Gulf Research Centre Cambridge
Knowledge for All

Gulf Cities as Interfaces

Edited by
George Katodrytis and Sharmeen Syed

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Gulf Research Center

E-mail: info@grc.net
Website: www.grc.net

Jeddah

Gulf Research Center
19 Rayat Al-Itehad St.
P.O. Box 2134
Jeddah 21451
Kingdom of Saudi Arabia

Geneva

Gulf Research Center
Foundation
49, Avenue Blanc
CH-1202 Geneva
Switzerland

Cambridge

Gulf Research Centre
Cambridge
Centre of Islamic Studies
University of Cambridge
Sidgwick Avenue
Cambridge CB3 9DA, UK

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“By publishing this volume, the Gulf Research Center (GRC) seeks to contribute to the enrichment of the reader’s knowledge out of the Center’s strong conviction that ‘knowledge is for all.’”

Dr. Abdulaziz O. Sager
Chairman
Gulf Research Center

About the Gulf Research Center

The Gulf Research Center (GRC) is an independent research institute founded in July 2000 by Dr. Abdulaziz Sager, a Saudi businessman, who realized, in a world of rapid political, social and economic change, the importance of pursuing politically neutral and academically sound research about the Gulf region and disseminating the knowledge obtained as widely as possible. The Center is a non-partisan think-tank, education service provider and consultancy specializing in the Gulf region. The GRC seeks to provide a better understanding of the challenges and prospects of the Gulf region.

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Introduction: Gulf Cities as Interfaces

George Katodrytis and Sharmeen Syed

There has been significant interest in cities of the Cooperation Council for the Arab States of the Gulf or CCASG (or GCC),[1] particularly the capitals and metropolitan juggernauts of the region, after the expeditious manifestation of oil-generated wealth. Developers, economists, architects, planners, and policymakers have been at the forefront of knowledge production through regional urban studies; in most cases, as a commercial by-product. While in-depth research on aspects of urbanism exists, there is a crucial and perceptible void of collective, investigative, and nuanced subject matter that explores the dynamics of the phenomena of these cities with their accumulative pasts and present realities. In response, there is a growing ambition among knowledge producers in the region to seek and collate studies and observations on various aspects of urbanism in the region to generate original and synthesized discourse based on relationships and links that can be established between existing practice and academic research.

This publication resulted from a workshop at the Gulf Research Meeting (GRM) held at the University of Cambridge, United Kingdom in 2013. The participants were researchers, academics, architects, artists, and urban planners who are engaged in research on cities in Bahrain, Kuwait, Oman, Qatar, Saudi Arabia,

1. The Cooperation Council for the Arab States of the Gulf, originally (and still colloquially) known as the Gulf Cooperation Council (GCC), is a regional intergovernmental political and economic group that brings together all Arab states of the Gulf, except for Iraq. Its member states are Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE).

and the United Arab Emirates (UAE). In the workshop, we attempted to investigate the evolution of Gulf cities[2] into interfaces to the 21st century both regionally and globally. The workshop explored perspectives on the dynamics and spatial discourses of modernity and globalization; the revival of trade and rise of the soft economy; the real estate boom, the culture of abundance, and subsequent financial crisis; and urban repercussions of social, cultural, and political realities.

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The GCC states together are considered one of the most urbanized regions in the world, with an estimated 70 percent of the population residing in cities. Most GCC states are in the process of setting forth spatial development strategies to balance growth and shift dependencies on oil. Architecture and urbanism are seen as dynamic facilitators and flexible commodities in the network of transnational urbanisms and global capitalist forces, where world cities are conceptualized as nodes of command, coordination, and control.

***

The discovery of oil in the early 20th century resulted in large-scale urban transformations. The shift from tribal societies and coastal trade to an economy embedded in global networks occurred in a matter of decades. In an attempt to cater to the longing and nostalgia for a not-so-distant past, a repackaged and aestheticized version of history is readily available. This often overlaps with a wider, regional orientalist narrative. For instance, UAE developers have adopted the elongation of the picture frame – the panoramic – used for Orientalist paintings to represent scenes from the region often produced by western travellers seeking to find exoticized authenticity. Despite the current production of iconic architecture, this exact historical representation coincides with a mental map of these cities, which paradoxically is still routed in imagery. The expo of Orientalism is now driven by "Master Developers," purveying western lifestyle in oriental settings, equating Gulf culture to luxury in exclusive towers of wealth or gardens in exotic islands.

In effect, images and projected futures and pasts have shaped Gulf cities. In turn, these cities shape 21st century urban concepts. Of these concepts, our focus lies on the idea of the interface.

***

The formative, modernist 20th century urbanism is now replaced by a more complex, layered urbanism coded with newly formed technological and environmental

2. In the context of and within the extent of content explored in this volume, "Gulf city" is limited to cities of the Gulf in states along the Arabian coast.

patterns. Twenty-first century cities continue to act as interfaces not only as physical spaces but also as evolving machinery. From food urbanism and edible landscape to Modernist ideals, grandiose visions, and New Orientalisms, the papers in this volume address and investigate the Gulf city in four interfacial variances: Urbanism and Identity as Interface; Landscape and Geography as Interface; Social Condition and History as Interface; and Culture and Politics as Interface.

We hope the series of articles in this publication will trigger a debate about urban projections of the future and the past.

We would like to thank the workshop participants and contributors to this volume: and the Gulf Research Center for their support, and Kevin Mitchell, Associate Professor of Architecture at the American University of Sharjah, for his peer review feedback.

An Index of Interfaces

I. Urbanism and Identity as Interface

The Role of Advanced Producer Service Firms in the Development of Urban Diversity in Doha

Florian Wiedmann, Sven Conventz, Ashraf Salama, and Alain Thierstein

The paper traces the rapid transformation processes of Doha, Qatar's capital city, both socio-economically and spatially since the end of the 20th century. Large-scale public investments in local developments that were intended to establish Doha as a regional and international service hub ushered in a new evolutionary phase in the city's urbanism. Subsequently, an increasing number of international "Advanced Producer Service" (APS) firms set up offices in Doha, particularly attracted by emerging local real estate markets. In this paper, the authors attempt to clarify the distinct roles of APS firms and their employees in the development of urban complexity and diversity in Doha. They explore currently existing APS networks in Doha as well as the morphological consequences for urban fabrics due to the recent economic diversification process. The applied methodologies include a network analysis of 98 APS firms in order to investigate the current characteristics of advanced producer services sectors in Doha. The dynamics in recent urban developments are investigated using a comparative assessment of GIS data of the city in 2003 and 2013 as well as a Space Syntax analysis, which is used to investigate

the spatial integration of office locations in Doha. Furthermore, 350 questionnaires of employees engaged in APS firms were evaluated to examine the locations of their weekly activities. These empirical investigations of various parameters within contemporary urbanism provide insights into how the transition into a service hub based on emerging knowledge economies and their networks is currently interdependent on increasing urban qualities.

Dohaization: An Emerging Interface between Knowledge, Creativity, and Gulf Urbanity

Ali Alraouf

This paper focuses on the ceremonial opening of London's Shard Tower owned by Qatar Investment Authority, which was a prime scene in the unfolding drama of Doha's endeavor to construct a new urban development brand within the Gulf and the Middle East. Shard Tower was designed by prominent architect Renzo Piano to be the highest building ever built in the capital of conservation, London. Extending Qatar's investment arm outside of the Gulf and the Middle East, and stretching it towards Europe and UK, was part of a well-planned process for building Qatar's newly assembled identity and urban brand. The critical narrative of constructing such a brand is the focus of this paper. Apparently, during the last decade, Qatar has managed to carve a niche on the global stage. As a result of its position in the global energy market, the country is going through massive expansion and has the resources to support this growth. In this paper, Alraouf interprets and analyzes the process of constructing such a brand: Dohaization.

Salalah Globalized: Developing, Fragmenting, and Marketing a 'Secondary City' at Spatio-Temporal Interfaces

Steffen Wippel

Whereas Dubai, with its highly iconic buildings and landmarks, has captured public and academic attention, the neighboring Sultanate of Oman has remained more cautious in establishing architectural and infrastructural projects that attract worldwide attention. Economic and urban development is concentrated mostly around Muscat. Since the mid-1990s, the Sultanate has endeavored to diversify its economy and create more balanced regional development, focusing specifically on port and tourism development as well as on the economic development of the agglomeration of Salalah in the southern region of Dhofar. Here, a huge container port has opened, while the neighboring industrial zone has expanded and an

adjacent free zone has been added. More recently, several large "integrated tourism complexes" have been established and, currently, further urban projects are under construction. Additionally, transport infrastructure is being upgraded. On the one hand, these ongoing urban and economic development projects contribute to the rapid expansion of the urban fabric and its spatial fragmentation. On the other hand, long-neglected Salalah is being catapulted into a geo-economic position, where world regions intersect and national and international realms interpenetrate. Parallel to that, efforts are being made to market and brand Salalah and the schemes located there: Whereas this places them into specific spatial settings, it also puts them at temporal interfaces, for example, by referring to a glorious past, while simultaneously demonstrating their modernity. This is also reflected in architectural features which are widely communicated, in particular with the help of simulations, during the planning and construction stages. Thus, Wippel studies the current urban development of one of the secondary cities, which has been neglected compared to the interest shown in the big metropolises of the GCC states. Far from being a global city, Salalah is nevertheless heavily globalized and integrated into specific global and regional networks of flows. The paper seeks to understand how Salalah developed into an interfacial city, linking, amalgamating, as well as confronting several kinds of spaces and time periods. The focus is on the globalization of Salalah; spatial fragmentation effects; and the marketing and branding of the city, which is closely linked to its globalized urban fragments. The paper also asks to what extent Salalah is following the extensively discussed "Dubai model" of a spectacular center of global attention, a well-connected global hub, and a fragmented post-modern city.

II. Landscape and Geography as Interface

Designing Productive Landscapes in an Emerging Desert Metropolis: Food Systems and Urban Interfaces in Doha

Anna Grichting Solder, Rana Al-Amawi, and Rama Asadi

As Qatar is preparing to host the FIFA World Cup in 2022 and submitting a bid for the 2024 Summer Olympic Games, the country is pushing forward with large infrastructural developments which include public and private transport, tourism and hospitality venues, as well as a number of cultural spaces and educational institutions. While these will respond to the logistical and consumption needs of such mega events and the aspirations to develop a diversified economy, another

question related to more basic consumption needs is that of food production and food security. Qatar – similar to its dryland neighbors – has limited land and water resources, and challenging soil typology restrains its agricultural production. The country's current levels of domestic agricultural output satisfy no more than ten percent of total national food consumption needs, and 99 percent of the water supply is provided by desalination. In light of these extreme conditions, it is important to find new approaches to design strategies that create a symbiosis between buildings and landscape and to explore the possibilities of creating urban food systems and edible landscapes. As a new paradigm for the Design Disciplines, the question of food security prompts a necessity for innovative projects that integrate food production, maximizing productivity and minimizing land use, water, and energy resources. Food urbanism can be considered as an interface between food production, food consumption, and urban and architectural spaces. The concept of Foodprint looks at these production-consumption chains to evaluate the energy and waste created in the process through all the different interfaces and movements of the products such as transportation, storage, and packaging.

URBAN:ORGAN – Models for Gulf Cities as Integrated Ecological Systems

Joerg Baumeister and Daniela A. Ottmann

This paper looks at the region as models for self-organized post-hydrocarbon driven urbanism. Meeting the need of cities in the Gulf following the depletion of hydrocarbon resources will require a sustainable way of integrating environmental and socio-cultural demands. This paper outlines a toolkit entitled Urban-Organ, which considers the urban environment as an organism of processes and flows rather than consumable surfaces and products.

The principles associated with oasis towns in Oman of pre-hydrocarbon revenue days are used as case studies to understand urban processes that are directly linked and are a result of bio-climatic and socio-cultural circumstances. Furthermore, seen from a different angle, the current and future development of methodologies and technologies that could lead to a greater adaptability of urbanism and environmentalism in the Gulf region are discussed. Thinking of cities as organisms, and thus looking at ways of integrating environmental and anthroposophical aspects into urban processes and flows, enables instruments to generate adequate future urbanism that follows principles of higher adaptability and self-organization patterns.

Desertification De-Formation

Talin Hazber

This visual essay is a presentation of a research design project that utilizes the desert sand of the Gulf as both a functional and poetic material for the construction of new settlements. Robotic interventions create shell structures of various scales that are reminiscent of the social and environmental memory of the emerging Gulf city.

III. Social Condition and History as Interface

Accidental or Envisioned Cities: A Comparative Analysis of Abu Dhabi and Dubai

Jerry Kolo

This paper examines the process dynamics of the phenomenal pace of development in the cities of Abu Dhabi and Dubai, to ascertain if the cities are, as critics would charge, accidental cities or, as this paper posits, products of clear, strategic, and purposeful visions. These two case study cities are the two largest cities in the UAE and two of the most popular global cities in the Middle East. The paper uses the mixed method research strategy, consisting of desktop research, face-to-face informal conversations with municipal administrators and planning officials, and the author's observations to mesoanalyze the dynamics of the processes of growth and development in the cities. Through the analysis, the paper addresses the question of whether the cities are accidental or envisioned. Insights into the concepts of accidental and envisioned cities derive from a review of scholarly work on the concepts. Based on the review, this paper inquires if the cities of Abu Dhabi and Dubai share the features of the cities described in the literature as accidental cities, and whether the term accidental cities has a standing in academic urban discourse. The paper further enquires, using sustainability triple-bottom line and pentagon frameworks, the initiatives that the case cities are taking to confound their critics and prove that they aim to be sustainable over the long haul, like all visionary and progressive cities worldwide. Positing that the case cities are envisioned rather than accidental cities, the paper concludes by suggesting that urban scholars need to focus more on the lessons and insights they offer, and urban professionals can learn from the Gulf model of urban development in order to address the challenges of cities more cost effectively, now and in the future.

Dynamics of Populations and Urban Open Spaces in the Emerging City of Doha

Ashraf Salama, Florian Wiedmann, Fatma Khalfani, and Ahood Al-Maimani

This paper examines the current fast track urban growth as an important characteristic of the emerging city of Doha. This growth is marked by intensive infrastructure projects, high-rise clusters of glass towers, new cultural facilities including art museums, emerging residential environments on the periphery of the city, as well as hallmark events. However, very few studies have addressed important growth aspects, including the examination of the way in which the inhabitants comprehend and react to their built environment and the resulting spatial experience. This paper examines the inhabitants' spatial experience in key urban open spaces in the city by applying cognitive and behavioral mapping procedures coupled with an attitude survey. Applying the cognitive mapping technique, 108 responses were received, analyzed, and classified under three categories a) living, working, and visiting patterns; b) comprehension of home range, home zone, and movement; and c) ethnic affiliation: Qataris and other Arab expatriates. Implementing direct systematic observation and behavioral mapping of key urban open spaces revealed important outcomes that include absence of physical aspects amenable for effective use while offering a pleasant experience for visitors. The findings contribute to an in-depth understanding of the inhabitants' spatial experience of the everyday urban environment of Doha. The conclusion emphasizes that by developing the knowledge generated from research findings that are derived from the direct experience of inhabitants, the various aspects of how certain areas work within the urban structure of the city can be elucidated and the means for improving the qualities of the everyday urban environment can be sought.

Roaming Trans-cities and Airborne Fiction

George Katodrytis and Sharmeen Syed

The Gulf region is home to some of the world's most controversial settlements that have grown into global economic hubs following rapid transformation. New technologies, regulations, and infrastructures have brought about dramatic morphological changes. Horizontal urban patterns with direct relation to land, water, and trade routes have shifted to vertical and global networks of tourism and capital.

Simulated SimCities, dynamic landscape formations, autonomous master plans, and speculative developments are now projecting large-scale urbanisms visible by satellite. Reconnaissance technologies are appropriated for spectacle and

"telegenic" fantasies addressing investment and mass tourism. Simulated panoramas and imagery of unfinished and built projects alike give rise to an exciting promise of the future and present fantasy. In effect, these projected digital imageries and technologies are shaping the future of cities. This is the future state of world urbanism – prescriptive and full of visual dramatization. As the technology of image production for speculative architecture has become more sophisticated, the imagery it produces has become an end in itself. Urban imagery is now transmitted across the globe instantaneously and has introduced a new (master plan) aesthetic. This paper traces the process of making the 21st century city and the conditions of the new urban aesthetic of aerials: sensual, spectacular, artificial, subliminal, and, above all, contemporary and global.

Digitally Preserving the Heritage of the Arabian Peninsula: Al Jazeera Al Hamra Considered

Seth Thompson

This paper studies the abandoned village of Al Jazeera Al Hamra in the UAE. Over the past four decades, the UAE has embarked on a transformation that has substantially changed its cultural landscape. From a predominately Bedouin culture in which people lived in both ephemeral structures and more modest permanent ones to a post-oil boom landscape of skyscrapers and grand buildings, the UAE's investment in its new infrastructure reconfirms its ambitious plans for itself. This transformation has placed an emphasis on the preservation of past material culture and the creation of a new identity for the country through its endeavor to acquire a global contemporary architecture, which is especially evident in Dubai and Abu Dhabi. However, the predominate wealth of its culture does not necessarily reside in its material artifacts, but rather in its rich intangible cultural heritage such as storytelling, dance, poetry and rituals, which also need to be preserved. Al Jazeera Al Hamra, a former coastal village in southern Ras Al Khaimah that was abandoned at the time of the formation of the UAE in the late 1960s and 1970s, is considered to be one of the last traditional towns in the country. Once an active fishing and pearl diving community, Al Jazeera Al Hamra consists of a fort *(hisn),* several mosques, a market *(souq),* and over 100 houses including a wind tower home – some of which are constructed of coral and gypsum. As the buildings are now only remnants of a time past, not only does the architecture need to be documented and mapped, but also the stories and traditions of the people who once lived there need to be recorded.

Seth Thompson writes that creating a virtual environment which documents both the tangible and intangible cultural heritage of Al Jazeera Al Hamra would provide a cohesive physical and social record of a traditional fishing and pearling village for future generations after the buildings and the people who inhabited the town are gone. By using digital technologies, a museum enhances its ability to act as a mediator between artifacts and audience – allowing for users to learn, question, and engage in ways that have not been possible before in traditional museological terms.

IV. Culture and Politics as Interface

Dubai: The Political Project of a New Metropolis

Adrià Carbonell

The paper suggests that we commonly think of Dubai as a city built from scratch and argues that this general assumption is not completely accurate, as often happens when a city is described with a simple and generic statement at first glance. This idea tends to overlook all the non-material forces that are at the very origin of any urban settlement. By focusing on a particular formal structure, we tend to forget the cultural and political substrata embodied in a particular physical reality as well as the visions and ambitions that drove its construction. When we look at urban patterns, we are usually fascinated by their formal qualities; we see them as fabrics, systems, shapes and images, and landscapes and skylines. But the visual analysis runs the risk of overlooking deeper roots. As Joseph Rykwert wrote in his fundamental piece on the anthropology of the urban form, "We think of towns as a fabric of buildings which grows more or less unpredictably and is traversed by roads and pierced by squares, or else as a mesh of roadways fringed by buildings on the outskirts and crisscrossed by them in the centre. Although we regard them as a natural phenomena, governed by an independent, uncontrollable and sometimes unpredictable law of growth or expansion, like that of natural organisms, the truth is that towns do not grow by interior and inscrutable instincts. They are built, piecemeal by individual inhabitants, and in larger tracts by speculators or authority."

Mirages in the Desert: The Fallacy of a Universal Urbanism

Steven Velegrinis

The author refers to Koolhaas (1999) who characterized modernist development as a "universal aspiration" no longer the exclusive domain of the West. This view

reflects the opinion of many in the GCC. The GCC nations have evidently come to believe in the universal aspiration of urbanism. Like the clichéd mirage in the desert, the aspiration of achieving the prototypical Manhattan CBD and Middle America suburban bliss has become an unattainable and out-of-place vision that is nonetheless invoked in countless iterations. In the last 15 years, many Gulf cities have emerged as multi-nucleate agglomerations with little or no connection to each other. Cities like Dubai and Doha typify this relationship. The city is filled with satellite-like developments like Internet City, Knowledge City, University City, Media City, City of Arabia and countless other iterations. What this model lacks, however, is the vision of cities as living landscapes and urban metabolisms that are integrally interwoven. Consequently, the infrastructure of cities has been inefficiently deployed and consumption vastly increased through poor planning. This has led to some of these nations consistently having the worst environmental footprints in the world. Despite this, the image of the prototypical city has become all-pervasive. Imagery has become more important than utility. Green infrastructure does not sell quite as well as spectacular urban elements. Event Cities continue to dominate the creation of rational, sustainable, and liveable cities even when more considered and responsible projects could save money, time, and resources. Developments like Masdar City and Xeritown have attempted to leapfrog those universal models but are yet to succeed. The future of Gulf cities is therefore at a turning point where there will be a greater concern for how things work rather than how they look.

Bahrain: On History, Coastlines, Renders, and the Image of Public Space

Noura Al Sayeh

The paper focuses on the Gulf state of Bahrain which likes to pride itself as holding an exceptional position among the Gulf countries as the only place of continued human settlement from 3000 BC until today, the first country to have discovered oil in 1934, and the first to have introduced modern education in 1956. Today, it is also the only country within the region to have fully entered the post-oil era, having effectively depleted its national oil reserves. It is faced with an increasing number of domestic challenges relating to shortage of housing, ongoing privatization of the territory, and depletion of freshwater sources that have partially fuelled the political and social unrest associated with the Arab Spring.

The singularities that Bahrain likes to pride itself about have unfortunately mostly disappeared in favor of a more generic urban development that associates itself with and is inspired more closely by urban development trends happening in

the cities of the neighboring countries of the Gulf, with Dubai appearing as the leader of the pack. This thirst for imported models and images of development first appeared following the discovery of oil and the subsequent arrival of a foreign working class population. Archipelagos of planned residential communities built according to western suburban models were constructed sporadically across the islands, without an overarching zoning or master plan, ushering an era of high-speed "modernization" that introduced the image but not the fundamentals of an effective "modernization" of the urban fabric. This trend continued for much of the past century and was amplified from the mid-80s, when real estate development was introduced and encouraged as a strong economic component of the post-oil economy, inspired this time by a model that was being championed and developed in other Gulf countries. This second round of development was the most transformative of the territory, reshaping the coastline and further enhancing the fascination with urban and architectural imagery.

The confrontation between image and reality can also be observed through the background images that appear as part of media and news coverage on television. Their chronological analysis offers an interesting, yet accidental history of the projected and stereotypical images that are either constructed for promotional purposes or composed according to a certain vision of a place. In a country and region fascinated by imagery, the circulation of these images affects the way reality is perceived on the ground and affects the direction of urban development. Following the political uprisings of February 2011, this has especially been true of the planning, projection, and portraying of public space, its status as a mirror of democracy, and the use of its image as a way of portraying good governance.

1.1

The Role of Advanced Producer Service Firms in the Development of Urban Diversity in Doha

Florian Wiedmann, Sven Conventz, Ashraf M. Salama, and Alain Thierstein

Introduction

Before Doha and its particular conditions regarding urban transformation and economic diversification can be investigated, a general overview of contemporary urban developments worldwide is necessary. Since the 1970s, cities have become increasingly defined by globalization and its various economic consequences, which meant the end of welfare states in the West. The dissolution of "collective consumption," a term introduced by Manuel Castells to identify public control mechanisms,[1] led to more dynamic and complex developments within newly emerging networks. Robert B. Cohen was one of the pioneers investigating the map of the new global urban order by focusing on the phenomenon of international division of labor.[2] The outsourcing of industrial production to less developed countries was not only the result of economic crises in the West. It was also enabled by an increasing level of connectivity via modern technologies such as fibre optic cables as well as the development and extension of aviation and shipping routes.[3] The

1. Castells, *La Question Urbaine.*
2. Cohen, "The New International Division of Labor, Multinational Corporations and Urban Hierarchy."
3. Witlox and Derudder, "Airline Passenger Flows through Cities – Some New Evidence."

information age thus changed global urbanization and Manuel Castells described it thus: "The new spatial logic, characteristic of the Informational City, is determined by the pre-eminence of the space of flows over the space of places. By space of flows I refer to the system of exchanges of information, capital and power that structures the basic processes of societies, economies and states between different localities, regardless of localisation."[4] Subsequently, cities became important nodal points in expanding international trading networks, and the concentration of transnational companies and their headquarters turned cities into global control centers challenging the national state and its political boundaries.[5]

In recent years, newly emerging cities around the world have been challenging established networks and adding a new dimension of complexity. As in previous international economic crises, the financial crisis in 2008 became a major catalyst for new shifts within the dynamics of World City formation. Today, all cities within international networks compete to be perceived as secure havens for international capital. Thus, for any new player to be successful in entering the global network it must invest in the establishment of infrastructure that will enable it to access foreign markets and producers. To be a truly key hub within this global network, however, the emerging city must attract the business of international and transnational firms and ideally their headquarters as well in order to diversify its economy away from dependence on heavy industries and the export of natural resources.[6] The tightened competition has put additional extensive pressure on emerging urban regions to grow rapidly and thus to sustain their momentum as attractive markets. The implemented growth strategies include liberalization and decentralization measures to attract investments from the private sector while large-scale public investments are needed to establish modern infrastructure. The resulting construction booms have reshaped urban morphologies not only physically but also socio-economically due to exponential population growth via immigration and newly emerging service sectors. In the long term, these cities are challenged to become not only attractive investment hubs during the period of rapid urban growth but also international service hubs and thus operational centers of transnational companies by attracting knowledge industries in the long term.

In the context of hierarchical network developments and functional differentiations between cities, the Arabian Peninsula has obtained a geostrategic

4. Castells, "European Cities, the Informational Society and the Global Economy."
5. Brenner, "Between Fixity and Motion."
6. Alderson and Beckfield, "Globalisation and the World City System."

importance that is currently unique. Gulf cities have developed into central hubs due to their location between the developed Western nations and the rising economies of Asia. As a consequence, the significance of cities and urban spaces on the Arabian Peninsula in global networks has grown rapidly).[7] In today's context of international competition between geographical locations, Gulf cities face completely new challenges. They need to find ways to sustain and improve their position in the context of a globally operating service economy. Thus, knowledge intensive activities have been identified as key spatial development drivers in global cities.[8] For advanced producer service (APS) firms, knowledge is an important resource for innovation, which in turn, is one of the major drivers of economic growth. Since the transfer of knowledge often requires direct face-to-face interactions, many APS firms require a high level of global connectivity as well as highly integrated local structures. Innovative activities are seen to be highly concentrated in a minority of urban regions.[9] The main reason why these urban regions play important roles in the supply of knowledge is that firm networks benefit from geographical proximity and local knowledge spillovers. Malecki (2000) describes this aspect as the "local nature of knowledge" and highlights the necessity to accept knowledge as a spatial factor of competition between cities.[10]

This paper focuses on the role of advanced producer services in transforming the urban environment in Qatar's capital, Doha. The change in Qatar's rulership in 1995, when Shaikh Hamad bin Khalifa AlThani came to the throne, opened the door to a new path of economic development for what was a restrictive and conservative country.[11] In the following years, Qatar developed into an important political center in the Middle East, often assuming a mediatory role between the West and Arab world.[12] Parallel to its growing political engagement, various projects were launched to develop the capital city Doha into a global hub. Since the mid-1990s, Qatar's population has more than tripled, making it one of the fastest growing nations in the world. This rate of population growth is mainly due to the recent construction

7. Schein, "Build on Sand? – Emerging Cities on the Arabian Peninsula in the Knowledge Economy Context"; Thierstein and Schein, "Emerging Cities on the Arabian Peninsula."
8. Thierstein et al., *Raumentwicklung im Verborgenen;* Lüthi, Thierstein and Goebel, "Intra-firm and Extra-firm Linkages in the Knowledge Economy."
9. Simmie, "Innovation and Urban Regions as National and International Nodes for the Transfer and Sharing of Knowledge."
10. Malecki, "Creating and Sustaining Competitiveness."
11. Scholz, *Die kleinen Golfstaaten.*
12. Fromherz, *Qatar: A Modern History.*

boom that has brought in thousands of guest workers from South Asia.[13] Today almost 86 percent of Qatar's current population of around 1.8 million is foreign.[14] While liberalization measures have been introduced by deregulating the real estate market in 2004, increasing interest from the private sector in investing in Qatar was mainly ignited by direct investments of oil and gas revenues, which can be seen in five major development strategies.

Investments in Al Jazeera to establish an international media hub were followed by mega projects in the education and science sectors as initiatives of Qatar Foundation, which was founded in 1995 as a non-profit organization to lay the base for a new economy by focusing on three pillars, namely, education, science, and community development.[15] Furthermore, new airport and harbor developments aim to turn Doha into an international transit hub, which is further accelerated by the strong efforts to establish Qatar Airways as one of the leading aviation providers. Besides, various public investments in real estate projects have established Doha as one of the major investment hubs in the region.[16] Another distinct development strategy has been the launch of various projects to establish Doha as a new tourism and cultural hub in the Middle East by investing in international sports events and cultural projects, such as the redevelopment of the historic city center.[17] The main consequence of all five public investment strategies has been rapid urban growth and, consequently, new realities in socio-economic structures and the physical urban environment. In the following section, the multi-layered and interdisciplinary methodologies are introduced before the various characteristics of emerging APS firm networks and their spatial implications for urban developments are examined.

Methodologies and Sampling Strategy

In this to paper, the analysis of intra-firm APS networks is based on the interlocking network model developed by the Globalisation and World Cities Study Group (GaWC) at Loughborough University. It provides one specific way to understand how inter-city relations can be empirically measured despite the chronic lack of data on inter-city information flows. The method was originally developed to measure the connectivity between global cities based on multi-branch APS firms

13. Naqy, "Making Room for Migrants, Making Sense of Difference."
14. Qatar Statistics Authority, *Qatar in Figures.*
15. Miles, *Al Jazeera.*
16. Adham, *Rediscovering the Island.*
17. Wiedmann, Salama and Thierstein, "Urban Evolution of the City of Doha."

as they organize business activities across their offices worldwide. The model uses a proxy – i.e., intra-firm networks of multi-branch, multi-location enterprises – to estimate potential flows of knowledge creating information between cities. The basic premise of this method is that the more important the office, the greater its flow of information will be to other office locations. The empirical work comprised two stages. In the first stage, a reliable company database had to be created to identify knowledge-based firms within the emerging city of Doha. In the case of Qatar, the Zawya Databank was used to select 98 APS firms as sample for the interlocking network analysis. The firms were allocated to the sectors using its *Nomenclature statistique des Activite´s e´conomiques dans la Communaute´ Europe´enne* (NACE) codes. In addition to this, the selected firms were crosschecked and where necessary details were completed by using a company list provided by the GAWC Research Group[18] and other company lists of globally operating companies such as Forbes.

Knowledge exchange and business activities occur not only through intra-firm branch office networks but primarily from the division of labor between companies. In many cases, outsourcing strategies in respect of single activities are often efficient and lead to a higher quality of products and services. It is assumed that these extra-firm networks are strongly anchored within cities due to the quality of infrastructure like airports, universities with good reputation, large settlements of leading global companies, as well as the availability of specific knowledge.[19] By means of a web survey that combines relational data on the firm's locations with the degree of importance of working interrelationships along individual firm's chain of value, the interdependencies between office locations and actual business networks can be analyzed.

By overlaying a multiplicity of different value chains, patterns of spatial division of labor and localized value chain systems can be identified. As a first step, information was gathered about the firm's business location and the spatial range where they source inputs for their products. In the second, these firms were asked to localize and assess the importance of their extra-firm relations to other firms. And finally, in order to relate the extra-firm relationships to a stylized value chain, the firms had to localize their business activities along the individual value chain elements of "research & development," "processing," "marketing," "sales and distribution" and "customers." With this procedure, a comprehensive picture about the spatial value chain patterns of APS firms was obtained in Doha on the global, European, local and supra-regional scale.

18. Taylor, "Global Urban Analysis."

19. Thierstein et al., *Raumentwicklung im Verborgenen.*

The spatial transformation of urban structures due to the move and growth of advanced producer service sectors was analyzed by comparing GIS data from 2003, when the construction boom began, to the state of development in 2012 by focusing on an assessment of commercial as well as residential real estate. The initial GIS data from 2011 was provided by the Ministry of Municipalities and Urban Planning in Doha. The authors updated the data by various survey techniques including field surveys and the evaluation of high-resolution satellite images. The GIS data was also used as the basis for investigating the office locations of the 98 previously selected APS firms in order to explore their spatial integration within urban fabrics. In this regard, Bill Hillier's Space Syntax methodology was applied to examine the accessibility of common business centers in Doha on a macro scale.[20] Furthermore, 350 employees of 21 APS firms were interviewed regarding the locations of their weekly activities in order to investigate how knowledge workers live in Doha. The locations were mapped in GIS files in order to calculate the various distances interviewees have to travel on a weekly basis as well as to investigate the various road connections between activities. All GIS surveys combined are applied to develop a comprehensive view on the complex dynamics between supply- and demand-driven development patterns in the case of Doha.

Advanced Producer Service Networks in Doha

Interlocking Network Analysis

Since oil and gas revenues have been invested in large-scale urban development from the beginning of the 21st century, many international firms within APS sectors have moved to Doha in order to be involved in the emerging local markets. The investments in infrastructure and the launch of mega projects in combination with the introduction of freehold property rights in 2003[21] led to an expanding real estate market, which can be currently identified as one of the major factors attracting international APS firms to relocate to Doha. Furthermore, a strategic approach to investing Qatar's wealth in domestic and foreign markets led to the foundation of the Qatar Investment Authority in 2005, which led to the rise of an investment banking sector in Doha.

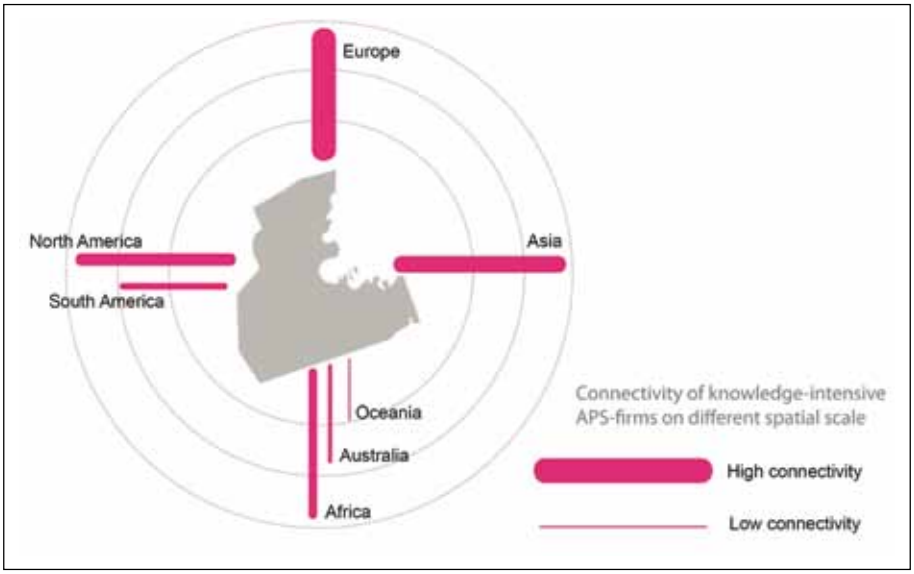
APS firms in Doha show a clear global distribution pattern. The different ranges, directions, and importance of the different spatial scales are clearly shown

20. Hillier, *Space is the Machine.*

21. Colliers International, *Doha Real Estate Overview 2008.*

in Figure 1.1.1. The map presents the connectivities differentiated by the four cardinal points of directions and on different spatial scales symbolized by varyingly strong lines. The national scale plays no major importance within the network since Metro Doha is the only large scale urban agglomeration in Qatar. The strongest connection – with 43 percent of all connections – exists with Europe followed by Asia (24 percent), North America (18 percent), Africa (7 percent), South America (5 percent) and Australia (approximately 3 percent). On this scale, the interlocking network analysis proves the strong ties of APS firms, located in Doha, with headquarters in European cities, particularly London.

Figure 1.1.1: Connectivity of Advanced Producer Service firms on different spatial scales

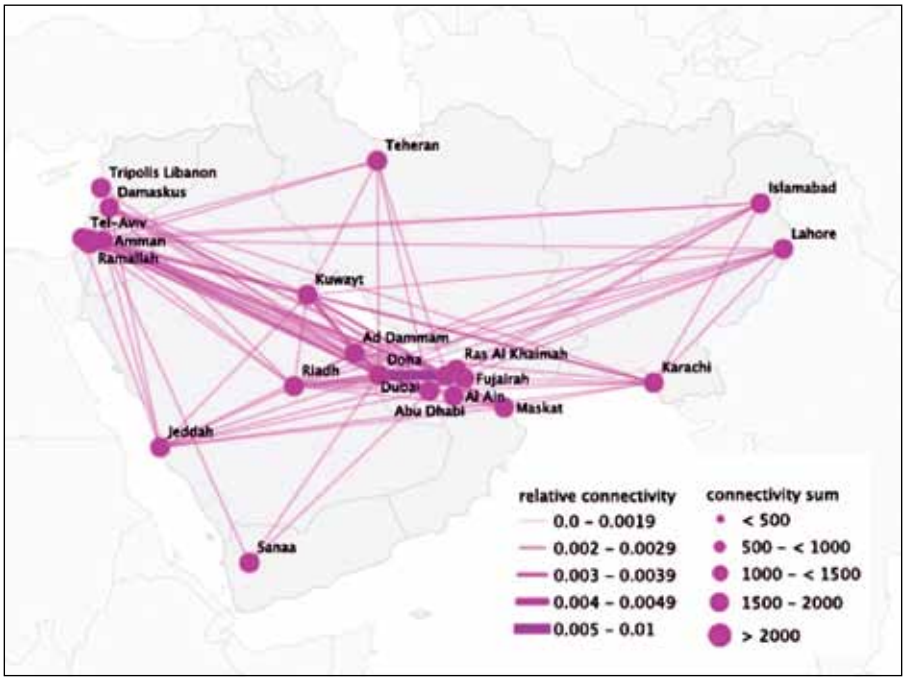


Source: Authors (TUM).

A closer look on a regional spatial scale which contains the countries Syria, Israel, Saudi Arabia, Lebanon, Jordan, Palestine, Kuwait, United Arab Emirates (UAE), Yemen, Iran, Iraq, Bahrain and Oman shows the strongest connectivities with cities of the UAE, particularly Dubai (Fig. 1.1.2). Around 30 percent of all connections go to the UAE followed by Saudi Arabia(15 percent), Lebanon (10 percent), Syria (3 percent), Israel (5 percent), Jordan with (7 percent), Palestine (2 percent), Kuwait (8 percent), Yemen (2 percent), Iran (3 percent), Iraq (1 percent), Bahrain (8 percent) and Oman (6 percent). These results prove the strong interrelations of APS networks to firms located in Dubai, where many

operational headquarters are located. This predominant role of Dubai is mainly due to its early start – beginning from the 1980s – to enter global networks as a regional service hub.[22]

Figure 1.1.2: Regional connectivity of advanced producer service firms based in Doha



Source: Authors (TUM).

Value Chain Analysis of Extra-firm Networks

The Interlocking Network analysis outlines the structural organizations and spatial impacts of intra-firm networks. In order to explore the extra-firm networks of APS firms, a value chain analysis was applied in the form of a web survey and face-to-face interviews. In all, 19 APS firms participated in the value chain analysis. The firms are from various backgrounds like, for example, accounting and finance, real estate, and information and communication services. Based on the evaluated data and interviews, the most frequent interactions of the participating firms are with other APS firms, in particular insurance, law, advertising and media companies. This can be seen as a clear indicator that APS firms in Doha are highly interdependent

22. Davidson, *Dubai: The Vulnerability of Success.*

as in other cases worldwide. These branches assume an important role as an entrepreneurial support network within the city. On the European scale, a high number of extra-firm relations in banking and finance, and marketing and research can be observed reflecting the fact that many firms in Doha have to attract financial and marketing services as well as research inputs from outside the State of Qatar.

A web survey, which was carried out during 2012, shows quite clearly that geographical proximity to other enterprises appears to be a driving force generating extra-firm networks and interactions. This finding provides evidence that extra-firm linkages of APS firms are concentrated in Doha and that there is currently very little interaction concerning extra-firm linkages with companies outside Qatar. These empirical findings correspond with the findings of the qualitative network analysis. The most important finding of the web survey is that Doha's APS firms organize their external-firm linkage predominately on a local spatial scale or supranational scale, that is to say the Gulf region. Spatial scales beyond these play almost no role. As the figure shows extra-firm networks are strongly pronounced within the city of Doha and the State of Qatar. Moreover, APS firms in Doha predominately offer services for the domestic market and local customers and clients. In order to compete successfully in the global economy, most APS firms have to rely on resources and expertise provided by other firms. In this sense, Doha is not a self-sustaining system, but interconnected in a wide space of flows composed of flows of information, capital, goods, and people travelling along various modes of infrastructure.

Potentials and Challenges for APS Firms in Doha

In order to identify the various potentials and challenges for APS firms in Doha from the standpoint of internationally acting business practitioners, seven face-to-face interviews were carried out. According to the interviewees, Doha offers a unique combination of strengths that will be very helpful to establish and promote Doha as an influential city on the regional and global stage. The huge oil and gas wealth makes Qatar one of the richest economies in the world. During the current global economic downturn, Doha remains a prospering economic landscape with growth rates that are far above average. Oil and gas revenues permit large-scale infrastructure development, including the construction of a new port and new international airport. The ability to embark on new projects and far reaching urban development activities in times of a global crisis and global instability illustrates the power and potential of Qatar. The economic potential of Doha thus arises from two key dimensions: One is capital, which permits state-of-the-art infrastructure and the ability to launch various new initiatives such as Education City. The second

key dimension is the strategic geopolitical location of Doha within the Gulf region itself, between Bahrain and Kuwait in the north, main urban centers in Saudi Arabia in the west and the UAE and Oman in the south.

In the second part of the interview, APS firms were asked about their internal and external value chains, the way knowledge is created, and about the role of spatial proximity in their daily business practices. Nearly all the surveyed companies exclusively focus on the local market and mostly cooperate with companies and research institutes located in Doha. Most of the companies have founded their own independent entities that are fully responsible for the domestic market. Cooperation on shared projects can happen but are not usual. Based on the estimation of the interviewed companies, Qatar has an attractive and extremely fast growing domestic market with enough projects and business opportunities, and consequently there is no need for international acquisition of projects.

None of the interviewed companies and offices function as supranational headquarters, for example for the Gulf region. Instead, offices that serve as regional headquarters operate out of the Emirate of Dubai. According to the interviewed executives, it is not expected that Doha will serve the function as a regional business hub in the near future. When there are collaborations regarding projects, firms often prefer virtual communication. Nevertheless, there are differences between the internal and external form of communications, for example with business partners or other companies. While a firm's internal communication mostly happens via Internet and conference calls, external communication mostly happens face-to-face. Sometimes if the external relationship is longstanding, especially with Arab business customers and clients, the form of communication might switch to the virtual. However, all companies have underlined that face-to-face contacts are of absolute importance in the Arab business context.

Many APS firms currently face severe challenges to establish businesses in Doha. The main problem identified by interviewees is how to attract skilled, gifted, and talented people for long-term employment to Doha. Although attractive and far above average salaries are paid or offered by the companies, other aspects and incentives such as urban design qualities, facilities for families, and an adequate form of housing seem to be important. The fact that more than 86 percent of the people who live in Qatar are expatriates shows that it can attract people. However, the pool of human capital includes very few people from the knowledge economy. Therefore, Doha cannot be considered as a hub for knowledge-based activities in the Gulf region. Nevertheless, Qatar's – and thus Doha's – ambition is clearly articulated: to become a service center for the region. The activities and efforts in order to fulfil this

ambitious vision are visible within the urban context and recognized by international business practitioners who have participated in this qualitative network analysis. In summary, one can state that Doha is an emerging market with potential to be a hub city between the east and the west.

Despite Qatar's efforts to diversify the economy, it will inevitably remain dependent on oil and gas production in the near future. The pace and strength of Qatar's development will depend, in large part, on whether the country is able to transform its economic landscape from one characterized by a public investment driven diversification process towards a knowledge economy as the basis of future growth and prosperity.

The Spatial Impact of APS Networks in Doha

The Real Estate Development Patterns

Based on public investment strategies, rapid urban growth was initiated particularly after 2003, when the population increased from around 744,000 to about 1.8 million in 2013.[23] Thus, almost one million people moved to Doha within a decade. Although other developments such as the extension of the industrial hub in Ras Laffan have also contributed to increased immigration, the main factor is the construction boom in Doha and its metro region. In a 2010 survey by the Qatar Statistics Authority, almost 40 percent of labor was directly engaged in the construction sector. Another 30-40 percent was engaged in general services wherein growth is indirectly linked to the immigration fuelled by the expanding realestate market.[24] Thus, it can be stated that the construction boom has been a major cause of new socio-economic realities and social structures due to a significant increase in foreign labor as well as the large-scale immigration of qualified guest workers engaged in APS sectors. Consequently, urban morphologies have witnessed an extensive transformation process during this short period of less than ten years.

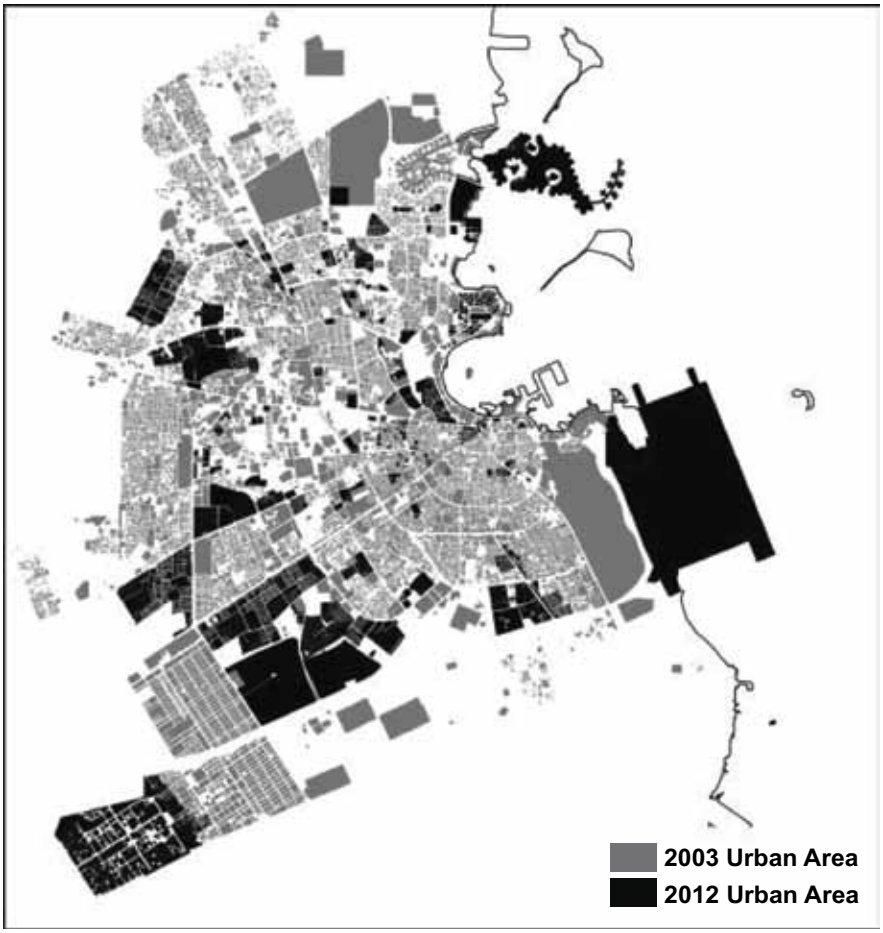
Based on the authors' GIS survey, the recent construction boom caused the total settlement area of metropolitan Doha to grow from around 162 sq. km in 2003 to around 292 sq. km in 2012, which is more than 80 percent of its previous size (Fig. 1.1.3). During the first period between 2003 and 2006, developers focused on commercial projects, which had a share of around 50 percent of the total built-up area. These commercial developments were mainly office buildings located

23. Qatar Statistics Authority, *Qatar in Figures*.

24. Ibid.

in West Bay and along the main road grid in central areas in addition to several shopping malls. After the first period of rapid growth, which was fuelled by initial investments and the Asian Games in 2006, an area of approximately 50 sq. km was added. Due to the international financial crisis in 2008 and an oversupply of commercial projects, less than 17 sq. km of settlement area was built during 2006 to 2009, which meant a decrease of 66 percent in the growth rate. However, the growth rate picked up again during 2009-2012 when a total area of 62 sq. km was developed in addition to the new airport development of approximately 22 sq. km. In contrast to the first extensive development period between 2003 and 2006, over 95 percent of the total development area between 2009 and 2012 is occupied by low-rise residential projects in the periphery of Doha.

Figure 1.1.3: The settlement growth between 2003 and 2012



Source: Authors (QU).

According to the GIS data evaluation and field surveys, five main consequences of the recent construction boom can be spelt out:

• *Upmarket Real Estate in Mega-Projects*

One main focus of developers has been freehold property projects in master-planned surroundings. The most prominent example is the Pearl development of the United Development Company, a reclaimed island along the northern coast of Doha. This kind of project integrates a mixture of residential high-rises, apartment buildings and villas, served by leisure and retail facilities. Further projects under construction are the Lusail City in the north of Doha and the Msheireb project in the old center of Doha, which follows a new approach to attract medium to high income groups to live in the historic downtown area.

• *The High-Rise Agglomeration in West Bay*

The prominently located West Bay area was initially developed mainly for public or semi-public tenants such as ministries or Qatargas. In recent years, residential projects and hotel developments have been launched there. Today, more than 88 high-rise buildings have been completed in the West Bay, which has become the main icon of modern urbanism in Qatar. The waterfront location and the extensive public involvement in developing the new business district in West Bay have attracted investors. Subsequently land prices have been rising leading to high office rental prices. A survey of 77 office properties in West Bay carried out by the authors at the beginning of 2013 showed that rents had reached an average of $696 per square metre and year, which is the highest rate in Qatar followed by an average of $492 in Al Sadd, where 75 properties were evaluated.

• *The Commercial and Residential Projects in Downtown Areas*

Due to the growing need for more affordable and accessible office space as well as housing units, a large number of commercial and residential developments have been launched along the main road grid in downtown areas. The main agglomeration of these individual developments is located in Al Sadd, where many commercial and residential developments were built in the form of multi-storey blocks. Other areas are Al Salata in proximity to the historic city core and the downtown areas near the international airport. The large number of blocks has led to a densification process in most areas resulting in major traffic congestions and parking space deficits. As a result, many multi-storey car parks have been erected leading to an even higher built density and weakened ventilation in certain areas. Investors are keen to develop

projects in downtown areas mainly because of accessibility aspects as well as building height restrictions in most other urban areas.

• *Compound Developments*

Another focus, particularly of smaller developers, has been compound developments with detached or semi-detached villas in Doha's suburban areas. Many of these projects are financed by individual Qatari landowners, who rent their buildings to individuals or companies. According to the GIS survey, more than 50 percent of Doha's entire urban area is currently occupied by low-rise residential developments, causing a low average density of 6,000 people per sq. km. The main areas of compound developments are the districts adjacent to Aspire Zone in the west of Doha and Education City in the northwest. A recent phenomenon has been the integration of certain services in large-scale compound projects, such as the Beverly Hills complex in Al Rayyan.

• *Shopping Mall Complexes*

Three major shopping malls have been developed in West Bay, Al Duhail, and Al Aziziyah. While the City Centre Mall in West Bay is the most central shopping mall, Landmark Mall and Villagio Mall have been built in Doha's periphery. Today, several large-scale mall complexes are under construction. The most prominent example is the Doha Festival City in the north of Doha providing 260,000 sq. m. of retail space by 2014.[25] While shopping malls have been built in Doha since the 1960s, the recent developments have reached new scales and feature new characteristics. In contrast to the past, retail components have become as important as the extensive integration of theme parks, cinemas, and restaurants, which has established malls as preferred leisure spaces due to the generally hot climate.

The large number of international APS firms which have launched offices in Doha during recent years and the subsequent immigration of expatriate workforce with medium to high income have led to new dynamics in local real estate markets. Exclusive residences in towers in West Bay or the Pearl project or in compounds like the Lagoona development are rented to expatriates with high incomes, while medium income groups usually reside in multi-storey apartment buildings in central areas or in compounds in the west of Doha. The compound housing typology has caused a continuous urban sprawl, while the apartment blocks have led to increasing urban densities in certain central districts like Al Sadd. Initial office

25. Doha Festival City, "About Us."

developments have focused on Al Salata as the oldest Central Business District of Doha. Following the decision to move ministries from central areas and the subsequent permission to develop high-rises for public and commercial projects, an agglomeration of office towers has begun to form the new waterfront of Doha in West Bay. In parallel, office developments have been launched in downtown areas along the main road grid, where existing zoning plans permit commercial projects. Another consequence has been the development of various large-scale shopping mall complexes, which have begun to integrate leisure spaces for higher income groups. Thus it can be stated that the shift to new social structures due to the growing size of medium income groups and the internationalization process due to extensive immigration have led to new development patterns transforming Doha's urban environment.

The Spatial Context of Office Locations

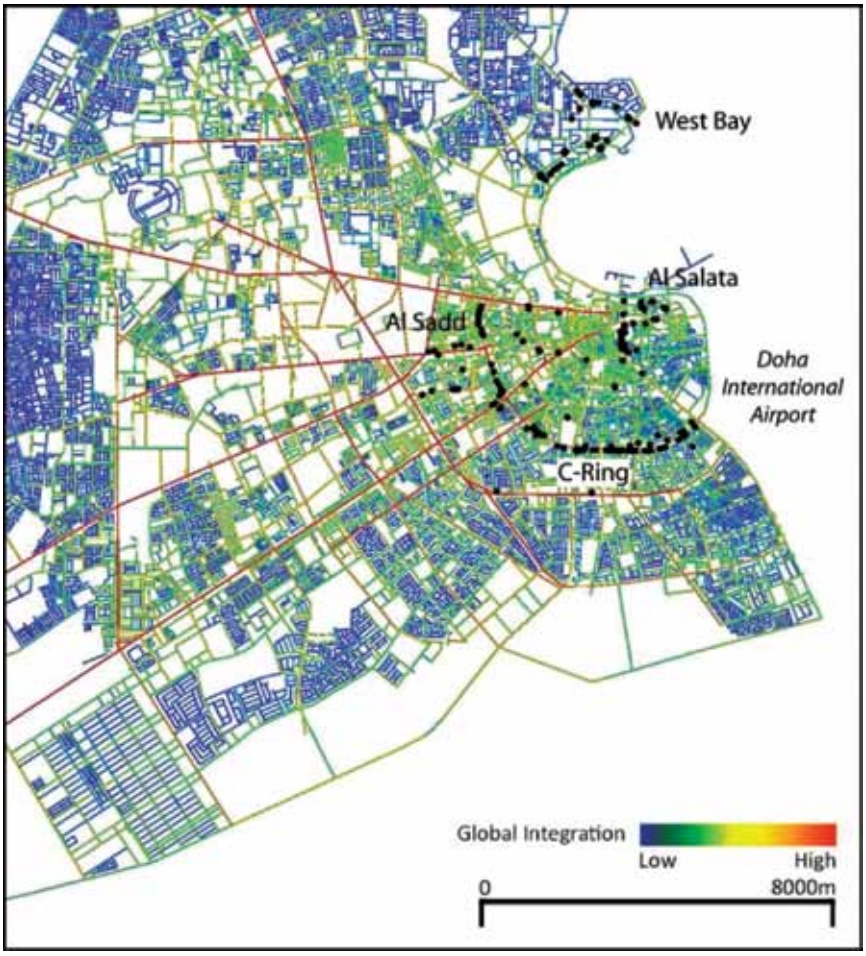
Qatar's service sector is to a large extent based on local holdings such as Al Fardan and Al Mannai, whose background is the oil and gas business.[26] These large-scale holdings founded subsidiaries that are active in various sectors from construction, trade and telecommunications to logistics. In addition to these local company networks organized in the form of holdings, many international APS firms have relocated to Doha, particularly those working in construction related services. While local holdings usually develop and own their office buildings, international firms rent offices according to the criteria of affordability and accessibility, which has caused a concentration in certain central areas, like Al Salata, in proximity to the international airport.

In recent years, the rapidly increasing number of APS firms has led to new commercial developments at the periphery of the old center, particularly along the C-Ring road. A GIS survey of the 98 office locations rented by the selected international APS firms, in combination with a Space Syntax analysis, illustrates the preference of most firms for accessible locations due to the required interaction with other companies and clients as well as the need for spatial proximity to the residences of employees (Fig. 1.1.4). The previous zoning plans permitted commercial developments mainly along the central road grid. In recent years, many office buildings have been built in West Bay, where the prospect of gaining public or semi-public tenants has attracted investor interest. These office towers, however, do not suit most international firms due to high rents, poor accessibility, missing

26. Mannai, "About Us."

services, and large office sizes. Consequently, the envisioned Central Business District in West Bay faces current office vacancy rates of more than 17 percent.[27] Most companies of the private sector are located in areas like Al Sadd along C-Ring, which is leading to newly emerging business centers and densification processes due to the subsequent construction of residential projects and thus the move of commercial as well as social services.[28]

Figure 1.1.4: A Space Syntax study based on a GIS survey illustrating the office locations of international companies in the context of global spatial integration



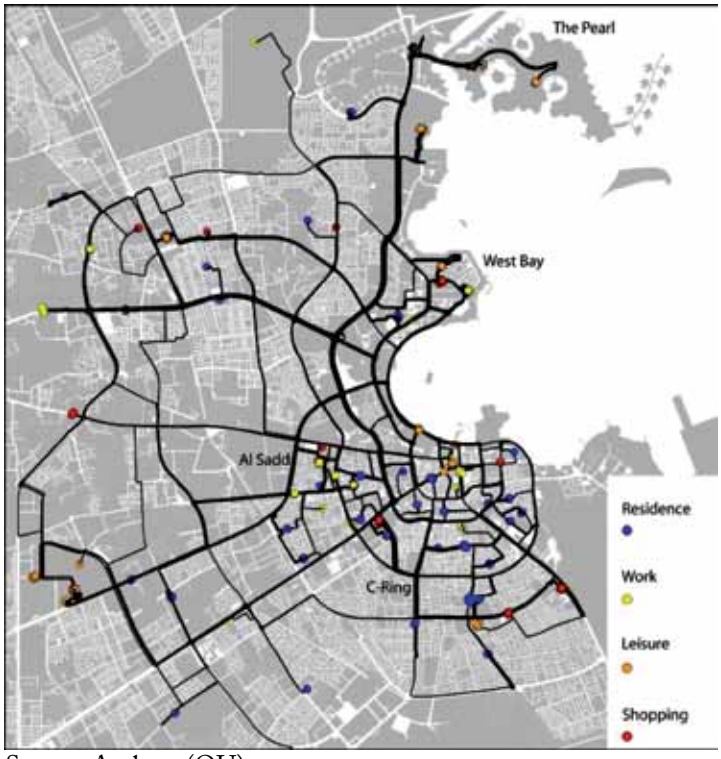
Source: Authors (QU).

27. DTZ Property Time, *Qatar Q1*, 2012.
28. Mirincheva, "The Business District of Doha."

The Spatial Practice of Employees

Notably, rental prices in the city are highest to the north and along the waterfront, particularly in West Bay.[29] Therefore, most mid-income employees of APS firms live in proximity to the old city center along B- or C-Ring road or in compound developments in Doha's inland periphery. In order to explore the various ways in which inhabitants use the urban environment of the city, 350 questionnaire responses received from inhabitants of medium income and differing cultural backgrounds were analyzed. Each questionnaire participant was requested to provide the addresses of their residences, favorite leisure spaces, preferred grocery stores, and working places. Around 130 participants provided accurate addresses, which could be located in the GIS map (Fig. 1.1.5). The analysis revealed that 70 percent of these participants live in apartment blocks along A-, B- and C-Ring road, while around 20 percent reside in compounds in the periphery and the remaining 10 percent stay in waterfront developments along the northern shore.

Figure 1.1.5: The movement map of 130 employees and their weekly activities



Source: Authors (QU).

29. DTZ Property Time, *Qatar Q1, 2012.*

On average, most participants live at distances of around 7 kilometres to their working places, 6 kilometres to their favored grocery stores and 8 kilometres to their favorite leisure spaces. The main leisure spaces include hotel developments in West Bay, the Corniche, Souq Waqif in the old city center, and inland shopping mall complexes. According to the GIS survey of current land use data, only around two square meters of public green area per inhabitant is currently supplied in the city, which indicates a very low integration of public leisure space in most districts. The map of inhabitant movements (Fig. 1.1.5) illustrates the long travel distances from the employees' residences to working places, leisure spaces, as well as favored grocery stores. The lack of land use integration on district scales has led to a high dependency on the main road grid. Today, the most integrated urban area is the Al Sadd district due to its high spatial accessibility along C-Ring on a macro and local level. Therefore, it can be argued that in the future the tendency of a growing number of mid-income employees and their families to prefer services at short distances will lead to more integrated and diverse urban districts. The continuous exchange of guest workers, however, currently hinders the demands of communities from having a more efficient impact on development patterns.

Conclusions and Outlook

Large-scale public investments initiated by Qatar's rulers have shaped contemporary Doha into one of the fastest growing cities in the world and made it a serious contender for emerging hub city in the region. However, the various public development strategies initially followed no cohesive development vision or plan and were thus often carried out in a rather isolated manner from one another based on top down and case-by-case decision making. In contrast to other Gulf cities, such as Dubai, where trade played a major role at the beginning of economic diversification,[30] the construction boom in Doha was mainly ignited by public investments. A similar development strategy can be found in the case of the Emirate of Abu Dhabi in the United Arab Emirates, where the large oil wealth has permitted initial public investments to stimulate urban growth. While in the case of Kuwait comparable developments were hindered due to preferred public investments within international markets, which was mainly caused by the ongoing conflict in Iraq, the rulers of the Kingdom of Bahrain initiated certain economic development strategies as early as the 1970s. But due to limited wealth from fossil fuels as well as the complex economic dependency on Saudi Arabia and the ongoing

30. Schmid, *Economy of Fascination.*

domestic political conflicts, Bahrain's capital Manama has remained restricted in its development toward an international hub in spite of its established position as regional service center and tourism destination.

Based on public investments, many APS firms settled in Doha in order to be involved in local projects while their regional headquarters remained in Dubai and global headquarters in London or other global cities. Based on the APS network analyses, it can be stated that company networks in Doha are currently mainly focused on local markets rather than on using their location for doing business beyond the borders of Qatar. This focus on local projects, however, depends on continuous urban growth in Doha, which has led to the predominant role of developers in defining urban morphologies and thus weakened demand-driven dynamics. Large-scale mega projects in the form of cities within the city and high-rise clusters as well as the continuous urban sprawl are results of this urban development background. Today, Doha is becoming more and more diverse and contrasted, offering a state-of-the-art waterfront marked by various architectural landmarks. The overall urban structure, however, is dominated by the fragmented clustering of single "island" developments and a low-rise urban periphery. The lack of central planning has led to an incoherent urban landscape lacking a clear hierarchy of centers.

In spite of the initial public vision to establish West Bay as Doha's modern Central Business District, recent demand-driven incentives regarding preferred office locations have led to newly emerging business centers in other urban areas. In addition to high rents and a lack of integrated services, most APS firms currently avoid West Bay also due to its isolation within overall urban fabrics. Based on the authors' Space Syntax analysis, most APS firms prefer easily accessible locations along C-Ring road due to their need for interaction with clients and business partners. The public zoning plans from 1999 permit commercial developments along all main ring and access roads, while all central areas were previously designated for low-rise housing. In recent years, however, central areas of districts are more and more occupied by multi-storey residential developments, which have received building permissions due to the increasing housing demand from medium-income groups. In some cases, like the Al Sadd district, restaurants as well as certain services, like print shops, have been set up along access roads in order to benefit from the high concentration of APS firms.

Furthermore, the evaluation of employee movements has led to the empirical evidence that employees residing in Al Sadd or in proximity to the C-Ring road have, on average, shorter travel distances to services and their working places. In spite of the lack of public physical planning to establish a central business spine

along C-Ring road, the demand for integrated urban areas by APS firms and their employees has led to transformation processes of adjacent districts. Today old compound developments are being replaced and urban densities are rising due to the rather low minimum distance regulations between multi-storey buildings. Due to very few publicly owned areas, public spaces or social services, such as schools, are hardly integrated within these new cluster developments. The result has been a rather dynamic form of urbanism adjusting to certain needs and demands of modern APS networks, which rely on accessible, integrated, and diverse urban districts. The lack of physical planning and the missing integration of public services – including public transportation – are currently leading to enhanced traffic congestion and thus decreasing liveability, which will endanger any future upgrading process.

In the case of Doha, the initial idea to create an international service hub was not restricted by public growth limitations. The subsequent rapid urban growth was hardly regulated due to outdated planning, capacity deficits within the public administration, and the decentralization of decision-making. Although the most recent master plan was introduced in 1999, it had hardly any impact on urban developments since it was still based on previous growth assumptions disregarding the future impact of new public investment strategies. In parallel to the lack of reorganization of physical planning, capacities within the public administration were inadequate and instead of reforming urban governance towards integrated decision-making, major projects had to be decided case-by-case. The result has been a fragmented urban structure with four main characteristics – isolated mega projects, high-rise waterfronts, densification processes in central areas, and continuous urban sprawl in Doha's periphery. The lack of cohesion between urban areas was exacerbated by the absence of integrated development strategies and land use planning. Subsequently, the lack of urban efficiency has been increasing as a result of the lack of legal frameworks and insufficient infrastructural supply, which includes the missing integration of public transportation. Today, one major challenge of urban governance is the implementation and re-establishment of holistic and central planning based on comprehensive legal frameworks to enforce urban consolidation based on the highest possible land use integration and the introduction of multi-mode transportation networks. An efficient polycentric urban structure will be a major precondition for the long-term development of international APS networks in Doha.

Enhanced urban diversity is mainly dependent on the demand-driven dynamics between investors, companies, and inhabitants. In the case of Doha, developers and their investors play the most decisive role in diversifying the urban environment

since their speculative interests have been the driving force behind the recent urbanization process. A major problem of this kind of urbanization basis is a lack of direct interaction between developers and end-users of properties. Most real estate is developed for short-term investment interests rather than with an expectation of long-term returns. Thus, neither companies nor individual inhabitants can choose between a large variety of locations, construction qualities, rental prices, or typologies regarding offices and residences. This lack of physical diversity in combination with legal rigidity regarding business initiatives is, however, problematic for flexible and dynamic economic growth in service sectors. Thus, the growth dependency on real estate markets needs to be restricted in order to stimulate demand-driven incentives within other emerging economic sectors. APS firms can play a major role in developing more diverse urban environments as the case of the Al Sadd district illustrates. But a high standard of urban diversity in Doha can only be established by a major shift on the part of the private sector from short-term interests attracted by emerging local markets to long-term commitments due to the city's new hub function in the region and beyond. This transition will again heavily depend on public incentives to introduce reliable legal environments as well as to stimulate the growth of new economic sectors.

Thus, urban governance has to react on the emerging demands of new economies and introduce more integrated development patterns based on central planning. In recent years, various steps have been taken to reconfigure urban governance in this direction by implementing strategic plans and to consolidate urban structures to more cohesiveness and integration. In 2008, the Qatar National Vision (QNV) was introduced to mark a new era in guiding development toward a comprehensive vision, which integrates social, economic, and environmental development goals.[31] Based on the QNV, the Qatar National Development Strategy was introduced in 2011 to guide parallel strategies during the next five years including the reorganization of urban governance.[32] A key element in this regard is the implementation of the Qatar National Master Plan in 2013, which will mark a new step in regaining public control of development by introducing a cohesive legal framework as a basis for future zoning plans and regulations. These strategies and plans are accompanied by the reconfiguration of public bodies towards more integrated organizational structures. Thus, in 2011 the Central Planning Unit was introduced at the Ministry of Municipalities and Urban Planning to survey and

31. GSDP 2008.
32. GSDP 2011.

coordinate the various infrastructural projects. Today, urbanism in Qatar enters a new evolutionary phase driven by cohesive consolidation strategies which will replace the initial incentives to stimulate rapid urban growth as main factors in urban development.

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References

Adham, Khaled. 2008. *Rediscovering the Island: Doha's Urbanity from Pearls to Spectacle. In The Evolving Arab City,* edited by Yasser Elsheshtawy, 218-257. New York: Routledge.

Al Mannai. "About Us." http://www.mannai.com/about.jsp. Accessed November 17, 2011.

Alderson, Arthur, and Jason Beckfield. 2007. "Globalisation and the World City System: Preliminary Results from Longitudinal Data Set." In *Cities in Globalization,* edited by Peter Taylor, Ben Derudder, Peter Saey and Frank Witlox, 21-35. London: Routledge.

Brenner, Neil. 1998. "Between Fixity and Motion. Accumulation, Territorial Organization and the Historical Geography of Spatial Scales." *Society and Space,* 16 (4): 459-81.

