



The Qur'anic Botanic Garden in Qatar: Challenges and Opportunities for Islamic Environmentalism

Research Article

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Abstract

Islamic environmentalism has increased within the last several decades in the Muslim world and in Muslim-minority countries. The Arab Gulf is one of the regions in which environmentalism – let alone Islamic environmentalism – has been greatly understudied. This paper aims to partially fill this gap by exploring the Qur'anic Botanic Garden (QBG) in Qatar as an illustrative – albeit imperfect – example of Islamic environmentalism, combining environmental aspirations of many modern botanic gardens with religious and cultural aims. After briefly introducing Islamic environmentalism and the significance of environmentalism in the Arab Gulf region, I draw on field research conducted in Qatar to elucidate how the QBG utilizes Islamic scripture, beliefs, and values to articulate its vision and objectives. This paper also examines how QBG leaders' religious and cultural views influence environmental advocacy within the QBG and beyond. Finally, this research critically explores the QBG's potential impact on socio-environmental realities in Qatar. While the QBG may succeed in making intellectual advancements and promoting religious and ecological values, this paper posits that such a state-sponsored institution's inability to politicize ecological degradation demonstrates the difficulty of reforming development models to achieve more socially just and sustainable ends. I conclude that the broader potential of Islamic environmentalism lies in its ability to unite Muslims and people in the Arab Gulf region behind a shared socio-environmental vision. Its efficacy also comes from mobilizing people to advocate alternative development models prioritizing the integrity of all people and honouring planetary boundaries over economic growth or political gain.

Keywords

Islam – environmentalism – Qatar – Qur'an – gardens

1 Introduction

Religious environmentalism can be studied in juxtaposition with secular forms of environmentalism characterizing more dominant strands of the modern environmental movement (Smith and Pulver 2009; Gottlieb 2017).¹ Although Islamic environmentalism has increased throughout the world over the last several decades, studies in this field constitute a small segment of the wider body of literature on religious environmentalism. Classical and contemporary Muslim scholars have written extensively on the significance of the natural world in Islam, and many eco-theologians and environmentalists have delineated Islamic concepts and ethical principles pertaining to people's relationship with the natural world (Ouis 1998; Izzi Dien 2000; Llewellyn 2003; Özdemir 2003; Redwan 2018).² Although some scholars have attempted to shed light on Islamic environmental activism and religious commitments to the natural world (Hancock 2018; Gade 2019), relatively little is written on how Islamic environmental thought practically influences Muslims' outlook and advocacy for the natural environment in contemporary times. This paper considers Islamic environmentalism a distinct form of religious environmentalism clearly rooted in an Islamic worldview and inspired by Islamic beliefs, principles, and teachings derived from the Qur'an and/or Sunnah. Islamic environmentalism does not apply to Muslims' involvement in secular environmental

1 While Religious ideas have arguably shaped conceptions of nature and environmental thought more generally in Europe and the US since the late 19th and early 20th centuries (Berry 2014), religious communities began addressing environmental issues more prominently in the 1960s and 1970s (Carlisle and Clark 2018).

2 Some noteworthy Islamic eco-theological principles discussed in Islamic environmentalist literature include: divine Oneness (*tawhīd*) and the related unity/interconnectedness of nature as God's creation constantly engaged in *tasbīḥ* or praising and glorifying God; trusteeship (*ʾitīmāniyya*); stewardship (*khilāfa*); care for creation (*riʾāya*); exhibiting gratitude (*ḥamd* and *shukr*) for nature's bounties and appreciating God's myriad signs (*āyāt*) in nature intended to direct people toward Him. Other religious directives encourage the pursuit of justice (*ʿadl/ʿadāla*), mercy (*rahma*), gentleness (*rifq*), and goodness or excellence (*ihsān*) with God's creation, as well as avoiding harm (*darar*) and wastefulness (*isrāf*) while practicing moderation with God's blessings and provisions. See, among others, Izzi Dien (2000) and Mayer (2023).

causes solely for the environment's sake (Foltz 2003). Rather, it refers to environmental advocacy intended to actualize particular Islamic socio-ethical ideals (e.g. justice, mercy, equity) or to achieve higher religious ends (e.g. pleasing God, safeguarding God's creation).

2 Environmentalism in the Arab Gulf Region

One of the regions of the Muslim world in which environmentalism – let alone Islamic environmentalism – has been greatly understudied is the Arab Gulf. This region is of particular interest for Islamic environmentalist discourses for numerous reasons, including the shared overarching religious and cultural identity (as Arab Muslims) in Gulf countries as well as the similarities – particularly across Gulf Cooperation Council (GCC) countries – in political structures/economies heavily influenced by the presence of abundant petroleum reserves and wealth afforded by fossil fuel rents. Arab Gulf countries also exhibit common environmental vulnerabilities, including water scarcity, increasing temperatures, air and water pollution, desertification, biodiversity loss, and sea level rise. While these countries differ in many ways, including particular religious and cultural demographics (e.g. ratio/distribution of Sunni and Shi'i populations, tribal affiliations), degrees of political stability, types/quantities of natural resources, as well as levels of wealth, their close proximity and shared climatic/environmental conditions, geographic borders, and bodies of water make them not only susceptible to similar environmental threats. These factors also make some countries more partially and collectively responsible for the environmental risks – not to mention civil strife and humanitarian crises (as in Yemen) – faced by their regional neighbours. Although Arab Gulf countries share many environmental vulnerabilities, environmental advocacy within the region cannot be treated monolithically and understanding various manifestations of religious and/or secular environmentalism in each country necessitates studying particular institutions, environmental discourses, and practices within their respective socio-cultural and political contexts.

