including links with universities and conservation organizations. Specifically, contacts should be maintained and strengthened with the IUCN/SSC Arabian Plant Specialist Group which has 87 members from 11 countries.

The establishment of a capacity building action programme addressing all dimensions of botanic garden development requires to be addressed as the linchpin of any new garden conceived under the Qur'anic Botanic Gardens Network.

Efficiency

Take further advantage of related experience gained and lessons learnt in the region and internationally to contribute to maximised efficiency and cost-effectiveness in the use of resources.

Utility

Following a proposed wide publication of the evaluation results of the Qur'anic Botanic Gardens Project, UNESCO may like to consider organising an international seminar with relevant stakeholders to debate the linkages between biodiversity conservation, botanic gardens and Islam, which will offer an opportunity to showcase progress and challenges in implementing the Project.

Sustainability

Consider how the newly conceived botanic gardens will relate to government and other institutions taking into account both those aspects of the botanic garden that will always require financial support and those capable of producing funding for the garden or running contracted businesses.

B) Recommendations for the Master Plan in Qatar

i) Master Plan Development Process

Guidelines for the Qur'anic Botanic Garden in Qatar

Future guidance to establish the master plan of a proposed garden should be made available in a cohesive structure using e.g. the sequence of a Strategic Plan; Facilities Plan; and Operating Plan.

ii) Evaluation of Master Plan Manual – Qur’anic Botanic Garden, Qatar (version 11 July 2008)

Overall Design

Due consideration needs to be given to how the ‘Qur’anic Garden’ and the ‘Desert Garden’ as well as the other garden components will be linked and coordinated in terms of their operations and promoted as a joint venture.

‘Qur’anic Garden’ Design

The design of the garden may need to be revisited and evaluated from an operational and visitor attraction perspective. Consideration could be given to removing internal walls to create a more open garden that would enable facilities to be more centrally located.

If it is the intention to reflect all the Suras in the design of the ‘Qur’anic Garden’ we recommend that there is a corresponding number of sections (114).

Further consideration should be given to accessibility for all within the garden. This may include building more than one elevator into the outer walls, creating seating on the ground floor in one of the restaurants and building view holes at lower levels into the outer walls.

Further work should be undertaken to ensure the successful reconciliation of the two potentially contradictory aspirations of providing a space for ‘exploration’ and an ‘oasis in the desert for peaceful reflection and tranquil contemplation’.

Education, Communication and Public Awareness

A draft strategy for education, communication and public awareness should be drawn up for the ‘Qur’anic Garden’ which will be used to influence decisions about garden design and facilities.

An overall interpretation strategy should be developed to ensure a consistency and coordination with signage, particularly information signage.

Research

Although ex situ conservation is at the core of the mission of botanic gardens, the integration of ex and in situ conservation measures remains an important objective to be promoted in the region. It would be of tremendous value if the botanic gardens could spearhead the development of research programmes aiming to integrate ex and in situ

conservation. This will also be a direct contribution to Target 8 of the Global Strategy for Plant Conservation.

Provide further structure to the Research Vision in the Guidelines document that better explains the research priorities for the Qur'anic Botanic Garden in Qatar.

Look at matching the numbers of research staff and the size of the facility with the likely number of people available to staff it.

Identify where those staff are likely to be coming from and what will be required if it is desired to encourage the employment of local staff.

Look at the incorporation of integrated conservation in the botanic gardens programmes so as to link both ex situ and in situ conservation in the region.

Consider the use of a commonly used plant record system such as BG Base so as to further enable the networking among the gardens at regional and global levels.

Conservation

Capacity building and training in horticultural techniques is of primary importance to establishing new gardens. Training opportunities need to be provided from the outset in the planning process of a new garden.

The Master Plan for the Qur'anic Botanic Garden in Qatar should emphasize conservation in the context of the diversity of the species it aims to represent in ex situ conservation collections, latter including requirements for collection management (display, exhibition, thematic collections, collections for conservation), horticultural maintenance and related capacity building needs, as well as structural and organizational issues, including species acquisition, plant records system, plants labelling, etc. The conservation function needs to be aligned and coordinated with the larger vision of the garden that integrates education, research and conservation.