Castells, Manuel. 1972. *La Question Urbaine.* Paris: Maspero.

Castells, Manuel. 1993. "European Cities, the Informational Society and the Global Economy." *Tijdschrift voor economische en sociale geografie* 84 (4): 247-57.

Cohen, Robin. 1981. "The New International Division of Labor, Multinational Corporations and Urban Hierarchy." In *Urbanization and Urban Planning in Capitalist Society,* edited by Michael Dear and Allen Scott, 287-347, London: Methuen.

Colliers International. *Doha Real Estate Overview 2008.* http://www.colliers-me.com/Files/services/3.pdf. Accessed November 17, 2011.

Davidson, Christopher M. 2009. *Dubai: The Vulnerability of Success.* West Sussex: Columbia University Press.

Doha Festival City. About Us. ://www.festivalcitydoha.com/wps/portal/dhfc/doha/exploredohafestivalcity/contact%20us/?1dmy&urile=wcm%3apath%3a/Doha_en/SA_Home/SA-ExploreDohaFC/SA-Aboutus/. Accessed April 17, 2013.

DTZ Property Time. *Qatar Q1,* 2012. http://www.dtz.com/StaticFiles/Research/DTZ%20Property%20Times%20Qatar%20Q3%202010.pdf. Accessed April 17, 2013.

Fromherz, Allen. 2012. *Qatar: A Modern History.* New York: I B Tauris.

GSDP – General Secretariat of Development Planning. 2008. *Qatar National Vision 2030.* Doha: Gulf Publishing and Printing Company.

GSDP – Qatar General Secretariat of Development Planning. 2011. *National Development Strategy 2011-2016.* Doha: Gulf Publishing and Printing Company.

Hillier, Bill. 1996. *Space is the Machine: a Configurational Theory of Architecture.* Cambridge: Cambridge University Press.

Lüthi, Stefan, Alain Thierstein, and Viktor Goebel. 2010. "Intra-firm and Extra-firm Linkages in the Knowledge Economy: the Case of the Emerging Mega-city Region of Munich." *Global Networks,* 10: 114-137.

Malecki, Edward J. 2000. Creating and Sustaining Competitiveness. Local Knowledge and Economic Geography. In *Knowledge, Space, Economy,* edited by John Bryson, Peter Daniels, Nick Henry and

Jane Pollard. 103-119, London: Routledge.

Miles, Hugh. 2005. *Al Jazeera.* New York: Grove Press.

Mirincheva, Velina. 2012. "The Business District of Doha: An Investigation into the Challenges of Creating a Spatial Centrality and Socio-economic Viability." Master's thesis, University College London.

Naqy, Sharon. 2006. "Making Room for Migrants, Making Sense of Difference: Spatial and Ideological Expression of Social Diversity in Urban Qatar." *Urban Studies Journal Limited* 43: 119-37.

Qatar Statistics Authority. *Qatar in Figures*. http://www.qsa.gov.qa/eng/publication/qif/2011/qatar_in_figures_2011_English.pdf. Accessed April 8, 2013.

Simmie, James. 2003. "Innovation and Urban Regions as National and International Nodes for the Transfer and Sharing of Knowledge." *Regional Studies,* 37(6): 607-20.

Schein, Elisabeth. 2009. "Build on Sand? – Emerging Cities on the Arabian Peninsula in the Knowledge Economy Context." Ph.D. dissertation, Technical University of Munich.

Schmid, Heiko. 2009. *Economy of Fascination. Dubai and Las Vegas as Themed Urban Landscapes.* Stuttgart: Gebrueder Borntraeger.

Scholz, Fred. 1999. *Die kleinen Golfstaaten.* Gotha: Justus Perthes Verlag Gotha GmbH.

Taylor, Peter J., Pengfai Ni, Ben Derudder, Michael Hoyler, Jin Huang, and Frank Witlox (ed.) 2011. "Global Urban Analysis. A Survey of Cities in Globalization," 17-21. Washington: Earthscan.

Thierstein, Alain, Christian Kruse, Lars Glanzmann, Simone Gabi, and Nathalie Grillon. 2006. *Raumentwicklung im Verborgenen. Untersuchungen und Handlungsfelder für die Entwicklung der Metropolregion Nordschweiz.* Zürich: NZZ Buchverlag.

Thierstein, Alain, and Elisabeth Schein. 2008. "Emerging Cities on the Arabian Peninsula: Urban Space in the Knowledge Economy Context." *International Journal of Architectural Research,* 2 (2): 178-95.

Wiedmann, Florian, Ashraf M. Salama, and Alain Thierstein. 2012. "Urban Evolution of the City of Doha: An Investigation into the Impact of Economic Transformations on Urban Structures." *JFA/METU: Journal of the Faculty of Architecture,* 29 (2): 35–61.

Witlox, Frank, and Ben Derudder. 2007. "Airline Passenger Flows through Cities – Some New Evidence." In *Cities in Globalization,* edited by Peter Taylor, Ben Derudder, Peter Saey and Frank Witlox, 21-35. London: Routledge.

1.2

"Dohaization": An Emerging Interface between Knowledge, Creativity, and Gulf Urbanity*

Ali A. Alraouf

Introduction

The ceremonial opening of London's Shard Tower, owned by Qatar Investment Authority, was a prime scene in the unfolding drama of Doha's endeavor to construct a new urban development brand within the Gulf and the Middle East. Shard Tower was designed by prominent architect Renzo Piano to be the highest building ever built in the capital of conservation, London city. Extending Qatar's investment arm outside of the Gulf and the Middle East and stretching it towards Europe and UK was part of a well-planned process for building Qatar's new assembled identity and urban brand. The critical narrative of constructing such a brand is the focus of this paper. During the last decade, Qatar has managed to carve a niche for itself on the global stage. As a result of its position in the global energy market, the country is going through massive expansion and has the resources to support this growth. This paper analyzes the process of constructing such a brand: Dohaization.

* Except where otherwise mentioned, all images in this chapter are courtesy the author.

Figure 1.2.1: The Shard Tower dominates London' skyline

Background: Qatar

The State of Qatar is a small peninsula with a total area of 11,500 km^2 of flat, featureless terrain for the most part, sand dunes in the south, and rocky desert in the north. The country is connected to the Arabian peninsula in the south where it borders Saudi Arabia. It has a population of more than 2.1 million, with expatriates accounting for at least 85 percent, according to the Qatar Statistics Authority. Just a few years ago, Doha was referred to as a "sleepy town"[1] and the city was perceived as one of the dullest cities in the world.

In 2008, the Lonely Planet guidebooks rated the city as the most boring city on earth. However, development in Qatar has occurred at an unprecedented pace. In the matter of a few years, the country has gone from being one of the poorest countries to being the richest country on earth. Measured in purchasing power parity terms, its per capita GDP is now the highest in the world.[2] With enormous

1. "The New Frontier," Special Report, *The Gulf,* July 5-11, 2008.
2. Qatar surpassed Luxembourg as the world's richest nation in 2010 and is set to pull away with wealth that is almost twice that of the US, latest estimates from the International Monetary Fund (IMF) show. The IMF's Chart of the Day shows Qatar's gross domestic product per cap-

revenues from its gas and oil exports, Qatar has invested heavily in economic and social infrastructure as well as in the well-being of its people.

Figure 1.2.2: Doha started as a traditional settlement, a primitive fishing village

Photo courtesy Ministry of Urban Planning, Qatar.

Until recently, Qatar was dominated by nomadic and semi-nomadic people whose livelihood depended on fishing, pearling, camel breeding, and dhow building. However, the discovery of oil and gas encouraged not only socio-economic changes, but environmental changes as well. The tremendous economic boom in Qatar has been supported largely by an influx of expatriate workers. The country is becoming a magnet for a growing external workforce in the last five years. World Bank (2005) had estimated that Qatar's population would reach approximately 600,000 by 2006. In actuality, the population increased to nearly 800,000. UN estimates for Qatar for the year 2025 place the population at 850,000, while the Planning Council population estimate for 2015 was 1.4 million. Yet, both predictions were gross underestimations because by the end of 2007, the population had reached 1.5 million.[3] More significantly, it had grown to 1.7 million by the end of the first

ita at $88,221 in 2010, beating Luxembourg for the top spot. The figure may reach $111,963 by 2016, surpassing Luxembourg's $94,621 and Singapore's $70,992, the IMF said. US GDP per capita is forecast at $55,622 in five years, from $46,860 in 2010.

3. *Gulf Times,* 2008.

half of 2012.[4] The changing demographic structure of Doha, which is considered by some regional researchers as a threat to national identity, can also be seen as a contributor to constructing Doha's new identity. Landry (2006) argues that we need to blend our differences together even if we do not understand each other.[5] In this sense, culture diversity is actually a positive feature and one of the crucial conditions for constructing knowledge and creative cities.

Figure 1.2.3: The new Doha skyline suggests its arrival to the global stage

Phantasmagoric Dubai: The Ever Changing Scene

Though going beyond basic development was a goal for many Gulf cities, only one city decided to take a radical detour by focusing on iconic developments, a process which was considered as an answer to a compelling desire for globalizing Gulf cities. The main model for this paradigm is Dubai. Over the past decade, Dubai's economic development has been the topic of much attention in the Middle East, and worldwide. In fact, the city has established an admirable international reputation and a solid image and has arrived strongly on the global arena. Its model has been observed with interest by most of its neighbors, and many of the Arab world's cities have been competing to imitate Dubai as it makes an unprecedented effort to build the tallest, the biggest, and the largest ever architectural and urban statements.

Yet, the paradox of development, as Al-Thani argues, is the negative side that cannot be seen by outsiders.[6] It is totally hidden behind the luxury skyscrapers and glitzy buildings. The impact of the rapidly booming economy on Dubai's social norms runs deep, including a loss of identity, culture, family values, and language.

4. Qatar Statistics Authority 2012.
5. Landry, *The Art of City Making*.
6. Al-Thani, "The Paradox of Development: A Comparison between Dubai and Doha."

Besides, there have been negative effects on marriage rates.[7] Many of these issues are seen as a consequence of the overwhelming majority of expatriates living in the city. No more than 5 percent of Dubai's population is Emirati.[8]

Following Dubai's rapid growth, Qatar was inspired to open up to development in a similar fashion. With the similarities between Dubai and Doha, and the pace at which Doha is developing, questions concerning Doha's development are now being raised. As Al-Thani rightly asked, will Doha be the next Dubai or will the country maintain control over its pace of development and social repercussions?[9] The impact of Dubai on Doha's development was evident particularly in the first years of this decade. Doha's development plans seem to be on the same path as Dubai. Compelling aspirations for a place on the global stage reflected in a new kind of urbanism based on iconic and vertical developments. Yet, Doha proceeded so swiftly, even before the financial crisis of 2008 and its severe impact on Dubai, that it failed to realize that imitation is the antithesis to uniqueness and distinctiveness.

Figure 1.2.4: The Pearl project, a real estate icon in Doha represents the impact of Dubai

7. Ibid., 40.
8. Davidson, *Dubai: The Vulnerability of Success,* 48.
9. Al-Thani, "The Paradox of Development."

The Culture of Calculated Risk

The recent history of Qatar suggests a daring attempt to go beyond the traditional norms of Gulf political and economic strategies. When it comes to the decision-making process in the Gulf States, some common patterns are repeated and collectively applied. Here, I dwell on two crucial and determinant acts in Qatar's contemporary history.

Act One: A New Paradigm of Leadership is Needed

The act of Shaikh Hamad Al-Thani taking over from his father Shaikh Khalifa Al-Thani in 1995 is neither common nor acceptable in the Gulf tradition. Knowing the very strict traditions of tribes and ruling families in the Gulf would make the boldness of such an act clear. All development activities in Qatar have been spurred on by the country's well-liked Amir, Shaikh Hamad bin Jassim Al-Thani, who ousted his father in a bloodless takeover in 1995. In the Gulf, the concepts of loyalty, devotion, and respect for the tribes and shaikhs, old family members, and the rulers are strong not only culturally and socially but also religiously. Therefore, obedience of the rulers is perceived as part of the obedience of God. Some verses from the Holy Quran actually assert those meanings and such verses are heavily used in the Gulf and Middle Eastern states to justify, in some cases, dictatorship and monarchies. Nevertheless, Shaikh Hamad took a well calculated risk in ousting his father from the throne. His success in doing this without losing the support of the Gulf States leaders was unprecedented. The fear that Shaikh Hamad's move would be seen as an example to follow by other young crown princes in the Gulf was soon diminished with the strategy of building trust and showing great respect to the other older Gulf States' leaders. Shaikh Hamad's brave and bold, if controversial, move to the driving seat showed that he saw the potential of his small yet very promising state.

Act Two: Investing in Liquefied Natural Gas (LNG)

The second important act is the vigorous move towards the LNG industry. Despite criticism from financial and development experts, and mega media coverage in publications like *MEED* and *Financial Times,* billions of dollars were swiftly invested in LNG. Again, the calculated risk paid off. Now Qatar is the third country after Russia and Iran in LNG exports. These two factors suggest that the leadership has a clear vision and thorough understanding of the country's strengths and weaknesses.

Vision, Mission, and Adopted Strategies

Qatar is now capturing the world's imagination with an exceptional balance between global aspirations and local necessities. Three main strategies have been adopted by the country's leaders to take the country to new heights.

Extended Global Investment Arm

Qatar changed the slogan followed for decades by different Gulf States of "earn locally, spend globally" into "earn locally, invest globally." The traditional method of international investment was based on moving oil revenues to foreign banks and stocks. Qatar is paving a new route by focusing on substantial global investment.[10] Its financial ability – most recently demonstrated by Qatar Holding's purchase of London department store Harrods – has enabled it to be a generous benefactor. Qatar Investment Authority (QIA) has invested $17 billion in projects around the globe since the beginning of 2010. There are some reasons for the success story of QIA. First, it was fully active during the global financial and economic crisis. Seizing opportunities in a climate of crisis has proved to be a wise move in global investment.

Figure 1.2.5: The cover of the Arabian Business magazine indicating Qatar's new strategy of using financial resources globally

10. For a better understanding of Qatar's investment strategy beyond its borders, see Andrew White, "How Doha's Dollars Are Changing the World."

Political Credibility: A New Global Mediator

In the process of reinventing itself as a potential Arab superpower, Qatar has focused on gaining global credibility. The country has sought to build a niche for itself as a conflict mediator in the Middle East and Africa. Using a combination of its financial power and its increasing diplomatic credibility, Doha has won global respect as an able negotiator. Qatar's role as a peace negotiator in the past few years can be seen in conflicts in Lebanon, Yemen and Darfur and, most recently, in the Arab Spring countries. The country has managed to be a friend to all people which, as The Gulf special report rightly stated, is a radical departure in a region where alliances are stark and there is usually little room for maneuver.[11] Qatar has been criticized for using its huge wealth in addition to skill and talent, but this criticism does not hold. Other Gulf States also endowed with great wealth have not done nearly as much. Qatar's diplomatic triumph is a result of its clear view that Doha is the ideal environment for regional conflict resolution and constructive negotiations.

Planning for a Post-Carbon Future

Qatar's leaders are convinced that the post-oil economy is becoming a reality. Moving from an industrial economy to a knowledge economy is an inevitable transformation which requires understanding and better engagement. Qatar is taking great strides in promoting sustainable development and pursuing a long-term policy in this regard. In order for this pursuit to be successful, economic development must take place within the context of social and environmental development. Sustainable development has become the focus of Qatar National Vision 2030 (QNV), which outlines the development of Qatar over the next twenty years. QNV 2030 is based on four supporting themes: human development, social development, economic development, and environmental development. In order to facilitate the realization of QNV, Qatar is positioning itself as a knowledge-based society, focused on the fields of education, research, energy, and technology.

Branding Qatar via Doha's Emerging Knowledge-based Urbanism

Two main categories of architecture and urbanism can be comprehended within the boundaries of Doha, as the main channels for articulating the new urban brand: Dohaization. Knowledge-based Urban Development (KBUD) is the first category. The balanced combination between local and global urbanism is the second.

11. *The Gulf 2008*, 25.

Knowledge-based Urban Development (KBUD)

Going by different indicators, Doha may be seen as the most advanced city within the Middle East to adopt knowledge economy as a conceptual base for its 2030 vision. Qatar underwent a radical transformation to go beyond the typical image of a Gulf city relying on presumably endless assets of oil and gas. A move towards becoming a regional center for education, knowledge, and culture is the new aspired sense of identity for the Gulf State. Significant investment has been made in knowledge-based urban development in the country during the last five years.[12] Among the major projects, three unique developments are worth a detailed analysis: Education City, Qatar Science and Technology Park, and Museum of Islamic Art.

Education City, Qatar

Education City is a unique campus on the outskirts of Doha which hosts branch campuses of some of the world's leading universities as well as numerous other educational and research institutions. Education City is envisioned as a hub for the generation of new knowledge: a place that provides researchers with world-class facilities, a pool of well-trained graduates, the chance to collaborate with like-minded people, and the opportunity to transfer ideas into real-world applications. Several Western universities have branch campuses in Education City: Virginia Commonwealth University in Qatar, Weill Cornell Medical College in Qatar, Texas A&M University at Qatar, Carnegie Mellon University in Qatar, Georgetown University School of Foreign Service in Qatar, Northwestern University in Qatar, and University College London in Qatar.

12. Alraouf 2008.

Figure 1.2.6: Architecture provokes creativity: Faculty of Islamic Studies Building and Education City Central Mosque

Figure 1.2.7: Texas A & M University Engineering College designed by Mexican architect Ricardo Legorreta

Qatar's Science and Technology Park

The objectives of "turning Doha into a vibrant science and technology hub" and "attracting and retaining highly skilled employees" are outlined in the Qatar

Strategic Plan 2030. By the end of 2007, the first phase of the Qatar Science and Technology Park (QSTP) was opened for business and populated with tenants. A massive, state-of-the-art convention center – another signature piece of architecture by Arata Isozaki – was already hosting prestigi ous global events. The Science and Technology Park provides facilities for commercial giants such as ExxonMobil and European Aeronautic Defense and Space Company (EADS) and is in the final stage of development.

QSTP was established to provide the ideal environment to develop and market hi-tech intensive innovations and products and for providing services and locations with international standards for global companies to incubate new technological projects. The fact that QSTP is located close to Education City's top universities adds a positive element particularly when it comes to research collaboration, innovation, and creativity.

Figure 1.2.8: The striking Qatar Science & Technology Park (QSTP) designed by world-renowned architects Woods Bagot

Museum of Islamic Art

Qatar's plan for a world-class set of cultural facilities got off to an impressive start with the Museum of Islamic Art (MIA) in Doha designed by I.M. Pei. MIA Doha perfectly served the city's quest for a new identity in two ways: First, it spoke to the locality by highlighting the community's heritage and roots. Second, it fulfilled

the city's global aspirations by allowing it to brand itself as a global city attracting tourists and global citizens. MIA opened its door to visitors in December 2008. Inspired by the magical geometry of the Ahmad Ibn Tulun Mosque in the heart of Islamic Cairo, the museum is a contemporary representation of generative architecture produced from applying three-dimensional geometrical complexities.

Figure 1.2.9: The new Museum of Islamic Art overlooking Doha's emerging urbanity

Local and Global Urbanism

A well-balanced mixture of local and global approaches in developing Doha's architecture and urbanism highlights the emerging urbanity of the city. While the waterfront development is characterized by iconic structures by the top architects of the world, a good number of projects which preserve, conserve, and promote local culture and architectural heritage can also be observed. To substantiate this view on the importance of local architecture and urbanism, I provide a short analysis of two interesting projects: Katara, the Cultural Village, and Souq Waqif, the traditional souq.

Figure 1.2.10: Doha's public spaces supporting its identity as a knowledge city

Figure 1.2.11: Globalized urbanism characterized Doha's new millennium development

Figure 1.2.12: Doha Corniche, the city's recreational, social, and environmental hub

Figure 1.2.13: Doha's waterfront as a public space accommodating its diversified community

Katara, the Cultural Village

Katara, Qatar's cultural village, is situated on Doha's eastern coast at West Bay, near the Qatar International Exhibition Center. The village seeks to create an environment suitable for nurturing and activating cultural activities in the country; be a cultural hub and meeting place for the educated and creative; raise cultural awareness through festivals, exhibitions, forums, and other events; conduct research and studies relevant to the objectives and activities of Katara; and invest in buildings and facilities.

Figure 1.2.14: Katara uses the traditional Gulf architectural vocabulary to emphasize the local and regional identity of Qatar

Souq Waqif

Souq Waqif was originally a weekly market for local Bedouins. The souq acquired its name "Waqif," which means "standing" in English, because merchants stood up to peddle their goods. Coinciding with the emergence of modern Qatar, the souq expanded in space and activities. The recent renovation of the souq is considered one of the most successful projects in Doha in the last decade. It has become one of Doha's most popular sites.

Figure 1.2.15: Preserving the traditional language of Gulf and Qatari architecture in the revitalization of Souq Waqif

After renovation, Souq Waqif has become a showcase of traditional architecture, handicrafts, and folk art. The souq evokes the feeling of traditional Qatar and the successful renovation highlights the nobility and wisdom in the region's traditional architecture as compared to modern construction devoid of any cultural identity. This feel of tradition provided by Souk Waqif has made it the prime place to visit for locals, expatriates, and tourists alike.

Souq Waqif was nominated for the prestigious Aga Khan Award for Architecture in the 2010 cycle. It has been described as a revitalization project, a unique architectural revival of one of the most important heritage sites in Doha aimed to reverse the dilapidation of the historic structures and remove inappropriate alterations and additions.

Figure 1.2.16: Souq Waqif, Doha: a space to enjoy the charms of tradition

Epilogue

Realizing the Dream: Hosting the FIFA 2022

Qatar has lost its bid for the 2016 Olympics, but has vowed to try again. On December 2, 2010, Qatar was selected as the host country for the FIFA Cup 2022. The tiny Gulf state was awarded the honor of organizing and hosting the most important sports event in the world. The decision was yet another crucial boost for the city's efforts to carve a unique place for itself on the global stage. More significantly, it is creating great momentum in the process of constructing the new brand of urbanity that Doha envisions.

The quantity and the quality of architectural and urban projects which will be added to the city's urban landscape to facilitate hosting the World FIFA Cup would definitely make Doha a very unique world destination. Doha has gained global significance through the growth of knowledge economy related projects. The city's new urban development and its spatial qualities have attracted investments, firms, and people associated with the knowledge economy. Such urban development fulfills the requirements of knowledge workers coming to the city from across the globe anticipating an attractive quality of life which would foster their creativity and innovative talents.

Figure 1.2.17: The necessity of thinking beyond the dream of hosting FIFA 2022

Dreams, Illusions, or Legitimate Aspirations

Qatar, considering the paramount importance of its culture and identity, is not aiming to copy the Dubai model; rather, it seeks to maintain an economic boom without compromising its own culture. A knowledge-based society, as the Qatar National Vision suggests, considers culture as a crucial asset that should be preserved. The holistic understanding of culture implies not only preserving the values of the past but moving aggressively towards the knowledge and education paradigm. The goal of a knowledge economy and the commitment to transforming Doha into a creative and knowledge city govern every step the Qatar government is taking to shape the future of its capital city. The government continuously emphasizes the importance of embracing Qatari culture and identity, to ensure that development will not have a negative impact on cultural and social norms. Looking at the major measures taken by the government, Qatar's path seems to be directed toward ensuring that economic development will not compromise its culture. With unprecedented financial resources and political commitment, Qatar is constructing a new brand which would be disseminated within the Gulf and the Middle East. Dohaization is a brand but also a continuous, dynamic process.

Figure 1.2.18: An expatriate family recently arrived to Doha to be part of its knowledge society and experience

References

Anholt, Simon. 2009. *Places: Identity, Image and Reputation.* London: Palgrave Macmillan.

Al-Maawd, Fahad. 2009. SouqWaqif. http://www.khaleejesque.com/articles/20091025_4. Accessed April 17, 2011.

Alraouf, Ali A. 2012. "A Tale of Two Souqs. In or Out of Place: The Paradox of Gulf Urban Diversity." *Open House International Journal* 37, no. 2, June 2012.

Alraouf, Ali A. 2012. "An Emerging Urbanity in Knowledge Economy Paradigm: The Case of Doha, Qatar." International Conference on Realigning Power Geometries in the Arab World. Leipzig University, Germany. February 24-26, 2012.

Alraouf, Ali A. 2011. "Assembling Identity for an Emerging Urbanity. Doha, Qatar, as a Creative City." The City: 2nd International Conference. "The City: Culture, Society, and Technology." Vancouver, British Columbia, Canada. May 4-6, 2011.

Alraouf, Ali A. 2010. "Constructing Future Utopia: A New Paradigm in Knowledge-Based Urban Development, The Case of Doha, Qatar." 12th Conference of the International Association for the Study of Traditional Environments (IASTE, UC-Berkeley) 2010. American University of Beirut, Lebanon. December 15-18, 2010.

Alraouf, Ali A. 2010. "Doha as a Model for Knowledge and Creative City in the Middle East." Qatar Foundation Annual Research Forum. Doha, Qatar. December 12-13.

Alraouf, Ali A. 2010. "From Knowledge to Creativity Economy, Qatar Urbanity Transformed." Third Knowledge Cities Summit (KCS) 2010. Melbourne, Australia. November 16-19.

Alraouf, Ali A. 2010. "Islam, Culture, and Community: The Role of Museums' Architecture and Urbanism, Museum of Islamic Art, Doha." *Journal of Islamic Architecture* 1, no. 2.

Alraouf, Ali A. 2008. "Emerging Middle Eastern Knowledge Cities: the Unfolding Story." In *Knowledge Based Urban Development: Planning and Application in the Information Era,* edited by Tan Yigitcaular and V. Koray. USA: IGI Global Publishing.

Al-Thani, Amna. 2011. "The Paradox of Development: A Comparison between Dubai and Doha." *Intellectual Magazine* of SFS-Q.

Atar, Maher and Mohamed Abdullah. 2006. *Souq Waqif.* Al Diwan Al Amiri, Doha.

Bonaiuto, Marino et al. 2011. *Urban Diversities: Environmental and Social Issues.* Cambridge: Hogrefe Publishing.

Davidson, Christopher M. 2008. *Dubai: The Vulnerability of Success.* N.Y.: Columbia University Press.

Dinnie, Keith. 2011. *City Branding: Theory and Cases.* UK: Palgrave Macmillan.

Florida, Richard. 2008. *Who's Your City?* New York: Basic Books.

Florida, Richard. 2002. *The Rise of Creative Class.* New York: Basic Books.

Gehi, Jan. 2010. *Cities for People.* Island Press.

Govers, Robert and Frank Go. 2009. *Place Branding: Glocal, Virtual and Physical Identities, Constructed, Imagined and Experienced.* Basingstoke, UK: Palgrave Macmillan.

Gulf Times. "Qatar's Population Tops 1.5 Million." January 29, 2008.

Harvey, David. 2009. *Social Justice and the City (Geographies of Justice and Social Transformation)*. University of Georgia Press, Revised edition.

Kaaki, Lisa. 2008. "The Stunning Renovation of Souq Waqif." *Arab News.*http://archive.arabnews.com. Accessed May 24, 2011.

King, Anthony D. 2004. S*paces of Global Cultures, Architecture, Urbanism, Identity.* London: Routledge.

Kotler, Philip. 1993. *Marketing Places.* Free Press.

Landry, Charles and Phil Wood (eds.). 2007. T*he Intercultural City: Planning for Diversity Advantage.* London: Earthscan Publications Ltd.

Landry, Charles. 2006. *The Art of City Making.* London: Earthscan Publications Ltd.

Moilanen, Teemu, and Seppo Rainisto. 2009. *How to Brand Nations, Cities and Destinations: A Planning Book for Place Branding.* UK: Palgrave Macmillan.

Mortada, Hisham. 2003. *Traditional Islamic Principles of Built Environment.* London: RoutledgeCurzon.

Planning Council. *Human Development Report for the State of Qatar.* The Planning Council-General Secretariat, 2007.

Richer, Renee. 2009. "Conservation in Qatar: Impacts of Increasing Industrialization." Center for International and Regional Studies (CIRS), Georgetown University, Qatar.

Soja, Edward. 2010. *Seeking Spatial Justice (Globalization and Community).* University of Minnesota Press.

The Middle East Architect. 2012. Volume 6, issue 05 (May): 2-3.

UNHabitat. 2009. "Cultural Diversity in Cities." http://www.unhabitat.org/content. Accessed March 24, 2011.

White, Andrew. 2010. "How Doha's Dollars Are Changing the World." *Arabian Business* 11, Issue 28.

Zukin, Sharon. 2009. *Naked City: The Death and Life of Authentic Urban Places.* Oxford: Oxford University Press.

1.3

Salalah Globalized: Developing, Fragmenting, and Marketing a 'Secondary City' at Spatio-Temporal Interfaces

Steffen Wippel

Introduction

This chapter intends to study the current urban developments of the South Omani agglomeration of Salalah.[1] It will also analyze one of the "secondary cities"[2] which have been neglected in favor of the interest shown in the development first of Dubai and then of other big cities on the Arab side of the Gulf for more than a decade. Far from being a "global city," Salalah can nevertheless be conceived as heavily "globalized" and integrated into specific global and regional flows. Referring, for example, to approaches in postmodern urbanization and simulation, this chapter seeks to understand how Salalah developed into an interfacial city, linking, amalgamating as well as confronting several kinds of spaces and several

1. The project "Tangier–Salalah: Globalising 'Regional Cities'" at the Zentrum Moderner Orient, Berlin, on which this publication is based, is supported with funds from the Federal Ministry for Education and Research (funding code 01UG0713). The author is responsible for the content of this publication. If there is no reference given in the following text, all information, interviews and observations are from field research. The chapter reflects the situation in 2013.
2. For the role of often neglected "secondary cities," see, e.g., Rondinelli, "Dynamics"; Aniah, "Role of Secondary Cities"; De Boeck, Cassiman and Van Wolputte, "Recentering the City."

time periods. After presenting the various economic and urban projects, it will focus on

- the globalization of Salalah and its emergence as an interregional transport hub;
- spatial fragmentation effects due to recent development projects;
- marketing and branding of the city and the recently established projects, particularly formulating and visualizing the different interfaces where Salalah becomes placed.

The conclusion will summarize Salalah's specific urban and economic development.

At the Interface of Progress: Establishing Economic and Urban Development Projects in and around Salalah

Salalah, the second largest city of Oman (c. 200,000 inhabitants),[3] is the center of its southernmost governorate Dhofar, a region naturally, ethnically, and historically quite distinct from the rest of the country.[4] The city occupies a small coastal plain, to which the monsoon *(khareef)* brings moderate temperatures in summer. A band of tropical orchards separates the coastal villages from the current inland city center. Throughout ancient times, Dhofar was one of the main producers of frankincense that was exported to the Mediterranean, Mesopotamia, and India. Often ruled from the outside, especially from Hadhramawt, the current Omani dynasty annexed the region in 1829, but its sovereignty was only recognized locally 50 years later.

The previous sultan kept Oman secluded from the outside world. Economic backwardness, social misery, and political oppression fuelled a civil war that ravaged Dhofar from 1965 to 1975.[5] In 1970, only the Salalah plain was still under the army's control. That year the current sultan overthrew his father and started a campaign of "winning hearts and minds," which combined military strength with a program for social development.[6] But the attention given to Salalah rapidly vanished, and

3. As a "city region" (cf. Scott, *Global City-Regions*) that transcends administrative limits, the agglomeration as it is understood in this paper comprises the biggest part of the *wilaya* of Salalah and large portions of the *wilayat* of Taqah and Mirbat.
4. For this introductory and historic part, see, e.g., Peterson, "Oman's Diverse Society"; Janzen and Scholz, "Weihrauchwirtschaft"; Janzen, *Nomaden Dhofars;* Morris, "Dhofar."
5. Cf. also, e.g., Al Hamdani, *Winning Hearts and Minds;* Valeri, *Sultanat d'Oman,* esp. 91-101.
6. For post-1970 development, see Wegmann, "Entwicklungsplanung"; Janzen, *Nomaden Dhofars;* Janzen and Scholz, "Weihrauchwirtschaft"; Scholz, "Sultanat Oman"; Barrault, *Regards Dhofar;* MoH, *Revision.*

no notable industrial development took place. Measures for economic progress concentrated on the populated areas in the North, whereas proposals to develop Salalah, especially to expand its port, have long been ignored.

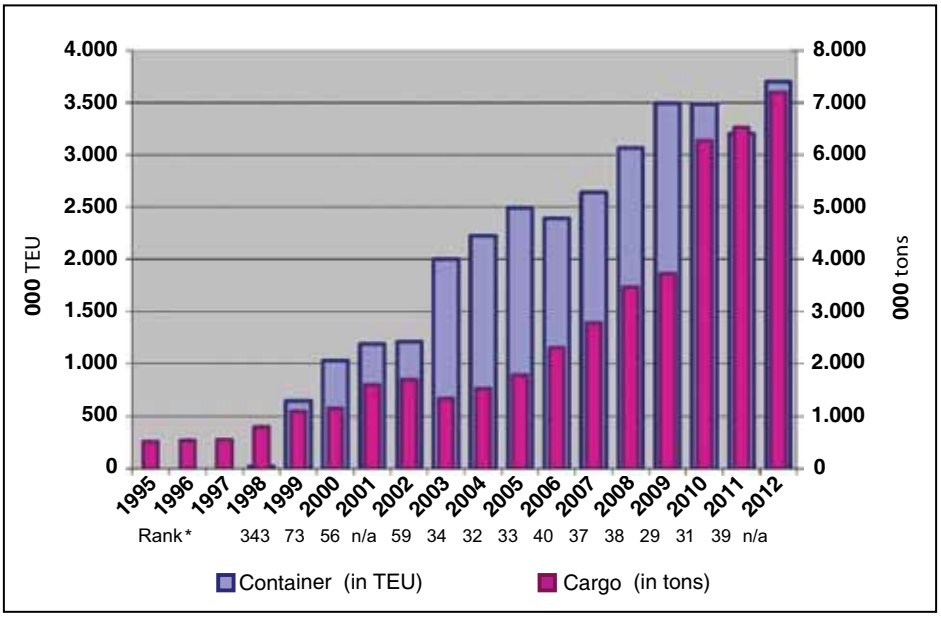
In the mid-1990s, two strategic economic decisions played an important role in the incipient development of Salalah. The Oman Vision 2020, adopted in 1995, and subsequent five-year plans made diversification away from oil, including opening up to a wider range of foreign markets, a central dimension of national development.[7] At the same time, new projects were to be set up in less developed parts of the country to achieve more balanced growth regionally. In Salalah, endeavors were made to develop its geo-economic situation as well as to exploit its climatic advantages.

One main aim, hence, was to establish Salalah as a major maritime trade hub as well as to encourage industrial development. Before the new development plans were initiated, the city only had a small "workshop area" established in the 1970s. The small harbor of Raysut, located about 15 kilometres east of the city, had been expanded to a capacity of 1 million tons per year. But the Raysut Industrial Estate,[8] established in 1992, only developed sluggishly. The current attention toward the region started with the establishment of the Salalah container port at Raysut, the country's first large development project under the new economic strategy. The port opened in 1998 with an initial capacity of 2 million TEU (April 1999).[9] It is among the few ports worldwide able to welcome the biggest container ships and, benefiting from Salalah's geographical location and good reputation for effective trade and political stability, quickly attracted a high turnover. In 2012, the container terminal handled 3.6 million TEU, and the volume of general cargo increased to 7.3 million tons (Fig. 1.3.1).[10] The port also helped the nearby industrial zone, but more important was the opening of the adjacent Salalah Free Zone (SFZ) in 2006.[11] In the following years, major industries were set up there, among them a polymer products (PET) manufacturing company, the Salalah Methanol Company, a foundry producing supplies for the automotive industry, a caustic soda processing plant, and a firm manufacturing military and luxury boats. In parallel, the port

7. Cf. MoNE, *Long-Term Development;* Pikulski, "Oman's Economic Development"; Lavergne, "Economie omanaise."
8. Cf. also http://portal.peie.om (last accessed April 15, 2013).
9. One "twenty-foot equivalent unit" corresponds to the traditional length of a container. For information on the port, cf. also http://www.salalahport.com (last accessed May 13, 2013).
10. Salalah Port, *Annual Report* 2012, 3.
11. Cf. also http://www.sfzco.om (last accessed May 2, 2013).

experienced continuous expansion. With the current construction of the second terminal, the container port's capacity will increase to approximately 9 million TEU annually. The general cargo port is also undergoing expansion of its handling capacity for dry bulk to 20 million tons and for liquid products to over 6 million tons, and a separate cruise terminal is under construction. The SFZ's second plot is being developed for light industry, warehouses, and other tertiary activities.

Figure 1.3.1: Throughput at the Port of Salalah



* Rank among container ports worldwide. Various national and international sources.

Since the second half of the 2000s, developing Salalah's tourism industry represents a second line of growth, including enhancing the transport infrastructure and establishing a range of further "urban projects." Already in the past, the region had been a favored retreat, especially during the mild summer monsoon when the rest of the Arabian Peninsula suffered from merciless heat. Two first-class hotels opened in the late 1970s and 1990s, respectively. Since the beginning of the 21st century, Oman's opening to international high-end tourism has been met by the establishment of "integrated tourism complexes" (ITCs),[12] comprising several luxury hotels, a considerable number of villas and apartments also serving more permanent residential purposes, marinas, and entertainment and leisure facilities. The first

12. Cf. Steiner, "Heritage" for Arab tourism development in general.

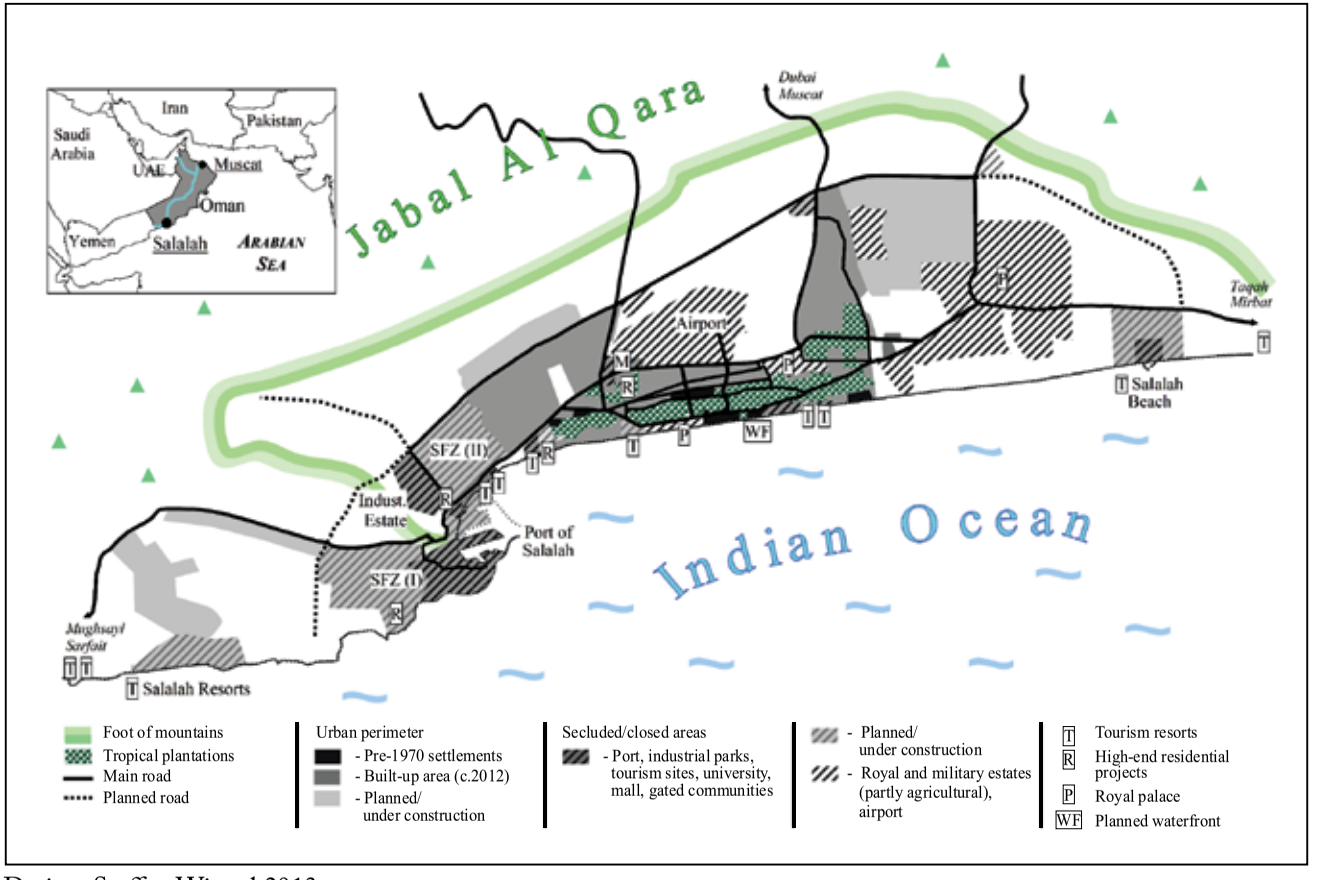
phases of two big ITCs to be set up on the central Dhofar coast near Salalah were finalized between 2010 and 2012.[13] Since 2010, other important tourism projects (including an International Medical City for health tourism) in the Salalah area have been announced, and construction has either begun or is to start soon.

Other building activities in Salalah for the last 40 years have concentrated on housing, social amenities, and administrative edifices. Now, in central areas of the city there are also several ongoing urban projects, mostly of mixed character: primarily they offer high-end housing, consumer and leisure facilities, but very often also serve tourism and business purposes. Thus, since 2011 a hypermarket, the first part of the city's first gated community,[14] and the first "real" shopping mall[15] with residences and entertainment facilities have opened. The SFZ and the Industrial Estate[16] are about to construct their own residential areas, and it is planned to convert the city's central coastline near the old palace into a tourism-orientated waterfront.

Parallel to that, Salalah's transport infrastructure is being upgraded and expanded. Whereas an inland highway has connected the city with the capital since the early 1980s and roads towards Yemen were added later, a coastal road to Muscat will soon be finished and the routes to Nizwa and Mirbat are being widened to dual carriageways. The construction of a railway line from the UAE border via Muscat to Duqm should start in the foreseeable future and should be extended – perhaps already in its first phase – to Salalah, with later links to Yemen. Direct road and rail connections to Saudi Arabia have also been proposed. The expansion of the airport, which opened to civil aviation in the 1970s, is expected to be completed in 2014: this will welcome larger aircrafts and increase its annual capacity to 1 million passengers, for now (2012: 630,000 users).[17]

13. Cf. http://www.salalahbeach.com; http://www.mirbatbeach.com (last accessed April 30, 2013).
14. Cf. http://www.zahratalkhareef.com (accessed September 12, 2012).
15. Cf. http://www.salalahworld.com (accessed September 12, 2012); http://www.salalahmall.com/Pages/ default.aspx (accessed May 1, 2013).
16. Cf. http://jenansalalah.com (accessed April 30, 2013).
17. Cf. http://www.omanairports.com (accessed April 28, 2013).

Figure 1.3.2: Map of Salalah



Design: Steffen Wippel 2013.

At the Interface of 21st Century's Economy and Several World Regions: Globalization and Regionalization of the Salalah Agglomeration

Urban research in the past two decades often focused on "global" and "world cities," which have central positions in the transnational urban network and constitute command centers of the global economy.[18] As nodes and hubs in the worldwide "space of flows,"[19] they acquired strategic and privileged positions. The development of global networks and worldwide hinterlands is one of the "restructurings," which also characterize the post-modern metropolises.[20] Port cities, in particular, are pronounced nodal points in the expanding system of global trade, which is essentially based on intensified maritime container transport.[21]

Soon, the debate on "global cities" moved beyond the major urban areas of the world, recognizing that many more cities have strategic positions in specific fields and on specific circuits, e.g., as main transport and production hubs or destinations for tourism and migration. Authors asserted that, in principle, today all cities have to be understood as "globalized" or "globalizing," being globally interconnected in social, economic, and cultural terms.[22] Whereas "acting global cities" actively participate in, command, and shape globalization processes, cities "exposed to globalization" (characterized, for example, by outsourced industries and important leisure industries) are affected by and contribute to these processes but do not significantly influence their course and are often placed at the world's excluded periphery.[23]

Yet, globalization does not mean that the world develops into a homogenous space and that each place is equally linked all over the world.[24] Rather, geographically more limited flows and institutions form regional networks and spaces that do not necessarily conform to conventionally imagined world regions[25] (such as the

18. Cf., for instance, Sassen, *Global City;* Taylor, *World City Network;* Beaverstock, Smith and Taylor, *World City Network;* Gerhard, "Global Cities."
19. Cf. Castells, *Rise.*
20. See Soja, "Postmodern Urbanization," who specifies six major "restructurings" or "geographies" of the contemporary city.
21. Cf. Ducruet, "Approche Comparée"; Notteboom and Rodrigue, "Port Regionalization"; Frémont, "Global Maritime Networks".
22. See, for example, Krätke, "Berlin"; Marcuse and van Kampen, *Globalizing Cities;* Robinson, "Global and World Cities".
23. Cf. especially Scholz, *Geographische Entwicklungsforschung,* 221-58.
24. Related to Oman, cf. Wippel, *Regionalizing Oman* and *Arab World.*
25. Cf. Lewis and Wigen, *Myth of Continents.*

"Middle East"), but often are rather of rhizome- or archipelago-like,[26] transnational or translocal character.[27] A specific place can develop its particular geographical context or be situated at the interface of several regions.

A broad range of literature shows that since the 1990s in the Gulf region, Dubai in particular has continuously been elevated to the primary status of a well-connected world city.[28] Dubai and other places in the wider region try to participate in the soaring container trade business.[29] Salalah, however, rather obviously is not a "global city" and does not appear on any of the various world city rankings. With its integration into the international oil trade, Oman's economic development was already heavily dependent on the fluctuations of the global market since the late 1960s. Muscat was, by far, the most important interface between Oman and the outside world. Yet, many of the projects that have been recently established (or are under construction and in the planning stage) under the current Oman 2020 strategy situate Salalah simultaneously at the cusp of the globalized economy at the beginning of the 21st century, as the gateway between the local and the global as well as at the intersection of a number of regional networks. The container port, the free zone, and the tourism complexes integrate Salalah into several global flows.

Starting before the Common Era until the 19th century, the central Dhofar coast was already well linked to trading flows that extended across the then known world, based on exports of frankincense. This was followed by a decades-long seclusion from the world. From the 1970s, the Raysut port mainly served the needs of the local economy with imports far exceeding exports. In contrast, the container port has been built as a part of a national strategy to emerge as a "major logistics gateway."[30] It is positioned close to the world's main maritime trade route and spares many container vessels a several-day detour through the Strait of Hormuz. With fast growth experienced over the first ten years, the terminal has acquired a central position as a transhipment hub in global maritime transport and trade and is ranked between 30 and 40 among container ports worldwide

26. Cf. Veltz, *Mondialisation.*

27. Cf. Bromber, "Translocality."

28. This is exemplified by the comprehensive, multi-annual analyses by the 'Globalization and World City' research group based at Loughborough University, http://www.lboro.ac.uk/gawc accessed April 17, 2013.

29. Cf. http://en.wikipedia.org/wiki/List_of_world's_busiest_container_ports, compiled from different sources (accessed April 21, 2013).

30. According to the Omani Minister of Transport and Communications, quoted by Kola, "Oman."

(Fig. 1.3.1).[31] About 30 services link Salalah weekly to ports in East Asia across the Indian Ocean, the Mediterranean, and Western Europe (and further on the US East Coast); feeder lines mainly serve the Gulf, South Asia, and Eastern and Southern Africa. Salalah is now directly linked to other major world hubs, including key world cities, in particular in Asia, where ports and cities are still closely connected and both have top world rank positions.[32] In the Western Indian Ocean – and also inside Oman[33] – Salalah has to withstand fierce competition due to numerous port construction and expansion projects: yet, in recent years, Salalah has succeeded in ranking mostly fifth in this region. At the general cargo terminal, export activities clearly dominate at this time.[34]

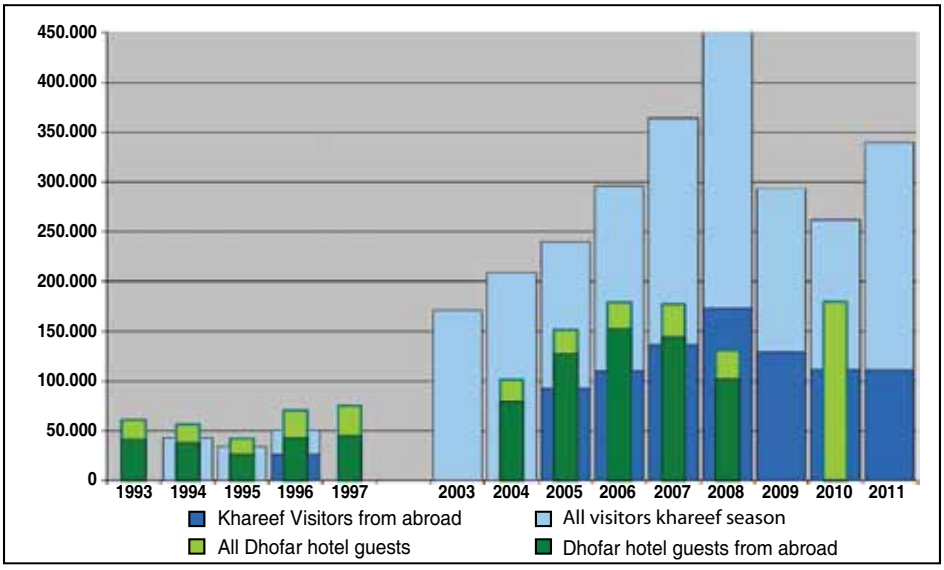
In contrast to maritime transport, domestic traffic still dominates at the local airport by far. While in the last decade the number of passengers has more than tripled, the share of international passengers that had grown to one third in 2009 shrank to roughly 15 percent in the two following years.[35] International operations only started in 2003, and today include a few regular weekly flights to India and the UAE, in addition to seasonal connections to other Gulf States in summer and charter tourism from Sweden in winter.[36] International cargo, too, is still insignificant. Salalah airport still gets far less volumes of cargo compared to Dubai and other major airports on the Peninsula.[37] However, the current airport expansion mainly aims to attract international carriers and intermodal sea-air transport, both mainly from Europe.

Airport expansion is closely linked to the fostering of international tourism, another sector strengthening Salalah's globalization. Besides important national tourism, Salalah increasingly attracts international visitors. The number of hotel guest arrivals to Dhofar has considerably increased from 56,000 in 1997[38] to about

31. Cf. http://en.wikipedia.org/wiki/List_of_world's_busiest_container_ports (accessed April 21, 2013).
32. Cf. Ducruet, "Approche comparée"; Lee, Song and Ducruet, "Tale of Asia's World Ports." See also previous references for city and port rankings.
33. First phases of large industrial and container ports opened at Sohar in 2004 and Duqm in 2012.
34. Cf. MoNE, *Statistical Yearbook 2012,* table 12-1.
35. Cf. MoNE, *Statistical Yearbook 2012,* table 12-4.
36. In 2013, connections to the UAE will be added and others to Qatar and Saudi Arabia introduced; a German tour operator will offer charter flights via Izmir. Flights to Yemen were abandoned in 2012.
37. Cf. http://en.wikipedia.org/wiki/World's_busiest_airports_by_passenger_traffic, according to Airports Council International (accessed April 24, 2013).
38. Barrault, *Regards,* 62.

180,000 in 2010, making the region the second most popular destination inside Oman (Fig. 1.3.3).[39] The separately documented figures for *khareef* tourism saw a rapid increase from 160,000 (2003) to 450,000 (2008) and now stand at 350,000 (2012).[40] This is a rather respectable figure compared to the number of tourists at other Gulf destinations.[41] Among hotel guests, the share of Europeans increased from 14 percent to about one half, to the detriment of the GCC (and national) citizens, and is now much higher than for the whole of Oman. In contrast, nearly two thirds of the visitors during the monsoon season are Omanis, with the rest being predominantly GCC citizens, mostly from the UAE. The new ITCs predominantly lure international investors and residents, mainly from the Gulf States, for their apartments and villas; properties in the recently opened gated community are exclusively for sale to GCC citizens. Projected residential zones in the SFZ and close to the Industrial Estate are intended for the accommodation of the international workforce. The envisaged Medical City also addresses an international clientele.

Figure 1.3.3: Tourism in Dhofar



Source: Ministry of Tourism.

39. Cf. MoT, *Data;* http://www.omantourism.gov.om (accessed May 14, 2013). The last available figures for regional breakdown are from 2010.
40. In addition, see MoNE and MoT, *Salalah Khareef Visitors,* several issues. The figures include all arrivals, not only to hotels, where only 15 percent (2010) of the visitors stay.
41. Cf. http://data.worldbank.org/indicator/ST.INT.ARVL; http://blog.euromonitor.com/2012/01/euromonitor-internationals-top-city-destinations-ranking1-.html (both accessed April 21, 2013).

The Free Zone, closely clustered with the port, is primarily destined for multinational firms producing for global markets and supposed to benefit from the diverse (free) trade agreements in which Oman participates.[42] Both the Free Zone and the ITCs offer privileges to foreign investors in terms of ownership, taxes, workforce, and residency. Established companies export to a wide range of countries, with major markets being in Eastern Asia and Western countries, particularly the US, India and the Gulf; among them, we find the biggest supplier of different PET products worldwide and in the Middle East. Even more, the port also seems to have boosted the nearby industrial zone. There, a number of manufacturers mainly serve regional markets in the Gulf, Middle East, Asia and Africa.

Finally, both the road network that is now being extended and the planned railway scheme will be integrated into regional and transregional infrastructures on the Arabian Peninsula and within the Middle East[43] with further transport corridors envisaged to adjacent regions, such as Central Asia and North East Africa. They will also connect the port to its regional hinterland developing multimodal sea-land transport, mainly to Arab countries.

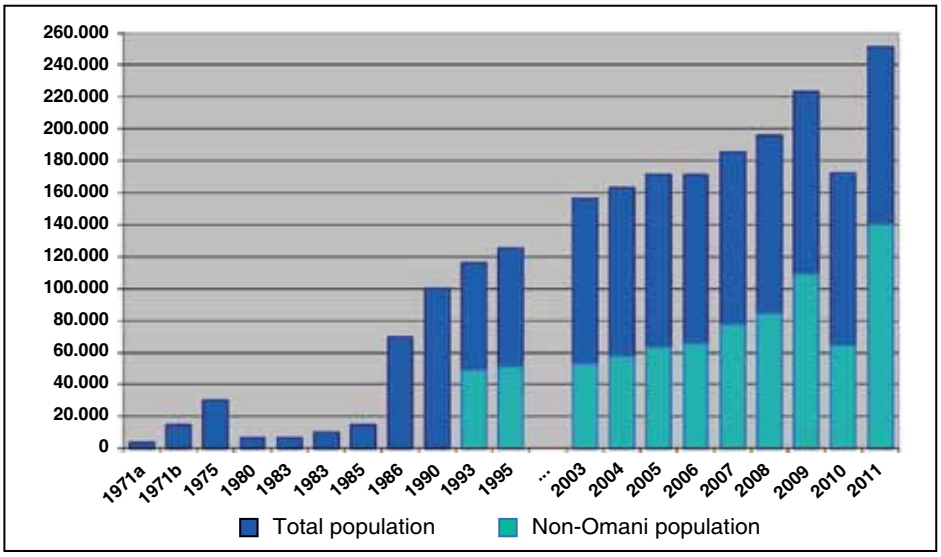
Besides trade, transport, and tourism, Salalah is also integrated into international migration flows. The globally oriented projects provide a considerable number of job opportunities. Thus, the container port is said to be one of the biggest employers in the whole governorate, whereas the Free Zone was expected to create 8,000 direct and up to 30,000 indirect jobs in its final stage. At the same time, these projects attract a predominantly expatriate workforce, mostly from South Asia but also from other Asian, Arab and Western countries (as well as a relevant, yet non-quantifiable number of Omanis from northern parts of the country). Especially since 2004, the share of foreigners in the Dhofar population has soared from 36 percent to 56 percent in 2011 (Fig. 1.3.4).[44] This percentage lies well above the national average, which is still lower than in most other Gulf States.

42. See Wippel, *Arab World.*

43. Cf. http://www.escwa.un.org/translinkages (accessed June 8, 2011).

44. MoNE, *Statistical Yearbook,* several issues. The most recent percentage revises the "political figures" of the 2010 census (38 percent for Dhofar).

Figure 1.3.4: Development of the Salalah population



Sources: Various national and international sources.

Note: Erratic time series are due to inconsistencies in publications.

Another aspect of the increasing globalization of Salalah is the significant involvement of global and regional players. The port's growth into a global transhipment hub is also based on geo-economic strategies of maritime operators. All major container shipping companies call at the port. But initially the Maersk Line, the biggest container shipper worldwide, had a quasi-monopolistic position and today is still the most important operator. Its subsidiary, APM Terminals, is the largest shareholder in the port company. In the early 2000s, Salalah became the fifth most important port in Maersk's global lines-and-hubs network.[45] Foreign investors also run businesses in the free zone and owners of the leading companies there are mostly Anglo-American, Indian, or those based in the Gulf States. Even units in the industrial zone have now started to globalize themselves with branches and joint ventures abroad. ITCs and other real estate projects are mostly developed by subsidiaries and joint ventures linked to companies from Egypt or the Gulf countries, generally with established experience in such projects.[46] The existing four- and five-star hotels and those under construction are or will be managed by leading multinational chains. Yet, many of the companies with production or construction

45. Cf. Frémont 2007; Lavergne, "L'économie omanaise," 141.

46. See, for example, http://www.orascomdh.com (accessed April 12, 2011).

sites in Salalah, particularly many present international ones, established their offices in Muscat or have their headquarters elsewhere in the Arab and Western world or India.

Besides opportunities, the globalization of Salalah also involves serious dependencies and perils. The strong exposure to international economic cycles and political events shows the risks of its extroverted development. During the recent financial crisis, Oman was much less affected than its more globalized Gulf neighbors, in particular Dubai.[47] While the economic downturn rapidly affected container traffic worldwide, the Salalah terminal was among the few ports whose container throughput still grew considerably in 2009, before it dropped to 3.2 million TEU in 2011.[48] Consequent on the drop, plans for the expansion of the container terminal's capacity as well as for the SFZ were cut down to follow future needs more closely. In the course of the recent crisis, Jebel Ali Free Zone Authority of Dubai also abandoned its earlier interest in managing the SFZ.

Tourism is a rather volatile business and sensitive to changing economic and political conditions. Whereas the 9/11 effects on tourism had been limited for Oman,[49] figures after 2008/09 did show an intermittent drop. Due to the economic crisis, but also to the H1N1 pandemic, khareef tourism fell by more than 40 percent from its 2008 maximum to about 260,000 in 2010.[50] One of the newly opened hotels, for instance, saw an occupation rate of only 15 percent in 2010/11. For several of the larger projects in the tourism and real estate sectors in Dhofar, there has been some unintended delay in project execution, and time schedules for new phases have been adapted to stagnating demand. While development schemes in Oman were less affected by international speculation than those in the neighboring countries, now an even stronger reorientation towards local purchases has taken place. Spillover effects from the 2011 uprisings in the Arab world, however, were said to have been rather beneficial at first, as Western tourists redirected to Oman, but a negative effect occurred in the following winter season. Temporarily, the troubles also had negative repercussions for one of the ITCs, as the Egyptian joint venture partner experienced some financial problems at home.

47. For Dubai, cf. Woertz, *Implications.*
48. In parallel, Salalah's position among world container ports plunged from 29, its highest place in 2009, to place 41 in 2011; on the regional scale, it dropped to rank 6. For sources, cf. above.
49. For "neighbourhood effects" cf. Steiner, *Tourismuskrisen;* for post-9/11 trends Al-Hamarneh and Steiner, "Islamic Tourism."
50. Sources cf. above. Tourism to Salalah also slowed down because Ramadan has coincided with the summer season since 2009.

At the Interface of 'Other' Places: The Spatial Fragmentation of the Salalah Agglomeration

As a consequence of their high integration into the global economy, cities undergo far-reaching changes in their physical landscape and their socio-economic structure. Recent literature on "globalized" and "post-modern" cities frequently addresses their spatial fragmentation. Global cities can be more connected to other world centers than with their immediate surroundings. Mainly though, this only concerns "globally integrated urban fragments,"[51] which are well incorporated into translocal flows and structures. Juxtaposed to high-quality office, residential and leisure complexes of these operational centers, we find low-standard housing and industrial areas as the urban dimension of the disconnected and excluded new global peripheries.[52] The spatial reflection of widening socio-economic disparities and ethnic or cultural heterogenization becomes most pronounced when contrasting highly insecure "no go-areas" with amply securitized "no-entrance zones." The emergence of the "fractal city"[53] includes the establishment of new industrial estates and technopolises outside the inner city and the development of "exopolises," eccentric and discontinuous urban configurations.[54]

The pushed privatization of space and controlled property sealed off physically are characteristic of the emergence of the "fortified city" and enclave-like areas of "territorial exclusion."[55] Well-to-do quarters thus become secluded "citadels" and promising "paradises" at the same time. Simultaneously, such ports, free zones, and tourism complexes, mostly established for single purposes, represent socially and geographically remarkably low-integrated "non-places" of transit and high mobility.[56] From another perspective, "hetero-topias" constitute social counter-placements of deviation, illusion, or compensation, apart from daily life.[57] Typical examples, such as holiday villages, display a "potential of promise,"[58] but do not effectively

51. Scholz, *Geographische Entwicklungsforschung,* 225 Similarly Taylor, *World City Network;* and other authors on global cities (cf. above).
52. Cf. Scholz, *Geographische Entwicklungsforschung,* 221-58.
53. Soja, "Postmodern Urbanization."
54. See Soja, "Postmodern Urbanization" here in particular.
55. See, e.g., Soja "Postmodern Urbanization," 133 ff.; Weizman, "Extraterritoriality."
56. Cf. Augé, *Non-Lieux.*
57. Cf. Foucault, "Espaces autres."
58. Cf. for Gulf cities Sommerlad, "Promise and Reality."

escape the system of economic efficiency and capitalistic exploitation.[59] In fact, they offer individual temporary relief from the hardships of society and contain deviant behavior. This also means that entering such places is strictly regulated and controlled.

An increasing functional and spatial separation can also be observed in the evolution of contemporary port cities, as technological changes and logistic requirements provoked a continuous shift of terminals to ever more peripheral sites.[60] At the same time, waterfront development in former port areas initiated processes of social exclusion and gentrification.[61] Yet, this experience is primarily a Western one. In contrast, particularly in eastern parts of Asia, ports and cities still develop more concertedly, leading to the emergence of hub-port cities that have a central position both in the global transport system and urban network.[62]

Dubai is very often presented as a prime example of the previously described urban fragmentation of post-modern and global cities.[63] As a recently "globalized" (or still "globalizing") city, Salalah also shows many of its characteristics such as fragmentation, segmentation, and securitization (cf. also Fig. 1.3.2). Salalah has already experienced a fencing of the entire city during the civil war to discourage rebels from entering.[64] After 1970, the city expanded first inside this enclosure, which was soon displaced; its dismantling finally resulted in an intense urban sprawl to the inland of the plain. Early housing schemes in the 1970s reproduced houses surrounded by high walls, as do private villas even today. Vast fenced and walled royal and military estates (including the airport) are spread across the agglomeration. And the Raysut cargo port had already been established far outside the then existing urban perimeter.

Yet, the big projects erected since the late 1990s introduced a new quality of extensive fragmentation. Despite the existence of an urban "structure plan,"[65] projects are established discretely, based on individual master plans. Located at quite a distance from the existing city, they laid the foundation of an enormous expansion of the agglomeration, with port and industrial installations situated to the west and

59. Cf. Chlada, "Räume sind Träume."

60. See, for instance, Ducruet, "Approche comparée."

61. Also see, for example, Hoyle, "Global and Local Change."

62. Cf. also Lee, Song and Ducruet, "Asia's World Ports."

63. See, among many others, Elsheshtawy, "Redrawing Boundaries"; Schmid, *Economy of Fascination.*

64. For the early development, cf. in particular Wegmann, "Entwicklungsplanung."

65. Cf. MoH, *Revision.*

initial tourism schemes to the east.[66] With the newest projects, most of them still in the planning stage, we can also observe project sites popping up in the city's more central areas. Thus the spatial urban patterns reflect the city's development at several temporal interfaces, reaching from the pre-1970s settlements to the post-2010 projects. At the same time, the agglomeration is now developing at the interface of land and sea, as the new projects redirect Salalah's urban development towards the ocean. Access to these schemes is mainly under strict control or (potentially) made difficult.

The separation of the city and the port became even more evident with the construction of the container terminal. Yet, the simultaneous expansion of residential and industrial areas will increasingly fill the gap in the future. The port constitutes a typical example of a locally largely disembedded "non-place," dominated by transiting flows. Situated at the interface between the national and the global, it represents an urban fragment which is much more integrated into global circuits than with its direct terrestrial hinterland: 96 to 99 percent of transiting containers do not pass the landside limits of the port area, but are exchanged among ships. Therefore, the terminal displays the highest transhipment rate worldwide (Fig. 1.3.5).[67] The exterritorialized free zone, too, is mainly working on an import-export basis, which – with few exemptions – does not allow too many forward and backward linkages. Whereas for the industrial zone a symbolic entrance seemed sufficient, for security reasons and their specific exterritorial regulatory statuses, the container port and its adjacent free zone include large fenced areas that need preliminary authorisation to access.[68]

66. Recent proposals for tourism sites also include the steep coastal areas west of Raysut.

67. Cf. Heymann, *Container Shipping*.

68. The SFZ master plan explicitly shows existing and proposed fencing surrounding the entire area, cf. http://new.sfzco.com/App_Themes/Images/Figures/fig20.jpg (accessed April 15, 2013).

Figure 1.3.5: Transhipment rates

Container Port	2004	c. 2009
Salalah	99.5%	98%
Marsaxlokk	n/a	96%
Tanjung Pelepas	96%	95%
Algeciras	85%	95%
Gioia Tauro	80%	95%
Port Said	n/a	90%
Khor Fakkan	n/a	90%
Dubai Ports	50%	45%

Sources: Heymann, *Container Shipping*, 4 and *Container Shipping*, 10.

Note: Figures show transhipment rates (defined as transhipment volume/total throughput) bigger than 90%, plus Dubai.

Similarly, ITCs and the like display a well-defined rupture between in and out and are totally private with respect to ownership, control, and regulation. Entering them means passing a number of physical or mental (not to mention economic) barriers. Guards, if not gates and fences, limit access to the ITCs as well as to the new gated community. For those enjoying access, this secures a neat and clean surrounding, absconding unwanted social encounters. On the other hand, the new schemes at the waterfront increasingly hinder access to previously public beaches for the local population and to open grazing grounds for transhumant herders. Inside one of the ITCs, high-walled individual plots offer the opportunity to live one's own life in exclusivity and secludedness (Fig. 1.3.6). As the sales brochure says:

> ENTER YOUR SPACE
>
> … Abandon yourself … in your own world, surrounded by like-minded people. … Muriya … offer[s] a lifetime chance to create your own enchanting world. … Create your own paradise … . … pure privacy is guaranteed at homes surrounded by high walls separating each land.
> SPACE TO ENJOY … YOUR TASTE, YOUR STYLE IN YOUR OWN LITTLE CORNER OF PARADISE.

> … The privileged community will have wide access roads, a high wall around each plot with a gate …, and main entrance security that raise the bar on the package of amenities.[69]

Figure 1.3.6: 'Al Jannat' mansions at the 'Salalah Beach' ITC

Photo: Steffen Wippel 2010.

Economically and socially, ITCs are designated to keep inbound tourists – except for a few landside excursions – and more permanent residents inside their perimeter for a wide range of consumer and leisure activities. With its comprehensive commercial and social infrastructure, and sometimes even equipped with hospitals and schools, such "a self-contained enclave"[70] even simulates a complete township. Opposed to "normal life," these "other places" are intended to compensate for its hardships with paradise-like locations designed for leisure and holidays. Yet, they appeared in the course of liberalization and privatization and have been established primarily to make individual profit and to foster economic development. This firm economic root is demonstrated by the very recent project of residences exclusively destined for the workforce of the Industrial Estate. Its brochure points to the highest safety and security standards and advertises the slogan 'Quality. Productivity. Lifestyle.':

> Jenan is a unique residential mini-township being developed exclusively for workforces, managers and executives…

69. Muriya Presentation Centre, *Private Retreats.*
70. Jenan Residency, *Quality.*

> The idea is to provide an efficient setting for large working communities – leading to their improved retention and productivity.
>
> … the enclave is the place where hardworking Executives, Managers or Personnel arrive at the end of the day to refresh their minds, restore their spirit, and revive their energy for the next working day.
>
> Every amenity provided and service delivered is backed by this realisation that it is critically and intrinsically linked to the productivity of the residents.[71]

The ITCs also meet the anxieties of Omani authorities, who were reluctant to open the country to tourism due to possible tensions between local and Western values and behavior.[72] They minimize unwanted influences by sequestering tourists away from Omani society. Thus, Western sojourners can continue their accustomed way of life, whereas such segregated complexes also offer an escape for Omanis, allowing for more liberal behavior in a similar-minded community. Perceived dangers, especially in times of "global terror," are another excuse for control and security devices to protect symbols of global capitalism and Western decadence: even if Oman has been rather safe, it is still concerned about piracy assaults on ships and terrorist attacks on tourist resorts in the Western Indian Ocean region that have occurred in the last few years.

