HERITAGE IN THE LIVED ENVIRONMENT OF THE UNITED ARAB EMIRATES AND THE GULF REGION

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Keywords
vernacular architecture; bioclimatic architecture; Islamic urbanism; social sustainability; traditional knowledge; sense of place; United Arab Emirates; Gulf countries

Abstract
This paper examines how the architectural, social, and cultural heritage of the United Arab Emirates and other Gulf countries may contribute to better development of this region’s lived environment. Modern urbanism has largely neglected heritage in architectural design and in social and private spaces, creating inauthentic places that foster a hunger for belongingness in the UAE’s built environment. The paper reviews recent urban developments in the UAE and the Gulf Region, and identifies elements of local heritage that can be incorporated into contemporary planning and design. It proposes that adapting vernacular architectural heritage to the modern built environment should not be the principal goal for heritage-informed design. Instead we may examine the social processes underlying the traditional lived environment, and aim for social sustainability based on the lifeways and preferences of local peoples, especially in kinship and Islamic values. Among the most promising precedents for modern social sustainability are social and spatial features at the scale of the neighborhood in traditional Islamic settlements. Interviews with local Emiratis will also recommend elements of traditional knowledge to modern settings.

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INTRODUCTION

This paper recognizes one of the principles of sustainable development, that local people often possess the best practices and solutions for their own problems. Local know-how however has often been side-lined by globalized trends that are disconnected from local environmental conditions and social needs. The cultural heritage of the United Arab Emirates (UAE) and other Gulf States includes architectural and other adaptations to hyper-arid conditions, and social sustenance rooted in kinship and faith. This paper examines the heritage of the UAE and other Gulf countries, and the opportunities that patrimony provides for future development. The essay’s sources are the author’s interviews and other fieldwork in the UAE in 2003, 2007 and 2016, along with relevant literature. These sources reveal a hunger for authenticity and “belongingness” in architecture and other components of the built environment. I employ the geographical concepts of sense of place and placelessness to appeal for hindsight as well as foresight in creating and inhabiting spaces – especially those inspired by vernacular architecture – to help achieve social sustainability, the key design challenge facing every developed society (Fraser, 2013). I address this question, with particular attention to vernacular architecture and human geography: How did historic Emirati and other Gulf city-dwellers live in relative balance with the land and with one another, and what could this mean for the future?

GEOGRAPHIC AND ECONOMIC SETTING

Based primarily on their fossil fuel wealth, the economies of the Gulf nations are by most development measures situated among the “Global North.” Collectively, on a per capita basis, the six Gulf Cooperation Council (GCC) countries in recent years have had the highest energy and water usage, and the highest carbon footprint in the world (Caton & Ardalan, 2010). Among the GCC nations, Qatar, Kuwait and the UAE have the top three highest per capita ecological footprints in the world respectively (Worldwide Fund for Nature, 2014). With their small territories these are essentially city-states; the UAE for example is 83% urban. The fossil fuel-endowed Gulf countries face the difficult challenge of pursuing sustainable development – including its principles of self-reliance and appropriate technology – against the strong headwinds of their relative “over-development” and the consumption associated with it. Generally, the tenets of sustainable development will grow increasingly relevant to these countries as they transition to the post-petroleum era.

By geographic measures of site and situation, the Gulf countries are uniquely located to take advantage of economic opportunities in the post-petroleum age. The region is a global crossroads. Two-thirds of the world’s population is within eight hours flying time of the Gulf air hubs (CNN, 2014). A primary nerve center for regional and global trade, as well as financial and other services, Dubai has the world’s busiest airport (Mitchell, 2013). The GCC states are situated along and near heavily-transited marine shipping routes. Geopolitically, in recent times the Gulf countries have been a relative oasis in a desert of regional instability. Their assets advantage these countries in preparing for a future built upon a rich heritage of land and life.

The inspiration for this research came in part from my interview with Gisela Lohlein, an architectural engineer and long-time expatriate resident of the UAE, who told me:

“[Older Emiratis] want to remind young Emiratis in particular of how Emirati history, culture, and environment represent a system of traditional living in balance, in tune, with the land. They raise questions: how did they do this? What could this mean for the future? The traditional system also poses a bigger challenge to be brought to all the non-Emiratis
who are the majority living here at any given time: to appreciate this very unique location that we are in and the richness of local culture, opportunities and solutions.” (personal communication)

The Gulf Arabs are legatees of peoples who coped with rigorous environmental challenges. They devised architectural and other adaptations through close contact with their desert and marine environments. More than mere folklore, their cumulative traditional knowledge represents a valuable but broadly overlooked resource for modern development. As noted by the authors of The Emirates: A Natural History:

“One major area of research that has, as yet, received little attention, is the knowledge of the inhabitants of the country itself, learned over generations and passed down through word of mouth. Such information is an essential part of the cultural heritage of the UAE…. Man's survival in this land was dependent on maintaining a sustainable balance in the use of the available resources, providing a lesson for current and future generations.” (Hellyer & Aspinall, 2005).

Prominently among their Gulf counterparts, UAE leaders have repeatedly emphasized the contemporary value of traditional knowledge. The nation's founder, Sheikh Zayed bin Sultan Al Nahyan, said “Our ancestors left us a legacy of traditions we are proud of. Our mission is to maintain and develop them as assets of the nation for future generations” (Zayed, 2016). The UAE also aspires to fulfil a sustainability agenda that the other Gulf countries and developing nations will follow (Ahmed, 2012).

With the recent surge of fossil fuel revenue and investments into the Gulf, its nations have accomplished exceptional feats in modernization, urbanization and globalization in a short period of time: "In less than one lifetime the Gulf has transformed from one of the most disengaged parts of the world to a strategic fracture point of globalization in a regional context” (Fox, Mourtaba-Saba & Al Murtawa, 2006). Gulf cities have some of the most modern and costly architecture and amenities in the world. Dubai's skyline boasts the Earth's tallest building, and a ski slope in a nearby mall defies some of the world’s highest temperatures just outside. Offshore, speculative real estate developments boast artificial islands in the shapes of palm trees and continents. The urban landscape continues to change rapidly – some say too rapidly. “The pace of development is a huge challenge, threatening our natural heritage," said Razan al Mubarak of the Worldwide Fund for Nature (personal communication). Another Emirati observed “there are no effective controls on development”; “What threatens our resources most is the breakneck pace of the region's development,” another said; “We hear a cry to 'slow down,'” yet another added (personal communications).

THE PATTERN LANGUAGE OF THE MEDINA

For contrast with this urgency, we may consider the medina or traditional Islamic city of the Gulf Region and elsewhere in the Middle East, in which "life went at a slow pace" (Ragette, 2013). This paper proposes that the cultural and environmental legacies of the medina are potentially of high value in fostering sustainable and socially healthy communities in the modern Gulf. There are both material and social components of the heritage of the region’s built environment – particularly of the “pattern language” of the medina – that are relevant to modern conditions (Galantay, 1987). This pattern language organized both social and urban life, “unifying them in a way that manifested ideologies and paradigms and their implications in the physical form of the city” (Mohammad and Thwaites, 2010). Many of these characteristics were not limited to the region’s large cities with their classic Islamic urban
patterns, but were also prominent in smaller settlements, for example in the southwest Arabian villages described by Saleh (2004).

In different environments stretching from Morocco to the Gulf, people came up with remarkably similar architectural, spatial, and cultural conventions. This pattern language of their settlements had logic and harmony with environmental and social conditions. Urban site and situation were typically based on geographic logic, especially for access to sea or river, and with attention to terrain, climate, and fresh water. Major urban functions were protection, religion, residence and commerce. The confluence of these interests gave rise to the classic town plan of the medina and its antecedents. Communities had to be protected from attacks, so most were walled. The interior skyline was dominated by the central congregational mosque (church or temple in earlier times), so important that many of these were the finest pieces of Middle Eastern architecture. Nearby typically was the suq with its specializations of trades and products. Major buildings of worship, education and commerce tended to interconnect in linear fashion alongside a larger thoroughfare leading from gate to gate. Neighborhoods and residences developed in a clustered form usually described as “organic” or “cellular,” and were the result of individual decisions guided by deference to social and legal constraints on the use of space. The overall layout was not a street grid but a cat's cradle of lanes, many with dead ends, just wide enough to accommodate foot traffic and animal-drawn carts.