List of plant species for the 'Qur'anic Garden' and the 'Desert Garden'

The Qur'anic Botanic Garden in Qatar, as well as other new gardens should design a species conservation programme carefully to take into account institutional capacity. It may be appropriate to prioritise species most at threat of extinction (in particular Critically Endangered and Endangered species) for scientifically rigorous ex situ conservation whilst at the same time cultivating other threatened species for targeted research for example on phenology, pollination studies and propagation techniques. The display and interpretation

of threatened species, for example over-exploited medicinal species should also be considered.

Species conservation programmes should take into account the International Agenda for Botanic Gardens in Plant Conservation and the requirements of the Global Strategy for Plant Conservation.

The list of species to be considered in the 'Qur'anic' and the 'Desert Garden' respectively should be periodically reviewed in terms of comprehensiveness and the scientific orthography.

The new garden should endeavour to integrate information on its species and specimens held in ex situ collections in a global database, such as in BGCI's PlantSearch data base module.

Species referenced in the Holy Qur'an

The list of plants to be displayed in the Qur'anic Garden should be kept up-to-date regularly with latest scientific research findings on species referenced in the Holy Qur'an.

List of species for the 'Desert Garden'

The selection of species to be planted and conserved ex situ in the 'Desert Garden' needs to consider the potential of certain species to become invasive. *Prosopis juliflora*, an alien invasive species should be displayed under controlled conditions only primarily for public awareness and education.

The new garden should engage in the development of integrated practical programmes and projects linking ex situ and in situ conservation on the ground.

Additional Key Considerations

To conclude, a number of additional suggestions are made on key aspects in and component of the development of the garden related to Water; Plant recycling and composting; Staffing; Garden Visitors; Access to the Qur'anic Garden and Visitor Parking; Evaluation of the Site; Mozah Rose Garden and Qatar Natural History Museum.

6 Annexes

- ANNEX 1: Terms of Reference for Evaluation
- ANNEX 2: Global Strategy for Plant Conservation (GSPC)
- ANNEX 3: Questionnaire Survey
- ANNEX 4: Stakeholder Consultation
- ANNEX 5: Number of Botanic Gardens in the Arabian Peninsula, Middle East, North Africa and West Asia (BGCI GardenSearch)
- ANNEX 6: National Accounts of Plant Species Diversity in the Arabian Peninsula, Middle East, North Africa and West Asia

Terms of Reference for Evaluation

Qur'anic Botanic Gardens Network

QURANIC BOTANIC GARDENS NETWORK

TERMS OF REFERENCE FOR EVALUATION

BACKGROUND

UNESCO developed a project proposal "Quranic Botanic Gardens network" in 2005. The proposal was based on Main Line of Action "Enhancing linkages between cultural heritage and biodiversity conservation". In this case the Holy Quran, as a major element of the cultural heritage of the Arab States in the Gulf, refers multiple times to the importance of plant life on Earth, and the importance to respect trees, shrubs, grass, all plants, and all life in general, as well as water. In the UNESCO proposal, this cultural element was combined with a call for the ex situ conservation of the indigenous plants that occur naturally in the Arabian Peninsula (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates, Yemen), as well as those plants that are mentioned in the holy book.

The proposal suggests establishing a network of botanic gardens in the region, including centres of excellence for botanic education, research, and conservation. This, UNESCO recognizes, is highly important, in view of the deteriorating botanic taxonomic and vegetation ecological capacity, as well as the rapid development of natural habitats into urban ecosystems, and the associated loss of biodiversity. This network will be a major contribution for capacity building and biodiversity conservation, especially because of the lack of true botanic gardens in the entire Arab Region, with required elements of real botanic gardens: research, conservation, education.

UNESCO Doha developed the above proposal, and started a press campaign. Based on the press campaign, the Ruler's Office of Sharjah contacted UNESCO, invited them for a presentation of the proposed projects, and developed a Funds-in-Trust agreement. Based on this agreement a project manager was recruited to oversee all related activities and details, to invite for an international tender for the production of a master plan, to arrange for an International Advisory Committee meeting, produce guidelines, to evaluate the guidelines-based received offers, and to draft a contract for the winning landscaping company.

The master plan has been reviewed and revised, and has been handed over to the Ruler's Office in March 2008.