The spatial fragmentation and seclusion in the Salalah agglomeration goes hand in hand with an increasing social heterogenization. The region was once characterized by a mixture of different South Arabian tribes and linguistic groups, by transhumant herders, local fishermen and farmers, and by a royal household, comprising people from Northern Oman and (former) slaves of African origin.[73] The first local development measures in the 1970s attracted quite a number of foreign laborers to Salalah, mainly of South Asian origin.[74] Their number leapfrogged to a new dimension in the course of the city's current globalization (cf. above). Even if there are concentrations of migrants in certain quarters of the city, to all appearances there does not seem to be a thorough ethnic segregation, but rather a socio-professional differentiation as it has been observed in the capital

71. All quotes from Jenan Residency, *Quality*.

72. See, e.g., Mershen, "Development."

73. For the multiethnic population cf. Peterson, "Oman's Diverse Society"; Janzen and Scholz, "Weihrauchwirtschaft"; Scholz, "Sultanat Oman".

74. In 1993, 85 percent of migrants in Dhofar were from the Indian subcontinent. The 1993 census was the last one, which published disaggregate data on nationalities for regions. Cf. Ministry of Development, *General Census*.

area.[75] Also, at least visibly, socio-economic disparities reflected in the quality of real estate do not seem too pronounced thanks to the country's oil revenues. Salalah does not display large zones of informal settlements, degraded housing or no-go areas, as we find in cities on the global forefront. The old pre-1970 quarters, lying in the middle of the city, are a deplorable exception: up to now the Omani authorities have shown little enthusiasm in restoring the buildings in decay, which represent a precious South Arabian architectural heritage.[76] Finally, the transformation and upgrading of the central coastal strip into a gentrified tourism- and leisure-destined waterfront will considerably affect the population living there.

The increased presence of foreigners in the city did not provoke evident, open conflicts. Yet, protests during the "Omani Spring" showed great discontent among the local population regarding socio-economic conditions and perspectives. The 2011 demonstrations in Salalah were among the largest in the country.[77] Beyond the general demands, they also seem to have been kindled by excitement over some shadowy award practices in favor of ITCs. Also, the intranational North-South divide may have played a role in the protests: Dhofaris still have a vivid memory of the civil war, express a great socio-cultural distance with the (Northern) "Omanis" and feel that the region has long been neglected by the central authorities.[78] Another factor might have been that some parts of the Omani population tend to impute underemployment and rising prices to the presence particularly of the Indian community.

At the Interface of Realities and Hyperrealities: Marketing, Simulation, and the Politics of Attention in Salalah

The diverse functional, regional, and temporal interfaces at which Salalah is placed are reflected in the marketing and branding of the city and its projects. In the liberalized and opened world economy, while becoming increasingly similar, places are more and more exposed to exacerbated competition. In order to attract investors, businessmen, and tourists, they strive to differentiate themselves from their competitors and to gain economic and political attention. Marketing and branding are strategic endeavors to communicate a positive image of places and to position

75. Cf. Deffner and Pfaffenbach, "Integration auf Zeit."

76. See already Wegmann, "Hoffnung."

77. For "Omani Spring" see Valeri, *Qaboos State;* Al Hashimi, *Omani Spring;* Worrall, "Forgotten Corner." The largest demonstrations at Salalah attracted at least 10,000 participants.

78. For this antagonism, cf. for example Valeri, *Sultanat d'Oman,* 433-35, 466.

them on the economic world map.[79] Whereas marketing tries to sell an individual product by directly addressing potential customers, branding is understood as a more comprehensive approach of generating favorable perceptions in a broad, heterogeneous public by making use of historical, geographical and socio-cultural motifs.[80] In the past, for instance, port cities typically used their liberal self-image as places of modernity, openness, and cosmopolitanism to promote themselves.[81] Yet, a public image does not result only from competent agencies' deliberate efforts, but also the interplay of a lot of actors, events, and icons – such as individual project branding, which contributes to the general idea of a city.

To achieve global visibility, simulation plays an essential role. Historically, imitation and reproduction created something that is even "more real" than its archetype, but still referred to a kind of spatial, historical, or social "reality."[82] Nowadays, more elaborate types of simulation increasingly lack any such reference, but create their own "hyperreal" worlds – including maps preceding and even generating territories and virtual simulation foregoing and replacing material architecture.[83] Among the restructurings of post-modern cities we thus find the emergence of virtual "SimCities" and the creation of "fantasy worlds."[84] Simulation increasingly penetrates daily life and captures building complexes and even entire cities. They are conceived more and more according to mottos and themes. The hyperreal character of many tourist schemes nowadays ideally fits marketing requirements.[85] Mostly anonymous, transitory and easily confusable, (non-)places have a special need for the creation of (fictitious) geographical and historical references in their surroundings to achieve better recognizability, helped by iconic architecture and landscapes.[86]

79. In the following, see, among others, Young and Lever, "Place Promotion"; Doel and Hubbard, "World Cities"; Govers and Go, "Place Branding"; Pike, *Brands.*
80. As in practice the two strategies are often difficult to differentiate, the terms will be used rather interchangeably in the following.
81. See, e.g., Kokot, "Port Cities."
82. Cf. Eco, *Faith in Fakes,* 3-58; Baudrillard, *Simulacres* and *Echange symbolique;* Blask, *Jean Baudrillard;* Horacek, "Hyperrealität."
83. For the simulation of architecture, see also Sommerlad, "Promise and Reality."
84. Cf. Soja, "Postmodern Urbanization," 135.
85. For marketing in postmodern times and the role of the hyperreal cf. Fırat, Dholakia and Venkatesh, "Marketing"; with particular reference to the Arab world, Steiner, "Heritage," 246.
86. Especially for "non-places" cf. Augé, *Non-Lieux,* e.g., 138.

This is particularly true for the Gulf region, where transport, economic, and leisure facilities compete with each other regionally, but also with similar destinations worldwide. For example, Dubai acquired a central position in the global "attention economy,"[87] mainly based on the assemblage of well-branded buildings and projects. Mottoed schemes, spectacular constructions, and manmade islands – with widely apprehended shapes – play an important role.[88] Yet, Dubai only recently endeavored to create a more coherent marketing strategy.[89] Other small states bordering the Gulf developed branding strategies based on their "business friendly" environment (Bahrain) and foreign policy (Qatar) or made reference to alleged historic and maritime traditions (Abu Dhabi).[90]

For a couple of years, Oman has made thorough efforts to market and brand the country as a tourist destination, a trade hub, and a production place – mirrored in its relatively good ranking in national brand indices.[91] Focusing on the varied landscape and historical legacy, the strategy aims to establish a multi-faceted, yet sometimes eclectic image. On the local level, Salalah evidently did not develop a customized strategy. Marketing is done in the framework of comprehensively branding Oman or selling it as a tourist destination; the most pertinent local development projects also contribute considerably to the image of the city. These often similar and overlapping endeavors typically imagine Salalah as being situated at regional and cultural intersections and place it at temporal and life-world interfaces.

When marketing Oman, its institutions regularly refer to the country's glorious past as a seafaring nation and a maritime empire, which explains its openness to modern times and the outside world. The Sultanate's centuries-old connections, notably within a region stretching from East Africa to South Asia and as far as China, are exemplified by the country's presumable son, Sinbad the Sailor, and the country's cosmopolitanism, as illustrated by the established Zanzibar-Omani

87. Cf. Schmid, *Economy of Fascination.*

88. Cf. e.g. Katodrytis, "Dubai."

89. See Govers and Go, "Place Branding," 74.

90. Cf. respectively Moock, *Deutsche Unternehmen;* Peterson, "Qatar"; Westwood, "Branding"; Hazime, "City Branding."

91. Cf. FutureBrand, 2010 *Country Brand Index;* http://countrybrandingwiki.org/index.php/Rankings_-_Country_by_Country; http://www.eastwestcoms.com/global.htm (both accessed September 28, 2012). The positive image promulgated by Omani authorities was quickly – and mostly uncritically – reproduced by many documentaries and articles abroad.

and Indian communities.[92] To demonstrate Oman's maritime history, traditional boats are displayed everywhere in the country. In 2009, the public-private 'Brand Oman' campaign was launched to promote the country internationally.[93] The colors of its logo – a calligraphy of the nation's name – are said to represent the dhow, the marine environment, the mountains and frankincense, the last one explicitly referring to Salalah's fertility and "the core of [Oman's] culture and economy for generations."[94] Tourism marketing, by far the most advanced in selling Oman, also points to the country's maritime past and its position at intercontinental crossroads as reflected in cultural, linguistic, architectonic and culinary diversity and blending.[95] The Ministry of Tourism currently merchandises Oman with the slogan "Beauty has an address", at the same time contrasting tradition and modernity in words and pictures. Its campaign also attempts to demarcate the Sultanate from the lavish lifestyle and glittering atmosphere in Dubai; Oman, on the other hand, depends greatly on the regional tourism market as it is often included in tour packages and lures the local and expatriate community in other Gulf States.[96]

The reference to interfaces between present and past and to specific regional contexts is reflected in branding the port and the SFZ as well as in marketing firms in the industrial zone. Hence, the operator of the Salalah container port states:

> Situated right at the major East-West shipping lanes, Salalah enjoys an attractive strategic location in the heart of the Indian Ocean Rim … . … Set against the tranquil backdrop of passing time the vessels that brought about prosperity and growth is [sic!] but an instance in Omani seafaring tradition that goes back to over 4000 years. … Salalah not only provides convenient access to the Middle East but is also a suitable channel for the Sub-continent, Red Sea, Upper Gulf and the East African markets with over 1.6 billion consumers.[97]

The same is true for the free zone, which repeats similar statements. The ultra-modern gantry cranes and big container vessels regularly displayed have an iconic value, symbolizing Oman's bustling economy and its openness to the outside world

92. Cf. Wippel, "Oman and the Indian Ocean Rim."
93. Cf. Alzadjali, *Nation Brand.*
94. http://www.brandoman.om (accessed September 26, 2012).
95. Cf. Ministry of Tourism, *Oman.*
96. For the ambivalent position towards other Gulf emirates, cf. for example, Valeri, *Sultanat d'Oman,* 348-57.
97. http://www.salalahport.com (accessed March 7, 2007).

– especially as the country had remained secluded for decades. The monument at the roundabout leading to the port and industrial areas makes prominent reference to sailing and the sea, too (Fig. 1.3.7).

Figure 1.3.7: Monument at the New Industrial Estate roundabout, Salalah

Photo: Steffen Wippel 2009.

Tourism-wise, marketing Salalah and Dhofar emphasizes frankincense (as a meeting point with history), the landscape (at the intersection of sea, mountains and desert) and notably the extraordinary greenness in summer (at the interface of desert to tropical climate):

> Dhofar Governorate is famous for its seasonal weather, locally known as monsoon or "Khareef", when it witnesses its best period, clothed in lush greenery and its hills surrounded by white fog. …. Dhofar includes a distinctive natural diversity where the coast blends with the mountains and the desert in wonderful harmony … . One can imagine the magnificence of this province when most parts of the Arabian Peninsula witness a rise in temperatures of up to 45 degrees Celsius in summer.[98]

98. http://www.omantourism.gov.om (accessed May 1, 2013), on Dhofar Governorate.

The fertile "oasis", "paradise" or "garden"[99] that the city of Salalah is vaunted to be, with reference to its tropical orchards, make it a heteropic place defined as "effectively enacted utopias."[100] A major event is the yearly Khareef Festival. For as long as it lasts, the municipal festival ground includes a themed heritage village, which showcases traditional occupations, and an exhibition of historical manuscripts and archaeological items; the concurrently running 'Global Village' at a nearby tourist resort also includes a handicrafts section, besides entertainment and shopping facilities. The Marine Hall, one of the two departments at the recently opened Land of Frankincense Museum, prominently documents the rich maritime history with life-size models of dhows, while two archaeological parks exemplify the region's historic role in maritime (frankincense) trade. In the ITCs, marinas are essential urban features picking up Salalah's maritime orientation.

Advertisements of ITCs start by creating a pleasant atmosphere, an ambience of beauty, ease and light heartedness. The resorts are primarily staged as refuges from the exigencies of daily life. They are not only situated at the interface of different life worlds, but words and pictures also place them between the sea and the mountains famous for their green pastures and frankincense cultures. Sales brochures still strongly refer to Oman as "a land of legend" and to its "proud heritage," as well as repeatedly lauding its "blend of the old and the new" and the amalgam of "modernity ... with the cherished Omani culture,"[101] while immaculate pictures depict the claim of luxury and high-end tourism.

Oman's strong links with the outside world are likewise represented by the post-modern eclectic architecture of the new tourist resorts (Fig. 1.3.8). They arbitrarily combine and cite architectural styles and interior designs, creating hyperreal worlds at the interface of past and present as well as of influences from Southern Arabia, the Arab Mediterranean, and the western world.[102] Descriptions of the villas to be built refer to suppositious traditional design and atmosphere and the regional architectural heritage (including "spacious living areas," "open patios in the centre" and "wooden 'mashrabieh'"),[103] blended with contemporary comfort and amenities. In fact, most of these houses basically consist of a concrete structure, decorated only with pinnacles and wooden planking, rather open to the outside than inward-

99. Dhofar Tourism Company, *Mirbat Beach.*

100. Foucault, "Espaces autres," 15 (translated from French).

101. Quotes from Muriya, *No title.*

102. Already the hall of the renovated Crowne Plaza hotel mixed Arabized with Old Egyptian elements.

103. Quotes from Muriya, *Muriya Premium Selection.*

oriented. Pictures illustrating their interiors universally show modern international design. Similarly, the new mall is announced as "a modern interpretation of traditional Omani architecture."[104] It includes a souk, whose "design is inspired by Oman's heritage,"[105] and an indoor theme park[106] for the whole family.

Figure 1.3.8: Villa Mohamed Aqad at the 'Salalah Beach' ITC

Photo: Steffen Wippel 2012.

Yet, a large part of the projects is still in the making or was constructed only recently. Plans and models have a central role in promoting the new urban and infrastructural features. This is particularly true for long-term port and tourism schemes that are totally master-planned.[107] With maps integrated into their publicity material, both port and free zone[108] areas amply visualize their geo-economically

104. http://www.salalahmall.com/Pages/default.aspx (accessed May 1, 2013).
105. http://www.salalahmall.com/Pages/Souq.aspx (accessed May 1, 2013).
106. http://www.salalahworld.com/salalahWorldExperience.html (accessed May 1, 2013).
107. For Arab ITCs in general, cf. Steiner, "Heritage," 242.
108. Cf., for instance, http://new.sfzco.com/App_Themes/Images/Figures/fig8.jpg and http://

favorable locations. For tourism and residential schemes, developers present virtual computer animations on their websites and exhibit three-dimensional models in showrooms (Fig. 1.3.9), which simulate buildings and urban fabric. Roadside billboards, sales brochures, and newspaper announcements also widely advertise plans and maps as well as exterior and interior views. They all temporally precede, but also publicly perform, mentally implant, and virtually create any "material reality." Looking at advertisements showing animated homes and streets, it becomes nearly impossible for the observer to identify them as computer-simulated images or "true" photographs.

Figure 1.3.9: Showroom model of the 'Salalah Beach' ITC

Photo: Steffen Wippel 2009.

This is typical for hyper realities that also mean the total loss of a perceivable difference between copy and original. The branding of ITCs in Oman shows again how their use for capitalistic exploitation is essential. First of all, the tourism sites have to fit into advertising campaigns before displaying functionality. In these simulated cities, architects, planners and investors create urban life on their computers, always generating the same confusable marinas and commercial zones. Yet, projects and buildings in Oman are still not as spectacular as in Dubai; rather they try to develop a more modest style. However, while a few schemes in Northern

www.sfzco.com/Portals/0/SFZ/images/MastHead/images/why_SFZ/logistics_mh.jpg (both accessed May 1, 2013).

Oman attempt to copy their counterparts in other Gulf States, displaying easily recognizable shapes, this cannot yet be found on the Sultanate's South coast.

Conclusion: Developing, Fragmenting, and Marketing Globalizing Salalah at Diverse Interfaces

Since the late 1990s, Salalah has experienced the presentation and realization of numerous projects intended to foster the economic and urban development of the city. The starting point was the new container port, which was gradually complemented by industrial, residential, tourism, and infrastructural schemes. Even if Salalah cannot be considered a "global city" (even of minor rank), these projects contribute to make it a "globalizing city," integrated into far-reaching flows of trade, transport, migration, and tourism. They are part of networks, which in principal extend over the whole world, but mostly manifest specific regional concentrations. Yet, it is mainly the container port which helped Salalah achieve a recognizable world rank, namely as a major transhipment hub.

Concomitantly, Salalah is also experiencing a growing spatial fragmentation. The project sites, which are scattered across the expanding agglomeration, are characterized by increasing privatization, physical seclusion, and controlled access. They constitute anonymous, low-integrated "non-places" of anonymity and transit as well as paradise- and citadel-like "heterotopias," which are at the disposal of (and also containing) behavior and activities which are considered non-daily and non-traditional. At the same time, they serve immanent profit-oriented purposes. The simultaneous social and ethnic heterogenization is, however, neither reflected in serious habitat deterioration nor in open inter-group violence.

Marketing and branding are important strategies to withstand global competition. They fit into postmodern times, when simulations increasingly create their own realities and are widely used to make the new installations known. Whereas there is no explicit attention campaign from the side of local authorities, the national branding and the marketing of projects both contribute to communicate positive images of the city. Emotional aspects are as important as addressing historical, geographical, and cultural dimensions: this includes, among other things, reference to the tradition of seafarers and sailors and to enrooted hospitality and openness, and, notably for Dhofar, to the use and trade of frankincense. Architectonic and urbanistic features at the same time reflect and contribute to the endeavors of selling the city.

Globalization,[109] fragmentation and marketing take place and situate Salalah at several regional, temporal, functional, and cultural interfaces. They push the city towards the frontier of "development" and "progress" and place it at the threshold of the economy and architecture of the 21st century. At the interface between the local and the global, Salalah's globalized urban fragments find themselves simultaneously at the intersection of several world regions. This notably refers to the Indian Ocean, an economically emerging area, where several regions meet and which offers an attractive potential of consumers, purchasers and tourists. Geographically, Salalah is also placed at the meeting point of different land- and seascapes[110] and climates. Beyond that, the new urban projects contrast different life-worlds. The reference to history and tradition is not done without simultaneously emphasizing modernity and contemporary comfort. Hence, in recent years, Salalah has not only developed into a globalizing and fragmenting, but also an interfacial city. Yet, this development is much less spectacular and blatant than in the Gulf cities at the forefront of global attention, notably Dubai; nevertheless, local consequences are still quite striking.

109. Globalization can be understood both as a cause and an effect: Whereas it is true that local development measures result from perceived pressures of globalization, at the same time, they contribute to globalizing Salalah.

110. For the concept of seascape, cf. Bromber, "Translocality."

References

Al Hamdani, Ibrahim bin Saif. 2010. *Winning Hearts and Minds: Development as an Anti-Insurgency Weapon, The Dhofar War.* Muscat: Establishment for Press, Publication & Advertising.

Al Hashimi, Said Sultan. 2011. *The Omani Spring: Towards the Break of a New Dawn.* Arab Reform Brief No. 52. Arab Reform Initiative, http://www.arab-reform.net/IMG/pdf/Omanenglish.pdf. Accessed November 28, 2011.

Al-Hamarneh, Ala, and Christian Steiner. 2004. "Islamic Tourism: Rethinking the Strategies of Tourism Development in the Arab World after September 11, 2001." *Comparative Studies of South Asia, Africa and the Middle East* 24 (1): 18-27.

Alzadjali, Badar D. 2010. *Nation Brand in Oman: Studying Stakeholders' Views in "Branding Oman."* Master's Thesis in Marketing Management, Faculty of Business and Law, De Montfort University, Leicester. München and Santa Cruz CA: GRIN.

Aniah, E. J. 2001. "The Role of Secondary Cities in Regional Economic Development in Nigeria." Journal of Environmental Sciences 4 (2): 112-119.

Augé, Marc. 1992. *Non-Lieux: Introduction à une anthropologie de la surmodernité.* Paris: Seuil.

Barrault, Michèle. 1999. *Regards Dhofar.* Vesoul: Editions Michel Hetier.

Baudrillard, Jean. 1981. *Simulacres et simulation.* Paris: Galilée.

Baudrillard, Jean. 1976. *L'échange symbolique et la mort.* Paris: Gallimard.

Beaverstock, Jonathan V., Richard G. Smith, and Peter J. Taylor. 2005. "World City Network: A new Metageography?" In *The Urban Geography Reader,* edited by Nicholas R. Fyfe and Judith T. Kenny, 63-73. London, New York: Routledge.

Blask, Falko. 2005. *Jean Baudrillard zur Einführung.* 3rd ed. Hamburg: Junius.

Bromber, Katrin. 2013. "Working with 'Translocality': Conceptual Implications and Analytical Consequences." In *Regionalizing Oman: Political, Economic and Social Dynamics,* edited by Steffen Wippel, 63-72. Dordrecht, Heidelberg, New York, et al.: Springer.

Castells, Manuel. 1996. *The Rise of the Network Society.* Cambridge, Mass., et al.: Blackwell.

Chlada, Marvin. 2006. "Räume sind Träume: Marvin Chlada spaziert durch Foucaults andere Orte und rettet, was zu retten ist." *Jungle World* [Online] 2. http://jungle-world.com/artikel/2006/02/16709.html. Accessed April 1, 2010.

de Boeck, Filip, Ann Cassiman, and Steven van Wolputte. 2010. "Recentering the City: An Anthropology of Secondary Cities in Africa." In *African Perspectives 2009. The African City: (Re)sourced,* edited by Karel A. Bakker, 33-41. Pretoria: University of Pretoria, Department of Architecture.

Deffner, Veronika, and Carmella Pfaffenbach. 2013. "Integration auf Zeit für ein Leben in Transition: Gesellschaftlicher und politischer Umgang mit den Herausforderungen einer segmentierten städtischen Migrationsgesellschaft in Muscat (Oman)". *Raumforschung und Raumordnung,* 71(3): 233-245.

Dhofar Tourism Company. No date. *Mirbat Beach:* Discover Natural Living [Brochure]. Salalah.

Doel, Marcus, and Phil Hubbard. 2002. "Taking World Cities Literally: Marketing the *City* in a Global Space of Flows." City 6 (3): 351–68.

Ducruet, César. 2005. "Approche comparée du développement des villes-ports à l'échelle mondiale: problèmes conceptuels et méthodologiques." *Cahiers Scientifiques du Transport* 48: 59-79.

Eco, Umberto. 1995. *Faith in Fakes: Travels in Hyperreality.* Reprint. London, et al.: Minerva.

Elsheshtawy, Yasser. 2004. "Redrawing Boundaries: Dubai, an Emerging Global City." In *Planning Middle Eastern Cities: An Urban Kaleidoscope in a Globalizing World,* edited by Yasser Elsheshtawy, 169-99. London and New York: Routledge.

Fırat, A. Fuat, Nikhilesh Dholakia, and Alladi Venkatesh. 1995. "Marketing in a Postmodern World." *European Journal of Marketing* 29 (1): 40–56.

Foucault, Michel. 1984. "'Des espaces autres': Une conférence inédite." *Architecture-Mouvement-Continuité* 5: 46-49.

Frémont, Antoine. 2007. "Global Maritime Networks: The Case of Maersk." *Journal of Transport Geography* 15, 431–42.

FutureBrand. 2010. *Country Brand Index: Executive Summary.* No place: FutureBrand in partnership with BBC World News. http://www.futurebrand.com/wp-content/uploads/2010/11/CBI_BBC_2010_execsummary.pdf. Accessed September 28, 2012.

Gerhard, Ulrike. 2004. "Global Cities – Anmerkungen zu einem Forschungsfeld." *Geographische Rundschau* 56 (4): 4-10.

Govers, Robert, and Frank Go. 2009. *Place Branding: Glocal, Virtual and Physical Identities, Constructed,* Imagined and Experienced. Basingstoke and New York: Palgrave MacMillan.

Hazime, Hanan. 2011. "From City Branding to E-brands in Developing Countries: An Approach to Qatar and Abu Dhabi." *African Journal of Business Management* 5 (12): 4731–45.

Heymann, Eric. 2011. *Container Shipping: Successful Turnaround.* Frankfurt am Main: Deutsche Bank Research, March 28. www.dbresearch.de/PROD/DBR_INTERNET_DE-PROD/PROD0000000000271589.pdf. Accessed May 25, 2011.

Heymann, Eric. 2006. *Container Shipping: Overcapacity Inevitable despite Increasing Demand.* Frankfurt am Main: Deutsche Bank Research, April 25. www.dbresearch.com PROD/DBR_INTER¬NET_DE-PROD PROD0000000000198081.pdf. Accessed December 27, 2010.

Horacek, Martin. 2007. "Hyperrealität – Die beschleunigte Zirkulation der Zeichen in Jean Baudrillards Simulationsgesellschaft." In *Soziologische Gegenwartsdiagnosen I: Eine Bestandsaufnahme,* edited by Uwe Schimank and Ute Volkmann, 143-56. 2nd ed. Wiesbaden: VS Verlag für Sozialwissenschaften.

Hoyle, Brian. 2000. "Global and Local Change on the Port-City Waterfront." *Geographical Review* 90 (3): 395-417.

Janzen, Jörg. 1980. *Die Nomaden Dhofars/Sultanat Oman: Traditionelle Lebensformen im Wandel.* Bamberg: Selbstverlag, Fach Geographie an der Universität Bamberg.

Janzen, Jörg, and Fred Scholz. 1979. "Die Weihrauchwirtschaft Dhofārs (Sultanat Oman)." In *Fragen geographischer Forschung, Festschrift des Instituts für Geographie zum 60. Geburtstag von Alfred Leidlmair,* edited by Peter

Haimayer, Peter Meusburger, and Hugo Penz, 501-41. Innsbruck: Selbstverlag des Instituts für Geographie der Universität Innsbruck.

Jenan Residency. No date. Quality. Productivity. Lifestyle. http://jenansalalah.com/pdf/jenan-residency-brochure.pdf. Accessed April 30, 2013.

Katodrytis, George. 2014. "Dubai: Telegenic Fantasies." In *Under Construction: Logics of Urbanism in the Gulf Region,* edited by Steffen Wippel, Katrin Bromber, Birgit Krawietz, and Christian Steiner, 161-67. Farnham, et al.: Ashgate.

Kokot, Waltraud. 2008. "Port Cities as Areas of Transition – Comparative Ethnographic Research." In *Port Cities as Areas of Transition: Ethnographic Perspectives,* edited by Waltraud Kokot, Mijal Gandelsman-Trier, Kathrin Wildner, and Astrid Wonneberger, 7-23. Bielefeld: Transcript.

Kola, Aftab H. 2013. "Oman has Potential to Emerge as Major Logistics Gateway: Minister." *Times of Oman,* April 15.

Krätke, Stefan. 2004. "Berlin – Stadt im Globalisierungsprozess." *Geographische Rundschau* 56 (4): 20-25.

Lavergne, Marc. 2002. "L'économie omanaise, de la rente pétrolière à la mondialisation." In *L'Oman contemporain, Etat, territoire, identité,* edited by Marc Lavergne, and Brigitte Dumortier, 115-48. Paris: Karthala.

Lee, Sung-Woo, Dong-Wook Song, and César Ducruet. 2008. "A Tale of Asia's World Ports: The Spatial Evolution in Global Hub Port Cities." *Geoforum* 39 (1): 372-85.

Lewis, Martin W., and Kären E. Wigen. 1997. *The Myth of Continents: A Critique of Metageography.* Berkeley, Los Angeles, and London: University of California Press.

Marcuse, Peter, and Ronald van Kempen, eds. 2000. *Globalizing Cities: A New Spatial Order?* London, Cambridge: Blackwell.

Mershen, Birgit. 2007. "Development of Community-based Tourism in Oman: Challenges and Opportunities." In *Tourism in the Middle East: Continuity, Change and Transformation,* edited by Rami Farouk Daher, 188-214. Clevedon, Buffalo, and Toronto: Channel View.

Ministry of Development, Sultanate of Oman. 1993. *General Census of Population, Housing and Establishments 1993: Detailed Publication of the Results of the General Census.* Muscat.

Ministry of Tourism, Sultanate of Oman. No date. *Oman* [Online brochure]. Berlin. http://www.omantourism.de/fileadmin/website/61download/Oman2011.pdf. Accessed October 23, 2012.

MoH – Ministry of Housing, Directorate General of Housing, Dhofar Province, Sultanate of Oman. 1998. *Revision of Salalah Structure Plan (1995-2015), Phase 5, Final Structure Plan, Vol. 1: Executive Summary.* Muscat: National Engineering Office.

MoNE – Ministry of National Economy, Sultanate of Oman. 2008. *Long-Term Development Strategy (1996-2000): Vision for Oman's Economy (Oman 2020).* 2nd ed. Muscat.

MoNE – Ministry of National Economy, Sultanate of Oman. Several issues. *Statistical Yearbook.* Muscat.

MoNE, and MoT – Ministry of National Economy, and Ministry of Tourism, Sultanate of Oman. Several issues. *Results of Full Count and Survey of Salalah Khareef Visitors 2008/2010/2011.* Muscat.

Moock, David. 2012. *Deutsche Unternehmen in Bahrain: Standortmarketing und Standortwahl.* Berlin: Klaus Schwarz.

Morris, Miranda. 1987. "Dhofar – What Made it Different?" In *Oman: Economic, Social and Strategic Developments,* edited by B.R. Pridham, 51-78. London, Sydney, and Wolfeboro NH: Croom Helm.

MoT – Ministry of Tourism. 2010 and 2011. Data obtained from the Ministry of Tourism. Muscat.

Muriya – Muriya Tourism Development and Orascom Development. No date. *Muriya Premium Selection: First Re-Sale Magazine, Salalah Beach Oman* [Brochure]. Muscat and Salalah.

Muriya – Muriya Tourism Development and Orascom Development. No date. No title [Online brochure]. Muscat. http://www.salalahbeach.com/Uploads/Brochure/E-brochure-mini/brochure.pdf. Accessed January 25, 2010.

Muriya Presentation Centre. No date. *Private Retreats: Introducing 'Al Jannat' Homes.* Muscat. http://www.salalahbeach.com/uploads/brochure/e-brochure-jannat/brochure.pdf. Accessed April 18, 2013.

Notteboom, Theo E., and Jean-Paul Rodrigue. 2005. "Port Regionalization: Towards a New Phase in Port Development." *Maritime Policy and Management* 32 (3): 297-313.

Peterson, John E. 2006. "Qatar and the World: Branding for a Micro-state." *Middle East Journal,* 60 (4): 732–48.

Peterson, John E. 2004. "Oman's Diverse Society: Southern Oman." *Middle East Journal* 58 (2): 254-69.

Pike, Andy, ed. 2011. *Brands and Branding Geographies.* Cheltenham UK, and Northampton MA: Edward Elgar.

Pikulski, Andrzej. 2006. "Oman's Economic Development." In *Modern Oman: Studies on Politics, Economy, Environment and Culture of the Sultanate,* edited by Andrzej Kapiszewski, Abdulrahman Al-Salimi, and Andrzej Pikulski, 185-244. Kraków/Muscat: Księgarnia Akademicka.

Robinson, Jennifer. 2002. "Global and World Cities: A View from off the Map." *International Journal of Urban and Regional Research* 26 (3): 531-54.

Rondinelli, Dennis A. 1983. "Dynamics of Growth of Secondary Cities in Developing Countries." *Geographical Review* 73 (1): 42-57.

Salalah Port. 2013. Annual Report 2012. Salalah. http://www.salalahport.com/uploadedFiles/Port_of_Salalah/Investors POS_Eng_Annual_Report_2012_Final.pdf. Accessed April 15, 2013.

Sassen, Saskia. 2001. *The Global City: New York, London, Tokyo.* 2nd ed. Princeton, and London: Princeton University Press.

Schmid, Heiko. 2009. *Economy of Fascination: Dubai and Las Vegas as Themed Urban Landscapes.* Berlin, Stuttgart: Gebrüder Borntraeger.

Scholz, Fred. 2004. *Geographische Entwicklungsforschung: Methoden und Theorien.* Berlin, Stuttgart: Gebrüder Borntraeger.

Scholz, Fred. 1977. "Sultanat Oman: Ein Entwicklungsland im Südosten der Arabischen Halbinsel: Beschreibung der Entwicklung vor und nach 1970 und Versuch einer Analyse der Hintergründe und Perspektiven." *Die Erde* 108: 23-74.

Scott, Allen J., ed. 2001. *Global City-Regions: Trends, Theory, Policy.* Oxford and New York: Oxford University Press.

Soja, Edward W. 1995. "Postmodern Urbanization: The Six Restructurings of Los Angeles." In *Postmodern Cities and Spaces, edited by Sophie Watson, and Katherine Gibson,* 125–37. Oxford UK, and Cambridge MA: Blackwell.

Sommerlad, Felix. 2014. "Promise and Reality in Dubai's Architectural Design." In *Under Construction: Logics of Urbanism in the Gulf Region,* edited by Steffen Wippel, Katrin Bromber, Birgit Krawietz, and Christian Steiner, 91-100. Farnham, et al.: Ashgate.

Steiner, Christian. 2010. "From Heritage to Hyper-Reality? Tourism Destination Development in the Middle East between Petra and the Palm." *Journal of Tourism and Cultural Change* 8 (4): 240-53.

Steiner, Christian. 2009. *Tourismuskrisen und organisationales Lernen: Akteursstrategien in der Hotelwirtschaft der Arabischen Welt.* Eine Pragmatische Geographie. Bielefeld: Transcript.

Taylor, Peter J. 2004. *World City Network: A Global Urban Analysis.* London and New York: Routledge.

Valeri, Marc. 2011. *The Qaboos-State Under the Test of the 'Omani Spring': Are the Regime's Answers Up to Expectations?* Paris: Centre d'études et de recherches internationales. http://www.ceri-sciences-po.org/archive/2011/septembre/dossier/art_mv.pdf. Accessed July 19, 2012.

Valeri, Marc. 2007. *Le sultanat d'Oman: Une révolution en trompe-l'œil.* Paris: Karthala.

Veltz, Pierre. 1996. *Mondialisation, villes et territoires: l'économie d'archipel.* Paris: Presses Universitaires de France.

Wegmann, Reinhard. 1986. "Entwicklungsplanung für Salalah." *Trialog* 7: 36-39.

Wegmann, Reinhard. 1985/86. "Hoffnung für die Altstadt Salalahs." *Trialog* 8: 14-17.

Weizman, Eyal. 2007. "On Extraterritoriality." In *Arxipèlag d'excepcions: Sobiranies de l'extraterritorialitat,* edited by Giorgio Agamben, Tariq Ali, Zygmunt Bauman, et al., 13-20. Barcelona: Centre de Cultura Contemporània de Barcelona.

Westwood, Sheena. 2011. "Branding a 'New' Destination: Abu Dhabi." In *Destination Brands, Managing Place Reputation,* edited by Nigel Morgan,

Annette Pritchard, and Roger Pride, 197–212. 3rd ed. Amsterdam, Boston, Heidelberg, et al.: Elsevier.

Wippel, Steffen, ed. 2013. *Regionalizing Oman: Political, Economic and Social Dynamics.* Dordrecht, Heidelberg, New York, et al.: Springer.

Wippel, Steffen. 2013. "Oman and the Indian Ocean Rim – Economic Integration across Conventional Meta-Regions." In *Regionalizing Oman: Political, Economic and Social Dynamics,* edited by Steffen Wippel, 159-183. Dordrecht: Springer.

Wippel, Steffen. 2010. *Between the Arab World and the Indian Ocean: Dimensions of Oman's Economic Regionalisation.* Working paper series No. 8. Leipzig: Graduate Centre Humanities and Social Sciences of the Research Academy Leipzig.

Woertz, Eckart. 2009. *Implications of Dubai's Debt Troubles.* GRC Report. Dubai: Gulf Research Centre.

Worrall, James. 2012. "Oman: The 'Forgotten' Corner of the Arab Spring." *Middle East Policy* 19 (3): 98-115.

Young, Craig, and Jonathan Lever. 1997. "Place Promotion, Economic Location and the Consumption of City Image." *Tijdschrift voor Economische en Sociale Geografie* 88 (4): 332–41.

2.1

Designing Productive Landscapes in an Emerging Desert Metropolis: Food Systems and Urban Interfaces in Doha*

Anna Grichting Solder, Rana Alamawi, and Rama Asadi

Introduction: Food Security in Qatar – Food, Water, and Energy Nexus

The Gulf countries import 50-90 percent of their food requirements and are affected by severe swings in agricultural commodity prices, making them vulnerable also because of strong demographic growth, low agricultural productivity, and their continuing dependence on the global commodities markets. Food security challenges are acute for Qatar, whose domestic agricultural output meets no more than ten percent of total national food consumption needs. Ninety nine percent of the water supply is provided by desalination, and Qatar's per capita water consumption rate, estimated at around 430 liters a day, is among the highest in the world. Qatar's food security – and national security – depends on better water and energy development management, adoption of improved farm technologies

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and marketing, relevant regulations and legislation, and more comprehensive planning and policy development.[1] To this we could add the implementation of more integrated and symbiotic architecture and landscapes which would enable the Gulf countries, including Qatar, to take steps towards increasing their domestic food production even with the constraints imposed by the limited availability of water and land.

Under the Qatar National Vision 2030, Qatar is seeking to attain and advance sustainable development while tackling the many challenges posed by its rapid development, the increased consumption of non-renewable resources, and the negative effects of climate change.[2] As it prepares to host the FIFA World Cup in 2022, the country is pushing forward with large infrastructure development projects which include public and private transport, tourism and hospitality venues, as well as a number of cultural spaces and educational institutions. While these will respond to the logistical and consumption needs of such mega events and the aspirations to develop a diversified economy, another question related to more basic consumption needs relates to food production and food security. How the city of Doha will feed its growing population over the coming years is a critical question and one that should be addressed in a holistic way, especially by planners and architects who are shaping tomorrow's cities and repairing yesterday's urban landscapes.

The Qatar National Food Security Programme (QNFSP) was established in 2008 with the aim to reduce the country's reliance on food imports through the realization of self-sufficiency, using cutting-edge technologies to realize a sustainable approach to food security for dryland countries. An inaugural conference on Food Security in Drylands was hosted by Qatar University and the QNFSP in November 2012 and was a first step to establishing Qatar as a hub and leader in the field. At the 10th Gulf Water Conference in 2012, also held in Doha, the focus was on the food, water, and energy nexus, underscoring the increasing need to develop integrated approaches to sustainable food, energy, and water production and preservation.

Qatar is an arid country that is categorized by harsh environmental conditions including high temperatures in summer, low rainfall, high evaporation rate, and low nutrient availability in the soil. Natural renewable freshwater resources involving rainfall and groundwater are scarce. Additionally, the continuous increase in population and rapid economic growth raise concerns about water security. Water security means having reliable access to safe water at an affordable price. Water

1. http://www.qnfsp.gov.qa/issue/global-food-crisis.
2. *Advancing Sustainable Development,* Qatar National Vision 2030, Second National Human Development Report, 2009, General Secretariat for Development Planning, Qatar.

consumption in Qatar can be categorized in three distinctive divisions: Groundwater is generally used for agricultural and irrigation purposes; desalinated water provides potable municipal water; and reclaimed treated wastewater is used for irrigation of animal fodder and for urban landscaping. Agriculture areas are scattered and are located where groundwater of reasonable salinity is available for farming.[3]

The contribution of agriculture to the national economy is less than one percent of GDP and, therefore, negligible. In 2005, agriculture consumed 60 percent of the country's water. Development of the agricultural sector is hampered by various factors including the scarcity of freshwater resources, low quality of water, soil infertility, and difficult climatic conditions. These factors contribute to low agricultural production, which consequently lead to importation of most agricultural products, excluding dates.[4] Some agricultural organizations are investing internationally in the agricultural and livestock development sectors. For instance, the Hassad Food Company (HFC) invests in agricultural businesses and projects around the world, and its international subsidiaries include Hassad Sudan and Hassad Australia which support Qatar's food demand.[5]

Looking at global food geographies, Qatar imports 90 percent of its food and has reached food supply agreements with Indonesia, Pakistan, Sudan, Tajikistan, and Vietnam. Attempts are also being made to reach similar agreements with Australia, Cambodia, and Turkey. However, if Qatar (and, more specifically, the Doha Metropolitan Area since about 80 percent of the population lives there) starts to become less dependent on these countries, it will have a global effect.

On the regional scale, in particular in the Gulf region, global warming is affecting the temperature of the Arabian Gulf, and the industries are causing an increase in the salinity. This has led to a reduction in fish and other marine species, hence affecting fishing. Increased local food production and ecological cooperation among the GCC countries could improve the ecology of the Gulf and increase food security in the region. There are some examples of local food production on farms and in household gardens and courtyards, but the general and popular belief is that food cannot be grown outdoors in Qatar due to the extreme climate.

3. Darwish and Mohtar, "Qatar Water Challenges," 1-13.
4. Ibid., 3.
5. Hassan Food, "Overview."

Towards Symbiotic Urbanism and Productive Landscapes in the Gulf

> Cities can become more sustainable by modeling urban processes on ecological principles of form and function, by which natural ecosystems operate. The characteristics of natural ecosystems include diversity, adaptiveness, interconnectedness, resilience, regenerative capacity, and symbiosis.[6]

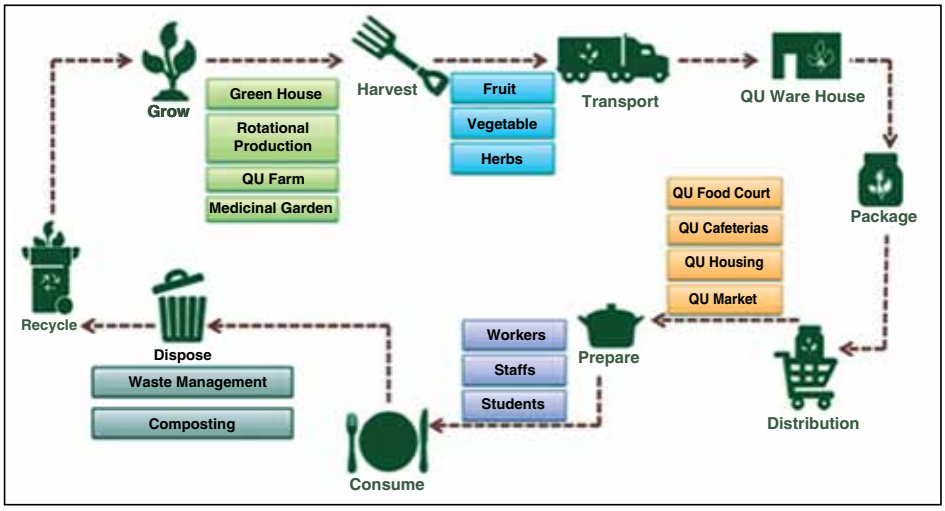
As a new paradigm for urban design and food security, there is a need to plan for innovative architectures and landscapes that integrate food production, maximizing productivity and minimizing land use, water and energy resources. A "systems approach" to design that consumes less resources, recycles waste, and educates the consumer to have a more "nimble" footprint on the planet is the challenge and objective of the new design approaches that are "regenerative" in nature. In *Design with Nature* (1969), Ian McHarg forcefully articulated the need to understand the natural environment as a series of interrelated systems of water, terrain, and vegetation, and to make this understanding the basis for city design.[7]

The concept of a "Regenerative City" looks at the metabolism of modern cities – which are essentially linear – as resources flow through the urban system regardless of their origin or the final destination of wastes. This is very different from nature's circular metabolism, where the waste generated by one organism serves as a useful resource for others. In a predominantly urban world, cities will need to adopt circular metabolic systems to assure their own viability as well as that of the rural environments and ecosystems on whose viability they ultimately depend.[8]

> "In nature, nothing is useless, nothing is waste but everything is resource for other process in the sophisticatedly interconnected web of life, where circular metabolism is the principle of ongoing self-renewal system. Thus, a sustainable system is a regenerative system that mimics nature's circular patterns, replacing the present linear flows with cyclical flows."

6. Newman and Jennings, *Cities as Sustainable Ecosystems.*
7. McHarg, *Design with Nature*.
8. Girardet, *A Future for Gulf Cities.*

Figure 2.1.1: QU campus: Production cycle



Source: the author and Khalfani.

With the increase in world population and urbanization, global food systems need to be transformed to address rising urban hunger and malnutrition. In response, urban, micro-urban and edge-urban landscapes are emerging as critical sites for agricultural production, while vertical farming is rising as a new architectural and urban typology to address land and resource scarcity. The practice of cultivating food and raising animals in an urban environment is referred to as urban farming or urban agriculture and is an important component of Regenerative, Bionic, or Symbiotic Cities – that is cities that optimize their resources, minimize energy consumption, and recycle waste.[9] Urban agriculture can contribute to making cities healthier and beautiful, reducing erosion, heat islands, pollution, water and fuel consumption; promoting biodiversity; and providing secure access to nutritious foods.[10] Urban agriculture not only contributes to food security, but eases the burden on the environment as well because of the shorter transport routes involved,

9. The Bionic City is a dynamic concept that references natural systems, operating as an interconnected and intelligent ecosystem, ranging from the molecular to the metropolitan in scale; SymbioCity looks at the city as a whole, seeking to create benefits through synergies in urban functions and urban resource efficiency – letting nothing go to waste; combining energy, waste management, water supply and sanitation, traffic and transport, landscape planning, architecture and urban functions for new and better solutions as well as a more efficient use of natural resource. References: Melissa Sterry "Bionic City"- *Earth 2.0* magazine: http://earth-2channel.com/magazine/article/22. "The SymbioCity Approach: Conceptual Framework for Sustainable Urban Development," www.symbiocity.org.
10. Katkin, "Urban Agriculture: Symbiotic Transformation of Cities and Food Systems."

sometimes referred to as the "foodprint." Foodprints look beyond the plate to the social, political, cultural, and economic forces that shape the way we eat.[11]

A productive urban landscape is a design concept, which integrates food growing into the design of cities through public and private open space (courtyards, gardens, parks, rooftops, etc.) taking advantage of disused or underused sites. The contributions to a new productive urban landscape may be on very different scales, from the garden lot and pocket community garden or greenhouse to the large-scale landscapes that combine food production and leisure, and to the vertical farming that can produce food and create green and shaded facades. Rooftops of shopping malls and parking infrastructures and other industrial buildings can also be transformed into greenhouses and green roofs, using recycled grey water and organic waste or aquaponic systems to grow food.

Food production within the urban context, as an emerging practice, is performed by a variety of actors including private individuals, groups or associations, public administrations, and professional farmers. It is not limited to a closed circle of professionals in the primary sector.[12] Moreover, urban agriculture contributes to food security and food safety in two ways: first, it increases the amount of food available to people in cities, and second, it allows fresh vegetables, fruits, and meat to be made available to urban consumers. While small-scale and localized food production has a long history, including individual allotments which have been popular in Europe since the late 18th century, it is the integration of such farming practices within the economic and ecological system of towns and cities that is a newer development.[13] This means that urban resources such as compost from food waste and wastewater from urban drainage is made use of, while urban problems such as the pressure on land and development also have to be negotiated.[14]

Qatar Foodscapes and Food Ecologies

The research on new productive landscapes is expected to contribute to the development of a "Food Security Master Plan" being developed by the Qatar National Food Security Programme and to new "consumer-productive landscapes." This work builds on research that is being undertaken and developed in the graduate

11. http://www.foodprintproject.com/.
12. www.foodurbanism.org.
13. Awan, Schneider and Till, "Urban Farming."
14. Viljoen, Bohn and Howe, *Continuous Productive Urban Landscapes: Designing Urban Agriculture for Sustainable Cities.*

program in Urban Planning and Design that address Food Urbanism and Productive Landscapes as a paradigm for sustainable master planning and seeks to expand the field to other disciplinary fields – within the institution, within Qatar and the Gulf region, and worldwide – and to position Qatar at the cutting edge of this field in the region. The ongoing work looks at the design of productive architectures and landscapes that integrate food production, maximizing productivity and minimizing land use, water and energy resources. Students are encouraged to "think in systems" and to propose new scenarios for food urbanisms in Doha and Qatar.

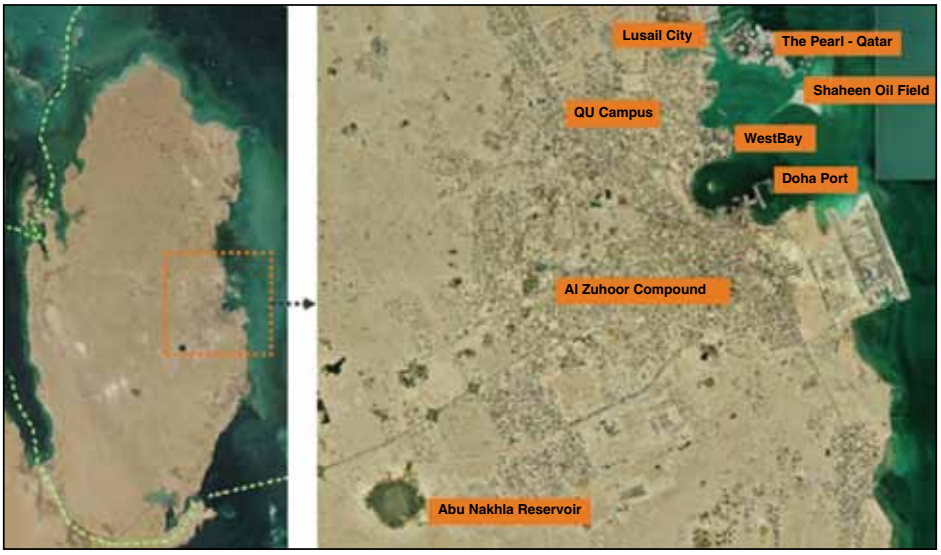
Food urbanism seeks to find new ways of designing sustainable cities, and one of the aspects is to integrate food production into architectural and urban structures. Vertical farming or using roofs for farming and integrating this into buildings has multiple positive effects like producing food, increasing a building's thermal insulation, and reducing the heat island effect. As an alternative to decorative green lawns and barren trees, it would also be much more efficient to sow crop seeds and plant fruit trees. Sustainable urbanism is about increasing the quality of life by bringing more resources within a short distance and also increasing the quality of products that are offered. Integrating both productive and non-productive landscapes to enhance the capability of a community or a city through food producing parcels and contributing to ecological value of land within the overall development to tie environmental, social, and economic issues helps in conceiving an integrated nature of development.

There are many different project scenarios on very different scales to bring food production into the city. Compounds can be retrofitted to allow the inhabitants to compost their organic waste, recycle water, and grow seasonal vegetables and plant fruit trees. Educational institutions can build greenhouses to produce food for their canteens and involve students in food production. Vertical farming is one way of growing food without soil, using aquaponics, which utilizes very little water and recycles the water. Towers and rooftops can be transformed with productive facades and terraces. Contrary to general opinion, there are different types of plants that can be easily planted and supported in Qatar's climatic and soil conditions including rotational plants, fruits, and vegetables. Rotational plants include leaves (lettuce, salad greens, spinach, broccoli, cauliflower); fruits and vegetables (squashes, cucumbers, melons, tomatoes, peppers, and eggplants); roots (onions, garlic, scallions, carrots, beets, and radishes); and fruit trees (oranges, lemon, vines).

Envisioning Productive Landscapes in Doha

As part of the course "Sustainable Urban and Landscape Design," a group of seven Master's students worked on the implementation of different urban food strategies, systems, and designs on a series of different typological sites in Doha. These projects showcase food production scenarios in various architecture and urban typologies. These typologies include dense urban development, gated residential communities, educational institutions, offshore oil fields, and a suburban treated wastewater pond (see Figure 2.1.2). The students elaborated scenarios for productive landscapes on a series of sites in Qatar, implementing different typologies and food systems. The sites include Qatar University Campus, West Bay downtown area, a tower under construction in Lusail City, Al Zuhoor residential compound, the Pearl artificial island, Abu Nahkla reservoir and Shaheen oil fields. We present an overview of the systems and projects and focus on three projects, namely the Old Doha Port, the Pearl artificial island, and the Abu Nakhla reservoir.

Figure 2.1.2: An aerial view showing the selected case studies



Source: the author.

The Atlas of Food Urbanism (www.foodurbanism.org) uses a series of categories to classify the different typologies of the food urbanism projects presented on their website: scale of the project or intervention (from human/object to global scale); ground (rooftop, natural ground, floating structure); agricultural cycle (from planting to harvesting to distribution to composting); purpose (research, profit-making, educational or artistic venture); realization (built, unbuilt, temporary,

web-based, network); accessibility (public, private); deployment mode (through an association, competition, exhibition, festival, grant, market, public institution, etc.); ideological driver (increased biodiversity, building community, indigenous food, health, resource efficiency, job-creation etc); urban context (center, periphery, peri-urban or dispersed/multiplied). Each project can have one or more of these criteria or characteristics. We propose two additional criteria: 1) Architectural and Urban Typologies, and 2) Productive Systems, which were the two main criteria driving the definitions and descriptions of the projects developed by the students as part of the course.

This project work is in the preliminary phase and the result of classes and research over one semester. It is intended to lay the foundation for examining possible areas, interstices, and niches to implement food urbanism in Qatar. The projects aim to provide a prototype for various spaces in Doha, where the collective individual initiatives can help in creating a sustainable urban environment. With the rapid development of the city, food sufficiency has acquired growing importance and so too individual initiatives. Through a multiplicity of small actions, it is possible to make a large impact and encourage the design of new prototypes of environmentally friendly model houses that integrate food production. Evidently, food urbanism cannot just be implemented through a design approach alone, but must be part of a system of deployment which can and should include: community initiatives, educational programs, media and television programs and events, academic and scientific research, performances and demonstrative actions in public spaces, to name but a few.

Yet, as a seed and generator, these projects can help to jump start research on this subject and also provide some indications of how food urbanism can be achieved. A series of urban sites – representing different urban contexts and architectural typologies – were selected with the aim of setting up the appropriate energy and agricultural systems to produce food. What is important in each of the projects is not just the food that can be produced, but the whole integrated cycle where resources – land, energy, water, nutrients – can be used minimally and recycled. Therefore, our approach is more focused on systems than separate criteria. The sites and projects are but a preliminary approach to possible food urbanism in Qatar. Of the different sites and systems envisioned by the students to transform Doha into a more productive city, the first five – Qatar University Campus, West Bay District, Lusail City, Al Zuhoor Compound and Shaheen Oil Fields – are described in brief here. The Old Doha Port, the Pearl Qatar artificial island, and Abu Nakhla reservoir developed by the co-authors are discussed in more detail.

Qatar University Campus – Integrating Food Production and Recycling Systems

The Qatar University Campus Productive Food Project aims to produce healthy food for the students, faculty, and staff of the University. In addition, the project encourages public participation and involvement through educating the campus users about the possibilities of growing food, the quality of the food consumed, healthy living, recycling waste, and the properties of medicinal plants.

The Qatar University campus has a large area of unused land and interstitial spaces that are either underused or used for ornamental gardening with high water consumption and labor intensive maintenance. Food production can be both a temporary and permanent land use and also can be more integrated into the landscaping of the university. The campus already has date palms, and these can be complemented with more fruit trees along the walkways and public spaces. Local medicinal plants are proposed to be planted alongside vegetables and fruits with a system of rotational production in the food boulevards and walkways, medicinal herbs garden, vegetable gardens and crop fields. A composting and biogas system can provide energy and fertilizer and a system to recycle grey and black water as well as use the air conditioning condensate can be implemented. The produce can be served in the university food courts and sold at weekly markets on the campus. Students, faculty, and researchers can become involved in the farming project, with numerous opportunities for research.

Al Zohoor Residential Compound - Retrofitting and Envisioning New Productive Residential Prototypes

This project proposes a prototype for retrofitting residential compounds in Doha. The importance of private food production within a residential compound can have multiple benefits including improved health of the residents through increased activity and the consumption of healthier food; a sense of community and belonging created through cooperation; knowledge of food sourcing; reduced energy costs; and an embellished environment.[15] Within Al Zohoor compound, three major space typologies were chosen –to be retrofitted by implementing food production: private villas can be used for food production because of their front and backyards, accessible roofs and the walls and facades; the park and day care center offer collaborative opportunities to grow food, where public awareness can be addressed through

15. Grimm, *Food-Urbanism: A Sustainable Design Option for Urban Communities.*

workshops and events that are also geared towards children; Green Streets or food boulevards offer unused spaces that can host productive plants, including fruit trees. According to the students' research, and contrary to general opinion that it is not possible to have vegetable gardens in Qatar's climate, different types of vegetables can be planted within the residential property on a rotational basis. These include: lettuce, salad greens, spinach, broccoli, cauliflower, squashes, cucumbers, melons, tomatoes, peppers, eggplants, onions, garlic, scallions, carrots, beets, radishes and various herbs. Fruit trees that are adaptable to the climate include oranges, lemons, and grapevines. The project uses recycled grey water from domestic use: water from baths, showers, sinks or washing machines can be used directly in gardens if it is not stored for more than 24 hours. Collected rainwater and air conditioning condensate may also be used. A portable and foldable greenhouse, made of recycled plastic, can be installed in the courtyards or on the roofs of villas and moved when necessary.[16] Roof gardens and vertical green walls that produce food also provide extra insulation reducing energy use for cooling, as well as improving air quality and reducing the urban heat island effect. Here, the concept of "Eat-house" can be implemented. Eat-house is a scaffolding structure which accommodates plastic crates which are planted with fruits and vegetables. Because the crates are modular and the scaffolding can be disassembled, the entire structure can be set up in a different location each growing season based on the planted flora.[17]

Vertical Farming in Lusail City: Sustainable Measures for Dense Mixed Used Development

This project proposes a new prototype for a mixed use tower being constructed in Lusail City Marina District, an entirely new city for 200,000 residents and 170,000 employees being constructed close to Doha.[18] The tower uses the principles of vertical farming, which is cultivating plant life within skyscrapers or on vertically inclined surfaces using techniques such as high-tech hydroponic systems.[19] With technology, it is possible to control the temperature, humidity, energy and water consumption, and with the employment of closed loop agriculture technology, all the water is recycled and reused through hydroponics and wastewater management. Vertical farms require a specific design for the structural loads, water recycling and

16. Baxley, "Foldable Greenhouse."
17. "Eethuis / Eathouse," August 11, 2011.
18. "Lusail City," 2012.
19. James, "Interview with the Father of Vertical Farming – Dr. Dickson Despommier."

circulation, energy creation, and organic waste recycling. The tower in Lusail was redesigned to accommodate the vertical farming aspects. For example, the concrete slab thicknesses were increased and sloped, and the two main elevator shafts were used to create the water supply and drain systems. Vertical farming is considered to be the solution of the 21st century where 85-95 percent of crops grown indoors will survive. If this prototype is implemented in other towers in the city, it could become a model to support the Qatar National Food Security Programme.

West Bay: Reweaving Public Space and Regenerating Rooftops

The West Bay is the downtown central business district of Doha, built on a landfill area with a number of contemporary skyscrapers and several shopping malls. This project addresses various challenges in West Bay, including poor public space connectivity, the lack of landscapes areas, and a high and increasing urban heat island effect. The West Bay has an interesting mix of land use including governmental and other offices, retail stores, parks, hotel and residential buildings. The Sheraton Hotel and the Msheireb Enrichment Center on the Corniche and the Burj Doha Tower by Jean Nouvel are a few of the landmarks of the area, which is divided into a pedestrian friendly and public corniche area, and the car-dominated and disconnected business district. There are many parking lots, empty lots, as well as unfinished towers. The empty lots and unfinished towers could be used to grow food, while waiting for more permanent functions.

The project aims to create more connectivity between the existing landscapes in the West Bay area and to implement new productive landscapes on the ground, in the towers, and on rooftops. The City Center Mall could accommodate rooftop greenhouses and gardens on its large surface, and the new Qatar Convention Center under construction nearby could also be designed with a productive rooftop. These areas can be made accessible to the public and also provide food for the various food outlets and workers. All these projects will integrate water recycling and renewable energy sources, and they would help to lower air temperature, reduce urban heat island effect, and improve air quality, enhancing the overall quality of life in the West Bay district.

Shaheen Oil Fields: From Onshore to Offshore Food Production

This project aims to increase the role that Qatar's oil and gas platforms play in the country's coastal and marine ecosystem. It investigates the viability of developing these offshore structures into managed coastal fisheries that would extend Qatar's

domestic onshore food production to include offshore food production. The Al Shaheen oil field is located off the north east coast of Qatar in the Arabian Gulf, 180 kilometers north of Doha. The oil field lies over the North Gas Field, the largest gas field in the world. Surprisingly, while they are generally considered as being ecologically unfriendly and harmful, the placement of oil and gas platforms in Qatar and other parts of the world has served to create fish havens and artificial reefs. The platforms and the surrounding sea are generally out of bounds to commercial shipping, fishermen, and pleasure craft. This allows marine ecosystems to flourish, in the absence of intensive fishing and pollution from marine engines. Artificial reefs that develop on these platforms pose a variety of unintended consequences and challenges to coastal marine management. The decision to turn offshore structures which become obsolete in the future into artificial reefs is often based on the suggestion of benefits to the ecology, economics, and management of marine systems in coastal areas. The benefits to Qatar's marine community would be many: reefs attract commercially important species of fish and other fauna; reefs enhance ecotourism (e.g., local recreational diving); protected reefs prevent habitat damage by trawling (banned in Qatar). There are many examples of how oil and gas rigs are transformed into laboratories, hotels, ecological stations etc., and it is important that Qatar also investigate its future offshore ecologies and the possibilities of food production, especially as regards marine species.

Harborscapes: Food Scenarios for Doha's Old Port Regeneration

This project addresses the regeneration of the industrial heritage of the port through the redevelopment of forms, typologies, materials, and activities that include food urbanism. Its purpose is to create public spaces that is invested by and cared for by the local communities that can also support the local production of food. Located in the heart of the city of Doha, the official port was founded in 1971 and great importance is attached to it for historical and cultural reasons.[20] Over the years, this place has represented the essence of the city's development, as it changed from a small urban settlement into a metropolitan city port. Today, as the growth potential of Doha port is affected by congestion and channel restrictions with no land available for expansion, Qatar is embarking on a massive project to create a brand new port that is able to meet the emerging requirements.[21] Due to its geographical and cultural importance, the old port offers a great strategic

20. "Qatar Port Management."

21. Ibid.

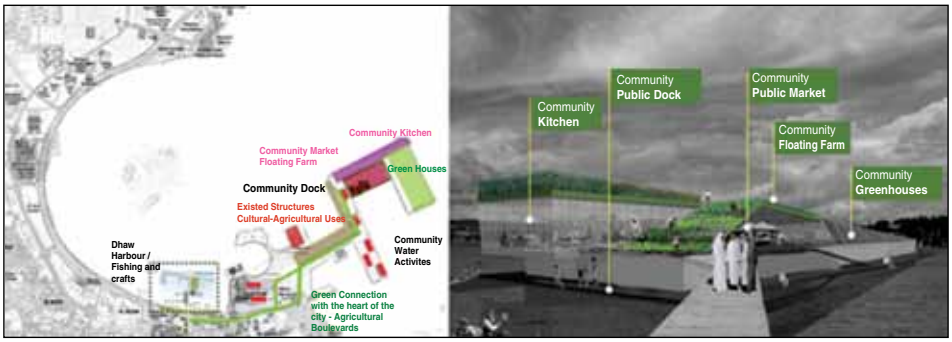
regeneration opportunity that can be used to create the public space that can also support the local production of food.

The proposed project provides a framework to regenerate and transform the Old Doha Port into a model of sustainable living that includes a productive public realm. It highlights the importance of linking agriculture and culture and providing spaces to provoke new and innovative perceptions of public space and community actions. The project proposes mixed use activities and reuse of a certain number of the port's existing buildings, as heritage and as spaces for culture and agriculture. As an example, the existing grain elevator can be transformed into a support for cultural events, where the façade becomes a screen for dramatic light shows and projections.[22] Without windows and daylight, the building can be used for food production using LED lighting, which allows better control of plant growth and better productivity. The heavy metal containers can also be converted into greenhouses and food producing units.

The floating farm is another visible and novel productive landscape that can be located in the port, in the heart of the city. It will act like a visual reminder that the future matters, that we are all personally responsible, and that there is tremendous power in small actions. The design strategy aims to connect people with the whole cycle of food production, where the food can be produced and consumed in a sustainable way which involves the community. The port's proposed design can offer a series of community public realms that enhance the food cycle and make use of available site resources. In addition to the open spaces and green roofs, a system that combines the desalination of sea water and concentrated solar panels and greenhouses can be used to grow the suggested plants. To achieve its objective, the project should also focus on the cycles of urban transformation where flexible and ongoing uses of the port are also addressed to achieve the final product. In this, temporal use of the open areas can be proposed to plant different types of edible plants according to the different seasons and to host different public events.

22. Byrnes, "Luminous Shots of Grain Elevators Like You've Never Seen Them before."

Figure 2.1.3: Doha Port regeneration design concept



Source: the author.

The Pearl-Qatar: Scenarios for a Productive Community Garden

This project addresses strategies for the integration of food production, processing, distribution, and consumption within luxury residential manmade islands. Most of the Pearl Islands are still under construction, opening up the opportunity to create new food production facilities by transforming one of the existing islands into a community garden. Within the framework of the proposed community garden, this project will offer a central hub for the residents to access food production facilities, which include a central market with livable nodes and aesthetic productive landscapes. In the twenty first century, the importance of the garden can go beyond the traditional public realm into productive and sustainable open space.

The Food Urbanism Initiative examines the existing fabric of The Pearl–Qatar in terms of its potential for incorporating urban agricultural initiatives in order to develop design strategies at multiple levels. The project design presents various community agricultural opportunities through a series of greenhouses, vertical farms, and open agricultural land, offering the residents of the Pearl the appropriate environment to participate in growing organic food for personal consumption. Community corridors create connections between the agricultural plots and public spaces and are required to enhance the livability of the project attaining its social and economic values. The external exposed crops that can survive in the Doha climate can be planted on these edible boulevards. Shopping on the green boulevard becomes a natural experience in which the division between city and countryside, between architecture and landscape, is dissolved.

Renewable energy is made available through a variety of clean energy sources and carbon reduction schemes to enable a sustainable and environmentally friendly operation. In Qatar, the sun is an abundant source of clean energy, which can be harnessed using modern technology. Geographic Information Systems (GIS)

have indicated the presence of high solar irradiance levels across Qatar, making it possible for the nation to tap into solar energy to generate some of its own power needs. Today, solar energy can be converted to electricity in two ways, either directly using photovoltaic cells or indirectly through solar thermal applications. This type of energy can be used to operate the greenhouses and vertical farms within the proposed project.[23] As a part of community agriculture, seawater greenhouses can be considered as an efficient enclosed space to grow food in such harsh climate. The suggested technique by Michael Pawlyn, a British architect specialized in sustainable design, can be applied as the following: Electricity from Concentrated Solar Panel (CSP) helps power pumps bringing seawater to the site where it is used to condition air inside the greenhouse. The effect is achieved by trickling seawater over cardboard screen evaporators, which cool and humidify the dry desert air, creating a favorable growing environment for crops. Some of the evaporated seawater inside the greenhouse also condenses creating freshwater, which can be used to irrigate plants. The saltwater going out of the greenhouses goes to the CSP to cool it, which makes it more efficient. The remainder ends up in salt ponds where various compounds – sodium chloride, gypsum, and calcium carbonate – can be extracted and potentially commercialized.[24]

Within this project, two main vertical structures are created to house a large number of crops according to the different seasons. A high-rise building with 30 floors could generate the entire food needs of 50,000 people. In addition to year-round crop production, a "farmscraper" consumes 70-95 percent less water, purifies grey water for drinking water, restricts the use of harmful agro-chemicals and wards off weather-related crop failures. Similar to the water cycle in the greenhouses, vertical farms can be operated as follows: The tower utilizes seawater to cool and humidify the crops, while converting the humidity into freshwater. The central shaft brings the cooled sea water inside to create wet, humid air that when mixed with warm, dry air condenses into trickles of fresh water and is then collected in special tanks for irrigation. As mentioned earlier, the living machine system also has a wastewater/sewage processing system that employs a staged hydroponics system using living plants and microorganisms for waste processing and water purification. This system can be used within the vertical tower for recycling water and can be implemented within the design strategy as an aesthetical water element.

23. "Qatar National Food Security Programme."

24. Knight, "Project to Turn Desert Green Trials in Qatar."

Figure 2.1.4: Community agriculture and community corridors within the Pearl site

Source: the author.