Despite its relatively small population and geographic size, Qatar holds significant status as one of the wealthiest Gulf countries seeking to balance its religious/cultural identity with modernity while asserting its autonomy, (soft) power, and leadership regionally and globally through various cultural, social, and economic projects and investments (Al-Horr et al. 2016). Field research and interviews I conducted with leaders and representatives of many prominent environmental groups and institutions in Qatar revealed many state and

non-state actors contributing to environmental discourses and/or tackling a myriad of social and environmental issues.³ These issues range from food waste, littering, and plastic pollution to climate change, habitat loss, and biodiversity conservation.

Environmental actors in Qatar differed considerably in their perceived (and actual) power to influence environmental realities in the region, which depended on numerous factors including their institutional capacities, level of funding received from the state, and their proximity to government agencies or access to policy makers. Prior awareness of environmental issues also appeared to influence many actors' involvement in environmental initiatives in Qatar. Among my interviewees, some leaders were already active in their home countries or had witnessed environmental injustices, hardships, or social inequities before they came to Qatar, which provided the impetus to join or initiate their own environmental organizations when they moved to Qatar. Other activists who were Qatari or GCC nationals had studied in Europe and/or the US, and wished to bring some of their knowledge and awareness of global environmental challenges back to the region.

One of the striking differences I observed between environmental advocates in Qatar is the extent to which religious beliefs and values influenced their perspectives and involvement in environmental programmes. This variation was based partly on the religious identity of environmental leaders, some of whom were devout Muslims while others were Christians, and/or their religious affiliation – or lack thereof – did not appear to play a role in their environmental advocacy. The latter may reflect implicit or “embedded environmentalism” (Baugh 2019), or demonstrate the influence of Western secular education on environmental thought and practice in the region. Environmentalists who

3 These interviews were conducted in 2019 as part of my doctoral research, which examined the different expressions of environmentalism in Qatar with a particular focus on how Islamic ethics influence environmental thought and practice in the country. I conducted a total of thirty-one semi-structured interviews with environmental scientists, activists, and representatives of different environmental groups and organizations, including the Qur'anic Botanic Garden. Interviewees also included academics and scholars specialized in various fields including Islamic law, Islamic ethics, Gulf studies, and public policy. Interviews explored a range of topics, including Islamic environmental thought, eco-theological principles and conceptions of the natural world; local and regional environmental vulnerabilities; environmental initiatives and strategies; socio-political challenges for environmental advocates; personal motivations for engaging in environmental advocacy; and effective approaches to increasing environmental consciousness, mobilizing the public, and advocating for eco-friendly policies and practices. Following field research, interviews were transcribed and coded to categorize informants' responses by topic or subject. This data was analyzed to identify emergent themes, patterns, and convergent or divergent perspectives.

exhibited neutral/agnostic views with respect to the role of religion tended to provide more pragmatic explanations – as opposed to religiously or spiritually rooted incentives – for their involvement in environmental initiatives in Qatar. Based on my interviews, many environmentalists engaging in secular environmental discourses also described an intimate relationship with nature in their childhood or personal hobbies/interests connected to the natural world motivating them to engage in environmental advocacy. Despite evident differences in personal reasons and incentives, many environmentalists' views tended to converge on the urgency of tackling certain socio-environmental problems and adopting more environmentally sustainable development in Qatar.

The remainder of this paper focuses on the Qur'anic Botanic Garden (QBG) as one of the clearest – albeit imperfect – examples of Islamic environmentalism in Qatar. The next section introduces the QBG's unique vision, objectives and strategies. The paper then examines the personal and religious motives of some of its leaders and explores how Islamic and cultural values influence the institution's ethos and environmental programmes. The last section critiques the QBG's efficacy by examining its achievements and assessing its ability to influence environmental decisions and socio-environmental relations in Qatar. Although the QBG appears to be planned strategically and progressing steadily toward its numerous scientific, cultural, and religious objectives, the research I conducted elucidates some critical gaps between its lofty aspirations and its practical achievements. While interviews with QBG leaders and representatives reveal the institution's heavy reliance on religious and cultural values, as well as its pedagogical importance and contribution to environmental education (particularly for children and future generations), interviews with other environmentalists reveal some disparities between the QBG's work and the top environmental challenges of the country (e.g. water scarcity, rising temperatures, air and water pollution). Moreover, some interviewees who do not represent the QBG perceive this project – along with other government-sponsored projects – as an instrument to promote Qatar's green image throughout the world without truly advancing the country's environmental sustainability.