The spatial pattern of the medina was the “labyrinth” which, Falahat cautions, was misrepresented as backward by generations of Orientalists (Falahat, 2014). It is therefore important to consider impartial measures of these urban environments. “You want to revive Islamic architecture?” asks Sayyed Hossein Nasr. “We don’t need to revive it; it is living. What we need is a scientific evaluation. We have never thoroughly evaluated Islamic town planning and house design...What we need today is an objective evaluation of these environments in their own terms” (Nasr, 1980). One such evaluation was an Egyptian study of air temperature and movement inside houses and along streets of Cairo's medina, which concluded that moderation of temperature extremes in these historic quarters were “ahead of anything we are doing today” (Nasr, 1980). Urban architectural technologies in the medina and other Middle Eastern towns were both renewable and energy-efficient, and tended to harmonize with natural conditions. “Islamic architecture remained faithful to simple building materials and employed the elemental forces of nature such as light and wind for its sources of energy,” writes Nasr (1980). “It brought nature into the city through the re-creation of the calm, harmony and peace of virgin nature within the courtyards of the mosque or the home.” The cities’ maze-like patterns created much shade in this hot environment (Figure 1). Typically a single door gave access to a home centered around a courtyard, a passive adaptive design that also provided shade and cooling. Local materials were used in construction. Many building materials and other resources were scarce, and recycling was a must. “Building to blend into the context was assured,” wrote Friedrich Ragette. “These physical constraints were so strong that the builders could not possibly build in disharmony with their natural environment” (Ragette, 2013).

In today’s parlance, traditional architectural technologies were bioclimatically designed, meaning they took into account climatic and environmental conditions to help achieve optimal thermal comfort inside (BioclimatiX, 2016). The signature piece on both sides of the Gulf is the practical and often ornamental wind catcher or wind tower (malqaf in the Arab Gulf countries, badjeer in Iran). These passive cooling towers capture cooler winds aloft, directing them into the living space and displacing warm air. Where circumstances allowed, on both sides of the Gulf these were used in conjunction with the moving subsurface waters of the falaj irrigation tunnel (qanat in Iran), providing an exceptionally effective air conditioning
A number of functioning wind catchers are scattered throughout the UAE, including the restored examples in Dubai’s al-Bastakiya neighborhood (Figure 2), and aging ones in the poorer Emirate of Umm al-Quwain. Another functional and graceful bioclimatic device is the carved mashrabiya screen of private and public buildings across North Africa and into the heartland of the Middle East (Figure 3). Carved from wood or stone or cast in plaster, often with Islamic geometric patterns, these block and diffuse sunlight, allow fresh air to pass into living space, and provide privacy for the hariim and other personal quarters.

Art Historian Ronald Hawker describes other traditional bioclimatic technologies in the UAE: homes were often built of fossilized coral, ideally suited for the heat because of its low thermal conductivity; a ventilation system called badkesh (wind-taker or breathing wall, a perforated outer wall) allowed breezes to pass down external walls and cool residents at a lower level; insulating plaster (juss) was applied to the breathable masonry walls made of collected beach rocks, coral and alluvial stones; and the high walls and courtyards operated like wind towers and mashrabiya to direct cooler air down into the heart of buildings, while protecting them with shade (Hawker, 2008). Oxford geographer Sandra Piesik studied the cooling effects of the ariish (barasti) date palm houses that Bedouin used on both ends of their seasonal movements between the date orchards of Liwa Oasis and the pearl diving and fishing enterprises of the Gulf. (Piesik, 2012; Duncan & Tomic, 2013) (Figure 4). Later in the paper, we will see that modern designers have reinterpreted a number of the historic techniques and materials described above in modern bioclimatic architecture.
Figure 3. Plaster mashrabiya screens of a private home in Nizwa, Oman. These provided ventilation and allowed women and others in private areas of the home to see activities in the public/male space of the courtyard below. (Source: Author, 1984).

Figure 4. Reconstruction of a barasti-style or ariish home with wind-tower, Dubai Museum. Almost all of the structure is made of palm materials. (Source: Author, 2016).
Morphologically, the pattern of the medina was in many cases a direct heir to ancient Mesopotamian and other pre-Islamic patterns, to such an extent that the spatial configurations of continuously-occupied sites like Erbil in Iraqi Kurdistan replicated themselves upward in time on their tells. The labyrinthine residential pattern and devices such as wind catchers were adaptations to various climatic factors, while preferred building materials and techniques were rooted in the availability of local natural and human resources (Galantay, 1987). Culturally, however, while accommodating diverse peoples the Islamic city was fundamentally Islamic. In preparing the conceptual ground for architecture that fosters social sustainability in the western Gulf today, it is essential to identify the characteristic Islamic and Arab traits of the medina and its peoples.

These Islamic traits are distinctive from their Western counterparts, arguably setting the stage for an inherent culture clash - described later in this paper as a “crisis” - in modern town planning. Lynn White identified Biblical Judeo-Christian instructions to “subdue the earth” (Genesis I:28) as the “Historic Roots of Our Ecologic Crisis” (White, 1967). These contrast with Islamic tenets upholding the concept of stewardship, with mankind the servant of the Divine but also nature’s custodian. Metaphorically, Muslims could “make paradise on earth,” for sedentary peoples the garden paradise metaphor became an ingredient of the urban form (McHarg, 1971; Ardalan, 2013). Nasr sees Islamic architecture not as stylistic or based mainly on climate or building materials but as genuinely religious, writing that the traditional Muslim person carried an “inner sense of beauty, dignity, harmony and nobility,” and saw the city “as the extension of the natural environment, in harmony rather than in discord with it” (Nasr, 1980).

Islamic cities provided for their diverse peoples’ social, cultural and spiritual priorities and interests, fostering what today would be recognized as social sustainability, defined as “development (and/or growth) that is compatible with harmonious evolution of civil society, fostering an environment conducive to the compatible cohabitation of culturally and socially diverse groups while at the same time encouraging social integration, with improvements in the quality of life for all segments of the population” (Polese & Stren, 2000). Islamic tenets encouraged problem-solving among the varied parties cohabiting traditional Islamic settlements. Many aspects of responsibility and behavior in space were tied closely to the Islamic legal system (shari’a) and its precedents (Galanty, 1987). Shari’a and local customs or ‘urf (contemporary ways of doing things, including ordinary acts and civic transactions, either public -- large community -- or private -- small community) promoted simplicity and modesty in social and economic practice, calling for good governance, harmony and tranquillity in the neighborhood, and avoidance of damage to neighbors (Ardalan, 2011; Hakim, 1994). These attributes virtually define social sustainability; a social sustainable development or activity must keep to specific social relations, customs and values, while reducing social inequality, especially in terms of social exclusion, social discontinuity and destructive conflicts (Chiu, 2004; Ahmed, 2012). Mohammad and Thwaites (2010) argue that professionals and tradespeople applied core Islamic principles to the built form, "which underlie the sustainability of the social environment in Middle Eastern cities, in a collective and socially responsive manner that drives the bottom-up development of solutions".

Akbar (1988) recognizes five distinct patterns of responsibility for properties within the medina. The most prevalent and successful was the pattern of private property in which the same party owned, controlled, and used the property. In a legal and social environment of what Akbar calls “autonomous synthesis,” parties had complete freedom within their properties, which were not subject to external influences or rules. Well-established but always evolving shari’a and ‘urf precedents were invoked from the bottom up when
appropriate to settle disputes, but regulations meant to be followed by all citizens did not exist, and authorities with top-down control rarely intervened (Hakim, 1994). ‘Urf was especially relevant at the scale where individual decision-making and building craftsmanship were implemented, for example at the scale of a housing cluster or neighborhood (Hakim, 1994).

Traditional Muslim urban environments changed gradually and harmoniously because parties achieved consensus; for example, the residents of a dead-end street controlled the street, and nothing affecting the street could be done without the consent of all the residents, who were responsible for maintaining it. Acting parties guided by their personal values, norms, and motivations as well as prevailing cultural, social, psychological, and religious factors, had freedom of action within their properties, and dialogued with one another to resolve conflicts. Proscriptive principles that defined what agents should not do addressed varied needs and situations, emphasizing the relationships between parties, and prompting collective and creative problem-solving among the concerned parties. In this environment of decentralization and autonomy, people tried different solutions; acting parties did not seek permission from authorities but made changes, and if these did not incur objections the changes prevailed. Through trial and error, every town developed its own solutions to fit its cultural and environmental needs. When small-scale users were given decision-making control, the outcome was the characteristic “lively variety within unity.” The results of small-scale decisions of those who used, owned, and controlled properties accumulated over time to generate the morphology of Islamic towns. “The weight of experience of the whole society lies behind the traditional buildings,” Akbar (1988) wrote.

Hakim (1994) attributes the unity of the built environment of Islamic towns across the Muslim world largely to the precedents set by shari’a during the time of the Prophet Muhammad, and the diversity of those towns over time and space to the localized ‘urf, which shari’a recognized as legitimate. Importantly, he observes that the interplay of shari’a and ‘urf were fundamental to place-making in traditional settlements. This legal system is “very sensitive to local conditions,” he writes, and “accords legitimation and protection to a locality’s customs and practices and thus contributes substantially to the identity of a place through the individuality of its place-making process and its resulting built form”.