The importance of the continuous development of the botanic garden network was stressed during an Arab Botanic Garden Conference in Jordan, when the Sharjah Initiative was presented to the international botanic garden expert community, and delegates from Morocco, Palestine, Jordan, and Lebanon showed great interest joining the network by also establishing Quranic Botanic Gardens in their territories. A member of the Royal Jordanian Family discussed the issue with UNESCO Doha, and she verbally requested their support.

Maersk Oil Doha approached UNESCO, and suggested funding of a master plan for a garden in Qatar. This was discussed with Qatar's First Lady, and Qatar Foundation, and this master plan is now well on its way. The proposal was presented during the UNESCO General Conference, and it was discussed in more detail with UNESCO Headquarter colleagues from Central Services, Natural Sciences, Education and Culture in December 2007. This demonstrates the enormous potential this linkage of cultural heritage and biodiversity conservation has practically for all UNESCO member states.

OBJECTIVES

In line with sound practice in assessment of initiatives, UNESCO wishes to contract an evaluation of the Quaranic Botanic Gardens Network extra budgetary Funds in Trust project. The overall aim of the evaluation is to provide summative and formative assessments of the project which can inform decisions on implementation. The main objectives are to assess the relevance, utility (for Sharjah and for the UAE), effectiveness, efficiency and sustainability of the project. This will include assessment of the project deliverables and processes and their requirements for transferability to other sites in the region.

Specific issues to be covered are, a) the efficiency and cost effectiveness of the project: did it deliver as planned with proper fiscal probity with efficiency in the use of resources? b) effectiveness: What are the broader potential impacts of the initiative locally (for Sharjah, and the UAE), regionally and globally? What importance does the initiative have for capacity building, education, research, and conservation of biodiversity, with a special reference to the master plans being developed for Sharjah and Qatar?

c) relevance: how appropriate is the garden design and its associated facilities to the environmental, social and economic conditions of the site. How applicable to other sites and under what conditions?

d) utility: what interest has been generated in the uptake of the project and implementation of the garden locally and elsewhere. What are the information needs and interests of stakeholders in the region (and beyond) which need to be fulfilled in order to stimulate broader uptake of similar initiatives? For this aspect of the evaluation will be required the identification of, discussion with and reporting to potential stakeholders.

c) sustainability: what is required to maintain the initiative over the long term? What risks may be foreseen and opportunities may be foreseen in this respect and how may they best be managed?

METHODS

The tenderer should consider a range of data collection and analysis methods including stakeholder interviews, surveys, site visits, documentary review (including masterplan and reviews of it) and should set out a strategy for dissemination of the evaluation which best meets the information needs of stakeholders with a potential interest in developing similar initiatives in their own context. Proposers should include a brief management plan for the work

PROFILE OF EVALUATOR AND SELECTION

The evaluator should have a professional background in Arabian botany / vegetation ecology, the need for the conservation of the Arabian flora, and the establishment / management of botanic gardens and botanic education and research centres. Knowledge of professional project evaluation will be an important asset. The evaluator can carry out the evaluation by him/herself, or invite additional professionals, as he/she may prefer.

Experience of the team should be demonstrated through listing relevant projects undertaken in the last 5 years and by inclusion of cvs of each team member. The proposer independent in relation to UNESCO and not be regular UNESCO staff. These professional criteria will be the main criteria applied to award the contract for the evaluation counting for 80 percent of the score awarded by the assessors of the proposal. The remaining 20 percent will cover the technical quality of the bid (namely its understanding of the task and the appropriateness of the approach to the issues set out for the evaluation in this Terms of Reference and the soundness of the planning and management of the work). Proposers should also note that in addition to the professional expertise and quality of the proposal, price will also be taken into account in order to ensure value for money.

UNESCO staff from Internal Oversight, Natural Sciences Sector, and Doha Office are available to support the evaluation activities, with more specific information on project evaluation, once the candidate has been identified and selected. Together they form the Reference Group. The role of the Reference Group will be to support and supervise the quality and the methodological rigour of the evaluation and provide guidance on the issues and approach to conducting the sounding of key stakeholders and the analysis of efficiency, effectiveness, relevance and utility of the project. The Reference Group will provide all the assistance it can to the evaluation in order to facilitate access to stakeholders, advise on methods and support ownership and uptake of the evaluation's findings.