These perspectives cast some doubt on the promising discourse and aims of the QBG. While the QBG can further align its mission with Qatar's environmental priorities, this paper asserts that such state-sponsored institutions – despite their promotion of noble religious and ecological virtues – are not strategically positioned to challenge dominant economic models of development or remedy social or environmental inequities maintained by the status quo. These institutions may, indeed, succeed in making intellectual, cultural, and scientific contributions. Yet, their inability to politicize environmental issues reveals the difficulty of critiquing and reforming development models

and environmental policies to achieve more socially just and sustainable ends. Furthermore, such limitations demonstrate the stunted potential of Islamic environmental activism more broadly, since non-state actors – who are prohibited by law from engaging in politics – can promote religious and ecological values without criticizing the political economy of the state and the root causes of environmental degradation and social injustice.

3 Introducing the Qur'anic Botanic Garden (QBG)

The Qur'anic Botanic Garden (QBG) is one of the most established, well-funded, and overtly Islamic environmental institutions in Qatar. Founded in 2008 through a UNESCO project in Doha, the QBG is a member of the non-profit and semi-private organization known as Qatar Foundation for Education, Science and Community Development. Adopting a hybridized garden vision, the QBG combines the environmental aspirations of many modern botanic gardens with explicitly religious and cultural aims. The QBG marks its distinctiveness from other gardens with the botanical content it seeks to house and the values it wishes to promote. While historic gardens in the Muslim world feature recurrent stylistic designs that garden historians have studied for their real or imagined religious symbolism and metaphorical meanings (Ruggles 2008), the QBG demonstrates its rootedness in the Islamic tradition by stating that the plants it aims to identify, collect, and research for their religious, cultural, and/or medicinal value are those mentioned in the Qur'an and/or Hadith literature.⁴

The QBG's primary goal is to build an educational programme capable of producing and transferring knowledge in the fields of botany, conservation, horticulture, and natural heritage to all schools and the general public in Qatar, as well as to the global community (QBG 2015a,b). The QBG fulfils its educational role through holding numerous community engagement programmes and producing educational literature for adults and small, interactive workbooks in Arabic for children. Along with its educational objectives, the QBG seeks to advance a scientific programme in which research is conducted in multiple fields including horticulture, agriculture, biotechnology, medicine, and conservation (QBG 2015a,b). The QBG adopts a two-pronged approach to conservation with *ex situ* and *in situ* programmes.

4 Some of this vegetation includes the acacia (*'urfiṭ*), date palms (*nakhīl*), olive (*zaytūn*), fig (*tīn*), grape (*'inab*), lentil (*'adas*), garlic (*fūm/tawm*), onion (*baṣal*), ginger (*zanjabīl*), saffron (*za'farān*), sweet basil (*raiḥān*), pumpkin (*dubbā'/qar' 'asalī*), black seed (*ḥabbah sawdā'*), and mustard (*khardal*) – among many others (QBG 2015a).

As part of its *ex situ* conservation strategy, the QBG maintains a nursery where Mediterranean, tropical, and desert plants and saplings from Qatar and different regions of the world are grown, preserved, and studied. The QBG also maintains an herbarium and seed unit, which seeks to collect the seeds and herbs mentioned in Islam's scriptural texts along with other endangered species in Qatar (ElGharib and Al-Khulaifi 2020). The QBG's *in situ* conservation programme focuses on ecological studies to conserve plants within their natural habitats in Qatar (QBG 2015a). The QBG team includes scientists specialized in botany and horticulture who conduct field surveys and use various techniques such as geographic information system (GIS) mapping to collect and analyze data on endogenous plants in Qatar.⁵ This field research enables studying Qatar's flora in order to preserve Qatar's biodiversity and protect native plants and habitats from anthropogenic threats (QBG 2015a).

To fulfil its educational and scientific objectives, the QBG organizes international forums and conferences focusing on different botanical and environmental themes. It also compiles and publishes abstracts, academic papers, and recommendations based on conference sessions and roundtable discussions. The QBG's first international forum was held in Doha in 2009, convening Muslim and non-Muslim professors, scholars, scientists, and environmentalists from numerous countries including Egypt, Jordan, Lebanon, Morocco, Palestine, Qatar, Saudi Arabia, Malaysia, Indonesia, Spain, Turkey, USA, and UK.