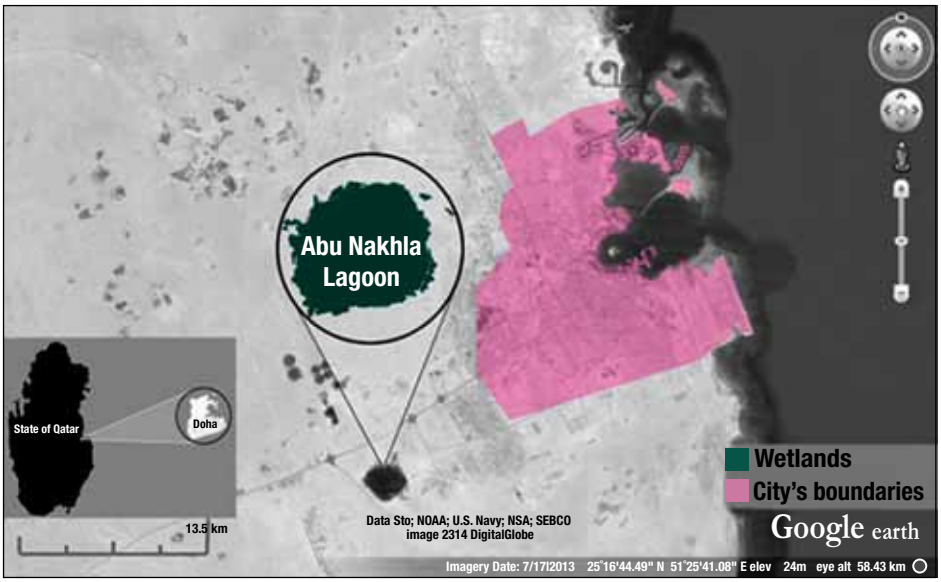
Abu Nakhla Pond: Optimizing Water Treatment for Food Production

Constructed wetlands are conceived as productive ecosystems that provide benefits and services to the people and contribute positively to the overall ecosystem. They are defined as "areas of marsh, fen, peat land, or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine waters, the depth of which at low tide does not exceed six meters."[25] Negative factors influencing the wetlands involve adverse climatic effects, environmental changes, non-sustainable alternative uses, and social disruption. A few of the wetlands in arid zones are supported by locally generated water supplies. Abu Nakhla Wetlands is a treated wastewater pond that was constructed in 1979[26] and was established in 1982.[27] The wetland is located approximately 12 km outside the city of Doha along the southern borders of Abu Nakhla village (see Figure 2.1.5). It is a special place for both humans and the wildlife as it is considered as a more moist point than in other regions. The pond is supplied by municipal water on a regular basis. Treated municipal water from Doha-West and Doha-South wastewater treatment plants is discharged to the pond on a regular basis. The treated wastewater pond is elevated approximately 37-38 m above the sea level while the water depth ranges from one to two meters. The capacity of the lake is 5 million sq.

25. Hollis, "Environmental Impacts of Development on Wetlands in Arid and Semi-arid Lands."
26. Ahmed Babiker, Amir Osman, interview by Rana Amawi. Chief Operations and Maintenance Engineer at Ashghal Public Works Authority, April 28, 2012.
27. Kardousha, Professor at the Department of Biological and Environmental Sciences, *Qatar Biodiversity Newsletter no.11* (March 2009): 1-9.

m, taking 2 km length by 2 km width. In case of rain, the water level rises without changing the outer boundaries of the lake. Since 2006, the borders have been fixed so that it does not flood and damage the surrounding areas.

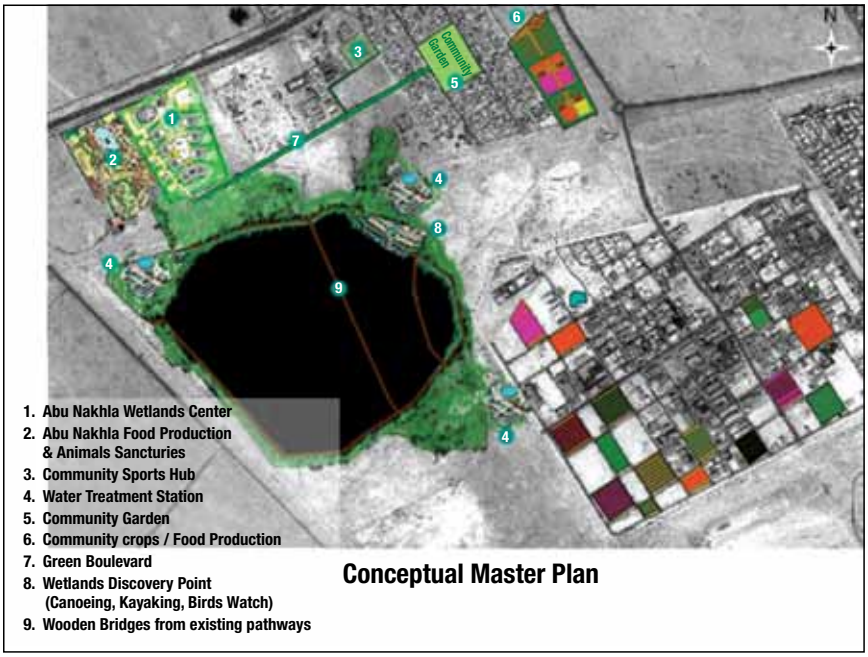
Figure 2.1.5: Abu Nakhla Pond geographical location



Source: the author.

Presently at Abu Nakhla, the treated sewage effluent is used solely for fodder crops for animals and for landscape irrigation. The optimization of treated wastewater is proposed, with systems that enable recycling. Implemented systems emphasize maintaining further treatment to Abu Nakhla treated wastewater through constructive wetlands technologies. The purified water could then be used for irrigation of animal fodder, landscaping, and irrigation of crops. The resulting food production can be sold in the market to serve local demands and support diversification of the economy. Harvest waste can be recycled and composted to become natural fertilizers that can be utilized in the food production process. Such a system supports sustainability and contributes to the local economy in an environmentally friendly way.

Figure 2.1.6: Food production concept within Abu Nakhla Project



Source: the author.

Another scenario also addresses water treatment, starting by adapting further treatment of the wastewater in order to use it for edible crop irrigation and aquaponic food producing systems. These further treatments generate excess and residual water containing salt and other minerals and particles that can be discharged in a salt lake, which becomes an ecological habitat and also provides water for district cooling. Thermal comfort is addressed in the project – due to the harsh climatic weather conditions particularly during summer – through the implementation of solar powered umbrellas that cast shades and shadows during the day and fold at night.[28] These shading devices are connected to the district cooling system to create cool and shaded public spaces in the new ecological and productive landscapes.

Since Qatar has limited fresh water resources, if it was well managed, the wetlands would have so much potential to serve local irrigation and TSE demand. Locally in Qatar, a lot of emphasis is being paid toward environmental sustainability and implementing environmental principles, especially motivated by hosting the upcoming mega sport event, FIFA 2022 World Cup. As the population density

28. "Solar Umbrellas for Masdar."

is expected to reach 3.7 million annually by 2022,[29] wise wetland management is required for various benefits focusing on sustainability. TSE is considered as an investment for potential projects including landscaping, farming, sand washing and more, especially in a dry arid country like Qatar. On the other hand, Qatar declared that the 2022 FIFA World Cup will attract one million international visitors to the Gulf state.[30] Other than enjoying the games and supporting athletic teams, spectators are expected to explore Qatar and its unique local environment in various ways. Abu Nakhla Wetlands could add further value and enlightenment with its native habitats and wildlife in Qatar.

In the eight projects discussed, students have examined the way in which food urbanism can become an infrastructure that would transform the urban experience in Doha through implementing different urban food strategies, systems, and designs on sites of different characteristics. These visionary projects have proven that the possibilities for food production exist in the Gulf region and we only need to find proper solutions for creating environmentally, socially, and economically productive communities.

Emergent Food Ecologies in the Gulf: New Interfaces between Productive and Consumptive Landscapes

Food urbanism can be considered as an interface between food production, food consumption, and urban and architectural spaces. The concept of "foodprint" looks at these production-consumption chains to evaluate the energy and waste created in the process through all the different interfaces and movements of the products – transportation, storage, packaging, etc. In Qatar – and most other Gulf States, excluding Saudi Arabia – 90 percent of the food consumed in the country is imported and therefore the foodprint is very high. It is necessary to find new approaches and typologies to increase food production and food resilience as well as reduce the carbon footprint of bringing food to the table.

Vertical farming and food urbanism are still emerging concepts and the architectural professions should begin to research, develop and design strategies, architectures, landscapes, and urban plans to address food (in)security and contribute to the implementation of productive landscapes in Qatar, the Gulf countries and other drylands. There are some examples of urban agriculture being introduced into important urban design projects in Doha, but it is not yet recognized as an

29. "Time: Why Qatar is Spending 200 Billion on 2022," *Doha News*.

30. "Qatar Says World Cup 2022 Will Attract 1m Visitors," *ArabianBusiness.com*.

essential aspect in planning and design. For example, the Musheireb Downtown Doha (MDD), described as" the world's first sustainable downtown regeneration project", will have organic vegetable gardens which will be woven into public open spaces, residential courtyards, and roof terraces and allow residents to participate in the production of fresh vegetables.[31]

Other food scenarios being envisioned in the Gulf include Dubai's Food City – a planned self-sufficient "Ecotopia" promoted by the Dubai Chamber of Commerce in 2009 for development in a "free zone." GCLA, a green landscape architect firm, has proposed a master plan for an off-the-grid, self-sufficient metropolis which incorporates vertically stacked landscape surfaces, artificial roof landscapes, renewable energy systems, aquatic farms, and thermal conditioning.[32] It is not certain whether this project will see the light of day in the near future.

Designers and planners have to look to the future and plan ahead for 10 to 30 years at least, if not more. The problem of food security and water shortage will certainly transform our ways of designing cities and producing food, and will drive the need for more collaboration between engineers, architects, urbanists, biologists, and professionals from other related disciplines. Also, the shape and form of our physical, constructed environment has changed with the political-economic and socio-cultural forces of globalization, decentralization, and post-industrialization, and the ground plane of the contemporary metropolitan region has reshaped the paradigm of ecology. The reinforced relationship between landscape and ecology, the interface between the multiple, layered, complex, and insurgent ecologies, collectively inform the design of our urban and urbanizing landscapes.[33] With a systems thinking approach to the case studies, the "food interface" can be seen as the interaction and exchange between food, people, and space through the production system. It also refers to the systems thinking approach towards resources. Based on a generative and dynamic self-adjusting feedback mechanism – informed by effective community involvement – restorative urbanism identifies and protects that which is valued and enhances that which is underperforming, addressing what may be missing or should be added, working with the source code or DNA of a place.[34]

31. http://www.dohapress.com/portal/index.php/local-news/57-all-local-news/18012-msheireb-project-to-set-up-organic-gardens.
32. http://inhabitat.com/a-utopian-vision-for-food-city-dubai/.
33. Lister, "Insurgent Ecologies: (Re)Claiming Ground in Landscape Urbanism."
34. Ellin, "Restorative Urbanism: Beyond Sustainability to Prosperity."

Such restorative and regenerative urbanism, based on community and resource ecologies, offers new directions in urban planning and design that can pave the way to formulating innovative strategies and approaches to designing a productive city of the 21st century in a desert metropolis. The scenarios for new food ecologies in Doha need to become prototypes for implementation with the involvement of communities, private corporations, public enterprises, and government bodies. Additionally, they should also become another source for establishing collaborative networks between the GCC states and the Gulf region.

The Global Urban Agriculture Summit in 2012 recommended a series of approaches towards productive urban landscapes:

- Initiate urban agriculture as a social community innovation involving an integrated approach to urban and peri-urban farming, on a global platform.
- Utilize the power of the triple helix – academics, private corporations coupled with public enterprises, and government bodies to network collectively to educate and implement the innovative solutions in the urban agriculture arena.
- Initiate the process of involving the community to become part owners of urban agriculture projects, increasing local involvement and thereby creating a new level of corporate empowered enterprise.

These recommendations could be aligned with the Qatar National Vision 2030 and implemented within the Qatar National Food Security Master Plan to enable increased food production through food urbanism and productive landscapes.

References

Awan, Nishat, Tatjana Schneider, and Jeremy Till. 2010. "Urban Farming." Spatial Agency, http://www.spatialagency.net/database/urban.farming.

Babiker, Ahmed and Amir Osman. 2012. Interview by Rana Amawi, Chief Operations and Maintenance Engineer at Ashghal Public Works Authority, April 28.

Brennan, Baxley. 2012. *Foldable Greenhouse*. July 5. http://www.foodurbanism.org/foldable-greenhouse/. Accessed 2013.

Byrnes, Mark. "Luminous Shots of Grain Elevators Like You've Never Seen Them Before," May 7, 2013. http://www.theatlanticcities.com/design/2013/05/luminous-shots-grain-elevators-youve-never-seen-them/5498/. Accessed 2013.

Darwish, M. A., and Rabi Mohtar. 2012. "Qatar Water Challenges." *Desalination and Water Treatment.*

Doha News. 2013. "Time: Why Qatar is Spending $200 billion on 2022," July 14. http://dohanews.co/time-why-qatar-is-spending-200-billion-on-2022/ Accessed May 14, 2014

Eethuis/Eathouse. 2011. August 11. http://www.foodurbanism.org/eethuis-eat house/. Accessed 2013.

Ellin, Nan. 2012. "Restorative Urbanism: Beyond Sustainability to Prosperity." *Sustainable Urbanism & Beyond: Rethinking Cities for the Future,* ed. Tigris Haas. Rizzoli.

Foodprint Project. http://www.foodprintproject.com/.

Food Urbanism Atlas. www.foodurbanism.org.

General Secretariat for Development Planning, Qatar. 2009. *Advancing Sustainable Development.* Qatar National Vision 2030. Second National Human Development Report.

Girardet, Herbert. 2012. *A Future for Gulf Cities.* World Future Council. A report for an international expert meeting co-hosted by the Al Habtoor Group. Dubai, September.

Grimm, Jason. 2009. Food-Urbanism: *A Sustainable Design Option for Urban Communities.* Iowa State University Foundation.

Hassad Food. 2010. "Overview." http://www.hassad.com/aboutus/overview/tabid/65/language/en-US/Default.aspx Accessed April 29, 2013.

James, P.I. 2012. "Interview with the Father of Vertical Farming – Dr. Dickson Despommier." March 21.

Kardousha, Mahmoud M., Professor at the Department of Biological and Environmental Sciences, Qatar University. *Qatar Biodiversity Newsletter* No.11, March 2009: 1-9.

Katkin, Rebecca. "Urban Agriculture: Symbiotic Transformation of Cities and Food Systems." *In Spaces and Flows. An International Journal of Urban and ExtraUrban Studies* 2, Issue 3, pp.61-70.

Knight, Matthew. 2012. "Project to Turn Desert Green Trials in Qatar." CNN, November 14. http://edition.cnn.com/2012/11/13/tech/sahara-forest-qatar-green. Accessed 2013.

Lister, Nina-Maria. 2010. "Insurgent Ecologies: (Re)Claiming Ground in Landscape Urbanism." In *Ecological Urbanism* ed. M. Mostavafi and G. Doherty. Basel: Lars Muller Publishers.

McHarg, Ian. 1969. *Design with Nature.* Garden City, New York: Natural History Press.

Newman, Peter and Isabella Jennings. 2008. *Cities as Sustainable Ecosystems: Principle and Practices.* Washington, D.C.: Island Press.

Qatar National Food Security Programme. 2011. http://www.qnfsp.gov.qa/programme/renewable-energy/solar-energy. Accessed 2012.

Shane, Daniel. 2014. "Qatar Says World Cup 2022 Will Attract 1m Visitors," December 12. Arabian Business, http://www.arabianbusiness.com/qatar-says-world-cup-2022-will-attract-1m-visitors-529332.html. Accessed May 22, 2014.

Sterry, Melissa. "Bionic City," *Earth 2.0* magazine. http://earth2channel.com/magazine/article/22; The SymbioCity Approach. ConCeptual Framework for Sustainable Urban Development, www.symbiocity.org.

Urban Agriculture Summit. http://www.mynewsdesk.com/us/view/document/the-urban-agriculture-summit-statement-january-31st-2013-24704.

Viljoen, André, Katrin Bohn, and Joe Howe. 2005. *Continuous Productive Urban Landscapes: Designing Urban Agriculture for Sustainable Cities.* Oxford: Architectural Press.

2.2

URBAN:ORGAN – Models for Gulf Cities as Integrated Ecological Systems

Joerg Baumeister and Daniela A. Ottmann

We travel together, passengers on a little spaceship, dependent on its vulnerable reserves of air and soil; all committed, for our safety, to its security and peace; preserved from annihilation only by the care, the work and the love we give our fragile craft. We cannot maintain it half fortunate, half miserable, half confident, half despairing, half slave — to the ancient enemies of man — half free in a liberation of resources undreamed of until this day. No craft, no crew can travel safely with such vast contradictions. On their resolution depends the survival of us all.

Adlai Ewing Stevenson II, Speech to the UN Economic and Social Council, Geneva, Switzerland (July 9, 1965)

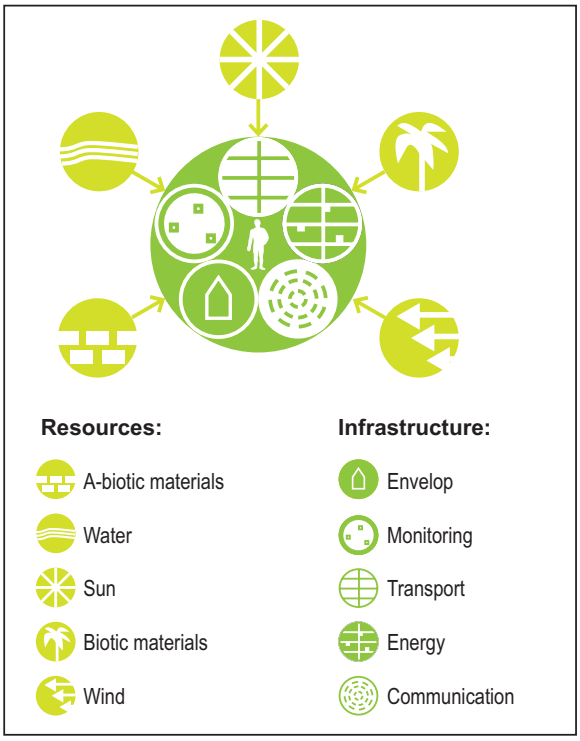
The Quest for Healthy Cities

Almost 50 years after Adlai Stevenson's warnings, cities in the Gulf region are desperately trying to find ways to integrate environmental and socio-cultural requirements. Traditional oasis settlements can provide models for addressing how to live in the hot arid desert environment of the Arabian Peninsula. Recreating an oasis in a new urban setting would not work due to the limitation of resources to support a large population and to maintain certain comfort levels. Both aspects –

the number of people and their comfort level – are determinants, which depend on the availability of resources. If there are not enough resources, either the number of people or their comfort (or both) have to be adjusted – or resources have to be imported from elsewhere.

Fossil fuels are very helpful in providing the resources necessary to maintain life in the harsh desert environment. For several thousands of years, easily obtainable fossil fuels were used locally. However, since the beginning of oil extraction in the 1850s and with increasingly efficient transportation networks, the average oil consumption expanded to almost five barrels per year per capita;[1] the global population increased in the same time from one billion to the current level of seven billion.[2] Both oil consumption and the global population will certainly rise further, resulting in an exponentially increasing energy demand. At the same time, forms of energies based on natural resources other than fossil fuels remain marginal and neglected.

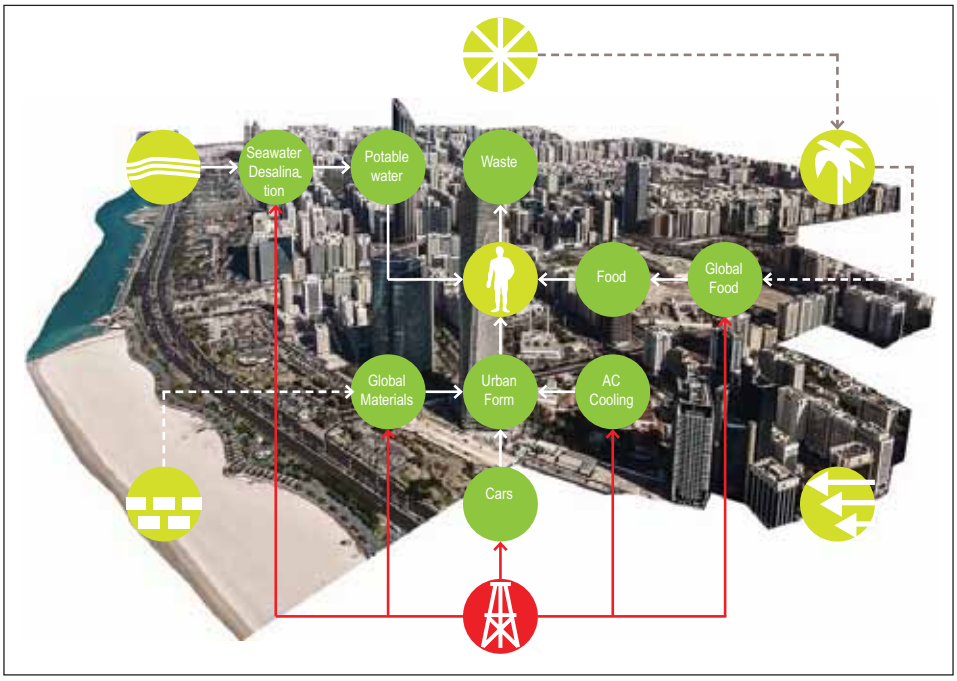
Figure 2.2.1: Scheme of a present hydrocarbon city with no connection to natural resources



1. IEA, *World Energy Outlook*.
2. United Nations, *World Population Prospects*.

Satisfying energy needs is an issue with political and economic aspects that are related to the protection of national interests. Starting with the first officially defined hydrocarbon conflict between Egypt and Nabataeans in 400 BC,[3] there have been many wars which have resulted in a considerable loss of life, an unacceptable fact from a humanitarian perspective and a waste of energy in terms of a system-thinking perspective. With regard to the use of resources and pollution, in 2011 the United Nations forecast a future "exceeding all possible measures of available resources and assessments of limits to the capacity to absorb impacts."[4] (Lubin 2011) Additionally, the list of global problems due to hydrocarbon based pollution is already quite long and includes urban air pollution,[5] heat stress,[6] and allergic diseases.[7]

Figure 2.2.2: Example of a hydrocarbon-based urban system with external metabolism



3. Nissenbaum, "Dead Sea Asphalt in Ancient Egyptian Mummies—Why?"
4. Lubin, "UN Global Reource Consumption Will Triple by 2050."
5. Kenworthy and Laube, "Urban Transport Patterns in a Global Sample of Cities."
6. EPA, *Climate Change Indicators in the United States.*
7. World Allergy Organisation, *WAO White Book on Allergy 2011-2012.*

Obviously, the effects of a change from a local metabolism (e.g., of an oasis settlement) to carbon-based living in a globalized metabolism are not beneficial. However, at present, it is impossible to return to life without fossil fuels. Hydrocarbons are used for the desalination of seawater, which is needed for a growing population in areas with very limited access to fresh water. It would also prove difficult, if not impossible, to live without air conditioning or other mechanically supported means of attaining a minimum level of thermal comfort. Additionally, it may not be possible to meet the food needs of the population with only local production that relies on locally available resources. Therefore, the increased reliance on hydrocarbons is likely to have unavoidable harmful consequences.

Conditioning the Desert

> "Water, water, water.... There is no shortage of water in the desert but exactly the right amount, a perfect ratio of water to rock, water to sand, insuring that wide free open, generous spacing among plants and animals, homes and towns and cities, which makes the arid West so different from any other part of the nation. There is no lack of water here unless you try to establish a city where no city should be."[8]

To address the current challenges of the Gulf region, we chose the Sultanate of Oman to explore settlement development in a desert region in the Arabian Peninsula. The country can be subdivided into two different biomes: the desert region of the Empty Quarter; and temperate grasslands, savannas, and shrubland in the Hajar mountains.

Desert and xeric shrublands are those having less than 100 mm of rainfall per year including extreme temperature changes and a limited variety of species. On the eastern side of the Arabian Peninsula, comprising the United Arab Emirates (UAE) and Oman, the climate is characterized by high temperatures (up to 50 degrees Celsius in July), high humidity, and low rainfall. The average rainfall in the mountain region is 140-200 mm and along the east coast 100-140 mm. Oman's Batinah coast receives an annual average rainfall of nearly 100 mm, mostly in winter.[9]

As in the other Gulf Cooperation Council (GCC) countries, massive change occurred in Oman following the exploration and export of hydrocarbon products,

8. Abbey, *Desert Solitaire.*
9. World Wildlife Fund, *Deserts and Xeric Shrubland.*

resulting in a major impact on the morphology of cities, the country's ecology, and the social coherence of communities.

Anthrophogenic Biome Desert - Development and its Challenges

The growing population has resulted in the expansion of the built environment, which has impacted the natural systems by overexploiting available resources. As of July 2013, the population of the Sultanate of Oman was 3,090,150, with an annual Population Growth Rate of 2.04 percent (2013 est.).[10] There has also been a trend of people leaving villages in the interior to move to urban regions. Seventy three percent of the total population (in 2010) resided in urban sprawls of the Muscat governorate and the Batinah coast.The demographic distribution indicates a very "young" country where 55 percent of the population is less than 20 years of age while 83 percent is under the age of 35.

According to the *World Bank Factbook,* Oman has one cubic kilometer of renewable water resources compared to freshwater withdrawal for domestic, industrial, and agricultural use of 1.36 cubic kilometer/year in 2000. The rising demand due to population, agriculture, industry and trade will go up by 42 percent by 2020 to a total of 1.71 cubic kilometer/year, with approximately 90 percent required for agricultural purposes.[11]

The traditional source of water distribution and equally the basis for any oasis settlement in Oman and the UAE has been the *falaj* (irrigation system) or the direct link to a well or a spring. In contrast, agriculture in regions like Batinah depends on man-made wells and energy-consuming desalination plants have been introduced.

All agriculture in Oman is irrigated and, since the 1970s, irrigated areas have increased from about 28,000 ha to 63,632 ha in 2005. Although 2.2 million ha are considered suitable for agriculture, groundwater is insufficient for most areas. At present, groundwater depletion has increased, especially in coastal areas, leading to seawater intrusion and deterioration in the water quality. Currently in the urbanized areas of Oman, 85 percent of potable water is being produced through energy-intensive desalination processes (both multi-stage flash evaporation and reverse osmosis technologies).[12] In terms of consumption per capita per day, an Omani citizen demands 181 percent of the available renewable water resources, according to the World Bank Group.

10. CIA, *The World Factbook.*
11. World Bank, 2013.
12. Ministry of Agriculture and Fisheries, Sultanate of Oman, 2013.

The required amount of electricity production of 18.59 billion kWh (2010 est.) is derived purely from gas or petroleum fossil fuels: 37 percent of the required energy is used for transportation, 24 percent for buildings, 35 percent for industry and 4 percent for the agricultural sector. Major contributors to the annual energy use are residential buildings in Oman, which use around 450 kg of oil equivalent per capita.

These factors result in carbon dioxide emissions from consumption of energy of 55.2 million Mt (2010 est.). In world carbon emissions, Oman has a share of 0.1 percent whereas the UAE's share is 0.49 percent and Saudi Arabia's 1.3 percent.[13]

The move away from a close relationship with the natural environment that has traditionally supported human settlement in the region has resulted in a variety of compensation strategies to support the rapid expansion of the population. The previous integration of water, climate, biodiversity and socio-cultural practices has now become more and more distant because of the introduction of artificial means to support daily life. Electrical pumps can harvest the water from deep wells, replacing the *falaj* system which was used and maintained over thousands of years as a passive strategy to harvest and use available resources. Electrical power also replaces passive design strategies of settlements and buildings by introducing electronically powered climate-conditioning mechanisms. A "comfortable" lifestyle, including less physical work, less engagement with the natural environment, and encapsulated climate controlled interiors, has come to be expected by inhabitants of Oman.

The revenue generated by hydrocarbon exports has never been higher in the country, reaching $71.78 billion in 2011 as compared to $44.23 million in 1960.[14] The increasing "wealth" is congruent with the expanding population: in 2011, there were 2.846 million inhabitants over an area of 300,000 square kilometers in comparison with 456,000 inhabitants in 1950 (2012 est.)[15]

The growing population demands more water, food, and energy resources within the scarce environment of a desert. Current urban policies and governance encourage a peri-urban sprawl, resulting in mono-function land use that places high demands on infrastructure, degradation of biodiversity, and increased consumption of energy and water.

13. The World Bank Group, 2013.
14. Ibid.
15. CIA, *The World Factbook*.

Shift in Thinking

To address the challenges associated with the resource-scarce and climatically harsh environment of the Gulf region, this chapter proposes an alternative to the current tendencies of urban planning, design, and architecture. Similar theories have been used in the 1960s by members of the Japanese Metabolism Movement:

> "Metabolism is the name of the group, in which each member proposes further designs of our coming world through his concrete designs and illustrations. We regard human society as a vital process – a continuous development from atom to nebula. The reason why we use such a biological word, metabolism, is that we believe design and technology should be a denotation of human society. We are not going to accept metabolism as a natural process, but try to encourage active metabolic development of our society through our proposals."[16]

Whereas organic biological growth processes inspired Metabolism's architectural mega-structures and were concerned primarily with formal metaphorical aspects, this research extends the analysis of urban metabolic flows to sustain urban functions, human well-being, and quality of life.

Understanding Built Environment as an Ecological System

The URBAN:ORGAN project explores ways of understanding the urban environment as an organism of processes and flows. Metabolic flows of natural resources and their relationship with the built environment are examined in relation to the physical patterns of urban form.

In order to compare the current tendencies of city making and the underlying streams of resources, this chapter analyzes urban development in desert areas before and after the discovery of oil.

The selection of cases studies, technologies, and processes is viewed through the lens of 21st century socio-economic living in conjunction to bridging the gap between the surrounding biosphere and anthropogenic environment. Here a higher adaptability is envisioned for Gulf cities in order to become viable urban organisms.

Empirical research through the parameters of system theories is used to combine case studies of the past and the present urban conditions in the Gulf region. A case study of traditional oasis towns in Oman is used as reference of pre-

16. Lin, *Kenzo Tange and the Metabolist Movement.*

hydrocarbon driven settlements. The analysis concentrates on spatial relations and interconnections of natural resources flows and the built environment. Principles of urban processes that are directly linked and are a result of bio-climatic and socio-cultural circumstances are examined. The results are then compared to present tendencies of hydrocarbon driven urbanism in the Gulf region. Organizational diagrams are used to describe resource flows and interconnectivity between components of the city.

Analyses of past and present trends of urbanism in Gulf cities enable a prediction of possible future development through establishing what we term URBAN:ORGAN codes, which can be seen as a possible framework for city-making of the future in order to reach a higher adaptability and integration to the prevailing natural system for the planet. A shift is predicted from the specialized "product design" approach of hydrocarbon-driven architecture and urbanism to a city as supporting platform of processes that link bio-climatic and socio-cultural conditions into highly adaptable, resilient, and self-organizing patterns.

> Qualities arise from processes and patterns of relationships among the parts. Hence, we cannot understand the nature of complex systems such as organisms, ecosystems, societies, and economies if we try to describe them in purely quantitative terms. Quantities can be measured; qualities need to be mapped.[17]

How to overcome environmental problems caused by the production and operation of the built environment are mainly being discussed by specialists and experts in specifically defined fields (e.g., emission experts) and solved through specific technologies (e.g., carbon dioxide storage). The connections between sourcing raw materials, converting those into products that accumulate to built environment, and the operation and recycling are, in most of the cases, not seen as a whole cradle-to-cradle process that considers energy inputs and outputs.

Looking at urbanism and architecture not as a materialized aspect of form, function, and aesthetics but as a holistic network of flows and processes requires a shift in thinking. Here the architect and urban planner need to be introduced to an ecological understanding of the built environment as organism. Since the 1930s, this way of thinking has been commonly termed as systems thinking by biologists, psychologists, ecologists, and economists. It has been used by several scholars of different disciplines like Ludwig von Bertalanffy in biology to find parameters of unifying sciences, Joseph A. Schumpeter for business cycles to analyze capitalist

17. Capra and Henderson, "Qualitative Growth."

processes in the field of economics, and by J.W. Forrester to explore feedback loop-based system dynamics of physical and human systems.

Through a systems view we realize that objects themselves are networks of relationships, embedded in larger networks. To connect to the natural systems, of which we as human beings are a part, it is necessary for us to understand the underlying principles of natural systems. The physicist and founder of the Institute for Eco literacy Fritjof Capra provides the following overview:

1. Cycles: Exchange of matter and energy in continual cycles as feedback loops ensuring information flow, recycling, and conservation
2. Partnership: All living members are engaged in competition and cooperation through symbiosis and collaboration
3. Interdependence: The success of the whole system depends on each member and vice versa
4. Energy flows: Solar energy as chemical form of energy through photosynthesis drives all ecological cycles
5. Diversity: The stability of the ecosystem depends on the degree of complexity of its network of relationships
6. Flexibility: Resilience as a flexible state is characterized by interdependent fluctuations of their variables
7. Sustainability: The long-term survival (sustainability) of each species in an ecosystem depending on a limited resource base
8. Co-evolution: The interplay of creation and mutual adaptation through a process of development and learning[18]

The current practice of dealing with the built environment as an ecological system can be seen in the UNEP Agenda 21 that has introduced several programs for resilient and sustainable cities that are mainly broken down to certain measurable policies. For example, reduction of carbon dioxide emissions and water consumption powered by the right technology can solve the issues caused by a whole network of interdependent processes preceding the environmental waste products.[19]

Architecture is now classified through rating system (e.g., LEED, Green Star, Estidama, etc.) to indicate and evaluate "green-ness." Such rating systems are also used in analyzing water and energy consumption that can effect a lower carbon footprint. Lists of the "right" technologies and products to achieve those goals are

18. Capra, *The Web of Life.*

19. UNEP, *Agenda 21.*

being used but without recognizing the grey and embedded energy of those so-called renewable energy technologies.

Therefore, URBAN:ORGAN advocates a consideration of the processes and components that shape the input and output into the system of the built environment, from the urban and architectural scales to the technologies associated with the production and use of energy and material.

All resources required and used in this system of architecture and urbanism are part of and derive directly from the natural environment. The main available resources are classified as sun, wind, water, and organic and inorganic materials. The other determining factor is the anthropological context that defines the needs of a city or architecture through various levels of society, culture, governance, and economy. In this chapter, we will only examine the linkages between resource input and output of the natural environment into the built environment and vice versa.

Oasis as a System from the Past

Prior to the discovery of oil in the Arabian Peninsula, there were structures that had been built and maintained without significant change over many centuries. Therefore, those settlements are a valuable indicator for human activities in the harsh and resource- scarce environment of a desert through using passive technologies (defined here as non-electricity consuming technologies). Due to the lack of water (annual rainfall ranges between 40 and 100 mm) under the prevalent climatic conditions of Oman, traditional settlements can be found mainly around or at sources of water. Given those climatic conditions, agriculture in Oman relies on man-made irrigation. Therefore, traditional farming systems have been developed in geological or topographic settings where water was accessible or easily reachable.[20] In most cases, the built environment was integrated into farmland.

Thus, the following analysis will concentrate on settlements or oasis towns where the natural environment and the man-made infrastructure of agriculture and built environment go hand in hand. We are not considering socio-morphological changes since the new constitution of the country came into in force from 1970 which resulted in a massive decay of those decentralized settlements and resulted in rapid urbanization along the main industrial areas of Sohar and Muscat.

The settlements were oases, or a fertile spot in a desert where water is found. The sources of water are three: 1) underground rivers or aquifers of groundwater to

20. Luedeling and Buerkert, "Typology of Oases in Northern Oman."

springs (on which most of the water irrigation systems of oases settlements depend on), groundwater wells, and artesian wells.

The system of URBAN:ORGAN of one oasis town in the interior of Oman, Misfat Al Abreeyn, will be detailed here. This town is located on the west side of the Hajar mountain chain at 950m above sea level, with steep banks created just above an intersection of two *wadis* (valley occasionally flooded in the rainy season) to the south east. Hence the orientation of the hamlet and its terraced farmland goes along the given topography and is in accordance with particular micro-climatic conditions.[21]

Water and irrigation in the desert environment is the source of life. Hence technologies have been established over thousands of years in such climate zones to harvest and transport water. In the case of Oman, water is found mainly in fossil basins located within the Hajar mountains or in aquifers underneath the sandy surface. The Ministry of Housing in Oman distinguishes three types of aflaj systems used in Oman over the last 1,500 years:

- *Falaj daoodiya:* These are long channels dug under the ground
- *Falaj ghiliya:* Similar to canals, these *falaj* carry water from the running surface or semi-surface water
- *Falaj aynia:* These canals take their water directly from the spring.[22]

In Misfat al Abreeyn, the main water source derives from a *daoodiya falaj* system from a spring above the *wadi* which is located to the east of the settlement. At the entry points of the irrigation channel into the oasis settlement there are washing structures for women and men just before it reaches a huge basin in front of the mosque. Before the water reaches the washing structures, water for drinking purposes is diverted. After leaving the public basin, the *falaj* is then diverted into separate singular channels to reach the different farming terraces. The distribution of water into privately held fields has been traditionally decided by using astronomical calculations and sundials. To close the cycle of water use in oasis systems, the grey water of the households as well as the dried black wastewater of humans and animals is then distributed onto the farmland as fertilizers. The irrigated water is then filtered through the soils and rocks of the farm terraces back into aquifers.

All oasis settlements depended mainly on a green belt of agriculture; Omani oasis farmers grow a large array of crops, including fruits, with most of the area

21. Buerkert and Schlecht, *Oases of Oman.*

22. Al Jabri, "Water Resources Evaluation and Conservation in Oman."

dedicated to groves of date palms. In the case study of Misfat Al Abryeen, the built up area comprises around one-fifth of the farmed land surrounding it as a green belt. Agriculture is supported by an above-ground irrigation system that nourishes the terraces that begin at the lower edges of the dense cluster of the settlement on the south and east border of the slope. All the terraces receive their main shading through six- to eight-meter-high date palms that have a variety of crops at their base. The fields are fertilized via human and animal waste. The palm tree provides resources for construction, weaving, and power generation.

The urban structure of the settlement comprises around 100 housing units and supported 580 inhabitants in 1993.[23] The topography of the place and the irrigation system explain the irregular patterns of densely clustered building structures. Narrow alleyways between the clusters allow the prevailing winds to enter the area from the *wadi* to the south-east and prevent the direct impact of the sun. Most of the structures comprise two storey buildings made of locally available building materials. Limestone plinths are directly built on the existing rock topography and are finished off with sundried adobe bricks. Those loam bricks contain mainly the clayey soils of the surrounding farmland in conjunction with straw fibers for tensile strength. Slabs and roofs are constructed of quartered palm tree trunks and topped up with palm-frond woven mats filled in again with clayey earth (loam). Openings are enforced through either stone or palm-tree trunk lintels and fitted with wooden shutters for door and window openings. Wild olive or juniper trees of the region provide more durable timber than palm tree wood. The lower floors have few openings and mainly vertical slits in the upper wall areas to provide ventilation, heat insulation, and security from external influences. The upper floors have their openings very low to the floor and ventilation slits in the upper areas of the walls in order to create air drafts for ventilation. The wall construction on the upper floor is thinner due to economic and structural reasons. Here the interior walls have recesses that are storage niches or light niches. This measure also takes away load from the lower floors.

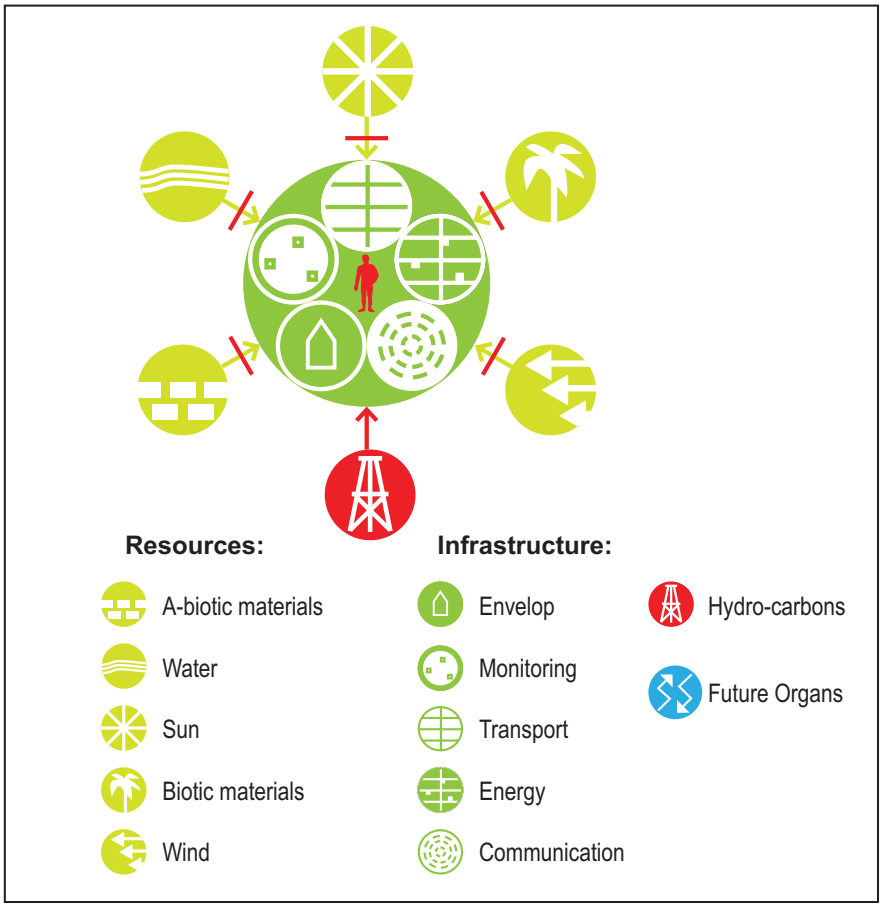
The main thoroughways open onto the farmland belt on the southeast side. Other narrow alleyways are maze-like and winding through the oasis cluster. The microclimate results from the prevailing winds from the *wadi* crossing to the east. Also, the buildings occupy elevated terraces and benefit from the cooling effect as winds pass through the oasis.

23. Gangler and Gaube, *Transformation Processes in Oasis Settlements of Oman.*

The settlement is fairly protected from the harsh natural environment through the dense clustered layout. The walls of the buildings provide insulation through a 80- to 100-cm-thick thermal mass of local stone and earth construction material. Common courtyard spaces shared by the community are self-shaded by the vertical walls surrounding the courtyards.

The given conditions of natural resources, namely water, prevailing winds, the solar impact, biotic and abiotic materials, have been used to create a suitable environment to support survival in the harsh and resource-scare environment of the desert. All these factors have been carefully considered and integrated into passive design strategies to create liveable settlements (see Fig. 2.2.3.) This settlement reveals that traditional oasis systems in Oman had adapted to the environment and its available resources in order to remain self-sustainable over centuries.

Figure 2.2.3: Scheme of an oasis system indicating direct connections between natural resources and built environment



Through photosynthesis, green plant life becomes a source of energy for agriculture and food, biomass and construction products. The water of the *falaj* systems are gradually transformed from potable water into grey water and other wastewater for the irrigation of the farmland. Locally sourced materials, such as loam and rock, are used to create a compact and clustered urban settlement. Also the waterproofing render to the buildings is made out of loam and surrounding limestone through a burning process with palm tree logs into hydraulic plaster. The urban form hence results not only from the available materials and locally developed construction methods, but also from adaptations to the surrounding microclimatic environment by maximizing natural ventilation and shading. All the elements or organs of this settlement have been perfectly interconnected using passive design strategies to maximize benefit as illustrated in Figure 2.2.4.

Figure 2.2.4: Example of oasis as non-hydro-carbon based system with integrative metabolism

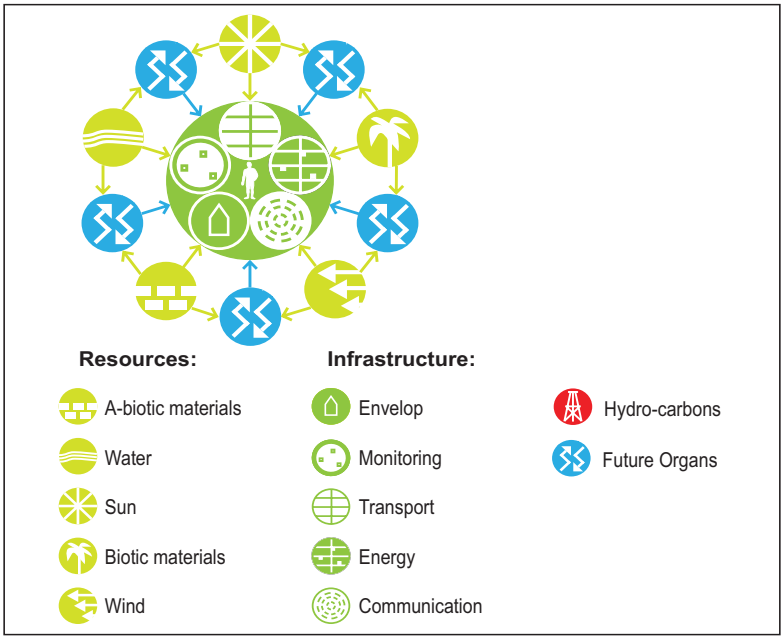
In conclusion, we present two findings that could act as guiding principles for Gulf cities in the future: 1) traditional oasis settlements are organized according to functions and structures in interdependent cycles in order to achieve an adaptable and self-renewing environment; and 2) there is a direct correlation between the structure and process of the design of traditional oasis settlements. They are not hierarchically congruent to each other, but condition each other in reciprocity in a growing fashion rather than a planned top-down decision.

Urban Organisms in the Future

In the past, local resources were the basis for survival. In the present, they have been replaced by a reliance on hydrocarbons with a number of negative implications. In future, the clock cannot be turned back by reviving only single oasis components and turning them to symbols of our cities, which is happening now: Symbols like palm trees are taken as "greenification," and used as beautification applications; this will not solve the general problems of exploiting our earth.

The use of devices which work as "green-washing" products is also not reasonable (e.g., PV cells taken as luxury symbols to indicate the "green" engagement of persons/companies as lifestyle brand rather than considering embedded energy versus effective energy gain). Certainly, this supports economic development, but is not a comprehensive ecological solution as long as devices are not integrated in a holistic system. Implementing self-sufficient oasis system models in future urban environments is not possible, but we can use the oasis as a passive systems model enriched with active generators of energy and materials that adapt to our current and future challenges. Here we propose a scheme for a future integrated city through active and passive connection of natural resources, shaped and converted through the built environment.

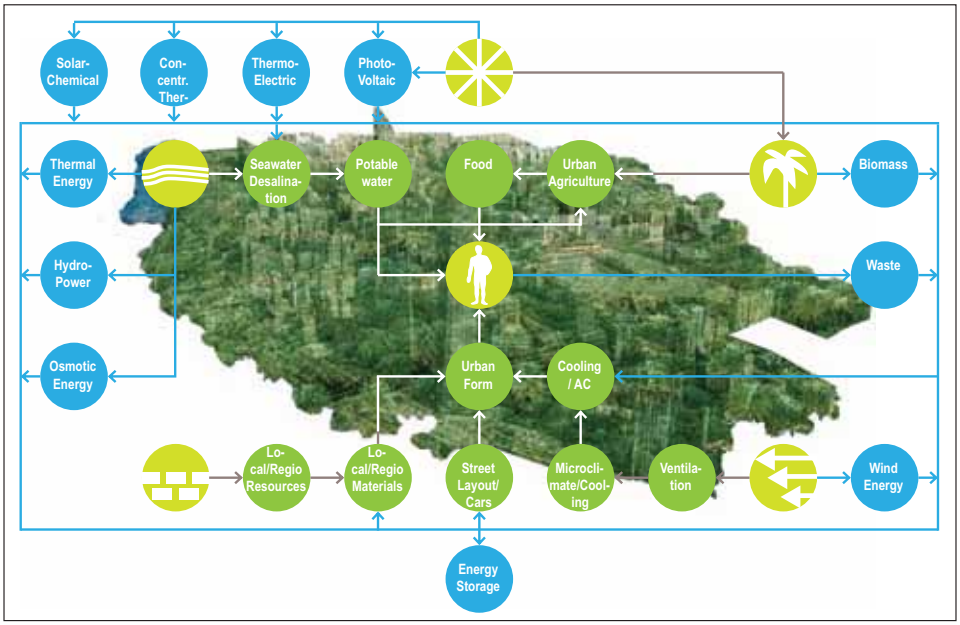
Figure 2.2.5: Scheme of a future non-hydrocarbon city through active and passive connections of natural resources and built environment



A-biotic materials, water, sun, wind, and biotic materials are part of the proposed system. The more energy they contribute, the greater the chance for a full replacement of hydrocarbons. The most significant research and development challenge is still environmental friendly storage of energy (except of biotic materials). Farming of energy which is created by natural resources cannot replace the energy supply unless the challenge of energy storage is solved. Both energy transformation and energy storage from natural resources to urban systems are necessary. The combination of different energies can diminish the inconsistency of natural resources; therefore, the connection of the energy devices to a cycle, which maintains the metabolism in the urban system, is vital.

This is how the human body works: Natural resources like biotic materials or water are absorbed and transformed to energy, which allows the body to survive. Objects fulfilling these tasks in a human body system are called "organs." Due to the comparability between the body and the urban system, we also refer to the urban resource-transforming devices as "organs."

Figure 2.2.6: Example of integrative metabolism of future Gulf cities



Which devices – or organs – can help to convert natural resources into energy storage and materials?

- Water/Seawater: In terms of energy production, hydropower from waves, tides, and marine current should be included if worthwhile. Additionally,

non-mechanical phenomena for energy production are being considered more and more. For example, there is osmotic energy, which works by using the tendency of balancing salinity levels and thermal energy, and turns differences of temperatures into energy.[24]

- Sun: Solar energy production can happen with photovoltaic organs which use the electric charging under solar radiation of some materials; thermo-electric organs which collect the electric current between different metals under different temperatures; thermal organs which concentrate sun radiation; and last but not least, solar-chemical organs like dye-sensitized solar cells which mimic photosynthesis.[25]
- Biotic materials: Photosynthesis converts solar radiation into chemical energy. Generation and storage of energy both happen in biotic materials, which makes them very attractive. They are either consumed as "food" for direct energy transformation, or they are transformed to heat and electric energy.
- Wind: Active wind energy transformers are wind turbines with horizontal or vertical axes.

In general, there are still research and development gaps, although many energy transformers are known. Perhaps, further advancement has not occurred due to the widespread availability of hydrocarbons or technical limitations. In the future, the evolution of bio-chemistry will result in devices that rely on bio-chemical rather than mechanical processes.[26]

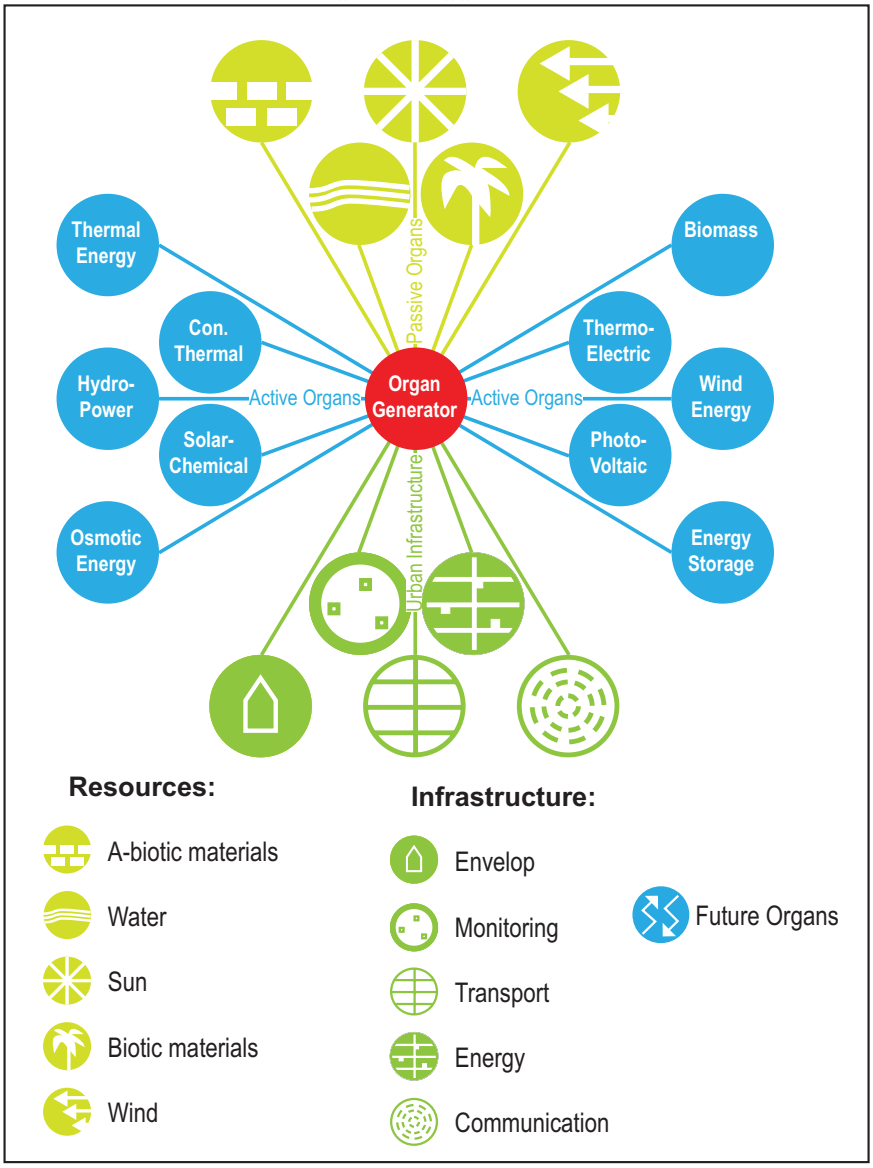
In addition to the active organs, passive organs are very efficient – the oasis settlements could not have survived without these organs, which have been described before in the oasis analysis:

- A-biotic materials as materials for urban construction
- Re-use of wastewater for irrigation of farmland
- Sun shading (= cooling) by shading elements (biotic) like palm trees and urban form
- Biotic materials as building materials and waste as fertilizer
- Wind for ventilation and wind-chill effect of humid surfaces or plantations

24. R. Ferry, *A Field Guide to Renewable Energy Technologies.*
25. Ibid.
26. Ibid.

In general, all infrastructural, especially spatial elements of the built environment need to be enriched by further functions connected directly to natural resource production, support, and conservation. Thus, for optimal efficiency, active and passive elements should become organs that are integrated and interdependent. The combination of both passive strategies of the past and active strategies can create hybrid process flows.

Figure 2.2.7: Generating "urban organs" through active and passive approaches



Active and passive multifunctional organs should not only be combined, but they can be implanted also into the urban body. The scheme shown in Fig. 2.2.7 can be understood as a combination manual for future urban organ developers and explorers. All combinations include a chance for possible innovations. Start anywhere, at random and combine – this is exactly how innovation can happen. We propose a combination of functions of active, passive, and infrastructural design strategies to create a future non-hydrocarbon city.

However, the question remains as to whether the organs are sufficient to replace hydrocarbons, or, conversely, whether the consumption per capita can be compensated by natural resources.

The term "ecological footprint" is used for an "accounting system which tracks how much land and water area a human population uses to provide all it takes from nature" including "the areas for producing the resource it consumes, the space for accommodating its buildings and roads, and the ecosystems for absorbing its waste emissions such as carbon dioxide."[27] Global hectares (gha) per capita is the measurement unit of the ecological footprint. Globally, the average person's ecological footprint was 2.7 gha;[28] the sum of all citizens covers already 1.5 times the world's surface. This global ecological overshoot will increase exponentially with future population growth and rising living standards.

Ecological footprint views individual consumption as an individual's need for a defined amount of hectares. The previously mentioned 2.7 ha/person shows that the shape of future cities has to consider distribution and efficiency of land use. The shape of a future non-hydrocarbon city has to take into account all land needs such as energy land, cropland, grazing land, forestland, built-up land, and fishing grounds. Recent proposals of vertical gardens are already a beginning, but additionally horizontal areas have to be used in a more efficient way, where multifunctional behaviors will help to fulfil the different tasks. The more you grow on one hectare, the fewer hectares you need.

The inclusion of the ecological footprint and its needed area changes the definition of a city. It is not only the area where people live but also the land which is consumed. Thereby, the border between urban (which has been defined so far as "city") and rural (which was defined by the rest) disappears: Rural becomes part of urban. Or, depending on the perspective, the urban becomes part of the rural.

27. Footprint Network, *World Footprint.*

28. Ewing, et al., *The Ecological Footprint Atlas.*

Gulf Cities as Integrated Systems: Outlook

Thinking of cities as organisms and considering ways of integrating environmental and anthropo-sophical spheres into urban processes and flows enables approaches to urbanism that follow principles of high adaptability and self-organization. These can be understood as an urban code that includes all other four codes into an urban form where future Gulf cities shall be able to grow in a dynamic network and materialize to a new urban morphology.

The comparison of Gulf city systems based on pre-hydrocarbon development in oases settlements and the present urbanism of hydrocarbon-driven resources leads us to the following results that can also be understood as an appeal for the future development of Gulf cities: the current elements of a city like the built infrastructure, building typologies, open spaces, and traffic networks need to be converted into urban organs that support and amplify the natural resources beyond hydrocarbons. These organs deal with multi-layered requisitions beyond the spatial and static requirements of current urbanism: They will in future be required to function as organs to support, enhance and amplify enveloping, transporting, energy transforming, material processing and communicating whilst connecting directly to natural resources available to urban systems of the Gulf region.

The conversion process of present urban elements into future urban organs can be achieved through introducing a new thinking of urbanism as organism via URBAN:ORGAN generators. These are closely derived from the systems thinking approaches mentioned earlier and through an extrapolation of the Metabolism manifesto of the 1960s:

Urban: Organ Generator:01
urban system cycles: UR.CLES
Gulf future cities shall organise its functions and structure in cycles in order to achieve a self-renewing environment.

Urban: Organ Generator:02
structure <-> process relationship: DESIGN.OLOGY
Gulf future cities shall establish design and process in a non-hierarchical interconnected relationship.

Urban: Organ Generator:03
Passive and active strategies> process flows: P.ACTIVE
Gulf future cities shall combine active and passive design strategies to create hybrid process flows.

Urban:Organ Generator:04

Combination of flows create Cityform: COM.FORM

Gulf future cities shall include a combination of functions of active, passive and infrastructure design strategies to create a future non-hydrocarbon city.

Urban:Organ Generator:05

Growth Morphology and Dynamic Network: MORPH.NET

Gulf future cities shall be able to grow in a dynamic network. This network will materialize in the morphology of the city.

The aim of urban elements functioning as organs that are able to directly link natural resources and the requirements of the human conditioning of a city is to achieve future Gulf cities with higher adaptability, integration, and efficiency through a hybrid multi-functionality of all of its components.

We dispute the reluctance of the Metabolist Movement purely focusing on design and technology as a means of achieving utopia within a contemporary vision. Our vision is based in the "environment-time" of emerging global challenges for urbanism. Through our proposal of the city as a system of urban organs, we are responding to the need for shifting our role as urban designers and architects to a more unpretentious envisioning of holistic processes that happen on multi-faceted layers and, present new ways of thinking of the city.

We are not asking for a finite form or utopian shape but for Design.ology achieving Com.form through embodying P.active Ur.cles into the Morph.net of the Future Gulf City.

References

Abbey, Edward. 1990. *Desert Solitaire: A Season in the Wilderness.* New York: Simon & Schuster.

Al-Salimi Abdulrahman, Heinz Gaube and Lorenz Korn. 2008. *Islamic Art in Oman.* Mazoon.

Al Jabry, Q. 2012. "Water Resources Evaluation and Conservation in Oman." Ministry of Housing, Electricity and Water Muscat, Oman.

Buerkert, Andreas, and Eva Schlecht. 2010. *Oases of Oman.* Muscat: Hatim Al Taie.

Capra, F., and H. Henderson. 2009. "Qualitative Growth." www.fritjofcapra.net. Accessed 2013.

Capra, Fritjof. 1996. *The Web of Life: A New Scientific Understanding of Living Systems.* New York: Anchor Books.

CIA. 2013. *The World Factbook.* www.cia.gov/library/publications/the-world-factbook/ Accessed on March 19, 2013.

Commission on Sustainable Development. 1999. *Tourism and Sustainable Development.* Background paper #1, New York: UN Department of Economic and Social Affairs.

Damluji, Salma Samar. 1998. *The Architecture of Oman.* Reading: Garnet Publishing Ltd.

Ewing B., D. Moore, S. Goldfinger. 2010. A. Oursler, A. Reed, and M. Wackernagel. *The Ecological Footprint Atlas.* Oakland: Global Footprint Network.

Ferry, R. and E. Monoian. 2013. *A Field Guide to Renewable Energy Technologies.* www.landartgenerator.org. Accessed 2013.

Footprintnetwork. *World Footprint.* 2013. http://www.footprintnetwork.org. Accessed 2013.

Gangler, Anette. 2008. *Oases Settlements in Oman.* Stuttgart: Esefeld &Traub.

Gangler, A., and H. Gaube. 2012. *Transformation Processes in Oasis Settlements of Oman. Muscat,* Sultanate of Oman: Al Roya Press.

General Census of Population, Housing and Establishments project. "The Preliminary Results of Census 2010." *Sultanate of Oman, Ministry of National Economy.* December 2010. http://www.mone.gov.om. Accessed in May 2011.

International Energy Agency (IEA). World Energy Outlook. 2009. http://www.iea.org. Accessed 2013.

Jenks, Michael. 2000. *Achieving Sustainable Form.* Spoon Press.

Kenworthy, J. and F. Laube. 2002. "Urban Transport Patterns in a Global Sample of Cities and Their Linkages to Transport Infrastructures, Land Use, Economics and Environment." *World Transport Policy & Practice: 5-20.*

Lin, Zhongjie. 2010. *Kenzo Tange and the Metabolist Movement.* New York: Routledge.

Lubin, Gus. 2011. "UN Global Reource Consumption Will Triple by 2050." May 13. www.businessinsider.com. Accessed 2013.

Luedeling, Eike, und Andreas Buerkert. 2008. "Typology of Oases in Northern Oman Based on Landsat and SRTM Imagery and Geological Survey Data." *Remote Sensing of Environment:* 1181–1195.

Ministry of Agriculture and Fisheries, Sultanate of Oman. 2013. *Ministry of Agriculture and Fisheries, Sultanate of Oman.* http://www.maf.gov.om. Accessed on May 30, 2013.

Nissenbaum, S. Buckley. 2013. "Dead Sea Asphalt in Ancient Egyptian Mummies—Why?" *Archaeometry* (University of Oxford) Volume 55, Nr. Issue 3 (June): 563-568.

Peterson, John. 2007. *Historical Muscat: an Illustrated Guide and Gazetter.* Leiden: Brill.

Sultanate of Oman, Ministry of Foreign Affairs. 2010. www.mofa.gov.om. Accessed 2011.

The World Bank Group. *The World Bank Data.* 2013. http://data.worldbank.org/country/oman. Accessed on January 13, 2013.

UN Habitat. 2013. *UN Habitat Sustainable Cities and Localizing Agenda 21 Programmes.* http://www.unhabitat.org. Accessed on March 3, 2013.

United Nations Environment Programme. 2013. *Agenda 21.* http://www.unep.org/. Accessed 2013.

United Nations. 2013. *World Population Prospects.* http://esa.un.org/wpp/. Accessed 2013.

United States Environment Protection Agency. 2010. *Climate Change Indicators in the United States.* http://www.epa.gov/climatechange/science/indicators/society-eco/heat-deaths.html. Accessed 2013.

Wilkinson, J.C. 1977. *Water and Tribal Settlement in South-East Arabia: A Study of the Aflaj of Oman.* Oxford: Clarendon Press.

World Allergy Organisation. 2011. *WAO White Book on Allergy 2011-2012.* www.worldallergy.org. Accessed 2013.

World Wildlife Fund. 2013. *Deserts and Xeric Shrublands Arabian Peninsula: Oman and United Arab Emirates.* http://worldwildlife.org/ecoregions/at1306. Accessed 2013.

2.2

URBAN:ORGAN – Models for Gulf Cities as Integrated Ecological Systems

Joerg Baumeister and Daniela A. Ottmann

We travel together, passengers on a little spaceship, dependent on its vulnerable reserves of air and soil; all committed, for our safety, to its security and peace; preserved from annihilation only by the care, the work and the love we give our fragile craft. We cannot maintain it half fortunate, half miserable, half confident, half despairing, half slave — to the ancient enemies of man — half free in a liberation of resources undreamed of until this day. No craft, no crew can travel safely with such vast contradictions. On their resolution depends the survival of us all.

Adlai Ewing Stevenson II, Speech to the UN Economic and Social Council, Geneva, Switzerland (July 9, 1965)

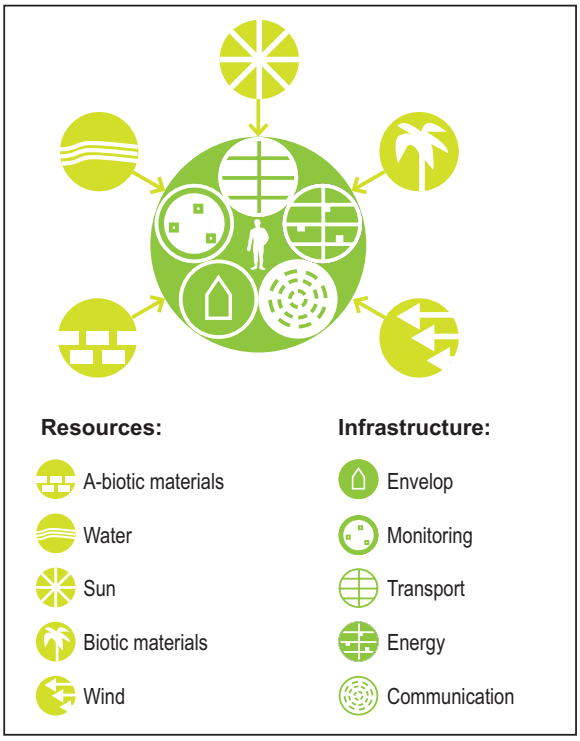
The Quest for Healthy Cities

Almost 50 years after Adlai Stevenson's warnings, cities in the Gulf region are desperately trying to find ways to integrate environmental and socio-cultural requirements. Traditional oasis settlements can provide models for addressing how to live in the hot arid desert environment of the Arabian Peninsula. Recreating an oasis in a new urban setting would not work due to the limitation of resources to support a large population and to maintain certain comfort levels. Both aspects –

the number of people and their comfort level – are determinants, which depend on the availability of resources. If there are not enough resources, either the number of people or their comfort (or both) have to be adjusted – or resources have to be imported from elsewhere.

Fossil fuels are very helpful in providing the resources necessary to maintain life in the harsh desert environment. For several thousands of years, easily obtainable fossil fuels were used locally. However, since the beginning of oil extraction in the 1850s and with increasingly efficient transportation networks, the average oil consumption expanded to almost five barrels per year per capita;[1] the global population increased in the same time from one billion to the current level of seven billion.[2] Both oil consumption and the global population will certainly rise further, resulting in an exponentially increasing energy demand. At the same time, forms of energies based on natural resources other than fossil fuels remain marginal and neglected.