The medina was subdivided into quarters based on kinship, geographic origin, ethnicity, religion, or occupation, rather than on socio-economic status. Within this socially cohesive quarter, the sense of belonging to a neighborhood (hayy, haara, fariij, or mahalla as identified as a neighborhood parish of a mosque) as the basic urban socio-spatial unit developed with the values of extended families, based on patrilineal household, lineage, clan, and tribe, with hospitality as a prime virtue (Caton & Ardalan, 2010). As we will see later in the paper, this neighborhood scale is most pertinent to sustainable design today. Missing was any subdivision of neighborhood by socio-economic status: residences were introverted as rich lived alongside poor, with opulence or poverty inside hidden by indistinguishable street facades. A neighborhood or its kinship-based subdivision was often a cluster of residences with semi-private cul-de-sacs. The inhabitants of this cluster comprised a network of extended family based on male descent lines, bound together by the obligation of honor (sharaf) which extended even to unrelated neighbors who shared wells, ovens, and other utilities. Islamic separation of female and male space applied at every scale. Public space was primarily male space, with separate secluded female space available throughout. The home was a microcosm of that space. Women in the hariim could not be seen but were able to view activities in the public/male quarters of the home, with mashrabiya screens providing them both privacy and ventilation.
For Muslims, the over-arching concept of the community was (and is) not a spatial unit but the umma, the brotherhood of Muslims based on shared faith rather than on kinship. With charity as one of Islam’s five pillars, Muslims yielded to the alms-collector of their neighborhood and also donated income or goods to the Islamic waqf or charitable trust (literally “detention,” and legally defined as “detaining the substance and giving away the fruits”; Akbar, 1988), which in turn provided water and other utilities along with religious, educational, healthcare and other social services – especially for the poor -- back to them (Nour, 1915). Reinforcing the notion of people as stewards of the earth, the waqf upholds that God owns all things – so that the individual land owner is nominally a trustee or steward – and waqf income must benefit humankind (Khan, 2015). Mosques, schools, hospitals, fountains and ultimately a large portion of Islamic settlements funded by the waqf became public grounds. The waqf was not a centrally-controlled religious charity governed by external agents. Autonomous and independent, it was instead created at the neighborhood level by a donor committed to renovation of historic buildings or dedicated to some other public good, for example a hospital or school. It was a comprehensive enterprise, so for example a waqf-funded school was complemented by housing, shops, baths and farmlands that generated the charitable contributions to sustain the school. Another expression of social solidarity and mutual care was takaful, a kind of Islamic insurance policy in which community members pooled money to guarantee against losses (Galantay, 1987).

These peoples shared an urban identity, a sense of place and of belongingness in a city that fit its natural environment. Far from being a backwater of world architecture, with its material and social sustainability the Islamic medina was what may be viewed as the original green city. While the principles discussed above are uniquely historic and Middle Eastern, they have a familiar ring in modern universal appeals for green urbanization. Ragette (2013) points out that in seeking to join material and spiritual priorities, Islamic principles of community organization and design are similar to their Western green counterparts: living within one’s means and avoiding excess, recycling materials, consuming less energy, attuning architecture to climate with local materials, designing from the inside out for efficient use of space, promoting a sense of neighborhood, adopting appropriate technologies, revitalizing local retailers offering local goods, minimizing vehicular traffic, sharing responsibility for common spaces, and combating social decay.

**URBAN SYSTEM SHOCKS**

We may now consider the sharp contrasts between traditional Islamic urban life and what the tides of time and globalization have brought to Emirati and other Gulf cities, and then proceed to examine how they may be reconciled. This is the methodology that Hakim proposes to reconcile heritage and modernity in a way that will promote innovation: ask questions about what is occurring now in the built environment and how it used to occur in the traditional Islamic city; “it is only after careful analysis and understanding of the two systems that any fresh strategies can be formulated,” he writes (Hakim 1994).

The processes and forms of urban development unfold differently today than they did in the past. Developers, planners, and architects predetermine urban forms in the Gulf, often with profit in mind, and cities cannot grow organically (Ragette, 2013). New urban forms are seldom based on local heritage. Official decision-makers invest their own and other extrinsic values in the built environment with little consideration of how suitable those values are in the local context (Akbar, 1988). Lifestyles and architectures are being westernized, while local design, skills and knowledge are overlooked or abandoned, argues Ragette: “With the coming of industry, the craft base of our traditional architecture has died” (Ragette, 2013). Modern and postmodern architecture have gone their own way and disregarded local
tradition, Jaidah and Bourenanne observe, with the result that architectural identity has been erased and the inhabitants’ sense of belongingness dulled (Jaidah & Bourenanne, 2010). Abu Dhabi’s 2007 Master Plan, for example, aspired to “showcase its vision as a world class leader in creating an innovative and sustainable Arab capital city”, but its “fascination for progress and development in such a barren land” led to the “Brutalist” architecture of an “alienated hyper modernism of reinforced concrete structural frames clad with glazed curtainwall. This kind of hyper modern architecture tends to ignore its context, and as a result, it creates human isolation and denies a desirable human scale within the city’s public realm” (Duncan & Tomic, 2013).

In terms especially applicable to the Gulf, Akbar (1988) contrasts contemporary with traditional urban environments and finds that modern developments marginalize the local-scale powers of their inhabitants and thereby diminish the quality of their environments. While traditional environments were ordered, contemporary environments are organized. While traditional environments operated with proscriptive constraints about what not to do, contemporary regulations are prescriptive, specifying what to do and ultimately decreasing the control of concerned parties. The traditional built environment was a complex, interdependent urban ecosystem, a system of constraints in which any massive intervention could result in unexpected and harmful changes. “Regulations are such massive intervention,” Akbar writes. Modern decision-makers do not seek consensus but generate their own regulations according to their own norms and values, minimizing communications and relationships between involved parties, eliminating their ability to reach agreements, and reducing their influence and power. Their intervention in complex urban systems has shifted elements of the traditional environment from the “unified form of submission” -- in which the same party owned, controlled, and used the property -- to a “dispersed form of submission,” in which three independent parties share a property: one party owns the property, a second controls it, and a third uses it. “People who neither own nor control are irresponsible and dissipate the resources of the society,” Akbar writes.

The social and physical qualities of the built environment have suffered from this shift in responsibilities. Top down, centralized decision-making has destroyed the creative conventions reached through trial and error, along with the “diversity within unity,” so typical of Islamic settlements, that was generated by users who have control. “An unexpected result of centralized control in the built environment is its limited ability to accommodate users’ diverse needs, leading to an environment whose potential remains largely unrealized,” Akbar argues. The Islamic and other precedents that fuelled imaginative exploitation of traditional environments no longer apply. The aesthetic quality of the built environment, once refined over time by the entire society, is now controlled by individuals who produce a uniform monotonous environment. Having terminated shared responsibility, authorities assert their dominance over territories, owning and controlling a high percentage of outside public spaces and eliminating such characteristic urban elements as gates, walls, and dead-end and narrow streets. The quarter as a territorial organization broke down as authorities came to own and control the streets within it. Regulations failed to protect parties from one another and even encouraged harm. The abolition of traditional principles of ownership created land speculation. Rapid technological change and foreign influences compounded the shock to the urban ecosystem. Saleh (2004) offers examples of disruption caused by the introduction of top-down authority in southwestern Saudi Arabia, and reveals how the change in responsibility reverberated through the entire society. Whereas a tribal council traditionally planned for community needs and urban development, with the creation of the Kingdom of Saudi Arabia in 1932 this system of local control and planning was abandoned, with urban development coming under the auspices of the central government, causing “the disintegration of their old socioeconomic structure”.

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Contrasting with historic urban accommodation to habitat, most of the Gulf’s contemporary buildings are so disassociated from the natural environment that with air conditioning, even the most basic concern for shade is obsolete. The “AC Culture,” as Caton and Ardalan (2010) see it, is the “ultimate obstacle for sustainable design”. Investigating issues of sustainability in the Gulf, their research team found Emiratis lamenting that construction for profit results in buildings that stand “against nature,” meaning, a local said, that “they’re working continuously against heat, and it’s a pity that we haven’t see more interactive, adaptive, naturally-evolved elements that really work with rather than against nature”. The result is a vicious cycle, within which buildings emit heat because of the mechanics needed to cool them, contributing to the urban heat island effect. Dubai’s artificial islands, the researchers add, represent “a picture of man out of harmony with nature” (Caton & Ardalan, 2010).

Given their rich urban heritage, why have Gulf Arabs embraced such out-of.sorts forms? Galanty (1987) may have the best answer: they haven’t. Instead, a clash of urban traditions has overtaken them. He sees Eastern (including the Islamic) urban paradigms, with their premium placed on spiritual factors and the search for harmony based on permanent values, colliding with the Western mode’s premium on efficiency and spatial organization to optimize production and consumption, and its expression of a lifestyle in which constant change has become a goal in itself. Other authorities conclude that with the breakneck pace of change, Gulf Arabs simply have not had the time to innovate. As Western architecture made inroads into the region, “The Arabs had no time to develop new structural understanding of the developments engulfing them; there were neither time or vision to put solid regional town planning standards in place” (Ragette, 2013). In a similar vein, an expat architect in the Emirates told me “People take the Arabs for a ride in architecture. This place is east and west and has the chance to do something remarkable. But no one is challenged to come up with a vision for the region.” Such concepts of hapless local peoples fail to appreciate the dislocations that would confound any society buffeted by powerful crosswinds of opportunity, wealth, tradition and globalization. “The cities of the southern Gulf have grown so quickly in a few decades, they couldn’t possibly have produced a perfect synthesis of disrupted traditions and disrupting economics and technology in that time,” Hagan (2013) writes. “The question is where do they go from here?” (Hagan, 2013). The search for that answer comes below.