In 2018, the QBG collaborated with several universities in Oman as well as the Oman Animal and Plant Genetic Resources Center (OAPGRC) to organize and sponsor another scientific conference in Muscat, Oman entitled "International Conference on Frankincense and Medicinal Plants: Recent Developments in Scientific Research and Industry" (QBG 2023). The QBG sent representatives to present at this conference, which aimed at providing a platform for exchanging scientific knowledge as well as an opportunity for networking and strengthening relations between Qatar and Oman (QBG 2023). In partnership with the Islamic Culture Foundation (FUNCI) in Madrid, the QBG also hosted a "Gardens of Al-Andalus" exhibition in 2018 at Hamad Bin Khalifa University's College of Islamic Studies (ElGharib and Al-Khulaifi 2020). Highlighting the importance of gardens in Islam, this exhibition featured Andalusian garden models, explanatory panels, and ethnographic elements and tools to educate audiences about the history of agriculture and garden designs during the

5 These surveys were explained to me in an interview I conducted with botanist Ahmed ElGharib. At the time of my fieldwork in 2019, ElGharib was a graduate student and research assistant conducting field research in Qatar for the QBG.

Andalusian period (QBG 2023). These local and regional initiatives reveal the QBG's multifaceted approach to fulfilling its educational, cultural, and scientific objectives in various academic, professional, and collaborative capacities.

4 Religious and Cultural Values of QBG Leaders

My interviews with QBG leaders and scientists covered numerous topics including the founding history of the QBG; its aims and objectives; scientific research and educational programmes; and the role of religious and cultural values in motivating its leaders and shaping the ethos and vision of the institution.⁶ One of the individuals I interviewed⁷ at the QBG Management Office in Doha is Saif Al-Hajari.⁸ He described to me the disparity he observed in the 1990s upon his return from the US between older and younger generations in Qatar as follows:

If I look to my parents, my father and grandfather in the past, they did not go to school. They didn't do any training in environment. They were just people living naturally. They were living close to nature. They had more skills to deal with nature. They were more positive to the environment than our children. Our children have more science, more technology, more ideas, but they don't care about anything. They don't care about flora. They don't care about wildlife. They don't care about water. They are throwing garbage everywhere.

What Al-Hajari found missing was good behaviour and values, and this observation motivated him to start an institute (FEC) focusing on values.⁹ He then

6 Some responses were given partially or entirely in Arabic, particularly when discussing Islamic and cultural values. I have translated into English any quotations or content from these interviews included in this section.

7 My interview with Saif Al-Hajari was conducted in person 21 October 2019.

8 Saif Al-Hajari is a Muslim Qatari scientist who studied geology and marine science at Qatar University. He completed his graduate studies in hydrogeology in the US. He is the former Vice Chairman of Qatar Foundation and also the former general manager of Qatar Foundation. He helped establish the Qur'anic Botanic Garden. Al-Hajari is also the founder of Friends of the Environment Center (FEC) and was chairman of Friends of Nature at the time of writing. Having led numerous environmental initiatives over several decades, he is considered one of the most respected environmental scientists and advocates in Qatar.

9 According to Al-Hajari, he founded FEC initially as a non-governmental organization in 1992, but after two years the Ministry of Culture and Sports asked FEC to work under the ministry's umbrella. Al-Hajari worked with FEC as part of this ministry for 22 years, but was dissatisfied

reflected on past civilizations and the reasons for their demise. He said their problem was not a lack of knowledge or information. Rather, these civilizations collapsed because they started losing their values. He emphasized that knowledge is insufficient without values and having both knowledge and values is what allows a society and civilization to flourish.

After some discussion about Al-Hajari's various environmental initiatives, he expressed delight at knowing my research project focused on the role of Islamic ethics in environmental advocacy:

If you look to Islam (as well as other religions), you will find that it is very rich in the relation between people and living things; between people and people; and between people and non-living things (*jamād*) like water and rocks. People have a responsibility toward everything that comes from Allah, Glorified and Exalted (*subḥānahu wa ta'ālā*), and people's relationships with His creation must be in a state of balance. This is the divine way or universal order (*sunnatu'l-ḥayāh* or *sunnatu'l-kawn*). When environmental problems arise, you are outside this balance.

Al-Hajari stated that in Islam environmental protection or preserving God's blessing is not considered legally recommended (*mustaḥab*) or a matter of personal preference, but is rather an obligation (*wājib*). He explained that the *āyāt* in the Qur'an and prophetic teachings are very clear regarding how to conserve water and how to interact with other creatures. He quoted an oft-cited *ḥadīth* conveying the prohibition of wasting water, even if you are on the bank of a flowing river.¹⁰ Then, he quoted another *ḥadīth* saying that even when Judgement Day comes and you are holding a seedling, you should still plant it. This concept of valuing nature, he said, has existed for over 1,400 years. He also noted that Islam prohibits killing living creatures unjustly (i.e. for sport) because God did not create them in vain (Qur'an 3:191). Even if a person does not know or has not discovered these creatures' ecological value or role, he said it is considered sinful to take their life unjustly. He noted that these conservational values and teachings show how the Messenger trained his companions to follow Islamic ethics in their relationship with the environment.

with its bureaucracy and FEC's inability to operate freely as an organization. He decided to part ways with FEC and started another independent group called Friends of Nature.