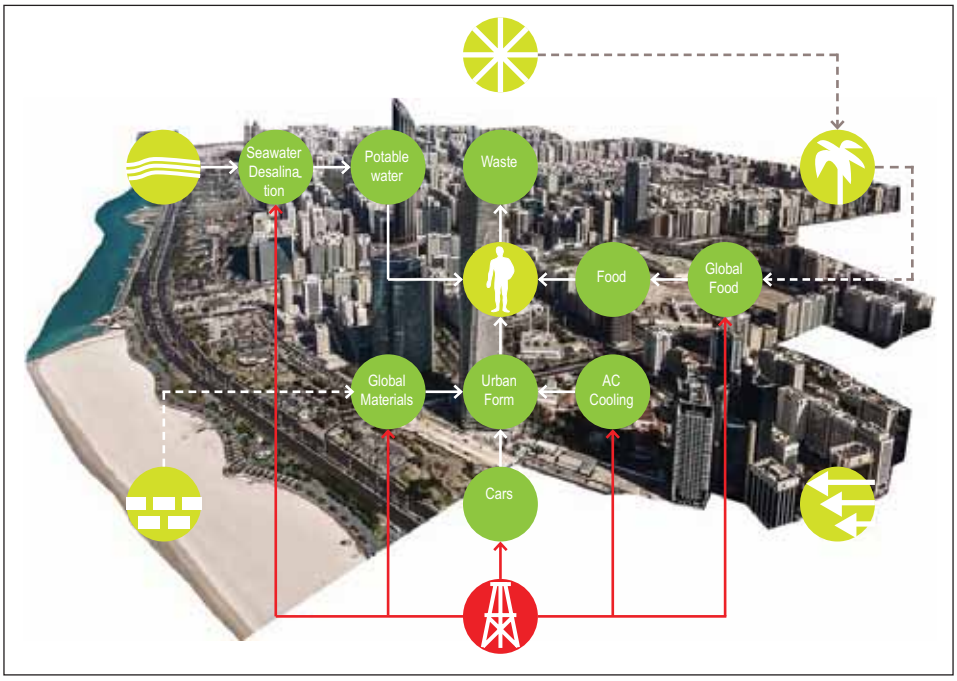
Figure 2.2.1: Scheme of a present hydrocarbon city with no connection to natural resources



1. IEA, *World Energy Outlook*.
2. United Nations, *World Population Prospects*.

Satisfying energy needs is an issue with political and economic aspects that are related to the protection of national interests. Starting with the first officially defined hydrocarbon conflict between Egypt and Nabataeans in 400 BC,[3] there have been many wars which have resulted in a considerable loss of life, an unacceptable fact from a humanitarian perspective and a waste of energy in terms of a system-thinking perspective. With regard to the use of resources and pollution, in 2011 the United Nations forecast a future "exceeding all possible measures of available resources and assessments of limits to the capacity to absorb impacts."[4] (Lubin 2011) Additionally, the list of global problems due to hydrocarbon based pollution is already quite long and includes urban air pollution,[5] heat stress,[6] and allergic diseases.[7]

Figure 2.2.2: Example of a hydrocarbon-based urban system with external metabolism



3. Nissenbaum, "Dead Sea Asphalt in Ancient Egyptian Mummies—Why?"
4. Lubin, "UN Global Reource Consumption Will Triple by 2050."
5. Kenworthy and Laube, "Urban Transport Patterns in a Global Sample of Cities."
6. EPA, *Climate Change Indicators in the United States.*
7. World Allergy Organisation, *WAO White Book on Allergy 2011-2012.*

Obviously, the effects of a change from a local metabolism (e.g., of an oasis settlement) to carbon-based living in a globalized metabolism are not beneficial. However, at present, it is impossible to return to life without fossil fuels. Hydrocarbons are used for the desalination of seawater, which is needed for a growing population in areas with very limited access to fresh water. It would also prove difficult, if not impossible, to live without air conditioning or other mechanically supported means of attaining a minimum level of thermal comfort. Additionally, it may not be possible to meet the food needs of the population with only local production that relies on locally available resources. Therefore, the increased reliance on hydrocarbons is likely to have unavoidable harmful consequences.

Conditioning the Desert

> "Water, water, water.... There is no shortage of water in the desert but exactly the right amount, a perfect ratio of water to rock, water to sand, insuring that wide free open, generous spacing among plants and animals, homes and towns and cities, which makes the arid West so different from any other part of the nation. There is no lack of water here unless you try to establish a city where no city should be."[8]

To address the current challenges of the Gulf region, we chose the Sultanate of Oman to explore settlement development in a desert region in the Arabian Peninsula. The country can be subdivided into two different biomes: the desert region of the Empty Quarter; and temperate grasslands, savannas, and shrubland in the Hajar mountains.

Desert and xeric shrublands are those having less than 100 mm of rainfall per year including extreme temperature changes and a limited variety of species. On the eastern side of the Arabian Peninsula, comprising the United Arab Emirates (UAE) and Oman, the climate is characterized by high temperatures (up to 50 degrees Celsius in July), high humidity, and low rainfall. The average rainfall in the mountain region is 140-200 mm and along the east coast 100-140 mm. Oman's Batinah coast receives an annual average rainfall of nearly 100 mm, mostly in winter.[9]

As in the other Gulf Cooperation Council (GCC) countries, massive change occurred in Oman following the exploration and export of hydrocarbon products,

8. Abbey, *Desert Solitaire.*
9. World Wildlife Fund, *Deserts and Xeric Shrubland.*

resulting in a major impact on the morphology of cities, the country's ecology, and the social coherence of communities.

Anthrophogenic Biome Desert - Development and its Challenges

The growing population has resulted in the expansion of the built environment, which has impacted the natural systems by overexploiting available resources. As of July 2013, the population of the Sultanate of Oman was 3,090,150, with an annual Population Growth Rate of 2.04 percent (2013 est.).[10] There has also been a trend of people leaving villages in the interior to move to urban regions. Seventy three percent of the total population (in 2010) resided in urban sprawls of the Muscat governorate and the Batinah coast.The demographic distribution indicates a very "young" country where 55 percent of the population is less than 20 years of age while 83 percent is under the age of 35.

According to the *World Bank Factbook,* Oman has one cubic kilometer of renewable water resources compared to freshwater withdrawal for domestic, industrial, and agricultural use of 1.36 cubic kilometer/year in 2000. The rising demand due to population, agriculture, industry and trade will go up by 42 percent by 2020 to a total of 1.71 cubic kilometer/year, with approximately 90 percent required for agricultural purposes.[11]

The traditional source of water distribution and equally the basis for any oasis settlement in Oman and the UAE has been the *falaj* (irrigation system) or the direct link to a well or a spring. In contrast, agriculture in regions like Batinah depends on man-made wells and energy-consuming desalination plants have been introduced.

All agriculture in Oman is irrigated and, since the 1970s, irrigated areas have increased from about 28,000 ha to 63,632 ha in 2005. Although 2.2 million ha are considered suitable for agriculture, groundwater is insufficient for most areas. At present, groundwater depletion has increased, especially in coastal areas, leading to seawater intrusion and deterioration in the water quality. Currently in the urbanized areas of Oman, 85 percent of potable water is being produced through energy-intensive desalination processes (both multi-stage flash evaporation and reverse osmosis technologies).[12] In terms of consumption per capita per day, an Omani citizen demands 181 percent of the available renewable water resources, according to the World Bank Group.

10. CIA, *The World Factbook.*
11. World Bank, 2013.
12. Ministry of Agriculture and Fisheries, Sultanate of Oman, 2013.

The required amount of electricity production of 18.59 billion kWh (2010 est.) is derived purely from gas or petroleum fossil fuels: 37 percent of the required energy is used for transportation, 24 percent for buildings, 35 percent for industry and 4 percent for the agricultural sector. Major contributors to the annual energy use are residential buildings in Oman, which use around 450 kg of oil equivalent per capita.

These factors result in carbon dioxide emissions from consumption of energy of 55.2 million Mt (2010 est.). In world carbon emissions, Oman has a share of 0.1 percent whereas the UAE's share is 0.49 percent and Saudi Arabia's 1.3 percent.[13]

The move away from a close relationship with the natural environment that has traditionally supported human settlement in the region has resulted in a variety of compensation strategies to support the rapid expansion of the population. The previous integration of water, climate, biodiversity and socio-cultural practices has now become more and more distant because of the introduction of artificial means to support daily life. Electrical pumps can harvest the water from deep wells, replacing the *falaj* system which was used and maintained over thousands of years as a passive strategy to harvest and use available resources. Electrical power also replaces passive design strategies of settlements and buildings by introducing electronically powered climate-conditioning mechanisms. A "comfortable" lifestyle, including less physical work, less engagement with the natural environment, and encapsulated climate controlled interiors, has come to be expected by inhabitants of Oman.

The revenue generated by hydrocarbon exports has never been higher in the country, reaching $71.78 billion in 2011 as compared to $44.23 million in 1960.[14] The increasing "wealth" is congruent with the expanding population: in 2011, there were 2.846 million inhabitants over an area of 300,000 square kilometers in comparison with 456,000 inhabitants in 1950 (2012 est.)[15]

The growing population demands more water, food, and energy resources within the scarce environment of a desert. Current urban policies and governance encourage a peri-urban sprawl, resulting in mono-function land use that places high demands on infrastructure, degradation of biodiversity, and increased consumption of energy and water.

13. The World Bank Group, 2013.
14. Ibid.
15. CIA, *The World Factbook*.

Shift in Thinking

To address the challenges associated with the resource-scarce and climatically harsh environment of the Gulf region, this chapter proposes an alternative to the current tendencies of urban planning, design, and architecture. Similar theories have been used in the 1960s by members of the Japanese Metabolism Movement:

> "Metabolism is the name of the group, in which each member proposes further designs of our coming world through his concrete designs and illustrations. We regard human society as a vital process – a continuous development from atom to nebula. The reason why we use such a biological word, metabolism, is that we believe design and technology should be a denotation of human society. We are not going to accept metabolism as a natural process, but try to encourage active metabolic development of our society through our proposals."[16]

Whereas organic biological growth processes inspired Metabolism's architectural mega-structures and were concerned primarily with formal metaphorical aspects, this research extends the analysis of urban metabolic flows to sustain urban functions, human well-being, and quality of life.

Understanding Built Environment as an Ecological System

The URBAN:ORGAN project explores ways of understanding the urban environment as an organism of processes and flows. Metabolic flows of natural resources and their relationship with the built environment are examined in relation to the physical patterns of urban form.

In order to compare the current tendencies of city making and the underlying streams of resources, this chapter analyzes urban development in desert areas before and after the discovery of oil.

The selection of cases studies, technologies, and processes is viewed through the lens of 21st century socio-economic living in conjunction to bridging the gap between the surrounding biosphere and anthropogenic environment. Here a higher adaptability is envisioned for Gulf cities in order to become viable urban organisms.

Empirical research through the parameters of system theories is used to combine case studies of the past and the present urban conditions in the Gulf region. A case study of traditional oasis towns in Oman is used as reference of pre-

16. Lin, *Kenzo Tange and the Metabolist Movement.*

hydrocarbon driven settlements. The analysis concentrates on spatial relations and interconnections of natural resources flows and the built environment. Principles of urban processes that are directly linked and are a result of bio-climatic and socio-cultural circumstances are examined. The results are then compared to present tendencies of hydrocarbon driven urbanism in the Gulf region. Organizational diagrams are used to describe resource flows and interconnectivity between components of the city.

Analyses of past and present trends of urbanism in Gulf cities enable a prediction of possible future development through establishing what we term URBAN:ORGAN codes, which can be seen as a possible framework for city-making of the future in order to reach a higher adaptability and integration to the prevailing natural system for the planet. A shift is predicted from the specialized "product design" approach of hydrocarbon-driven architecture and urbanism to a city as supporting platform of processes that link bio-climatic and socio-cultural conditions into highly adaptable, resilient, and self-organizing patterns.

> Qualities arise from processes and patterns of relationships among the parts. Hence, we cannot understand the nature of complex systems such as organisms, ecosystems, societies, and economies if we try to describe them in purely quantitative terms. Quantities can be measured; qualities need to be mapped.[17]

How to overcome environmental problems caused by the production and operation of the built environment are mainly being discussed by specialists and experts in specifically defined fields (e.g., emission experts) and solved through specific technologies (e.g., carbon dioxide storage). The connections between sourcing raw materials, converting those into products that accumulate to built environment, and the operation and recycling are, in most of the cases, not seen as a whole cradle-to-cradle process that considers energy inputs and outputs.

Looking at urbanism and architecture not as a materialized aspect of form, function, and aesthetics but as a holistic network of flows and processes requires a shift in thinking. Here the architect and urban planner need to be introduced to an ecological understanding of the built environment as organism. Since the 1930s, this way of thinking has been commonly termed as systems thinking by biologists, psychologists, ecologists, and economists. It has been used by several scholars of different disciplines like Ludwig von Bertalanffy in biology to find parameters of unifying sciences, Joseph A. Schumpeter for business cycles to analyze capitalist

17. Capra and Henderson, "Qualitative Growth."

processes in the field of economics, and by J.W. Forrester to explore feedback loop-based system dynamics of physical and human systems.

Through a systems view we realize that objects themselves are networks of relationships, embedded in larger networks. To connect to the natural systems, of which we as human beings are a part, it is necessary for us to understand the underlying principles of natural systems. The physicist and founder of the Institute for Eco literacy Fritjof Capra provides the following overview:

1. Cycles: Exchange of matter and energy in continual cycles as feedback loops ensuring information flow, recycling, and conservation
2. Partnership: All living members are engaged in competition and cooperation through symbiosis and collaboration
3. Interdependence: The success of the whole system depends on each member and vice versa
4. Energy flows: Solar energy as chemical form of energy through photosynthesis drives all ecological cycles
5. Diversity: The stability of the ecosystem depends on the degree of complexity of its network of relationships
6. Flexibility: Resilience as a flexible state is characterized by interdependent fluctuations of their variables
7. Sustainability: The long-term survival (sustainability) of each species in an ecosystem depending on a limited resource base
8. Co-evolution: The interplay of creation and mutual adaptation through a process of development and learning[18]

The current practice of dealing with the built environment as an ecological system can be seen in the UNEP Agenda 21 that has introduced several programs for resilient and sustainable cities that are mainly broken down to certain measurable policies. For example, reduction of carbon dioxide emissions and water consumption powered by the right technology can solve the issues caused by a whole network of interdependent processes preceding the environmental waste products.[19]

Architecture is now classified through rating system (e.g., LEED, Green Star, Estidama, etc.) to indicate and evaluate "green-ness." Such rating systems are also used in analyzing water and energy consumption that can effect a lower carbon footprint. Lists of the "right" technologies and products to achieve those goals are

18. Capra, *The Web of Life.*

19. UNEP, *Agenda 21.*

being used but without recognizing the grey and embedded energy of those so-called renewable energy technologies.

Therefore, URBAN:ORGAN advocates a consideration of the processes and components that shape the input and output into the system of the built environment, from the urban and architectural scales to the technologies associated with the production and use of energy and material.

All resources required and used in this system of architecture and urbanism are part of and derive directly from the natural environment. The main available resources are classified as sun, wind, water, and organic and inorganic materials. The other determining factor is the anthropological context that defines the needs of a city or architecture through various levels of society, culture, governance, and economy. In this chapter, we will only examine the linkages between resource input and output of the natural environment into the built environment and vice versa.

Oasis as a System from the Past

Prior to the discovery of oil in the Arabian Peninsula, there were structures that had been built and maintained without significant change over many centuries. Therefore, those settlements are a valuable indicator for human activities in the harsh and resource- scarce environment of a desert through using passive technologies (defined here as non-electricity consuming technologies). Due to the lack of water (annual rainfall ranges between 40 and 100 mm) under the prevalent climatic conditions of Oman, traditional settlements can be found mainly around or at sources of water. Given those climatic conditions, agriculture in Oman relies on man-made irrigation. Therefore, traditional farming systems have been developed in geological or topographic settings where water was accessible or easily reachable.[20] In most cases, the built environment was integrated into farmland.

Thus, the following analysis will concentrate on settlements or oasis towns where the natural environment and the man-made infrastructure of agriculture and built environment go hand in hand. We are not considering socio-morphological changes since the new constitution of the country came into in force from 1970 which resulted in a massive decay of those decentralized settlements and resulted in rapid urbanization along the main industrial areas of Sohar and Muscat.

The settlements were oases, or a fertile spot in a desert where water is found. The sources of water are three: 1) underground rivers or aquifers of groundwater to

20. Luedeling and Buerkert, "Typology of Oases in Northern Oman."

springs (on which most of the water irrigation systems of oases settlements depend on), groundwater wells, and artesian wells.

The system of URBAN:ORGAN of one oasis town in the interior of Oman, Misfat Al Abreeyn, will be detailed here. This town is located on the west side of the Hajar mountain chain at 950m above sea level, with steep banks created just above an intersection of two *wadis* (valley occasionally flooded in the rainy season) to the south east. Hence the orientation of the hamlet and its terraced farmland goes along the given topography and is in accordance with particular micro-climatic conditions.[21]

Water and irrigation in the desert environment is the source of life. Hence technologies have been established over thousands of years in such climate zones to harvest and transport water. In the case of Oman, water is found mainly in fossil basins located within the Hajar mountains or in aquifers underneath the sandy surface. The Ministry of Housing in Oman distinguishes three types of aflaj systems used in Oman over the last 1,500 years:

- *Falaj daoodiya:* These are long channels dug under the ground
- *Falaj ghiliya:* Similar to canals, these *falaj* carry water from the running surface or semi-surface water
- *Falaj aynia:* These canals take their water directly from the spring.[22]

In Misfat al Abreeyn, the main water source derives from a *daoodiya falaj* system from a spring above the *wadi* which is located to the east of the settlement. At the entry points of the irrigation channel into the oasis settlement there are washing structures for women and men just before it reaches a huge basin in front of the mosque. Before the water reaches the washing structures, water for drinking purposes is diverted. After leaving the public basin, the *falaj* is then diverted into separate singular channels to reach the different farming terraces. The distribution of water into privately held fields has been traditionally decided by using astronomical calculations and sundials. To close the cycle of water use in oasis systems, the grey water of the households as well as the dried black wastewater of humans and animals is then distributed onto the farmland as fertilizers. The irrigated water is then filtered through the soils and rocks of the farm terraces back into aquifers.

All oasis settlements depended mainly on a green belt of agriculture; Omani oasis farmers grow a large array of crops, including fruits, with most of the area

21. Buerkert and Schlecht, *Oases of Oman.*

22. Al Jabri, "Water Resources Evaluation and Conservation in Oman."

dedicated to groves of date palms. In the case study of Misfat Al Abryeen, the built up area comprises around one-fifth of the farmed land surrounding it as a green belt. Agriculture is supported by an above-ground irrigation system that nourishes the terraces that begin at the lower edges of the dense cluster of the settlement on the south and east border of the slope. All the terraces receive their main shading through six- to eight-meter-high date palms that have a variety of crops at their base. The fields are fertilized via human and animal waste. The palm tree provides resources for construction, weaving, and power generation.

The urban structure of the settlement comprises around 100 housing units and supported 580 inhabitants in 1993.[23] The topography of the place and the irrigation system explain the irregular patterns of densely clustered building structures. Narrow alleyways between the clusters allow the prevailing winds to enter the area from the *wadi* to the south-east and prevent the direct impact of the sun. Most of the structures comprise two storey buildings made of locally available building materials. Limestone plinths are directly built on the existing rock topography and are finished off with sundried adobe bricks. Those loam bricks contain mainly the clayey soils of the surrounding farmland in conjunction with straw fibers for tensile strength. Slabs and roofs are constructed of quartered palm tree trunks and topped up with palm-frond woven mats filled in again with clayey earth (loam). Openings are enforced through either stone or palm-tree trunk lintels and fitted with wooden shutters for door and window openings. Wild olive or juniper trees of the region provide more durable timber than palm tree wood. The lower floors have few openings and mainly vertical slits in the upper wall areas to provide ventilation, heat insulation, and security from external influences. The upper floors have their openings very low to the floor and ventilation slits in the upper areas of the walls in order to create air drafts for ventilation. The wall construction on the upper floor is thinner due to economic and structural reasons. Here the interior walls have recesses that are storage niches or light niches. This measure also takes away load from the lower floors.

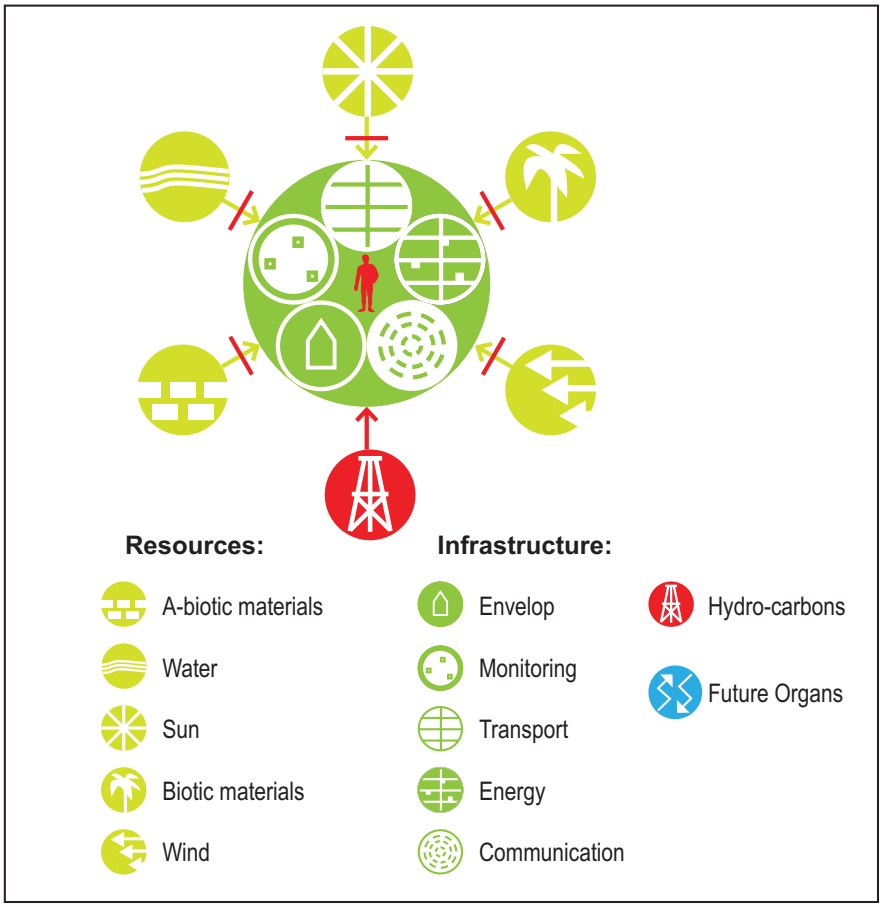
The main thoroughways open onto the farmland belt on the southeast side. Other narrow alleyways are maze-like and winding through the oasis cluster. The microclimate results from the prevailing winds from the *wadi* crossing to the east. Also, the buildings occupy elevated terraces and benefit from the cooling effect as winds pass through the oasis.

23. Gangler and Gaube, *Transformation Processes in Oasis Settlements of Oman.*

The settlement is fairly protected from the harsh natural environment through the dense clustered layout. The walls of the buildings provide insulation through a 80- to 100-cm-thick thermal mass of local stone and earth construction material. Common courtyard spaces shared by the community are self-shaded by the vertical walls surrounding the courtyards.

The given conditions of natural resources, namely water, prevailing winds, the solar impact, biotic and abiotic materials, have been used to create a suitable environment to support survival in the harsh and resource-scare environment of the desert. All these factors have been carefully considered and integrated into passive design strategies to create liveable settlements (see Fig. 2.2.3.) This settlement reveals that traditional oasis systems in Oman had adapted to the environment and its available resources in order to remain self-sustainable over centuries.

Figure 2.2.3: Scheme of an oasis system indicating direct connections between natural resources and built environment



Through photosynthesis, green plant life becomes a source of energy for agriculture and food, biomass and construction products. The water of the *falaj* systems are gradually transformed from potable water into grey water and other wastewater for the irrigation of the farmland. Locally sourced materials, such as loam and rock, are used to create a compact and clustered urban settlement. Also the waterproofing render to the buildings is made out of loam and surrounding limestone through a burning process with palm tree logs into hydraulic plaster. The urban form hence results not only from the available materials and locally developed construction methods, but also from adaptations to the surrounding microclimatic environment by maximizing natural ventilation and shading. All the elements or organs of this settlement have been perfectly interconnected using passive design strategies to maximize benefit as illustrated in Figure 2.2.4.

Figure 2.2.4: Example of oasis as non-hydro-carbon based system with integrative metabolism

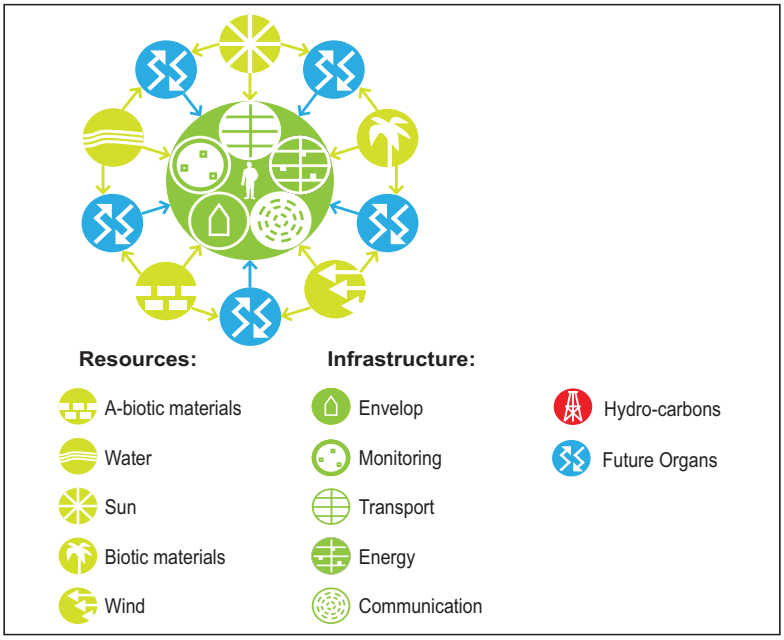
In conclusion, we present two findings that could act as guiding principles for Gulf cities in the future: 1) traditional oasis settlements are organized according to functions and structures in interdependent cycles in order to achieve an adaptable and self-renewing environment; and 2) there is a direct correlation between the structure and process of the design of traditional oasis settlements. They are not hierarchically congruent to each other, but condition each other in reciprocity in a growing fashion rather than a planned top-down decision.

Urban Organisms in the Future

In the past, local resources were the basis for survival. In the present, they have been replaced by a reliance on hydrocarbons with a number of negative implications. In future, the clock cannot be turned back by reviving only single oasis components and turning them to symbols of our cities, which is happening now: Symbols like palm trees are taken as "greenification," and used as beautification applications; this will not solve the general problems of exploiting our earth.

The use of devices which work as "green-washing" products is also not reasonable (e.g., PV cells taken as luxury symbols to indicate the "green" engagement of persons/companies as lifestyle brand rather than considering embedded energy versus effective energy gain). Certainly, this supports economic development, but is not a comprehensive ecological solution as long as devices are not integrated in a holistic system. Implementing self-sufficient oasis system models in future urban environments is not possible, but we can use the oasis as a passive systems model enriched with active generators of energy and materials that adapt to our current and future challenges. Here we propose a scheme for a future integrated city through active and passive connection of natural resources, shaped and converted through the built environment.

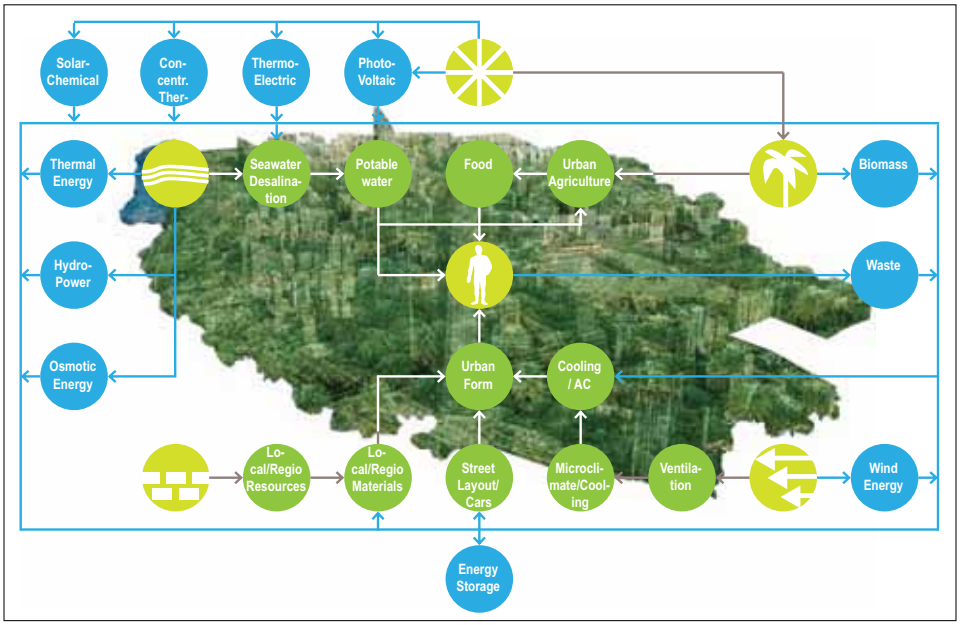
Figure 2.2.5: Scheme of a future non-hydrocarbon city through active and passive connections of natural resources and built environment



A-biotic materials, water, sun, wind, and biotic materials are part of the proposed system. The more energy they contribute, the greater the chance for a full replacement of hydrocarbons. The most significant research and development challenge is still environmental friendly storage of energy (except of biotic materials). Farming of energy which is created by natural resources cannot replace the energy supply unless the challenge of energy storage is solved. Both energy transformation and energy storage from natural resources to urban systems are necessary. The combination of different energies can diminish the inconsistency of natural resources; therefore, the connection of the energy devices to a cycle, which maintains the metabolism in the urban system, is vital.

This is how the human body works: Natural resources like biotic materials or water are absorbed and transformed to energy, which allows the body to survive. Objects fulfilling these tasks in a human body system are called "organs." Due to the comparability between the body and the urban system, we also refer to the urban resource-transforming devices as "organs."

Figure 2.2.6: Example of integrative metabolism of future Gulf cities



Which devices – or organs – can help to convert natural resources into energy storage and materials?

- Water/Seawater: In terms of energy production, hydropower from waves, tides, and marine current should be included if worthwhile. Additionally,

non-mechanical phenomena for energy production are being considered more and more. For example, there is osmotic energy, which works by using the tendency of balancing salinity levels and thermal energy, and turns differences of temperatures into energy.[24]

- Sun: Solar energy production can happen with photovoltaic organs which use the electric charging under solar radiation of some materials; thermo-electric organs which collect the electric current between different metals under different temperatures; thermal organs which concentrate sun radiation; and last but not least, solar-chemical organs like dye-sensitized solar cells which mimic photosynthesis.[25]
- Biotic materials: Photosynthesis converts solar radiation into chemical energy. Generation and storage of energy both happen in biotic materials, which makes them very attractive. They are either consumed as "food" for direct energy transformation, or they are transformed to heat and electric energy.
- Wind: Active wind energy transformers are wind turbines with horizontal or vertical axes.

In general, there are still research and development gaps, although many energy transformers are known. Perhaps, further advancement has not occurred due to the widespread availability of hydrocarbons or technical limitations. In the future, the evolution of bio-chemistry will result in devices that rely on bio-chemical rather than mechanical processes.[26]

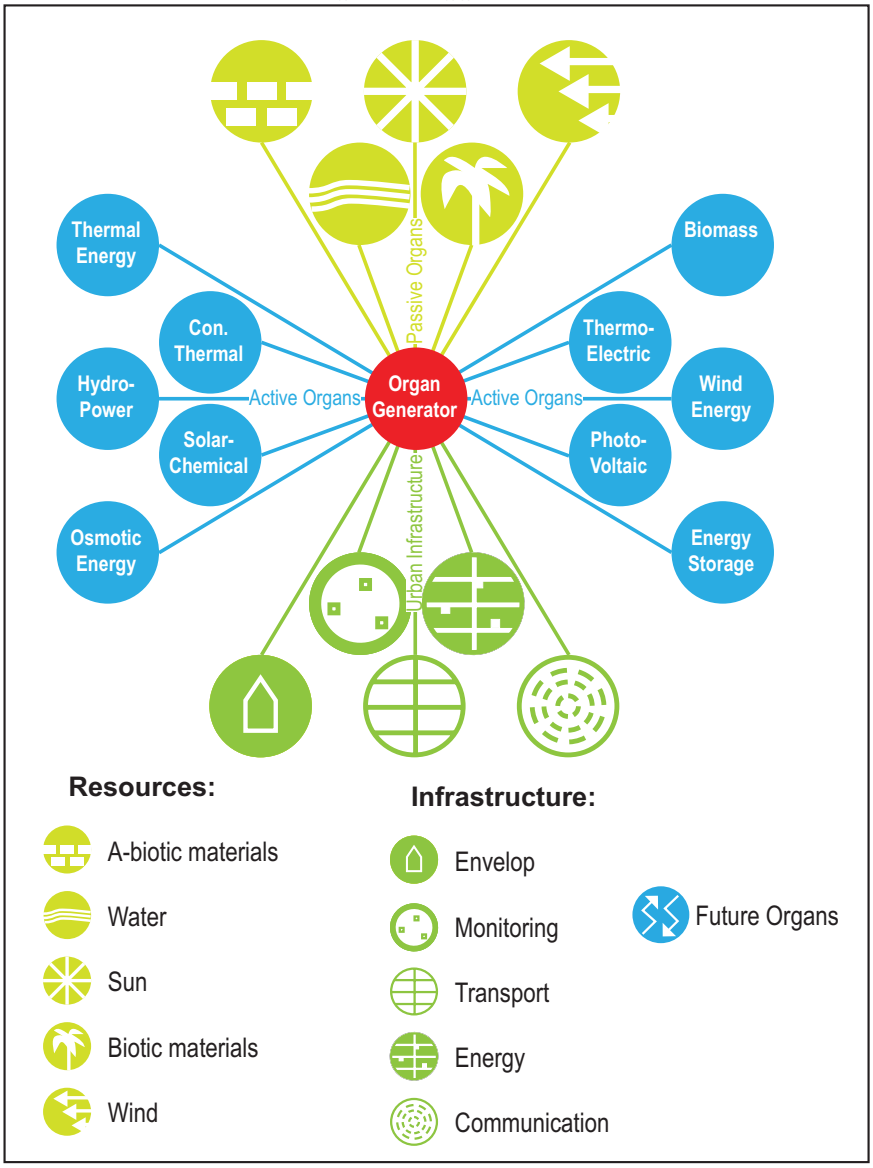
In addition to the active organs, passive organs are very efficient – the oasis settlements could not have survived without these organs, which have been described before in the oasis analysis:

- A-biotic materials as materials for urban construction
- Re-use of wastewater for irrigation of farmland
- Sun shading (= cooling) by shading elements (biotic) like palm trees and urban form
- Biotic materials as building materials and waste as fertilizer
- Wind for ventilation and wind-chill effect of humid surfaces or plantations

24. R. Ferry, *A Field Guide to Renewable Energy Technologies.*
25. Ibid.
26. Ibid.

In general, all infrastructural, especially spatial elements of the built environment need to be enriched by further functions connected directly to natural resource production, support, and conservation. Thus, for optimal efficiency, active and passive elements should become organs that are integrated and interdependent. The combination of both passive strategies of the past and active strategies can create hybrid process flows.

Figure 2.2.7: Generating "urban organs" through active and passive approaches



Active and passive multifunctional organs should not only be combined, but they can be implanted also into the urban body. The scheme shown in Fig. 2.2.7 can be understood as a combination manual for future urban organ developers and explorers. All combinations include a chance for possible innovations. Start anywhere, at random and combine – this is exactly how innovation can happen. We propose a combination of functions of active, passive, and infrastructural design strategies to create a future non-hydrocarbon city.

However, the question remains as to whether the organs are sufficient to replace hydrocarbons, or, conversely, whether the consumption per capita can be compensated by natural resources.

The term "ecological footprint" is used for an "accounting system which tracks how much land and water area a human population uses to provide all it takes from nature" including "the areas for producing the resource it consumes, the space for accommodating its buildings and roads, and the ecosystems for absorbing its waste emissions such as carbon dioxide."[27] Global hectares (gha) per capita is the measurement unit of the ecological footprint. Globally, the average person's ecological footprint was 2.7 gha;[28] the sum of all citizens covers already 1.5 times the world's surface. This global ecological overshoot will increase exponentially with future population growth and rising living standards.

Ecological footprint views individual consumption as an individual's need for a defined amount of hectares. The previously mentioned 2.7 ha/person shows that the shape of future cities has to consider distribution and efficiency of land use. The shape of a future non-hydrocarbon city has to take into account all land needs such as energy land, cropland, grazing land, forestland, built-up land, and fishing grounds. Recent proposals of vertical gardens are already a beginning, but additionally horizontal areas have to be used in a more efficient way, where multifunctional behaviors will help to fulfil the different tasks. The more you grow on one hectare, the fewer hectares you need.

The inclusion of the ecological footprint and its needed area changes the definition of a city. It is not only the area where people live but also the land which is consumed. Thereby, the border between urban (which has been defined so far as "city") and rural (which was defined by the rest) disappears: Rural becomes part of urban. Or, depending on the perspective, the urban becomes part of the rural.

27. Footprint Network, *World Footprint.*

28. Ewing, et al., *The Ecological Footprint Atlas.*

Gulf Cities as Integrated Systems: Outlook

Thinking of cities as organisms and considering ways of integrating environmental and anthropo-sophical spheres into urban processes and flows enables approaches to urbanism that follow principles of high adaptability and self-organization. These can be understood as an urban code that includes all other four codes into an urban form where future Gulf cities shall be able to grow in a dynamic network and materialize to a new urban morphology.

The comparison of Gulf city systems based on pre-hydrocarbon development in oases settlements and the present urbanism of hydrocarbon-driven resources leads us to the following results that can also be understood as an appeal for the future development of Gulf cities: the current elements of a city like the built infrastructure, building typologies, open spaces, and traffic networks need to be converted into urban organs that support and amplify the natural resources beyond hydrocarbons. These organs deal with multi-layered requisitions beyond the spatial and static requirements of current urbanism: They will in future be required to function as organs to support, enhance and amplify enveloping, transporting, energy transforming, material processing and communicating whilst connecting directly to natural resources available to urban systems of the Gulf region.

The conversion process of present urban elements into future urban organs can be achieved through introducing a new thinking of urbanism as organism via URBAN:ORGAN generators. These are closely derived from the systems thinking approaches mentioned earlier and through an extrapolation of the Metabolism manifesto of the 1960s:

Urban: Organ Generator:01
urban system cycles: UR.CLES
Gulf future cities shall organise its functions and structure in cycles in order to achieve a self-renewing environment.

Urban: Organ Generator:02
structure <-> process relationship: DESIGN.OLOGY
Gulf future cities shall establish design and process in a non-hierarchical interconnected relationship.

Urban: Organ Generator:03
Passive and active strategies> process flows: P.ACTIVE
Gulf future cities shall combine active and passive design strategies to create hybrid process flows.

Urban:Organ Generator:04

Combination of flows create Cityform: COM.FORM

Gulf future cities shall include a combination of functions of active, passive and infrastructure design strategies to create a future non-hydrocarbon city.

Urban:Organ Generator:05

Growth Morphology and Dynamic Network: MORPH.NET

Gulf future cities shall be able to grow in a dynamic network. This network will materialize in the morphology of the city.

The aim of urban elements functioning as organs that are able to directly link natural resources and the requirements of the human conditioning of a city is to achieve future Gulf cities with higher adaptability, integration, and efficiency through a hybrid multi-functionality of all of its components.

We dispute the reluctance of the Metabolist Movement purely focusing on design and technology as a means of achieving utopia within a contemporary vision. Our vision is based in the "environment-time" of emerging global challenges for urbanism. Through our proposal of the city as a system of urban organs, we are responding to the need for shifting our role as urban designers and architects to a more unpretentious envisioning of holistic processes that happen on multi-faceted layers and, present new ways of thinking of the city.

We are not asking for a finite form or utopian shape but for Design.ology achieving Com.form through embodying P.active Ur.cles into the Morph.net of the Future Gulf City.

References

Abbey, Edward. 1990. *Desert Solitaire: A Season in the Wilderness.* New York: Simon & Schuster.

Al-Salimi Abdulrahman, Heinz Gaube and Lorenz Korn. 2008. *Islamic Art in Oman.* Mazoon.

Al Jabry, Q. 2012. "Water Resources Evaluation and Conservation in Oman." Ministry of Housing, Electricity and Water Muscat, Oman.

Buerkert, Andreas, and Eva Schlecht. 2010. *Oases of Oman.* Muscat: Hatim Al Taie.

Capra, F., and H. Henderson. 2009. "Qualitative Growth." www.fritjofcapra.net. Accessed 2013.

Capra, Fritjof. 1996. *The Web of Life: A New Scientific Understanding of Living Systems.* New York: Anchor Books.

CIA. 2013. *The World Factbook.* www.cia.gov/library/publications/the-world-factbook/ Accessed on March 19, 2013.

Commission on Sustainable Development. 1999. *Tourism and Sustainable Development.* Background paper #1, New York: UN Department of Economic and Social Affairs.

Damluji, Salma Samar. 1998. *The Architecture of Oman.* Reading: Garnet Publishing Ltd.

Ewing B., D. Moore, S. Goldfinger. 2010. A. Oursler, A. Reed, and M. Wackernagel. *The Ecological Footprint Atlas.* Oakland: Global Footprint Network.

Ferry, R. and E. Monoian. 2013. *A Field Guide to Renewable Energy Technologies.* www.landartgenerator.org. Accessed 2013.

Footprintnetwork. *World Footprint.* 2013. http://www.footprintnetwork.org. Accessed 2013.

Gangler, Anette. 2008. *Oases Settlements in Oman.* Stuttgart: Esefeld &Traub.

Gangler, A., and H. Gaube. 2012. *Transformation Processes in Oasis Settlements of Oman. Muscat,* Sultanate of Oman: Al Roya Press.

General Census of Population, Housing and Establishments project. "The Preliminary Results of Census 2010." *Sultanate of Oman, Ministry of National Economy.* December 2010. http://www.mone.gov.om. Accessed in May 2011.

International Energy Agency (IEA). World Energy Outlook. 2009. http://www.iea.org. Accessed 2013.

Jenks, Michael. 2000. *Achieving Sustainable Form.* Spoon Press.

Kenworthy, J. and F. Laube. 2002. "Urban Transport Patterns in a Global Sample of Cities and Their Linkages to Transport Infrastructures, Land Use, Economics and Environment." *World Transport Policy & Practice: 5-20.*

Lin, Zhongjie. 2010. *Kenzo Tange and the Metabolist Movement.* New York: Routledge.

Lubin, Gus. 2011. "UN Global Reource Consumption Will Triple by 2050." May 13. www.businessinsider.com. Accessed 2013.

Luedeling, Eike, und Andreas Buerkert. 2008. "Typology of Oases in Northern Oman Based on Landsat and SRTM Imagery and Geological Survey Data." *Remote Sensing of Environment:* 1181–1195.

Ministry of Agriculture and Fisheries, Sultanate of Oman. 2013. *Ministry of Agriculture and Fisheries, Sultanate of Oman.* http://www.maf.gov.om. Accessed on May 30, 2013.

Nissenbaum, S. Buckley. 2013. "Dead Sea Asphalt in Ancient Egyptian Mummies—Why?" *Archaeometry* (University of Oxford) Volume 55, Nr. Issue 3 (June): 563-568.

Peterson, John. 2007. *Historical Muscat: an Illustrated Guide and Gazetter.* Leiden: Brill.

Sultanate of Oman, Ministry of Foreign Affairs. 2010. www.mofa.gov.om. Accessed 2011.

The World Bank Group. *The World Bank Data.* 2013. http://data.worldbank.org/country/oman. Accessed on January 13, 2013.

UN Habitat. 2013. *UN Habitat Sustainable Cities and Localizing Agenda 21 Programmes.* http://www.unhabitat.org. Accessed on March 3, 2013.

United Nations Environment Programme. 2013. *Agenda 21.* http://www.unep.org/. Accessed 2013.

United Nations. 2013. *World Population Prospects.* http://esa.un.org/wpp/. Accessed 2013.

United States Environment Protection Agency. 2010. *Climate Change Indicators in the United States.* http://www.epa.gov/climatechange/science/indicators/society-eco/heat-deaths.html. Accessed 2013.

Wilkinson, J.C. 1977. *Water and Tribal Settlement in South-East Arabia: A Study of the Aflaj of Oman.* Oxford: Clarendon Press.

World Allergy Organisation. 2011. *WAO White Book on Allergy 2011-2012.* www.worldallergy.org. Accessed 2013.

World Wildlife Fund. 2013. *Deserts and Xeric Shrublands Arabian Peninsula: Oman and United Arab Emirates.* http://worldwildlife.org/ecoregions/at1306. Accessed 2013.

2.3

Desertification De-Formation

Talin Hazber

Introduction

No longer should we think of abandonment when we come across the desert. Instead, we should see opportunities. Living in the UAE, I have always been fascinated by the desert. The vastness of the desert is overwhelming. One can easily lose sense of direction and space. Yet, with its myriad forms, shades, and textures, the desert offers opportunities for discovery and exploration.

Figure 2.3.1: Reconstructing sand molds

Figure 2.3.2: Reconstructing process

Desert is the place where the Gulf cities originated, where people gathered, lived and moved from one place to another. It was a place for social and cultural connections. It carries within its dunes stories of our history. Whenever I stand looking at this vast space, questions arise in my mind. What if the scene I am looking at is frozen, and there are people interacting and socializing. What if the sand becomes a material that is architecture?

Figure 2.3.3: Reconstructing process

I decided to take this concept as a backdrop to my time research and work on methods of solidifying sand. My research focuses on the relationship between nature and architecture. My intention is to create architectural landmarks. Observing how dunes are formed and how grains of sand can be shaped, I started transforming this lyrical, natural scene into a spatial and rhythmical experience with the intention of creating inhabitable spaces.

Figure 2.3.4: Mapping the Desert through robotics traces

Modern technology can turn possibilities and chances into tangible realities. Machines become tools, they give rise to conceptual narratives.

Figure 2.3.5: Testing lines and constraints for robotics traces on sand

The research is structured around several prototypes built to investigate the potential methods of applying an adhesive to solidify the structure. The process reveals the stages of freezing the sand and turning it into building units by using robotic interventions.

The narrative starts when these robots move and walk in the desert leaving behind traces that I intend to solidify. These traces provide a temporary habitat and settlements for people. The robots play a role in creating systematic traces that reflect the dunes' formations; traces act as temporary habitat points or "settlements."

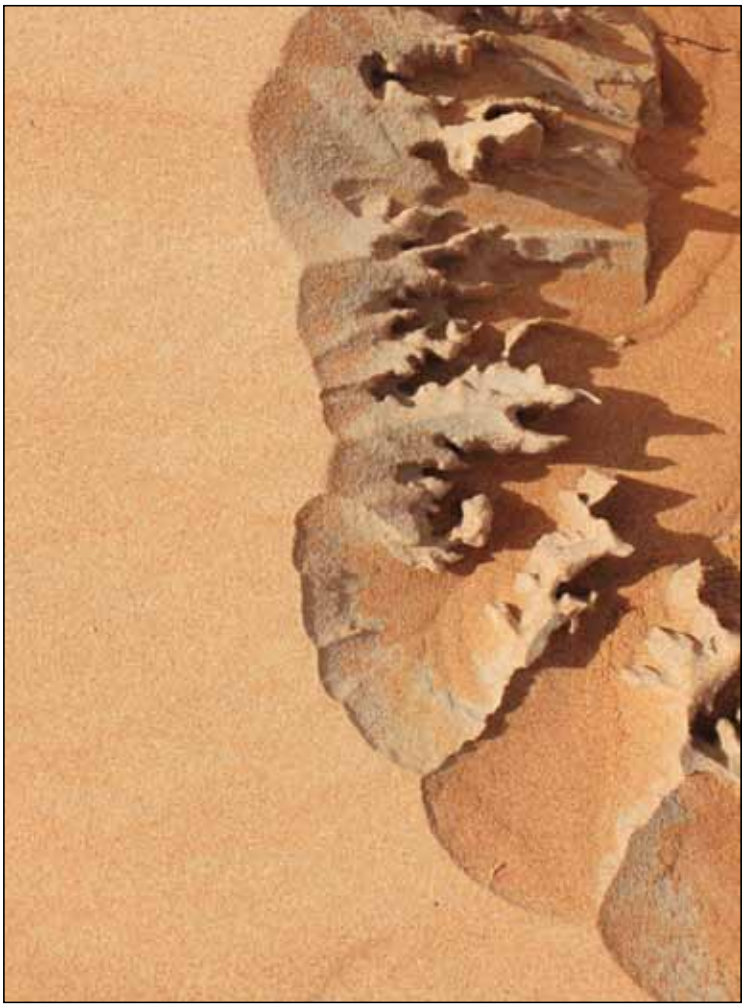
Figure 2.3.6: Re-construing geometries

Figure 2.3.7: Dome-Shell-Column structure experiments

Figure 2.3.8: Structure experiments

The research is structured. The outcome: the surface is a series of shells, columns and dome structures created by spraying, injecting and dripping various chemicals on sand. The shell structure can extend to a large span in the desert, creating below it large spaces covered in a surface made of sand. After creating the shell structure, I started applying the adhesive differently, by injecting. This helps in accumulating sand and lets it adhere to each other, creating columns.

Figure 2.3.9: Sand mold close-up



This is the desert where we can draw, dream, and build. My intention is to bring back the awareness of the desert and how there is limitless potential for living. This will allow us to understand the pattern of natural living and bring the notion of architecture and settlement back home, to the desert.

3.1

Accidental or Envisioned Cities: A Comparative Analysis of Abu Dhabi and Dubai

Jerry Kolo

Introduction

The story of growth and development in the Gulf region is unfolding day by day, given the nascent modern political history of the region. Yet, the rocket pace of development within the short timespan that the countries of the region have existed is causing the story of their growth to be retold, revised, and re-documented moment by moment. For urban scholars of all specialties, these are the best of times to explore, research, and try to understand and explain the various facets and dynamics of urban growth and development in the Gulf. For architects, Katodrytis opined that, in Dubai, "the explosion of mega-scale structures and satellite cities provides opportunities for the study of new typologies of building programs and forms,"[1] suggesting essentially that new innovative visions, technologies, and professionals are needed to address the phenomenon that is Dubai, as well as other post-modern Gulf cities such as Abu Dhabi, Doha in Qatar, and Manama in Bahrain.

In the broad context of opportunities for urban research and discourse, this chapter analyzes the conceptual and empirical literature on urban growth and development in the cities of Dubai and Abu Dhabi in the United Arab Emirates

1. Katorydis, "Metropolitan Dubai and the Rise of Architectural Fantasy."

(UAE), with the aim of ascertaining whether they are accidental or envisioned cities. These two case study cities are among the most popular in the Gulf region and the world over for their pace and scale of growth and development, the astronomical rise in the standard of living, and as premier tourism destinations.[2] The cities are in the Arab Gulf region, a region which is arguably the test bed, indeed the bellwether, of urban growth and development models that defy and, to some extent, confound classical, historic, and popular models, mainly of Western origins. The interest in the two cities case is due primarily to what some urban development experts, including indigenes of the two cities, see as two parallel approaches (Dubai's aggressive and Abu Dhabi's gradualist) to the same goals of economic vibrancy, tourism-friendliness, and environmental sustainability. This chapter examines if, due to the two approaches, or both, either of the cities fits the "accidental" city concept or designation. The concepts of accidental and envisioned cities, which, currently, are at best broadly, loosely, and subjectively discussed in the urban design professions, are examined later.

Among the most reflective indicators of growth and development in the Gulf are the iconic specimens of architecture, the quantum rise in the standard of living of life of citizens, and the rising global profile of the region as a tourism destination.[3] These indicators do not blur the plight of the large segment of the expatriate population that toils to build and maintain the region's growth, a plight which most observers, especially critics such as Davis,[4] have labelled as inhumane, inequitable, and unjust. The scale, implementation pace, and environmental, social, and economic impacts of development projects in the region have resulted in what is known loosely by some observers as the "Dubai model" of growth,[5] perhaps because Dubai is the trailblazer of this unique approach to urban development. Davis noted that "Dubai has become the new global icon of imagineered urbanism."[6] The model is now being emulated or adapted widely across the Gulf region, and in many parts of the developing world. Thus, the term "Dubai model" is used interchangeably with what this chapter calls the "Gulf model."

2. Sinclair, "UAE Is the Place to be, Say British Expats" Duncan, "Abu Dhabi and Dubai Are Best Places to Live in the Middle East, Survey Says"; DeNicola, "Dubai's Political and Economic Development?"
3. Katodrytis, "Metropolitan Dubai and the Rise of Architectural Fantasy"; Elsheshtawy, "Redrawing Boundaries: Dubai, and Emerging Global City."
4. Davis, "Fear and Money in Dubai."
5. Elsheshtawy, "Dubai: Behind an Urban Spectacle"; Hvidt, "The Dubai Model"; Krane, *Dubai.*
6. Davis, "Fear and Money in Dubai."

In summary, the model has three premier hallmarks. One, it takes the "brick and mortar" approach to development, focusing on infrastructure or capital facilities modernization and flagship architecture as the engines and cornerstones of urban growth and development. Two, it positions the government (state) as the leader in most or all major development projects and partnerships, thus heavily leveraging development initiatives with state resources, power, and patronage. Three, it targets locally produced goods and services primarily at the global market or consumer, followed by the local or national market. For example, both Dubai and Abu Dhabi are known for marquee products and services in the tourism and hospitality industry, while other locally produced services are in information technology, commercial aviation, and green energy. From the standpoint of political economy, the environment required for this model of development is uniquely unorthodox, in that it does not fit neatly into the democratic or socialist construct or paradigm. Practically, there is yet to be a universal disciplinary neologism for it. The term "theocracy" is one of the few that have been used to depict the system, while Davis dubbed it a system of "modular liberties,"[7] where, in this chapter's interpretation, economics, politics, and culture are strategically partitioned or disentangled in a cherry-picking or disjointed approach to growth and development.

The rest of this chapter is organized as follows. First is a discussion of what is deemed to be a hung jury, based on the parallelism of the three dominant "verdicts," on the Dubai model of urban development. Second, the concepts of accidental and envisioned cities are reviewed as a basis for the position that the case cities are envisioned and not accidental. Third, two sustainability frameworks are used to reflect briefly on the sustainability initiatives of the two case cities. Finally, it is suggested that it is more beneficial for urban scholars and professionals to focus on lessons that can be learned from the Dubai model rather than discounting or dismissing it as accidental.

The "Hung" Jury on the Gulf Model

This chapter opines that the jury on the Gulf or Dubai model is currently "hung" and there is no evidence that there will ever be a unanimous verdict on the model. Generally, reactions, opinions, and perspectives on the Gulf model by "jurors" or observers, especially urbanists, journalists, and social critics/activists, can be categorized into three. First are those who see the model as arrantly reckless and

7. Ibid.

a failed exercise in urbanism.[8] Second are those who see the model as successful and a prototype of the inevitable strategy of building cities in the future.[9] Third are those who believe, as is the view in this chapter, that the model is worth studying for valuable lessons about how best and how not to contend with the challenges of modern cities.[10] Quite interesting and noteworthy is that none of these groups of jurors discounts the tantalizing appeal of the model as a development "product" or "commodity," perhaps suited appropriately, or tailor-made, for the global consumer market. For a curious, adventurous, and consumeristic world, therefore, statistics show that Dubai, Abu Dhabi and their likes remain products in high demand.[11]

Besides the professional pedigrees, hence biases, of the so-called jurors, it was discovered from the literature that the polarized views on the Gulf model are also attributable to:

1. Equating (some would say confusing) planning with envisioning
2. Analyzing urban growth and development by focusing narrowing on the political system and not broadly on the policy mechanism and policies
3. Western myopia of most analysts, where Western cities are used as reference points for their analyses, totally discounting the deep and pioneering history of urbanism in West and East Asia, and the cultural context of governance and urbanism
4. Sheer discounting, or non-acknowledgement, of the radical changes in the spatio-temporal, technological, and other forces of urban development
5. Outright disbelief and doubt that the Gulf could pioneer a model of urban development that now commands the attention of the world (the snobbish "can anything good come out of Nazareth" mentality), especially in the face of critical desert environmental challenges; limited indigenous capacity in virtually all professions; a social culture deemed to be conservative and inward looking; social inequities based on nationality, gender, and belief; and what many critics charge as autocratic and undemocratic polities

8. CW Staff, "Guggenheim Architect Frank Gehry Slams Dubai's Towers as 'Cheap' and 'Anonymous'; Evans, "Sprawling, Soulless Dubai is an Architectural Flop"; Woods, "Delirious Dubai"; Davis, "Fear and Money in Dubai."
9. Huffington Post, "Dubai Achieved What New York Did in 150 Years"; Elshestawy 2010; Bagaeen, "Brand Dubai."
10. Williams and Sharro, "The Visionary City"; Katodrytis, "Metropolitan Dubai and the Rise of Architectural Fantasy."
11. Sinclair, "UAE Is the Place to be, Say British Expats"; Black, "Big Future Foreseen for UAE Tourism."

6. Befuddlement in trying to understand these emerging "unorthodox" growth models.

Beyond and more important than the reactions and observations of urban "experts," critics, and observers on the Gulf model, this chapter focuses mostly on the implications and lessons of the model for urban research and future cities worldwide. Based on, or triggered by, the criticisms that have been leveled against the Dubai model, this chapter is particularly interested in the viewpoint or insinuation that Abu Dhabi and Dubai, the latter especially, may, after all, be accidental rather than envisioned cities. This notion is challenged by examining both concepts of accidental and envisioned cities. It concludes and establishes the basis that Abu Dhabi and Dubai are envisioned and not accidental cities, and that the issue of both being planned cities is a different or separate discussion and inquiry that should excite urban scholars and professionals.

A Brief Review of the Concepts of Accidental and Envisioned Cities

Analyses and critiques of Gulf cities in general, and Dubai in particular, by urbanists, journalists, and social/civic activists have been largely skewed toward outright condemnation or vitriolic criticism of urban development in the region. Some of the likely reasons for these criticisms are identified in the next section. Based on the skewed analyses, however, it is conjectured that Gulf cities, including Dubai and Abu Dhabi, are, or could be mistaken for, accidental cities, similar to the political science concept of "failed states." To test this conjecture, a brief review of the concept of accidental cities now follows.

The term "accidental cities," or the concept, has been used fairly frequently in recent historical and/or literary accounts and narratives of cities around the world. Fuelling this concept are the writings or works of scholars, amongst them Powell, who, based on reviews and commentaries in the literature, seems to have popularized the concept through his acclaimed work on New Orleans.[12] His was a historical and cultural narrative,[13] that depicted New Orleans as an accidental city because, according to Curtis' review, New Orleans was "an improbable city" that "came to be and then survived through its own determination and the flexible social and political structures of its first inhabitants," adding that New Orleans "is a city that thrives at the messy overlaps of geography, time and culture."[14]

12. Powell, *The Accidental City.*
13. Patrick, "A Review of Powell's 'The Accidental City'."
14. Curtis, "An Urban Farrago."

From the standpoint of social science methodological rigor, more substantive than most other works on accidental cities is the robust study by Lang and LeFurgy,[15] of what they called boomburbs, which, in lay terms, are suburbs that "accidentally" became urbanized due to quantum growth in population, jobs, and leisure. They stated that "a boomburb, as defined … , corresponds to what urban historian Robert Fishman refers to as a technoburb, which he defines as "a hopeless jumble of housing, industry, commerce, and even agricultural uses." In the foreword to their report, Ed Glaeser described boomburgs as "booming areas that are not urban centers, … defined by three characteristics: current scale, rate of growth, and not being the centers of their region," adding that, for boomburgs as "high growth places," there are "two necessary ingredients …: a vibrant construction sector and progrowth politics." Urbanists generally may think of boomburbs in the same sense as Robert Lang's edgeless cities and Joel Garreau's edge cities. Regardless of the nomenclature, for urban research and scholarship, in the end, as is the intent of this chapter, substantive insights into how this urban phenomenon would be managed sustainably and cost-effectively should be preponderant to mere descriptions and criticisms. As Lang and LeFurgy aptly stated, "the idea behind boomburb research was always to explore these places as emerging urban forms and not to judge them," adding that "the rise of boomburbs challenges planners, developers, and policymakers to rethink what is urban."[16] Essentially, accidental cities, known by any name, have come to stay, and policymakers and planners must figure out how to manage them cost-effectively, equitably, and sustainably.

Equally interesting and enlightening is the application of the concept of accidental cities by Fulford in his study of the City of Toronto, Canada.[17] He stated, albeit arguably, that "accident plays a role in the building of any city," noting that accident, happy ones, that is, "has played a major role in the transformation of Toronto." He chronicled key events, projects, and initiatives, which the city capitalized on in its path to becoming what this chapter calls a global city.

Several other references on the use of the concept of accidental cities in urban discourse attest to the growing popularity of the concept, hence, the need to analyze it, as this chapter does, for its fit or irrelevance in the discussion and planning of contemporary and future cities. Three quick examples are, one, the use of the concept

15. Lang and LeFurgy, *Boomburbs*.

16. Ibid.

17. Fulford, *Accidental City*.

as a framework for analyzing the City of Houston, Texas;[18] two, the use of the concept by urbanists to caution cities about the unintended consequences (sprawl and waste, for example) of allowing development to take its natural course;[19] and, three, the use of the concept to indict or chastise cities, such as Bengaluru, India, which, in spite of its entrepreneurial appeal, are deemed to be "struggling" to meet their obligations to their constituencies.[20]

What this chapter discovered, interestingly, is that the concept of accidental cities is not an urban nomenclature or neologism, and it does not have a unanimous connotation, simply because it is not grounded in protracted systematic and thorough urban research. A simple example of this is the negative connotation of the term by most urbanists, who equate any form of what may be termed dysfunctionality to "accidentality." On the other hand is the positive connotation of the term by scholars, such as Fulford, who see an accident as happenstance, occurrence, or phenomenon that triggers adaptive measures by a city, leading, in some or many cases, to progressive development in the city.[21] At the risk of reading too much into various uses of the terminology, therefore, suffice it to say that, the term "accidental cities" is used loosely and in a literary sense to depict cities that do not fit an analyst's or analysts' image of a non-accidental city, whatever non-accidental may mean. In this sense, any city at any age, time, place and state of development can become or can be deemed an accidental city, since economic, political, environmental, and social changes can suddenly turn a city's fortune around for better or for worse. Essentially, every city faces the risk of accidentality, and, as Patrick observed,[22] an accidental city like New Orleans is not different from any other city; a view shared by Newman, who noted, there is after all no perfect city.[23] It is no surprise, therefore, that the key characteristics of the cities cited in the literature as accidental cities, and summarized here, show no discernible pattern or thread. Again, this buttresses the claim in this chapter that the literary and subjective use of the concept of accidental cities is not grounded in systemic and rigorous academic or scholarly research. Among the key or basic common characteristics of the accidental cities referenced in the literature are:

18. Scardino, et al. *Ephemeral City.*
19. Warren, "Avoid the Accidental City, Planner tells Saskatoon."
20. *Deccan Chronicle,* "Bengaluru an Accidental City"; Duncan, "Abu Dhabi and Dubai Are Best Places to Live in the Middle East, Survey Says."
21. Fulford, *Accidental City.*
22. Patrick, "A Review of Powell's 'The Accidental City'."
23. Newman, "Dreams."

1. Fame (famous globally)
2. Distinct, unique and "pseudo-eccentric" image/identity
3. Resilient to disruptions, disasters, and catastrophes
4. Adaptive to situations, good and bad, difficult and challenging, enabling and risky
5. Enterprising (economic, industrial, employment and investment opportunities)
6. Intriguing to all (cause curiosity)
7. Distinct cultural milieu (nationality, race, religion, etc.)
8. Tourism and leisure destination
9. Distinct historic, political, or economic status on the regional/national or global scale
10. Extensive (even if old and worn) stock of infrastructure or capital facilities

For purposes of understanding the so-called Gulf model of urban development, the argument in this chapter thus far is that the concept of accidental cities is of little or no relevance, especially for urban planning professionals, who are more concerned about the technical and strategic dimensions of "arranging" human activities and functions over space and time to serve the public interest in cities. For this purpose, more established and extensive in conceptual urban discourses is the concept of envisioned cities, one which is reviewed briefly below.

The notion of an envisioned city is best explained through the corollary concept of visioning, which primarily implies imagining a possibility, aspiration, or desire for the future. In this sense, an envisioned city is one which is imagined by its proprietor to fulfill a particular or desired purpose, fit a particular or desired image, or serve a particular or desired function or purpose. This makes an envisioned city a subjective and relative construct and concept, as will be argued for the case study cities in this paper. These elements of subjectivity and relativity are demonstrated or exemplified in the earliest visions of cities documented in the literature on urban utopia and historic cities. Thus, from social reformer Francois Fourier's phalanges to the new town movement pioneer Ebenezer Howard's garden cities, to world-renowned historic cities, such as Rome, London, Cairo, New York, and Tokyo, visions were articulated, however vaguely, for these cities by their proprietors or founders.

In line with the foregoing reasoning, it can be said that the notion of envisioned cities dates as far back as the history of human settlements, in the sense that every settlement is the product of the vision of an individual person's or group's imagined

possibility for the future. The product is then shaped by evolving circumstances and by deliberate policy decisions and professional or technical initiatives to manage both the circumstances and the product. Williams and Sharro put it quite aptly:[24]

> Every graphic depiction of a visionary city has embodied an attitude about man's relationship to society, nature and the past – and, of course, the future. The visionary city served as a testing platform for the social imagination and how it could reconceive the human condition. It matters very little whether a particular vision is realized; what matters much more are the possibilities that it opens up, the influence it exerts on our thinking, and its ability to encapsulate social aspirations.

Along this reasoning, an argument is made here that both Abu Dhabi and Dubai are products of the visions of their founders or initial settlers. The key initiatives, policies, projects, and programs which shaped the cities along the way are documented in numerous government and research documents.[25]

It is important to state that making the claim that Abu Dhabi and Dubai are envisioned cities does not mean that, in the context of the earlier review of the concepts of accidental and envisioned cities, they cannot or may not be deemed to be accidental cities in some instances or at some junctures in their evolutionary histories. The claim also does not equate vision with planning, which is an error that some of the critics of the cities have made. Finally, the claim does not imply that envisioned cities are necessarily sustainable cities. To reiterate, what the claim affirms is that the cities are products of clear visions, aspirations, and ambitions by their proprietors. So far, perhaps one of the most comprehensive, eloquent, and authoritative articulation of this claim is the personal account of the current ruler of Dubai,[26] who stated that "a nation's development … does not happen overnight or by accident," adding that "vision was the start of what Dubai is today," and "all the successive leaders of Dubai enjoyed a clear and common vision of the emirate's future." He boldly and proudly attributed the remarkable development strides that the UAE has taken to date to the shared vision of the founding fathers of the country, under the leadership genius of the nation's foremost founding father and

24. Williams and Sharro, "The Visionary City."

25. See, for example, Acuto, "Rumour Has It that Dubai Has Collapsed..."; Briney, "Geography of Dubai"; Elshestawy, *Dubai;* Krane, *Dubai;* Tatchell, *A Diamond in the Desert;* Ouroussoff, "City on the Gulf"; Al-Fahim, *From Rags to Riches;* Bagaeen, "Brand Dubai"; Davis, "Fear and Money in Dubai"; DeNicola, "Dubai's Political and Economic Development," etc.

26. Al Maktoum, *My Vision.*

president, late Shaikh Zayed bin Sultan Al Nahyan. Alluding to the vision of Shaikh Zayed for Abu Dhabi in a recent media interview,[27] the pioneering, now retired 90-year old urban planner hired by the ruler in 1974 disclosed that the Shaikh was very clear and consistent that he wanted Abu Dhabi to be planned as a place that reflected the history of its ancestors, indicated its status as a federal capital, and served as a source of safety, protection, and happiness for its residents. This is the vision that has echoed through the various plans that have been produced for Abu Dhabi, including Plan Capital 2030, completed by Abu Dhabi Urban Planning Council in 2014, as well as programmatic planning initiatives for the city, such as the renaming in November 2013 of 14 streets as part of the street renaming exercise for the city.

Summing up the concept of an envisioned city, what amounts to an operational definition drawn from the broad theoretical and empirical discourses points to a minimum of five factors or criteria embodied or reflected by such a city. One, it (or its proprietor) articulates a theme, purpose, or function for the city. Two, institutional structures and strategies are put in place to implement the purpose of the city. Three, the city capitalizes on its assets and strengths to address its purpose and, especially, its weaknesses. Four, the city is acclaimed and recognized beyond its immediate region for its "identity." Fifth, the city continuously takes new measures and initiatives to reinvent and improve itself, based on, or while reinforcing and enhancing, its primordial identity.

Sustainable Development Planning and Challenges in Abu Dhabi and Dubai

One of the main contentions in this chapter is that critics of the evolution of Abu Dhabi and Dubai as global cities tend to juxtapose, even confuse urban growth and urban development, both elements of what urban scholars call city building, with urban planning.[28] From strictly a planning perspective, planning being an institutional mechanism of urban governance, what critics consider to be accidental, soulless, and delirious about the approaches to growth and development in Abu Dhabi and Dubai is really a product (urban fabric and landscape), which does not fit the critics' biased, subjective, and archaic notion and paradigm of urban development. This point was eloquently made by Williams and Sharro, who noted that

27. Ghazal, "The Man behind Abu Dhabi's Master Plan."

28. Owens, "The Planned City."

> "while it is easy to dismiss some of Dubai's more outlandish buildings as kitschy, Dubai presents a dilemma for urbanists. It represents the antithesis of the contemporary ideas that they are championing, and it does not resemble any of the readymade conceptual models they have developed to understand cities. Perhaps this motivates the dismissive attitude displayed towards it…."[29]

From the standpoint of sustainability and planning in the case cities, as argued in the preceding section, vision does not mean or imply that cities cannot be unplanned, poorly planned, and fraught with the kinds of social and environmental justice problems and challenges that make some critics jump to the conclusion that Dubai and its likes are accidental cities facing somewhat bleak environmental and socio-political futures. Both Abu Dhabi and Dubai, clear as the visions of their leaders have been and are, cannot escape the social, environmental and other quality of life problems that all cities face, especially those experiencing the kind of astronomical economic and demographic growth trends that these case cities are experiencing. In their quest to address these challenges effectively, both cities are investing heavily in developing their institutional capacities for planning and sustainable development. They have embarked on innovative and aggressive initiatives to manage their growth and development, all in their aspirations and efforts to be sustainable cities. Each, for example, has established a well-resourced planning institution, namely the Urban Planning Council in Abu Dhabi and the Executive Planning Council in Dubai, that undertake and coordinate planning in the public and private sectors in compliance with international standards while simultaneously respecting local culture. Each has established an urban growth boundary (UGB) to contain spatial development and stem urban sprawl; established a state-of-the-art Geographic Information Systems (GIS) facility; and, continuously engaged renowned environmental design consultants to help formulate plans and provide capacity-building training for local staff.