Many people look to Gulf cities as “disruptive” in the positive sense of creating new paradigms. I am concerned about how new urban and other forces have been disruptive in the negative sense to Emirati and other Gulf cultures. What have been the social impacts of Arab communities being flash-flooded by wealth and by western consultants, ideas, methods and urban landscapes? Individuals and societies suffer effects from such rapid transformations. “New architecture paid scant attention to the social and cultural needs of the local community,” a UAE government forum noted.  “As a result, urbanisation and modernisation impacted significantly on tribal and family structures” (UAE Interact). “It had to lead to a confrontation with established values,” writes Ragette. “All western things were not only available over night, but even forced upon people by armies of eager western or western-trained salesman. The physical and cultural effect was devastating” (Ragette, 2013). Hakim (1994) observes that “Unfortunately the public sector's performance is dismal in dealing with the changes brought about by new building types, materials and urban functions. It responds with negative practices and methods, facilitating the degradation of the quality of the built environment. This is primarily due to the clash resulting from imported ideas and associated regulations (dictated by the central government on the local level), with embedded deep rooted customs.” Galanty (1987) regards the indirect impacts of imported value systems on traditional lifestyles as even more destructive than the outward signs of modernization: “The competitive, dynamic and aggressive nature of western capitalism and
the high value given to ‘progress’ contrasts with the importance according to continuity and incremental change in patriarchal order.” In southwestern Saudi Arabia, Saleh (2004) described gender segregation and the centrality of religion in community life as the “backbones” of the public realm of Islamic society, observing that these were precisely the major issues neglected by modern schemes and their exotic designs. Dogan Kuban added that “transformations are so rapid that people feel alienated in the modern environment. Alienation, not only in its physical aspects, but also in the life of modern man, is a source of grave concern” (in Ragette, 2013). An Emirati explained alienation from the built environment to me in these terms: “The problem here is that you make a nice building, but then you don’t support the activities going on inside of it. It’s not the building that counts. It’s what’s inside in the long term that matters.”

There is substantial research addressing how disruptions in urban Gulf societies have prompted a variety of “crises.” Along with studies by a variety of international agencies, Ardalan’s research identified an “identity crisis” prompted by the loss of many forms of heritage: “a visual/ spatial loss of a vital sense of cultural identity, collective memory, traditional knowledge and values, indigenous narratives, historic textures/patterns, and a sense of place. In other words, the intangible elements of heritage” (Ardalan, 2013). Some architects and planners pin the blame for what they view as the Gulf’s “architectural and urban crises” on Arab surrogates of Western interests. Nasr sees the critical erasure of Islamic architectural identity as Islamic beauty lost to Western secularization: “the major modern urban environments of the Islamic world are suffering from a crisis which is most directly reflected in their ugliness and is in stark contrast with the serenity and beauty of the traditional Islamic city.” At fault, he argues, is a Westernized Muslim minority of wealthy individuals and government authorities, an “elite in reverse” whose “spiritual sense has become dulled by the force of secularization,” who have “forgotten the ephemeral quality of human life on earth and the peace and harmony pervading nature,” and who create “an urban environment in total disequilibrium with the natural environment;” the result is “the plight of the modern city within the Islamic world” (Nasr, 1980). Saleh (2004) has documented how the demise of traditional architecture in southwestern Saudi Arabia coincided with the introduction of modern designs, creating an overall result of “considerable bleakness.” Akbar’s book on the “Crisis in the Muslim City” (1988) systematically explores the urban disequilibrium produced by the shift in decision-making from autonomous and local to controlled and remote, with “endless disastrous consequences.”

Social heterogeneity is a disruptive factor in Emirati and other Gulf societies. Social cohesion and solidarity are diminished as clusters of homes once settled by cohesive and compatible family groups are replaced by housing units assigned at random to wide variety of peoples (Galantay, 1987). Further compounding the Gulf’s “urban identity crisis” is dependency upon two major expatriate groups which by necessity compensate for small populations of citizens; in the GCC countries collectively, more than 70 percent of work force are non-nationals. One is small but with outsized influence, while the other is vast and with almost no influence at all. The former are the mainly Western (European and North American) consulting and management class, and the latter are labor and service personnel, mainly from South and Southeast Asia. In the management realm, local knowledge and skills are often overlooked with the maxim that one Emirati described to me as “foreign is better.” Another Emirati put it this way: “People here never ask, ‘how can we do it our way?’ They always look to the outside, thinking they may have the more innovative solution.” An Emirati engineer urged “our society needs creativity – not just consulting.” The Emirati chairman of a United Arab Emirates University department summed up the long-term demographic challenge: “There is a need for local experts to lend their experience and credibility to efforts, and in time, through considerable investment in capacity building of young Emiratis, to replace the flow of
expatriate consultation into the country” (personal communications). Among the labor and service classes living with poor conditions, there is always a danger of social unrest.

A consistent experience reported in the literature and in my interviews is that many native Gulf Arab urbanites, outnumbered and overwhelmed, feel reduced to anonymous members of a mass society. What happened to the cohesive neighborhood, the haara or fariij? It was diluted as residents were dispersed or segregated by new socioeconomic cohorts. What of essential adaptations of human life to an unforgiving natural environment? They are no longer essential. I have asked Emiratis about such impacts. “People have lost their sense of belonging to place,” one observed. “We need to get back ‘belongingness’ to areas” (personal communications).

Geographers use the humanistic concept of sense of place to analyze concerns like these. Sense of place is the combination of characteristics that makes a place special and unique. It involves the experience of identifying oneself in relation to a particular piece of land, and includes local knowledge and traditions (Art of Geography, 2016). Places may be experienced either authentically or inauthentically. An authentic sense of place is “a direct and genuine experience of the entire complex of the identity of places” (Relph, 1976). Geographer Edward Relph argues that, in our globalized environment of “flatscapes,” an authentic sense of place is being overshadowed gradually by a less authentic attitude he calls placelessness, which he defines as “the eradication of distinctive places and the making of standardized landscapes that result from an insensitivity to the significance of place.” The overall impact is the “undermining of place for both individuals and cultures, and the casual replacement of the diverse and significant places of the world with anonymous spaces and exchangeable environments” (Relph, 1976).

Relph wants to understand how strongly people identify with place, using the concept of insideness—the depth of attachment, involvement, or concern that a person or group has for a particular place (Seamon and Sowers, 2008). Conversely, a person can be separated or alienated from place, an experience that Relph calls outsideness. His central message is that humans cannot live and function successfully without inhabiting meaningful places. In the research on social sustainability, sense of place is regarded as critical to helping people identify with their region and with each other, thereby encouraging residential stability (Ahmed, 2012).

For architectural design of sustainable communities in the Gulf, Ardalan focuses on the critical role of sense of place:

To truly understand the key issues of sustainability and cultural identity... we need to become aware of that particular worldviews of the individual indigenous civilization, the genius loci of the place, and the optimum ecological fit of proposed developments. The mandate of good design is to elegantly realize this holistic vision in physical reality. Such an approach may provide an important methodology by which common ground can be found between the profound worldviews of traditional civilizations and the highest aspirations of contemporary innovations in art and architecture (Ardalan, 2013).

There are no data measuring how broadly the perception of lacking “belongingness to places” is diffused through Emirati and other Gulf societies. If the literature and interviews related here are representative, the regional and local senses of place among many Gulf Arabs are giving way to senses of placelessness and outsidedness more characteristic of mass culture in the West. There are however some common themes of alienation rooted uniquely in Gulf settings. One is deprivation of public natural amenities. Public spaces that encourage social interaction, along with public parks, green areas, and public open spaces,
are essential components of social sustainability, and are widely lacking in the UAE (Ahmed, 2102). An Emirati lamented how developments have robbed people of the amenity of common recreational space, including urban beaches: “We don’t have public space, just shopping malls” (personal communication). Shopping malls have, for a number of reasons, become highly significant places in Gulf life.

In the Gulf countries, senses of dislocation and outsidedness are accentuated by the fact that many people spend the great majority of their lives in artificial, enclosed environments like malls. They feel cut off from the wonders of nature close by, yet seemingly worlds away. An Emirati woman told me “The biggest problem here is that people are too far removed from the world, do not know their own country, and get most of their information from outside.” She said that when she showed slides of UAE landscapes to a group of schoolchildren, one of them accused her of lying that a picture of mangroves was taken nearby: How could something so beautiful be here? (personal communication). Belongingness and placefulness could come in part from environmental awareness and education, and especially from spending more time exploring the out of doors.