TIMING AND DELIVERABLES

Timescales are indicative but are as follows: Invitation of offers: 2. April, 2008; 30. April 2008: receive and evaluate offers, and identify successful candidate; issue contract; delivery

of draft report: 30. August; delivery of final report for the Sharjah project. 30. November 2008: delivery of final report for the Qatar project. Deliverables will be as follows:

- a. An initial workplan/inception report for the Reference Group to discuss and advise on specific approach and issues to be covered, by end of April, 2008.
 - b. A draft report and following Reference Group discussion, submission of a final report for the Sharjah activity. The draft report will be reviewed by the Reference Group and circulated among stakeholders for comments. Delivery of the draft report 30 August 2008.
 - c. A draft report and following Reference Group discussion, submission of a final report for the Qatar activity. The draft report will be reviewed by the Reference Group and circulated among stakeholders for comments. Delivery of the draft report 30 October 2008.
- c) Following review in the light of comments two final reports will be delivered as soon as possible, and no later than by November 2008.

The reports should be in English and sent electronically as CDs (with an appropriate label on each CD) in word and pdf format. An Arabic summary of no more than 500 words should be included. UNESCO Doha is ready assisting this aspect. UNESCO Doha needs 100 copies of the CDs of each of the final reports.

INVITATION TO MAKE A PROPOSAL

Interested candidates are required to submit their up-to-date CV / CVs, and an elaborated covering letter of maximum 5 pages, stating how they understand the task, their proposed approach and management of the work. The letter should explain their fitness to provide the required service, including a budget breakdown, milestones, and timing. Answers must be received by 30. April 2008. Please use the following address: UNESCO Office in Doha, attn. Dr. Benno Boer, 66, Lusail Street - West Bay, POBox 3945, Doha, Qatar (tel ++974 4113290).

BUDGET AVAILABILITY

The total budget requirements for this evaluation should be around 25,000 US\$ and must not exceed 30,000 US\$, including consultant fees, travel costs, food and accommodation, printing costs, costs for sub-contracting experts and services, visa costs, and any other project-related costs. The value for money provided for the budget breakdown by the candidate will be one of the most important criteria for the selection of the successful candidate. At least ten candidates will be invited to submit offers. Please note, submit your offer in one envelop that contains the technical offer (sealed in a separate envelop marked as technical offer), and the financial offer with a budget breakdown (sealed in a second separate envelop marked a financial offer).

Global Strategy for Plant Conservation (GSPC) – Targets for 2010

(a) Understanding and documenting plant diversity

Target 1:

A widely accessible working list of known plant species, as a step towards a complete world flora.

Target 2:

A preliminary assessment of the conservation status of all known plant species, at national, regional and international levels.

Target 3:

Development of models with protocols for plant conservation and sustainable use, based on research and practical experience.

(b) Conserving plant diversity

Target 4:

At least 10 per cent of each of the world's ecological regions effectively conserved.

Target 5:

Protection of 50 per cent of the most important areas for plant diversity assured.

Target 6:

At least 30 per cent of production lands managed consistent with the conservation of plant diversity

Target 7:

60 per cent of the world's threatened species conserved *in situ*.

Target 8:

60 per cent of threatened plant species in accessible *ex situ* collections, preferably in the country of origin, and 10 per cent of them included in recovery and restoration programmes.

Target 9:

70 per cent of the genetic diversity of crops and other major socio-economically valuable plant species conserved, and associated indigenous and local knowledge maintained.

Target 10:

Management plans in place for at least 100 major alien species that threaten plants, plant communities and associated habitats and ecosystems.

(c) Using plant diversity sustainably

Target 11:

No species of wild flora endangered by international trade.

Target 12:

30 per cent of plant-based products derived from sources that are sustainably managed.

Target 13:

The decline of plant resources, and associated indigenous and local knowledge, innovations and practices that support sustainable livelihoods, local food security and health care, halted.

(d) Promoting education and awareness about plant diversity

Target 14:

The importance of plant diversity and the need for its conservation incorporated into communication, educational and public-awareness programmes.

(e) Building capacity for the conservation of plant diversity

Target 15:

The number of trained people working with appropriate facilities in plant conservation increased, according to national needs, to achieve the targets of this Strategy.

Target 16:

Networks for plant conservation activities established or strengthened at national, regional and international levels.