10 This *ḥadīth* is found in several Hadith compilations including *Sunan Ibn Mājah*, but it is classified as a weak hadith due to a weak chain of transmission. The meaning of its text, however, is corroborated by other *aḥādīth* and Qur'anic verses.

When I asked about cultural values that might play a role in environmental advocacy, Al-Hajari stressed the importance of promoting national pride (*wataniyyah*).¹¹ He said people need to feel proud of their country and their cultural background, and to care about the cleanliness of their country's environment and its beaches – especially in this part of the world because “we are tribes”. He recalled that when he was a child, there was a smaller gap between the younger and older generations, so he benefitted more from the values his father taught him. He argued that the social gap was also smaller between neighbours, and children received a consistent message from both neighbours and the elders in their family. He contrasted this with today's society in which families differ in their values and approach to raising children. He observed:

Children these days receive different messages inside and outside of the home. Technology is there now trying to get too close to the children's behaviour. This is very tough for children; even the varieties of things surrounding them. We used to build our toys ourselves. Maybe when I go to the supermarket, I find one type of candy, not hundreds. Today, kids are coming across a lot of things.

This kind of endless exposure, according to Al-Hajari, makes it more difficult for parents to instil in their children values related to simplicity, moderation, and conservation. He noted again that good technology and very good education are important, but they will be misused in the absence of positive values. Al-Hajari emphasized the importance of educating the public, especially children, about Arab and Islamic environmental values, especially with a tradition very rich in ecological principles and teachings. His views reflect a holistic understanding of Islamic concepts and elucidate the ways these values and teachings ought to influence environmental thought and behaviour in an Arab and Muslim country like Qatar. His observations and experiences also demonstrate the socio-cultural changes complicating the reform of people's attitudes and behaviours toward the natural environment along with the increased need for environmental initiatives seeking to address these challenges.

Another environmental leader I interviewed was Fatima Al-Khulaifi,¹² a Muslim Qatari who served as QBG's Project Manager from 2013 and currently

11 Drawing on people's national – as opposed to Arab or Islamic – identity to instil pride demonstrates how nation-state formation influences the conception of socio-environmental relations and circumscribes pro-environmental behaviour within man-made borders.

12 This interview was conducted in person on 17 October 2019.

serves as the QBG Director.¹³ When I asked about Islamic values, Al-Khulaifi said the QBG is concerned with ethical principles mentioned in the Qur'an. She stated that food security and moderation are important Qur'anic principles and noted how Prophet Joseph (Yusuf)'s interpretation of the King's dream¹⁴ constituted a strategy that would guarantee food security for Egypt's people. She explained that Yusuf's advice to store what they reap from the first seven years of what they sowed – in preparation for the following seven-year famine – represents a conservational value embodied in the idea of creating a seed bank, which is part of the QBG's conservation programme. She also noted that Yusuf's recommendation to store what is reaped “except the little that you eat” (12:47) reflects the value of moderation (*iqtiṣād*) and not wasting food. Later, she quoted a Qur'anic verse (6:141) recounting some of God's favours (i.e. trellised and untrellised gardens, date palms, crops of diverse flavours, olives, and pomegranates) and emphasized the value of avoiding wastefulness mentioned in this verse. She also stressed the part of the latter verse commanding people to give the right of these crops (“*ḥaqqahu*”) in the form of alms (*zakāh*) and stressed the importance of educating farmers about the need to give a portion of their crops as *zakāh*.

Al-Khulaifi said when the QBG designs educational programmes, especially for children, they focus on concepts such as food security and teaching children how to plant seeds and grow food, how to irrigate, how to harvest fruits and vegetables, and how to identify the most suitable environmental conditions for plants to flourish depending on the soil in which they are grown. She remarked that after the recent blockade against Qatar,¹⁵ many schools and institutions are becoming more environmentally aware and open to learning how to become more self-sufficient in growing their own food. Al-Khulaifi also

13 Al-Khulaifi received her undergraduate degree in education from Qatar University and formerly worked in marketing and public relations for Qatar Foundation. She has a personal interest in Islamic history and literature as well as in *shari'a*.

14 According to this Qur'anic narrative (12:43–55), the king of Egypt during the time of Yusuf had a dream of seven fat cows being eaten by seven lean cows as well as seven green ears of corn and seven withered ones. When Yusuf was in prison, he was consulted about the King's dream and upon hearing Yusuf's interpretation, the King summoned him and eventually entrusted him (upon his request) with managing the nation's storehouses.

15 Al-Khulaifi was referring to the blockade imposed on Qatar between May 2017 and January 2021 by Saudi Arabia, the UAE, Bahrain, and Egypt. Led by Saudi Arabia, the quartet severed diplomatic and trade relations with Qatar, claiming Qatar was sponsoring terrorists and forging close relations with Iran. The blockading countries imposed a land, sea, and air embargo, suspending flights to/from Qatar and preventing Qatari ships from using their ports. Saudi Arabia also closed its land border to Qatar, which blocked any cargo from entering Qatar by land.

noted that in all of the QBG activities, including its annual Ghars (planting) community engagement programme, it is important to plant with good intentions, to protect oneself and one's dignity, and to provide food for birds, for example, and shade for people. She said:

These beneficial acts are considered charity according to prophetic teachings. Mindful planting with the intent of implementing one's faith and reaping spiritual rewards is very different from someone who plants while being mindless or heedless (*ghāfil*). The spiritual status and reward for these acts also differs in the hereafter.