Figure 5. Dubai skyline, 2007. At far left, the Burj Khalifa is nearing completion. (Source: Author).

The feelings of dislocation and alienation among urban Gulf Arabs discussed above are not universal; many have accommodated themselves well in their modern surroundings. Elshestawy (2004) argues that all too many comparative analyses of traditional and modern urbanism in the region are founded upon a “narrative of loss” in which stable and sustainable old cities have yielded to the disarray and disharmony of their newer counterparts. But this is an incomplete view. A young Emirati architect, for example, told the Harvard research team on New Arab Urbanism that downtown Dubai (Figure 5) “definitely represents the way we live now. Our culture. It’s not like our culture in terms of Islam but it definitely represents the way we are living now.” When a team member posed that Dubai may not be sustainable and that it has obliterated traces of the past, the architect replied that he wanted to learn from the past
without being overly nostalgic about it (Caton & Ardalan, 2010). The researchers also pointed out that rootedness and authenticity are not the only valid sentiments: “Whereas it is important to have the individual rooted in a particular locality, with all its historical and cultural specificities, it is just as important for him or her to feel connected in a positive sense to world systems.” A Dubai professional told Caton and Ardalan “It’s very global, the way we are living. We are living as global citizens. I see similarities between me and any person living in downtown Manhattan.”

“WHERE DO THEY GO FROM HERE?” ACCOMMODATING HERITAGE

This portion of the paper addresses the particular ways in which the vernacular architectural heritage of the UAE and other Gulf States may be incorporated into the modern built environment of the Gulf. There are, for the sake of simplification, three alternatives on a spectrum of architectural options: to modernize, to synthesize, and to “heritagize.”

The so-called “modernizers” insist that heritage has no role. In this era of globalization, they argue, complete change is inevitable. At the extreme end of the spectrum is deconstruction architecture, a philosophy that deliberately opposes valuing one’s architectural heritage (Ragette, 2013). Compatible with this philosophy, but not always coinciding with it, is what is known euphemistically as “bulldozer planning,” in which old quarters are razed and modern buildings take up their footprints. Some forward-looking, oil-wealthy states have viewed the decaying remnants of the medina as embarrassing remnants of a bygone era not worthy of restoring or remembering. Thus in the 1960s in Kuwait “the destruction of everything that was old was indiscriminate, swift, permanent, and uncontrolled” (Botz-Bornstein, 2016).

At the other end of the spectrum is the resolve to preserve or restore – to “heritagize” -- the vernacular architecture of old quarters, or to identify what a special issue of the International Journal of Architectural Research called “the contemporaneity of built heritage” (Volume 9, Number 1, 2015). Conservation of urban heritage is a global priority, motivated especially by the prestige and potential economic returns conferred by UNESCO’s World Heritage Program. Urban world heritage sites in the Middle East include numerous medinas. To date the sole World Heritage Site in the UAE is Al-Ain Oasis, inscribed for its archaeological and natural treasures, and the country has several open-air museums of restored and replicated architecture. These include the 50 buildings of Dubai’s Bastakiya (al-Fahidi) Historic District, spared from demolition in the 1980s, and restored with art galleries and educational exhibits, and the nearby Dubai Heritage Village in the historic al-Shindagha neighborhood (see Figures 1 and 2). Ragette (2013) observes that the scope for true heritage preservation is very limited, and that getting it right is a big challenge: some critics for example decry the Dubai Heritage Village as “Disneyfied,” presenting “an idealized version of bygone eras, without the smell, dirt, poverty, insecurity and disease.”

Both Bastakiya and the Dubai Heritage Village however have considerable educational and touristic – and therefore economic -- value. About 275,000 people visit these sites each year, of which roughly 40 percent are Emiratis; young Emiratis and particularly university students are reportedly very interested in these places (Caton & Ardalan, 2010). The remaining 60 percent are mainly Germans, Koreans, Japanese and Chinese. An Emirati told me, “tourists don’t want to see malls -- they want to see heritage” (personal communication). But most do not miss the chance to visit the Dubai Mall (the largest in the world by total area, and recorded in 2011 as the most visited building in the world, with more than 54 million patrons), or the Mall of the Emirates, so at least in Dubai most tourists clearly enjoy seeing both. The potential for growth in architectural heritage tourism in the Gulf is high, and among its many
benefits is that international visitors return home to spread appreciation of Arab and Muslim civilizations, in a time when the larger world sorely needs that understanding.

Synthesis and Hybridization

Midway along the spectrum are the “synthesizers,” who value tradition and regionalism, and seek to integrate old and new. Their aim is, broadly, to hybridize or to preserve “locality within globalization” (Aydinli & Karababa, 2013). Getting the hybrid right is also difficult: the task of taking the best that old and new offer rarely succeeds, according to Ragette (2013).

What possibilities, obstacles, and criticisms face the synthesizers? What architectural elements of the past inform their designs?

A widely-practiced approach to hybridization in the UAE and other Gulf States has been to apply a veneer of vernacular architecture to modern buildings, most notably by positioning wind catchers on them. Wind catchers rise from hotels, shopping malls (such as Sharjah’s Gold Suq), mosques, and residential developments. While they pay homage to the heritage of traditional Gulf architecture, these wind towers are non-functional. Perhaps the best example of this cut-and-paste architectural symbolism is Dubai’s resort of Medinet Jumeirah, bristling with non-functioning wind towers. While touted by its agents as an “authentic recreation of ancient Arabia, capturing the natural beauty of the region,” architectural critics cite the resort’s over-the-top Orientalism (Jumeirah Resorts; Caton & Ardalan, 2010; Mitchell, 2013). Designed for and visited mainly by tourists, Medinet Jumeirah is the creation of local developers (it is “an example of where the Orient is producing its own generalized orientalism,” quips Mitchell). It is frequently patronized by Emiratis who admire the resort’s effort to create a hybrid space of past and modern life, but who reportedly would like to see something similar serving their cultural preferences. An Emirati architect told the Harvard researchers: “I may not feel comfortable because of my cultural background, because that place is overwhelmed with tourists. I would like to have it but in an [Emirati] community context” (Caton & Ardalan, 2010).

With few exceptions, critics pan such pseudo-traditional hybridization as dishonest recreation of an illusory, idealized past. The Harvard team observes that:

Unfortunately there has now evolved only two “mono-cultures of design models” in the Gulf cities that all developers are following: the mega, “Avant Garde, supermodern tower” or the low/mid rise “Disneyland Gulf Kitsch.” The former has no ecological or cultural relevance to the place, while the latter is burdened with fake wind catchers and fiberglass arches, neither model offering a suitably sustainable and contemporary paradigm for the region (Caton & Ardalan, 2010).

Ardalan (2013) chastises, “the predominant models in the GCC that have been followed seem to be those of Los Angeles and Las Vegas with regard to contemporary urban patterns and zany avant-garde architecture, while often resembling Disneyland wherever pastiche gestures towards the traditions of regional architecture are concerned.” Within the UAE, such gestures abound in Abu Dhabi as well as in Dubai. In Abu Dhabi of the 1980s and 1990s, Islamic ornamentation was applied to the city’s earlier-described “Brutalist” concrete box architecture, along with “pseudo-traditional Islamic principles in urban design and architecture” (Duncan & Tomic, 2013). Duncan and Tomic relate how Abu Dhabi has “built fairytale traditionalism favoring superficial Arabic geometric form. In this subcategory, the buildings showcase an inaccurate and artificial localized style, if not indeed a kitsch version of refined traditional Arabic architecture.” Here is the condemnation of Ervin Galantay, who seeks authentic vernacular architecture in the modern context: “the cosmetic use of
traditional decorative elements, applied skin deep to the exterior of Western-style buildings, is dishonest trickery and should be avoided” (Galanty, 1987). Edward Relph would likely describe pseudo-traditional architecture as inauthentic and resulting from an insufficient sensitivity to the significance of place.

**Bioclimatic Adaptations**

If pseudotraditionalism is not an effective hybridization of the old and new in Gulf architecture, a more promising and innovative synthesis with both environmental and cultural roots in the region is bioclimatic architecture. This involves the application of traditional principles of climatic adaptation, discussed earlier in the essay, to modern high-tech construction. Viewed from the outside, vernacular environmental building techniques might not be apparent at all; the architectural “language” of most bioclimatic architecture is contemporary. “Environmental design is not an answer to a perceived loss of cultural identity unless it is deliberately pushed in that direction,” writes Savannah Hagan (2103).