Questionnaire Survey

Qur'anic Botanic Gardens Network



QUR'ANIC BOTANIC GARDENS NETWORK

SURVEY

UNESCO Doha has contracted Botanic Gardens Conservation International (BGCI) to carry out a formative and summative evaluation of the Project 'Qur'anic Botanic Gardens Network'. This Project proposes the establishment of a network of botanic gardens in the Arabian Peninsula as centres of excellence for plant conservation, research and education. The Project also strives to foster linkages between cultural identity and plant diversity evolved over millennia in relation to Islamic traditions and knowledge and the teachings of the Holy Qur'an.

As part of this project the development of two Master Plans has been initiated - one for Sharjah and one for Qatar. The evaluation carried out by BGCI will assess the progress and achievements of the Project to-date with the aim of informing decisions on its future implementation.

In your capacity as a member of the International Advisory Committee (for Sharjah or Qatar or both), we value your views and expertise on this project. We would like to invite you to contribute to this evaluation by completing the survey below. A copy of the evaluation report will be made available to you by the end of this year.

Title:				
Name:				
Organisation:				
Please tick your specific affiliation with the Project	IAC Sharjah	IAC Qatar	IAC Sharjah and Qatar	None (please specify your affiliation with the Project)

Part A: Qur'anic Botanic Gardens Network Project

- 1 Are you familiar with the document published by UNESCO entitled 'Qur'anic Botanic Gardens Project'? (Please tick)

Yes

No

2(i) If yes, how important do you believe the following elements of this Project are for the region? Please tick

	Very important	Quite important	Not important
Plant conservation			
Education			
Plant research			
Capacity building (for example, of horticulturalists, and teachers)			
Teaching about the plants of the Qur'an			
Fostering cultural identity			
Visitor attraction			
I don't know			

2(ii) If you ticked 'Very important' or 'Quite important' for any of the elements above, please give details of how the Project contributes to strengthening these elements in the region.

Plant conservation	
Education	
Plant research	
Capacity building (for example, of horticulturalists, and teachers)	
Teaching about the plants of the Qur'an	
Fostering cultural identity	
Visitor attraction	

3(i) Focusing specifically on the Qur’anic element of the Project, how important do you think the following functions are?

	Very important	Quite important	Not important	Please give details
To provide a reflective space for Muslims				
To educate Muslims about the link between plants, the teachings of the Holy Qur’an and Islamic traditions and knowledge				
To offer a space for Islamic readings				
To promote an understanding of plants and the Qur’an to non-Muslims				
To provide a platform for inter-faith dialogue				

3(ii) If none of the above, please give details

4 What do you see as the main strengths and opportunities of this Project? Please be as detailed as you can

5 What do you see as the main challenges and threats to this Project? Please be as detailed as you can

6 Do you know of any countries that have demonstrated an interest in participating in this Project and establishing a Qur'anic Botanic Garden?

Yes No

If yes, please give details (eg. name of country, whether funding has been secured or whether plans exist to develop a fundraising strategy)

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Part B: Master Plans for Sharjah and Qatar

1(i) Have you seen a **published** copy of the following documents (please tick)

	Yes	No
Qur'anic Botanic Garden in Sharjah: Guidelines for developing the Master Plan		
Guidelines for the Qur'anic Botanic Garden in Qatar		

1(ii) If yes, do you think they are sufficiently comprehensive for developing the Master Plan in:

	Yes	No
Sharjah		
Qatar		

1(iii) If no, please give details

Sharjah	
Qatar	

- 2 What is your understanding of the progress of the Master Plans for Sharjah and Doha?
Please tick as many boxes as you like:

	Sharjah	Qatar
The site for the Garden has been selected		
There has been an open international competition to select the landscape architect for the site		
The Master Plan has been produced		
The construction of the Qur'anic Botanic Garden is underway		
I am not aware of the progress of the Master Plan/s		

- 3 Two distinct botanic gardens have been identified in the Master Plans – i) a Qur'anic garden which would grow plants mentioned in the Qur'an and ii) a Desert Garden which would grow plants from the region and represent regional ecosystem types. In your view, what should the relationship be between the two gardens? Please tick one of the boxes below:

Integrated – the project should be one garden	
Connected – two gardens (Qur'anic and Desert) should be built on one site and connected	
Separate – two gardens (Qur'anic and Desert) could be located on separate sites	
Not important	

Thank you very much for taking the time to complete this survey. Please return this survey to BGCI by **Friday 5 September 2008**. We would prefer this survey returned by email to Joachim.gratzfeld@bgci.org and Julia.willison@bgci.org. If this is not possible please send a hard copy to: Joachim Gratzfeld at Botanic Gardens Conservation International, Descanso House, 199 Kew Road, Richmond, Surrey TW9 3BW, UK.