On the sustainability front, the cities, and indeed the country, continue to respond to development challenges with both policy and financial vigor unlike most other cities in the world. Aware of its global notoriety as a consumeristic society with one of the highest ecological footprints in the world, the UAE has moved boldly to shed this notoriety through a plethora of initiatives. For example, in 2011, the UAE, in collaboration with Sweden, Denmark, and China, set up a network of eco-friendly cities with the aim of sharing experiences in their long-term urban

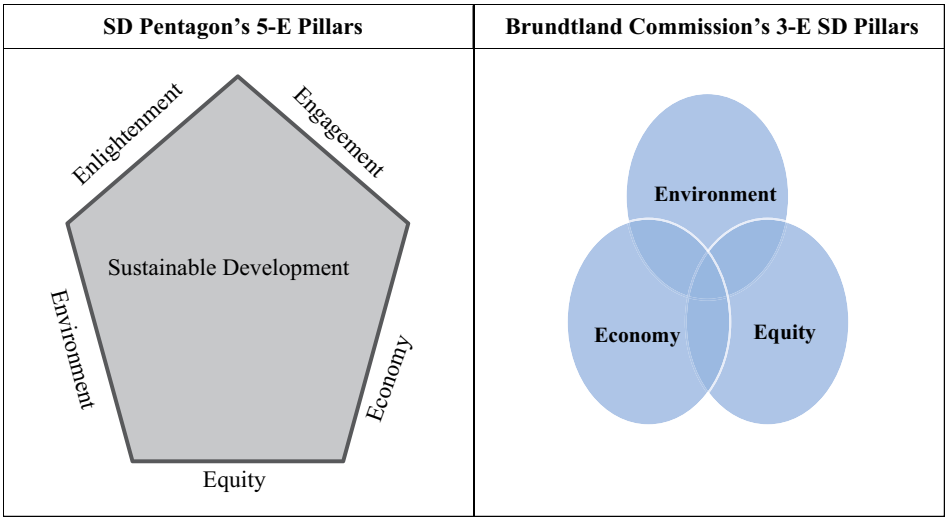
29. William and Sharro, "The Visionary City."

sustainability.[30] Earlier in 2009, in a competitive bid, the country became the world headquarters for the International Renewable Energy Agency (IRENA), whose aim is to promote, through research, development, and education, sustainable use of all forms of energy worldwide. Other sustainability initiatives that demonstrate the seriousness of Abu Dhabi and Dubai to be sustainable cities include Abu Dhabi's zero-carbon city, Masdar City; Abu Dhabi's green building code or environmental audit system, known as Estidama or the Pearl System; Abu Dhabi's annual World Future Energy Summit and the Zayed Future Energy Prize; Dubai's Green City program; the dedication, by law, of 25 percent of Dubai's land for wildlife conservation; Dubai's green building code; Dubai's car free day; and both cities' official endorsement of, and participation in, global environmental programs, such as Earth Hour, World Day to Combat Smoking, and many other environmental sustainability initiatives.

It is important to point out that, using any of the sustainability frameworks in the literature as an analytical tool for the sustainability efforts of Abu Dhabi and Dubai, both cities have made remarkable strides on some of the ideals, pillars, or principles of sustainable development, but they have a lot of work to do on some of the other pillars. Taking the most prominent of the frameworks, the Brundtland sustainability triple bottom line[31] shown in Fig. 3.1.1, as an example, the submission here is that the evidential and acclaimed achievements of the case cities on the "economy" pillar far outweigh the modest achievements on the "environment" pillar and the very slow pace of progress on the "equity" pillar. The challenges get weightier for the cities when the Sustainability Pentagon framework,[32] also shown in Fig. 3.1.1, is used, or the frameworks by Randolph (2004) and Berke et al. (2006),[33] as any of these raise significant questions about how the case cities engage and enlighten their citizens and residents about various local sustainable development policies, programs, and projects. Citizens are vested stakeholders in every facet of envisioned and planned cities, and the case cities should strive to match their accomplishments on the economy and environment pillars with the much needed achievements on the equity, engagement, and enlightenment pillars.

30. Salama, "UAE to Lead International Network of Sustainable Cities."
31. WCED, World Commission on Environment and Development.
32. Kolo "Beyond Colors."
33. Randolph, *Environmental Land Use Planning and Management;* Berke et al., *Urban Land Use Planning* (5th ed.).

Figure 3.1.1: Sustainability Pentagon and the 5-E Pillars, with Brundtland Commission's 3-E Sustainability Pillars



Source: Kolo (2010). Source: Kolo (2015).

Conclusion: Lessons of the Gulf Model of Urban Growth for Future Urbanism

It has been argued in this chapter that both Abu Dhabi and Dubai are envisioned, and not accidental, cities. There is ample evidence that the founding fathers of the cities, as well as succeeding rulers, have been clear and emphatic about their visions for their people, and by extension their cities. Perhaps this accounts, to a large extent, for the extraordinary sense of pride and patriotism exhibited by the denizens of these emirates and, indeed, the entire country.[34] It is opined here that development paradigms in both Dubai and Abu Dhabi exemplify what urban scholars call visionary urbanism. In lay terms, visionary urbanism depicts cities that endeavor to address the needs and goals of current citizens cost-effectively, while ensuring that the future is not compromised in any way. Although Katodrytis described Dubai as "an extreme example of urbanism," he added that Dubai's "allure lies in its ability to adjust rapidly, in its complexity, in its contradictions."[35] In this sense, adaptation as an element of sustainability is a critical element of visionary urbanism. Expatiating on the concept of visionary urbanism, Williams and Sharro cited Jeff Stein's 2008 work, titled 'Visionary American Architecture,' that: "Visionary when coupled with

34. Elshestawy, "Redrawing Boundaries."

35. Katodrytis, "Metropolitan Dubai and the Rise of Architectural Fantasy."

architecture implies something fantastic… . More than merely innovative, the word suggests provocative, critical work that not only explains present conditions but reveals a preferred – sometimes astonishing – future." In this context, Abu Dhabi and Dubai are envisioned cities that have become, in record time, members of the post-modern, or developed elite, cities worldwide.[36] The contention here is that urban scholars need to look beyond their narrow lenses of inquiry, as the likes of Hvidt suggest,[37] to see what lessons the Gulf model has to offer in building and planning future cities. Inquiries should focus on why the Gulf model has become a global brand which is being widely embraced and adapted in Asia, Africa, and the Middle East, while its ardent critics in the West continue to use it as a reference point for both desirable and undesirable development. As Williams and Sharro observed quite pertinently, "in places like China, India, Brazil and the Arabian Gulf a renewed appetite for development is leading to massive transformations. But the pace of change in these places is often met with apprehension in the West, reflecting a lack of appetite for change." In the case of Dubai in particular, the authors noted that, "when it comes to Dubai, urbanists lament its lack of public space and argue that it is made of singular objects, not as an urban fabric along the traditional European model." The authors countered this lamentation by stating that "in fact, the least successful projects for Dubai and other cities in the Gulf are the ones that try to reproduce this Western model, with its dense low- and medium-rise buildings, public squares and green spaces."

Regardless of the position and arguments of critics, non-critics and admirers of the Gulf model, the view here is that the model enriches the laboratory of urban scholarship and discourse, whereby insights and strategies can be developed to build, operate, and maintain livable, affordable, equitable, and sustainable cities in a rapidly urbanizing world. How inquiries and discourses occur would differ over time and space. As Spates and Macionis (1987) noted :

> The city is one of the most complex of all human creations. As a result, it cannot be understood using any single point-of-view. The city is a complex, multifaceted reality that will not admit to easy answers and yield up its intricacies to cursory glances. Understanding the city is therefore crucial in

36. See, for example, Duncan, "Abu Dhabi and Dubai Are Best Places to Live in the Middle East, Survey Says"; Al Hassani, "UAE Best Place to Be Born in Arab World, Sheikh Mohammed Proudly Tweets"; Ismail, "UAE Continues Its Rise in UN Human Development Rankings," etc.

37. Hvidt, "The Dubai Model."

coming to comprehend modern existence. But how we choose to study the city also is important.

Worldwide, cities face, and will continue to face, inescapable drivers of urban growth, such as population growth, consumerism, technological capacity, regional political and economic partnerships, and aggressive local development policies. The difference between cities that will and those that will not be sustainable and resilient is, and will be, the ability, capacity, and political will to adapt and adjust smartly or cost-effectively. This point was made quite emphatically by the current Ruler of Dubai in his book aptly titled *My Vision*. Visionary cities require informed, responsible, and accountable leadership and management that translate visions of cities to actions for citizens of the cities. As Al-Maktoum noted, vision without implementation is worthless. Envisioned cities are necessarily what some urbanists choose to call smart cities, enterprising cities, adaptive cities, or what Newman called "exuberant" cities. In such cities, good standard of living and quality of

Table 3.1.1: Conjectured characteristics of envisioned cities

Elements	Dubai	Abu Dhabi
1. Clear vision for the city by its leadership	Shaikh Rashid Al Maktoum	Shaikh Zayed
2. Clear structure of governance	Ruler's Court	Ruler's Court
3. Stakeholder consultation	Majlis (consultative assembly) and public officials	Majlis and public officials
4. Institutional framework for development	Municipal development agency - Dubai Municipality	Municipal development agency - Abu Dhabi Municipality
5. Institutional framework for planning	Dubai Executive Planning Council	Abu Dhabi Urban Planning Council
6. Resource endowment for planning	Robust	Robust
7. Policy-legislative framework for planning	Evolving	Evolving
8. Strategy-guided planning (master plans, capital plans, etc.)	Several	Several
9. Standard of living	High for citizens, and low-moderate for expatriates	Very high for citizens, and low-moderate for expatriates

life magnetize people from all over the world in pursuit of legitimate goals. They are economically robust and enterprising, socially vibrant, culturally diverse, and environmentally sustainable. They are places for constructive and value-added civic and political engagement, an ingredient of political stability and social equity. Above all, they are adaptive and responsive to all legitimate issues of public concern and interest. Using these reference yardsticks for visionary cities, the conclusion in this paper is that Abu Dhabi and Dubai are envisioned, and not accidental, cities. Some conjectured elements of envisioned cities are summarized in Table 3.1.1, showing how Abu Dhabi and Dubai addressed these elements. The elements are practical lessons for other cities trying to adapt the Dubai model. Suffice it to say, Abu Dhabi and Dubai are making giant strides in terms of tactical planning and management and, like their predecessors in the industrialized world, they will have their shining and dull moments or phases, and the lessons they learn from each cycle would help them work better toward being sustainable cities.

References

Acuto, Michele. 2011. "Rumour Has It that Dubai Has Collapsed..." *The Global Urbanist,* October 18. Available at http://globalurbanist.com/2011/10/18/rumour-has-it-dubai.

Al-Fahim, Mohammed. 2007. *From Rags to Riches: A Story of Abu Dhabi.* Abu Dhabi: Makarem G. Trading and Real Estate LLC.

Al Hassani, Zaineb. 2012. "UAE Best Place to Be Born in Arab World, Sheikh Mohammed Proudly Tweets," November 26. Available at http://www.thenational.ae/news/uae-news/health/uae-best-place-to-be-born-in-arab-world-sheikh-mohammed-proudly-tweets#ixzz2bw80QdXt.

Al-Maktoum, Mohammed bin Rashid. 2012. *My Vision: Challenges in the Race for Excellence.* Dubai, UAE: The Dubai Media Office.

Bagaeen, Samer. 2007. "Brand Dubai: The Instant City; or the Instantly Recognizable City." *International Planning Studies* 12, no. 2, 173–197, May.

Berke, Philip R., David R. Godschalk, and Edward J. Kaiser (with Daniel A. Rodriguez). 2006. *Urban Land Use Planning (5th ed.).* Champaign, IL: University of Illinois Press.

Black, David. 2012. "Big Future Foreseen for UAE Tourism," April 20. Available at http://www.thenational.ae/thenationalconversation/industry-insights/tourism/big-future-foreseen-for-uae-tourism.

Briney, Amanda. 2011. "Geography of Dubai - Learn Ten Facts about the Emirate of Dubai," January 30. Available at http://geography.about.com/od/unitedarabemiratesmaps/a/dubai-geography.htm.

Curtis, Wayne. 2012. "An Urban Farrago," April 6. Available at http://online.wsj.com/article/SB10001424052702304692804577283693329215650.html.

CW Staff. 2013. "Guggenheim Architect Frank Gehry Slams Dubai's Towers as 'Cheap' and 'Anonymous'," June 27. Available at http://arabianindustry.com/construction/news/2013/jun/27/guggenheim-architect-frank-gehry-slams-dubais-towers-as-cheap-and-anonymous-4355884/#.UdHzxz-FXDI)

Davis, Mike. 2006. "Fear and Money in Dubai." *New Left Review* 41, Sep-Oct., pp. 47-68.

Deccan Chronicle. 2012. "Bengaluru an Accidental City," December 23. Available at http://www.deccanchronicle.com/121223/news-current-affairs/article/%E2%80%98bengaluru-accidental-city%E2%80%99.

DeNicola, Christopher. 2005. "Dubai's Political and Economic Development: An Oasis in the Desert?" Unpublished B.A. Thesis. Williams College, Williamstown, MA.

Duncan, Gillian. 2011. "Abu Dhabi and Dubai Are Best Places to Live in the Middle East, Survey Says," November 30. Available at http://www.thenational.ae/business/economy/abu-dhabi-and-dubai-are-best-places-to-live-in-the-middle-east-survey-says#ixzz2bw74D3IO)

Elshestawy, Yasser. 2004. "Redrawing Boundaries: Dubai, an Emerging Global City." In *Planning Middle Eastern Cities: An Urban Kaleidoscope in a Globalizing World* edited by Yasser Elshestawy. London: Routledge.

Elshestawy, Yasser. 2010. *Dubai: Behind an Urban Spectacle.* London/New York: Routledge Press.

Evans, Richard H. 2006. "Sprawling, Soulless Dubai is an Architectural Flop." *Financial Times* Europe, May 29, p.11.

Fulford, Robert. 1995. *Accidental City: The Transformation of Toronto.* Toronto, ONT: Macfarlane, Walter & Ross.

Ghazal, Rym. 2013. "The Man behind Abu Dhabi's Master Plan." *The National,* November 11. Available at http://www.thenational.ae/uae/heritage/the-man-behind-abu-dhabis-master-plan#full#ixzz2kTJavqII.

Huffington Post. 2013. "Dubai Achieved What New York Did in 150 Years." US report. Available at http://www.emirates247.com/news/emirates/dubai-achieved-what-new-york-did-in-150-years-us-report-2013-04-28-1.504325.

Hvidt, Martin. 2009. "The Dubai Model: An Outline of Key Development Process Elements in Dubai." *International Journal of Middle Eastern Studies* 41: 397-418.

Ismail, Manal. 2011. "UAE Continues Its Rise in UN Human Development Rankings." November 4. Available at: http://www.thenational.ae/news/uae-news/uae-continues-its-rise-in-un-human-development-rankings#ixzz2bw7G8zaC.

Katodrytis, George. 2007. "Metropolitan Dubai and the Rise of Architectural Fantasy." *With/Without: Spatial Products, Practices & Politics in the Middle East,* edited by Shumon Basar, Anthony Carver and Markus Miessen. Dubai, UAE: Bidoun and Moutamarat.

Kolo, Jerry. 2010. "Beyond Colors: Sustainability Pentagon as a Proposed Integrative Framework for Sustainable Development Implementation." *Sustainable Architecture and Urban Development* IV, edited by Steffan Lehmann, Husam Al Waer, and Jamal Al-Qawasmi. Amman, Jordan.

Krane, Jim. 2009. *Dubai: The Story of the World's Fastest City.* New York: St. Martin's Press.

Lang, Robert E. and Jennifer B. LeFurgy. 2007. *Boomburbs: The Rise of America's Accidental Cities.* Washington, D.C.: Brookings Institution Press.

Newman, Peter. 1999. "Dreams: The Making of Cities," June 30. Available at http://www.yesmagazine.org/issues/cities-of-exuberance/dreams-the-making-of-cities.

Ouroussoff, Nicolai. 2008. "City on the Gulf: Koolhaas Lays Out a Grand Urban Experiment in Dubai." *New York Times,* Architecture Review, March 3. Available at http://www.nytimes.com/2008/03/03/arts/design/03kool.html?ref=design&_r=0.

Owens, Michael. 2011. "The Planned City: Make No Little Plans." *In The Lure of the City: From Slums to Suburbs* edited by Austin Williams and Alastair Donald. London: PlutoPress.

Patrick, Madeline P. 2013. "A Review of Powell's 'The Accidental City'."April 15. Available at http://southernroundtable.wordpress.com/2013/04/15/a-review-of-powells-the-accidental-city-by-madelein-pierron-patrick/.

Powell, Lawrence N. 2012. *The Accidental City: Improvising New Orleans.* Boston, MA: Harvard University Press.

Randolph, John. 2004. *Environmental Land Use Planning and Management.* London: Island Press.

Salama, Samir. 2011. "UAE to Lead International Network of Sustainable Cities," April 7. Available at http://gulfnews.com/uae-to-lead-international-network-of-sustainable-cities-1.788938.

Scardino, Barrie, William F. Stern and Bruce C. Webb, eds. 2003. *Ephemeral City: Cite Looks at Houston.* Austin, TX: University of Texas Press.

Sinclair, Kyle. 2013. "UAE Is the Place to be, Say British Expats," August 14. Available at http://www.thenational.ae/news/uae-news/uae-is-the-place-to-be-say-british-expats#ixzz2bw6bSSlo.

Spates, James L. and John J. Macionis. 1987. *The Sociology of Cities,* 2nd ed. Belmont, CA: Wadsworth, Inc.

Tatchell, Jo. 2009. *A Diamond in the Desert: Behind the Scenes in Abu Dhabi, the World's Richest City.* New York: Grove Press/Black Cat.

Warren, Jeremy. 2013. "Avoid the Accidental City, Planner tells Saskatoon," *The StarPhoenix,* March 20. Available at http://www.thestarphoenix.com/business/Avoid+accidental+city+planner+tells+Saskatoon/8123740/story.html#ixzz2Ri4QJygQ.

WCED – World Commission on Environment and Development. 1987. *Our Common Future.* New York: Oxford University Press.

Williams, Austin, and Karl Sharro. 2011. "The Visionary City: Things Will Endure Less Than Us." In *The Lure of the City: From Slums to Suburbs,* edited by Austin Williams and Alastair Donald. London: PlutoPress.

Woods, Lebbeus. 2008. "Delirious Dubai," March 5. Available at http://lebbeuswoods.wordpress.com/2008/03/05/delirious-dubai/.

3.2

Dynamics of Populations and Urban Open Spaces in the Emerging City of Doha*

Ashraf M. Salama, Florian Wiedmann,

Fatma A. Khalfani, and Ahood Al-Maimani

Introduction: Experiencing the City of Doha

The city of Doha is experiencing continual rapid growth since the mid 1990s with new or emerging urban nodes and centers, housing developments, and a wide spectrum of mixed-use interventions. According to United Nations records, it is anticipated that half the world's population will be living in cities by the year 2025. However, in Qatar, more than 80 percent of the population already resides in the capital, Doha. The urban environment is thus becoming more and more important in the daily lives of over 1.7 million inhabitants of the city. The urban qualities of the city heavily impact on several aspects of daily life such as living conditions, workplace characteristics, and the attractiveness and appeal of urban open spaces.[1] The regional and global importance of Doha has increased significantly over the last two decades and sustaining the current growth of its urban population is seen as

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1. Salama and Wiedmann, "The Production of Urban Qualities in the Emerging City of Doha"; Salama and Wiedmann, *Demystifying Doha.*

critical to the future development of the country. Hence, enhancing the quality and function of urban open spaces, and the urban environment as whole, is one of the most important considerations that would determine such a future.

Little attention, however, has been paid to several important growth aspects, including the dialectic relationship between the city's inhabitants and the urban environment, the way in which the inhabitants comprehend and react to the city's built environment and the resulting spatial experience, as well as their attitudes toward newly urbanized spaces.[2] This chapter utilizes techniques derived from the field of environment behavior research, typically defined as the systematic examination of how people interact and comprehend their surroundings. The chapter provides an analytical understanding of how the residents of Doha identify with their surroundings, how they spatially experience the city, and how they relate to selected key spaces or urban areas. Based on applying cognitive mapping procedures together with an attitude survey and behavioral mapping technique, the chapter explores urban areas in the city as perceived and experienced by various groups of residents.

Urban open spaces in Doha are scattered around the city from its northern peripheries to its center, and in the south-western peripheries. Varying in form, function, and scale, some spaces are located within enclave developments or within larger urban interventions, while others represent portions of spaces with dense urban districts or open waterfronts. Within the city of Doha, twelve most important open spaces can be identified: the Katara Cultural Village, Pearl Qatar Development, Corniche Area A (near the Sheraton Hotel), Corniche Area B (near Al Mourjan Restaurant), Corniche Area C (near the Museum of Islamic Art), Al Bidda Park, Souq Waqif Area A-shops, Souq Waqif Area B–cafés and restaurants, Msheireb, Al Sadd Area, the Ramada Junction area, and Aspire/Villagio Zone (Fig. 3.2.1). While the degree of public usage of these spaces varies dramatically, together they provide a variety of activities and leisure opportunities which cater to the main socio-economic groups of Qataris and non-Qataris who reside in the city.

Different cultural groups, age groups, and genders appear to experience the city of Doha, its overall urban environment, and its urban open spaces in very different ways.[3] These groups have different kinds of experience, interaction with, and interest in the spaces as the purpose for which they visit varies dramatically. In addition, due to factors related to their cultural background, age, or gender, their understanding

2. Ibid.

3. Salama and Gharib, "A Perceptual Approach for Investigating Urban Space Diversity in the City of Doha."

and perception of the city is quite different and it is generally based on the places where they live, work, visit, and how they move about the city. Their perception of the overall urban environment is defined by their personal experiences and relates to what different spaces within the city have to offer.[4] While some inhabitants may enjoy key attractions such as the Corniche Waterfront Park or Al Bidda Park or the restored and rehabilitated traditional market, Souq Waqif, others may prefer the new, more exclusive, developments such as Katara Cultural Village or the Pearl Qatar development. Some may even like the dense urban areas and spaces that are characterized by affordable merchandising and shopping areas, while still others prefer open green spaces that satisfy their recreational needs and those of their children.

Figure 3.2.1: Main features of the twelve most important urban spaces in Doha

Source: Authors.

4. Salama, "A Dialogical Understanding of Urban Center(s) and Peripheries in the City of Doha, Qatar."

A Mixed Research Methodology for Examining Inhabitants' Experience

Exploring how the inhabitants experience the city and its open spaces should go beyond interviewing a small group of inhabitants as this may support what is already self-evident. Rather, research techniques such as cognitive mapping, behavioral mapping, and attitude surveys are needed to assess and interpret the way in which inhabitants comprehend different locations and their experiences of moving around the city so as to ultimately improve the quality of urban life.

Method 1: Cognitive Mapping

Understanding the Inhabitants' Spatial Experience of the City

Cognitive mapping is a process comprising a series of psychological transformations by which individuals acquire, code, store, recall, and decode information about the relative locations and attributes in their everyday spatial environment.[5] Thus, a cognitive map is a mental device that codes and simplifies the way in which the spatial environment is arranged and perceived.[6] In essence, cognitive maps are a mental representation of physical locations and movement between them.

When analyzing how the city of Doha is experienced by its residents and users, two critical urban elements appear as predisposing factors governed by the spatial perception of the structure of the city: the understanding of geographical locations and urban mobility or movement within the city, and the way in which people relate to both.

Geographical locations can be exemplified by prominent or well-known places that influence people's perception of the city, such as the areas where they live, work, visit, and entertain. Two types of areas appear to have a strong influence on how people perceive geographical locations: the "home zone" and the "home range." Home zone and home range are terms that relate to the concept of territoriality. They have been discussed in the writings of theorists and researchers seeking to establish links between the physical environment and social behavior.[7] On the one hand, the home zone refers to an environment with minimal need for modes of transportation; such locales can be easily accessed on foot and thus engender a sense of ownership and belonging among the residents of its inner streets and public spaces. On the other hand, home range is a concept more concerned with a holistic

5. Downs and Stea, *Image and Environment.*

6. Ormrod, *Human Learning* (6th ed.).

7. Altman, *The Environment and Social Behavior;* Rapoport, *Culture, Architecture, and Design;* Abdel-Hadi, ElNachar & Safieldin, "Residents' Perception of Home Range in Cairo."

mental image of the entire residential environment, irrespective of its scale and size. It places emphasis on the perceived territorial and geographical boundary for the inhabitants as individuals and in groups.

For urban planning and design as branches derived from the domains of social sciences and engineering, a city is a fluid dynamic system that keeps evolving or changing. In any city, material and non-material inputs and outputs flow in, out, and within, a process that creates movement and mobility. Movement and urban mobility have been viewed in historical and contemporary urban literature as important aspects of successful cities. On the one hand, historical writings in the field have attempted to address social and behavioral issues in relation to movement.[8] On the other hand, contemporary writings have focused on the idea of networks in relation to the spatial structure.[9]

The current accelerated spread of urban areas in Doha has led to an extensive urban sprawl and the formation of additional larger urbanized areas and has resulted in the emergence of agglomerations and greater and expanding city boundaries or metropolitan areas. Such areas can be defined on the basis of how far from and how long it takes to commute to the city core, or from living areas to work areas and public places. Understanding urban mobility or movement patterns within the city is crucial to understanding the operational principles that go beyond a single urban locality. Movement is also affected by the new spatial patterns and the spatial distribution of functions and uses. By developing an understanding of people's movement patterns and the rhythm of geographical locations within the city, the various aspects of how certain areas work within the city's urban structure can be identified, analyzed, and explained.

In order to examine the experience of the city's inhabitants in terms of movement and their comprehension of the city in terms of where they live, work, entertain, and what travel routes they use, a survey questionnaire was developed with two objectives in mind. The first aim was to gather data for interpretations of how the city is experienced based on the inhabitants' reactions to certain parameters, rather than utilizing the more standard practice of reading and interpreting the city based on analyses of reports by specialized professionals or observers. The second objective was to investigate the way in which inhabitants perceive movement in the city in relation to the geographical locations most important to them such as living areas, work areas, and the public places they frequent.

8. Burgess, "The Growth of the City"; Sorokin, *Social Mobility.*

9. Geyer and Kontuly, *Differential Urbanization.*

Eighteen undergraduate architecture students were asked to respond to the survey questionnaire and then distribute it to ten people such as relatives and neighbors to solicit responses. The process required students to explain the survey to the participants, including its purpose and the nature of the questions. The questionnaire provided a map of greater Doha and included queries about basic information related to the gender, age, and cultural background of the participants; they were required to indicate the area where they live and work on the map.

Participants had to select the three public spaces that they frequented the most as well as indicate the routes they take from their residence to their workplace and the routes taken to the most visited public spaces on the map. Relying on cognitive mapping procedure, the questionnaire required participants to mark the home zone and home range on the map. Home zone was defined as the immediate context around their homes, which reflects a shared or collective hypothetical ownership of communal space or area, while home range was delineated as the respondents' mental image, based on their understanding of what defines such an environment and their perception of its boundaries, of the entire residential environment or district around their home.

Over 50 percent of the targeted population responded to the survey with a total of 108 responses received. The comprehension of movement, home zone, and home range was an integral component of a larger study conducted by architecture students of the class of 2012 as part of an elective course on Post Occupancy Evaluation, offered in the spring semester at the Department of Architecture and Urban Planning at Qatar University and delivered in the spring of 2012.

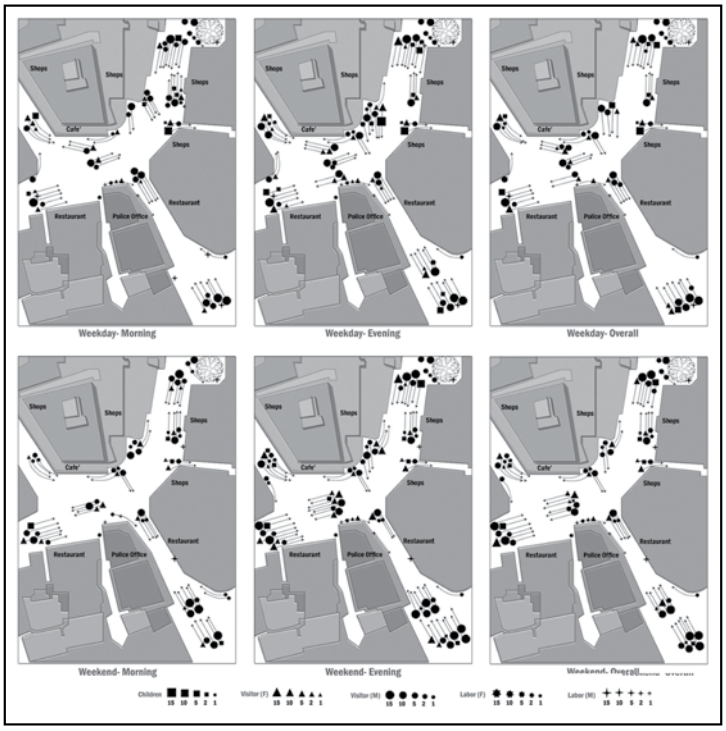
The respondents represented a wide spectrum of people from different cultural backgrounds: 65 percent of the respondents were Qatari nationals while 35 percent were expatriate professionals, mainly from neighboring Arab countries. Sixty-nine percent of the respondents were between 20 and 40 years old, the majority of whom (65 percent) were female. While the respondents' profile was reasonably diverse, it should be noted that Americans, Asians, and Europeans representing other cultural groups, that also form an important component of the city's expatriate residents, were not included in the survey. Therefore, while the responses from the sample group and the population they represent cannot be generalized to represent the whole city, they offer important insights into the understanding of certain preferences and movement patterns within the city as they relate to the participants.

Method 2: Direct Observation and Behavioral Mapping

Understanding the Inhabitants' Use of Urban Spaces

Direct observation and behavioral mapping is a systematic method for describing what visitors and users of a space actually do there. It is a direct approach, unlike the methods that require the indirect involvement of inhabitants in seeking information about the understanding of geographical locations and urban movement. Observation and mapping are additional tools for understanding the dynamics of people and their interaction with the urban environment; it is an alternative approach to data collection that views people as "objects" by recording their periodic behavior. Valuable information can be obtained when behavior is systematically recorded.[10] Unplanned observation may result in inadequate findings that may reveal only what seems to be already obvious. Systematic observation of behavior involves four aspects: people, activities, setting or space, and timing.

Figure 3.2.2: An example of generated maps based on observation periods conducted at Souq Waqif



Source: Authors.

10. Sanoff, *Visual Research Methods in Design.*

In this procedure, a combined unobtrusive mapping technique, which integrates "place-centred" mapping and "individual-centred" mapping, is used. Place-centred mapping aims at observing actions in a particular setting or portion of a public space; these are recorded on floor plans, maps, or diagrams. Individual-centered mapping records the tasks, activities, and movements of people throughout the investigated space:[11] it represents systematic learning about a particular group of individuals whose activities are distributed throughout a specific period of time.

Based on the results of investigating geographical locations and movement, four urban open spaces were identified to conduct direct observation and behavioral mapping studies. These are: Katara Cultural Village, Corniche Waterfront Area A, Souq Waqif Area B, and Aspire Zone. In planning the study, a series of visits to the four spaces was conducted to explore key settings within them; these were selected because of their importance in terms of intensity of visitors and variety of activities. Original maps were obtained and re-drawn and timings were identified: each of the spaces was observed twice during the week and twice at weekends. Times of observation varied on weekdays and at weekends. Observation took place on weekday mornings from 10-11 pm and during weekend mornings from 10.30-11.30 am. For weekday and weekend evenings, observation times were from 6.30-7.30 pm and from 7-8 pm, respectively. Users were classified into five groups: children, male visitors, female visitors, female domestic workers or cleaners, and male laborers. Maps were generated for each observation and mapping period (Fig. 3.2.2) and combined maps were then developed to illustrate the overall profile of behavior and activities in each space.

Comprehension of Geographical Locations and Movement in the City

Utilizing frequency, cross-tabulation, and cumulative mapping procedures for the total number of respondents and for groups of Qataris and Arab expatriates, results were categorized into three bands that pertained to: a) living, working, and visiting; b) home range, home zone, and movement; and c) ethnic affiliation: Qataris/other Arab expatriates.

Living, Working, and Visiting Patterns

The areas where the participants in the survey live vary greatly. However, three areas or districts – Mamoura, Gharrafa, and Khraitiyat – stand out from the responses: nine percent of the respondents live in Mamoura district, while Gharrafa and Khraitiyat districts each received 8 percent of the responses. This result corresponds

11. Salama, "Assessing Qatar University's Campus Outdoor Spaces."

with the overall profile of the respondents: for example, the Mamoura district is characterized by a mix of Qataris, who reside in privately owned homes, and other Arab nationals who live in villas and low-rise apartment buildings typically rented by employers for their expatriate workforce. In contrast, the Gharrafa and Khraitiyat districts, located in close proximity to the northwestern peripheries of the city, are primarily characterized by Qatari homes thus reflecting their preference for living on the outskirts of the city.

In terms of the places where survey participants work, four areas may be clearly identified from the responses: 32 percent of the respondents work in the Tarfa district while 12 percent work in the Dafna area. This may be due to the fact that the former is characterized by the presence of the Qatar University campus, while the latter represents the emerging business and financial district in the West Bay area. About 7 percent and 6 percent of the respondents identified the Al Sadd and Shaqab districts, respectively, as workplace areas. This suggests that while the Al Sadd area represents a more traditional business district, close to the city center, the Dafna or West Bay financial area has already started to attract more businesses and employees. Further the Shaqab area, which is dominated by the presence of Qatar Foundation and its various subsidiaries such as Education City, the Convention Center, Sidra Hospital and Qatar Science and Technology Park, does not represent the workplace zone for most of the survey participants who are mainly Qatari and Arab nationals.

Four public spaces appear to compete for the most frequently visited urban open spaces: Katara Cultural Village was chosen in 58 percent of the total responses, followed by Souq Waqif, Aspire Zone, and the Corniche waterfront area being the choice of 57 percent, 56 percent, and 49 percent, respectively, of the respondents. This suggests the respondents' strong interest in culture and sports, which are specific attributes of these particular spaces. The result could also be attributed to the fact that these places offer a wide variety of facilities, functions, and activities including cultural events and art exhibitions, and in the case of Katara Cultural Village and Souq Waqif, ethnic restaurants and cafés; the study also indicates a preference for enjoying the outdoors and the green spaces and walking/pedestrian areas around the sports complex of Aspire Zone/Villagio and the tree-lined waterfront park and pedestrian spine along the Corniche.

Two areas appear to be of very little interest to the respondents as most visited urban spaces: the Museum of Islamic Art (MIA) Park (1 percent) and Education City (4 percent). Insufficient parking space both inside and outside the museum boundaries, and the controlled accessibility to the gated museum gardens, in addition

to the limited opening hours could be factors that discourage public interest in visiting. However, recently the MIA Park has been receiving more visitors; this may be due to the establishment of two cafés and a children's play area in addition to extended evening opening hours. Education City is an exclusive gated campus community that requires permission to enter; it also does not have activities that cater to the general public and as such does not encourage visiting by the public. It should be noted, however, that Education City does provide specialized activities of interest to academics and researchers.

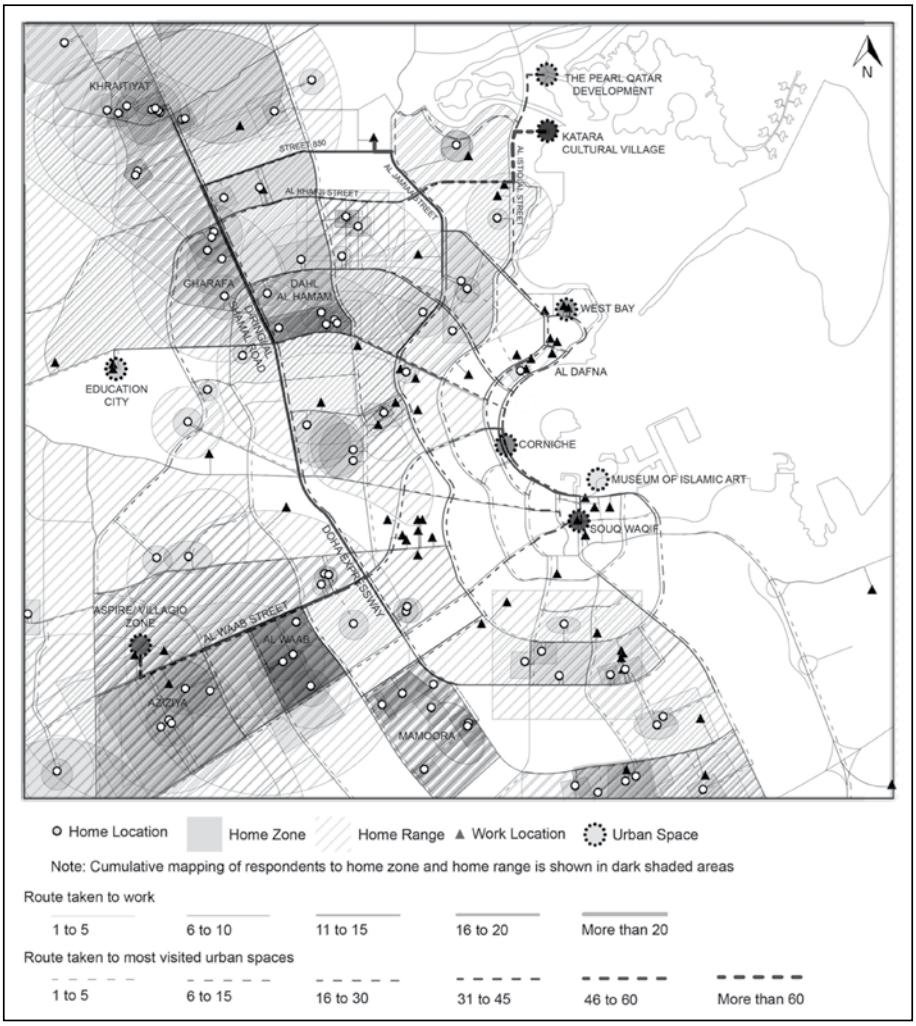
Comprehension of Home Range and Home Zone and Movement Experience

Mapping the respondents' identification of home and work locations, home zones, home ranges, and the routes taken from living areas to work areas reveals interesting findings (Fig. 3.2.3). Based on the responses, the distribution of homes clearly reflects the fragmented nature of the city where residential areas are located far from the business or commercial districts. This echoes the preference of the respondents to reside away from the city center, most specifically in the northwest and southwest of the city.

The perception of home zone is rather varied as some respondents depict it as an undefined bubble while others portray it with clearly defined perimeters or boundaries. The responses with regard to home locations and home zones reveal three major areas that can be considered home zones for the participants: these are Al Waab, Dahil Al Hamam, and Khraitiyat. Responses to home range also vary with regard to size of representative areas and the demarcation of boundaries. Notably, the cumulative mapping and the intersection of home ranges show specific residential areas as representative of home ranges for the respondents. Areas of significance include Mamoura, Al Waab, Azizya, Dahil Al Hamam, Madinat Khalifa, and Gharrafa (Fig. 3.2.3).

The distant location of certain residential areas could also reflect difficulties with mobility and access across the city. Interestingly, the concentration of private sector residential areas seems to be moving toward the West Bay, the new business and financial district. This trend could eventually initiate better access routes to the residential areas located northwest of the city, in addition to benefiting businesses because of the closer proximity to certain governmental institutions that have recently relocated to the West Bay area.

Figure 3.2.3: Cumulative mapping of respondents' reactions to geographical location and movement across the city



Source: Authors.

The results of mapping the respondents' indications of roads and routes taken to work areas and to the most visited places reveal significant findings. For example, D-Ring Road, as part of the new Doha Expressway which later merges into Al Shamal Road, appears to be the most commonly used route for respondents to reach their workplace (Fig. 3.2.3). This is likely due to its connectivity as a main artery to the most important areas of the city. Its vehicular capacity and flow of movement makes it an important urban transport spine that links different parts of the city.

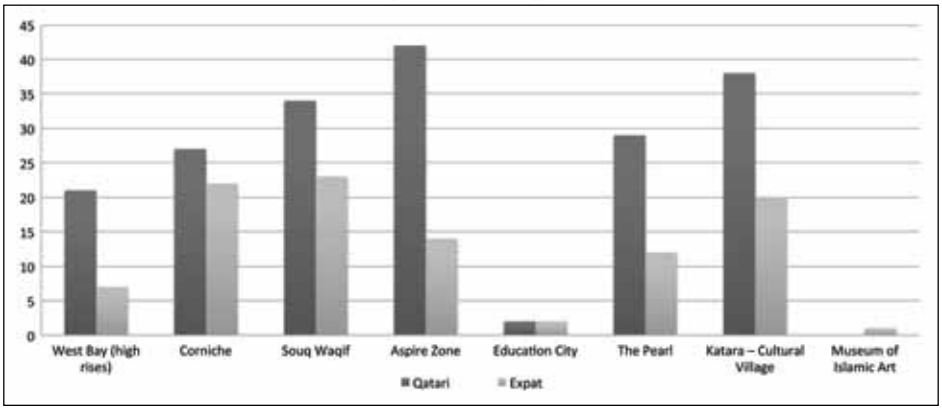
In addition, routes taken to some of the most visited spaces appear as logical access points from nearby residential communities. For instance, Al Waab Street, which crosses Al Furusiya Road, a major artery that separates Doha from the neighboring city of Al Rayyan, emerges as a major spine. Al Waab Street starts from the southwest edge of the city, runs along and by Aspire Zone/Villagio, and then connects to the Doha Expressway. The expressway eventually merges to become Al Shamal Road, the main highway to the north of the country. The eastern end of Onaiza Street, which passes alongside Katara Cultural Village and the Pearl Qatar en route to Lusail City – a major development project-, also appears as an important spine. While a number of alternative routes are used extensively by many Doha residents, especially those that are parallel and to the east of Al Shamal Road, these do not seem to be much used by the respondents.

Ethnic Affiliation: Qataris and Arab Expatriates

A number of usage and destination differences were found in the responses of Qataris compared to other Arab expatriates. For example, Aspire/Villagio Zone, Katara Cultural Village, and Souq Waqif appear to be the most visited urban spaces for Qatari respondents, receiving 42 percent, 38 percent, and 34 percent, respectively. In contrast, Souq Waqif, the Corniche, and Katara Cultural Village were identified as the "most visited" by Arab expatriate respondents, receiving 23percent, 22 percent, and 20 percent, respectively. The least visited urban spaces for both groups were Education City and the MIA Park.

In essence, the results reflect the preference of both groups to visit urban spaces that are closer to their residence. Since the majority of Qatari respondents live in the northwest or southwest part of the city, they usually visit urban spaces like Katara Cultural Village and Aspire Zone that are in close proximity to where they reside. As Arab expatriate respondents tend to live closer to the city center, their two most visited places were Souq Waqif and the Corniche waterfront area, which are also closer to the center; however, Katara Cultural Village, rated as the third most visited urban space, is just a few kilometres north of the center (Fig. 3.2.4).

Figure 3.2.4: Most visited public spaces by Qatari vs. Arab expatriates respondents

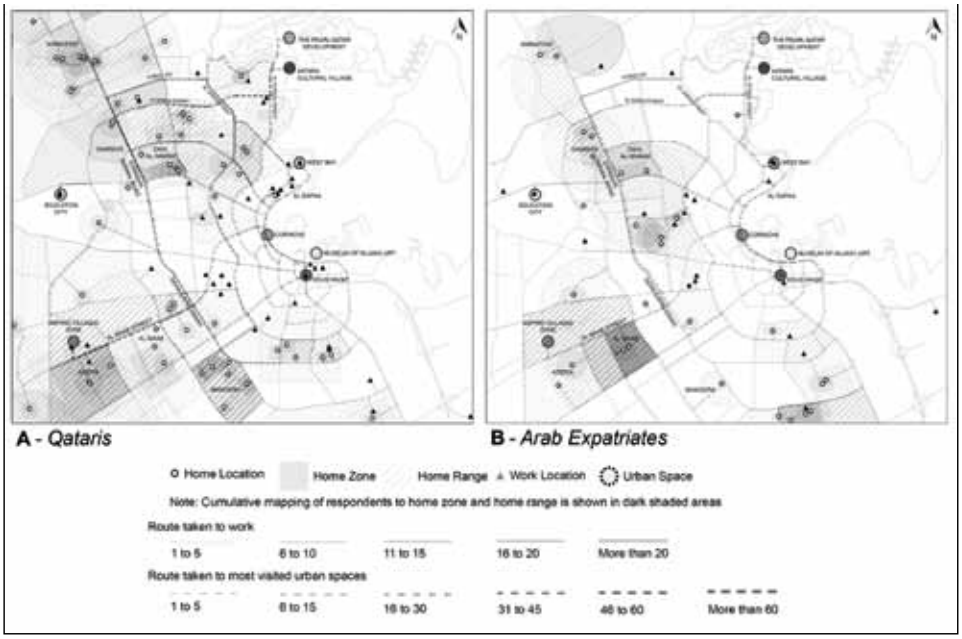


Source: Authors.

In generic terms, there is no clearly defined area for Qatari respondents of a significant dense concentration representative of their interests with regard to their perception of home zones and home ranges (Fig. 3.2.5). The Qatari respondents are more distributed and reside further away from the center, around the peripheries of the city, in areas where their requirements are more easily met with the availability of larger properties, bigger houses, and more private space. In contrast, for Arab expatriates, home zones and home ranges are much more clearly defined and are larger in size and area as evidenced in the cumulative responses (Fig. 3.2.5).

Home ranges indicative of residential segregation are evident in Khraitiyat and south of the Al Waab area; these areas are more exclusive to Qataris while the Al Sadd area, the Al Waab area, and the city center are more typical residence areas for most Arab expatriates. Some areas, however, are more inclusive, with a fair mix of Qatari and Arab expatriates; these include Mamoura, Gharrafa, and Dahil Al Hamam. The latter two areas, however, have recently witnessed the introduction of new residential compounds that accommodate a considerable number of expatriates, thus making them more mixed than they were a few years ago. In contrast to the results of mapping home ranges, work location for Qataris seems to be closer to the city center, while for Arab expatriates it is more varied and may be distributed around the center, the Al Sadd area, and in other parts of the city. This pattern reflects the fact that most Qataris work in the ministries and government institutions located in the center or in close proximity to it, while the expatriate Arabs work in more diverse areas and neighborhoods located in various parts of the city and its peripheries.

Figure 3.2.5: Cumulative mapping of Qataris' and of Arab expatriates' reactions to geographical location and movement across the city



Source: Authors.

In the category based on cultural backgrounds as to which routes are most frequently used to reach work areas or access most visited urban spaces, no major differences were found. D-Ring Road and Al Shamal Road/the Doha Expressway appear to be the arteries most often used by both groups to reach their work areas. In addition, for Qataris there is heavy usage of Al Waab Street to reach their most visited urban spaces. Arab expatriates, however, appear to have a preference for the Corniche route to reach their most visited urban spaces. This may be due to the fact they often work and reside in closer proximity to these spaces.

Activities and Interaction with Key Public Open Spaces

The results of investigating the four urban open spaces, which were identified to conduct direct observation and behavioral mapping studies, reveal interesting narratives about the physical and social aspects of the spaces. Following is an analytical discussion of these results.

Katara Cultural Village: In observing the mixed types of users at the selected Katara Cultural Village space, including children and male and female visitors, the actual use can be clearly discerned. The users represent different socio-economic strata and

cultural backgrounds, and there is a substantial presence of Qataris. Male laborers are represented in the space for restaurant staff and beach helpers. Female laborers are mostly cleaners or maids accompanying Qatari families to keep an eye on children. Cleaners seem to be available at all times, but appear to be moving more within the space in the evenings. Since most of the restaurants open late morning or at noon, the number of users is significantly less at these times than during the evenings. Beach use and activities are not common whether during the week or at weekends; this could be due to the high entrance fees. Even though the spaces, particularly the waterfront esplanade, are dark and poorly illuminated at night, Katara is more crowded in the evenings, both during weekday and weekend evenings. Interestingly, this lack of adequate lighting on the esplanade impacts in two contradictory ways: first, it enables substantial and most likely desired privacy for users, particularly Qataris, and second, it minimizes the feeling of comfort and safety, which even so does not prevent people strolling along the esplanade in the concealing darkness.

Visitors seem to go to Katara for different purposes. While many people visit to dine in the various restaurants or lounge in the numerous cafés and coffee shops, others prefer to go for a stroll along the esplanade or just sit on the few available seats and benches lining the main walkways. It was observed that people walk or gather in groups, whether they are family members or a group of friends socializing. While strolling, they may glance at the representational architecture of the different buildings or just look for a suitable spot to sit. Some groups gather in front of the open-air amphitheatre to enjoy the seaside views and the striking skyline of Doha; occasionally, children play on the numerous steps and pediments of the gigantic amphitheatre. It was also noted that during the evening some people queue in front of busy popular or trendy restaurants, waiting to be seated. Overall, it was observed that both adults and children seem to enjoy their time in the space. However, the space lacks adequate outdoor furniture such as benches and chairs besides sufficient green spaces and landscaped features that would make it more amenable and attractive. The minimal use of green spaces creates a rather stark but not unpleasing leisure environment.

Corniche Area A: The mapping of Corniche Area A elucidates the reality of this space and how it is actually used by a wide spectrum of people of different age groups and from different ethnic backgrounds. The space caters more to lower and middle-income groups. A strong presence of male visitors is evident on weekday evenings; male laborers working in the space are also represented and these include cafeteria staff and Msheireb Enrichment Centre (MEC) security staff. Both males and females, jogging or casually strolling, were also recorded as passers-by. Additionally,

the children's playground at the far northern end of the site is a major attraction for families. Family groups were also observed gathering in the space around the cafeteria, both in front of and behind it: in fact, the cafeteria appears to be the major attraction, especially in the evenings when people come for refreshments. The space is generally crowded with different types of users on weekdays; on weekends, most users are seen in the early morning and early evening. However, fewer users were noted on weekday mornings, probably due to the fact that most people are at work. In contrast, maintenance workers and gardeners were strongly represented in the mornings when they are on duty during hours where they are less likely to disturb visitors. It was also noted that a considerable number of male users visited the space specifically to drink traditional tea *(karak)* while sitting individually or in groups along the seawall, a protective barrier separating the promenade from the sea, chatting and seemingly enjoying the views of the cityscape or the other side of the bay. Interestingly, motorbike riders (a very small interest group in the Doha population) were frequently noted congregating at the drop-off area, near the car park.

Many users also passed by the major sidewalk, which runs parallel to the promenade, the major pedestrian spine that links the whole waterfront space of the Corniche Waterfront Park. The major activities appeared to be walking or stopping to use the rental bikes available in the green space near the cafeteria. Families were observed searching for a pleasant shady spot under a big tree, particularly near the children's play area, a space which is dotted with small trees on landscaped artificial hills and hummocks. Casual observation at other times, apart from scheduled behavior mapping times, records that the space is more vibrant and more heavily populated during special events such as Qatar National Day celebrations and water sport events and competitions. Overall, while adults and children seem to enjoy spending their time there, pursuing their recreational interests and activities, the space lacks sufficient outdoor seating and significantly lacks parasols or other forms of shade, which could potentially make it more appealing for use by more groups, especially during the hot and sunny daytime hours.

Souq Waqif: A rehabilitated traditional market and tourist destination area, the souq represents one of the most important and attractive leisure spaces in Doha; it caters to diverse groups including tourists, Qataris, and expatriate residents. Conducting behavioral mapping of the selected setting within the souq reveals the authentic use of the space. It was observed that some Qataris and non-Qataris also visited the police station (Immigration Office) for various reasons such as to authenticate documents or renew visas. Other users, including residents and tourists, frequented

the space for dining or socializing purposes since the area has a variety of ethnic restaurants and attractive outdoor cafés.

Tourists who stop over in Doha en route to other destinations often visited the space to shop, admire the "traditional" architecture of the reconstructed and renovated souq buildings, and experience or investigate some of the cultural aspects of Qatar. Typically, groups of tourists were observed to visit traditional shops prior to relaxing in cafés or dining at one of the many restaurants. It was also noted that there was a very low representation of children, probably due to the lack of activities and facilities that would cater to them. Asian male workers would sometimes visit the space from nearby residential areas located south of the souq. However, security police stand in front of and near the station and have been known to hustle certain visitors away, particularly unwelcome laborers or those who have been observed annoying visitors. Mounted policemen also frequently patrol the streets and are one of the attractions, especially for tourists.

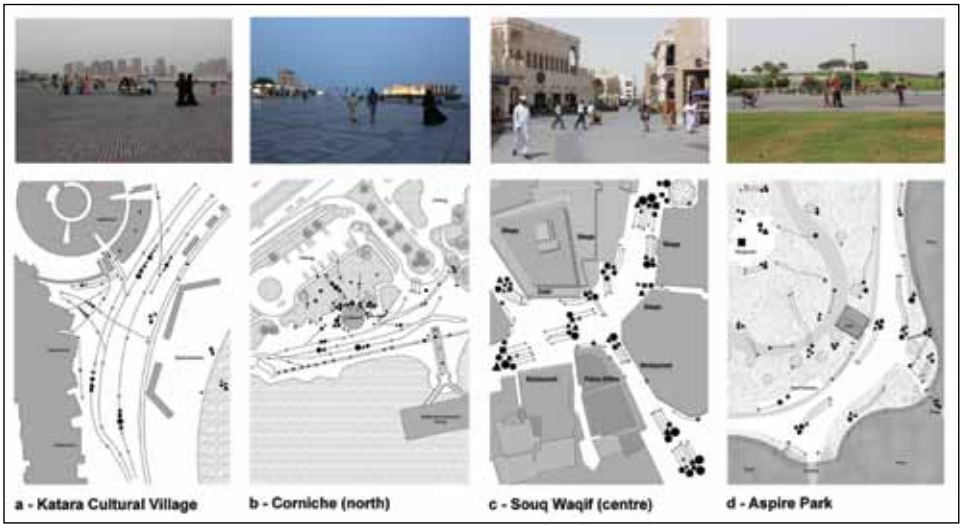
The mapped space is one of the major arteries of the souq; it is lined by various restaurants with roof terraces and outdoor cafés. In generic terms, the space is lively and well-frequented both in the morning and evening. However, it is more vibrant at weekends than during the week, and in the evenings rather than the mornings. This is likely due to the restaurant and café opening times. Visitors generally go there for a meal or coffee with friends and family and some may go shopping. It was observed that the space was primarily used in the mornings as a passing-by space en route to the shops or the immigration office, while in the evenings it was used for dining in restaurants or cafés as well as shopping in the adjacent traditional market or handicraft shops. Crowds were bigger in the evenings rather than the mornings since the majority of visitors, other than tourists, were more likely to be at work. The space, as part of a pedestrian passageway to the traditional market area, seemed to be functioning very well; however, the complete lack of children-oriented activities and venues was also noted.

Aspire Park/Zone: Mapping behavior in the Aspire Zone and Aspire Park uncovered some important aspects related to its activities and the users engaged in those activities. People of different backgrounds, gender, and ages were observed to use the space for various purposes. It was noted, however, that most visitors were either Qataris or Arab expatriates; very few Europeans, Americans, or people from other western backgrounds were represented during observation times. Typically, users visited the space in groups, as friends or with families; children were well represented in the space since it has extensive landscaped green areas in addition to a well-appointed children's playground. The café's location and quality of service also

seems to be an important attraction. Security staff was present in key spots within the space, especially close to the pond, to monitor children and prevent them from entering it. The staff was mostly male, though female security staff were present in the early evenings, but in fewer numbers; they were seen to be primarily monitoring the area around the café. The space was rarely used during the morning when only a few individuals could be seen in the designated sports area. Strikingly, the number of visitors was higher during the weekdays than at weekends, presumably because most visitors came from nearby residential areas. Casual, unscheduled observation revealed that space use was quite flexible; for example, it was sometimes used for special, pre-arranged events such as children's birthday parties, national day celebrations, and sports competitions. Most visitors used the space primarily to enjoy the outdoors prior to or after shopping in two popular nearby malls located east and south of the park.

Morning users tended to visit the area for fitness purposes such as walking, jogging, or other exercise. Evening visitors, however, appeared to use the space for activities such as eating, chatting, or simply sitting. The overall experience of users seemed to be a pleasant one. It was noted, however, that the lack of adequate shaded areas with trees, parasols, or other forms of shade, could be an important factor for the minimal use during weekend mornings.

Figure 3.2.6: Combined behavioral maps for the four spaces selected for investigation



Source: Authors.

Conclusion

This chapter presented the results of research into the progress on the examination of the dialectic relationship between the inhabitants of Doha and the everyday urban environment, understanding the way in which the inhabitants comprehend and react to their built environment and the resulting spatial experience, as well as their attitudes toward newly urbanized spaces. The main objective was to investigate the various synergies between the dynamics of populations and their surroundings, which would foster an in-depth understanding of the city's overall urban environment.

By establishing a knowledge base derived from the direct experience of inhabitants, including movement patterns and the rhythm of geographical locations within the city, the various aspects of how certain areas work within the urban structure of the city can be elucidated. A number of factors appear to contribute to "recognize-ability" of places within the city. This includes a) proximity, where nearby places tend to be more familiar to people than places that are distant; b) size, where large places tend to be better known, such as the Aspire Zone, than small places; c) location, where places on the border such as the waterfront promenade are better known than places in the inner fabric, especially if they have no distinctive features; d) character, where places with a distinctive form and character such as Katara Cultural Village are more easily recognized; and e) social-cultural aspects, where places with an important history or cultural distinction are better known such as Souq Waqif or the MIA.

The findings of the cognitive mapping based survey reveal that inhabitants have different experiences of the city and its urban open spaces and that their mental images and experiences determine the degree to which they react to the qualities of those spaces. Such qualities can be seen as factors impacting the liking, visiting, and passing by of spaces. In generic terms, urban spaces in Doha appear to be favored by most respondents: certain spaces, however, have poor or substandard attributes, which need improvement in order to enhance user experiences.

By observing the location, activities, and the people involved, behavioral mapping procedures offer insights into understanding the influence of cues on users such as the availability or lack of furniture like benches or picnic tables, furnishings such as parasols or shades, and equipment such as children's play equipment, in addition to the physical features of the spaces. Recording the character and type of activities and the casual factors associated with them can assist in the identification and subsequent understanding of movement patterns that are often governed by design qualities and amenities that characterize the space.

The overall experience of users in the four spaces examined demonstrates that people experience and interact with urban open spaces differently and their needs vary according to the purpose for which they visit the space. The mapping studies of urban open spaces delineate the fact that there is an absence of landscape features and a dearth of green spaces and appropriate outdoor furniture, such as benches and seating, in Katara Cultural Village; similarly, there is an absence of adequate shaded areas and shading devices in both Corniche Area A and Aspire Zone. In addition, a lack of children's facilities or a specially designated area for children was noted in Souq Waqif. These could be viewed as deficiencies that hinder the maximum efficient and effective utilization and use of such spaces. Addressing the lack of features that enhance people's activities and use of the space, or those that would cater to a specific type of user, would make the space more conducive for use by different types of users and at different days and times. In sum, pertinent recommendations can be made with the aim of initiating improvement of existing urban open spaces in Doha or offering guidance for designing new spaces.

The rapid speed of contemporary urban developments has led to an urgent need to examine the various layers of interdependencies between an emerging society and newly built urban fabrics. The tendency of supply-driven parameters within local urbanism has led to restricted participation among inhabitants in shaping Doha's built environments in recent years. The shift from the phenomenon of an "instant city" to a consolidated and attractive international hub will, however, rely on increased individual identification given to urban spaces and a more satisfying fulfilment of the demands and desires of communities in terms of architectural and urban design. This can be addressed at two levels: a bottom-up level that engages different groups in decision-making processes where their needs and aspirations are incorporated, and a top-down level that integrates knowledge from research findings into guidance documents.

While offering important insights, it should be noted that the preceding aspects pertinent to the urban environment of Doha do not represent the full spectrum of issues related to the dialectic relationship between people and their environment. In this respect, introducing the concept of the quality of urban life should be seen as a necessity where issues related to satisfaction, well-being, and happiness are understood with relevance to the spatial quality of public spaces and the overall experience of the urban environment of the city. Whereas future development plans of the city may appear to address specific groups and cater to specific age groups or cultural backgrounds, a more responsive and inclusive approach to the design of urban spaces needs to be put in place.

References

Abdel-Hadi, Aleya, Eman Elnachar, H. Safieldin. 2011. "Residents' Perception of Home Range in Cairo." *Open House International* 36 (2): 59-69.

Ahmadi, Ameena. 2008. "The Urban Core of Doha: Spatial Structure and the Experienced Centre." Master's Thesis, University College London, London.

Altman, Irvin. 1975. *The Environment and Social Behavior.* Monterey, CA: Brookes/Cole.

Burgess, Ernest W. 1925. "The Growth of the City." In *The City: Suggestions of Investigation of Human Behavior in the Urban Environment,* edited by Robert E. Park, Ernest W. Burgess, and Roderick D. McKenzie, 47-62. Chicago, IL: University of Chicago Press.

Downs, Roger M. and David Stea. 1973. *Image and Environment: Cognitive Mapping and Spatial Behavior.* Chicago, IL: Aldine Publishing Co.

Geyer, H. S. and T.M. Kontuly (eds.) 1996. *Differential Urbanization: Integrating Spatial Models.* London: Routledge.

Ormrod, Jeanne Ellis. 2011. *Human Learning* (6th ed.). Upper Saddle River, NJ: Pearson/Prentice Hall.

Rapoport, Amos. 2005. *Culture, Architecture, and Design.* Chicago, IL: Locke Science Publishing Co.

Salama, Ashraf, M. 2011. "A Dialogical Understanding of Urban Center(s) and Peripheries in the City of Doha, Qatar." *Proceedings of the Architectural Humanities Research Association: Peripheries 2011.* Belfast: Queen's University Belfast.

Salama, Ashraf M. 2012. "Assessing Qatar University's Campus Outdoor Spaces: Design Intentions Versus Users' Reactions." In *Enhancing Building Performance,* edited by Shauna Mallory-Hill, Wolfgang Preiser and Chris Watson, 139-150. New York, NY: John Wiley and Sons.

Salama, Ashraf M. and Remah Y. Gharib. 2012. "A Perceptual Approach for Investigating Urban Space Diversity in the City of Doha." *Open House International* 37 (2): 24-32.

Salama, Ashraf M. and Florian Wiedmann. 2013-a. "The Production of Urban Qualities in the Emerging City of Doha: Urban Space Diversity as a Case for Investigating the 'Lived Space.'" *Archnet-IJAR: International Journal of Architectural Research* 7 (2): 160-172.

Salama, Ashraf, M. and Florian Wiedmann. 2013-b. *Demystifying Doha: On Architecture and Urbanism in an Emerging City*. Farnham/Surrey: Ashgate Publishing Ltd.

Sanoff, Henry. 1991. *Visual Research Methods in Design*. New York, NY: Van Nostrand Reinhold.

Sorokin, Pitirim. 1927. *Social Mobility*. New York, NY: Harper.

Wiedmann, Florian, Ashraf M.Salama, and Alain Thierstein. 2012. "Urban Evolution of the City of Doha: An Investigation into the Impact of Economic Transformations on Urban Structures," *JFA/METU: Journal of the Faculty of Architecture,* 29 (2): 35-61.

3.3

Roaming Trans-cities and Airborne Fiction

George Katodrytis and Sharmeen Syed

Introduction

Geographically, the Gulf region is a canvas of nomadic crossroads, north-south immigration patterns, and east-west trading axes, which bisect a *tabula rasa* of Empty Quarters and extreme climates. The discovery of oil in the early 20th century added to this a matrix of potential interconnectivities. The exponential growth of post-colonial cities in the Arab states of the Gulf stemmed from new technologies, telecommunications, and mega infrastructures. The accompanying drastic morphological and ecological changes have brought about a new model for the 21st century city: sprawled, vertical, and scaleless. This city is characterized by airborne images and a collage of patterned master plans – generated, on the one hand, by late modernist mirages of skylines and, on the other, as reconstructed orientalisms. The imagery of artificial coastlines and conglomerated skylines is now a reality.

The aerial view has provided encapsulations of civilization and modernization while sim-ultaneously empowering the spectator with the omniscient gaze. The gaze of the cartographer mapping territory – territory to acquire and territory acquired – is associated with the production of knowledge and ultimately the definition of the "empire," be it geographical, virtual, or imaginary. The past decade has witnessed the climactic boom and the collapse of urban daydreams embedded and immortalized in renderings, scaled models, and master plans. As cities recover from hallucinated

wealth, they also retain relics of the unrealized along with the histories and physical layers of the accumulated past. Supra-spectacular and Hollywood-esque — the future 21st century urbanism has become a comment on its own realities.

Figure 3.3.1: Desert – Aerial views of large-scale unfinished projects give rise to unchartered potential and speculation

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Reconnaissance Urbanism

The emerging Gulf city in the 21st century is characterized by rapid development in the age of digital technology, reproduction, and simulation. Cities can now be extruded instantaneously. Digital technologies enable new ways of both imaging and imagining. The imagery of unbuilt architecture has become more sophisticated and increasingly resembles the photographic image and can be instantaneously transmitted. GIS and reconnaissance technologies and imagery turn into telegenic imagery for mass tourism. Satellite imagery of unfinished projects gives rise to unchartered potential and speculation. Satellite technologies used to monitor wildlife development, hydrography, and drought are now a tool for global transmissions of projects under construction as promotional advertisement for the tourism sector. We are witnessing the conversion of reconnaissance technology into an aerial urban theater.

In the public domain, Google Earth aerial imagery of the Gulf region turns into aerial spectacle addressing and inviting the prospective tourist, investor, and temporary resident. There is something for everyone – demand and consumption propel simultaneously and rapidly. Architecture allows emergent economies to express the fascination with symbols of economic development, of national progress in a context of inflationary globalization and of international economic competition. Zoom in to new urban developments and the aerial map reveals patterns of master plans, clustered garden cities, axial layouts, and composited neighborhoods. This spatial and urban approach emphasizes enclaves and exclusiveness. Zoom in even further and these zones reveal no oddities; only banal and predictable real estate spaces reflecting the speed and economy with which they were planned. These developments read as a conglomeration of disconnected parts put together by virtue of proximity devoid of contextual sensitivities. Architectural programs and typologies are fused and undifferentiated.

Urbanization is most apparent along the northeastern coast of Saudi Arabia, Kuwait, Bahrain, Qatar and the United Arab Emirates (UAE). In Qatar and the UAE, nighttime lights make it possible to read highways and road networks at a glance. The "day-night band" of the Visible Infra-red Imaging Radiometer Suite (VIIRS) makes such nighttime views of Earth possible. VIIRS detects light in a range of wavelengths from green to near infrared and uses filtering techniques to observe dim signals such as gas flares, city lights, and reflected moonlight. The Suomi NPP imagery acts as an urban X-ray of sorts; it reveals a clear pattern of settlements, urban densities, infrastructure, and oil wells.

A superimposed map of the main oil and gas deposits underground corresponds to the pattern and density of urbanization above ground. In effect, these geological reserves in the desert and the sea are visible as an emitted light night surface reflecting geological urban consumption. On the contrary, the daytime aerial photographs of the same areas reveal sporadic built developments, incomplete infrastructures, and grand master plans in a suspended state between ruin and newness. Land reclamation gestures etched into the sea and artificial lakes carved into the land have created new topographical configurations – phenomena that have quickly normalized despite the implications – in the mental landscape of promised futurisms.

Figure 3.3.2: Palm – Urban development projects viewed from above are recognizable as part of the mental landscape of the city

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21st Century Urbanism and Modernity

The city sprawls out like an exponent of an algorithmically evolving pattern: fractal architecture with multiplied perimeters and endless topological variations. Increasingly, this kind of contemporary architecture and urban filmmaking that stimulates mass tourism has to be photogenic. Buildings must look striking in a hovering sequence or stand out in a static shot as backdrop. Inevitably, this has led to concentrated tourist infrastructures and mega-structure complexes (hotel + apartments + mall + cinema + expo + anything) that are clustered together and re-appropriated for mass consumption. In this sense, architecture and landscape are part of a single system, characterized by stratification and a hyper-controlled consumer experience.