The cultural relevance of bioclimatic borrowing from the past in some Gulf architecture is a push in that direction and towards Chadirji’s definition of excellence: “no truly excellent regional architecture can be achieved unless in some sense it blossoms from within its own culture” (Chadirji, 1986). At the twin Al-Bahr Towers in Abu Dhabi, a high-tech mechanical adaptation of mashrabiya screening provides a functional and aesthetically compelling effect (Figure 6). The panels of the building’s responsive façade, a series of aluminum frame folding screens faced with PTFE (the synthetic resin Teflon), are computer-controlled to open and close with the movement of the sun. The result is a reduction of solar gain by more than 50 percent (Fraser, 2013). The 29-storey, 145 m.-high Al-Bahr Towers are effectively “bioclimatic skyscrapers,” a term used to describe Ken Yeang's buildings in Malaysia. It is noteworthy that in designing Al-Bahr Towers and other buildings, Abdulmajid Karanouh was motivated by disappointment with the alternatives: “the social and environmental results of mass modern development are unacceptable” (Leech, 2011). The UAE’s contemporary adaptations of vernacular bioclimatic design also include a reinterpreted, computer-controlled wind tower rising 45 meters over Abu Dhabi’s aspirationally sustainable city of Masdar (Yassine & Elgendy, 2011). This carbon-neutral settlement also adopts some hot weather-mitigating features of the traditional medina, including narrow lanes that provide shade. Even Frank Gehry’s giant air-cooled cone-shaped galleries of the Guggenheim Abu Dhabi Museum are, the architect says, inspired locally by the wind catcher (Ouroussoff, 2007).

Bioclimatic features including the mashrabiya and wind tower, along with photovoltaic energy sources, are incorporated into the designs of Msheireb, an ongoing project intended to regenerate and preserve Qatar’s historic downtown Doha (see Figure 7). Proclaimed as “The World’s First Sustainable Downtown Regeneration Project,” the 31-hectare site is a mixed-use development of about 200 buildings intended explicitly to attract native Qataris. Following a “half-century struggle to find a balance between the powerful culture of globalized architecture and urbanism and fragile local traditions” in Qatar’s capital, Msheireb resolves to “blend traditional Qatari heritage and aesthetics with modern technology, and focus on sustainability and harmony with the environment” (Adam, 2013; Msheireb Downtown Doha). The project required razing part of Doha’s mid-20th century buildings and replacing them with a medina-style tight pattern of traditional narrow lanes (sikkat, which were characteristic of old Doha), the reconstructed Souk Waqif (based on historic photographs, living memories, and “a fair bit of imagination;” Adam, 2013), and courtyard urban blocks. (Adam, 2013; Makower, 2013). This district’s buildings call for low-energy design, finding them in elements of vernacular architecture such as the breathing wall, the shaded buffer zone of the liwan overlooked by mashrabiya screening (locally, shanasheel)
and construction with high thermal mass. Does Msheireb succeed in its own goal of creating “Qatari contemporary vernacular” architecture in the modern context? Robert Adam, founder of ADAM, the “largest traditional architecture practice in the world,” says no: “The global-to-local or modern-to-traditional architectural dialogue shows no sign of resolution” (Adam, 2013).

Other bioclimatic features of Gulf vernacular architecture have found a footing in modern design (Hagan, 2013). Many design variations of the mashrabiya for homes and businesses are available from several specialized vendors in the UAE and other Gulf States. The wind catcher’s action of fresh air in/stale out is the principle of the “stack effect” employed widely in Western passive cooling systems. Wind catchers and fountains (salsabil), Hagan notes, are the progenitors of passive downdraft evaporated cooling (PDEC, such as Brian Ford’s design for the Torrent Research Laboratories in India), essentially wind towers whose cooling effect is enhanced with water spray.

**ASKING THE RIGHT QUESTIONS: TOWARD SOCIAL SUSTAINABILITY**

The literature and oral interviews discussed above suggest that neither heritagization nor hybridization could succeed fully in the goal of positioning vernacular architecture comfortably in the modern Gulf context. There is still a “great need for an authentic contemporary architectural regionalism informed by critical thinking about sustainability, cultural relevance and valid opportunities for technological innovation,” write Caton & Ardalan (2010). Akbar (1988) scorns contemporary architects for their shortcomings: “So far, the majority of professionals that are trusted by their societies do not seem to know where they are headed. They run after movements. A movement appears and a generation of architects adopts it, only to be fed-up after a while and ready to swallow another movement. the avant-garde movements seem more attractive to architects than the real needs of societies.” He points out that in contrast to contemporary physical forms, traditional physical forms were
simple in all aspects. “The simplicity and perfection of traditional buildings demands a certain flair of real understanding that is beyond most architects' experience.” He asks whether it makes sense for modern architects and planners to draw inspiration from traditional forms generated by users with different norms and technical capabilities than those of today's world. He insists it does: “if we are convinced that the traditional physical forms were the best solution for their users, then attention to the process that generated those forms will bring us one step closer to a better environment.”

The authorities discussed above concede that the Gulf can do more justice to its architectural heritage, and ask variations of a critical question about alternatives:

Are there no more valid design alternatives left? Can the new generations of Islamic cultures of the Persian Gulf today become the 'visionary stewards of this environment,' and rise to the challenge of contemporary opportunities and globalization while remaining true to the values and aesthetic principles of their ancient heritage? The unique identity of each of these places along the Persian Gulf waters, of these millions of new pioneering inhabitants at this time, building these vast testaments of the human spirit in the 21st-century, deserves far more meaningful signs of their diversely rich civilizations than what is being realized today. Can then the next phase of development achieve a more authentic, environmentally sustainable and civilizational narrative relevant for the identity images of this region (Ardalan, 2010)?

How do we define a narrative that successfully suits this region’s “identity images”? I propose that it should be guided more by the social sustainability it fosters than by the elusive goal of bringing the Gulf’s signature pieces of architectural heritage to fit in a modern context. This goal has been shaped primarily around material rather than social objectives. I agree with Akbar’s observation that rather than investigating the societal processes that produced the traditional environment, all too many are preoccupied with analyzing the end product (Akbar, 1988). We will not find a fitting synthesis of old and new in the modern context if we do not consider the Emirati’s remark, quoted earlier, that “It’s not the building that counts. It’s what’s inside in the long term that matters.”

The main goal should be building an urban environment undergirded by social sustainability that is rooted in the heritage, lifeways, and preferences of Gulf Arabs. We have been focusing on a problem incompletely: rather than asking how to perpetuate heritage in the built environment, we should be asking how to do so in the lived environment or what Guy Di Méo calls lived space, mindful of Relph’s message that humans cannot live and function successfully without inhabiting meaningful places (Di Méo, 1991; Casey, 1993; Malpas, 1999). Lived space is the place of ongoing interactions of social relationships, not the result of such interactions. Lived space may be understood a process of production, rather than a product; in lived space, human experiences, imagination, feelings, and local knowledge play out over time against the backdrop of the built environment (Zhang, 2006). The challenge of design is to build environments most suited to these social processes.

With the focus on the role of heritage in social sustainability, this final portion of the paper addresses the question of how the architectural and other heritage of the Gulf States can help grow social sustainability in the modern lived environments of these places. “The principles and lessons from traditional Middle Eastern culture may be applied to bring more social responsiveness and sustainability to our contemporary built environments in all locations,” write Mohammad and Thwaites (2010). Here however we consider the wants of indigenous Gulf populations -- those who may wish to regain their lost sense of belonging to place --rather than the majority expatriate peoples who are transient and whose senses of place are rooted abroad.
We have considered the social crises of Gulf peoples inundated by alien built environments and populations. But many Gulf natives have accommodated themselves to these conditions, aided especially by the strength of their kinship networks. In Abu Dhabi for example, Fox et al. (2006) recognized that despite the influx of foreign cultures and designs, the locals' strong traditional familial structure has "developed receptive ways of synchronizing localism with globalism within the area... the traditional social structure persists to direct the changes, and serves to filter what is acceptable— working as a sort of indigenous conservatism."

Some of the most important features associated with social sustainability in the traditional city were material and based in the organization of space, and many were rooted in the intangible components of sense of place: spiritual, cultural, and especially those related to kinship and family dynamics. These spatial, social and spiritual components converge at the scale of the neighborhood, and this is where we may focus our attention and efforts.

Many of the elements of social sustainability that can apply as much in contemporary settlements as they did in traditional ones are Islamic, and they focus on the neighborhood. Islamic principles based in shari'a and 'urf insist on harmony and tranquility in the neighborhood, and avoidance of damage to neighbors; simplicity and modesty in social and economic practices; and good governance. Nasr (1980) and Ragette (2013) argue that a return to Islamic values, with Islamic principles of community organization and design, are needed to re-create the key social elements that were the glue of traditional Gulf cultures, including balanced communities of the poor and wealthy, the elderly and the young, coexisting in the neighborhood or haara, and served by community centers providing religious, health, and social and retail services.