STAKEHOLDER CONSULTATION

Members of the International Advisory Committees for Sharjah and Qatar who commented on the questionnaire survey (*: Sharjah; **: Qatar; *: Sharjah and Qatar)**

Gary Bartsch *	Gary Bartsch, International Landscape Consultants, Sharjah / Abu Dhabi, United Arab Emirates
Anathea Brooks *	Liaison Officer, UNESCO Headquarters, Paris, France
Gary Brown **	Kuwait Institute for Scientific Research, Kuwait
Giovanni Caniglia *	Padua Botanic Garden, Italy
Shaukat Ali Chaudhary *	Taxonomist Emeritus
Grant A. Donald *	CEO & Design Director, Silk Tree International, Abu Dhabi, United Arab Emirates
Dawud Mohammad Hassan Al-Eisawi *	University of Jordan, Amman, Jordan
David Elsworth *	BW&P Abroad, Associate Landscape Architects, Stuttgart, Germany
Shahina A. Ghazanfar *	Royal Botanical Gardens Kew, Richmond Surrey, United Kingdom
Saif Al-Hatmi *	National Botanical Garden, Muscat, Oman
Uwe Herpin ***	University of São Paulo, Brazil
Herbert Hurka *	Director, Osnabrück Botanic Garden, University of Osnabrück, Germany
Ajmal Khan *	Institute of Sustainable Halophyte Utilization, University of Karachi, Pakistan

Zahra Larsen *	Former PR and Liaison Officer, UNESCO Doha Office, Qatar
Abdul Aziz Al Midfa ***	Director General, Environmental and Protected Areas Authority, Sharjah, United Arab Emirates
Lucie Touma *	Ralph Oliver of London Landscape Architects, Sharjah, United Arab Emirates

Additional stakeholders who commented on the questionnaire survey

HRH Princess Basma Bint Ali of Jordan	Royal Botanic Garden, Jordan
Samira Omar Asem	Kuwait Institute for Scientific Research, Kuwait
Dilan Bayindir	Director of Education, Nezahat Gökyiğit Botanic Garden, Istanbul, Turkey
Mohamed Abdel Aziz M. El Demerdash	Botany Department, Faculty of Science, Mansoura University Cairo, Egypt
Kingsley Dixon	Kings Park and Botanic Garden, Perth, Australia
David Gallacher	Zayed University, Dubai, United Arab Emirates
Fazlun M. Khalid	Islamic Foundation for Ecology and Environmental Sciences, United Kingdom
Mike Maunder	Executive Director, Fairchild Tropical Botanic Garden, Florida, United States
Lytton John Musselman	Department of Biological Sciences, Old Dominion University Virginia, United States
Annette Patzelt	Oman Botanic Garden, Office for Conservation of the Environment, Diwan of Royal Court, Oman
Dennis J. Russell	American University of Sharjah, United Arab Emirates
Elsa J. Sattout	Agence Française de Développement, Beirut, Lebanon

Khaled Salem Sawalha	Al-Quds University Botanic Gardens, Palestine
Andrew Spalton	Oman Botanic Garden, Office for Conservation of the Environment, Diwan of Royal Court, Oman
Irina Springuel	South Valley University, Egypt
Mel Stewart	Former Engineering Advisor, The Ruler's Office, Sharjah, United Arab Emirates