The current ambition of the Gulf city is to build its own monumental skyline. The contemporary metro-global city creates its spectacle with buildings that relate more to the sky than to the ground. To recognize skyscrapers as the contemporary state of architecture is to accept the metropolitan condition as a dialectical element and, at the same time, to embrace the most advanced global capital model – that of consumerism expressed as "gigantic machines" and "cathedrals of commerce." The

skyscraper is the ultimate architectural expression of the century — supreme and iconic. The visibility and transmission of skyscrapers is on a global field, yet the story of skyscrapers was never about exploration as much as colonizing the city itself.

The imagery of fantasy and fiction is best expressed as vistas, panoramas, and aerial reconnaissance. The tower is the ultimate tool and expression of the architecture of power, spectacle, and commerce and enables the bird's-eye view, which also has a historical background for military use. The metropolitan obsession with the tower is to "look down to earth" and "gaze from" as a form of entertainment. The 1939 New York World Fair celebrated this exact notion of the city as a toy-like miniature. Visitors were led along passages and glass containers to look down at scaled models of the future metropolis.

The vision of Shaikh Rashid bin Saeed Al-Maktoum (who ruled Dubai from 1958 until his death in 1990) was to have a significant impact on how the post-oil Gulf city was to be developed: through master plans and towers. The chronicle of Dubai's dramatic embrace of modernity since the 1950s has set the precedence for its accelerated urbanization in the 21st century. In 1959, Shaikh Rashid commissioned John Harris, an architect from the UK, as Dubai's first town planner. Harris' first Master Plan of Dubai addressed a road system and directions for expansion. This plan guided Dubai's modest early development and accepted the logic and economies of the existing settlement. Harris proposed a road system that would weave the old town into Dubai's future growth. In 1971, a second and extended master plan for Dubai was submitted. The same year, the United Arab Emirates (UAE) was formed. In 1972, Shaikh Rashid commissioned John Harris to design the World Trade Centre for Dubai, which was modeled after New York's World Trade Center. In 1975, the construction of the Dubai World Trade Centre began and in 1979 Queen Elizabeth opened the building of 39 stories: the tallest tower in the Middle East. In a single and unpredictable moment of history, an office tower created the modern city steering it from its fishing/trade port roots towards the future of global commerce.

Urban Fantasy

The Surrealists in the early 20th century had recognized the intoxicating nature of the metropolis. For them, the city was, above all, an enchanting dreamscape that fueled imagination. The very cacophony of the city with its blaring horns and flashing lights – the fragmentary, kaleidoscopic impulses of the modern metropolis – provided them with a continuous stream of intoxication. The modern metropolis

for Walter Benjamin was entangled with myth and the site of the dream-like. He focused on the phantasmagoria of nineteenth-century Paris in his analysis of this condition. The original phantasmagoria took the form of the private fantasy worlds of bourgeois interiors with their luxurious display of furnishings. The principle then extended to the shop windows of the arcades and to the "panoramas and dioramas that engulfed the viewer in a simulated total environment-in-miniature" and finally to the world fairs.

The late 20th century interpretation of Benjamin's phantasmagoria is advertising. Not simply a system of glamorous associations in order to sell a product, but playing on the aesthetic to entice the viewer: an almost hyper real displacement into a new and different world. The Gulf city presents itself as a form of escapism, and it is the image itself that feeds this impression. Visual images depict glamorous scenes from a desert island, at times familiar, combined with an adventurous lifestyle. The exotic combines with the capitalistic. The city is overwhelmed with huge advertising boards, attempting a prophetic projection of a glorified future. The real estate billboard captures the power of the commodified image in that it sells not just a product but also a lifestyle. This situation threatens to render the individual powerless as the marketplace dictates what is permissible. Such experiences can only be second-hand. One has to conform and subscribe to the predetermined model since the possibility of any active participation in the construction of the lived does not exist. Values are not questioned here. The morality of commercial advertising, real estate developments, and theme parks seems irrelevant. The fetishization of image generates an uncritical acceptance of the image – it is no longer a question of ethics or meaning, but simply of imagery and form. It is not a battle of form versus context, aesthetics versus ethics, or indeed seduction versus meaning. It is the architecture of persuasion. "The spectacle does not realise philosophy," as Guy Debord observes, "it philosophises reality. The concrete life of the city dweller has been reduced to a speculative universe. In a culture of aestheticisation, seduction is all that is left."

Airborne Orientalism

Despite waves and importation of western modernity, cities of the "East" were often collapsed into an imaginary "Orient" just as the model of the "Islamic city" shaped by external western discourse might show an "indigenous" city. These projections are now reconstructed as tourism experience economy. Gulf cities represent the contemporary interpretation of Orientalism: sensual, spectacular, artificial, subliminal, and contemporary.

Figure 3.3.3: Clusters – Urban development clusters plans stitched alongside logarithmically generated patterns

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The contemporary expo of images is headed by real estate developers and the tourism sector promoting a western lifestyle in the same oriental settings, representing Middle Eastern culture as luxury in exclusive towers of wealth or gardens in exotic islands. The region is now manufacturing oriental images for consumption. Architecture and mega structures of modernism are built with visual patterns recognizable as nostalgic imagery. Urbanism takes the form of a revised Garden City, or rather a garden with city kit of parts. The abstract geometric patterns of unity present in Islamic art and the rationality of the industrial West has found a common interface. This approach has been adopted as the architecture of new projects aiming to attract tourists and even expatriates who seek an elusive exoticized authenticity with a comfortable, modern lifestyle.

Urbanism in the region has a remarkable precedent. Historically, urbanizing large areas and introducing a new aesthetic is inherent in the creation of the contemporary Middle Eastern city. The horizontal urban pattern and its direct relation to climate, land formation, waterfront, and trade routes has shifted to vertical and global networks of commerce, tourism, fantasy, and new orientalism generating fractal cities. Composite images — a fusion of reality and computer generated imagery — make the banal landscape look evocative yet artificial.

Figure 3.3.4: Lakes – Artificial elements are used as an urban tool to serve real estate demands (digitally altered image of collaged artificial lakes)

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A key aspect to the imagery is to link the past with the future in mythological interpretations using grand scale vista renderings, remote destinations, exclusive islands, and fantastic escapism. Privilege of the image has led to impoverishment of the experienced environment, turning social space into fetishized abstraction. The space of lived experience has been reduced to a codified system of signification and, with the increasing emphasis on visual perception, there has been a proportional decrease in the forms of sensory perception. With decontextualized images and logic of aestheticization, the urban landscape as such is divested of the original meaning — it is a by-product of the imagery.

The distant gaze of the airborne map is manufactured as a master plan with towers that are linked to the global network of financial markets and international tourism rather than to the ground and context at any scale. A hybrid condition has emerged, which is part capital and part nostalgia. We are left to inhabit everything in between. The city thrives on its own self-propelled momentum. It becomes a "site." What has been created here is an irresistible attraction: a safe, international city-state with completely free enterprise and all the pleasures of life, located next to the largest reserves of the world's most vital strategic commodity – oil.

3.4

Digitally Preserving the Heritage of the Arabian Peninsula: Al Jazeera Al Hamra Considered*

Seth Thompson

Introduction

Over the past four decades, the United Arab Emirates (UAE) has embarked on a transformation that has substantially changed its cultural landscape. From a predominately Bedouin culture in which people lived in both ephemeral structures as well as more modest permanent ones, to a post-oil boom landscape of skyscrapers and grand buildings, the UAE's investment in its new infrastructure reconfirms its ambitious plans for itself. This transformation has placed an emphasis on the preservation of past material culture and the creation of a new identity for the UAE through its endeavor to acquire a global contemporary architecture, which is especially evident in Dubai and Abu Dhabi. However, the predominate wealth of its culture does not necessarily reside in its material artefacts, but rather lies in

* Research assistance was provided by Asma Al Ahmed, a student at the University of Sharjah and daughter of a former resident of Al Jazeera Al Hamra. Additional assistance was provided by Lamya Alshamsi in translating and fact checking the oral histories.

- Special thanks to the Government of Ras Al Khaimah's Department of Antiquities and Museums for assistance with research on Al Jazeera Al Hamra.

- This chapter is based on a previously published essay entitled "Reclaiming Histories and the Virtual Museum: A Proposal to Preserve Al Jazeera Al Hamra," in *The International Journal for the Arts in Society* 6, Issue 2, eds. M. Kalantzis and B. Cope (Champaign, Illinois: Common Grounds Publishing LLC, 2011).

its rich intangible cultural heritage such as storytelling, dance, poetry and rituals, which also need to be preserved.

Figure 3.4.1: Bird's eye view of Al Jazeera Al Hamra, 2009

© the author.

Al Jazeera Al Hamra, a former coastal village in southern Ras Al Khaimah that was abandoned at the time of the formation of the UAE in the late 1960s and 1970s, is considered one of the last traditional towns in the country. Once an active fishing and pearl diving community, Al Jazeera Al Hamra consists of a fort *(hisn),* several mosques, a market *(souq)* and over 100 houses including a wind tower home – some of which are constructed of coral and gypsum. As the buildings are now only remnants of a time past, not only does the architecture need to be documented and mapped, but the stories and traditions of the people who once lived there also need to be recorded.

Creating a virtual environment that documents both the tangible and intangible cultural heritage of Al Jazeera Al Hamra would provide a cohesive physical and social record of a traditional fishing and pearling village for future generations after the buildings and the people who inhabited the town are gone. By using digital technologies, a museum enhances its ability to act as a mediator between artefacts and audience – allowing for users to learn, question, and engage in ways that have not been possible before in traditional museological terms.

Figure 3.4.2: Mosque with conical minaret, 2009

© the author.

The Notion of the Virtual Museum

Over the last century, the notion of the museum has shifted and expanded from that of a storehouse or temple of objects to that of a visitor-centered educational repository of objects and information.[1] This paradigm shift is evident in such books as Eilean Hooper-Greenhill's *Museums and the Interpretation of Visual Culture and Gail Anderson's Reinventing the Museum: Historical and Contemporary Perspectives on the Paradigm Shift.* It should be noted that this shift was not an overnight revelation, but rather a long, thoughtful process that took place over the twentieth century and has led to new ideas for museums in the twenty-first century.[2] While many of the essays in Anderson's book exhibit the shift from the museum being a collection-driven institution to a visitor-centered one, it is Hooper-Greenhill's book that leads to ideas for the future of the museum, especially when it entails the use of computer technology in order for the museum to "play the role of partner, colleague, learner (itself), and service provider."[3] In her book, she proclaims, "Where the modernist museum was (and is) imagined as a building, the museum in the future may be imagined as a process or an experience."[4]

1. Schweibenz, "The 'Virtual Museum': New Perspectives For Museums to Present Objects and Information Using the Internet as a Knowledge Base and Communication System."
2. G. Anderson (ed.), *Reinventing the Museum,* 1-7.
3. Hooper-Greenhill, *Museums and the Interpretation of Visual Culture,* ix.
4. Ibid., 152.

As UAE's museum professionals and researchers grapple with how they may document, collect, and disseminate intangible cultural heritage, which the Abu Dhabi Authority for Culture and Heritage recognizes as "oral literature, folklore, customs and beliefs, traditional handicrafts, games and sports, as well as performing arts,"[5] a re-examination of how heritage and cultural artefacts are cataloged, re-presented, and interpreted within a museum context needs to be carefully considered. A virtual environment may be the most appropriate place to preserve and disseminate these cultural artefacts.

With the introduction of digital media and the Internet in the early 1990s into the mainstream cultural landscape, museums began to consider new opportunities for re-presenting, managing, and disseminating cultural heritage content – both the tangible and intangible. With current digital media technologies, one can create cultural content using imaging, modelling, and archiving methodologies in conjunction with database management tools to examine cultural heritage content in a number of different ways.[6]

The Internet is one of the most promising of digital media tools for cultural heritage dissemination as it is an information-broadcasting tool that enables collaboration and interaction between individuals across and within a global community. Using a museum's digital assets, such as images, video, audio, and text, museum media design that employs Web 2.0 and social media technologies – while still being invested in the more authoritative Web 1.0 model as "publisher"– potentially allows the museum to assume multiple roles as authority, partner, and learner in regard to the assembling, dissemination, and interpretation of knowledge.[7]

For example, the "Make History" Web project, an initiative of the National 9/11 Memorial and Museum in the US, is a model case of how individuals may create a collective memory of a time, place, or event using Web 2.0 technologies. Users of the site have the ability to upload images, videos, and personal stories to the site as well as search for different media, locations, and topics through its database. Much like the "Make History" project, the Jazeera Al Hamra Digital Heritage Project will be a database-driven virtual environment that creates a new museum model that not only fluidly intermixes documentation of both tangible and intangible cultural heritage, but also empowers the user/participant to create his or her own narrative from the material provided. It is in a sense a majlis (meeting

5. Abu Dhabi Authority for Culture and Heritage, n.d. "Intangible Heritage."

6. Kalay, "Preserving Cultural Heritage through Digital Media," in *New Heritage: New Media and Cultural Heritage,* 1–10.

7. Thompson, "Redefining the Notion of the Museum in the Digital Age," 174-175.

place), where former members of the Al Jazeera Al Hamra community and their visitors through its oral history collection, can share, learn and remember – creating an environment that enables inclusivity and participation, which are key components found within contemporary museum theory. As Hooper-Greenhill writes, "Rather than upholding the values of objectivity, rationality, order and distance, the post-museum will negotiate responsiveness, encourage mutually nurturing partnerships, and celebrate diversity."[8]

Figure 3.4.3: Pearl merchant's home, 2009

© the author.

About Al Jazeera Al Hamra

In the essay "The Evolution of the Gulf City Type, Oil, and Globalization," Sulayman Khalaf writes, "Oil-generated growth has literally demolished mud-walled small seaports and villages. In just four decades, these cities transformed into glittering commercial capitals and sprawling suburbs integrated within the global economy and culture,"[9] Luckily, Al Jazeera Al Hamra, which means "Red Island," still stands as it is considered the last traditional fishing and pearling village in the UAE.[10] In the late 1960s and early 1970s, the residents of the old settlement left either for

8. Hooper-Greenhill, *Museums and the Interpretation of Visual Culture,* 153.
9. Khalaf, "The Evolution of the Gulf City Type, Oil, and Globalization," in *Globalization and the Gulf,* 247.
10. Government of Ras Al Khaimah, n.d. Jazirat Al Hamra brochure Ras Al Khaimah.

residence in nearby Ras Al Khaimah or the emirate of Abu Dhabi, which offered more modern amenities. Due to the wishes of the families which once lived there,[11] the buildings have not been demolished and remain relatively intact. Consequently, Al Jazeera Al Hamra provides a snapshot of an Emirati coastal town that has been fairly unspoiled since its original inhabitants abandoned it.

Oral histories recently collected by Asma Al Ahmed from her family members provide insight into the daily life and cultural history of Al Jazeera Al Hamra before the modernization of the Emirates. In Aesha Al Ahmed's oral account, she nostalgically reflects upon her life in Al Jazeera Al Hamra, describing it as a place that had a strong sense of community where everyone knew each other, neighbors cared for one another and the houses were open to all visitors.[12] Abdulrahim Mohammad Al Ahmed reinforces the memory of Al Jazeera Al Hamra's close-knit community as he reminisces about his extended family's close proximity, and how neighbors and friends visited each other and looked after one another when one was sick.[13] In addition to the fond memories evoked from reminiscing about Al Jazeera Al Hamra, the oral histories reveal the evolution of the village and how people inhabited and utilized the space, joining the intangible with the tangible cultural heritage. Abdulrahim Al Ahmed considers this place important to preserve as it is a document to the community's history, their heritage as well as a window on how Emiratis used to live.[14]

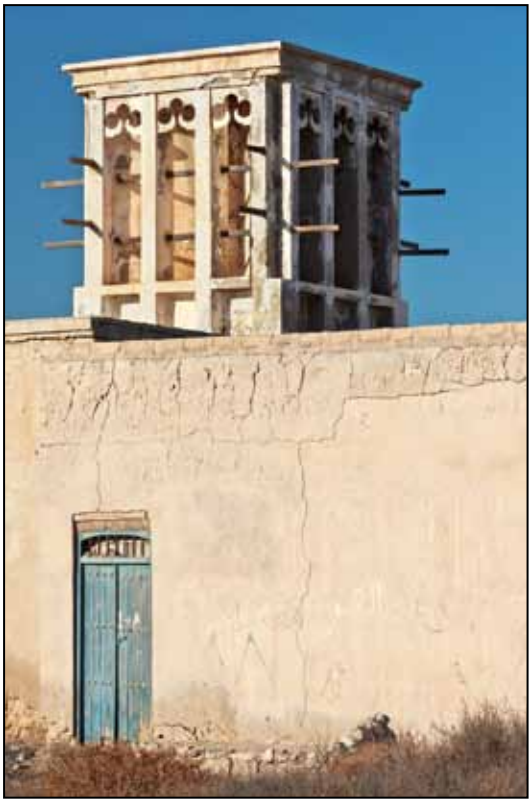
While remnants remain of the introduction of electricity, automobiles, and various building materials used over the late nineteenth and through the twentieth century – such as coral, gypsum and concrete blocks – this unique setting offers insights into how coastal village life with courtyard homes, mosques, and a souq (market) were mainstays of the urban tissue before UAE citizens transitioned to inhabiting air-conditioned villas and shopping malls. According to oral traditions, the original structures on the island were areesh, a shelter or home made out of date palm leaf and branch materials.[15] In general, and as the wealth of the community

11. Hawker, "Tribe, House Style, and the Town Layout of Jazirat al-Hamra, Ras al-Khaimah, UAE," 189.
12. Al Ahmed, Summary of oral history of Aesha Al Ahmed recorded on July 26, 2011 at the interviewer's home in Ras Al Khaimah, unpublished, 1.
13. Al Ahmed, Summary of oral history of Abdulrahim Mohammad Al Ahmed recorded on September 6, 2011 at the interviewer's home in Ras Al Khaimah, unpublished, 2.
14. Author's interview with Abdulrahim Mohammad Al Ahmed on January 28, 2012 at Al Jazeera Al Hamra in Ras al Khaimah, unpublished.
15. Hawker, "Tribe, House Style, and the Town Layout of Jazirat al-Hamra, Ras al-Khaimah, UAE," 195.

grew, the people of higher economic status built more permanent structures and those who had less money inhabited the areesh structures.[16]

The deserted village's densely-knit courtyard homes stand close together separated by vein-like narrow pathways called sikkas that run throughout the town, providing shade and at times a gentle breeze for the inhabitants as they conducted their day-to-day activities. Mosques are conveniently situated throughout the community. On the northern part of the former island are remnants of a souq that stood along the original coastline. An aerial view allows one to see the "red island" amongst the sea of white infill sand that now surrounds Al Jazeera Al Hamra, connecting it to the Ras Al Khaimah mainland. It should be noted that, today, the area known as Al Jazeerah Al Hamra is divided into two parts: the old settlement, which is what remains of the former three kilometer island described in this essay, and the new modern village that stands beside it.

Figure 3.4.4: Windtower, 2011



© the author.

16. Ibid., 197.

Methodology

Traditionally, when preserving a culture, emphasis has been primarily on the tangible, and the intangible aspects of the culture often become either secondary or mute. However, the virtual enviroment can potentially place equal emphasis on both the tangible and intangible – enabling the material culture to take on specific meaning to the cultural perceptions of the former Al Jazeera Al Hamra inhabitants – becoming the flesh and blood of the physical space. In the book, *From Rags to Riches: A Story of Abu Dhabi,* Mohammed Al-Fahim writes:

> The peoples of the Arabian Peninsula have long been blessed with a rich oral tradition through which knowledge, experience and wisdom are passed from one generation to the next. Many of the important events of our history are not recorded anywhere but in the memories of our people. They live on in the stories, myths and legends that our sons and daughters are told by senior family members. Woven together, these stories form the colourful tapestry of our past.[17]

Very little written documentation exists on Al Jazeera Al Hamra. Much of its history remains in the skeletal remnants of the village and the hearts and minds of the people who once lived there. While fragments of documentation exist in academic journals and books, there is no cohesive resource as of yet from which this project can draw. As a result, community involvement is crucial to the success of this project as personal memories breathe life and understanding into the now dilapidated buildings.

Al Fahim writes:

> Countless generations of our people have lived and died without a trace because there are no written records of their lives and achievements. Even the past 200 years remain undocumented for the most part except for records and correspondence kept by the British and other colonial powers interested in our domination, not our development. Although our rich history goes back many centuries, only bits and pieces of the last several decades have been written by our own historians and scholars. We are in a lamentable position. We must study the past from the perspective of foreigners, using their old documents and photographs in our research. The past as seen through the eyes of our own ancestors is lost forever, simply because most of our fathers and their fathers could not read nor write. We only began documenting the

17. Al-Fahim, *From Rags to Riches,* 15.

> events of the day and recording our own history toward the latter part of the 1960s.[18]

Oral histories need to be recorded to not only understand how people lived within the village, but where different families resided and who worked in and managed different shops and trades. The collection of oral histories and documentation of the physical site will work in tandem as the knowledge base of the project continues to grow. Using documentation work of other heritage sites within the UAE and other Arabian Peninsula countries, comparisons and contrasts can be made.

In this first iteration, selected components of the village are in the process of being documented and mapped by this author, such as the homes, mosques and the *souq*. Traditions are being researched and investigated, such as oral literature, folklore, customs, beliefs, handicrafts, games and sports, as well as fishing and pearl diving activities and tools that are specific to Al Jazeera Al Hamra. It is the hope of this author that the participation of former residents of Al Jazeera Al Hamra increases over time in order to establish a cohesive and accurate depiction of this coastal community. As Shaikh Zayed bin Sultan Al-Nahyan, the first president of the United Arab Emirates, said, "Our grandfathers and ancestors have left a wealth of cultural heritage we are proud of. We shall conserve it and build on it as it is the soul of this land and its future generations."[19]

18. Al-Fahim, *From Rags to Riches,* 188.

19. Abu Dhabi Tourism Authority (ADTA), Saadiyat Island Cultural District Exhibition.

Figure 3.4.5: Hisn, 2009

© the author.

The Jazeera Al Hamra Digital Heritage Project

Using a site map and documentation of the current site – a metaphor and reminder that if the history is not preserved, it can be easily lost – the Jazeera Al Hamra Digital Heritage Project attempts to provide a look at Emirati life before the oil boom by using the last remaining fishing and pearling village in the UAE as a point of discovery. Utilizing an interactive interface, this project will be a portal and database of photos, 360-degree vr (virtual reality) panoramas, text, video, and sound presenting the history, traditions, and stories behind both the material and social culture of Al Jazeera Al Hamra. Using an interactive environment can strengthen the social dimension of Al Jazeera Al Hamra's history by linking individuals' stories and histories to that of a larger context of place and time. Not only can this project re-present pieces or fragments of information within a context, it can create a platform for a virtual community of former residents and visitors to share memories through oral history collection since very little historical documentation of the site exists – collaboratively writing a history of Al Jazeera Al Hamra. As Sara Roegiers and Frederik Truyen point out, "Computer-driven historical representation can juxtapose different witnesses, different time frames and spaces, allow for digression

or even 'forks' from one narrative flow, and allow switching between micro and macro narratives, and long-term and short-term perspectives."[20]

Creating a database of images, stories, and recollections will provide a platform for others to submit photographs, videos, and stories, which will be curated for suitability to the project. If possible, accepted submissions will also be mapped according to locations. As new information is acquired, the Jazeera Al Hamra Digital Heritage Project would continue to grow richer.

In the essay, "Database as a Genre of New Media," Lev Manovich writes,

> "The 'user' of a narrative is traversing a database, following links between its records as established by the database's creator. An interactive narrative (which can be also called 'hyper-narrative' in analogy with hypertext) can be understood as the sum of multiple trajectories through a database. A traditional linear narrative is one, among many other possible trajectories."[21]

Using this notion as a foundation, the Jazeera Al Hamra Digital Heritage Project is built upon a database of images, text, and audio that uses both indexed and exploratory modules. The indexed module allows for keyword searches and reference information to be directly retrieved, while the exploratory module provides a search-and-discover navigation based on associations. With the exploratory module, active learning theory, tools, and techniques need to be considered. As a result, the following questions need to be addressed: (1) What are the attributes that would encourage online museum visitors to actively engage with a museum website's content? (2) How can the project employ questioning and gaming strategies to further engage the virtual museum visitor? (3) How can this initiative use interaction design best practices to create more visceral experiences?

It is the hope that by addressing these questions with navigation and interface design prototyping in conjunction with audience research, an active investigative environment will be created in which the user's interaction with the project moves beyond a purely physical interaction of hierarchical link selection or button choosing. As Lev Manovich points out,

> "When we use the concept of 'interactive media' exclusively in relation to computer-based media, there is the danger that we will interpret 'interaction' literally, equating it with physical interaction between a user and a media object (pressing a button, choosing a link, moving the body), at the expense of

20. Roegiers and Truyen, "History is 3D," in *New Heritage: New Media and Cultural Heritage,* 70.
21. Manovich, "Database as a Genre of New Media."

psychological interaction. The psychological processes of filling-in, hypothesis formation recall, and identification, which are required for us to comprehend any text or image at all, are mistakenly identified with an objectively existing structure of interactive links."[22]

Figure 3.4.6: Souq, 2010

© the author.

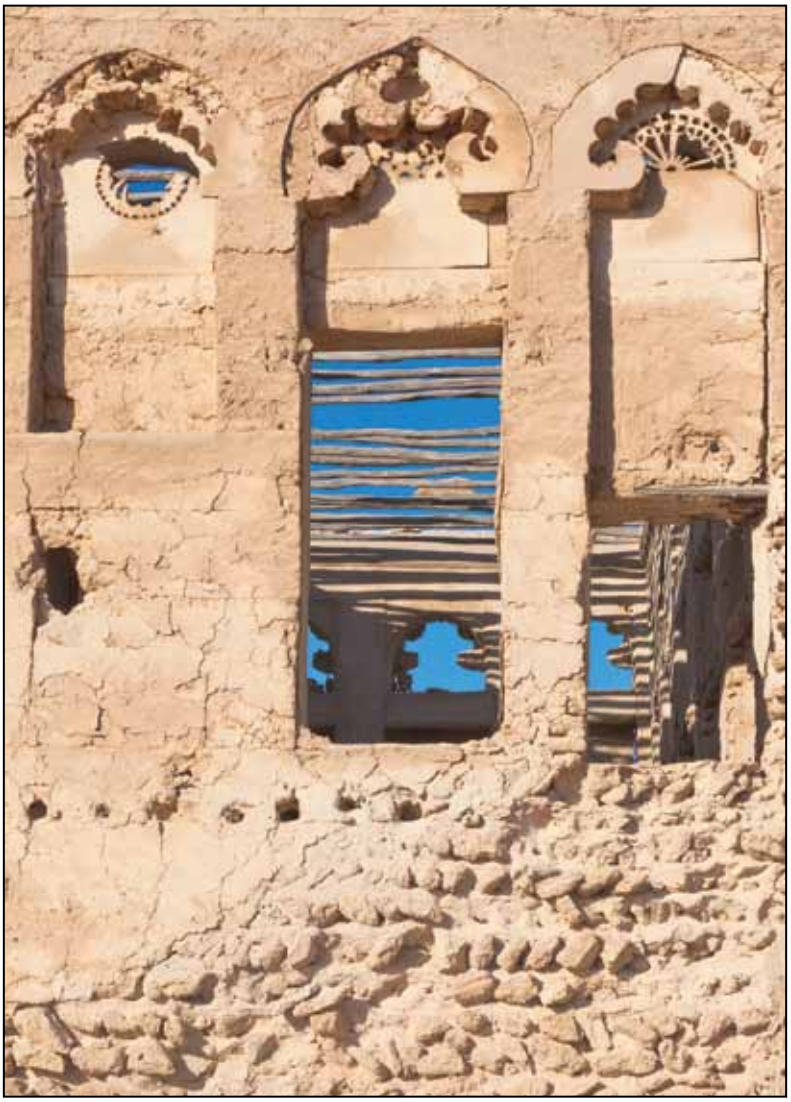
The Long-Term Preservation of Al Jazeera Al Hamra's Culture

Over the years, the Jazeera Al Hamra site has been slowly deteriorating due to the passing of time, severe weather conditions, and vandalism. Nevertheless, it should be noted that as of winter 2012, four young Emiratis (Hamad Ismael Al Ahmed, Abdulla Yousef Al Meyahi, Mohammed Ahmed Hilal and Mohammed Rashid Al Zaabi), whose families are former residents of Al Jazeera Al Hamra are working with the Department of Public Works and Services as well as the Planning and Survey Department through the assistance of His Highness Shaikh Saud bin Saqr Al-Qasimi, Supreme Council Member and Ruler of Ras Al Khaimah, to preserve the physical site.[23] Currently, important components of Al Jazeera Al Hamra have been fenced off and stabilized such as the fort *(hisn),* pearl merchant's home, wind tower home and the *souq.* As a result, this virtual museum project may be an appropriate addition to the preservation of this village as the digital domain offers a potentially ideal environment for an amalgamation between the tangible and intangible that is not easily offered within a traditional heritage site.

22. Manovich, *The Language of New Media,* 57.
23. Abdul Bari, "Four Young Men Volunteer to Clean-up the Al Jazeera Al Hamra in Ras Al Khaimah."

It should be noted that preserving cultural heritage digitally still presents many roadblocks as file formats, hardware, and software are constantly evolving. What is considered industry standard today may be obsolete tomorrow. In order to ensure the longevity of the project's digital assets, sustainability issues need to be addressed, especially in regard to migrating files to future storage and access systems so that digital objects retain their integrity.

Figure 3.4.7: Detail of pearl merchant's home facade, 2009



© the author.

In addition, a unified vocabulary needs to be established in describing the digital assets so that there is a consistency throughout the project's digital assets metadata. As a result, both the descriptive and technical metadata, which provides information about a digital object, needs to be carefully considered. Using a controlled bilingual (Arabic and English) vocabulary and thesaurus suggested by *Cataloging Cultural Objects: A Guide to Describing Cultural Works and Their Images* (http://cco.vrafoundation.org),[24] which is a data content standard for the cultural heritage community, would enable the project to potentially improve the discovery and access of the project's assets; allow for better migration to future storage and access systems; and create metadata which can be shared by other institutions by engaging in a currently accepted "best practice."[25]

Potential Audience and the Virtual Museum's Design

While some may argue that the UAE is not ready for museum-based Internet initiatives, this author's research reveals differently. Between November 15, 2009 and January 15, 2010, this author conducted a preliminary survey at the Sharjah Museum of Islamic Civilization in the UAE to investigate visitor behavior, needs, and expectations with regard to the museum's website and Internet potential as well as to gain a broader understanding of the potential for future virtual museum initiatives in the country. The fact that 98.5 percent of the respondents use the Internet coupled with the fact that 58.8 percent of general museum visitors stated that their primary purpose for visiting a museum's website is to gain knowledge about a museum's collection indicates the potential of the Internet as a tool for museum curatorial projects and education initiatives.[26]

Involving the community and its stakeholders in the developmental process of this initiative will potentially generate a more invested dialogue between the project and its community, creating a more potent functional design that addresses the needs of its audience rather than one based on assumptions. Gail Anderson writes, "Acceptance, trust and mutual respect are at the heart of the reinvented museum's organizational culture…[C]ommunication with the public creates a more responsive interchange of ideas."[27]

24. Baca, Harpring, Lanzi and McRae, *Cataloging Cultural Objects.*
25. Baca, Coburn and Hubbard, "Metadata and Museum Information," in *Museum Informatics: People, Information and Technology in Museums,* 107–127.
26. Thompson, "The United Arab Emirates and the Emerging Museum Website."
27. Anderson, *Reinventing the Museum,* 6.

Nevertheless, it should be noted that while audience research provides a vehicle for audience inclusivity in the design process by better understanding the potential needs and priorities of the virtual museum visitor, one should be cautious about it in regard to several issues: It may not take into account the potential for new innovations in technology as audience members will respond in favor of things that they already know. It may diminish scholarship and accuracy in lieu of purely entertaining experiences. It may stifle risk-taking in designing innovative experiences using technology. As a result, audience research is best used as a guidepost rather than as conclusive data for building Internet-based museum experiences.

Figure 4.3.8: 360-degree panorama of a courtyard home, 2009

© the author.

Conclusion

In her essay "Curating Collections Knowledge," Jennifer Trant writes,

> "As part of a cyberinfrastructure,…museums can become the site of research carried on by others, and the repository of results that relate to works in their collection. Re-use and re-interpretation are essential by-products of the public distribution of collections information. Museums can both encourage the creation of new knowledge about their collections and play an active role in recording it."[28]

By creating a networked vehicle for information collection, dissemination, and re-interpretation that enables the digital artefacts to live side by side with interrelated information, the virtual museum will provide a framework for the contextual construction of knowledge for the understanding and preservation of Al Jazeera Al Hamra. With a collective approach to knowledge acquisition, a scholar, a

28. J. Trant, "Curating Collections Knowledge," in *Museum Informatics: People, Information and Technology in Museums,* 284.

former inhabitant or relative, and/or a visitor to Al Jazeera Al Hamra can contribute to a greater understanding of the place by sharing images, stories, and research.

With the acknowledgement that the wealth of cultural heritage within the Arabian Peninsula primarily resides in the intangible, the virtual museum model presented in this chapter can reside in a number of different initiatives – from a virtual museum about the building of a twenty-first century city where nationals, expatriates, and visitors can contribute their memories and images to the preservation of a town such as Al Jazeera Al Hamra, allowing for a collective and collaborative history to be built and remembered. The notion of this type of virtual museum begins with a structure and common ground from which a collective memory can be built. As Maxwell Anderson, Director of the United States-based Dallas Museum of Art, reminds us, "Instead of using technology to make museums more efficient imitators of for-profit attractions, we should devote our energies to making museums more responsive to the perspectives of others, while arguing forcefully for the legitimacy of scholarly innovation. This approach will underscore museums' educational benefits and encourage their vitality as a public resource."[29]

By using digital technologies to document and create records of Al Jazeera Al Hamra's intangible and tangible cultural heritage assets as well as related contextual information, the Jazeera Al Hamra Digital Heritage Project would not only preserve an important historical site, but it would also potentially be a long-term working experiment in preserving heritage – both the tangible and intangible – digitally, experimenting with new technologies and ideas that better tell the collective histories of Al Jazeera Al Hamra through research, oral histories, and photographs in tandem with the documented remnants of its material culture.

29. Anderson. "The Future of Museums in the Information Age," in *Museum Informatics: People, Information and Technology in Museums,* 298.

References

Abdul Bari, I. 2012. "Four Young Men Volunteer to Clean-up the Al Jazeera Al Hamra in Ras Al Khaimah." *Al Ittihad.* January 11. Retrieved February 1, 2012 from http://www.alittihad.ae/details.php?id=3526&y=2012&article=full.

Abu Dhabi Authority for Culture & Heritage. n.d. "Intangible Heritage." Retrieved March 1, 2011 from http://www.adach.ae/en/portal/intangible.heritage.aspx.

Abu Dhabi Tourism Authority (ADTA). 2011. Saadiyat Island Cultural District Exhibition. Abu Dhabi: Emirates Palace.

Al Ahmed, Asma. 2011. Summary of Oral History of Abdulrahim Mohammad Al Ahmed recorded on September 6, 2011 at the interviewer's home in Ras al Khaimah, unpublished.

Al Ahmed, Asma. 2011. Summary of Oral History of Aesha Al Ahmed recorded on July 26, 2011 at the interviewer's home in Ras al Khaimah, unpublished.

Al-Fahim, Mohammed. 1995. *From Rags to Riches: A Story of Abu Dhabi.* London: The London Centre of Arab Studies.

Anderson, G. (ed.). 2004. *Reinventing the Museum: Historical and Contemporary Perspectives on the Paradigm Shift.* Lanham, Maryland: AltaMira Press.

Anderson, M. "The Future of Museums in the Information Age." In *Museum Informatics: People, Information and Technology in Museums,* edited by P.F. Marty and K. B. Jones. New York: Routledge, 2007.

Baca, M., E. Coburn and S. Hubbard. "Metadata and Museum Information." In *Museum Informatics: People, Information and Technology in Museums,* edited by P.F. Marty and K. B. Jones. New York: Routledge, 2007.

Baca, M., P. Harpring, E. Lanzi, and L. McRae. 2006. *Cataloging Cultural Objects: A Guide to Describing Cultural Works and Their Images.* Chicago: American Library Association.

Government of Ras Al Khaimah, n.d. Jazirat Al Hamra brochure. Ras Al Khaimah: Government of Ras Al Khaimah.

Hawker, R. 2006. "Tribe, House Style, and the Town Layout of Jazirat al-Hamra, Ras al-Khaimah, UAE." *Proceedings of the Seminar for Arabian Studies* 36, 189–198.

Hooper-Greenhill, E. 2000. *Museums and the Interpretation of Visual Culture.* New York: Routledge.

Kalay, Y. 2008. "Preserving Cultural Heritage through Digital Media." In *New Heritage: New Media and Cultural Heritage,* edited by Y. Kalay, T. Kvan and J. Affleck. London; New York: Routledge.

Khalaf, S. 2006. "The Evolution of the Gulf City Type, Oil, and Globalization." In *Globalization and the Gulf* edited by J.W. Fox, N. Mourtada-Sabbah and M. al-Mutawa. New York: Routledge.

Manovich, Lev. 2000. "Database as a Genre of New Media." *AI & Society: Journal of Knowledge, Culture and Communication* 14, 176–183.

Manovich, Lev. 2001. T*he Language of New Media.* Cambridge, Massachusetts: MIT Press.

Roegiers, S. and F. Truyen. 2008. "History is 3D." In *New Heritage: New Media and Cultural Heritage* edited by Y. Kalay, T. Kvan and J. Affleck. New York: Routledge.

Schweibenz, W. 1998. "The 'Virtual Museum': New Perspectives for Museums to Present Objects and Information Using the Internet as a Knowledge Base and Communication System." Retrieved on November 6, 2009 from http://is.uni-sb.de/projekte/sonstige/museum/virtual_museum_isi98.

Thompson, S. 2009. "Redefining the Notion of the Museum in the Digital Age: Web 2.0 Technologies and Contemporary Museum Theory." *The International Journal for the Arts in Society,* Volume 4, Issue 3. Champaign, Illinois: Common Grounds Publishing LLC.

Thompson, S. 2012. "The United Arab Emirates and the Emerging Museum Website." *The International Journal of the Inclusive Museum,* Volume 4, Issue 3. Champaign, Illinois: Common Grounds Publishing LLC.

Trant, J. 2008. "Curating Collections Knowledge: Museums on the Cyber-infrastructure." In *Museum Informatics: People, Information and Technology in Museums* edited by P.F. Marty and K. B. Jones. New York: Routledge.

4.1

Dubai: The Political Project of a New Metropolis

Adrià Carbonell

Introduction

> *"In the end, everything in politics turns on the distribution of spaces. What are these places? How do they function? Who can occupy them? For me, political action always acts upon the social as the litigious distribution of places and roles. It is always a matter of knowing who is qualified to say what a particular place is and what is done to it."*
>
> (Jacques Rancière, 2003: 201).

We commonly think of Dubai as a city built from scratch. This general assumption, though, is not completely accurate, as often happens when a city is described with a simple and generic statement at first glance. This idea tends to overlook all the non-material forces that are at the very origin of any urban settlement. By focusing on a particular formal structure, we tend to forget the cultural and political substrata embodied in a particular physical reality, as well as the visions and ambitions that drove its construction. When we look at urban patterns, we are usually fascinated by their formal qualities; we see them as fabrics, as systems, as shapes and images, as landscapes and skylines. But the visual analysis runs the risk of overlooking deeper roots. As Joseph Rykwert wrote in his fundamental piece on the anthropology of the urban form,

> "We think of towns as a fabric of buildings which grows more or less unpredictably and is traversed by roads and pierced by squares, or else as a mesh of roadways fringed by buildings on the outskirts and criss-crossed by them in the centre. Although we regard them as a natural phenomenon, governed by an independent, uncontrollable and sometimes unpredictable law of growth or expansion, like that of natural organisms, the truth is that towns do not grow by interior and inscrutable instincts. They are built, piece-meal by individual inhabitants, and in larger tracts by speculators or authority."[1]

The new global city of Dubai is no exception; it is the result of a political vision driven by the ruling family, the Maktoums, which has turned into a massive economic and financial operation. The city has become the interface in which the global economy has landed in the city and, through a relation of mutual benefit, has created the city we know today. Since the eighteenth century, when a subsection of the Bani Yas tribe from Abu Dhabi moved to Dubai, eventually settling there to establish a new sheikhdom, Dubai's history has unfolded in parallel with the history of the Maktoums. From that time, and following the rule of Maktoum bin Buti, the family in power has exerted a hegemonic and paramount influence on the development of the city-state: all of the rulers up to the present have been descendents of the same dynasty.[2] Two key figures in the recent radical transformation of the city have been Shaikh Rashid bin Saeed Al-Maktoum, who ruled for 32 years until 1990, and the current Ruler of Dubai Shaikh Mohammed bin Rashid Al-Maktoum. The latter has overseen most urban projects in the last decade, carried out by public-private real estate companies like Nakheel and Emaar. In 2004, he set up Dubai Holding, an investment group that manages, among other financial operations and services, Dubai Holding Properties, "one of the largest fully integrated real estate and community development businesses in Dubai, encompassing residential, commercial, staff accommodation, retail and property management."[3]

Ahmed Kanna has described how

> "since the rise of the reformist movements in the late 1920s, and especially during and after the nationalist period of the 1950s, the family-state has struggled to represent itself as legitimate expression of the popular will. A countervailing pressure has been the attempt to ensure the city-state's image both as being open to foreigners and as a free trade zone. This openness has

1. Rykwert, *The Idea of a Town,* 23.
2. See Paccione, "City Profile: Dubai."
3. http://www.dubaiholding.com/dhcog/dubai-properties-group.

> been symbolized in the imagery and urbanism project of 'New Dubai', the planning and construction of large gentrified enclaves in the 1990s and early 2000s."[4]

According to Kanna, the imposition of an urban vision as a reflection of a political ideology has overcome the social struggles and existing dissent in its society. The fabrication of a depoliticized consensus has created the illusion of participation without most of the population having a say as well as the feeling of belonging to a community without actually knowing what its constitutive parts are. Most recently, official discourses have put forward the idea that Dubai is a land of opportunities inhabited by an ideal global society, promoted as "world class," that takes part in a socialized dream. On the contrary, although there is indeed an international elite that runs the businesses, a closer look at the social reality shows an uneven, fragmented, highly hierarchical class structure.

> "In fact, cultural groups maintain strict segregatory measures by having their own set of institutions (schools, etc.) which enable them to maintain and sustain their cultural values. The public sphere – a setting allowing for a merging of sub-cultures – is again segregated along economic lines (high-end vs. poor shopping malls)."[5]

Thus, Dubai's political and economic system over the last few decades has run in parallel with the urban image envisioned by its rulers, in a process that has merged urban planning, investment opportunities, and real estate speculation with the creation of a new city imagery. The construction of a modern nation has fundamentally turned into a real estate operation, where business attracts investors, who attract architects, and who, in turn, attract business – a multi-faceted coin that mixes public and private interests in quite an unusual way in a particular context of economic liberalization. Although the trading and manufacturing sectors have grown enormously, leading to rapid economic development, real estate operations have created the image and conditions for attracting tourists and businesses.[6] As such, New Dubai has been based mainly on three strategies: the planning and construction of a huge infrastructural network, beginning in 1968 when the commission for the Dubai Master Plan was awarded to John Harris, and subsequently revised in both its layout and ambition; the creation of Free Zones;

4. Kanna, *Dubai, the City as a Corporation,* XX.
5. Elsheshtawy, "Redrawing Boundaries: Dubai, an Emerging Global City," in *Planning Middle Eastern Cities: An Urban Kaleidoscope in a Globalizing World,* 172.
6. Paccione, "City Profile: Dubai."

and the accumulation of marks of distinction and symbolic power.[7]

Neoliberalism has many different faces and exists in a variety of different regimes and state models, showing it has no direct relation with a particular political system, since a variety of political, social, and cultural contexts have embraced a neoliberal agenda. Even in times of crisis such as the current global financial one, or perhaps because of them, new forms of neoliberalism have found a way to perpetuate their influence in transnational governance. As Neil Brenner wrote,

> "While neoliberalism aspires to create a utopia of free markets, liberated from all forms of state interference, in practice it has entailed a dramatic intensification of coercive, disciplinary forms of state intervention in order to impose versions of market rule and, thereafter, manage the consequences and contradictions of marketization."[8]

The main characteristic of Dubai's state model is the concentration of political, economic, and cultural power in a centralized institutional structure that strives for modernization as well as for social, cultural, and economic development. Here, the dream of neoliberalism is mixed with state control, a characteristic that leads to another singularity of its ruling model, the adoption of the urban entrepreneurial model by the state itself, merging corporations' profit-driven strategies with massive processes of urbanization, political visions, and the construction of contemporary heritage as the base on which the nation is built.

David Harvey has clearly explained how the aim to produce exclusivity becomes part of a city-branding strategy that fosters the competition between cities on a global scale. What is at stake here is the power of symbolic capital, of special marks of distinction that attach to a certain place, which have a significant drawing power upon the flows of capital in general. What cities seek is to "raise their quotient of symbolic capital and to increase their marks of distinction so as to better ground their claims to the uniqueness that yields monopoly rents. The 'branding' of cities becomes big business."[9] The problem with pieces of architecture that attempt to operate as monopoly rents in a global neo-liberal economy (the Burj Al-Arab or the

7. Marks of distinction is used here in the context of city branding and in the sense given by David Harvey, "What is at stake here is the power of collective symbolic capital, of special marks of distinction that attach to some place, which have a significant drawing power upon the flows of capital more generally." Harvey, "The Art of Rent," in *Rebel Cities: from the Right to the City to the Urban Revolution,* 103. On symbolic power, see Bourdieu, *Distinction: A Social Critique of the Judgement of Taste.*
8. Brenner, Peck and Theodore, *Afterlives of Neoliberalism,* 30.
9. Harvey, "The Art of Rent" in *Rebel Cities,* 104.

Burj Khalifa towers are the most obvious examples) is that they are temporary; theirs is a transient monopoly that lasts until another city builds a new piece to overshadow the previous one (many sail-shape buildings have been erected worldwide in recent years, and there is already a project to build a new tallest building in the world, the Kingdom Tower in Jeddah, a mile-high skyscraper that will depose Burj Khalifa from its throne). The excessive accumulation of architectural extravaganza runs the risk of falling into a new kind of outlandish competition, where uniqueness may become a disturbing continuum rather than a singular occurrence. Consequently, as an effect of that kind of model of urbanization, the property structure and the division and location of activities in the territory are more market-driven, supporting the politics that the construction of symbolic value requires.

According to Joseph Rykwert, historically there has always been a symbolic component at the origin of the foundation of cities, at least in the ancient world. "There was a symbolic component that connected the physical configuration of the town with a certain culture, with a system of customs and beliefs."[10] This anthropological view would explain why the physical environment relates to a certain way of life and why certain behaviours are reproduced in similar urban patterns. The concept of symbolism used by the production of iconic architecture, however, is quite simplistic. At present, "if we think of anything as 'symbolic' it is practically always an object or action which can be taken at a single view." As Rykwert pointed out back in 1976,

> "The conceptual framework within which planners work has been designed to evade the issue of imposing any order of an extra-economic nature on the city. Fear of restriction often appears in the form of a fear of cramping an autonomous growth. That is why town planners, when talking about the way towns live and grow, invoke images drawn from nature when they consider town plans: a tree, a leaf, a piece of a skin tissue, a hand and so on."[11]

A combination of a purely visual notion of symbolism and the aim of creating marks of distinction have driven many of the recent urban developments by Nakheel, the main government-owned real estate operator in Dubai. Starting with the Palm Jumeirah (built) and developing further with Palm Jebel Ali (under construction, on hold since the real estate crisis of 2008) and Palm Deira (on hold), the competition to create branding districts was on. As the replication of the Palm

10. Rykwert, *The Idea of a Town.*

11. Ibid., 24.

would eventually undermine the singularity of the first one, new ideas were put forward in order to avoid stagnation in urban imagery. After Palm islands came the World, an archipelago of islands depicting a world map, where every country is an island with its corresponding territorial shape. What is exclusive in the World is not only its original shape, but also its lifestyle: a high-class community in a private archipelago where every plot is an island and the streets are the sea. The dream of Venice combined with the luxury of a resort.

The processes of urbanization and the flows of capital behind the construction of such pretentious and exclusive developments raises a fundamental dilemma: is the city built for people or for profit?[12] David Harvey has repeatedly insisted on the right to change and reinvent the city according to our desires, a collective right that has historically been neglected. As Harvey asserted, "The question of what kind of city we want cannot be divorced from the question of what kind of people we want to be, the kind of social relations we are looking for, the relationship with nature we cherish, the aesthetic values we hold."[13] An essential point at stake here, particularly relevant in a country like the UAE, where the local population oscillates between 10 and 20 percent, is how a particular society is articulated around a political project, and how this project is spatially translated into the built environment.[14] At the same time, it raises a question that lies at the very origin of any urban analysis, and which is central to contemporary discourse and theories on the city: who shapes the city? Do social processes shape urban form, or is social behavior influenced or determined by a given built environment? Is the built environment the result of external pressures or is it subjected to internal pressures, similar to a natural process modelled by its own rules?

Recent trends in social theory claim that "urbanism is a social form"[15] and that "the organization and meaning of space is a product of social translation, transformation and experience,"[16] but this vision in itself entails another problematic question that directly affects the fields of architecture, urban design, and urban planning: to what extent is urban space a matter of design, as an active factor that

12. A book dedicated to this question is: Brenner, Marcuse, Mayer, *Cities for People, Not for Profit: Critical Urban Theory and the Right to the City.*

13. Harvey, "The Right to the City," in *Rebel Cities,* 4.

14. At present, some critical voices have been questioning the current political project of Dubai and its effects on social transformation, a dissatisfaction expressed not only by expatriates from southern Asia but also by Emiratis who see the continuity of the local identity being threatened. See "Free Zone: Dubai," in *E-Flux Journal* #49.

15. Harvey, *Social Justice and the City,* 203.

16. Soja, *Postmodern Geographies: The Reassertion of Space in Critical Social Theory,* 80.

can engage and interfere in the social processes that are involved in the construction of a city? According to Neil Brenner,

> "Rather than affirming the current conditions of cities as the expression of transhistorical laws of social organization, bureaucratic rationality, or economic efficiency, critical urban theory emphasizes the politically and ideologically mediated, socially contested and therefore malleable character of urban space."[17]

Historically, the so-called Islamic city has been strongly influenced by the cultural values and daily rituals of Islamic societies. As Stefano Bianca wrote in his book on the urban form in the Arab World, "Regional styles of Islamic architecture are not necessarily linked by formal resemblances, but they show inner affinities which are clearly based on related customs, patterns of use and corresponding structuring principles."[18] Beyond the classical formal approach to the Islamic city as an urban tissue, its urban morphology is the consequence of a mix of non-Islamic conditions like the climate, the available local materials, the set of skills and techniques used in vernacular construction, and Islamic cultural and religious elements. According to Janet Abu-Lhugod, there are three Islamic elements that "set in motion the processes that give rise to Islamic cities":

> "a distinction between the members of the Umma and outsiders, which led to juridical and spatial distinction by neighbourhoods; the segregation of the sexes which gave rise to a particular solution to the question of spatial organization; and a legal system which rather than imposing general regulations over land uses of various types in various places, left to the litigation of neighbours the detailed adjudication of mutual rights over space and use."[19]

These elements were part of the cultural substrata upon which the specific formal structures and spatial relations of traditional Islamic urban patterns were erected, and also gave rise to an embodied political dimension, in the sense that Chantal Mouffe distinguishes "politics" and "the political." According to Mouffe, "the political" refers to the "dimension of antagonism that is inherent to all human society." This antagonism can take on many different forms and can emerge in diverse social relationships. "Politics," on the other hand, refers to the ensemble

17. Brenner, "What is Critical Urban Theory?" in *Cities for People, Not for Profit,* 11.
18. Bianca, *Urban Form in the Arab World: Past and Present,* 10.
19. Abu-Lhugod, "The Islamic City--Historic Myth, Islamic Essence, and Contemporary Relevance," *International Journal of Middle East Studies,*172.

of practices, discourses and institutions that seek to establish a certain order and to organize human co-existence in conditions, which are always potentially conflictual because they are affected by the dimension of "the political."[20] Therefore, "the political" refers to a certain condition between two or more subjects, whereas "politics" refers to the way we deal with this condition and the way we organize coexistence in a social community.

Since its very foundation, Dubai has always been a land of trade and migration; that is why it does not have a specific architectural typology or urban morphology, but rather a mix of various influences, mainly based on Arabian and Persian vernacular heritages. Such is the case of the historical district of Bastakiya, built by a wave of merchants from different origins (most of them Persians from Bastak) who accepted the land offered by the ruler of Dubai, eventually settling permanently in the area in 1925. Traditional architectural elements like the courtyard family houses and wind towers were imported in that period. In line with Rykwert's idea of the symbolic, Bianca argues that, "In every genuine cultural tradition, architecture and urban form can be seen as natural expression of prevailing spiritual values and beliefs which are intimately related to the acknowledged cosmic order of the world,"[21] and insists again that "Islam did not prescribe formal architectural concepts; it moulded the whole way of life by providing a matrix of behavioural archetypes which, by necessity, generated correlated physical patterns."[22]

Therefore, the typologies found in the historic districts of Bastakiya and Deira in Old Dubai were integrated into the existing urban fabric because they shared common values with the existing society at large. Although different groups settled in delimited areas resulting in an organization that correlates social structure and land occupation, there was a certain logic behind the production of space that consistently tied different fabrics together. The architectures of enclosure referred not only to the harsh climate, but to the organization of life within family units, the political role of family members, and the hierarchy dividing different levels of collective life. Because public life was not an essential element of Islamic societies, importance was given to inner alleys, courtyards, and majlis, elements that controlled social interaction. Architectural typologies and urban structures had associated behavioural patterns or "life configurations," in keeping with the definition given by N. J. Habraken.[23]

20. Mouffe, *On the Political,* 9.

21. Bianca, *Urban Form in the Arab World,* 22.

22. Ibid., 24.

23. According to Habraken, any configuration or "grouping of parts entirely under the control of

In the present-day multicultural and multi-religious society, and in the absence of a common cultural background, the hypermodern New Dubai is fundamentally grounded in tourism, leisure, and mass consumption. The hedonistic dream of Dubai, where ritual acts are devoted to lust and pleasure, however, is built on extreme inequality and a rigid class structure. On the other hand, the politics that drive the construction of the urban vision has been described by Kanna as "spaces of the ruling bargain, spaces of representation that reaffirm the ideology of the ruling bargain," i.e.,

> "the genteel atmosphere of the boardroom, of individual-to-individual negotiations, the sensible cultivation of an accord between two parties. Each player arrives at a point of mutual interest through rational choice. This assumption about politics minimizes the extent to which the current order in Dubai was achieved through conflict and suppression."[24]

If we accept that every society contains conflicts by nature and that cities are social constructions, we might conclude, then, that cities are "conflictual" spaces. Moreover, as every society is fundamentally political, we can think about the political expression of a given community by looking at a particular urban configuration, and about how a particular society has been articulated in spatial terms according to a political project.

In this sense, we could argue, as the philosopher David Cunningham wrote, that "all architecture is thinkable as 'political' precisely in so far as it organises or produces social space."[25] Every architectural movement, then, has a political component, since it affects, defines, and articulates social space. Thus, we may collectively need to find ways for channelling the potential discontent that inevitably exists in every society, i.e., in every city, through agonistic processes, as opposed to physically translating social antagonisms into architectural forms.

Jacques Rancière defines the political as "the encounter between two heterogeneous processes. The first process is that of governing, and it entails creating community consent, which relies on the distribution of shares and hierarchies of places and functions." He calls this process "policy."

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a single agent, such that their distribution in space has been determined or accepted by that agent and can be changed by the agent, constitutes a live configuration." Habraken, *The Structure of the Ordinary,* 18.

24. Kanna, *Dubai, the City as a Corporation,* 50.
25. Cunningham, "Metropolitics, or the Emblematic Significance of Architecture."

> "The second process is that of equality. It consists of a set of practices guided by the supposition that everyone is equal and by the attempt to verify this supposition. The proper name for this set of practices remains emancipation, or politics. So we have three names: policy, politics and the political – the political being the field for the encounter between the politics and policy."[26]

And it is in that sense that the political reality of the city strikes for its polarization. What has happened during the construction of the New Dubai is that a small minority decided what the city would be, what it would look like, and how its spaces would be used. One could say that this is essentially what urbanism does: it plans the growth of cities so they do not fall into chaos, but it has been done in a radical manner in Dubai. Urbanism has served as a tool to deactivate social processes. If architecture has the power to structure spaces, to create a certain order, it has also the option of doing so by connecting or by dividing, by sharing or obstructing, by creating order or disorder. Notions of accessibility and proximity can drive urban design, by exclusivity and isolation. There is a choice that can configure urban realities at many levels, and which sets up a particular "distribution of spaces."[27] Therefore, the assignation of certain uses for space, as well as its particular configuration and the relations established in that space, becomes a political act. An infrastructure traced on paper might define how different communities interact with each other, and it can affect their specific role and engagement in society as a whole.

The new Dubai has been set up in parts, as a group of isolated enclaves, therefore creating a strong fragmentation of the urban form. From the metropolitan scale of Dubai to the most private and domestic spaces, there is no intermediate space; there are no transitions, reflecting the flatness of an urbanism rooted in land speculation and control over social behaviour. Although we might look at Dubai as a de-politicized project based on the liberalization of the markets and the evasion of the political discourse, i.e., the replacement of politics by a neoliberal idea of economic growth and competition, the overwhelming reality has proved to be extremely political, it has created a vast repertoire of antagonistic spaces by consistently disconnecting different enclaves and residential compounds and by restricting access to them. The physicality of the boundaries does not respond to moments of conflict; rather, it constructs both material and spatial boundaries by

26. Rancière, "Politics, Identification, and Subjectivization."

27. Rancière, "Politics and Aesthetics: an Interview."

isolating different worlds, leading to a territorial organization that dispossesses whatever remains outside its borders. At the same time, it exacerbates the political antagonism between communities that are separated by walls, highways, or desert lands, between those who live on the "inside" and those who live on the "outside."

Precisely defined territories are subjected to an architectural agent that is in total control of the community life. On the other hand, public space is totally mediated through design, thus undermining its public condition since its access is restricted to particular groups. The radical monitorization of urban life also happens intensely in the themed residential compound areas; they are spaces of silence, where visual order prevails over a potential variety of modes of inhabitation. Every movement, every act has been defined in advance by the urban setting. The pre-set and planned lifestyle has taken over urban life. In the absence of a widespread system of public space, there has been an emergence of new types of collective spaces, mainly associated with commercial and leisure activities, which play a very important role in social life. The access to those spaces, as well as the programs and events held there, is restricted to certain groups or communities. Most malls and cultural venues are spaces of concentration, the setting for moments of intensity, the expression of an imposed and stereotyped culture. Offer-driven facilities foster a domesticized space that prevents any misuse or disagreement with the prescribed way of occupation. Public spaces as potential spaces for contestation, as has been seen in many other cities in the Middle East, are simply non-existent in Dubai. A collective, yet private space (whether it is a mall, a resort, a sports complex or a beach park) cannot serve that purpose, since its visibility is limited and circumscribed to a single monitored venue. Thus, the "political" condition of Dubai's society is magnified, as the process of equality or emancipation becomes totally distorted. It spans a huge gap, from politics to policy, and this happens not only on a juridical, economic and cultural level, it also happens on an urban level. Nevertheless, these spaces, although they play an important social role, provide a prescriptive use of space and arrangement of uses and activities. There is little room for improvisation or space appropriation. The rules are so tightly fixed that breaking them or crossing any boundaries becomes nearly impossible.

Eventually, this creates an extreme contradiction: the emerging moment that Dubai is witnessing, together with its geographical characteristics, makes it a perfect platform for experimentation on many levels. Dubai's potential as a land of innovation in the field of urban design has yet to be explored. A wide variety of social groups and identities could lead to new forms of arranging urban coexistence beyond traditional patterns of segregation. There is a need to seek out what is

common within its extreme plurality. Perhaps those differences can be the key to finding new spatial structures, which can be built and articulated around those specific differences by creating some level of collectivity and political consciousness.

References

Abu-Lhugod, Janet. 1987. "The Islamic City – Historic Myth, Islamic Essence, and Contemporary Relevance." *International Journal of Middle East Studies* 19, no. 2. Cambridge: Cambridge University Press.

Bianca, Stefano. 2000. *Urban Form in the Arab World: Past and Present.* Zurich: VDF.

Bourdieu, Pierre. 1984. *Distinction: A Social Critique of the Judgement of Taste.* London: Routledge & Kegan Paul.

Brenner, Neil, Jamie Peck, and Nik Theodore. 2012. *Afterlives of Neoliberalism.* London: Bedford Press.

Brenner, Neil, Peter Marcuse, Margit Mayer. 2011. *Cities for People, Not for Profit: Critical Urban Theory and the Right to the City.* London: Routledge.

Brenner, Neil. 2012. "What is Critical Urban Theory?" *In Cities for People, Not for Profit.* New York: Routledge.

Cunningham, David. 2011. "Metropolitics, or the Emblematic Significance of Architecture." Proceedings of the International Symposium "Architecture and the Political," Lebanese American University, Beirut.

Elsheshtawy, Yasser. 2004. "Redrawing Boundaries: Dubai, an Emerging Global City." In *Planning Middle Eastern Cities: An Urban Kaleidoscope in a Globalizing World.* London: Routledge.

Habraken, N.J. 1998. *The Structure of the Ordinary.* Cambridge: The MIT Press.

Harvey, David. 2012. "The Art of Rent." In *Rebel Cities: from the Right to the City to the Urban Revolution.* London: Verso.

Harvey, David. 1973. *Social Justice and the City.* Baltimore: John Hopkins University Press.

Kanna, Ahmed. 2011. *Dubai, the City as a Corporation.* Minneapolis: University of Minnesota Press.

Mouffe, Chantal. 2005. *On the Political.* London: Verso.

Paccione, Michael. 2005. "City Profile: Dubai." In *Cities: The International Journal of Urban Policy and Planning* 22, Issue 3, Elsevier.

Rancière, Jacques. 1992. "Politics, Identification, and Subjectivization." *October* 61 "The Identity in Question" (Summer): 58.

Rancière, Jacques. 2003. "Politics and Aesthetics: an Interview." *Angelaki Journal of the Theoretical Humanities,* 8.2.

Rykwert, Joseph. 1995. *The Idea of a Town: The Anthropology of Urban Form in Rome, Italy and the Ancient World.* Cambridge: The MIT Press.

Soja, Edward. 1989. *Postmodern Geographies: The Reassertion of Space in Critical Social Theory.* London: Verso.

4.2

Mirages in the Desert: The Fallacy of a Universal Urbanism

Steven Velegrinis

> *"The 'Western' is no longer our exclusive domain. Except in the regions of its origins, it now represents a condition of universal aspiration. It is no longer something that 'we' have unleashed, no longer something whose consequences we therefore have the right to deplore…."*[1]

In simple terms, cities are interfaces and portals to alternate realities if we are open to treating them as such. As Koolhaas' passage above hints, the challenges facing Gulf cities arise from conceptualizing them through the lens of a dogmatic vision created for another place and time.

In that sense, the aspirational ideal of a city represents a mirage of sorts – an unattainable vision that is formed by false promise. In the Gulf that false promise separates the urban fabric from its natural context, leading to a series of unintended consequences such as unsustainable forms of energy use. In the rush to attract foreign investment, population, and visitor growth, Gulf cities created artificial landscapes and shopping spectacles to attract the bees and Boeings.

The premise of this chapter is that all cities exist as an interface between the "natural" environment in which they are situated and the "cultural" environment

1. Koolhaas, "Singapore Songlines, Portrait of a Potemkin Metropolis….or Thirty Years of the Tabula Rasa," in S, M, L, XL, 1013.

that modifies it. They are neither entirely "nature" nor wholly "culture" but rather a hybridised third order that increasingly reflects the reality of the world. These two realms are so deeply interwoven that attempts to differentiate the natural and the cultural risks diminishing the potential of the city as the site of interface.

As a practitioner and educator in the Gulf, it is clear to me that we have not succeeded thus far in embracing and exploiting the hybridised nature of our cities. This robs us of potential to use the city as a vehicle to a greater future.

To date, Gulf cities have evolved as fragmented and multi-nucleate agglomerations where the public realm is often relegated to a perfunctory role. No doubt this has arisen partly because of the sheer speed at which most development in the Gulf has occurred. But this is by no means the only reason – a form of cultural colonialism has collided with the legacies of traditional Gulf Arab culture to bring us to this point. Just as natural and cultural systems hybridise to form contemporary cities, the evolution of the modern city as a "universal aspiration" has hybridised with traditional land ownership systems to result in the unique morphology of Gulf cities.

The two interlinked ideas of Modernism as a universal aspiration and unique land ownership systems in the Gulf resulted in a new form of urbanism in the Gulf States. It is an urbanism that has resulted in both amazing success and significant failures. The successes are demonstrated by the sheer quantum of urbanism that has been realised in the past fifteen years and the failures are embodied in the form of contextually ignorant growth which has rendered the GCC countries infamous for having the largest environmental footprints in the world.

Despite that, the Gulf cities can be rapidly transformed by examining how the landscape might be used in an instrumental way. The landscape is a potent medium to address the problems that have arisen through the traditional land ownership systems of the Gulf. It is both a malleable medium and the ecological equivalent of plasma in the human body. The landscape of our cities can and should function as the connective tissue that will capitalize on our successes and address many of our weaknesses. By doing so, we can reverse the popular image of Gulf cities as a deeply unsustainable folly. The landscape-based urbanism envisages the city as a habited constructed ecology, a hybridized fabric that weaves together urbanism and the landscape. In the context of the Gulf, it is the arid subtropical landscape underneath the surface rather than an idealized paradisiacal "Para-scape" that forms the potential matrix of the landscape urbanist fabric.[2]

2. Bolleter, "Para-Scape: Landscape Architecture in Dubai," 6.

The evolution of "Para-scape" is perhaps also a post-colonial tendency to coopt parklands replete with acres of rolling lawns that featured so strongly in modernist thought. This is not, however, the solution to the Gulf cities' challenges.

Modernism as a Universal Aspiration

The idea of the modernist aspirations of Gulf cities is also a topic which has been explored by others and warrants some exploration.

The call to arms for Modernism was personified by the poet Ezra Pound who implored the world to "Make It New!"[3] In the case of Pound's rousing demand 'It' represented all that was old and traditional. The invocation captured the projective spirit of the times where modernism and technology were seen as the savior of modern man. That sense of Modernism as the futuristic paradigm survives in Gulf Urbanism today. One only needs to quickly survey the length of Shaikh Zayed Road in Dubai, the Corniche in Abu Dhabi, or West Bay in Doha to appreciate that the popular image of Modernism as a futuristic aspiration remains potent.

The term "popular image" is used intentionally as close examination would suggest that there has been some significant departure from the ideology underpinning early modernism. There was notable intent behind the modernist movement – a departure from the staid and established paradigms of classicism to emphasize sky, land, and horizon.

The aspirations, architectural tools, and aesthetics of architecture in the Gulf reflect a superficial sense of modernism as the ideal. This has resulted in the situation where urbanism in Dubai today looks similar to the way it does in Houston (or any number of other places). And why should it not be so? Shouldn't the developing world (including the Gulf) have the same right to aspire to the standards that have held sway in the West for the last hundred years? In short, if 'we' liked it why shouldn't 'they'?

A great deal of critical energy has been expended on those questions and it represents a fundamental issue that should be dealt with. Rem Koolhaas, for one, has debated the question of modernist aspirations and whether they are something Western urban theorists can pretend to own.

More than 20 years ago, Koolhaas made a range of observations about Singapore that mirrors the recent discourse on the Gulf. In considering Singapore, Koolhaas noted that "….Almost all of Singapore is less than 30 years old…"[4] To

3. Pound, *Make It New!*

4. Koolhaas, "Singapore Songlines, Portrait of a Potemkin Metropolis….or Thirty Years of the

Koolhaas, Singapore represented "…the ideological production of the past three decades in its pure form, uncontaminated by surviving contextual remnants…"[5]

Koolhaas criticized the views of Singapore as "Disneyland with the Death Penalty" and the "Virtual City" stating that "Our refusal to read Singapore on its own terms is frivolous."[6] He proposed that the reading of Singapore as a very Western style Asian city was "a Eurocentric misreading" resulting from a belief that modernism is a purely western concept.[7]

In doing so, he cites landscape as "the new ideological medium" that potentially can return recent modernity to the contextual. A range of parallels can be drawn between Koolhaas' discourse on Singapore and the more recent discourse on Gulf Urbanism. In 2005, Fernando Donis echoed earlier criticism of Singapore by stating that "The only thing not false in Dubai is the dream."[8] He further proposed that "in Dubai the fake has reached the level of the authentic."[9] At the same time, Donis describes Dubai as the "ultimate city of globalisation" with the potential to become to this century "what New York was to the last and London to the previous."