Several authorities argue that the traditional Islamic institution of the waqf could be restored to play a key sociocultural role at the neighborhood level in the modern environment, promoting community activities and education, filling the gaps between social classes, helping to maintain public buildings and grounds, and generally strengthening the cohesion of the Islamic city (Galantay, 1987; Nour, 2015). The waqf system had drawbacks, however. Conventionally owned in perpetuity by God and not any single party, the waqf property was prone to neglect and deterioration over time. This decay was due to the fact that different parties shared the property; these were the controller (an appointed trustee) and the users (beneficiaries elderly people or students, for example), in what Akbar labels the "dispersed form of submission" (Akbar, 1988). There was no incentive for proper management or use of the property. While pressured for more profits, the controller was not interested in maintaining it, while the user did not invest in it because he did not own it and was often poor. Even if imperfect however, the waqf was one of the indigenous Islamic systems that helped to sustain Islamic communities over long periods of time, and was particularly vital in helping the most-needy. A modern variation of the waqf based on accountability and autonomy, and suited to values and circumstances of the society today, could play a strong role in social sustainability.

Good governance in the context of traditional and modern settlements means neighborhood self-governance. Ahmed (2012) researched the degree to which public neighborhoods in the UAE are sustainable, concluding that they are not; only one of his eight measures of social sustainability— safe environment -- was “significantly achieved.” One of the largest impediments to social sustainability in his study site of Al Ain (UAE) and in many cities in the Gulf Region is the absence of resident participation in decision-making processes; people need to be empowered to participate on mutually agreeable terms in order to influence choices for development. Noting that the present hierarchical, top-down system of planning has led local peoples to reject even the most-sound policy decisions, Hakim (1994) argues...
that planners must seek support from locals through the kind of public-consultation systems that developed in this region’s tribal cultures. Akbar, also focusing on autonomous decision-making, concludes that the key to restoring the social balance characteristic of traditional settlements is to change patterns of responsibility so that same party owns, controls, and uses the property. “The problem will never be solved until infrastructure is placed in the unified form of submission and land speculation is abolished,” he contends (Akbar, 1988). Galantay (1987) also calls for the restoration of local autonomy to the mahalla. Working from experience in southwestern Saudi Arabia, Saleh (2004) exhorts that “To facilitate a bottom-up planning process, existing administrative systems and regulations may need modification to allow responsibility for urban development projects to be delegated to local organizations wherever feasible. Policies should further be established to allow communities to voice their opinion on local development as they see fit.”

Community cohesion, based on harmonious social relations between inhabitants, is widely viewed as essential for socially sustainable neighborhoods (Ahmed, 2012). The above-cited success of Abu Dhabians’ adjustments to their environment suggest that if traditional familial and other social structures are given priority, the social cohesion reminiscent of the Islamic medina is attainable in the modern urban context. Galantay (1987) calls for the implementation of recommendations that could provide the preconditions for the rise of settlements “more in harmony with Islamic principles,” and recommends more social homogeneity at the scale of the mahalla. We should broadly understand homogeneity to mean, as discussed earlier, neighborhoods populated with traditional Arab extended families defined by their patrilineal household, lineage, clan, and tribe.

**Indicators of Success in Spatial Design**

The principles of good design for the lived environment are already present in a number of projects in the Gulf Region. What the examples discussed below have in common is again their neighborhood scale -- they focus on small clusters, blocks, and neighborhoods -- and their spatial configuration -- they have dead-end streets and other elements that help shape neighborhood identity and social interactions. These draw directly from architectural heritage dating back to the medina and other traditional settlements, and they prize the traditional and often tribal social dynamics of families and neighbors.

These design principles come together in Jaidah’s and Bourenanne’s ideas about cultural continuity in vernacular Qatari architecture. They insist that vernacular Qatari architecture can easily be adapted to meet the requirements of modern functionality and high living standards for maintaining congruence in natural, social, and cultural environments. They make a powerful case for what they call “the renaissance of vernacular architecture,” which “aims to revive traditional styles in modern sustainable design contexts and preserve local culture.” They propose that at the city level new research based on vernacular Gulf architecture should focus on forming a new urban cluster based on the efficient use of space, house types, liveable streets, and public spaces (Jaidah & Bourenanne, 2010; emphasis added). Doha’s Msheireb redevelopment project, described earlier, does not fit their vision of this renaissance, but spatially it does have many of the elements that may be foreseen in projects based on architectural heritage (Figure 7).

Saleh (2004) describes the components of a similar renaissance, which he calls “New Vernacularism,” in the al-Horaidhah planning model for community development in three administrative regions of southwestern Saudi Arabia. New Vernacularism “seeks the preservation of community values in terms of social, religious and economic issues in the face of modernization by uncovering the relationships between the culture of Islam and its
urban form and architecture and incorporating them in a new urban vision.” Proposed as the Middle East's answer and alternative to the West's “New Urbanism,” New Vernacularism works at the scale of the neighborhood, beginning with deep understanding of customary religious and cultural concerns relevant to designing and planning for an invigorated sense of community. The goal is to articulate “physical solutions for religious, social and recreational requirements and integrate them within a unified neighborhood concept.” Spatial planning for the neighborhood emphasizes the centrality of religion and enhances extended social relationships according to traditional tribal segmentary kinship structure, gender privacy, and gender segregation. As in design principles for New Urbanism, New Vernacularism design considers climatic and other environmental variables in designing housing units, street passages and green areas, and minimizes energy consumption.

Figure 7. Model of Msheireb Project, Doha. (Source: Msheireb Properties).


1. Souk Waqif
2. Al Koot Fort
3. Amiri Diwan
4. Cultural Forum
5. Heritage Houses
6. Sahat Al Nakheel
7. Mohammed Bin Jassim House
8. Eid Prayer Ground
9. Sikkat Wadi Msheireb
10. Retail Galleria
11. Department Store
12. Barahat Msheireb
13. Qatar National Archive
14. Amiri Guard Building
15. Diwan Annex

The layout of the al-Horaidhah community is a superblock divided into several smaller blocks, each with multiple clusters. A cluster consists of a group of lots, creating dead ends accessible only to the inhabitants’ cars. There are 100 housing units in each block, along with two mosques, a post office, a health-care facility, bank, boys’ and girls’ schools, green spaces and recreational areas, tourist and commercial facilities, and a shopping center. This vision of a new vernacularism is significant because it both establishes the principles of contemporary social sustainability based on heritage and indigenous knowledge, and builds an environment on those principles. Saleh makes a case for others to follow this model:
Professionals need to look at indigenous planning practices in a new light... To foster the idea of “New Vernacularism,” professionals need to be sensitive to religious, cultural, socioeconomic, and political conditions at the micro level. This means that an urban development and management program has to be locally based, in line with the local cultural patterns and be responsive to local needs and conditions in terms of site selection and economic base... To encourage the idea of “New Vernacularism,” urban development programs should make use of indigenous knowledge or technology with which the local people are already well acquainted... It is only through awareness of inherited cultural values, environmental conditions, the anthropological history of an area, and the psycho-system of a target group that it would seem to be possible to provide people with an authentic and distinguished built environment. [New Vernacularism exposes] professionals to fundamentals of Islamic culture through the concepts of Shari’a and al-‘Urf; Both the legal system and social customs become the guiding factors for New Vernacularism or Urbanism in most Muslim societies. The universality of this approach should not be undermined or belittled.

Returning to the spatial properties and human scale of the medina, Galantay (1987) also focuses on the urban cluster concept and quantifies its population: keeping in line with the traditional size of the mahalla of 6 acres, the cluster should contain 250 to 600 dwelling units per acre. Ahmed (2012) emphasizes that the efforts to attain social sustainability in Emirati communities should focus on the scale of the neighborhood, especially taking into account the social and cultural characteristics of Emiratis. Designing for their preferences, for example through a privacy-supportive street hierarchy, would enhance their identification with their neighborhoods.

Akbar (1988) turns to Taif, Saudi Arabia, in the 1960s to reveal the spatial and social patterns that autonomous urbanites, not shackled by top-down constraints, came up with. Once again the scale of social interaction and decision-making was a neighborhood or cluster. Over a five-year period, the inhabitants of one quarter reached a series of agreements, much as users in traditional environments did, that shaped neighborhoods with many of the physical and social characteristics of traditional settlements: dead-end streets, single party walls, dwellings with courtyards, social interaction between residents, and investment in private rather than public spaces. Akbar observes that the social relationships created by the physical environment of these neighborhoods in Taif were very strong.

The vision of clusters or blocks organized around extended family members, and taking into account traditional Emirati social preferences such as privacy, is also taking form in both the city and outlying areas of Abu Dhabi. Duncan and Tomic (2013) relate that as early as the 1970s, Shaykh Zayed sought social sustainability for this Emirate’s capital, and that its city government remains committed to incorporating sustainable practices in its city-making process. The goal of “Plan Abu Dhabi 2030” is “a contemporary expression of an Arab city.” Blocks within the city, whose design the authors define as “eco-minded contemporary traditionalism,” will meet the specific needs of Emiratis (who make up about 20 percent of this city of one million), with guidelines that include “The fareej [neighbourhood] – modeled on a set of villas around a central courtyard, reflecting an extended Emirati family structure – as well as island and desert eco-villages. The villages are based on traditional Emirati ways of life, and the aim is to ensure these environments are provided across the Emirate in a way that reflects local customs” (Vine, 2009).