In discussing the ethical dimensions of behaviour, Al-Khulaifi mentioned the Qur'anic parable comparing the "good word" to the "good tree" (14:24–25) with firm roots and branches reaching the sky and which constantly yields fruit by God's permission. She said some exegetes say this "word" is the testimony of faith (*shahāda*) while others say it is literally a good word from a believer that makes people feel happy. Unlike the "bad word" likened in the Qur'an to a rotten, uprooted tree (14:26), she said good words have the power to inspire people so they can bear more fruit. She believes this Islamic understanding motivates positivity and encourages sharing more uplifting words with workers or employees, for example, to increase productivity.

Al-Khulaifi argued that in a modern nation such as Qatar, the QBG strives to harmonize the Islamic principles mentioned in the Qur'an and Hadith with universal values as embodied in the UN's Sustainable Development Goals (SDGs). She stated:

The QBG aims to tie together worldly meanings with religious and spiritual values. We invite scholars with expertise in religion and Islamic studies, like Ali Al-Qaradaghi,¹⁶ to present the Islamic perspective on many topics including plants, trees, gardens, and conservation. It is very important to investigate, from a scientific perspective, references in scriptural texts to certain trees and foods.

She noted, for example, how the Qur'an mentions the olive and fig together in the same verse (95:1) and affirmed the value of researching and comparing/contrasting these fruits and trees with respect to qualities such as seed size, leaf

¹⁶ Ali Al-Qaradaghi is a scholar of *sharī'a* and law with expertise in field contracts and financial transactions. He is a professor at Qatar University and served as the Secretary General of the International Union of Muslim Scholars (IUMS) at the time of writing.

size, and environmental value. Al-Khulaifi also explained how the QBG's educational programmes and scientific research aim to convert theoretical Islamic principles and spiritual concepts into practical and tangible outcomes through community engagement, global collaborations, and scientific exchange with other botanic gardens.

Al-Khulaifi's insights on various Qur'anic principles and narratives elucidate apparent linkages between Islamic theoretical ideals and environmental practices adopted by the QBG. Her reflections on some of the QBG's broader objectives also demonstrate how this institution seeks to bridge its scientific research with Islamic ecological concepts and principles as well as universal values. By adopting this multifaceted approach, the QBG affirms its religious character within a Muslim country and region while maintaining global relevance by contributing to contemporary scientific research and pursuing universal goals and objectives. The QBG's attempt to find compatibility between Qur'anic verses and the UN's Sustainable Development Goals also reveals a concerted effort to demonstrate compliance of religious values with universal values and how the state's official religion can play a role in achieving global ambitions. While some may problematize this harmonizing approach for embracing secular ideas and paradigms at the expense of Islam's rich moral tradition, Al-Khulaifi's interview reveals the ways in which the QBG adopts an Islamic frame of reference while consistently relying on religious scholarship and scriptural understandings to advance its contribution to Islamic knowledge and achieve its educational objectives. In addition to offering a critique of the QBG, the next section further explores how the pursuit of QBG's institutional goals contributes to fulfilling Qatar's broader regional and global objectives.

5 Critique of the Qur'anic Botanic Garden

Based on my doctoral field research and interviews conducted with environmental leaders and advocates in Qatar, the QBG appears to be one of the most established Islamic institutions with environmental objectives in Qatar. It demonstrates its Islamic character through using religious language and Islamic concepts to articulate its conceptual design and overarching objectives. While the QBG's usage of Islamic terminology and referencing of Islamic scriptural texts may be perceived as symbolic or superficial attempts to legitimize itself within a Muslim country and region, my research reveals, at the minimum, the QBG's genuine interest in making a novel contribution to the concept of gardens influenced by Islamic teachings that distinguish it from

historic gardens in the Muslim world. Moreover, interviews with QBG's founders and leaders demonstrate a shared commitment within the institution to promoting religious and cultural values, including goodness in word and action, environmental responsibility, moderation, conservation, charitable giving, and preservation of the country's Arab and natural heritage. The QBG also possesses multifaceted aims to create an intellectual and scientific space in order to apply Islamic concepts and values through practical, field-based research and through numerous educational and community engagement programmes. In addition, it has succeeded in assembling a strong team of administrators, educators, and scientific experts to conduct research and lead community outreach activities. This core team was composed of only adult Muslim Arabs at the time of my field research, but its leaders and members appeared to work efficiently and harmoniously to produce quality informational and educational publications and achieve the broader goals of the QBG.