Kirchner and Rab in 2007 provided a more balanced opinion suggesting that

> "while Dubai, like any resilient example of urbanism is an unsustainable organism it is also one that is uniquely situated to achieve its goal of becoming a global trade and tourism hub that rivals any in the world"[10]

The authors then assert that this phenomenon is part of a "collective aspiration to develop a city that functions around the year with outdoor and indoor public spaces" in an effort to "re-invent a tradition of modernity."[11]

While much emphasis was placed on Dubai as an emblem of the hubris and newness of modernity in the Gulf, Samer Bageen highlights that Dubai became "Brand Dubai" stimulating competitors in the form of Doha, Bahrain, Saudi Arabia, and Abu Dhabi.[12] These cities, according to Bageen, represented "instant

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Tabula Rasa," in S, *M, L, XL*,1011.

5. Koolhaas, "Singapore Songlines,"1011.
6. Ibid., 1013.
7. Ibid.
8. Donis, "Dubai," AA Files 53, 2005: 48.
9. Ibid., 54.
10. Kirchner and Rab, "An Arabian Night's Fantasy, and that's Ok," in *Al Manakh Volume 1*, ed. Rem Koolhaas et al., 18.
11. Ibid., 18.
12. Bageen, "Brand Dubai: The Instant City; or the Instantly Recognisable City," *International*

cities" or "cities within cities" that were developed in a competitive sense to promote real estate development.[13]

Koolhaas also revisited the topic of Modernism as a universal aspiration in the publication *Al Manakh Volume 1* in 2007. Highlighting the latent potential that Gulf Urbanism represents, Koolhaas makes the simple point that "The world is running out of places where it can start over."[14] Furthermore, Koolhaas notes that the Gulf "much like Singapore in the 1980's and China in the 1990's" has met with derision for pursuing a modernist agenda.[15]

In a context of rapid urbanization, Koolhaas implores us to "view the Gulf's ongoing transformation on its own terms" and "grasp this last chance."[16] That significant last chance does exist, and it is personified by the growth in urbanization and the exportation of Gulf Urbanism to other rapidly urbanizing places. In particular, that opportunity requires us to look at how the "universal aspirations" of modernism have met with land ownership patterns in the Gulf to create a unique form of development not cognizant of the geographic realities of the Gulf.

Gulf Urbanization, Global Climate Crisis, and Challenges for the GCC

In 2008, the world crossed the threshold where now more than 50 percent of the world's population lives in cities.[17] By 2030, around 75 percent of the world's population (approximately 5 billion people) will be living in urban settlements. If this prediction is accurate, we would need to increase the present quantum of urban environments to accommodate over 1.7 billion people in the next 17 years.[18]

This represents the crux of an important problem for 21st century Urbanism, but it continues to be largely ignored in the fast-developing regions of the world like the Gulf. That problem (and our challenge) is the increasingly difficult knot formed by increasing population growth, increasing urbanization, and the climate change crisis. Population growth is becoming one of the most significant contributors to the environmental and economic challenges facing the world in the 21st century. Despite this, the rate of urban growth in the Middle East continues

Planning Studies 12, no. 2, 173.

13. Ibid., 173.
14. Koolhaas, "Last Chance" in *Al Manakh Volume* 1, 7.
15. Ibid., 7.
16. Ibid., 7.
17. United Nations Population Fund, "State of the World Population 2007," 1.
18. Ibid., 1.

to gain momentum. Cities are spreading somewhat like cultured bacteria across our landscapes, arid or otherwise. While, as a region, the GCC has a very small population of around 45 million, that population is both young and one of the wealthiest with GDP per capita at $32,000 per annum.[19] It is also projected to grow rapidly and Markaz suggests that this growth will be about 26.7 percent by 2025.[20] This extremely rapid growth represents one of the key challenges facing an arid region with limited resources in terms of agriculture and water.

This astounding rate of growth in global and GCC populations poses significant challenges for the region and its environment. There remains an unresolved question as to whether the Gulf landscapes can even accommodate such population growth. Gulf nations like the UAE, Qatar, and Kuwait have among the largest per capita environmental footprints in the world and extremely low levels of arable land.

There are increasing pressures on arable land that include desertification from over-farming, rising sea levels, global warming and the associated increase in the incidence of drought and reduction in available agricultural land. Notably, if sea levels rise by as much as seven meters, as predicted by the Intergovernmental Panel on Climate Change, low-lying cities such as Dubai, Abu Dhabi, Doha, and Bahrain would be devastated – our instant cities would disappear. Vast tracts of land would disappear and become the sea floor further compounding the issue of land scarcity.[21] The cities of the Gulf are almost entirely coastal cities that would be decimated by any substantive sea level rise. Cities like Dubai and Abu Dhabi are particularly at risk because of their coastal locations.

Therefore, the nexus of population growth, urbanization and climate change means that some deeply considered solutions grounded in the landscape of our cities are needed if we hope to accommodate the many millions of people who will live in the new Gulf urban landscapes. In addition to questions like food security, these solutions will need to address potentially crippling problems like rising sea levels, the increasing salinity of the Gulf, continuing habitat destruction of coastal and terrestrial ecosystems, rapid draw-down of groundwater, and social inequality.

In this sense, the operation of Gulf cities as interfaces between the ecological matrix and the hybridized urban fabric will be increasingly important. It also necessitates an urgent response from urban planning authorities and design

19. Kuwait Financial Centre "Markaz," "GCC Demographic Shift: Intergenerational Risk-Transfer at Play."

20. Ibid., 6.

21. Specific reference is drawn from the website http://flood.firetree.net/ which provides visual estimations of the impact that sea level rise would have (accessed on February 28, 2015).

professionals.

Modernism vs. Tradition – or how Gulf Urbanism Happened

A central contention in this chapter is that aspirations toward modernist development collided with traditional culture resulting in the unique morphology of Gulf cities. This warrants some explanation of the relationship between the cultural heritage of the region and the march toward modernity.

Most Gulf nationals, including the Emiratis, have a mix of Arab and Afro-Arabian ethnicities. This is largely a legacy of very porous or non-existent borders leading up to statehood and the formation of the Trucial States in the 1970s.

Importantly, regardless of appearance or ethnicity the local population is tribal in origin.[22] This should not be taken to mean that every Emirati is descended from the Bedouin of the Arabian desert but rather that tribal forms of existence lie at the core of both nomadic and settled communities.

The tribe was the genealogical building block of communities in the Gulf and most national householders still have a tribal name. This name could be relatively generic such as 'Ameri' or it could be related to the forebear of numerous generations back who is considered the patron of many groups of families (such as Al Rashidi or Bani Yas).[23] Accordingly a person's individual existence is embedded within this group. In the past, this was strongly related to the method of tribal habitation but it remains true today, and many Gulf nationals retain their identity within a tribal group. The members of the tribal group have a responsibility to provide support and protection to one another. In pre-modern times within the tribe, the individual head of the family was bound by obligations of mutual assistance and the concept of joint honor to his immediate blood relatives. This is reflected in a strong preference for marriages between family groups and often marriage is between cousins.[24]

This basic family structure resulted in strong identity with tribe and the geographic place occupied by the tribe. In most cases, these tribes formed a part of larger groups (represented by the Shaikhdoms such as the Al-Maktoums in Dubai, the Al-Nayhans in Abu Dhabi and the Al-Thanis in Qatar). A bond existed in these groupings for shared purposes such as defence of geographic organization.

22. Heard-Bey, "The Tribal Society of the UAE and its Traditional Economy" in *United Arab Emirates: A New Perspective,* 98.

23. Ibid., 98.

24. Ibid., 99.

Geographically, these were also often clustered around sources of water or oases that formed the basis of a community's food needs.

Often the tribes also had a primary economic source that was tied to its geographic location. Typically this included fishing and pearling, besides agriculture for communities clustered around oases – often inland and located in mountainous regions near sources of water. Many tribal communities also had mountain retreats which would be used during summers to mitigate the harsh conditions. Starting with the pearling boom, waves of urbanization brought many tribes together in coastal towns where they lived in enclaves whose natural outcome was the formation of Emirates ruled by a royal family. As sources of wealth diversified into hydrocarbons and trade, that social structure became the base of the urban environment and the means by which land and wealth was distributed.

This is a rough summary of the advent of tribal societies in the Gulf; it is, nonetheless, instructive as a basis for understanding the urbanization that occurred in the Gulf States. It created a land ownership pattern where vast landholdings were communally owned. At the wider level, land was held by the clan leaders, and at a lower tier, medium-sized tribal-level family groups held landholdings. As prosperity increased in the Gulf, these tribal structures also formed the basis of wealth distribution. The tribal hierarchy established in traditional settlements created shared clan interests. When hydrocarbons were nationalized in the 20th century, the ruling classes wisely chose to share the wealth (and a series of landholdings) with those tribal groups within their wider social clan.

Communal distribution of wealth occurred concurrently with a philosophical shift in Dubai where the government role shifted from "government as a planner" to "government as a developer" (since mirrored in many other Gulf nations).[25] While not without precedent – Singapore, for example, was a prototypical example through its Government Investment Corporation – it was significant in that entailed bringing extensive fiscal resources drawn from hydrocarbon profits to a speculative development market.

In retrospect, this shift could also be regarded as one of the precursors to the form of fragmented development that has evolved in the Gulf. Particularly after the 9/11 terrorist attacks in New York, the hydrocarbon investment funds that were previously invested in markets such as North America and Europe sought investment opportunities that were more open to Middle Eastern investors. It is this opportunity that Dubai sought to capitalize on. Through formation of

25. Bageen, "Brand Dubai," 177.

government-linked companies such as Emaar, Nakheel, and Dubai Properties, the investment funds found a vehicle to support the grandiose visions of turning Dubai into a spectacle of global proportions. This is best represented by developments such as the'7-star' Burj Al Arab hotel and the Palm in Dubai. With these stupendous creations firmly established, the members of the wider tribal clans sought to capitalize on the opportunities with their own development plans for family-owned tracts of land. Often this would also be combined with the government-as-developer model to result in developments of stupendous proportions.

For example, the vast tract of inland area of Dubai that was known as the Bawadi development was used for such spectacle-based speculative urban development. This was manifest in the Bawadi "Dubailand" development – a 10 km long stretch of inland desert planned to be lined with a Las Vegas-like collection of the world's largest hotels, convention centers, and theme parks. When announced in 2003, Dubailand was one of the most ambitious leisure developments ever proposed anywhere in the world costing $64.3 billion.[26] On an area of 278 km2, it was expected to have 45 mega projects and 200 sub projects.[27] It was designed as the largest theme/amusement park in the world with the expectation that its sheer scale would attract people. The project was funded as a series of smaller joint ventures between the government-owned developer Tatweer and prominent families such as the Al Ghurair family.[28]

This development was followed by a series of others that, in a concert of oneupmanship, sought to outdo the next. The result was a series of satellite cities-within-cities including Downtown Dubai, Dubai Marina, Jumeirah Lakes Towers District, Internet City, Knowledge Village, Media City, International Media Production City, Humanitarian City, Mohammed bin Rashid City, Motor City, and Dubai Outlet City. Perhaps the paramount expression of this trend was the Falcon City of Wonders development in Dubai that married Modernist towers, suburban idylls from various regions, and copies of architectural icons such as the Colosseum, the Taj Mahal, the Eiffel Tower and the Pyramids of Egypt.

As in Falcon City, the form of these "cities" conformed to the modernist ideal of gleaming towers surrounded by a passive green mantle. These were quickly complemented by a variety of American-style suburban villa developments. These developments as a conglomeration are shown in the maps that follow.

26. "Dubailand," http://en.wikipedia.org/wiki/Dubailand.

27. "Dubailand" Property Developments, TEN Real Estate

28. "Bawadi Design Concept Completely Revised", Emirates 24/7.

Spreading to the surrounding Emirates and neighbouring countries, "Brand Dubai" resulted in an overwhelming glut of themed developments. Abu Dhabi, for one, followed in Dubai's footsteps with Saadiyat Island (a museum and culture led development where Guggenheim, Louvre, National History Museum, and Maritime Museums were centerpieces); Al Raha Beach development incorporating a 10km stretch of coastal land intended to accommodate 120,000 residents; Masdar City – "the zero carbon city" covering six square kilometres adjacent to the Abu Dhabi Airport; Reem Island Central Business District; and the Sowwah Square Business District.[29]

Bahrain and Qatar also followed suit with theme developments like the Pearl, Lusail, and Education City in Qatar and Durrat Al Bahrain, Bahrain Bay, and Royal Arabian developments.[30] The hubris and spectacle created by this series of developments gained widespread global attention and revealed a new urban morphology that confounded contemporary theory.

Morphology of the Gulf City

The architect Cedric Price famously attempted to describe the urban morphologies of the world using the analogy of an egg – a hard-boiled egg for the walled citadel of the Middle Ages, the fried egg representing the Industrial Revolution city that spread out along rail lines, and the scrambled egg model of the modernist city where everything is distributed evenly.[31]

If we were to describe 21st century Gulf Urbanism, how would it appear to Price? Would it represent a new "egg paradigm"? Would 21st century Gulf cities be best represented by an "array of scrambled eggs" city with each developer aiming to create his own urban simulacra? Of course, this is an analogy and does not necessarily reflect the value or otherwise of the model. The analogy of eggs scattered (or broken) in a seemingly accidental array is perhaps unfairly suggestive of an error. As Koolhaas and others have pointed out, refusing to accept the validity of the situation is frivolous. Whether it is in relation to contexts in the Gulf, Shanghai, or Baku, the model of a multi-nucleate urbanism populated by modernist and suburban idylls must be accepted on its merits.

By the same token, it must be acknowledged that the global financial crisis of 2008-2009 seems to have put a temporary end to the phenomenon of hubris.

29. Bageen, "Brand Dubai," 185.

30. Ibid., 184-185.

31. Shane, "The Emergence of Landscape Urbanism" in *The Landscape Urbanism Reader*, 63.

The financial carnage of the crisis gave rise to the question whether the era of the urban spectacle had ended and whether future paradigms of urban development in the Gulf would follow the multi-nucleate model. Perhaps, more importantly, the moment of pause delivered by the crisis raised serious questions about the role of the neglected interstitial space of our "Instant Cities." Contemporary urban theory may potentially provide an answer to some of these questions.

Contemporary Theory – Positioning Landscape as the Medium of Interface for Gulf Cities

The challenge formed by rapid urbanization, the climate change crisis, and Modernist development in the Gulf should be examined more deeply, particularly in relation to the emerging discourse on cities. Over the last decade, the period generally corresponding to the height of Gulf Urbanism's rise to global consciousness, a significant shift has occurred in contemporary theories of urbanism. It has come to include a series of ideological models with both ecological and landscape objectives at their core. Those theories include Landscape Urbanism, Ecological Urbanism, Metabolic Urbanisation, New Urbanism, and Smart Growth.

If we are to explore the potential for future modes of Gulf Urbanism put forward in those ideological positions, we must examine the idea of the landscape as a medium of exchange. Paradoxically, however, landscape architecture and ecology could be characterized as having played a very superficial role in the formal development of urban planning in the Gulf. The urban landscape of the Gulf was an often forgotten afterthought relied upon for post-rationalizing and masking urban environments in cities like Dubai, Doha, and Abu Dhabi.

This rejection of landscape as a system that supports the urban environment is a theme which has been explored widely. As Carson[32] and Whiston-Spirn[33] hypothesized, modern urbanism patently ignored the landscape and its ecological processes, and this has led to the environmental crisis that we face today. Progressively, however, the duality of landscape and urbanism has begun to dissolve. As outlined by Read:

> "The city is no longer something we can understand as architecture, as a mass of formed material that we can distinguish from a non-material void which can be characterised as countryside or periphery – or as in any event 'not-

32. Carson, "Silent Spring."

33. Whiston-Spirn, "The Granite Garden: Urban Nature and Human Design.

city'…" [34]

This has resulted in the characterization of the city as a kind of self-organizing organism where "we have unleashed a creature of its own volition – an order of another nature constructing its own form."[35] This reading outlines the view that the city has become a self-organizing process beyond our control, subverting the very idea of urban planning.

This is aligned with Haraway's characterization of the city as a cyborg, "a hybrid of machine and organism, a creature of social reality as well as a creature of fiction."[36] Recently, Swyngedouw has elaborated on this concept of "metabolic urbanization" where he argues that:

> "cities are constituted through dense networks of interwoven socio-ecological processes that are simultaneously human, physical, discursive, cultural, material and organic."[37]

Nowhere has this become more pronounced than in the developing world where the majority of world's human population resides. Places like Beijing, Hong Kong, Tokyo, Taipei, Mumbai, and Dubai are developing in ways we have failed to properly understand or acknowledge. Multi-nucleate and seemingly self-organizing growth has overwhelmed conventional urban planning models, which are proving inadequate.

As a group of ideas, these proposals have coalesced into a series of coherent models that represent a contemporary theory of cities. The discourse relating to Landscape Urbanism, for example, essentially seeks to define cities by promoting the landscape as the predominant medium of city-building.

Richard Weller has defined Landscape Urbanism as an ideological model which broadly seeks to:

- "align itself with contemporary scientific paradigms of nature as a complex self-organising system, conceptualise, interpret and directly engage the city as a hybrid ecology
- include within the purview of design all that is in the landscape – infrastructure

34. Read, "Thickening the Surface - or, What is an 'Ecological Landscape' Exactly?" *Kerb RMIT Journal of Landscape Architecture,* 8.
35. Ibid.
36. Harraway, "Simians, Cyborgs and Women: The Reinvention of Nature," 149.
37. Swyngedouw, "Metabolic Urbanization: The Making of Cyborg Cities" in *In the Nature of Cities - Urban Political Ecology and the Politics of Urban Metabolism,* 21.

and buildings etc. and do this at scales which bridge the divide between landscape design, landscape ecology and landscape planning.

- Experiment creatively with computer driven methods of mapping social and ecological forces which effect a given site so as to get closer to the complex dynamics of the landscape
- Emphasise the creative and time–developmental agency of ecology in the formation of urban life as opposed to envisaging an ideal equilibrium between culture and nature
- Aim for structural efficacy and instrumentality by design
- Both site and program are apprehended as creative subjects and opportunities but generally creativity is placed in a rational understanding of site forces not the designer's subjectivity.
- To foreground the landscape as the ultimate system to which all goes and from which all comes, a template for urbanism"[38]

Landscape Urbanism takes a realistic approach to the problems of the contemporary metropolis and the hinterlands that sustain it as a socio-ecological unit. It does not focus on garden design or landscape as paradisiacal scenery characterized as Gulf 'Para-scape' by Julian Bolleter. Rather it employs new design methodologies that extrapolate biophysical data so as to better understand and respond to the cultural and ecological conditions of the post-modern society.

As implied by its title, Landscape Urbanism specifically rejects the duality of landscape and urbanism that has commonly been employed. Rather than seeing the city as an unnatural machine to be carefully placed within the landscape so that a form of pure nature can be redeemed, Landscape Urbanists see "the city and the landscape, its cultures and ecologies as hybridized and all at once natural, all subject to design and evolution."[39]

Corner (2005) has elaborated on the ethos of Landscape Urbanism suggesting that:

> "The aim is to mobilise landscape's conceptual scope; its capacity to theorise sites, territories, ecosystems, networks and infrastructures, and to organise large urban fields. In particular, thematics of organisation, dynamic interaction, ecology and technique point to a looser, emergent urbanism, more akin to the

38. Weller, "Global Theory, Local Practice: Landscape Urbanism at UWA," *Kerb* 15 (2007).
39. Ibid., 4.

real complexity of cities and offering an alternative to the rigid mechanisms of centralist planning."

In 2010, Harvard University published a compendium of essays under the title "Ecological Urbanism." This weighty tome follows on from a range of publications focussing on the ideas referred to as Landscape Urbanism and Metabolic Urbanisation. In broad terms, the book challenges the current paradigms of sustainability and strongly advocates the embrace of large-scale master planning that facilitates sustainable development. It also appeals to environmental designers to treat urban environments as living, biologically functioning synthetic landscapes rather than continuing the false duality of urban/landscape.

As outlined by Charles Waldheim in his essay in the book Ecological Urbanism, the term is "both a critique of and continuation by other terms of the discourse of landscape urbanism."[40] Waldheim continues on to suggest that ecological urbanism aims to "render that dated discourse more specific to ecological, economic and social conditions of the contemporary city."[41]

While landscape urbanism and ecological urbanism have many common objectives, Mostafavi highlights a distinction tied to Guttari's conception of "Three Ecologies" as a "profound yet concise manifestation of relational and holistic approach to our understanding of ecological issues."[42] That distinction proposes the acceptance of three ecological registers of "environment, social relations and human subjectivity" in which the primary differentiator between landscape and ecological urbanism is the social dimension of ecology.[43] In broad terms, the publication argues for sustainable design that deals with "the larger infrastructure of the territory of our cities" rather than the limited scope of the architectural object.[44]

With specific regard to the Gulf, Mostafavi singles out that the traditions in Islamic cities "did not result in a singular and identifiable pattern of urban development." On the other hand, he contends that they were "highly dependent on variable local contingencies such as climate and materials." He adds that the Gulf region today is particularly guilty of fetishizing the object, which "compares

40. Waldheim, "Weak Work: Andrea Branzi's "Weak Metropolis" and the Projective Potential of an "Ecological Urbanism" in *Ecological Urbanism* edited by Mohsen Mostafavi and Gareth Doherty.

41. Ibid.

42. Mostafavi, "Why Ecological Urbanism? Why Now?" in *Ecological Urbanism* edited by Mohsen Mostafavi and Gareth Doherty.

43. Ibid., 23.

44. Ibid., 12.

unfavourably to the principles and sensibilities of earlier traditions."[45]

Mostafavi uses this example as a reason to argue for an ecological urbanism that does not take the form of "fixed rules but promote a series of flexible principles that can be adapted." He specifically aims to avoid the use of "an imposed, imported form of planning."[46]

While these "synthetic ecology" models deal well with the generic cityscapes of modernist morphologies, a number of other ideological models have evolved in relation to suburban paradigms of growth. These include "smart growth," "new urbanism" and "green urbanism" which may also be regarded as an attempt to re-humanise modernist ideals of urban development. Given the profusion of suburban models in the Gulf, it is necessary to engage with this aspect of contemporary theory.

The smart growth movement hopes to resolve the sprawl debates by seeking "economic growth that consciously seeks to avoid wastefulness and damage to the environment and communities."[47] According to Arthur C. Nelson, smart growth is about conserving open space, limiting sprawl, compacting mixed use development, revitalizing old centers, enhancing public transport networks, and equitably sharing development costs.[48] In broad terms, these objectives are aligned to the idea of cityscapes viewed as socio-ecological networks where environment and society are promoted.

Nelson makes clear the smart growth connections to landscape and ecological urbanism when he describes it as "a systems approach to environmental planning – shifting from development orientation to basins or ecosystems planning."[49]

New urbanism, in contrast, exists largely as a reaction against the failings of the Congrès International d'Architecture Moderne (CIAM 1928-1953). New urbanism has become eminently well understood as a global concept and is now the primary international and highly marketable force in contemporary suburban planning. Part of its great appeal has been that it offers a clear and simple manifesto. The Congress for the New Urbanism Manifesto states that it:

> "views disinvestment in central cities, the spread of placeless sprawl, increasing separation by race and income, environmental deterioration, loss

45. Ibid., 40.
46. Ibid., 44.
47. Gillham, "The Limitless City: A Primer on the Urban Sprawl Debate," 158.
48. Nelson, "How Do We Know Smart Growth When We See It," in *Smart Growth Form and Consequences,* edited by Terry S. Szold and Armando Carbonell, 86-88.
49. Ibid., 88-89.

> of agricultural lands and wilderness, and the erosion of society's built heritage as one interrelated community-building challenge."

The New Urbanism theory places particular emphasis on the values of landscape and natural amenities. It requires that they not only be retained but celebrated, that trees be saved and topography respected. In a measure reminiscent of early ecological urbanist agendas, new urbanism argues for large areas of open space to be set aside and made to link into larger open space systems and natural reserves. As an easily digestible manifesto with a superficially attractive appeal, New Urbanism has had a significant influence on developments within the Gulf region too – particularly because it is something that can be regarded as a form of universal aspiration.[50]

One variant of New Urbanism that has sought to align itself with concepts of landscape urbanism is what has come to be known as "green urbanism" and "green infrastructure." Consistent with the premise of landscape urbanism, green urbanism prioritises the suburban landscape which incorporates:

> "a vision for protecting, restoring and interconnecting urban ecological infrastructure; multifunctional green networks at every planning scale – the metropolitan area, the city, and the neighbourhood; a research community and citizenry that understand the city's ecosystem."[51]

The contemporary theories mapped out briefly in this section provide an alternative to the modernist and suburban ideals that have become the dominant paradigm for development in both the developed and developing worlds. They have begun to challenge the modernism paradigm but remain to a significant degree unconventional, particularly in the developing regions like the Gulf. This may explain to a degree why it is that city morphology in the Gulf has not yet reflected these ideas.

Seeing through the Mirage – What Comes Next?

If we can regard the realized pre-2008 urban landscape in the Gulf as an unsustainable "mirage," what is it that we will see when the heat haze disappears?

Through the lens of a series of Gulf projects, I would like to explore that query

50. Duany, Plater-Zyberk, and Speck, *Suburban Nation - the Rise of Sprawl and the Decline of the American Dream,* 246.

51. Girling and Kellett, *Skinny Streets and Green Neighbourhoods: Design for Environment and Community,* 146.

and, though I do not have a definitive answer, I propose a number of trajectories which seem to be emerging.

Prior to the onset of the global financial crisis, a trajectory had emerged in developments in the Gulf relating to more sustainable forms of urbanism. These included developments such as Masdar City, Abu Dhabi (reputedly the world's first zero-carbon city); Xeritown, Dubailand, Dubai, a desert community designed as a parametric response to the desert condition and strongly shaped by the desert landscape; Mshreib Development, Doha, an infill development within the existing urban fabric of Doha comprising the largest collection of LEED Gold buildings in the world; and Education City, Doha, a university and research campus where each building in the campus attains a minimum LEED Gold Standard.

These developments have become emblematic of a new, more vernacular and less spectacular type of urbanism. All of these developments exist within the multi-nucleate urban morphology of their host cities and yet realized substantially different urban forms that departed from the hubris-filled spectacles that abounded before the financial crisis.

Can we take this to mean that a fundamental shift has occurred in Gulf Urbanism? Or is this merely the death throes of a different kind of real estate spectacle? Did the spectacle of sustainability simply replace the spectacle of entertainment largesse? It could be concluded that a new and more interesting paradigm has replaced the "universal aspirations" to modernist development.

On the other side of the spectrum, the year 2013 saw the re-emergence of mega developments in places like Dubai. The Mohammed bin Rashid City development announced by Dubai's Ruler Shaikh Mohammed bin Rashid Al Maktoum in November 2012 is one example. According to news reports, the complex is to include major theme parks, the world's largest mall, and the largest area for art galleries in the region. Once again the lexicon of "largest," "entertainment" and superlatives of largesse are creeping into property development again.

This leaves open the question of what type of development are we likely to see in the near future and how we might begin to improve on the morphology of the Gulf city. In an attempt to answer this question, I will outline some of the recent work that I have been involved in at the urban level. In all cases, these were projects which worked within the overall model of the "Scattered-Egg City." We aggressively pursued objectives of attaining ambitious sustainability goals through hybridized landscapes, creating vibrant urban settings that were comfortable for users and commercially sensible and, wherever possible, lower-cost than the conventional development.

At a 113ha site planned as a Science and Technology Park, we aggressively pursued a Landscape Urbanist agenda looking to frame the development through a series of public open spaces that were variously used for wastewater treatment, energy generation, saline environment research, sustainable stormwater detention and slow release, on-site building material harvesting and on-site biofuel generation. In terms of the built form, buildings were arranged in clusters that responded to the solar exposure and prevailing winds on the site to maximize outdoor thermal comfort and minimize the propensity to drive within the campus. A range of additional measures for the future buildings in the campus were incorporated to ensure that all buildings would achieve at least LEED Gold standards.

In a separate project, on a remote 220ha coastal site in the Western Region of Abu Dhabi, we designed a residential community for approximately 3,000 homes and associated facilities with the aim once again of facilitating a comfortable community that responded positively to its site. Steps we took included phytoremediation of all of wastewater on site and reuse of the wastewater to cater for all irrigation demand, use of excess treated wastewater to create a restored mangrove ecosystem, and use of saline water to create low-energy public water play elements. In terms of the built form, buildings were oriented to strongly respond to the solar exposure and prevailing winds on the site to maximize outdoor thermal comfort through a number of interventions.

In both instances, the sustainability measures embedded in our Landscape Urbanist inspired approaches reduced the cost of development by about Dh60,000,000 to Dh200,000,000. Quite rightly this was something we were proud of. Rather disappointingly, in both instances most of the key sustainability and landscape-based measures were omitted due to uncertainty about the use of unconventional systems.

Does this then represent the likely outcomes for the Gulf in future? Good intentions ultimately undone? Potential Synthetic Urban Ecologies unrealized due to a fear of the unknown?

We continue to optimistically pursue the objectives of framing urban developments around Synthetic Urban Ecologies. In a recent proposal for a series of economic free zones forming an "aerotropolis," we collaborated with Stoss Landscape Urbanism in Boston on a master plan for the zone. The proposals involved approximately 1,000 hectares of land, which was in four disconnected parcels. The ideology that drove the master plan was that the landscape itself would bind the elements and form a biologically functioning landscape circuit that included algae biofuel fields, new mangrove ecologies, seawater greenhouses,

native tree plantations, agricultural fields, passive desalination, and salt harvesting fields. The element connecting the disparate areas was the landscape and it served as the structure and the identity of the master plan. The scheme draws the landscape between the parcels into the master plan as the defining element of the project.

In the Dubai Design District master plan, we conceptualized the site as an artificial landscape and ecologically designed it around a matrix of mangrove and creek landscapes that functioned as water recycling systems. The primary open spaces running through the development were conceived of as wetland fingers that stored and treated wastewater in the landscape for later use in irrigation. In addition, the entire urban quarter was formally designed as a cohesive landscape megaform where masses were unified and all rooftops activated with roof gardens so as to function as elevated habitats.

We have also actively pursued similar themes in a number of academic studios in which we were involved. This included the Dubai 8% Studio by the University of Western Australia Landscape Architecture Graduating Class of 2009 where a public open space system was used as a means to address many of the city's shortcomings. Most schemes redirected the propensity towards "Para-scape" into agricultural and ecological systems that worked positively for the city rather than consuming precious water needlessly.

Another studio for Al Ittihad Park by the graduating class of the American University of Sharjah of 2012 also pursued a vision of how the creation of biologically functioning synthetic landscapes in our cities can work to address ecological, urban design, and social goals by casting the landscape as an interface. Intentionally exploring the ideology of Ecological Urbanism, the studio explored oyster ecologies, reed beds, mangroves and layered landscapes that acted as connective urban tissue.

While this work is by no means conclusive, through this essay and our ongoing work, we (and others) endeavor to define a future urbanism that is flexible and can integrate multi-nucleate environments through a strong engagement with the local landscape and climate. In doing so, we aim to realize Gulf cities that are portals of alternate realities. These alternate realities are not limited by modernist aspirations, but rather seize hedonistic goals and combine them with environmental initiatives to serve a globally relevant purpose.

As a series of cities governed by wealthy and powerful visionaries, this is precisely what we see as the potential for Gulf cities. There indeed remain far too few places where we "can start over" towards the goal of creating alternate realities. Our opportunity lies in redefining global urbanism through experiments in the Gulf.

References

Bageen, Samer. 2007. "Brand Dubai: The Instant City; or the Instantly Recognisable City." *International Planning Studies* 12, no. 2 (May): 173-197.

"Bawadi Design Concept Completely Revised." Emirates 24/7, May 7, 2008, http://www.emirates247.com/eb247/companies-markets/travel-hospitality/bawadi-design-concept-completely-revised-2008-05-07-1.226907 (accessed on February 28, 2015)

Bolleter, Julian. 2009. "Para-Scape: Landscape Architecture in Dubai." *Journal of Landscape Architecture,* 6-19.

Boyarsky, Nicholas. 2003. "Introduction: Dirty Cities." In *Urban Flashes Asia: New Architecture and Urbanism in Asia,* edited by Nicholas Boyarsky and Peter Lang. London: Wiley.

Carson, Rachel. 1962. *Silent Spring.* New York: Houghton Mifflin.

Chi, Ti-Nan. 2003. "Introduction: Micro-Urbanism." In *Urban Flashes Asia: New Architecture and Urbanism in Asia,* edited by Nicholas Boyarsky and Peter Lang. London: Wiley.

Cliggett, L. 2001. "Carrying Capacity's New Guise: Folk Models for Public Debate and Longitudinal Study of Environmental Change." *Africa Today* 48, no. 1.

Corner, James. 2005. "Lansdcape Urbanism." In *Landscape Urbanism: The Machinic Landscape,* edited by Mohsen Mostafavi and Najile Ciro, 58-62. London: Architectural Association.

Donis, Fernando. 2005. "Dubai." *AA Files* 53: 48-55.

George, Martine. 2007. *State of the World Population 2007.* United Nations Population Fund, New York: United Nations Population Fund.

Guiterrez, Laurent, and Valérie Portefaix. 2003. "Pearl River Delta: Lean Planning, Thin Patterns." In *Urban Flashes Asia: New Architecture and Urbanism in Asia,* edited by Nicholas Boyarsky and Peter Lang. London: Wiley.

Harraway, Donna. 1991. *Simians, Cyborgs and Women: The Reinvention of Nature.* New York/ London: Routledge/Free Association Books.

Helsel, Sand. 2004. *Taipei Operations.* Taipei: Human Environment Group.

Hemmi, Hirohisa. 2003. "Anarchy and Beyond: An Interview with Kazuo Shinohara." In *Urban Flashes Asia: New Architecture and Urbanism in Asia,* edited by Nicholas Boyarsky and Peter Lang. London: Wiley.

Koolhaas, Rem. 1995. *S, M, L, XL.* New York: Monacelli Press.

Koolhaas, Rem, Ole Bourman, and Mark Wigley. 2007. *Al Manakh.* Vol. 12. New York: Archis.

Kuwait Financial Centre "Markaz." 2012 *GCC Demographic Shift: Intergenerational Risk-Transfer at Play.* Demographic Analysis, Markaz.

Lim, L. 2007. "Singapore Gearing for a Population of 6.5 Million." *The Straits Times,* February 10.

Lomborg, Bjorn. 2001. *The Skeptical Environmentalist: Measuring the Real State of the World.* London: Cambridge University Press.

Malthus, Thomas Robert. 1798. *An Essay on the Principle of Population.* London: J Johnson.

Meadows, Donella H., Dennis L. Meadows, J. Randers, and William W. Behrens III. 1972. *The Limits to Growth.* London: Universe Books.

Parry, M. L., O. F. Canziani, J. P. Palutikof, P. J. van der Linden, and C. E. Hanson. 2007. *Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007.* Cambridge: Cambridge University Press.

Population Division, Department of Economic and Social Affairs, United Nations Secretariat. 1999. "The World at Six Billion." http://www.un.org/esa/population/publications/sixbillion/sixbillion.htm (accessed April 28, 2011).

Pound, Ezra. 1934. *Make It New!* London: Faber and Faber.

Read, Stephen. 2007. "Thickening the Surface: or, What Is An 'Ecological Landscape' Exactly?" Edited by Claire Martin, Steph Kerr Andy Miller. *Kerb RMIT Journal of Landscape Architecture* (RMIT), no. 15 : 8-13.

Swyngedouw, Eric. 2006. "Metabolic Urbanisation - The Making of Cyborg Cities." *In the Nature of Cities - Urban Political Ecology and the Politics of Urban Metabolism,* edited by M. Kaika and E. Swyngedouw, N. Heynen, 21-40. London: Routledge.

Tsukamoto, Yoshharu. 2003. "What is Made in Tokyo?" In *Urban Flashes Asia:New Architecture and Urbanism in Asia,* edited by Nicholas Boyarsky and Peter Lang. Wiley.

United Nations, Department of Economic and Social Affairs, Population Division. 2007. *World Population Prospects; The 2006 Revision.* New York: United Nations.

Waldheim, Charles. 2010. "Weak Work: Andrea Branzi's "Weak Metropolis" and the Projective Potential of an "Ecological Urbanism"." In *Ecological Urbanism, edited* by Mohsen Mostafavi and Gareth Doherty, 115-121. Baden: Lars Muller Publishing.

Watanabe, Makoto Sei. 2002. *Induction Design.* Birkhauser.

Weller, Richard J. 2007. "Global Theory, Local Practice: Landscape Urbanism at UWA." *Kerb 15* (RMIT) 15.

Whiston-Spirn, Anne. 1984. *The Granite Garden, Urban Nature and Human Design.* New York: Basic Books.

– 1998. *The Language of Landscape.* Boston: Yale University Press.

4.3

Bahrain: On History, Coastlines, Renders, and the Image of Public Space

Noura Al Sayeh

Introduction

> *"The brilliant blue and green waters, studded with white sails, which surround the islands provide the people of Bahrain with fish, caught from boats and in traps, fresh water from submarine springs, coral stone for buildings and the pearls which made Bahrain so important in the past. The coastal towns have an attractive appearance. Manama's waterfront is lined with high white houses and beyond the town date gardens extend in an unbroken line down to the water's edge. Roads in the northern part of Bahrain pass through avenues of tall and stately date palms, bearing great bunches of golden red and yellow fruit during the summer months. The south of the island is a miniature desert and in the foothills around the Jebal there are many little wadis which after the rainy season are bright with desert flowers and shrubs."*[1]

The traveler arriving to Bahrain today would have great difficulty in recognizing Charles Belgrave's description of the island in the 1970s. In less than 40 years, the landscape has transformed coastal villages, palm tree plantations, and virgin desert.

1. Belgrave, *Welcome to Bahrain.* Charles Belgrave was the advisor to the rulers of Bahrain from 1926 until 1957. Among his many achievements in Bahrain, Belgrave was responsible for the establishment of a system of civil and criminal courts, a functioning and well trained police service, general and widely available education, municipal authorities and political support for the exploration of oil.

Extensive urban sprawl has replaced much of the natural heritage and transformed, through extensive land reclamation, a significant part of the natural coastline. The historical city centers of Manama and Muharraq have been much remodeled and although the general urban mass remains the same, most of the architectural legacy has been demolished. The speed and extent of urban development has been made mostly at the cost of the preservation of the built and natural heritage, threatening the cultural identity of the urban fabric.

Bahrain today finds itself at a fragile tipping point. Remnants of its former glory as the Island of the Million Palm Trees can still be found, but the general trend of development continues in the direction of more corporate headquarters, more gated communities, and more malls. The island is following urban trends that have been taking shape, more or less dramatically, around the Gulf region, choosing to join the race of superlatives.

A Short History of Bahrain's Urban Development

Although Bahrain's territory is relatively small, the urban fabric is very diverse. The country is composed of a number of different and unique urban and natural conditions that coexist side by side.

The limits of each of these areas are well defined. The urban areas are located mainly on the northeastern coast of the main island; two-thirds of the country is urbanized while the remaining third to the south remains mainly devoid of urbanization. The overall density of the country is relatively high at 1,741 inhabitants/sq. km,[2] although it dissimulates disparities in local densities. The more dense areas of Manama and Muharraq as well as the planned towns of Hamad and Isa Town have a density of more than 1,000 inhabitants/sq. km, while the southeastern coastal strip has densities neighboring five inhabitants/sq. km. Although each one of those entities is autonomous and physically disconnected from one another, they do not function independently. Hamad, Isa, and Zayed Town, as well as Saar, Aali and Riffa remain bedroom communities, with the majority of their population commuting to the central areas of Manama and Muharraq to work.

Scattered between all these different urban entities, the many archaeological sites are a testimony to the rich history of the island. As the only place of continued human settlement since antiquity in the region, these sites offer yet another layer of urban form, albeit from another era. Blended accidentally into the expanding urban areas, they are constantly under the threat of further urban development.

2. World Bank, 2012 Census Report.

Socio-demographic Composition

Bahrain's socio-demographic composition differs from that of its neighboring countries in that the local population today represents just 46 percent of the total population.

Until 2001, the local population at 62 percent still outnumbered expatriates, and therefore urban development served the demographic needs of the local population rather than the economic ambitions of real estate speculation.

Unlike many of its neighboring countries, scarcity of available land in Bahrain is a recurring problem and explains the relatively high density of the country, which counts as one of the highest densities in the world. It also means that the confrontation between the needs of the local population and real estate speculation is more contentious.

With its relative small size, Bahrain could be viewed as a laboratory of the potential urban and social issues that may face its neighboring countries.

"Modernization" on Fast Track

Although the transformation of the state's social and economic life started at the beginning of the 19th century, foreign models of urbanization were first introduced to the island with the discovery of oil in the early 30s. Awali, the first planned and gated community, was created in 1934[3] to accommodate the arrival of the new expatriates in the oil industry. It was planned and built as a replica of a generic suburban American neighborhood in the midst of the desert, in close proximity to the oil fields. Isolated and detached from the traditional urban centers of Manama and Muharraq, it provided the first attempt at rapid modernization, or more precisely in recreating an imported image of western models. The first surfaced road of Bahrain was built in 1926,[4] linking Awali to the oil exploration fields of Jabel Al Dukhan. Built within an enclosed boundary wall, Awali could be perceived as an experiment in importing foreign models of urbanization that had been tested elsewhere. Soon, pockets of much the same model of planned suburban communities, built in a myriad of styles, were being built across the island, gated and de facto isolated from their immediate surroundings. They added a layer of an attempt at modernization across the island that juxtaposed with the more traditional villages and towns without integrating.

3. Al-Nabi, *The History of Land Use and Development in Bahrain,* 22.
4. Ibid., 24.

An American model of urbanization was then loosely adopted, revolving largely around the introduction of cars and the development of high-speed highways, marking a clear break with the organic structures of the traditional Islamic cities, which had flourished during the pearling era.

The pearling industry of the Gulf region, which had one of its most prominent centers of trade in the city of Muharraq in Bahrain, ended quite hastily in the 1930s as a result of three international events, which happened almost concurrently.[5] The first was the discovery of cultured pearls in Japan, which flooded the pearl market with harvested pearls and subsequently decreased the value of natural pearls. The lack of interest in natural pearls was further aggravated by the economic crisis of 1929 that decreased the market for this luxury good. And finally, the discovery of oil in the desert hinterland of Bahrain, the first country in the Gulf where oil was discovered, marked the start of a more lucrative industry, and, more importantly, a better working alternative for many Bahraini workers who had suffered the hardships of pearl diving.

Incidentally, as a result of the collapse of the pearl industry, the local population slowly but surely abandoned the coastal towns of Manama and Muharraq that had developed in a span of 40 years as a result of the burgeoning trade. The discovery of oil in the southern desert encouraged and directed urban growth towards the desert hinterland that had been previously seen as a somewhat hostile environment and a winter escape at best. Bahrain, unlike many of its neighboring countries in the Gulf, did not historically have a nomadic population that inhabited the desert. The local population was essentially composed of farmers and fishermen prior to the rise of the pearling economy and inhabited a series of around 50 coastal and agrarian villages and towns on the northern coast of the island.[6] The subsequent change of lifestyle and notable increase in revenue that the discovery of oil brought with it spurred the development of "new towns" built in the English style on virgin plots of land in the yet uninhabited southern parts of the country.

"New Towns" and Compounds, or the Planned Archipelagos

The construction of these "new towns" was directed at the emerging Bahraini middle class that was now flourishing as a result of the economic development of the country. Since the traditional urban center of Muharraq was built on an island with little room for expansion, and the rest of the island of Manama offered

5. Rudolff, *Pearling, Testimony of an Island Economy.*
6. Khuri, *Tribe and State in Bahrain.*

seemingly endless vacant land, the decision to create new towns in a tabula rasa approach rather than attempting to modernize the existing cities seemed the best option both from an economic and practical point of view. Manama, on the other hand, did expand, offering even now interesting examples of planned and integrated neighborhoods, which today are the prime target of real estate gentrification.

Following the Awali model, gated compounds were planned on privately owned lands in pockets around the country mainly in the north and northwestern coast of the country. Built to accommodate the growing number of expatriates, they were designed much like the new towns, as pockets of planning exercises, within an increasingly unplanned and chaotic urban environment.

Figure 4.3.1: Wadi Al Sail, Bahrain, 2010

© Camille Zakharia.

The relatively rapid and cumbersome planning of these "new towns" and compounds marked a rupture with the organic planning of cities and their relation to their direct environment, and ushered a new era and appetite for mid-twentieth century planning approaches or its image that is only starting to be timidly

questioned today. It consolidated the concept of "imported models of westernization" and encouraged a superficial idea of modernization that did not need to deal or integrate with the rest of the urban fabric. It was not a modernization of either/ or but an ad hoc modernity that could be developed in any place.

These urban trends continued to develop through much of the last century, reaching their peak in the last fifteen years with an unprecedented surge in construction. The real challenge remains that of coordinated and consultative urban planning and its effective implementation. In 2005, the National Planning Development Strategies embarked on the preparation of a comprehensive national master plan that would address and integrate economic, social, physical, and environmental development. The master plan would determine all land uses and zoning of planned as well as unplanned areas. In 2006, Skidmore Owings and Merril were commissioned to draw this master plan for Bahrain.

> "Following an 18-month process of research, analysis, consultation, and design, SOM submitted the Bahrain 2030 National Planning Development Strategies. The plan is the first project to inventory and propose virtually every aspect of a new national infrastructure. It exemplifies a forward-looking process designed to address the role sustainable land use development can play in guaranteeing stable, predictable, and long-term economic growth."[7]

Although the initial purpose was to direct growth to accommodate and satisfy Bahrain's changing economic landscape, it also brought to the attention of the planning authorities the fundamental importance of issues such as the creation of affordable public transportation, greening of the country, access to public waterfronts, and the protection of archeological heritage. The proposal was then discussed at several governmental and public levels, and after a series of over 300 meetings and public consultations, the SOM master plan was adapted to become the National Strategic Master Plan for Bahrain 2030. This national plan would provide the legal framework for structural planning, strategic development and investment in the Kingdom, as well as a strong framework for development control.

Although much publicized through the obligatory set of renderings and visualizations that the plan produced, several years later, little has been implemented on the ground. The master plan appeared as a retroactive plan for a situation that had been developing for around 40 years without a clear master plan.

7. www.som.com

Seemingly Endless Frontiers of Expansion – the Infinite Desert and the Never-Ending Sea

Geo-hydrographical Conditions

The specific topographical and hydrographical geography of the Bahraini islands has meant that expansion into the sea and the desert hinterland is relatively easy and economically feasible. With no apparent value given to the green hinterland or agrarian areas, the city in effect has no natural limits, beyond the territorial limits of the island, within which to grow. It can expand endlessly and reinvent itself incessantly – the desert and the sea as reclaimed land, offering perfect and seemingly infinite tabula rasa conditions.

The naturally high sand banks surrounding the northern and westerns coasts of Bahrain make reclaiming land from the sea economically feasible. In fact, land reclamation has a historical antecedent dating as far back as the 1930s on the island of Muharraq, when the city was thriving and land was becoming scarce on the small island.[8] The sea was, in essence, dried out over a period of two to three years when garbage would be deposited on the piece of sea set to become land. The sea, from then on, ceasing to be the main source of livelihood became a potential area of expansion, offering, contrary to the desert areas, the advantage of being close to the existing urban centers.

Development in the most southern desert areas, on the other hand, is more recent and only started in 2006, perhaps inspired by the desert real estate imagery that was being generated by the UAE developers.[9] The Al Areen Real Estate development was the first of such projects to use the backdrop of the desert as a marketing tool, selling the image of a nomadic-desert lifestyle. From a strictly environmental point of view, it is quite ironic that the desert was still perceived as the last hinterland, when the agricultural farms and palm groves of the northern coast along with the fishing grounds were the first to be sacrificed in the name of urban expansion and later real estate ambitions. Indeed, as early as the 19th century, a land tax system and ground water depletion caused by immigration and urban development had ushered the beginning of the disappearance of rural and agricultural hinterland.[10]

8. Belgrave, *Welcome to Bahrain.*
9. "Downtown Al Areen- Buzzing with Activity," *Gulf Weekly.*
10. Fuccaro, *Histories of City and State in the Persian Gulf.*

"Crust" Urbanism

The fact that the urban centers did not have any natural expansion borders has resulted in a situation where, until recently, the city had no pressure to increase its density within its own borders, and it could always start over elsewhere. The resulting urban fabric offers very clear demarcations of the different eras of development. Incidentally, each of these different periods of urban development corresponds to an era of economic boom and high oil prices.

The first of these successive urban development phases takes place in the late 1970s,[11] at a time of economic growth and high oil prices. This era also coincides with the independence of Bahrain and the consequent need to build the necessary government institutions. There was no place to build these large institutions within the confines of the historical urban center of Manama, and therefore they were either built on the southern outskirts of the city or on newly reclaimed land to the north of the Manama souq,[12] ushering the first expansion of Manama towards the sea.

The second phase of urban development in the 1990s resulted from the emergence of real estate development as an alternative to the oil-based economy, as the first efforts of diversification of the economy started becoming apparent. The transformation of the nature of urban development from corresponding to a demographic or functional need to a tool and interface of real estate and the market economy introduced the phase of the privatization of the coastline that became a sought-after real estate asset. From then on, urban development occurs primarily on the coastal areas of the island.

This trend continued more or less steadily until the economic crisis of 2007. The most intense development took place in the years between 2001 and 2007, leading up to the crash of the real estate market in the Gulf region. All of these successive periods of accelerated urban development are today clearly juxtaposed, each built in the prevalent architectural style of the time and faithful to the common urban and architectural trends of the respective era in which it was built.

11. Ben Hamouche, *Manama: The Metamorphosis of an Arab Gulf City.*

12. Al-Nabi, *The History of Land Use and Development in Bahrain,* 24.

Coastlines

Nowhere is the confrontation between real estate developments, its postcard imagery, and the negotiation of civic and public spaces more apparent and brutal than on the coastlines of Bahrain.

As real estate becomes the principal driving force for urban development, most of the current and future coastal developments are privatizing the coastline, making it inaccessible to most. This situation has currently reached its climax with only 8 percent of the total coastline areas of Bahrain being public.[13]

"Public open spaces were scarce. Although the Water Garden was in poor condition, Salmaniya and Andalus gardens were in a more reasonable condition. There was no organized formal public beach, but the shore was easily accessible, there were therefore no restrictions for public access to the sea."[14]

The lack of publicly accessible coastal areas is further aggravated by the general lack of public space across the country and the increasing privatization and segregation of the territory. Furthermore, the privatization of the coastlines has also made it more difficult for the local fishermen to access the sea. Although its contribution to the national GDP is marginal, this has had an important effect on socio-cultural aspects of society and the way in which it perceives and portrays itself.

In less than 50 years, society has moved from living at the rhythm and mercy of the sea to one that is nearly completely detached from it and associates itself more closely with a desert culture, aligning with the wider narrative of the Gulf region.

This can be observed through the change of imagery in the bank notes of Bahrain. The first series of bank notes issued in 1965 had, nearly exclusively, depictions of the sea or sea-related activities, whereas the latest issue of bank notes contains none, but instead shows images relating to the desert – either through the Formula One race tracks, Arabian horses, or the oil wells.[15]

13. Loughland and Zainal, *Marine Atlas of Bahrain.*
14. Al-Nabi, *The History of Land Use and Development in Bahrain,* 44.
15. Banchini and Al Sayeh, RECLAIM, Official Catalogue of Bahrain's National Participation at the 12th International Architecture Exhibition, la Biennale de Venezia.

Figure 4.3.2: Hut 22, Hidd, Bahrain, 2009

© Camille Zakharia.

The Postcard View – Coastal Real Estate Development

While the sea disappears as a cultural constituent of society, its presence as an image on billboards increases. The sea has become a template background used to increase the value of property. Sold as an image, the sea is disconnected from any use or function, and issues such as access to the coast, environmental quality of the water, and quality of the coastal public space become secondary.

The use of the sea as a background imagery for real estate projects has resulted in the fact that most of the large developments have been concentrated around a slice of coast along the northern shores of the island, leaving the rest of the urban fabric relatively empty of large-scale real estate projects. While the length of the coastline has multiplied as a result, the overall public access to the coast has only declined. Only recently, and perhaps partially instigated by the saturation of the real estate market with luxury high-end units, has the issue of public access to the sea started to be reconsidered.

For example, Deyar Al Muharraq, one of the larger reclaimed real estate developments which had originally been conceived as a mixed-use, high-end development, was restructured following the 2007 economic crisis to include a significant number of middle and low-income housing, as well as large portions of public beachfront.[16] This is now one of its bestselling points, claiming to offer the longest public beachfront on the island.

The example of Deyar Al Muharraq is one of the very few of concordance between real estate imagery and positive structural change on the ground. More often than not, the urban and architectural imagery contributes to the implementation of superficial transliterations of the projected ideas and ambitions. In a region fascinated with imagery, the images circulated and produced locally and regionally reinforce and often benefit from a longing for a neo-orientalist re-reading of the landscape and an actual redefining of the landscape to a certain extent. As the wider Arab world, the Gulf to a certain extent, and Bahrain in particular, face political turmoil and appear on international television screens, the imagery broadcast as the background of news broadcasts is also a contributing factor in the creation of a shared Middle Eastern and Gulf imagery.

"Background" or the Television Landscapes

> "Broadcast television broke all existing barriers between public and private, local and global, the living room and the world, until the viewers rather than the image became the product."[17]

Over the last two years, the increasing presence of Bahrain's landscape as part of the background imagery of political uprisings across the Arab world resulted in the fact that people who previously had no idea of what Bahrain looked like now had a mental image of it. This simple observation led to the development of the exhibit that was presented as the Bahrain national participation at the 13th International Architecture Exhibition at the Venice Biennale in 2012.

The exhibition was named "background" and was an exploration of the way in which we increasingly form an imaginary picture of remote places through their appearance as background imagery in the media. It was an attempt to explore and understand the extent to which this imagery alongside the constructed imagery of renderings and visualizations produced by the Gulf region to a certain extent, and Bahrain more specifically, was shaping a collective imagery of the country

16. Oxford Business Group, *The Report 2010.*

17. Zukin, *Landscapes of Power.*

and how and if this retroactively had any effect on planning on the ground. The exhibition layout consisted of five arched-shaped windows which projected images of seemingly random live Bahraini landscapes in the halls of the Arsenale in Venice. Obstructing the outside views onto Venice, which the windows of the space normally look onto, this overlapping of two simultaneous realities attempts to recreate, albeit in a more poetic manner, the live TV projections which have become an integral part of any breaking news media coverage. Through the live projections, the viewer felt suspended in the simultaneity of two realities for the duration of the Biennale: live reporting that lasted three months and overlapped the present of Venice with that of Bahrain.

Figure 4.3.3: Background, Venice, 2012

© Giovanna Silva.

The CCTV cameras, installed in five locations in Bahrain were diverted from their original use and manipulated to film landscapes in a beautiful way, contradicting their original purpose. To anyone who had been to Bahrain before, the installation was somehow haunting because it conveyed the atmosphere of a place - a live portrayal stripped of all the elements that normally accompany and somehow "pollute" the image.

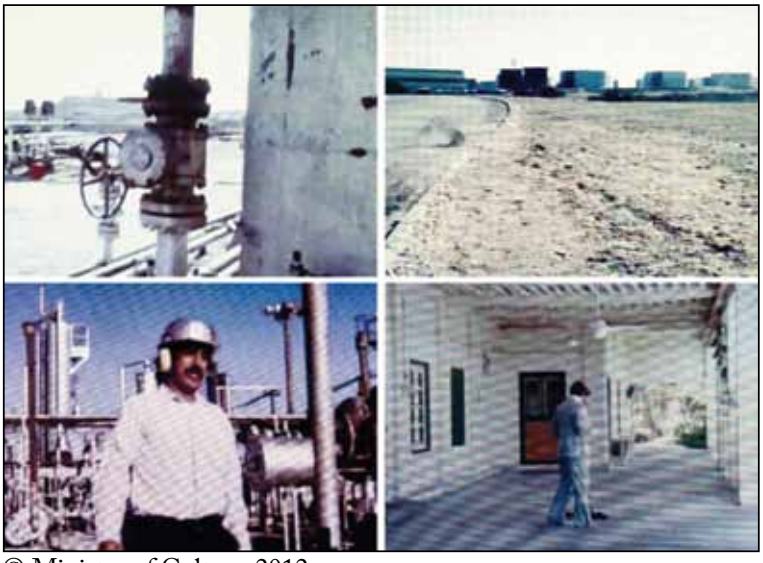
A Short History of Bahraini TV Landscapes

To understand the complex relation between image and event, it seemed relevant to compile an exhaustive catalogue of Bahraini TV landscapes from the first television broadcasts in the 1950s to the latest reporting on the fast-changing political situation, in order to base our investigation in a broader context. This was obviously made easier in the context of Bahrain because it used to seldom appear in international media coverage.

One of the first television images of Bahrain was taken in the 1950s by the BBC, at a time when British influence in the Gulf region was still omnipresent. The images that made it to the English living rooms were of an exotic Orient: *dhow* boats docked in a port, the mysterious alleyways of the *souq* and Arabs drinking tea. Although the images were quite dreamy in nature, the subject matter was less so. The bow-tied news anchor was reporting on growing discontent in Bahrain over the subject of an English advisor named Charles Belgrave, who they believed was serving British interests in the islands.

In the 1970s, television broadcasts of Bahrain revolve largely around the oil infrastructure in the southern desert region along with the modernization this new industry brings with it. The oil fields attracted foreign workers who live in enclosed pocket communities in the desert. Bahrain looks a bit like Kent complete with white picket-fence, shaded loggia and golf course – albeit on sand instead of green.

Figure 4.3.4: Bahrain's national participation at the 13th International Architecture Exhibition



© Ministry of Culture, 2012.

In 1976, it is aboard the Concorde that you land in Bahrain. You discover the airport and its accompanying emblems of modernization – international hotel chains built in the prevalent international style of the time, gas stations, and highways. For the French and British television stations, it is also the occasion to take a closer look at this curious small archipelago that welcomes the eastbound inaugural flight of this supersonic plane. That was at a time when the world was still round, and the islands still appeared to be an exotic land filled with freshwater springs, rural farms, and maze-like cities. On this occasion, you also catch a glimpse of the workings of politics and society through the chandelier-clad interiors of a royal palace.

Her Majesty Queen Elizabeth arrives by ship in 1979, and you get introduced on the same occasion to the Mina Salman Port, the first of its kind in the Gulf region. A visit from Margaret Thatcher in 1988 takes you from the red carpet of the airport to the interior of a royal palace, giving you another peek into the corridors of formalities and protocol.

In 1996, the signs of sectarian conflict and political discontent make it onto international news channels. News reports bring images of graffiti-clad walls and derelict neighborhoods and villages, but also a panoramic view of the newly inaugurated Saudi-Bahrain causeway, the first high-rises, and snapshots of Bahraini nightlife.

In 2004, Formula One is in Bahrain – images of Bahrain and its desert race track are splashed across all major news channels for a few seconds a year; the desert hinterland is back as the dominant imagery of the story. Michael Jackson sets foot in Bahrain in 2005, and his spontaneous foray to a mall makes it a tabloid story. Malls had just sprouted in Bahrain, along with large real estate projects and glass towers. For much of the noughties, this will be the background of the news – a regional ambition to move beyond an oil-based economy. Images of Bahrain resemble those of Dubai and Qatar nearby.

These are glossy images, which are in stark contrast to the ones that will make a spectacular foray onto news reports in mid-February 2011. Large-scale demonstration scenes replace twin towers, and the graffiti-clad walls and derelict neighborhoods are back as the backdrop of the story of an Arab Spring gone further east.

As opposed to the era leading to the 19th century, where travelers brought back mostly romanticized images of the faraway, today we mostly base our imaginary of remote and un-iconic landscapes through their appearance as background imagery in the media. Sometimes accidental, at other moments intentional, promotional and neatly framed, these fragments of a landscape are nonetheless unconsciously stored

in our imagination. The spontaneous appearance of these landscapes in international media, while offering a rather accidental reading of local history, contributes to the creation of a collective urban imaginary, which travels far beyond the local.

Repercussions of "Image" on Reality

The analysis of the TV landscapes of Bahrain reveal similar trends to that of the portrayal of the wider Arab world – depictions oscillate between the extremes – that of a fantasized and exotic Orient, and a landscape of war and terror. In the specific case of the Gulf countries, the portrayal is also occasionally supplemented by images of an abundance of wealth that manifests itself in the overly decorated palatial interiors, rampant modernization, urban projects and oddly-placed glass towers often set in contrast with nostalgic images of a bygone era of simple desert settlements and tight-knit whitewashed houses peppered along the virgin coastlines.

The interest lies not so much in the gap between the complexity of the reality and its simplified and partial depictions but rather in the way in which these subjective images came to redefine reality on the ground. A prime example of this can be found in the specific case of Bahrain. Today it is increasingly wrongly associated with a nomadic desert culture through its close association to neighboring Gulf States. In reality, historically Bahrain is an agrarian and fishing sedentary society believed to have even been the location of the Garden of Eden. The fact that desert-related images have more often been brought forward to the detriment of those depicting its rather lush and green agricultural heritage has led to much the same happening on the ground. Today, if you ask anyone from a younger generation, with little remaining of natural green as evidence, most will identify with desert customs and traditions as integral to their national identity.

In other cases, it is specifically the image that is brought forward and implemented on the ground – as an image. In the 1970s, at the dawn of its birth as a state, Bahrain and with it much of the Arab world, were in a rush to modernize. This modernization, however, in many cases did not go beyond the image of modernization: the concord, the modernist buildings, were maybe favored as a shortcut that unfortunately often offered the image of a modern society at the detriment of a fundamental basis for effective modernization of infrastructure and civil society.

In recent years, in a bid to reconnect with the past, efforts have started going in an opposite direction, towards the conservation of historical, architectural, and cultural heritage. Once again, much too often, it is essentially the image of tradition

that is conserved rather than the tradition itself: a few stranded dhows on the edge of reclaimed land, a staircase disguised as a wind-catcher, two lonesome palm trees on the edge of a highway. Although, the importance of conserving and protecting this heritage has become more generally accepted and understood, there is still difficulty in going beyond the conservation of the image of heritage.

In much the same way, political events do not exist in the global sphere until they have been broadcast on television and their image is palpable, which consequently has an incidence on the way these events make use of the city. What background do they choose? What symbols do they decide to make their flag bearers?

The latest change of the background scenery has brought with it many questions relating to the nature of public space in Arab countries and their link with the existing power structures.

Public Space and the Image of Public Space

Historically, public space in Islamic cities was never planned as such. It was generally conceived as the leftover space between buildings: the street, the sidewalk, or barren land. The few planned spaces of public gathering were usually of religious nature and located in front of the main mosques, where the larger public gatherings would take place following the Friday prayers. Beyond that, public space and with it public and civic life took a more informal nature. In Bahrain, the baraha is considered to be the traditional public space. A *baraha* is a transient barren land that is in a state of flux that allows it to be temporarily used as public space. Since it is not planned, it is therefore not controlled by any group, neither is it programmatically defined or aimed at a specific demographic segment of society.

As a sort of terrain-vague, it has the possibility of accommodating a variety of people and programs, even simultaneously. In recent years, with the increasing privatization of the territory and the concordant lack of government planning for public spaces, the *barahas* have proved to be a resilient and flexible platform for the development and expression of public and civic life. Randomly scattered along the increasingly urban landscape, they are in turn used for Friday morning cricket sessions by the South Asian migrant community, political rallies and campaigning in the run-up to municipal and parliament elections, wedding celebrations, and whatever other activities have no designated space in the planning of the city.

As unplanned and spontaneous spaces, *barahas* are scattered randomly across the city. More importantly, since they are unplanned they are also not controlled – belonging to the ever-diminishing sphere of spaces that can be qualified as "outside" in the naïve and pure sense of the term.

Figure 4.3.5: Bahrain's national participation at the 13th International Architecture Exhibition

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"For urban planners, open public space is both the visible symbol of local democracy, and the quintessential place for it to become action."[18]

When the protesters needed their demonstrations to become visible in international media and thus exist, they chose a space that had the appearance but not the functioning of a public space: a roundabout intersection. By appearing on television, in relation with the political protests and in association with its Egyptian counterpart, Tahrir Square (incidentally also a roundabout), the roundabout successfully became public space in the collective imaginary.

As political dynamics continue to shift within the region, it will be interesting to see how new governments in place across the region will attempt to leave their mark on the urban fabric.

18. Taipale, "From Piazza Navona to Google or from Local Public Space to Global Public Sphere."

References

Al-Nabi, Mohammed Noor. 2012. *The History of Land Use and Development in Bahrain.* Manama: Information Affairs Authority.

Banchini, Leopold, and Noura Al Sayeh. 2010. "RECLAIM," Official Catalogue of Bahrain's National Participation at the 12th International Architecture Exhibition, la Biennale de Venezia. Manama, Ministry of Culture.

Belgrave, Charles. 2009. *Welcome to Bahrain.* Manama: Sheikh Ebrahim Centre for Culture and Research.

Ben Hamouche, Mustapha. 2009. Manama: *The Metamorphosis of an Arab Gulf City.* Manama: Sheikh Ebrahim Centre for Culture and Research.

"Downtown Al Areen - Buzzing with Activity," *Gulf Weekly,* Volume 7, no. 14, April 2, 2008.

Fuccaro, Nelida. 2009. *Histories of City and State in the Persian Gulf.* Cambridge: Cambridge University Press.

Khuri, Fuad. 1980. *Tribe and State in Bahrain: The Transformation of Social and Political Authority in an Arab State.* Chicago: University of Chicago Press.

Loughland, Ronald A., Abdul Jalil M. Zainal. 2009. *Marine Atlas of Bahrain.* Manama: GEOMATEC Bahrain Centre for Studies and Research.

Oxford Business Group. 2010. *The Report 2010.*

Rudolff, Britta. 2010. *Pearling, Testimony of an Island Economy.* Nomination File for the UNESCO World Heritage List. Manama, Ministry of Culture and Information.

Taipale, Kaaren. 2006. "From Piazza Navona to Google or from Local Public Space to Global Public Sphere." Paper presented at the conference "Public Spheres and their Boundaries," University of Tampere, Finland, May 25-27.

World Bank, 2012 Census Report.

Zukin, Sharon. 1991. *Landscapes of Power.* California, University of California Press.

About the Editors

George Katodrytis is an architect involved in practice, teaching, and research. He is currently Associate Professor of Architecture at the American University of Sharjah in the United Arab Emirates (UAE). He studied and taught at the Architectural Association in London and has been a visiting professor at various schools around the world. He has worked in Paris, London, Nicosia, and Dubai. He has built a number of projects in Europe and the Middle East as well as published widely on contemporary architecture, urbanism, cultural theory, and digital media. His work addresses the 'city', especially as it is evolving in the 21st century. He employs digital technology and scripting as tools for establishing new formal and performative language and fabrication in architecture.

Sharmeen Syed is an architect and researcher engaged in the built and unbuilt environment through an independent artistic and architectural practice that revolves around the fields of urbanism, sociology of space, and cultural geography. She is also Creative Director with the UNCOMMON book project and an Associate Advisor at ArchitectEM. Syed has been a Design Architect on the Sharjah Art Foundation's Art Spaces team and a Production Architect for Sharjah Biennials 10 and 11 where her focus lay on contextualizing and executing architectural pavilions and urban interventions. She was also a researcher on the project *An Archaeology of Visual Identity: The UAE in the Formative Years (1965–1975),* a pilot research project for Sharjah Art Foundation. She has previously apprenticed with NOWAlab in

Caltagirone. Syed has presented and exhibited her work on academic and creative platforms including the Gulf Research Meeting organized by the Gulf Research Centre at the University of Cambridge UK, Asia Europe Foundation, Art Dubai Projects, and the Independent Museum of Contemporary Art in Limassol.

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Fatma Khalfani, B.Arch. MUPD, Qatar University, Architect at AEB-Arab Engineering Bureau, Doha

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Gulf Cities as Interfaces

The Cooperation Council for the Arab States of the Gulf, also known as the Gulf Cooperation Council (GCC), represents one of the most urbanized regions in the world, with an estimated 70 percent of the population residing in cities.

The GCC states have adopted strategies to balance growth and shift dependence on oil. Architecture and urbanism are seen as dynamic facilitators and flexible commodities in the network of transnational urbanisms and global capitalist forces. Cities in this region are shaped by various forces: historical, geopolitical, demographic, and topographical contexts as well as by large influxes of investments and workforce. These cities now shape 21st century urban concepts.

This volume is an exploration of specific Gulf cities as interfaces. Twenty first century cities continue to act as interfaces not only as physical spaces but also as evolving machinery and tools of capital. From food urbanism and edible landscape to modernist ideals, grandiose visions, and new orientalisms, the papers in this volume address and investigate the city in four variances: Urbanism and Identity as Interface; Landscape and Geography as Interface; Social Condition and History as Interface; and Culture and Politics as Interface.

Gulf Research Centre Cambridge
Centre of Islamic Studies
University of Cambridge
Sidgwick Avenue
Cambridge CB3 9DA, UK
E-mail: info@grc.net

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