This model accentuates “both modernity and tradition through a contemporary reinterpretation of Arabic architectural forms and elements” by emphasizing customary urban forms such as:
pedestrian-oriented streets, the principle of fareej as a social urban component, -- with each neighbourhood accommodating the Emirati extended family -- and a revival of courtyard housing concepts [including threshold, wall and gate providing privacy, serenity and safety]. Traditional concerns for adapting the structures to the harsh desert climate are built into their design, and are complemented by reduced energy demand met by solar and wind power.

“This fusion of avant-garde international modernism with Arabic traditionalism has produced a profound change in attitudes toward housing and public realm design,” write Duncan and Tomic (2013). “The capital is on the brink of truly becoming a leader in the creation of sustainable living in urban environments.” In this time of universal interest in green, smart, and socially sustainable cities and the architecture suited to them, innovations based on traditional values and institutions will inspire new ways of thinking about urban environments far beyond the Gulf and the Middle East.

CONCLUSIONS

Until now most modern urban environments of the Gulf Region have been the creations of Western architects and developers. Incongruities are inevitable; Robert Adam for example is skeptical that the London-based developer Oriental Consultants is genuinely in tune with close-knit vernacular planning: “there are regular official statements aspiring to a combination of modernity and tradition which fail to recognize that imported and globalized North Atlantic architectural modernity was developed precisely as an antithesis to tradition” (Adam, 2013). In their defense, firms like Arup in the UK and AECOM in the US assert that “our intention as foreign designers working in Qatar is to prepare fertile ground for a homegrown indigenous architecture to evolve” (Makower, 2013).

In the long term the most appropriate and best inspirations and designs for Gulf cities will come from locals. For the time being however the shortage of Gulfi architects and developers is one of the many consequences of demographics working against the GCC countries. In almost every field there are not enough Emiratis and their Gulf national counterparts to fill the need. These countries have constitutional policies for Emiratization, Qatariization and their counterparts to address these needs, which are not always met by training abroad: “If Qataris can use their (often foreign) education as a springboard for a rediscovery of their cultural heritage, instead of a mimicry of global culture, then a quite different and unique kind of architectural modernization can take place that develops those built traditions that help to define Qatari culture” (Adam, 2013). The Harvard researchers interviewed a local architect in Dubai who offered a glimpse of the future in his own hands: “I want to know if there is a way to use this beautiful time that we are living in to come up with something that is interesting” (Caton & Ardalan, 2010).

Learning from “Living Treasures”

These local experts will find inspiration mainly from their local heritage, including from the often-overlooked resource of local people. Oral tradition is among these countries’ greatest legacies, and is the only one not originally generated or preserved in tangible form. In the research on architectural heritage in the Gulf Region, there has been little attention to the role of living sources, who in a variety of contexts can inform thinking about the future.

Many physical and social traditions in architecture and other realms exist only in the memories and life experiences of local peoples, especially elders. The task of documenting their knowledge, with the expectation that this may advise future development, is an urgent
In the UAE and other Gulf States there are still former craftspeople, builders and master builders, fisherfolk, pearl divers, nomadic pastoralists, farmers, and others who have unique and undocumented knowledge, but they are passing on. We can learn from people like these in the UAE and other Gulf nations, and countries farther afield, and appreciate their technical know-how and their sense of place, and literally build on that foundation.

A fine example of the vulnerability and promise of traditional knowledge of the lived environment comes from the research of Oxford geographer Sandra Piesik in the UAE. She writes of how paradigms of indigenous architecture offer alternatives: “Vernacular buildings have responded to climate and landscapes for thousands of years,” she argues. “Indeed, they both offer the best lessons for environmental sustainability and position architecture in the cultural context.” The opportunities to learn these lessons however are fleeting; Piesik emphasizes that more research must be done “while the knowledge and the evidence of those alternatives remains” (Collins, 2012).

Piesik identified a major component of built heritage remaining only as a living memory in the UAE. As many as 80 percent of the UAE’s people lived in barasti-style date palm houses or ariish until the 1970s (see Figure 4). Piesik reports that they disappeared altogether in the 1980s without a single unit standing. She relates how her chance meeting with a Bedouin woman, Fatima Khamis Al Fendi Al Mazroueui, at Liwa’s 2009 Date Festival brought the building back to life. This woman recalled for Piesek in great detail the materials, dimensions, and functions of these palm-leaved huts, as well as the important role of building them in the social life of the community. This led to Piesek’s “Liwa Arish House Project,” which intrigued the United Arab Emirates University scientist and International Date Palm Award festival director Dr. Zaid Abdelouahhab. Of Piesik’s findings he said, “This work is important. Nobody knew 30 years ago where the UAE would be, and without heritage and culture, society would lose a lot.” He hoped her work would “heighten a general awareness of the risk that such culture and habits are disappearing.” He appealed for others to wake up decision makers and say, ‘Hey, something is in the process of being lost. So let's save it together'.” (Collins, 2012)

"This core of the Emirati nation is in danger of being lost,” Piesik said in an interview: “A culture dies and becomes extinct if you fail to transfer learning from one generation to the next. The people who used to live in these houses are still alive but they are getting old and they are dying. The younger generation has maybe 10 years to learn the skills before it's too late. If you don't transfer the knowledge, and find a contemporary use for this material that is so bountiful here, then this will be extinct.” (Collins, 2012)

The ariish of Emirati vernacular architecture is proving to be relevant and applicable today in a large and unexpected way. Building on Piesik’s work, the UN Convention to Combat Desertification is promoting ariish housing to improve living conditions and as an appropriate adaptation to climate change for the poor, especially in Africa (Stevens, 2015). We can anticipate other exchanges and applications in this era of unprecedented global flow of information and technology. As we have seen, bioclimatic architects borrow from the heritage of traditional vernacular architecture, and an exchange has evolved in which western high-technology flows into the developing world while low-technology techniques flow back into the developed one (Hagan, 2013).

Just as the preservation of biodiversity allows discoveries of new medicines and foods, we may not know until years in the future just how valuable the heritage of traditional knowledge is. It was a chance encounter that led to Piesik’s focus on ariish architecture, which then made it possible for the UN to consider ariish as sustainable low-cost housing for the poor in arid Africa. If elders from all walks of life in the Gulf States were interviewed systematically,
they may reveal other unforeseen benefits and applications to sustainable development, and to social sustainability in the lived environment. This critical task of interviewing Emiratis in depth is being carried out by female and male researchers of the Oral History Project at Abu Dhabi’s National Archive (formerly The National Center for Documentation and Research). Since 2009, the center’s trained ethnographers have recorded more than 1000 interviews with the people they call “living treasures;” some of these may be seen on the Archive’s YouTube Channel. Researchers at the Emirates Heritage Club, the Abu Dhabi Tourism and Cultural Authority, the Ministry of Culture and Youth, and Zayed University are doing similar work.

There is much work yet to do, including interviewing the elders and combing through oral history transcripts for ideas and techniques that can be applied now and in the future. The chances for real breakthroughs based on local legacy are great. As that architect told me “the challenge is to come up with a vision for this region. This place is east and west and has the chance to do something remarkable.” Ardalan echoes that challenge: “imagine then what the prospect might be for these communities over the next decade if more positive and constructive values -- based upon a more holistic ecological fitness and the well-being of human processes -- became the motivating rules and forces that governed development in the Gulf region” (Ardalan, 2013). To imagine the possibilities, consider this motivational observation that an Emirati shared with me: “If there’s anywhere in the world that things can happen, it’s this place.”

ACKNOWLEDGEMENTS

I am grateful to the United Arab Emirates University and to the Emirates Foundation for supporting my earlier work in the UAE. Much of my work in 2016 owes to the generous assistance of a number of people associated with the Fourth International Environment Conference in Ajman, among them His Highness Sheikh Humaid Bin Rashid Al Nuaimi (Member of the Supreme Council and Ruler of Ajman), His Highness Shaikh Ammar Bin Humaid Al Nuaimi (Crown Prince of Ajman and Chairman of the Executive Council), His Highness Sheikh Khalifah Bin Zayed Al-Nahyan (President of the UAE), Dr. Thani Al Zeyoudi (UAE Minister of Climate Change and Environment), Mr. Yahya Ibrahim Al-Reeyeysa (Director General of the Ajman Municipality and Planning Department), the Municipality of Ajman, Ted Cooke and W.A. Eldin of Science Target, Dr. Eslam al-Hogaraty, Ali Al-Shahi, Engineer Khaled M. Al Hosani, Engineer Yasser Omar Rajab Kayed, and Ali Sayigh. Ms. Maitha Salman Al Zaabi, Head of the Oral History and Genealogical Studies Section of the National Archives, kindly briefed me on the methods and findings of the Oral Histories project.

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