Although the QBG executes many of its goals domestically, it also aims to become a global centre of knowledge that allows people throughout the world to experience the richness of the Arab and Islamic culture, while also establishing itself as a reputable modern botanic garden equipped to conduct advanced scientific research through *ex situ* and *in situ* conservation programmes. The QBG has sought to establish its name and status globally as a novel botanic garden partly by conducting international scientific conferences and forging collaborations with other scientific research centres, botanic gardens, and universities supporting the work of botanic gardens. It has also established itself as a modern botanic garden by receiving accreditation from the Botanic Garden Conservation International (BGCI).¹⁷

The goal of the QBG to gain global prominence aligns not only with some of Qatar Foundation's broader goals, but also with the country's aim of establishing itself as a global actor through investments in education (among other areas) and through building/strengthening relationships with other countries, research institutions, and international organizations to affirm its credibility and establish its power on the global stage (Al-Horr et al. 2016). These global ambitions are reflected in part through the QBG's invitation to numerous embassies and ambassadors to participate in its Ghars (tree-planting) programme in Education City.¹⁸

17 The Botanic Garden Conservation International is a networking organization representing and supporting botanic gardens in over 100 countries throughout the world.

18 Education City is the educational programme of the Qatar Foundation, see <https://www.qf.org.qa/about>.

Beyond the QBG's purported scientific, religious, and cultural aims, my research revealed some critical gaps between its lofty ambitions and its practical achievements. One of these gaps relates to the fact that QBG's theoretical aspirations for a physical garden have not been actualized for more than 10 years after its inception. Since its founding in 2008, the QBG maintained an administrative office, nursery, herbarium, and seed bank, and had also planted numerous trees over the years. Yet, its pilot garden was not opened to the public until 2020 and its permanent garden is still under preparation for construction.¹⁹

The delayed completion of its physical garden has deferred many of the QBG's social aims of attracting local families and children to a beautiful landscape incorporating Islamic architecture and giving people a flavor of the ancient Islamic civilization. The timely completion of the pilot garden before the FIFA World Cup 2022 also reinforces the perception of the Qur'anic Botanic Garden as a tool to advance Qatar's green image to the world while not making a meaningful contribution to the broader critique or reform of development models and policies exacerbating regional environmental vulnerabilities and social inequities.²⁰ The inability of state-sponsored institutions like the QBG to politicize environmental problems, climate discourses, and social inequities demonstrates the difficulty of dismantling deeply institutionalized and racialized divisions within a country highly dependent on fossil fuels and cheap migrant labour for its continued development.

Although many of the QBG's educational outreach activities target schools and engage young children, the remainder of its scientific programmes and international conferences seem to attract or engage elite scientific and religious academics and specialists and some select international and global institutions, while for the most part not catering its outreach and environmental awareness programmes and campaigns to the general public. Since this study focused on interviewing organizational leaders, scholars, and prominent environmentalists, future research could examine the general public's perceptions of the QBG and the extent to which ordinary citizens, expatriates, and migrant workers find value in the work of the QBG and how they engage in its campaigns and initiatives. When I asked some young Qataris involved in environmental advocacy outside of Education City about the QBG, they described

19 Information based on email correspondence at the time of writing.

20 As in other Gulf countries, wealthy nationals and high-skilled workers enjoy high standards of living while many low-income migrant workers are not only marginalized through residential segregation, but also through social segregation (Showkath 2014; MDPS 2015).

the institution as being irrelevant to addressing key environmental issues in Qatar. These environmental scientists and activists expressed heightened concern about the country's overall sustainability, climate-related challenges (e.g. rising temperatures, water scarcity, vulnerability to sea level rise), and overwhelming reliance on hydrocarbon exports for its development and economic growth. As such, they did not consider it a priority to develop a botanic garden in an arid region focused on planting trees and educating people about the value of trees. Moreover, they perceived this project as representing an apolitical form of environmental advocacy while remaining oblivious to the country's top environmental priorities.

One Qatari interviewee, an environmental scientist who chose to remain anonymous, problematized desertification in the region and lamented the loss of oases in Qatar, which they explained is due to the country's over-exploitation of its aquifers. They said young people in Qatar do not know their country had huge oases. They believed planting trees through a project like the Qur'anic Botanic Garden does not challenge the underlying causes of desertification and increasing water scarcity in the region compounded by the effects of climate change, which they believed endangers the sustainability of the country and the survival of its population. In expressing their discontent with organizations such as the QBG and the QGBC, the interviewee said, "They are not talking about the *true* and devastating causes of environmental damage; and if you don't raise awareness about the *actual* causes of damage, how do you expect people to come up with solutions?"