Stakeholders interviewed during evaluation mission in Doha, Sharjah and Dubai

Rajab Yagout Abdulla	Ministry of Environment, Doha Qatar
L. Kay Allen	Green Projects, Qatar Foundation, Doha, Qatar
Khalid Hilal Al Anzi	Ministry of Environment, Doha Qatar
Gary Bartsch	Gary Bartsch, International Landscape Consultants, Sharjah / Abu Dhabi, United Arab Emirates
Benno Boer	UNESCO Ecological Sciences Advisor for the Arab Region, UNESCO Doha Office, Qatar
Peter Christensen	Senior HSE Advisor, Maersk Oil, Qatar
Grant A. Donald	CEO & Design Director, Silk Tree International, Abu Dhabi, United Arab Emirates
Ahmed El-Desouky El-Gharib	Green Projects, Qatar Foundation, Doha, Qatar
Hamed Bin Saif Al-Hammami	UNESCO Representative for the Arab States of the Gulf and Director of UNESCO Doha Office, Qatar
Paul Howard	Sharjah Natural History Museum and Desert Park, Sharjah, United Arab Emirates
Malda Jabbour	Programme Specialist for Culture, UNESCO Doha Office, Qatar

Peter Jackson	Architect, The Ruler's Office, Sharjah, United Arab Emirates
Mohammed Marafi	Green Projects, Qatar Foundation, Doha, Qatar
Abdul Aziz Al Midfa	Director General, Environmental and Protected Areas Authority, Sharjah, United Arab Emirates
Kerwin Porter	Curatorial Manager, Sharjah Aquarium, Sharjah, United Arab Emirates
Eulian Roberts	Managing Director, Qatar Science and Technology Park, Doha, Qatar
Dennis J. Russell	American University of Sharjah, United Arab Emirates
Mark Sutcliffe	Programme Assistant, UNESCO Doha Office, Qatar
Lucie Touma	Ralph Oliver of London Landscape Architects, Sharjah, United Arab Emirates

Stakeholders interviewed in the United Kingdom

Louise Allen	Curator, University of Oxford Botanic Garden, United Kingdom
Gail Bromley	International Consultant, Biodiversity Education & Community Manager, Royal Botanical Gardens Kew, UK
Deborah Dunham	Consultant, United States

Number of Botanic Gardens in the Arabian Peninsula, Middle East, North Africa and West Asia (BGCI GardenSearch)

Region	Country	Number of Botanic Gardens*
Arabian Peninsula		
	Bahrain	
	Kuwait	1
	Oman	3
	Qatar	
	Saudi Arabia	2
	United Arab Emirates	
	Yemen	
Middle East		
	Iraq	2
	Israel	9
	Jordan	1
	Lebanon	
	Palestinian Territory	3
	Syrian Arab Republic	
North Africa		
	Algeria	3
	Egypt	5
	Libyan Arab Jamahiriya	1
	Morocco	2
	Sudan	1
	Tunisia	4
	Western Sahara	
West Asia		
	Afghanistan	
	Islamic Republic of Iran	3
	Pakistan	7

* For more information on the individual botanic gardens including their facilities and programmes of work, please go to: http://www.bgci.org/garden_search.php

National Accounts of Plant Species Diversity in the Arabian Peninsula, North Africa and West Asia

Country	Native Vascular Species ¹	Endemic Species ¹	Other Sources
Afghanistan	4,000	800	
Algeria	3,164	250	
Bahrain	248	0	307 ²
Egypt	2,076	70	
Iraq	3,000	190	
Islamic Republic of Iran	8,000	1,400	
Israel	2,225	165	
Jordan	2,100	145	2,100-2,500 ²
Kuwait	282	0	
Lebanon	2,600	311	
Libyan Arab Jamahiriya	1,825	134	
Morocco	3,675	625	4,979 ³
Oman	1,200	73	1,204 ²
Pakistan	5,100	400	
Palestinian Territory	?	?	
Qatar	306	0	
Saudi Arabia	2,028	34	2,250 ²
Sudan	3,132	50	
Syrian Arab Republic	3,100	395	
Tunisia	2,196	?	
United Arab Emirates	340	0	630 ²
Western Sahara	330	?	
Yemen			2,000 ²
Yemen (North)	1,650	58	
Yemen (South)	1,180	77	
Yemen (Socotra)	815	230	

References:

- 1 WWF and IUCN (1994-1995) Centres of Plant Diversity. A guide and strategy for their conservation. 3 Volumes. IUCN Publications Unit, Cambridge, UK.
- 2 Arabian Plant Specialist Group (www.iucnarabianpsg.org) Accessed 28th October 2008.
- 3 The Darwin Plant information system for Morocco and the Inventory of Moroccan plants. Reading University http://www.herbarium.rdg.ac.uk/moroccan_plants/moroccan%20plants/main.asp Accessed 28th October 2008.