In the Qur'anic Botanic Garden's stated goals and objectives, climate change was barely mentioned in informational documents and during interviews I conducted with its leaders and representatives. Whenever it was mentioned, it was never tied to Qatar's vulnerability to the effects of climate change and leaders did not mention how the QBG will contribute to research on its challenges and effects domestically or regionally. As a whole, the QBG does not appear to adopt a problem-solving approach to its objectives and project design, and does not explicitly identify major environmental challenges in Qatar that it aims to address. Although its field research surveys collect information on some environmental threats to plants in Qatar including grazing, camping, and hunting, its educational programmes do not appear to educate the public about the harms of these activities for Qatar's flora. Rather, it seems to take a more general approach to the value of conservation and appreciation for trees and plants as part of Qatar's "natural heritage." Even though the harms of anthropogenic activities from individual citizens or expatriates pale in comparison to major environmental challenges caused/exacerbated by petro-state actors' over-exploitation of natural resources (e.g. water and fossil fuels) for

large-scale development projects (LeQuesne 2018), the QBG does not appear to concern itself with such environmental challenges.

Despite being a well-established institution receiving government funding (through its membership in Qatar Foundation), and despite a prominent member of the royal family playing a major role in its founding and inauguration, the QBG does not appear to use its power and collaboration with governmental bodies such as the Ministry of Environment and Climate Change²¹ to influence environmental decisions related to land use in Qatar and the country's over-exploitation of natural resources. Some may argue that influencing environmental decision-making at the state level is not part of a botanic garden's role, but some modern botanic gardens have become increasingly more involved in influencing environmental policy, and many publicly funded gardens have also become more accountable to the public and their views on the social, educational, and political direction gardens should take (Dodd and Jones 2010).

This shift toward increased public involvement may prove more difficult for the QBG since the conceptualization of its vision, mission, and programmes appear to have already taken place without input from the public. While the QBG projects many noble goals and aspirations, its government funding and patronage from the royal family make it run sufficiently without the need for public support. This self-sufficiency may secure its permanence as a botanic garden, yet it may also decrease its broader efficacy and social influence if even (some) Qataris themselves continue to view it as an elitist, irrelevant institution that overlooks the country's key social and environmental needs. Based on this perspective, some unfortunately consider the QBG as one of many tools the state uses to help advance Qatar's image of sustainability to the world and its symbolic representation of Islam and Arab culture, while actually being an artificial island or oasis of sustainability within a larger desert of unsustainability.

6 Conclusion

As a well-funded Islamic environmental institution with far-reaching connections to royal elites, ministries, and policy makers, the QBG has a unique opportunity to play a more instrumental role in influencing environmental

21 In October of 2021, about two weeks before the convention of the 26th UN Climate Change Conference of the Parties (COP 26), Qatar renamed the Ministry of Municipality and the Environment to the Ministry of Environment and Climate Change.

decision-making in Qatar. Although the QBG serves an important pedagogic purpose for future generations in Qatar, it has great potential to broaden its scope beyond apolitical scientific research and environmental education toward raising greater awareness about the wider threats that climate change and local environmental degradation pose to Qatar's biodiversity and natural habitats. The QBG could optimize its reputability and social leverage to educate people about the anthropogenic causes of environmental pollution and degradation in Qatar, and to hold government and major corporations accountable for the sake of people's physical and emotional health. It also has a responsibility to demonstrate to the public how people's health and wellbeing are inextricably linked to the integrity of Qatar's flora and fauna, its ecosystems, and the broader region's marine and terrestrial environments.

While Qatar seeks to assert its global power and leadership through numerous educational initiatives, economic investments, and international collaborations, it could further enhance its environmental leadership within Qatar and the broader Gulf region through powerful environmental institutions like the QBG. By utilizing its political connections and social capital to influence environmental policies and praxis in Qatar, the QBG could make a significant contribution to safeguarding the region's natural environment and its population from corporate interests and from over-exploitation of the country's and wider region's shared natural resources. Moreover, advocating for policies that prioritize social and environmental justice, conservation and equity – while promoting environmental consciousness and responsibility within society – might be one of the most effective ways to legitimize itself as an Islamic environmental institution while embodying the Islamic and universal values the QBG wishes to promote.

More broadly, this case study of the Qur'anic Botanic Garden illustrates how Islamic environmentalism in Qatar and the wider region faces a formidable challenge when its logic demands promoting Islamic concepts and socio-ethical ideals (e.g. *khilāfa*, *'adāla*, *amāna*) yet its practice remains stunted due to structural opposition to those who dissent or critique the root causes of environmental destruction and social injustice. Islamic environmentalism may find some success in promoting ecological literacy and consciousness in alignment with Islamic principle and teachings. Yet, its broader potential lies in its ability to unite Muslims and people in the region behind a shared socio-environmental vision. Its efficacy also comes from effectively mobilizing people and amassing sufficient power to negotiate socio-political boundaries and advocate for alternative models of development. These models would prioritize the integrity of all people and honour planetary boundaries over economic growth or financial and political gain. Further research could

be conducted on the various structural and institutional challenges Islamic environmentalism faces and any viable attempts to unite Arabs and Muslims across the region – while respecting and honouring their differences – under a shared religio-cultural identity and socio-environmental vision.

Issue and Editors

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